

Tool Survey Existing and Proposed

www.leanurbanism.org

TOOL

Lean Urbanism is a way to restore common sense to the processes of development, building, starting small businesses, community engagement, and acquiring the necessary skills. The Project for Lean Urbanism is collecting and developing tools and daylighting techniques to enable and encourage those activities. This collection is the result of a survey to identify tools developed elsewhere and to track ideas for those that are needed. As tools are developed by the Project for Lean Urbanism, they will be made freely available at www.leanurbanism.org.

The categorization of tools in this The tools in each category are fur-Survey corresponds loosely with the ther grouped according to whether platforms of Lean Urbanism:

- Lean Building
- Lean Development
- Lean Regulation
- Lean Infrastructure
- Lean Business
- Lean Financing
- Lean Governing
- Lean Learning

they are ready tools, applied tools, or proposed tools.

Ready Tools are publicly available for use, but perhaps are not yet widely tested.

Applied Tools have been used and tested, some to the point where they are precedents, often created by entities outside the Lean Urbanism group.

Proposed Tools are in the process of development, or are simply ideas to address an identified need.



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Introduction

LEAN URBANISM

The Lean Urbanism was started by Andrés Duany. It has its own website at the Center for Applied Transect Studies, and supported by the John S. and James L. Knight Foundation. Stephen Mouzon has blogged a short summary of it, and about why "Lean is the New Green."

There is a lexicon of terms by Andrés Duany, Sandy Sorlien, and the Lean Urbanism online group. There are several white papers and a list of related articles publicly available.

The tools in this Survey have been categorized roughly according to the several realms listed on the Lean Urbanism website. The tools in each category are further grouped according to whether they are *ready tools*, *applied tools*, or *proposed tools*.

READY, APPLIED, AND PROPOSED TOOLS

The tools are organized into several categories. Each of those categories is subdivided into the following sub-categories:

Ready Tools: These are publicly and available for use, but perhaps are not yet widely tested.

Applied Tools: These have been used and tested, some to the point where they are precedents, often created by entities outside the Lean Urbanism group.

Proposed Tools: These are in the process of development, or are simply ideas to address an identified need.

Lean Building

These tools pertain to lean building types, methods, and resources.

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Ready: Building

The following are ready-to-use building types that can be used in the United States, at least in some capacity.

DEVELOPER IN A BOX

R. John Anderson and David Kim have produced a Developer in a Box tool. These are the general tasks that John Anderson suggested as part of that effort:

- 1. Build model projects while documenting the component parts for rookies, and the order of work. Projects should be characterized by small, incremental, development with regular repeatable building types.
- 2. Create and curate the approximately 127 essential PDFs and templates needed to develop lean projects and build lean everyday buildings. This started at the 202 session at CNU 22 in Buffalo. There has been a lot of interest from rookie developers. Strong Towns did a relevant interview (voice recording) with John Anderson, and he also has a video on Vimeo: The Dark Art of Developing Small Projects. There is also a Facebook page well-used by over 1000 small developers.
- 3. Figure out an internship/apprentice circuit so that aspiring builders and developers can work with practicing builders and developers for 4-6 months. Seeing operations on the ground with more than one developer would be best. Maybe this would be a fellowship with some foundation grant support. I think having a stream of protégés rolling through a builder or developer's shop would establish an ethos of research and development and training. Dan Camp, Bill Gietema, and Bob Chapman indicated that they needed to get a few more projects in their pipeline for their shops to be ready for folks investing their time to learn the trade.
- 4. Convene face-to-face workshops of various duration to share best practices and problems that need solutions. Online stuff like Google Hangouts, WebEx and

GoToMeeting can be helpful, but being in the same place with peers, seeing projects, and sharing food and drink are more potent. This is cheapest online, but face-to-face workshops make for better connections.

A HIERARCHY OF RESIDENTIAL BUILDING TYPES

R. John Anderson proposed a hierarchy of residential building types. We can also add trailer parks to the list. The stairstep function of cost is visible at the three minute mark in this video. John Anderson writes:

There is a range of building types that work under the frame of making small possible. Some of them are larger buildings that still provide a lot of 'small' benefits. If we understand the relative strengths and weaknesses of each building type, we can better imagine how they will be deployed within the neighborhood, and how a desirable mix will be achieved in a variety of settings and circumstances. The larger scale, more expensive buildings are most vulnerable to constraints from local context such as site dimensions and configuration, parking requirements, rents that are too low, opportunity costs that are too high, or politics that are against the building type or project scale.

David Kim and I are setting aside the smaller lean building types for the moment. These include single story main street or workshop/flex buildings, freestanding houses, live/works, accessory dwelling units, bungalow courts, and other buildings with 3 dwelling units or fewer. These building types do not trigger the Federal Fair Housing Act or a more demanding code treatment under the IBC or local off-street parking requirements. Those are the rules you have to deal with in construction, finance, and local entitlements if you are attempting incremental development today without the benefit of a Pink Zone. The following list ramps up in scale and cost:

- 1. Single Stair Walk-up 2-3 stories. (IBC TYPE V)
- 2. Two Stair + corridor Walk-up 2-3 stories. (IBC TYPE V)
- 3. Walk-up Rear Gallery Building with two stairs / 2-3 stories.(IBC TYPE V)
- Elevator Real Gallery Building with two stairs / 2-4 stories.(IBC TYPE V)
- 5. Elevator Building with two stairs and a double-loaded corridor 2-4 stories (IBC TYPE V)
- Hybrid Elevator Building with two stairs and a double-loaded corridor
 2-5 stories (IBC TYPE V over TYPE I podium).

Moving up on the scale can also bring a hit in reduced efficiency in the floor plan. Moving from a Single Stair Walk-up to a two stair + corridor walk- up also includes a reduction in yield because the un-rentable portion of the building devoted to common area goes up. An example on a 100' x 100' parcel served by an alley:

- A freestanding 80' x 40' three story, Single Stair Walk-up has 11% of its SF in common area.
- With rated walls at the side property lines, a 100" x 60' hree story, Two Stair + Corridor Walk-up has 18% of its SF in common area.

HOUSING TYPE STUDIES

- 1. An Atlantic article makes the case for trailer parks. It discusses issues of class and cost, as well as codes and design.
- DPZ's matrix-like DPZ's One-Story Attached Housing (on page 110) one of many examples.

- 3. Andrew Frey of the Townhouse Center has building type studies and resources. These student housing studies are particularly interesting:
 - The Infill Housing Book
 - Infill Housing Book 2
- 4. *The Urban Housing Handbook* by Eric Firley. (Amazon and Google)
- 5. *A House In The City: Home Truths in Urban Architecture* by Robert Dalziel Sheila Qureshi. (Amazon and Google)
- 6. *Massive Small: The Operating Programme for Smart Urbanism* by Kelvin Campbell (British) (Amazon and Google)
- 7. Andrew also pointed out that High Res Miami has a forum for discussion around fine-grained urbanism for Miami. It especially promotes "missing middle hous-ing.' (See the missing middle housing website by Opticos.)
- Sara Hines has written Cottage Communities The American Camp Meeting Movement: A Study in Lean Urbanism about Camp Meetings — Methodist camps and Chautauqua camps. (See Amazon and Google.) She writes,

The book is a study of the Camp Meeting Movement and how a vernacular system of planning and spatial design creates a sense of community through an intuitive sense of space and design. Buildings tend to be extremely lean in design and construction with sometimes ingenious systems to get the most impact with the least material. The result is visually rich, complex space, always walkable, and evolved in many locations to include retail, commercial and civic buildings-early acts of town creation. The land use governance in many cases supports the affordability and consistent quality over time periods well over 150 years. Where these camp meetings are well maintained, the quality of the experience of being in a dense community of small structures is very high. Even when camps have suffered from lack of care, there are many lessons to be learned about what is possible with the human experience of community.

LIVE-IN LOW-TECH CONSTRUCTION

Clay Chapman has a website, Hope for Architecture, which explains his technique for controlling construction cost as well as his method for load-bearing masonry construction. He lives on-site, and lays the bricks day by day until the construction is complete. A *Better Cities!* article claims: "Chapman lays bricks three bricks deep, giving his walls 12 inches of insulating thermal mass." However, this is disputable, since masonry provides a great deal of thermal mass, but little insulation.

INTERNAL FABRICATION

Dan Camp fabricates his own details for his Cotton District development.

- 1. He builds details like cupolas, fanlights, and trim in-house.
- 2. Some of these items are done in concrete. They build the details (e.g., column capitals) out of wood, then make molds, and cast them in concrete. Their bull-nose details, stairs, and so on are thus durable concrete.
- 3. He has concluded that true divided lights are too expensive, but he's not giving up on the look.
- 4. He no longer fabricates his own windows, but he wraps aluminum windows in wood frames, so that they fit in like wood ones.

MODULAR CONSTRUCTION

Paddy Steinschneider notes that under certain conditions modular construction can be more affordable than stick-built construction — and can sometimes provide better

quality:

The negative on modular construction in the United States is that it came more from the mobile home industry than from the homebuilding guilds. This has tainted its reputation and created a self-defining character of being oriented to the low end of the development spectrum. The reality is that there is nothing intrinsic about modular construction that limits quality. In fact, given its fabrication in a more controlled environment with more sophisticated equipment available, it can be superior to stick-built. Modulars are designed to withstand the forces of being transported and lifted into place. The best stick-built home will fall apart if put on wheels and driven down the road.

The contention here is that because modulars reduce the complexity, cost, and time that it takes to deliver a residential unit, this method of fabrication can be part of a Lean Initiative.

High quality designs, developed in collections similar to the Builders Companion and Plan Books developed in the 1800s to help people working without architects, can be provided by the modular company with all of the engineering and code compliance requirements already worked through and provided. Ideally, this could be in a form that already fits the requirements of most Building Departments. Architects and designers can still be involved, but the process is simplified to make it easier to get things right.

TIMBREL ARCHES AND VAULTS

Timbrel arches and vaults do not need centering or forms. While not as strong as reinforced concrete or steel, they have reasonably good seismic performance.

Low Tech Magazine's article on timbrel arches.

Smithsonian Magazines article on timbrel arches, which historically were cheaper than concrete or steel.

AN INCREMENTAL METHOD FOR RENTALS

Dan Camp has been building on an incremental basis in the Cotton District development in Starkville, Mississippi, for 45 years.

- 1. Keep ownership. If you start small and keep ownership, you can build your cash flow enough to self-finance, or you can qualify for very low rates.
- 2. Boost your cash flow with additional fees for additional items, such as a \$50 application fee to apply. (This relies on good design.)
- Use very good design. If you do it right, you can get a premium. He is at almost 3x the median for Starkville, Mississippi — about \$1.70 per square foot.
- 4. If you do it right, rentals can have less turnover than condos. He does rental because people don't stay in condos.
- 5. Grow slowly, so you don't have to do cookie-cutter work. Make everything unique.
- Take your time. The intersection of Maxwell Street and University Drive (and Rue du Grand Fromage) took about 10 years to complete, bit by bit. This lets you manage the market as well.
- Manage your own properties in-house. The Cotton District has its own handymen and painters. It also does its own fabrication (See *Internal Fabrication* (on page 16).)

CODES FOR EXISTING BUILDINGS

The International Existing Building Code makes it easier to renovate older buildings by reducing the requirements for them — often to the time that they were built. This

article explains the benefits of the code.

New Jersey produced an influential rehabilitation subcode, and received an Innovations in American Government Award for the code in 1999. The code ramps up compliance gradually depending on the scale of the renovation.

Applied: Building

These building types and types of construction are limited to certain locations or certain narrow purposes. While they are not suitable for use everywhere and for everyone in the United States, they suggest models that can be replicated anywhere.

NEIGHBORHOOD GRIT

Michael Pyatok, FAIA offers a critique.¹ He says that neighborhoods are better when they have a place for gritty businesses and household arrangements. Some of these depend on architectural design policies, such as having rear elevations that are not visible from the street, so they can be a little bit messy. Every city has examples of such gritty but necessary environments. The same goes for rear yards, alleyways and so forth. Inside, workplaces can be cordoned off from messy living spaces, so that visitors to businesses see a professional interior.

The author suggests that zoning regulations and even building regulations should be revised to permit these messy activities. Moreover, property managers and lenders need to anticipate a little more grit with a little more tolerance for a little messiness, noise, and sometimes odors.

PRESERVATION GREEN LAB

Margaret O'Neal offered resources in her Preservation Green Lab, which is a project of the National Trust for Historic Preservation. It is designed to explore the nexus between preservation, livability, and environmental conservation. It has several projects and a future publication relevant to Lean Urbanism:

Older, Smaller, Better is a project and research report (pdf) that demonstrates the value of older, smaller buildings within livable areas. It shows that they can outperform

¹Noted by John Norquist

bigger-scale development. It focuses on Seattle, San Francisco, and Washington DC. The web page includes updates to the report.

Realizing the Energy Efficiency Potential of Small Buildings is a similar project to *Older, Smaller Better*. Its research report focuses mainly on energy.

The Environmental Value of Building Reuse is another similar project and report, focusing on several environmental benefits — as well as livability benefits.

America Saves! Is a tool for finding opportunities to save energy in older buildings — especially in Main Street locations. does not yet include a projected tool for "getting started."

Outcome Based Energy Codes is a project to move energy codes from requiring specific technologies and construction types to requiring only a certain level of performance — and being flexible about how that performance is achieved. It somewhat echoes subsidiarity. It focuses on a pilot project in Seattle.

The Lab is preparing a National Manual for Building Reuse. It will cover the following, among other subjects:

- 1. Adaptive Reuse Ordinances
 - Los Angeles Adaptive Reuse Ordinance
 - Phoenix Adaptive Use Ordinance
- 2. Parking policies (and waivers, etc)
 - No parking required for structures landmarks and districts, Denver
 - No demo permit w/o approved plan for new structure, Denver
 - Surface parking not a use-by right, downtown Denver
 - Parking exemption for small buildings, Miami
 - Parking waiver for pedestrian "P" streets, Chicago
- 3. Building Code flexibility

- 4. Energy Code flexibility
 - Seattle Outcome-Based Energy Code

ARCHITECTURAL SALVAGE

Architectural salvage is a resource for lean building.¹

- 1. Video on and Facebook page on architectural salvage in Detroit.
- 2. Reclaimed Salvage in Cleveland.

CASE STUDIES OF SMALL HOUSES

Small Housing British Columbia has produced the *Small Houses: British Columbia Case Studies* (on page 113) of small houses. It includes multifamily and small houses that are not especially small (e.g. 1500 square feet).

TOOLS FOR LEANING ENVIRONMENTAL TECHNOLOGY

Doug Kelbaugh FAIA produced two documents that provide a framework for de-escalating environmental concerns. They list basic principles, and leave the technologies for meeting them largely open. The solutions are not necessarily low-tech. The focus on outcome, though, lets people choose the means that require low levels of permission and of money.

Lean, Energy-Efficient Buildings: Seven Principles focuses on the basic principles for energy strategy for buildings, and *Urban Heat Islands* (on page 211) focuses on the urban heat island (UHA) effect.

¹Noted by Mark Nickita

Steve Mouzon has piloted a scorecard for lean green building: the *Original Green Scorecard* (on page 221). It could potentially be an alternative to LEED certification by the US Green Building Council, which is anything but lean.

SUSTAINABLE URBANISM PERFORMANCE-BASED MODULE

Several different issues combine in building in a sustainable way. The *Sustainable Urbanism Module* (on page 241), by Doug Farr and Leslie Oberholtzer, offers a concise set of metrics for judging the energy performance of buildings, both according to the year the project was approved and according to T-zone.

Proposed: Building

These tools are for certain building types and types of construction that seem like good ideas, but are not (yet) fleshed out with examples.

A FUNDABLE BUILDING INITIATIVE

Sara Hines has an interest in building with low technologies. She notes that rammed earth and other very low-tech methods may be worth researching. She was inspired by With Dirt And A Vision, Palestinian Architects Break The Mold, on the Parallels website. She writes:

There are also uses of building with dirt combined with cement, sometimes called swish-crete for third-world building. They usually mold blocks with it. The cement mainly functions to stabilize the dirt, but some climates might not require that. Cob is another technique. Some of the thinking for alternative building systems is that you build with what you have available on a site, if rocks, then stone, if trees, then wood, even stacked cordwood, or straw or sod or dirt. The goal is to import no outside product for the construction.

Mobile, Alabama has changed its Quiet Title program to streamline the process of renovation.¹ The process would be shortened and simplified in exchange for an agreement by the new owner to improve the property. Title would revert if the new owner were to fail to improve the property.

An effort to get banks and other investors to lower or drop their internal de-facto parking requirements for buildings could complement *Eliminating Parking Minimums* (on page 28).²

¹Noted by Sandy Sorlien

²Suggested by Kit McCullough

HOMEOWNERSHIP REFORM

Barack Obama has proposed some reforms to homeownership: Protecting the American Dream. While actually achieving these reforms would be very un-lean, they would make homeownership itself leaner.

Lean Development

These tools pertain to lean types and methods of development, and supports for development.

Ready: Development	
Incremental Greenfield Development	
Eliminating Parking Minimums	
Price Parking for 15 Percent Clearance	
Framing Public Issues	
Local Watchdogging	
Food Self-Sufficiency on a small lot	
Adaptive Agricultural Reuse Module	
Walkability Audit Tools	
Affordable Housing Incentives Module	
Applied: Development	
Performative Democracy	
Markets on Platforms	
Rapid Deployment	
Nonprofit Community Development	
Tools for Streamlining Code Compliance	
Toolkits and Software for 3D Visualization	
Self-created Plazas	
Canal Urbanism Module	
Community Fire Breaks	
Proposed: Development	
Reverse-Engineering Sabotage	

Ready: Development

The following are ready-to-use tools for development that can be used in the United States, at least in some capacity.

INCREMENTAL GREENFIELD DEVELOPMENT

Paul Crabtree and Stephen Mouzon have both proposed versions of tools for incremental growth in greenfields. They both mimic the kind of incremental development found in real communities, and they both give an important place to infrastructure.

Mouzon's Sky Method is closer to being a tested solution, although it can't really be called a precedent. It is also much more evolved graphically, and more focused on the development process itself. (pdf)

Crabtree's *Tool for Generative Hamlet Growth* (on page 277) is more focused on infrastructure, such as underground utilities and roads. It grew out of the Salon des Refuses project. His *Lean Infrastructure Presentation* (on page 288) on appropriate infrastructure emphasizes leanness and good placemaking, while de-escalating the drift toward gold-plated infrastructure. The tool has a separate table appended. It would coordinate T-zones and types of infrastructure.

Phased build-out was essential to the Port of Kennewick project (See p. 55 of this online pdf.)¹ It uses front/back distinction to allocate messy and informal uses to the rear and formal to the front. This includes all utilities. That way you can avoid tearing up finished frontage when you upgrade the infrastructure. (This works with varying curb-to-curb dimensions on streets, as at Poundbury.)

¹Noted by R. John Anderson

ELIMINATING PARKING MINIMUMS

- There are numerous resources for helping communities and neighborhoods eliminate excess parking requirements — from both the government side and from the development side.
- 2. Victoria Transport Policy Institute paper on Parking Requirement Impacts on Housing Affordability
- 3. A Strong Towns map of cities that got rid of parking minimums
- 4. Video on parking minimums (specific to Ottawa, ON)
- 5. The High Cost of Free Parking, by Donald Shoup, (Google and Amazon) is the bible of parking strategies, some of which are Lean and most of which support Lean goals. At 800 pages, however, the book itself isn't Lean (though it is compelling). His recent presentation (*High Cost of Free Parking Slides* (on page 352)) has numerous useful slides for Lean Learning, including these simple steps for managing downtown parking:
 - Charge the price for curb parking that leaves one or two empty spots per block most of the time. (See *Price Parking for 15 Percent Clearance* (on the facing page).)
 - Create Parking Benefit Districts, which are politically popular. The money from parking meters goes directly into block or neighborhood improvements (meters with revenue return).
 - Reduce/remove the off-street minimums and don't change them when uses change.
- 6. Sandy Sorlien's Pocket Code is a model Lean Code that eliminates several conventional minimums, including parking.

PRICE PARKING FOR 15 PERCENT CLEARANCE

R. John Anderson suggests a series of steps for building and taking advantage of a rational pricing mechanism for parking.

- 1. Create as many on-street spaces as possible on the existing asphalt. (See Jeff Speck's report for West Palm Beach.)
- 2. Price on street parking for 15% clearance.
- 3. Upgrade the parking meters to best refine the dynamic pricing of on-street parking and parking in the public garages.
- 4. Negotiate public master leases of the private surface parking lots so that they can be managed with the public on-street and public structured parking.
- Establish a parking benefit district and financing mechanism for increasing the supply in the future (if needed) with structured parking). (See *Eliminating Parking Minimums* (on the previous page).)
- 6. Provide a master lease or condominium structure for creating public parking in the foot print of future private buildings.

FRAMING PUBLIC ISSUES

The Frameworks Institute has several resources, including Framing Public Issues (pdf). Framing is the social construction of a way of thinking about some subject. This is generally done by getting people to think that something is equivalent to something else, or by simplifying it so that people can start thinking about it without being over-whelmed. The document is not lean in itself, but it can help promote Lean Urbanism.

LOCAL WATCHDOGGING

Many cities have community and civic organizations that pay attention to public process and intervene to slow down bad decisions and promote good ones. Some are grassroots community-based networks, while some are more formal "grass tops" or business networks. Others are local and not-so-local groups (often nonprofits) dedicated to a collective benefit, but if they have the capacity and inclination, they can also put pressure on government and business to help alleviate difficult problems.¹

FOOD SELF-SUFFICIENCY ON A SMALL LOT

Writing for the Codes Project, Sandy Sorlien included a historic method for growing food on a small lot. The drawing by S. L. Berry shows a lot 50' wide: the minimum width allowed in the Gables Single-Family Residential (SFR) zone. It provides an intriguing plan for the evolution of our suburban residential areas into more self-sustaining environments. Smythe's book is a how-to manual for living off a single urban residential lot. (Drawing from *City Homes on Country Lanes: Philosophy and Practice of the Home-in-a-garden* by William Smythe, 1921.) See also *Agriculture on a 50-foot lot* (on page 460)

Ann Daigle produced *Food Movement of Lean Communities* (on page 462).

ADAPTIVE AGRICULTURAL REUSE MODULE

Sometimes land that is poor for food production can be used to mitigate carbon dioxide — either by planting trees on the land or by using it to grow biofuel. (At least to the extent that the biofuel is actually carbon negative.) *Adaptive Agricultural Reuse* (on page 469) from Steve Coyle provides some lean approaches to reusing marginal land.

¹Paraphrased from Scott Bernstein

WALKABILITY AUDIT TOOLS

Stephen Mouzon and Rick Hall both have tools for walkability audits in the works. Both tools are relatively leaner than typical tools of their type.

Rick Hall's is the "Walkability Index," which is intended to get people to walk around the city and note improvements that can be made. A version is included in *Street Design: The Secret to Great Cities and Towns* (Amazon, Google), by John Massengale and Victor Dover.

Steve Mouzon's is "Walk Appeal," which he gives an extensive write-up in his blog. His primary post also has several pages of further information, on it, and he is planning a book on it. It includes both "measurable" and "immeasurable" indicators, although experienced auditors would probably agree on the same "immeasurable" ratings.

AFFORDABLE HOUSING INCENTIVES MODULE

One of the impediments to building affordable housing is the cost of building. The *Affordable Housing Incentives Module* (on page 474) would encourage affordability by streamlining the application and approval process. (More modules are available.)

Applied: Development

These tools for development are limited to certain locations or certain narrow purposes. While they are not suitable for use everywhere and for everyone in the United States, they suggest models that can be replicated anywhere.

PERFORMATIVE DEMOCRACY

Elzbieta Matynia's performative democracy includes a model for labeling activities according to how well they are officially tolerated. It is based on the Polish experience under communism.¹

Elzbieta Matynia was a disciple of Hannah Arendt. In Matynia's book *Performative Democracy* (Amazon and Google) she writes about the evolution of four policies applied by the party-state in Poland just prior to the emergence of Solidarity. These policies defined four kinds of citizens' engagement:

- The preferred and rewarded (e.g., party organs)
- The preferred but limited (e.g., national theater)
- The unofficial (e.g., small private theater)
- The forbidden (e.g., anti-communist conversations in private homes)

This range aligns well with subsidiarity because it is bottom-up. It also aligns with platforms, as the preferred is supported and the unofficial is tolerated.

Public space was co-opted by the government so it was official space. Public space was effectively forced into hiding in households. When the power loosened (starting in the '70s) the government stopped censoring the tiny theaters and private spaces. This was similar to Václav Havel's experience in Czechoslovakia. Also see Sylwetka Adama Michnika of the newspaper Ggazeta Wyborcza.

¹Noted by Christopher (Kip) Bergstrom

MARKETS ON PLATFORMS

Bruce F. Donnelly has written a blog post suggesting that an important way to "make small possible" is to build a market on top of a platform. A platform in this sense is a way to compete against big players that enjoy economies of scale. For example, a public market can take on the overhead for the building itself, advertizing, operations, and so on. The market, as an institution, would be able to take advantage of economies of scale, and pass those economies on to its tenants. Those tenants could then compete against big supermarkets on more equal terms than they could if they had to bear those costs individually.

Similar economies can be realized if, for instance, a nonprofit were to subdivide land and secure zoning entitlements for small, individual buildable lots. A city could provide a power, water and sewer supply point for a block, into which individual builders could tap. Such infrastructure "machines" are similar to a solution proposed by Paul Crabtree and Andrés Duany for rebuilding Haiti after its earthquake. (See this New York Times article on Detroit.)

Sometimes platforms can be based on negatives. For example, demolishing the outdated Class C office that cannot be returned to Class B office or converted to residential could be part of a platform for clearing and re-positioning development sites.¹

RAPID DEPLOYMENT

Lean favors rapid deployment development and tools.

In general Lean derives a sense of urgency from "Agile" software development's methodology.

Agile development began with the "hacker" ethos, which was exploratory, but also sought to produce useful things. This required hackers, and later agile developers, to hold the end goal somewhat loosely, so that the means of getting to that goal can be

¹Suggested by R. John Anderson

somewhat fluid. Since design in an agile project is somewhat exploratory, you can't know in advance exactly where you are going. However, you can generally be fairly comfortable with your progress as long as there is always more than one way to move forward.

One of the people who explains the connection best is Joi Ito, the director of the MIT Media Lab. He offers a number of observations compacted into principles:

- **Deploy or Die.** Rather than "publish or die," this principle says that you need to get something out in the real world not just prototyped, and certainly not just published.
- **Pull over Push.** Pull resources you need (people, tools, money, etc.) from your network as you need them. Don't just stockpile them in advance because you might need them.
- Learning over Education. Specifically, you need to "pull" what you need to know, when you need to know it. You need to learn what you need to learn when you need to learn it, not stockpile knowledge unconnected with your need for it.
- **Compass over maps.** Have a vision of what you want to do; don't try to map out too much in advance. You might build a "roadmap" for yourself, and miss where you should have turned.

Bruce F. Donnelly suggests an additional principle, the *80% solution.* This assumes Pareto was right that in any given situation, 80% of the effects come from 20% of the causes. A somewhat loose interpretation of this observation is that it often seems that you can solve 80% of your problem with 20% of the effort. The principle serves as a warning not to try to optimize too early or too much. Doing either usually involves unforeseen consequences and unwelcome trade-offs. Instead of trying to solve something to 100%, then, you can solve it to 80%, and then reassess to see whether you are headed in the right direction. Then you can solve the next 80%, and the next, and the next — for the same effort you might have solved for 100%.

NONPROFIT COMMUNITY DEVELOPMENT

Operating on a shoestring, nonprofit development groups such as HERO¹can combine federal and local programs to help individual homeowners and would-be developers develop their communities. There are many cities in which community development corporations operate effectively. (See Cleveland's.)

TOOLS FOR STREAMLINING CODE COMPLIANCE

Several tools for writing codes help ensure that they are easy to satisfy, and that procedures are streamlined.²

- The Institute for Market Transformation has produced the Institute for Market Transformation Checklist (on page 482) of steps to take while streamlining codes and procedures to make them easy to meet.
- 2. This study shows methods that governments can employ to figure out how to streamline compliance processes such as inspecting flow charts and educating applicants on common errors.
- 3. This Article in Builder echoes the streamlining compliance requests
- The National Partnership to Streamline Government's toolkits for streamlining codes "in the digital age." From the National Partnership to Streamline Government. The site addresses building regulatory processes, including inspections. (10 toolkits)

Business rules engine or business process management streamlines processes even if they are complex.

They operate on the ideas that

²Suggested by Scott Bernstein

¹Suggestion from Ann Daigle

- 1. business rules produce knowledge, and that
- 2. the workflows should perform business work.

That is, business rules do not perform business work, and workflows don't produce (much) knowledge. They separate workflows from rules, which is to say thou-shalls and thou-shalts from the tasks used to get things done. If the tasks are done properly, business process management helps break down silos within organizations. For instance, instead of having to kick something up to a superior in order to engage someone in another department, business process management could let someone talk to her peer in another department directly.

TOOLKITS AND SOFTWARE FOR 3D VISUALIZATION

There are several resources for 3-D visualization. Although they are not necessarily lean, they can help reduce "brain damage." If a city employed them, it could make decisions easier for entrepreneurs.

- 1. This toolkit, on the Smart Communities website, is an anti-NIMBY tool. It doesn't present arguments so much as help people make decisions and visualize what could happen in new development.
- Place/Matters is a partnership for civic engagement and process in planning. It
 uses technology to make investment easier. It also builds websites and web
 tools for civic engagement. Its Place/Matters game-like tool helps participants prioritize and allocate resources, so as to understand trade-offs. Place/Matters' has
 a "WalkScope" tool for neighborhood walk-audits, which are intended to be easy
 to deploy.

¹Suggested by Peter Katz
- 3. Autodesk's **Urban Canvas** combines GIS, design, and visualization tools. It is designed to combine scenarios and analysis. It could be useful for the public process, as **this video** with Paul Waddell shows.
- 4. In contrast to Peter Calthorpe's **Urban Footprint** modeling software, **RapidFire** planning tools seem relatively useful for Lean Urbanism.
- 5. The Measuring Street Design website (through ArcGIS) and its field manual show how the tool can be used for walkability audits. Jon Larsen's article on the Strong Towns website explains how useful it can be.
- SmarterBetterCities is another visualization platform, built on ESRI's CityEngine. (ESRI makes ArcGIS.) Geoff Taylor worked with Matthew Lambert on using it for the SmartCode. Models can be shared on Cloudcities — a sharing platform.

SELF-CREATED PLAZAS

Philadelphia's *Plaza Application and Guidelines* (on page 496) offer simple guidelines for citizen-initiated pedestrian plaza design. They are slightly more involved than most Tactical Urbanism. However, the paperwork is relatively simple.¹

CANAL URBANISM MODULE

Building near canals and other human-made bodies of water can be fraught with engineering hurdles. Dan Bartman has written the SmartCode module, *Canal Urb-anism Module* (on page 517) to help ensure that the physical design is at least appropriate for the Transect zone. (More modules are available.)

¹Noted by Sandy Sorlien

COMMUNITY FIRE BREAKS

When building a greenfield community in an area susceptible to fire, obeying the ordinary separations between buildings would tend to make a community unwalkable, and preclude cluster development. Therefore, *Fire Mitigation in Wildlands* (on page 530) presents ways to build fire breaks around entire communities, so the individual structures don't need them. The intervening land can be used for agriculture.

Proposed: Development

These tools are for certain types of development and supports for development that seem like good ideas, but are not (yet) fleshed out with examples.

REVERSE-ENGINEERING SABOTAGE

The CIA produced a *1944 CIA Sabotage Toolkit* (on page 545) for sabotaging the enemy's war effort. Today, we can reverse-engineer it to find burons.

Lean Regulation

These tools pertain to types and methods of regulation that are lean because they are lighter, easier, or are designed to help those without abundant resources.

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Ready: Regulation

The following are ready-to-use tools for lean regulation that can be used in the United States, at least in some capacity.

CODE REFORM

Although the project of reforming zoning and building codes is not in itself Lean, it can enable Lean Urbanism by providing support for small and incremental development.

The following tools are intended to discover whether the current codes are lean, help to lean them, and provide specific models for lean development.

CODE AND ZONING AUDIT

Smart Growth America offers communities a tool for auditing these codes:

- 1. The Land Use Code
- 2. The Zoning Code and Zoning Regulations
- 3. Subdivision Regulations and Ordinances
- 4. Overlay District Regulations
- 5. Special Use District Regulations

The audit is heavy on form-based and service-based issues, but it does support things like small lots and live-work.

LEAN CODE TOOL

The *Lean Code Tool* (on page 572), by Susan Henderson and Matthew Lambert with Bill Spikowski, suggests incremental revisions to existing development codes — for places that don't have political, administrative, or budget capacity for a form-based code immediately. The tool uses an appealing S, M, L, XL rating system according to

the capacity of the municipality. It is a first public draft so may change later in 2016, but can still be helpful.

POCKET CODE

Sandy Sorlien has produced a *Pocket Code* (on page 566). It uses types of buildings, frontages, and et cetera, and is partly for this reason somewhat slimmer than even just the section of the SmartCode that pertains to existing neighborhoods. This streamlined approach can also be adapted to conventional zoning categories, so that it might require fewer adaptations from an existing code than the model SmartCode does. It is hosted at her SmartCode Local website.

LEAN CODES

David Mayernik's *The Dumb Code* (on page 612) is a one-page architectural code with just two context settings, Rural and Urban.

Andrés Duany proposed a Homebuilt Housing Act in the aftermath of Katrina. It was not adopted. (From the The Codes Project.)

ADAPTIVE CODE

Andrew Burleson created the *Adaptive Code* (on page 604) in 2013. His summary explains the basis:

The Adaptive Code is a schematic framework for rules that allow selforganizing, bottom-up emergence.

Principles of the Code

1. Favor free-markets over management, bottom-up emergence over top-down administration.

- 2. Only regulate what is essential to:
 - Promote long-term stability and appreciation in property values.
 - Eliminate externalities.
 - Favor consumption-based fees over flat-rate services.

Type-based Form-based Codes

Spikowski Planning Associates has done several easy-to-understand form-based codes. They use building types extensively, in order to make the process easy for citizens to master, as Spikowski explains. Peter Katz worked in Sarasota, under Spikowski's code for that city, and found it easy to explain. The Form-Based Codes Institute has an explanation of the Lee County (Florida) Compact Communities Code. (pdf version) (See Bill Spikowski.)

CODE TOOL FOR ACCESSORY DWELLING UNITS

See this Model code for accessory dwelling units. Portland's recent initiative processes accessory dwelling units as Detached Bedrooms. Doing so sidesteps the issue of impact fees, since they are just additions, legally speaking. The "bedrooms" can have power, water, and sewer, but no kitchen. This essentially just means they can't have stoves.¹

SYNERGY BETWEEN CODE AND DESIGN CENTER

Nathan Norris has piloted the Lafayette, Louisiana *Downtown Lafayette Code* (on page 614). A one-page graphical Intent section illustrates its principles. The tool is approachable — although not especially lean in format.

¹Noted by Dean Gunderson, MCRP

However, that code and a Development + Design Center (DDC) work together in a lean way. See *Development Design Center Explained* (on page 642). The code is simple, but needs the DDC to explain its use with free design consultation. The DDC can show a developer how to get up to the "better" level in a good-better-best hierarchy of designs.

LIMITS ON STORE SIZE

The Institute for Local Self-reliance produced *Store Size Caps* (on page 647). It is a tool for ensuring that an ordinance that caps the size of stores is legal and appropriate. It also states why store-size caps may be necessary, and offers different approaches to applying them. Community-Wealth.org created the toolkit in 2006.¹

EASEMENTS FOR SMALL CLUSTERS

Developers can use access easements for bungalow courts, or to avoid homeowners' associations. R. John Anderson writes from his experience:

Small HOA's often have disproportionately higher administrative costs, particularly when you are filing the initial setup with the State Dept. of Real Estate, etc. Bungalow courts can be done without HOA management of common facilities if you design them with access easements, particularly if you have a center walk configuration in lieu of a center court with surrounding walkway. Shared driveway agreements for access and maintenance don't require an HOA. Rental bungalow courts can operate under multifamily zoning conventions.

¹Noted by Scott Bernstein

Applied: Regulation

These tools for regulation are limited to certain locations or certain narrow purposes. While they are not suitable for use everywhere and for everyone in the United States, they suggest models that can be replicated anywhere.

LEAN CODE DRAFT

DPZ produced the *Tigard Lean Code Draft* (on page 660) for Tigard, Oregon. It provides thresholds below which and above which certain studies and other kinds of proof of conformity are required. The intent is to make it easy to build small, and then ramp up the requirements and the amount of documentation required as the sizes of projects increase. The consequences for getting things wrong are more significant, generally, for large projects.¹

The existing model SmartCode says, "The modification of existing buildings is permitted By Right if such changes result in greater conformance with the specifications of this Code." This allows the SmartCode, or any including such a statement, to develop incrementally into a more walkable urbanism. A locality could flesh out what is meant by "greater conformance" — either by making a non-statutory interpretation or by adding standards to the code.

SAN FRANCISCO ZONING CODE OF 1948

In 1948, San Francisco produced one of the last lean zoning codes before codes began to balloon under the influence of large, automobile-centric development. *1948 San Francisco Code* (on page 666) is roughly based an urban Transect, and it could be adapted for today.²

²Courtesy Sandy Sorlien

¹Courtesy of Matthew Lambert

Proposed: Regulation

These tools are for certain types and methods of regulation that seem like good ideas, but are not (yet) fleshed out with examples.

DETROIT'S PINK ZONE

A 2016 Knight Cities Challenge Winner, this project is led by Detroit Planning Director Maurice D. Cox, joined by Lean Urbanist and UM professor Doug Kelbaugh FAIA. It aims to create new opportunities for jobs and businesses by streamlining city development regulations and engaging design talent and developers to help reshape several commercial districts. Andrés Duany proposes that Pink Zones should be legal PUDs with an Homeowners' Association and/or a Business Improvement District for management.

PINK CODE

The Transect-based *Pink Code Draft* (on page 695) was sketched out by Andrés Duany and DPZ during the High Point, NC charrette in 2013. The Procedures section features a lean use of Levels, to reduce the amount of regulatory approval needed for most applications.

"No Minimums" Codes

Any code can be made significantly leaner (in outcome) by removing nearly all minimums: parking, lot width, lot size, frontage buildout, front setback, height, etc. These may still require maximums to maintain walkable blocks.

The strategy for no-minimums codes is to look for required minimums that either cannot be justified on rational grounds (as opposed to class-based grounds) or are already prescribed by other requirements. Building codes, for example, have minimum room-size and window-size requirements. Banks usually have requirements for the amount of parking. Neither of those needs to be in a code.

Some minimums, such as minimum house size, are usually designed to ensure that only a certain class of resident or business can locate in a zone. These codes deliberately make small impossible.

THE CODES PROJECT

The Code Project has scores of codes surveyed by Emily Talen, PhD. A contemporary Lean Code could be developed from some of the simpler early codes, which are essentially Transect-based. The foundational 16th-century "Laws of the Indies" document contains common sense lean language, such as:

112. The main plaza is to be the starting point for the town; if the town is situated on the sea coast, it should be placed at the landing place of the port, but inland it should be at the center of the town. The plaza should be square or rectangular, in which case it should have at least one and a half its width for length inasmuch as this shape is best for fiestas in which horses are used and for any other fiestas that should be held.

This entire resource is well worth perusing for lean ideas and language.

NEW CODE TECHNOLOGY

Zoning, building, and subdivision regulations could benefit from technologies to help organize their content. Many of these technologies are used for product doc-umentation.¹

¹Suggested by Bruce F. Donnelly

One benefit is shared, reusable content. A Toyota Corolla's owner's manual might share content with a Toyota Camry's owner's manual, and the Corolla's owner's manual might share content with the Corolla's maintenance manual. Similarly, a zoning code, subdivision ordinance, and a building code could use the same set of definitions, and it could come with or without annotations for novices.

Another benefit could be that only the relevant information for a given site might be printed, so that the applicant wouldn't have to page through the code. For instance, an assistant at the application counter might hand the owner of a site for mixed-use buildings that is serviced by a rear alley *only* the regulations for mixed-use buildings, and omit any driveway standards that are not applicable to sites serviced by an alley. Instead of a table listing, say, setback regulations by zone, the code would only show the setbacks for the relevant zone. A novice owner might also be given an annotated copy of the code explaining the reasons for certain regulations, and alternatives that might be obvious to an experienced user. Either way works by using conditional text, which is a way of marking text so that it only prints in desired documents. For instance, a setback regulation might read,

The front setback is 12 feet. 20 feet. 40 feet.

If a specific lot's zone is the one highlighted in blue, then the text will read,

The front setback is 12 feet.

An equally important benefit would be a set of advanced text processing tools, including the automatic processing of glossary terms, easier indexing, and more. These help maintain consistency and readability. One important standard is DITA: the Darwin Information Typing Architecture OASIS standard. It is explained at DITA XML.org. This is a highly organized and cumbersome standard. The open-source Oxygen XML program supports it. However, DITA is a highly exacting standard, so the two main software applications for documentation, Adobe Framemaker and Madcap Flare, use looser technical standards. They have a steep learning curve, but much gentler than Oxygen XML. (This document is written in Flare.) A hard-copy example is the model SmartCode v9.2, which has a single building-scale page for each T-zone. If builders are only working in T4, only the T4 page would be handed to them.

RULES FOR HOMELESS ENCAMPMENTS

The Low Income Housing Institute has produced the *Tent Encampments and Tiny House Villages* (on page 700) report. It explains why they form, and how they can be obviated or improved.

NEIGHBORHOOD CONSERVATION KIT

The Neighborhood Conservation Kit is a code overlay tool. It should be ready by Fall 2016. A 2015 Knight Cities Challenge Winner, the project is led by Sandy Sorlien and the Central Roxborough Civic Association (At Street-trip). It provides a short guide and template for simple rules to protect existing walkable neighborhoods from incoming car-oriented development. It was initially correlated to the City of Philadelphia's rezoning processes, but could be adapted elsewhere.

IDEAS FOR FUNDABLE REGULATORY INITIATIVES

Certain people have made suggestions of small Lean initiatives that would require funding.

- Bruce F. Donnelly has suggested New Code Technology (on page 48).
- B. Aaron Parker has suggested developing a workaround for the proposed changes to the International Energy Conservation Code, which would encourage the demolition of old buildings. (See the Architect Magazine article, since removed but available by Archive.org.)

Lean Infrastructure

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These tools pertain to lean infrastructure and ways to build it without gold-plating.

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Low-head Hydro	54
Lean, Scalable, and Incremental Wastewater Treatment	55
Bicycle Infrastructure Module	55
Light Imprint Matrix and Handbook	55
Development Models for Street Types	55

Ready: Infrastructure

The following are ready-to-use tools for infrastructure that can be used in the United States, at least in some capacity.

EXISTING INFRASTRUCTURE

Paddy Steinschneider suggests that we need tools that allow for existing infrastructure where there has been a lot of demolition and disinvestment. Paddy writes:

This may sound obvious, but practice in the United States has demonstrated that using what is already available is not the first assumption made when someone is considering building or developing something. When the cost of creating infrastructure has already been invested and either the demands on that infrastructure have reduced or perhaps never reached full use, taking advantage of that existing residual investment by rebuilding, infill development, or the adaptive reuse of existing buildings significantly simplify, expedite, and reduce the costs of development.

We have old cities that are already improved with the transportation networks, the utility connections, and the infrastructure necessary to support a significant growth within areas already developed. The scale at which this can happen is the full spectrum: Individual homes and buildings can be renovated and restored to optimum use; Infill buildings can be constructed on the vacant lots on a previously developed block; And, entire blocks or even rows of blocks that are already served by roads and utilities can be the site for large scaled redevelopment.

Retrofitting Suburbia and Sprawl Repair both identify many types of opportunities, from repurposing buildings that are no longer viable for their original intent, to the re-densification of sprawl communities that can make better use of existing infrastructure, to mixing new uses with existing, such as adding residential use to shopping centers. The surplus capacity within existing infrastructure provides a quicker and easier way of providing the facilities and residences needed in a community than having to start with creating the infrastructure.

One of the aspects of increased use of the existing infrastructure that contributes to the Lean Urbanism's philosophy is the way in which it can bring the additional revenue necessary to maintain and support that infrastructure, whereas simply creating more infrastructure has the increased expense of first creating the infrastructure and then the additional cost of maintaining it.

One of the most damaging things to the triple bottom line of our economy, environment, and culture that can be done by the development community is the strategy of moving further out or developing in green fields because the land may be cheaper to assemble or acquire. When there is existing infrastructure in place that can be used instead, there are cost savings that can offset lower land costs. The economic cost/benefit analysis that leads to that kind of decision usually is incomplete and does not always include the cost of the future maintenance of additional infrastructure.

An efficient household makes intelligent use of the leftovers in the refrigerator. Great meals can be created out of what remains from a previous dinner. If it is not used, it deteriorates and is wasted. We need to apply the same efficiencies to our left over infrastructure and find those ways to create new great places with what is already waiting to be reused.

LEAN SIDEWALKS

Paul Crabtree offers these rules for lean sidewalks:

- 1. Soil prep would be
 - a. none, or
 - b. smoothed and lightly compacted by hand or small equipment.
- 2. Drainage characteristic would be a well-drained soil like sand or gravel that would form a stable subgrade that would infiltrate rainwater than fall onto/ran off from the sidewalk surface.
- 3. Material would be locally sourced, competitively priced, durable, smooth, skidresistant, somewhat flexible, and easily installed without large equipment.
- 4. Color would be very light in southern regions (high albedo to reduce UHI for pedestrian comfort) and grayish in northern regions (to capture solar rays for the melting of snow and ice).
- 5. Maintenance would be minimal or none. Snow shoveling, sweeping, washing, an occasional smoothing out of anomalies.
- 6. Replacement could be accomplished in small patches by a couple of workers without large equipment, and without looking a lot different from the original.
- 7. Capital costs may trump life-cycle costing since a high capital cost barrier could prevent the Lean Project from even getting started.

LOW-HEAD HYDRO

The National Hydropower Association reports that newer low-head Hydro is done with Archimedes screws, and is very fish friendly. In fact, if fish are running, you can reverse the flow and boost them upstream. Fish gates need to be adequate even at smaller dams. Small beaver dams can even be utilized to help manage fish populations. There is a profitable business in relocating beavers so that they will build dams.

LEAN, SCALABLE, AND INCREMENTAL WASTEWATER TREATMENT

Steve Coyle offers his *Lean Wastewater Treatment Tools* (on page 730) for Developing Countries, Regions, and Communities. Some were created out of necessity while he worked with a local crew for several years on a SmartCode plan and lean building project in Gabon. He writes:

Villages, towns and cities require durable, simple, and low maintenance infrastructure from potable water service, and wastewater treatment and facilities to storm water collection and flood protection, electric power, streets, sidewalks, and pathways. This set of Lean Tools can be deployed in hamlets, villages, towns, and cities using local labor and materials.

BICYCLE INFRASTRUCTURE MODULE

The Street Plans Collaborative has written a SmartCode module, the *Bicycling Mod-ule* (on page 736) to try to ensure that bicycle infrastructure matches its surrounding conditions.

LIGHT IMPRINT MATRIX AND HANDBOOK

Thomas E. Lowhas written a *Light Imprint Handbook*. (Amazon and Google). Light Imprint is meant to be a lean, lighter alternative to Low Impact Development, which tends to over-engineer by comparison. The *Light Imprint Matrix* (on page 750) provides a simple way to see which responses to rainwater are appropriate to each zone.

DEVELOPMENT MODELS FOR STREET TYPES

Frank Starkey proposed *Economics of Street Types* (on page 754), based on economics, profitable development opportunity, and place-making.

Lean Business

These tools pertain to lean business methods and to supports and resources for businesses.

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Ready: Business

The following are ready-to-use business types and supports for businesses that can be used in the United States, at least in some capacity.

LEAN STARTUP TOOLS

Lisa Nisenson started Greater Places — "The Community for Urban Design." It is a crowd-sourced site for design and community empowerment. The site focuses on citizen-initiated activity, although it includes detailed information about plans and codes, financial arrangements, and infrastructure. Many of its projects, such as this in Santa Monica, use techniques similar to Tactical Urbanism. However, this resulted in what was in effect a public workshop sanctioned by the city. The "Plans and Codes" page has several tools, and even some codes that are very lean. She also recommends resources and a book for lean startups. Her site is intended to support catalytic, less wasteful, and more responsive business models.

INTELLECTUAL PROPERTY

Copyright and trademark law can hamper the free flow of ideas. For this reason, the Maker culture (Large pdf) generally eschews conventional copyright in favor of Creative Commons licenses, which can be tailored more finely to the needs of the author. Creative Commons also works to help organizations implement open licensing. The Open Source Initiative indexes several open-source licenses — generally for software. (See this explanation for the distinction between "copyleft" (as in Creative Commons) and "open source.")

The P2P Foundation is one of the major centers of this de-centralized Maker culture. ("P2P" stands for "peer to peer.")

Makerspaces, which are also called Hackerspaces and Fablabs, can benefit their local economies, as an article from The Atlantic suggests. These are sometimes

nonprofits, and sometimes for-profits, but they always share resources and intellectual property (sometimes called "hacks").

RATINGS AND REPORTS

Rating systems and reporting systems can help small developers justify things like reduced parking requirements, and they can help them flesh out their pro-formas. For example, if a builder can show that an area has ample transit access, it may be possible to charge higher rents. A report about pent-up demand, or about the desirability of certain lifestyles can help make the case to bankers that they are not taking such a big chance. Some rating systems can also help small investors and builders estimate how much income they can expect.

WALK SCORE

Walk Score is a proprietary, a widely used index. It can be used within other indices, such as real estate marketing.

H+T INDEX

The H+T Index is The Center for Neighborhood Technology's index of costs combining housing and transportation. It estimates the affordability including transportation costs, rather than just raw housing cost. In the United States, it generally shows a lower cost for urban areas well-served by public transportation, and for compact areas.¹

¹Suggested by Scott Bernstein

LOCUS REPORTS

Smart Growth America's LOCUS Program, under Christopher Coes, produces two reports that are relevant to Lean Urbanism, and that demonstrate market demand for projects.

- 1. Foot Traffic Ahead ranks the country's top 30 metropolitan areas based on the strength of their walkable urban places (as defined by LOCUS). The report and a video are available on the report's webpage.
- The WalkUP Wake Up Call is actually a series of four separate reports about "WalkUPs" (which stands for Walkable Urban Places) for different states and cities. It demonstrates the scope of pent-up demand for such places. The reports also identify existing and developing WalkUPs.

SMALL CHANGE INDEX

Small Change has a crowd-funding platform. It uses the Small Change Index as a proprietary scoring system to illustrate the impacts that small projects have on their settings.

Small Change uses Small Change Index Indicators (on page 765).

RENTFAX

RentFax offers predictive analytics for rental properties. It's like a credit score, but for rental buildings — and it helps produce a realistic pro-forma rather than a credit report. The score is called the RISC score: Rental Income Stability Composite. It can be used before acquiring the property, and after it for management and financing. In addition, it can be used to forecast rents. Private Lender magazine has a press release on it.

MENTORSHIP AND INCUBATION

Certain organizations offer mentorship and incubation. These are sometimes big organizations, or even government organizations that support small players.

SMALL BUSINESS ADMINISTRATION

The Small Business Administration's SCORE chapters has a good mentorship program. Miami's free business plans are one example of the kind of resources that can be found in most SCORE offices.

The Small Business Association also certifies nonprofit corporations to work with participating lenders in order to provide financing to small businesses. There are 270 Certified Development Companies nationwide, and most of them serve a specific geographic area.¹

BUSINESS BOOT CAMPS

Scott Bernstein writes:

Business boot camps teach business and workforce development. They provide onthe-job training via businesses See Illinois Manufacturing Foundation in Chicago. That foundation has been operating since 1981. It partners with networks and associations of small manufacturers and sets up production line based no-nonsense training with close to 100 percent placement and retention rate. This occurs in specialties ranging from packaging equipment to cabinet making, screw machine operation, computerized numerical control equipment, and metal finishing. In fact, Ric Gudell, its Executive Director is as persuasive as John Anderson: See Specialized manufacturing training and placement. Another organization is the Bay Area Video Coalition, which since 1976 has trained youth in the skills of video, information, and new

¹Noted by Scott Bernstein

media. The Chicago TV Network is similar. Some high schools still offer vocational education, and there's pressure growing to increase the utility of public expenditures for community colleges. Land grant universities still offer access to students through cooperative degree programs in which alternating-quarter placements with local businesses occur.¹

MAKER CITY BOOK

The Maker City Project has produced the Maker City Book, which explains the economic and social benefits of a Maker community. It helps to explain how the Maker movement is different from ordinary manufacturing and the ordinary arts scene, and how it helps to leapfrog beyond ordinary community development.

BUSINESS-ORIENTED COOPERATIVE SERVICE ORGANIZATIONS

Insurance is an example of a Cooperative Service Organization. Today's State Farm, Countrywide, and Nationwide Insurance Companies started in response to how Depression conditions affected rural communities and farms. The first two of these are still owned by their policy holders, but are no longer locally constituted. The National Cooperative Bank (successor to the National Consumer Cooperative Bank) has a home page story and an article on financing resident-owned manufactured housing communities. Note: this is a Congressionally-chartered bank, and a group successfully sued President Reagan to reverse his rescission of this bank's authority to operate.²

¹Paraphrased from Scott Bernstein

²Paraphrased from Scott Bernstein. Scott Bernstein was in the group that sued President Reagan.

LOCAL BUSINESS INCUBATORS

Local business incubators provide lean startup space and supportive business development services to their tenants. The most successful one in Chicago is focused on manufacturing businesses. It has operated for 33 years, and enjoys almost 100 percent occupancy. It kicks companies out after a reasonable period of time, since the goal is to launch businesses, not lease to mature ones. This is different from Maker spaces or co-working spaces — a bit closer to the shark tank R. John Anderson proposed. See also the International Business Innovation Association (formerly the National Business Incubator Association).¹

LEGAL SUPPORT FOR CO-OPS AND THE SHARING ECONOMY

A few organizations provide legal support for various forms of sharing — especially co-ops and the "sharing economy." Legal resources seem to be focused on liability, legality, and maintaining the "sharing economy" as a brand.

Co-opLaw provides a library of legal information on cooperatives: types, legal topics (e.g., how to convert to a cooperative), state law, and a list of organizations that support co-ops.

The Sustainable Economies Law Center provides legal education, research, advice, and advocacy for "more just and resilient communities." It focuses mainly on law and policy resources for the sharing economy.

CDS CONSULTING CO-OP

CDS is a co-op itself, and not a non-profit. It is a co-op of consultants who support coops. That said, it has an extensive list of resources for people who want to start coops, including articles, links to dozens of resources, toolboxes, and a legal library. So

¹Paraphrased from Scott Bernstein

far, there are seven toolboxes. Some of them are free, and some of them are for sale. They focus mainly on management and how-to. They are somewhat eclectic.

Applied: Business

These business types and types of support are limited to certain locations or certain narrow purposes. While they are not suitable for use everywhere and for everyone in the United States, they suggest models that can be replicated anywhere.

CREATEHERENOW CONNECTICUT

This lean approach to "BID Lite" is useful for artists, artisans, and others involved in products with art content. It focuses on supporting retail by using low-cost vacant store-fronts as incubators for arts-based and conventional retail business. Eventually they should be able to pay full rent. These tend to catalyze other, more conventional developments.¹

Links to CreateHereNow Organizations

CreateHereNow Connecticut. This is an umbrella organization for several local CreateHereNow organizations.

CreateHereNow New London. CreateHereNow's Facebook page.

REDEVELOPING PUBLICLY OWNED LAND

There are several businesses that help to clear government-owned land, as well as other land that is usually disposed of at low prices.

- 1. **OpportunitySpace** a company marketing publicly-owned land to innovative and small developers. It has a rudimentary scoring protocol.
- 2. CivicSource an auction site for adjudicated and tax-foreclosed properties.
- 3. **OppSites** a site similar to Opportunity Space (The founder, Ian Ross, is a New Urbanist).

¹See Christopher (Kip) Bergstrom for more information, as he was intimately involved in its creation.

TOOLS FOR SUPPORTING BUSINESSES IN DETROIT

These organizations support businesses in Detroit.

- 1. Build Institute is a hub for education and support. It was formerly part of D:Hive
- 2. Shareable, from the Sustainable Economies Law Center, is policy primer for municipal leaders who want to encourage the sharing economy in their communities.
- 3. REVOLVE Detroit, from the Economic Growth Corporation, supports retail business. See *Revolve Detroit Guidebook* (on page 770)

THE COLLABORATIVE ECONOMY

The Collaborative Economy Honeycomb Diagram (on page 809) and a separate website explain the synergies within the "Collaborative Economy." The diagram is explained in an article in the Next City. The newer version is much larger.

Ann Daigle made a presentation, *New Economy of Sharing* (on page 811), at CNU 21 in Salt Lake city. (She has also provided *Draft Notes Towards a New Economy of Sharing* (on page 834).)

SINGLE-CREW WORKPLACES

Stephen Mouzon is promoting single-crew workplaces (also here). These are run by a single shift, and perhaps by people who "live over the store." Such workplaces can have very low overhead, although they require a great deal of commitment from the proprietors. Most of the examples given are for retail, but they may also be for services.

CALLISTER BREWING CO

The Callister Brewing Company is a collaborative brewery, which can also be called a co-working brewing incubator. It features support and a peer-learning network. It shares equipment and commercial facilities so that small professional brewers and home brewers can get up to scale. It is located in Vancouver British Columbia (Canada). Right now it has the founders and three set of co-brewers.

Proposed: Business

These tools are for certain types of businesses and supports for them that seem like good ideas, but are not (yet) fleshed out with examples.

POLICY CHANGES FOR LEAN DEVELOPMENT

Ann Daigle drafted The Lean Business of Place-Based Enterprise. It would tilt policies in favor of small place-based businesses, and provide a framework for those businesses.

R. John Anderson suggested a wish list of requirements for lean development:

- 1. Eliminate off-street parking minimums. (Local)
- 2. Up-zone any parcel that is limited to one dwelling unit to allow four units plus 35% of conditioned space as workspace as of right (including one or more units in an outbuilding). I think spending time and calories trying to get just one ADU is a waste of resources. The goal is too timid, a half measure that will bring out all the same NIMBYs anyway with a fraction of the benefit. (Local)
- 3. Revise the FHA, Fannie Mae and Freddie Mac mortgage underwriting requirements for 30 year loans to reflect the 4 unit/35% workspace frame.
- 4. Eliminate the mortgage interest deduction. It is a moral hazard. (Federal)
- 5. Get municipal building departments out of the business of issuing building permits for buildings for which they bear no liability. (State)
- 6. License as Architects anyone with a contractor's license or with four years' experience in a skilled trade, who can pass the exam. (State)
- 7. Eliminate the upfront fees charged for new construction or renovation work by utility companies — public or private. They can roll the cost of their administrative, engineering, and inspection staff into the operating budgets approved by each state's utility commission and recovered through the rates they are allowed to charge. (State)

- 8. Get the SEC to complete the Rules for crowd-sourced investments in real estate for non-accredited investors. (Federal)
- 9. Pitch John Oliver on a piece pointing out how ridiculous it is to believe that anyone is entitled to stable or ever-increasing real estate value. (some guy who knows John Oliver's producer)

PLACEMAKING BOND FUNDS

A *Placemaking Bond Fund Proposal and Legislation* (on page 844) would help cities and organizations to partner together so that they could pool their capabilities for mutual benefit. Christopher (Kip) Bergstrom proposed legislation and a pilot project for this purpose.

The bond fund would have helped to make places walkable and suitable for modern, mobile talent — especially Makers and immigrants. It would also have included new models of finance and development, and would help to pilot new types of zoning and enforcement. The general idea was to figure out *Approach for a Placemaking Bond Fund* (on page 849), and then use that experience to draft legislation that would be standardized.

INNOVATION DISTRICTS

Christopher (Kip) Bergstrom proposed Innovation Districts, which would have supported the following:

- 1. compact, walkable places that enable frequent interaction among entrepreneurs,
- 2. transit-connected places that would have anchor institutions (universities, large businesses, hospitals, etc.),
- 3. co-working / incubator / accelerator spaces (In order of greater support), and
- 4. mentorship networks.



The Innovation districts legislation, which was never enacted, could be a template for legislation. It was designed to protect the ecosystem for innovation, and do more than just enable startups. It's more proactive, and is designed to be catalytic.

REMAKING MARTIN LUTHER KING JR. STREETS

This essay and a précis in CityLab is based on the observation that streets that are named after Martin Luther King Junior tend to be poorer even than other streets with the same demographics. It offers a way to improve such streets.

Lean Financing

These tools pertain to lean methods for financing businesses and neighborhood development (except for buildings).

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Development Fees, Incentives, and Local Equity	75

Ready: Financing

The following are ready-to-use tools for lean finance that can be used in the United States, at least in some capacity.

Certain associations support funding: directly, by securing credit, or by finding government support. These include foundations, community development corporations, and religious and charitable organizations. Many localities maintain lists of such organizations in their offices of development.

COMMUNITY CREDIT UNIONS AND SPECIALIZED REVOLVING LOAN FUNDS

These are two different, but related approaches to pooling credit.¹

COMMUNITY CREDIT UNIONS

Community development credit unions and similar kinds of place-based co-operative credit providers, some of which have focused on providing both capital and patient coaching to small businesses. There's a limit to the percent of assets that can be met from outside investors, which keeps growth rates modest but local accountability high. By relating to national banking facilities intended to support such locally controlled organizations, locally generated resources can be magnified. See the National Cooperative Bank and the Community Development Financial Institutions Fund (and an explanation of its work). Also see the Opportunity Finance Coalition.

The National Federation of Community Development Credit Unions has a website that provides a great deal of information, including explanations of products and services.

SPECIALIZED REVOLVING LOAN FUNDS

There are at least 5,000 specialized revolving loan funds. It's very likely there are one or more in the places CATS is working in now. Some are based in community found-ations; others are their own organizations.

¹Courtesy Scott Bernstein
NEIGHBORLY

This can be called a crowd-funding platform for investing in your city.

We should look at right-sized public financing such as Neighborly. It has been established to lower the cost of providing small-scale bond financing for hyper-local projects by lowering the minimum bond size. Denver's pilot "mini-bond" offering to raise \$12 million for a neighborhood's road-water-sewer sold out in 23 minutes. Most states now also support "linked deposits," in which everyday public receipts are used to purchase certificates of deposit in banks, if the banks agree to lend in conditions that are otherwise barriers to access. These purposes may range from small business to housing. The arrangement started in Illinois way back when Adlai Stevenson was treasurer, and it's generally carried out by treasurers in local, county and state governments.¹

NEIGHBORHOOD INVESTMENT CO-OPS

These are neighborhood-scale investment vehicles designed as legal cooperatives. They are available nationwide, and the Northeast Investment Cooperative (NEIC) in Minneapolis is a good example.

From its FAQs:

The cooperative model is an innovative vehicle for community investment with many advantages over traditional models. A cooperative operates democratically on a one-member, one-vote basis, so that all members have equal voting power. Because a cooperative is a for-profit business it can provide members with a modest return on their investment. A cooperative also typically focuses on multiple bottom lines, including improving a community's social and economic capital. For the NEIC, this means giving

¹Paraphrased from Scott Bernstein

Northeast Minneapolis residents a way to work together to make long-term, stabilizing, and strategic investments that will help transform our community.

Another example is the Alberta Community & Co-operative Association (ACCA). It has a program for unleashing local capital, which helps groups form Opportunity Development Co-operatives (ODCs). ODCs are organized with Provincial (Canadian) support to raise and pool capital raised from local investors, in order to support local businesses.

$\mathsf{IOBY} \longrightarrow \mathsf{NONPROFIT} \mathsf{CROWDSOURCING}$

The nonprofit ioby is an activist nonprofit crowdsourcing organization for neighborhood development. From the website: "ioby mobilizes neighbors who have good ideas to become powerful citizen leaders who plan, fund and make positive change in their own neighborhoods."

SELF-ORGANIZED CREDIT CIRCLES

Self-organized credit circles such as savings clubs give members access to resources and know-how. Members can also use their professional training in financial literacy. This New York Times article is on self-organized credit circles in which people lend each other money in order to build a credit history.¹

¹Paraphrased from Scott Bernstein

Proposed: Financing

These tools are for certain types of finance that seem like good ideas, but are not (yet) fleshed out with examples.

DEVELOPMENT FEES, INCENTIVES, AND LOCAL EQUITY

In Hennepin County as elsewhere, affordable housing developers tap locally-administered federal funds and those force them to accept them to absorb inflated costs. The developers then suck their development fees from the poor neighborhood where the affordable housing is concentrated. For this reason, the County's *Community Works* organization is now looking for a way to build relatively affordable building types (preferably owner-occupied), using modest techniques, and build up a local skilled workforce. This keeps the money in the neighborhood in two ways: wages and home equity. It also builds neighborhood capacity through home ownership.¹

Paddy Steinschneider writes that affordable housing is frequently too expensive and conspicuous, but that localities can subsidize or incentivize "natural affordability," or use sweat equity. They can do this by reducing the costs for any small builder to build, regardless of the builder's willingness to do paperwork. For example, they could reduce fees or provide free services to developers that provide housing at a low cost. A government could even give away prepared sites (with hookups).

Myron Orfield has written on the "poverty industry," and its inability to address important issues. See also his Institute on Metropolitan Opportunity project's web page.

¹Noted by B. Aaron Parker

Lean Governing

These tools pertain to lean governance and organizations that support lean governance.

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Ready: Governing

The following are ready-to-use tools and organizations that can aid governance, and that can be used in the United States, at least in some capacity.

INSTITUTIONAL SUPPORT FOR DEVELOPING SMALL

An article by Jim Heid appears in Urban Land, the Urban Land Institute's house organ. It extols the virtues of small development, and explains the ULI's approach to it. The article mentions both the Real Estate Entrepreneur Program and the Small-Scale Development Council and three case studies of small-scale projects.

- The following people participated in the effort:
- Jim Kumon and John Anderson of Incremental Development Alliance (@IncrementalDev)
- Christopher Coes of LOCUS (@LOCUSDevelopers)
- Brian Falk of Lean Urbanism (@Lean Urbanism)
- Andrew Frey of Townhouse Center (@TownhouseCenter)
- Jim Lindberg and Margaret O'Neal of Preservation GreenLab (@PresGreenLab)
- Chuck Marohn of Strong Towns (@StrongTowns)
- Lynn Richards of CNU (@NewUrbanism)
- Frank Starkey of National Town Builder Association
- Matt Wagner of National Main Street Center (@NatlMainStreet)
- Jim Heid of ULI (@UrbanLandInst)

PLACE-BASED MANAGEMENT

Smart Growth America's LOCUS Program, under Christopher Coes, has a guidebook for revitalizing downtowns: (Re)Building Downtown. It is mainly geared towards

managing redevelopment and then keeping the area viable in the long term: placebased management.

The LOCUS program's Attainable Housing Social Equity Initiative operates mainly through crowdsourced community engagement.

BETTER HOMEOWNERS' ASSOCIATIONS

Daniel Slone suggests some innovative developers know how to make HOAs better. He offers several minimalist approaches to improving homeowner's associations from a legal point of view.

- 1. Subsidiarity via nested dolls. We can develop subsidiarity by combining nested dolls and limitations on authority, and potentially a "bill of rights."
- 2. Nested doll. One option is a "nested-doll" approach to homeowner's associations. Smaller entities can operate inside bigger entities, and the bigger entities can be limited in scope so as not to step on the smaller entities' toes. Each state is different, so you should consult your states laws. A Master Property Owners Association would provide an umbrella organization over individual Homeowners Associations, while leaving those associations intact for their normal and distinct functions. The *Articles of Incorporation for an MPOA* (on page 853) would incorporate an MPOA, while the *Provision for Subassociations in Owner Documents* (on page 860) would allow subassociations of various scales to be set up for different purposes: i.e. the block, neighborhood, or park level. The decision making and financial responsibility would then be distributed to that level.
- 3. Limited authority. Each association can have a limited authority. It can be "dialed down" to just maintenance of common areas or "dialed up" to the typical boil-erplate-over-the-top-nanny level.

- 4. Dispute resolution. Within this framework, the homeowners' association should have a dispute-resolution process similar to traditional communities' processes using local chiefs. The *Dispute Resolution Framework* (on page 862) could be included in association documents to allow community members to resolve disputes using trusted community members rather than litigation or formal arbitration.
- 5. Declaration of owner rights: a corollary of limited authority. There is a problem with HOAs, if they keep people from doing things that are considered normal elsewhere, such as hanging laundry. Such a declaration in ordinances could help restrain the HOA from restricting say, freedom of speech or commercial rights. Virginia offers statements for unit-owners' rights and for lot-owners' rights (See *Virginia Statement of Owner Rights* (on page 865).). The AARP has proposed a *AARP Model Bill of Rights for Homeowners* (on page 867). It would guarantee basic rights of representation within an association. Further, the article, *Free Speech Rights in CICs* (on page 870) might help challenge some restrictions. It explains that some restrictions (especially against speech) may already be illegal, and should probably be pro-actively eliminated by HOA boards. This would help people do things like opening businesses.
- 6. Sunset clauses. Many things are decided by sheer inertia, and never change. Thus sunset clauses can make HOAs decide whether to support the status quo affirmatively. If the HOAs stay passive, the sunset clause ends the status quo. Typically, a 67% or 75% majority has to agree in order to make any changes. Clause 7.3 of the New Pattonsburg Declaration of Community Responsibilities, Covenants and Restrictions, New Pattonsburg Declaration of Community Responsibilities, Covenants, and Restrictions is a "sunset" clause. It can be adopted for contemporary HOAs. Dan Slone writes:

It essentially says that all of the town's rules (building code, zoning and subdivision) will disappear 25 years after its adoption, and that the community has until then to figure out what wants to put in place to replace them. This entire document is an interesting study in Lean. We were moving this town out of the flood plain and the mayor brought me in to create a building code, subdivision and zoning code. The only problem was that the citizens (like all good folks from Missouri) did not like laws – so they did not want a bunch of laws. So I asked if they would agree to govern their town with a contract. When they said "yes", I created this. It has some light zoning, references the plat for subdivision and adopted the BOCA code by reference (this was in 1995 before we might have looked for a lighter building code). In 2020 they have to decide whether to continue this or put actual ordinances in place or just let it go. One must be careful with this approach – it could give a bank concerns but fortunately they rarely read the recorded documents.

LOCUS PROGRAMS

Smart Growth America's LOCUS Program, under Christopher Coes, coordinates with several other programs for funding development. Its Federal Financing Toolkit is constantly updated to remain current. It mentions several programs that would be useful for places to support small-scale development.

The Fixing America's Surface Transportation (FAST) Act expands two such programs.

- The Federal Transportation Infrastructure Finance and Innovation Act (TIFIA) program already offers credit assistance for transportation projects that cost over \$10 million. Localities can use this credit to do things like streetscape improvements, sidewalks, bike lanes, and etc. Under the expanded scope the FAST Act gave it, it can support TOD projects.
- 2. Similarly, the FAST Act expands the Railroad Rehabilitation Improvement and Financing (RRIF) program to offer direct loans and loan guarantees for railroad

projects, under the Federal Railroad Administration. The FAST Act allows those resources to be used for developing TOD near passenger rail and commuter rail lines.

NEIGHBORHOOD LEADERSHIP

Nextdoor and SeeClickFix are two platforms for developing leadership and civic involvement, using the Internet.¹

Nextdoor is a social network for your physical neighborhood, but it also allows you to organize events and groups. It is widely used, and does not require governmental involvement. However, the organizations neighbors create within the network can be recognized by the locality, and the locality can be invited to support and respond to them.

SeeClickFix is a tool by which citizens can report things like potholes and street signs that have been obscured — or nuisances and even crimes. The locality has to buy into it. Otherwise there is no point in making a report.

DESIGN AND INNOVATION CENTERS

Design and innovation centers can be helpful for lean businesses. Several of them operate through universities:²

- 1. Temple University's Center for Design + Innovation
- 2. The University of North Carolina systems' Center for Design Innovation

²Suggested by Scott Bernstein

¹Suggested by Christopher (Kip) Bergstrom

BIMBY TOOLKIT

The BIMBY (Beauty In My Back Yard) Toolkit is a well-thought-out and user-friendly series of online workshops to guide a community of (largely) non-experts through creating a BIMBY Housing Manual. (See the BIMBY website.) It is a product of the Prince's Foundation for Building Community in the UK, but is easily adaptable elsewhere. See the Toolkit page.

David Sucher also proposed some paths to citizen participation in *City Comforts*, a leanly-formatted book.

Applied: Governing

These tools for policy and governance are limited to certain locations or certain narrow purposes. While they are not suitable for use everywhere and for everyone in the United States, they suggest models that can be replicated anywhere.

LOCALISM

BALLE is a platform for developing leadership, organizing funding, and promoting localism in general. It has produced *A Guide to Community Capital* (on page 913). It explains neighborhood capital. It offers specific advice on investment offerings and community capital platforms, as well as basic explanations of finance and debt. Areas include owning and managing co-ops, commons, and trusts; community lending and place-based lending (they say investing); and leadership development. The organization built a Local-First Toolkit. It is designed to help increased demand for local businesses. A local-first how-to guide is available for \$50.

SOCIAL ENTERPRISES AND BENEFIT CORPORATIONS

A social enterprise is an organization that applies commercial strategies in order to provide social and environmental benefits. It is somewhat similar to a benefit corporation. Renew Australia is a "social enterprise" for community renewal and economic development in the arts and other creative industries.¹

Benefit corporations are a type of for-profit corporation that is legally obligated to provide a positive impact for society, workers, the community and the environment. A benefit corporation still has a fiduciary responsibility to turn a profit, but that responsibility does not eliminate the legal obligation. See this explanatory site.

¹Suggested by Scott Bernstein

NATIONAL MAIN STREET PROGRAM

The National Main Street Program helps some small cities and towns to fund public and private improvements of streets. Many cities have storefront programs, renovation programs, and so forth.¹

¹Noted by Christopher (Kip) Bergstrom

Proposed: Governing

These tools are for types and methods of governance that seem like good ideas, but are not (yet) fleshed out with examples.

ROLES FOR HOAS AND PUDS

Bruce F. Donnelly has proposed *Principles for Managing Neighborhoods* (on page 935) for lean homeowners associations, and Andrés Duany suggests that Planned Unit Development could accommodate Pink Zones. See also *Better Homeowners' Associations* (on page 78) and *Private Government* (on the next page).

QUICKER NEW CONSTRUCTION

Cleveland sells its land bank lots inexpensively, but it requires a long process of vetting and design review before anyone can build on the lots. Therefore, Knez Homes is working with Ohio City, Inc. (a Community Development Corporation) to speed the process for buyers. The city does not cut any corners, but Knez and Ohio City Inc. take on the burden by preparing in advance. This strategy works partly by agreeing to standard designs in bulk, and by working with the land bank all at once. See this Plain Dealer article.

SUPPORTING IMMIGRANT ENTREPRENEURSHIP

We need tools specifically for supporting immigrants. Although *Extracts from A World of Opportunity* (on page 939) does not supply actual tools, it suggests areas that need to be addressed — specifically high barriers to entry, cultural insensitivity, and other issues specific to immigrant communities.

PRIVATE GOVERNMENT

Bill Dennis notes the following as a potential approach to privatizing government development initiatives:

New Amsterdam used Patroons. The system of Patroons was instrumental in the early successful growth of the colony: a method for decentralizing decisions and initiatives. Patroons were charters to individuals for deeded tracts and they gave those individuals basically medieval feudal rights:

- the creation of courts,
- appointment of officials, and
- holding the land in perpetuity.

They were required to settle the land with at least 50 families within four years to keep those rights, which was incentive to make a mutually bene-ficial deal with the settlers. The system was changed to the term 'Manor' by the English and some of these existed into the 1800s.

Lean Learning

These tools help the small and their neighborhoods to learn about Lean Urbanism

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Ready: Learning

The following are ready-to-use tools for lean learning that can be used in the United States, at least in some capacity.

LEAN BUILDER WORKSHOPS

Stephen Mouzon offers several workshops for Lean Builders. The scale is very lean. These include: Tear-Out Prevention Workshop, Eave Workshop, Dormer Workshop, Porch Workshop, Door & Window Workshop, and others. He offers municipal, institutional, development, and neighborhood workshops. See *Lean Builder Resources* (on page 955)

SMALL DEVELOPER BOOT CAMPS

Jim Kumon and R. John Anderson and the Incremental Development Alliance run workshops called Small Developer Boot Camps. These can be scheduled in a town if there is enough local buy-in. They also provide Coaching and Speaking. The website itself is lean in format and provides a good introduction to why building small is important.

SMART GROWTH SCHOOLS REPORT CARD

Nathan Norris created this evaluation tool in 2009. In addition to being a great format for teaching issues, the report card can also guide comunities to more lean development patterns oriented to neighborhood schools. (See also the *Smart Growth Schools Report Card* (on page 959).)

YIMBY PARTY PLATFORM FOR MORE HOUSING

This website is lean and well-written. It provides a model for educating and mobilizing voters for particular issues and causes. In this case, the goal is increasing the housing supply in a city. Thus, the format is lean and the outcome supports making small possible.

FIRST TIME RENOVATOR TRAINING

These affordable workshops through the Preservation Resource Center in New Orleans can be models to apply anywhere.¹

LEAN SLIDES AND LEAN LEXICON

Dhiru Thadani and Sandy Sorlien have produced slides for educational purposes.

Sandy Sorlien's slides explain the Leaning of codes and the Lean Lexicon (*Leaning of Codes* (on page 972) and *Lean Lexicon* (on page 980), respectively). The Lean Lexicon is available online.

Dhiru Thadani's slides explain pocket codes. (See *Pink Code Illustrations* (on page 1012).).

LEAN ARCHITECTURAL EDUCATION

Andrés Duany proposes the following framework, based on the practice of the office of Robert A.M. Stern and his Associates. It has these elements:

- 1. very high quality production,
- 2. the disciplines of normal programs and budgets,

¹Courtesy Ann Daigle

- 3. a system that is not dependent on outstanding talent,
- 4. extremely efficient production,
- 5. systematic rather than leadership-based leadership,
- 6. economic sustainability: pay the apprentices rather than have them pay fees,
- 7. strong commitment to funded research, even to an academic level,
- 8. an open-minded attitude toward sources and agile in response,
- 9. an atelier or team spirit, and
- 10. the ability to scale and replicate.

There are other benefits, un-enumerated.

Applied: Learning

These learning tools are limited to certain locations or certain narrow purposes. While they are not suitable for use everywhere and for everyone in the United States, they suggest models that can be replicated anywhere.

WEST PHILADELPHIA REPAIR INITIATIVE

The West Philadelphia Repair Initiative (WPRI) is a home repair program that assists low-income homeowners in the maintenance and improvement of their homes. Using volunteers from Bryn Mawr Presbyterian Church, WPRI (formerly "The Other Carpenter") has completed more than 750 projects since 2001 with the help of volunteers and engaged community members. WPRI's repair program is based on Habitat's traditional model of homeowner participation, in which the homeowner works with staff and volunteers on repairs and improvements, and is responsible for 25% of the cost of materials.

CODE CHECK GUIDES FOR BUILDING CODES

Code Check has common-sense, well-designed precedents for simple guides that explain and link to much more complex material. Lean Urbanism aspires to make the actual codes as easy to navigate as the guides to the codes. See *Code Check Sample* (on page 1001).

Proposed: Learning

These tools are for learning about lean that seem like good ideas, but are not (yet) fleshed out with examples.

POCKET HANDBOOKS

Pocket Handbooks can be developed for various Lean Urbanism skills to guide selfbuilders in a simple, straightforward, and portable manner. A suggested format is the laminated slim jim folder that folds accordion-style and slips into a pocket. The Waterford Press Pocket Naturalist Guides are beautiful examples.

LEAN TWITTER TIPS

Assign someone to tweet tips on Lean Urbanism frequently, to #LeanUrbanism and related targets. Example:

Want more reasonably-priced housing? Allow four units in SFD where one is now; remove lot size & parking mins. #LeanUrbanism

TOOL FOR DESIGNING STREETS AS PLACES

Although it is geared towards UK practice, and although its process is not especially lean, Creating Streets: A Policy Guide for Scotland (pdf) is a fairly brief template for excellent design guidance. The document also has a companion "Creating Places" website.

Further Resources

Contacts (on page 94): People who have contributed ideas or who may have further information.

Appendices (on page 109): Documents included for reference.

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Appendices

DPZ'S ONE-STORY ATTACHED HOUSING

This is one of many examples that DPZ has. (Courtesy Andrés Duany.)



BUILDING TYPE INDEX ARC Lifelong - Courtyard Complex



BUILDING TYPE INDEX ARC Lifelong - Courtyard Unit

SMALL HOUSES: BRITISH COLUMBIA CASE STUDIES Small Housing British Columbia's case studies of small houses.



Innovations in Small-scale Living from North America



It's not a movement about people claiming to be 'tinier than thou' but rather people making their own choices toward simpler and smaller living however they feel best fits their life.

~ Jay Shafer

This report was made possible by the generous support of:



Small Houses: Innovations in Small-scale living from North America can be downloaded free of charge at: www.smallhousingbc.org/publications

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Foreword

MANY FORCES ARE SHAPING CHANGE in our North American communities today.

The ageing of the baby-boom generation is shifting demographics. The combined forces of globalization, urbanization and the mass emergence of a consumer-driven culture in China is re-shaping economies globally and locally. A rising consciousness about mankind's impact on our planet's ecosystems is causing many to re-think their own impact, driving some to try to reduce their own ecological footprint. The structure of the traditional North American suburb has failed to live up to the expectations of many who settled in suburban neighbourhoods, and new ways are being sought to re-engineer suburban living and re-build those settlement patterns.

Meanwhile, others are fleeing suburban areas and returning to inner-city neighbourhoods. Social change is altering the concept of the family. The traditional family is no longer traditional. Singles, single-parent families, combined generations - all are searching for living arrangements that are no longer the alternative, but are becoming the norm.

Change in the way we plan, design and build human shelter, or housing, has been slow coming. While household numbers have been declining, we have seen only small changes in the last decade or two in the sizes of homes. Meanwhile, people have seen their lifestyles transform and are seeking alternatives to housing types, tenure and size. The demand for smaller forms of housing, or alternative housing design, isn't just driven just by the desire for more affordable housing, although that is one objective that can be achieved with housing forms we have yet to embrace. Some want to live in a different, smaller kind of house because they have different lifestyle priorities that have been shaped by the aforementioned change.

Many people have come to understand the simple reality that our houses have become too large, over the last few decades. Their best evidence are the memories they have of growing up in - and seeing their parents and grandparents live in - much smaller houses where they lived lives as meaningful, if not more meaningful, more convenient, more comfortable and more affordable than we all live today in much bigger houses. The move toward embracing smaller forms of housing is a neo-traditional movement. We've built these smaller homes before. We can build them today - better designed, more durable and more ecologically responsible.

The above reality was the impetus for the formation of *Small Housing BC* - a British Columbia-based advocacy and educational non-profit organization. Our mandate is to support the development and promotion of small housing as a sustainable housing form, and act as a public voice for the small housing industry, consumers and citizens who wish to see the benefits of advanced urbanism with the development of small forms of housing.

We fulfill our mandate by contributing to research, knowledge transfer, education and the achievement of excellence associated with small forms of housing and related advanced urbanism. This *Small Houses* toolkit is one of our contributions to research, knowledge and education. We surveyed and documented recent innovations in North America, where the regulatory regime has been purposefully designed - or substantially reformed - to encourage the development of well-conceived small forms of housing.

We hope this resource document will not sit on the shelves of offices where house builders, planners, architects, municipal councillors and citizen-activists hang their hats. Instead, we hope the pages within people's respective copies become dog-eared and the hotlinks well used, as instigators of change embrace some of the ideas herein and begin building the kind of smaller housing for which people are searching.

Bob Ransford

Founding Director, Small Housing BC

Introduction

A major change is underway that is defining where and how we are choosing to live. In 2011, for the first time in nearly a hundred years, the rate of urban population growth outpaced suburban growth, reversing a trend that held steady for every decade since the invention of the automobile. In urban centres across the country, building activity that until recently had been almost entirely focused on the suburban fringe, has moved back toward the metropolitan centres to meet the demands of the 21st century household.

Increasing environmental consciousness, financial pressures and demographic changes are shifting housing preferences. Large detached houses in carcentric communities that at one time typified the Canadian dream, are losing followers to households seeking smaller homes in 'location-efficient' neighbourhoods. These new consumers are looking for neighbourhoods that are walkable and well served by transit. They are seeking communities where amenities like groceries, parks, community centres and office space are accessible by buses and trains or human-powered travel (e.g. walking, cycling and running). Renters and owners are also looking for affordable housing in an increasingly expensive housing market and they are willing to sacrifice square footage to access more desirable communities. Additionally, households are getting smaller and traditional housing forms are not meeting the needs of empty nesters, one-parent families, singles and multi-generational families.

Municipalities and developers have begun to respond to these changes and are slowly introducing small housing options that reflect consumer preferences, as well as environmental and financial pressures. British Columbia has been a leader in many of these initiatives, championing laneway housing, lock-off suites and micro-suites, to name a few. However, market penetration of small housing forms is still relatively small, even as consumer demand grows.

This toolkit is intended to inspire greater uptake of small housing forms in British Columbian communities by showcasing 10 innovative examples of housing under 1500 square feet, from around North America. From cottage housing to small lot homes and house-plexes, the future is big for small housing.

What is a small house?

There are no industry standards to determine when a house is considered small. A space that might be considered 'small' for a family of four could be large, if it was for a single person household. That said, some forwardthinking leaders have emerged over the last few decades to contribute to the debate on the definition of small housing.

The *Small Housing Society*, which was founded as a result of the tiny house movement, carefully defines 9 forms of small housing. From an efficiency home of approximately 480 sq.ft. to a micro house which barely exceeds 160 sq.ft. the *Society* leans towards what most North Americans would consider tiny spaces.

A research study of small market units in British Columbia defined small housing as a dwelling of any form (apartment, detached dwelling, moveable unit, etc.) that is sized to meet its occupants' needs with little excess space - more specifically, approximately 500 sq.ft. for 1-2 people, or slightly larger at 750 sq.ft. for a household of 3 or more.

Sarah Suzanka, the author of *Not So Big House*, stays clear of defining small in terms of size and instead advocates for a new approach to housing, one that values quality, not quantity, and challenges the development community to build better, not bigger.

In determining their small housing definition, *Small Housing BC* (SHBC) considered a broad range of factors, including historical data on house size, consumer preferences and household size. SHBC defines small housing as homes between 100 and 1500 sq.ft. They can be detached, such as laneway houses, or attached homes, akin to townhomes or secondary-suites. They are often built in and around urban centers as new construction. However, small housing is increasingly showing up as medium density infill in established neighbourhoods, changing the housing patterns of existing communities.

In 1945, the average size of a Canadian home was 800 sq.ft. and typically housed a family of 4 or more. Today an average British Columbian home easily surpasses 2000 sq.ft. and is providing shelter to 2.5 individuals.

What are the benefits of a smaller home?

There are many individual and societal benefits to living in smaller spaces. People who live in small homes generally own fewer possessions, consume less, and have lower utility bills. Smaller homes require less building materials for construction and use less land, As such, they often cost much less to purchase, maintain, and live in. Construction of smaller homes can utilize more efficient, natural, healthy, high-quality materials that might not be affordable in larger dwellings. All of these benefits result in healthier, more cost-effective living, and a better environment.

According to Jay Shafer, who wrote the *Small House Book*, people who downsize from a larger home and into a small house tend to report the following benefits:

- Less time cleaning;
- Less time maintaining the house;
- Fewer personal possessions and baggage;
- More time with family and friends;
- Less expensive monthly costs for either utilities or mortgage; and
- Less debt and financial risk.

Why a series of case studies?

In British Columbia, as in other regions in North America, the tendency is to associate small housing with boxes stacked high in the sky, located in heavily urbanized environments. This is typically contrasted with the large suburban detached homes, located in car-reliant communities. The purpose of this toolkit is to demonstrate the variety of housing forms that exist in between these two extremes and encourage greater appreciation of small homes.

While reviewing a number of innovative small housing options from North America, *Small Housing BC* selected examples that:

- Were supported by a municipal lever such as an ordinance or bylaw;
- Were not one-off cases, but rather wide-spread policies or approaches;
- Varied in terms of size from 100 sq.ft. to approaching 1500 sq.ft.;
- Demonstrated varied forms of tenure (ownership or rental);
- Targeted a diverse range of consumers;
- Tended toward low to mid-rise infill development; and
- Addressed issues of affordability, sustainability and/or neighbourhood 'fit'.

Each of the cases offer a description of the historical context that led to the new initiative, photographs and design drawings of projects in question, the technical levers (or '*Fact Sheet*') supporting the housing form, as well as the benefits and drawbacks experienced of each.

A *Glossary* and *Appendix*, located at the end of the report, supplement the information on each case study.

Case Studies

Average Size of Case Studies



1. Small Lot Homes

Los Angeles, California



THE BIG IDEA

Townhouse density with fee-simple ownership

Front view photo of small lot development. Credit: Cullen Street Homes designed by Modative Inc. Architects.

Los Angeles is the second-largest city in the United States. It is a multicultural city known as the hub of the entertainment industry and a center of arts, culture, and fashion. Similar to other cosmopolitan cities like Vancouver and Sydney, housing affordability has been a challenge for Los Angeles for several decades. In 1999, the Los Angeles city council established the *Housing Crisis Task Force* in response to the city's severe affordable housing shortage. Thousands of affordable housing units were being demolished every year to make way for more luxurious homes, and the nearly built-out city did not have the land to accommodate new housing developments. In the months that followed, the task force released a report strongly recommending that Los Angeles increase the availability and production of affordable housing through innovative land use strategies.

In response to the call-to-action, the Los Angeles City Planning Department developed a proposal that would permit the subdivision of lots located within existing multifamily and commercial zones to develop fee-simple, detached townhomes exempt from typical homeowner's association requirements. In 2005, the city passed the proposal into law and the *Small Lot Subdivision Ordinance* was born.

Since the City of Los Angeles passed the ordinance, small lot projects have been developed in neighborhoods across the city. As of November 2013, over 160 subdivision cases had been filed, resulting in the approval of over 1,500 individual lots. In 2014, as a result of public and private feedback, the City of Los Angeles released a modification of their design guidelines focused on improving the integration of new small lot developments within established neighbourhoods.

The Small Lot Subdivision (Townhome) Ordinance

The *Small Lot Subdivision (Townhome) Ordinance* is an amendment to the *Los Angeles Municipal Code*. It allows for the subdivision of multi-family and commercially zoned properties into small single-family or townhome

style lots, that enable ownership of fee simple homes. Intended as infill development and an alternative to the traditional suburban singlefamily subdivisions, small lot homes have undersized lot areas with compact housing footprints, as well as reduced setbacks, frontages and open space.



Structural Independence - Flashing detail over two separate walls (dashed line). Credit: Cullen Street Homes designed by Modative Inc. Architects.



Cullen Street Homes small ot development aerial rendering. Credit: Modative Inc. Architects.



Cullen Street Homes street elevation. Credit: Modative Inc. Architects.

Detached townhomes have two or more floors and an exterior entrance. However, unlike traditional townhomes, they are structurally independent and do not share common walls. Instead, they have a 6 inch (or more) separation that may be covered by flashing.

FACT SHEET - Small Lot Subdivision (Townhome) Ordinance

Demographic	• First-time homeowners, young professionals and retirees
Zones	• R2, RD, R3, R4, R5, RAS, and C (Multifamily and Commercial).
Minimum lot size	 600 sq.ft. and 16 ft wide; Small lots may be irregularly shaped.
Number of units	 Dependant on the dwelling unit requirements established by the underlying zone; Typically 3 to 6 homes are developed per lot.
Average unit size	• 1000 – 1500 sq.ft.
Height	 Building-to-height ratio of 1:4. Buildings should have a height of at least ¼ of the width of the roadway. For example, on a 100-foot wide street, an appropriate building height would be 25 ft.
Open space requirements	 All structures on a lot may not occupy more than 80 percent of the lot area; Exceptions are allowed if the tract or parcel map provides common open space equivalent to 20 percent of the lot area of each lot not meeting the 80 percent requirement.
Setbacks	 A 5-foot setback is required between the subdivision and adjoining properties; There are no yard or setback requirements along alleys, streets, or between lots within the approved subdivision.
Parking	 2 garaged parking spaces are required per unit; The spaces need not be located on the same lot.
Separation of units	• Small lot homes must be structurally independent, with no shared foundations or common walls.
Tenure	Fee-simple ownership;No homeownership association (HOA) required.
Approval process	• 17 steps and a number of multi-departmental approvals in order to obtain a final building permit.

1. Fee-simple homeownership for condominium-style housing

The *Small Lot Ordinance* allows buyers to own the land and the structure, rather than just a percentage of shared space (as in a condominium project). The land is subdivided and each unit built on a separate lot. While easements for shared pathways and driveways may be necessary, there are no common walls or foundations and, therefore, the units are not subject to strata fees.

2. Making use of underutilized lots

Although small lot developments do not technically increase zoning density, they are usually built on underutilized lots, thereby increasing the number of units made available to the public.

3. Increase diversity of housing options for purchase

Home ownership options have traditionally been limited to singlefamily homes on 5,000 sq foot lots or condominiums. The *Small Lot Ordinance* extends this ownership option to include townhomes, row houses, and other types of infill housing typically only available for rent.

1. No demonstrated use in single-family neighbourhoods

The *Small Lot Ordinance* is restricted to use in commercial and multi-family zoned areas. While this form of infill development could be appropriate for some single-family neighbourhoods, it is unlikely that such a development would ever come to pass. Single-family neighbourhoods in Los Angeles are strongly defended and protected from densification.

2. Inadequate public consultation

The minimum consultation required was applied to the development of *The Small Lot Ordinance*. Despite having significant implications for communities in the City, public consultation was restricted to a few council meetings. The impact of this was that many homeowners were caught off guard by the policy and frustrated with its wide-reaching scope. For many, despite living in a home on a property zoned for commercial and multi-family units, the area shared the typology and residential character of a typical singlefamily neighbourhood.

3. Takes too long to implement

Implementing small lot developments can still be challenging for developers. First, subdividing land for small lot development can take up to a year (or longer), making the entitlement process complicated, time consuming and costly. A complicated permitting process can significantly delay projects. Developers applying for permits in the city of Los Angeles must go through approximately 17 steps and a number of multi-departmental approvals, in order to obtain a final building permit.

4. Parking requirements are too high

Despite locating developments on through-ways and in mixeduse areas, the parking requirements mimic those of single-family zones. A typical parking space requires up to 300 sq.ft.; the *Small Lot Ordinance* generally requires that each unit provide two garaged parking spaces, shrinking the availability of land for housing. Tailoring parking requirements to reflect the availability of transit options will promote compact and pedestrian-friendly communities.

2. House-plex Portland, Oregon



THE BIG IDEA

The appearance of single-family housing and the cost savings of attached homes.

House-plex in Portland, Oregon. Credit: City of Portland Bureau of Planning.

With a population of roughly 600,000, the City of Portland, Oregon is a diverse and historic city on the west coast of the United States. After the passage of Oregon's land use planning system in 1973, Portland embarked on a grand experiment in city planning: an urban growth boundary containing development - within a 22-sq-mile area - that protects the surrounding farmland and open space, a regional governance system spanning 24 municipalities and three counties, and an ambitious system of light rail and streetcars to service more dense, compact, mixed-use urban form.

As a result, Portland has pioneered a variety of new housing types and residential patterns. One such example is their approach to existing residential neighbourhoods. In 2008, The City of Portland created an *Infill Design Toolkit*, targeted at adding new housing outside of central Portland in areas that were primarily low-to-medium density.

The *Toolkit* presented like a menu, providing housing configurations to developers that were economically viable and met city approval requirements. It focused primarily on larger and irregular lots.

Furthermore, it embraced a wide diversity of housing styles including craftsman, cottage, colonial, and modern. Although it permitted variety, it also emphasized the existing neighbourhood pattern through the use of trees, similar frontage requirements, and orientation of buildings. The maintenance of these patterns facilitated the seamless integration of a diversity of new homes such as cottage clusters, courtyard townhouses, or House-plexes.

The House-plex

A House-plex is 3- to 4-unit residence that mimics a large single-family house. They are also called tri-plexes and four-plexes. House-plexes were a popular multi-family housing type in Portland neighbourhoods, during the early 20th century. Often built on small lots, the house-like appearance allowed them to blend in with nearby single-family homes. The Houseplex can have a townhouse style or a stacked form with units on top of each other. This housing form is permitted in all three standard residential zones. The size of a single unit within the House-plex can range from 1,000-1,400 sq.ft. They have been sold as condominiums and have also been developed as purpose-built rental.

The guiding principles for the development of house-plexes are similar to what you might find in a detached single-family home development:

- Windows, doors, and porches oriented towards the street;
- Matching the front setback with the adjacent houses and neighbourhood configurations;
- Avoiding large blank walls that face the street;
- Locating and designing windows and balconies to minimize overlook impacts on adjacent yards and residential interiors; and
- Making use of rear parking or tuck-under parking.

The approval process is relatively unique, and could be considered a best practice insofar that it was designed to remove uncertainty from the typical process. Thus, the *Infill Design Toolkit* provides designs for housing that are pre-approved by local government. The designs were developed by architects chosen by the city through a competitive process. The pre-set plans are particularly important since many of the infill sites are developed by contractors or smaller developers who may not have the resources to take on a complex infill project.



7 unit house-plex. Credit: City of Portland Bureau of Planning.



Four-plex. Credit: City of Portland Bureau of Planning.



House-plex development. Credit: Oris Developments.

FACT SHEET - House-plex

Demographic	• Retirees, small families and young professionals.
Zones	• R1
Minimum lot size	• 5000 sq.ft.
Number of units	• 3 – 4 units.
Unit size	• 1000 – 1400 sq.ft.
Height	• 40 feet.
Open Space Requirement	• 50 percent.
Parking Standards	 The parking guidelines are flexible and depend on the availability of transit; They range from 0 to 4 spaces.
Approval process	 No rezoning nor municipal council involvement required; If pre-approved plans are used, development permits are granted immediately.
Tenure	• Strata ownership or rental.
Other provisions	• Street frontage requirements to match existing neighbourhood pattern.

1. New housing option for residential neighbourhoods

More compact housing forms have typically been reserved for urban centres and commercial areas. The house-plex allows new residents - such as young professionals, small families and retirees to access neighborhoods that were previously inaccessible, due to finances or undesirable due to maintenance. They are drawn to the housing form because of its similarity to freestanding housing - with the private green space and street-oriented features - but with the affordability of attached housing.

2. Pre-approved plan permit option

Portland offers homeowners or contractors the opportunity to purchase and use house plans that have been pre-approved and conform with local building codes and many other standards. This simple, inexpensive-to-implement option reduces the permit process time for selected housing types and, in doing so, can contribute to reduced housing costs and making the units more affordable.

3. Accommodating density, preserving existing neighbourhood

The house-plex units and site organization, significantly reduce the appearance of density. The housing form has height restrictions similar to a typical single-family home. The requirements to match the existing neighbourhood patterns - including street trees, front yard setbacks, allowable frontage, and others - must all be maintained in order to provide a seamless integration at the street and neighbourhood scales.

1. Insufficient parking

This is the most challenging issue when creating house-plexes, especially given that there may not be enough space for rear parking. This being the case, the construction of a concrete garage that is "tucked under" the house-plex can make the construction cost-prohibitive. Portland allows parking relaxations if the house-plex is near transit, but off-street parking is one of the biggest challenges for this style of housing.

3. Grow Homes Montreal, Quebec



THE BIG IDEA

Do-it-yourself (DYI) housing model

Grow Homes in suburban Montreal, Quebec. Credit: Avi Friedman.

Montreal, Quebec is the second largest city in Canada, with a population fast approaching 4 million. Montreal is unique in the country, insofar that it is known for its low homeownership rates and more compact housing patterns. Canadian homeownership statistics in 2011 showed that 69 percent of households owned their home. In contrast, Montreal dominated by tenants, with 64 percent of households renting housing. These rental rates are the highest in the country, even surpassing those found in Vancouver – the most expensive real estate market in Canada.

Another distinguishing feature of the Montreal is the diversity of its the housing stock. Unlike many urban centres, detached single-family homes do not make up the majority of the housing. In fact, 65 percent of households live in attached dwellings such as row houses, duplexes and apartments. This contributes to its reputation as a compact city, with close to 900 people per square kilometer typical for most neighbourhoods, according to the 2011 Canadian Census.

The challenge for Montreal has been to continue to provide affordable housing options for its residents. While rental and cooperative housing have been the main vehicles for affordability, in the 1990s, the city piloted a new housing form, called the *Grow Home*, that was created to assist renters with the leap to homeownership.

The first *Grow Homes* were built in the suburbs of Montreal, in 1990. All of the units were sold before completion of the project. At the time, construction costs came to \$35,000 per unit. Once land cost was included, the final sale price was less than \$60,000. This was roughly half of the price of a detached single-family house, during that era.

Today, the cost of construction has remained essentially the same. This is due, in part, to the use of prefabricated units being built in a warehouse and pieced together on site. However, even in suburban areas where the price of a new *Grow Home* has risen to approximately \$150,000, this is still considerably less than a single-family home, whose value has doubled or tripled in similar areas.

As of 1999, there were 6,000 *Grow Homes* produced in the Montreal region, and a further 4,000 were produced in the rest of Canada and United States. Today, Avi Friedman - creator of the *Grow Home*, in collaboration with Witold Rybczynski - believes there to be as many as 10,000 *Grow Homes* in Montreal.

The Grow Home

The Grow Home is an attempt to create an affordable ownership option through informed design and prefabrication. Grow Homes are narrow row houses that are largely unfinished and lack partition walls. The lack of finishes reduces the costs and time required for construction, with savings passed on to the homeowner. At their leisure, or when finances permit, residents "grow" their home - finishing rooms, building partitions and adding fixtures. This is similar to the standard building practices in places such as South America, where limited income requires many to 'grow' into their homes over longer periods of time than is typical in North America.

The simple construction and design of the Grow Home also keep prices accessible for single-parent families and single-income households - groups that would have otherwise been shut out of the ownership market.

The Grow Home is typically built on a small lot. The homes are often 14 ft wide and approximately 1000 sq.ft. There are four models ranging from

A study conducted by the Canadian Mortgage and Housing Corporation found that 2/3rds of Grow Home residents finished their space after the 1990 purchase date, and 75 percent of those did it themselves or with neighbors. the most basic to a more elaborate option. The entry-level model has two floors and is built as a slab-on-grade. Typically, there is a kitchen, small bathroom, and living room on the main floor. The second floor has an unpartitioned master bedroom and secondary bedroom with an additional bathroom. In this model, there are no balconies, the upper level flooring is left as unpainted plywood and the kitchen is finished with melamine cabinets and countertops.

The most elaborate option includes two balconies, a basement (adding a third level), garage, hardwood flooring on the main level and carpeting on the second. Additionally, the buyer can request certain features be ready-installed into the home such as a roof window, a second bathroom, or an enclosed kitchen.

Since the housing form is a rowhouse, there was no new zone created - or bylaw amendment introduced - to facilitate the construction of the Grow Home. However, many development projects had to be rezoned to allow for more flexible land-use and smaller lots. Existing zoning also favoured condominium or co-op ownership options, as units under 18 ft wide could not be offered for sale as fee-simple or freehold.



The third of four Grow Home models

Configurations: Unfinished basement; lower balconies front and reat; no balconies at upper level; upper area with single partition; flat roof.

Exterior: Canexel siding; single-clad windows and patio doors; window sutters.

Interior: Vinyl and carpet flooring on ground level; unpainted plywood on upper level; pine stairs; L-shaped pine kitchen.

FACT SHEET - Grow Homes

Demographic	• Low income families (single mothers, single-income households).
Zones	• Townhouse or rowhouse development (H3-G-347).
Minimum lot size	• 2421 sq.ft.
Density	• 0.25 to 0.9 FSR.
Number of units	• 3 – 8 units per rowhouse development.
Unit size	• 800 – 1000 square feet on two levels.
Unit dimensions	• 14 ft wide, 36 ft long.
Height	• 32 ft.
Number of units	• 3 – 8 units per rowhouse development.
Open Space Requirement	• A rear yard is required.
Setbacks	The front setback is 19.6 ft.The back setback is 23 ft.
Parking Standards	• 1 – 1.8 per unit.
Separation of units	• Party wall agreement.
Orientation	• Street-oriented.
Approval process	• Rezoning with council approval required.
Ownership	• Strata ownership (under 18 ft wide) and fee-simple ownership (over 18 ft wide).
Other provisions	• Rental units possible within the home.
1. Effective affordable housing strategy

The Grow Home has a number of attributes of that contribute to affordability. The most obvious are the simple design and reduced finishing requirements. The costs to build a Grow Home range from \$10 to \$30 per sq. ft. - in stark contrast to average cost of \$300 per sq. ft in Vancouver. Costs are further minimized because of the efficient land-use model.

The lots required for development are relatively small and the fact that the housing form is attached typically saves approximately 60 percent on infrastructure costs, in comparison to a detached singlefamily home. That the home is also designed to be affordable postoccupancy is unique. Homeowners gain the ability to modify their home and upgrade the features, as they become more financially secure.

2. Flexible use of space to meet changing household needs

At the point of sale, homeowners are only required to approve a minimum number of finishes. That said, they have the option to add additional features such as a secondary bathroom, a dormer window, or enclosing walls within the suite. Over time, as the needs and financial stability of the household changes, walls and fences can be added, additional floors completed and new features introduced.

3. Energy efficient housing form

Through the compact design of the Grow Home, there can be savings on utilities such as heating and cooling. Witold Rybczynski, the co-creator of the Grow Home found that the narrow-front of the home resulted in a significant reduction in operating costs, since heat loss was limited to two exposed walls (front and rear) and a small roof area. A servicing cost of \$400 per linear foot totals \$20,000 for a typical 50-foot lot. This cost is lowered to \$5,600 for a 14-foot wide Grow Home.

1. Ghettoization of community

The majority of the units have been built in the suburban communities of Montreal. In many cases, the Grow Home was replicated over 400 times in close proximity to one another. The built form facilitated an enclave of low-income residents and, because the units were isolated from transit, commercial activity and other housing types, a ghetto-like community emerged.

2. Compromised quality finishings

One of the ways that the Grow Home ensures affordability is by selecting entry-level finishings in certain models. Thus, for example, melamine is used for the kitchen cabinets and vinyl siding for the homes exterior of certain options. These products typically break down and damage more easily. As such, the shorter lifespan of the interior finishings may increase costs over the long term, as broken or damaged products need to be replaced more rapidly.

4. Cottage Housing Langley and Seattle, Washington

THE BIG IDEA

Small homes oriented around a common space.

Cottage housing development, or 'pocket neighbourhood,' in Langley, Washington. Credit: Third Street Cottages designed by Ross Chapin Architects.

Langley is a small community of approximately 1000 residents town located on Whidbey Island – an hour ferry commute to Seattle, Washington. In the early 1990s, development pressures stemming from the nearby urban metropolis offered new vitality to the Langley community through an increase in tourism and permanent residents. However, the changes also threatened to overwhelm the town's rural character. A typical Pacific Northwest community, virtually all of the housing stock at the time consisted of conventional detached homes. In 1995, in response to the increased demand for housing, the community championed the first cottage housing ordinance in the state.

Cottage houses are single-family detached homes, typically less than 1000 sq.ft. in size. They incorporate many of the amenities prized by conventional single-family homes, such as no shared exterior walls and private green space. However, unlike conventional housing which is oriented towards the street and away from neighbours, cottage housing arrange 8 to 12 small homes around a introverted common open space, or courtyard, with parking screened from public view. The *Cottage Housing Development Ordinance* in Langley, Washington led to several developments within the village. Interest in the housing form was not limited to the island community, but rather caught on throughout the Pacific Northwest. Several communities including Spokane, Kirkland, Bothell Bainbridge Island and Shoreline developed their own cottage housing ordinances (many as pilot ordinances) and embraced the housing option as a way to diversify their housing stock, introduce affordable options and increase density.

For a number of reasons - including the availability of larger lots and the preference towards high-density infill developments - cottage housing is primarily viewed as an alternative housing solution for suburban and rural communities. However, Seattle – the fastest growing major city in the United States with 4 million residents - has recently included cottage housing as an option for infill development on larger lots, within existing single-family neighbourhoods. Seattle's *Residential Small Lot Zone*, which was modified in 2012 to include guidelines for cottage housing, is an attempt to build on the success of cottage housing in other communities, while tailoring the housing form to meet the constraints of an urban context.

Cottage Housing Development Model Standards

Although most aspects remain the same, cottage housing developments typically manifest themselves differently between suburban or rural communities, and urban centres. As a rule, cottage housing developments in less populated communities tend to be built on larger lots with larger homes (800 sq.ft. and greater). They also tend to allocate more space between common areas, semi-private and private zones. Lastly, they are more likely to include a common building which could be used as a workshop, guesthouse or 'great hall'. That said, there are still strong principles that often underpin the development of any cottage housing ordinance.

A pocket neighborhood is a grouping of smaller residences, often around a courtyard or common garden, designed to promote a close knit sense of community and neighborliness with an increased level of contact. Unlike cottage housing, pocket neighborhoods are not restricted to detached homes and can include any number of housing forms so long as they are oriented around a common space.



Tatlow Park is a de facto pocket neighborhood located on the West side of Vancouver. The 12 units were built as rental cottages in 1928. The homes stand out for their English country style steep pitched rooftops, bay windows, diamond leaded and arched windows, and traditional exterior beams. The homes surround a large landscaped enclosed courtyard, with a lychgate entryway.

Tatlow Park was saved from demolition in 1974. The cottages were converted to two level homes, without destroying the Tudor style.



Southlands is a neighbourhood development plan for the municipality of Delta. It will provide residents with a walkable, diverse neighbourhood connected to an agricultural resource area and one of the largest community farms in North America. As one of the housing options it plans to include cottages. The cottages will range in size from 900 to 1,600 sq.ft.. with a main floor living concept. Each home will be surrounded by its own private small yard, offering an outdoor area for a patio and small garden.

FACT SHEET - Cottage Housing Development Model Standards

Demographic	• Retirees and small families.
Zones	Residential
Minimum lot size	• 6400 sq.ft.
Density	 Cottage housing developments may be built at up to twice the allowed density for the underlying zone. This could be achieved three ways, depending on the municipality's zoning system: 1. Double the allowed units per acre; 2. Halve the minimum lot size requirements; 3. Allow two cottages on each single-family lot.
Clusters	 Minimum of 4 cottages and no more than 14 cottages; Developments tend to be made up of 1 or 2 clusters.
Unit orientation	• Facing inward on a common open space.
Setbacks and separation	 Cottages must be within 25 ft of the common open space; All buildings must be at least 6 ft apart and 5 ft from the lot line.
Parking	 Clustered and hidden from public view, either off of an alley or a private driveway; Garages are permitted; No more than five contiguous parking spaces.
Open space	 At least 400 sq.ft. per unit; Minimum of 200 sq.ft. for public space; 150 sq.ft. or greater to a private yard; All remaining space should be allocated for semi-private transitional landscaping.
Community infrastructure	• A community building is encouraged, but not required.
Lot coverage	• 40 percent of the lot can be covered by all built forms (homes and common spaces).
Cottage size	 Cottages may be no larger than 1200 sq.ft.; Ground floor limited to 850 sq.ft. in rural communities and 650 sq.ft. in Seattle.
Height	• Limited to 25 ft. in rural communities and 18 ft. in Seattle.
Ownership	• Fee-simple ownership, strata ownership or rental.

1. Appealing to a demographic that might otherwise choose a single-family home

Cottage housing has become popular with a wide range of residents, but often attracts retirees looking to downsize and small families seeking an affordable, community-oriented housing option. Cottage housing offers the privacy of a conventional single-family home by virtue of its detached housing model. Additionally, each cottage retains private green space, typical of conventional housing. However, because cottages are smaller and have much less private land, they tend to be more affordable to purchase and maintain.

2. More efficient use of land

Cottages can make the most of a smaller piece of land through their compact size and orientation on the lot. Typically, cottage housing developments double the underlying zoned density.

3. Clustered arrangements can contribute to a sense of community

Homes face inward, towards a common open space. Additional design features - such as large, covered porches - encourage the mingling of neighbours. A shared meeting or eating area further nurtures community relations.

COTTAGE HOUSING

1. Not always affordable

On a per-square-foot basis, cottages are more expensive to build than larger houses. This poses a direct challenge to the goal of using cottage housing to make homes more affordable. Cottages contain all of the same expensive parts of a conventional house - kitchen and bathrooms - but none of the builder's typical profit centres (such as sitting rooms, dining rooms or extra bedrooms) that add to the price of a house, but are inexpensive to build.

2. Limitations on density

Cottage housing does require a larger lot and there are more efficient models of land-use when density is the goal. Cottage housing alone is unlikely to increase population densities sufficiently to support additional amenities and address some the impacts of unsustainable land-use.

3. Not necessarily transit-oriented

Cottage housing development ordinances still require on-site parking and, as a result, reflect the car-oriented development approach typical in North America. However, the densities allowed are sufficient to prompt frequent bus service and projects could be developed with transit in mind.

5. Cohousing Burnaby, British Columbia



THE BIG IDEA

Small, private homes with a large, shared common space

A cohousing outdoor common space in Langley, British Columbia Credit: Julien Lamarche courtesy of Creative Commons.

In 1964, a group of senior residents and an architect purchased a site outside of Copenhagen, with the intent of co-developing the property for their own use. The group envisioned a development suited to supportive living. The site design included 12 terraced rowhouses, surrounding a common house and a swimming pool. Local officials supported the plan, however, residents living adjacent to the property vocally opposed the project and prevented it from proceeding. This early attempt at community-led development was the first iteration of cohousing. Since then, the idea of private ownership combined with shared amenities has spread worldwide. The *Canadian Cohousing Network* has counted more than 119 cohousing units in North America completed since 1991 and there are currently 100 more being developed.

Cranberry Commons Cohousing Development

In March 1999, a number of families from New Westminster and Vancouver came together with one shared purpose – to build a community that would be walkable, sustainable, and would provide a balance of privacy and community.

These were early days for the cohousing movement in North America. Not many people knew what cohousing was and many people assumed it was a type of social housing.

The Vancouver group had secured a site in North Burnaby (after many years of searching in the Vancouver area), and the New Westminster group had secured a site in the Sapperton area. However, neither group was able to attract the membership needed to make their project happen on the sites they had optioned. By joining together they had enough financial capacity to move forward. They made the decision to focus on the North Burnaby location.

In order to generate the funds and enter into contracts to purchase land and construct homes they formed a development company called *Cranberry Commons Cohousing Development Corporation* (a standard limited liability corporation). They had secured one lot, but needed to purchase the four

adjacent lots from the City of Burnaby in order to have enough land for the multi-family development.

The neighborhood reflected all of their needs. It was within walking distance to restaurants, a recreation center, library, parks, medical services and a grocery store. The neighbourhood was also well served by transit, with connections to downtown and major skytrain hubs.

The site was originally zoned R5 Residential and had been designated for redevelopment by the City of Burnaby. The initial rezoning application by



View of cohousing development on Bowen Island. Credit: Belterra Cohousing.

Cranberry Commons was for CD Comprehensive Development based on RM4 guidelines however they found the RM4 guidelines were too restrictive to accommodate the shared spaces and intergenerational community.

Therefore an application was made to increase the FAR from 1.1 to 1.3 to include the additional area required for the common amenities as well as increased circulation space required to accommodate a combination of apartment and townhouse units that would serve the needs of both young families and elders. After zoning had been completed, the 5 properties were consolidated into one parcel.

The *Cranberry Commons* members moved into their homes, in October 2001. The cohousing development featured 22 units that mix townhouses with apartments. The buildings range in height from 3 to 3.5 stories tall and are arranged around a common courtyard. There is a great variety of unit sizes, ranging from 500 sq.ft. for a bachelor suite, to 1300 sq.ft. for a 3 bedroom townhouse. Each unit has their own private outdoor space.

The greatest distinguishing feature of cohousing developments, from a built form perspective, is the common space. *Cranberry Commons* has approximately 6000 sq.ft. of shared outdoor space (featuring a courtyard, roof deck and garden). The interior common amenity, referred to as a



Courtyard view of Cranberry Commons Credit: Northwest Intentional Communities Association website.

common house, totals an additional 3400 sq.ft. of common area and features a lounge, kitchen, dining/ multi-purpose room, laundry space, guest room, a workshop, office space, meeting room, children's playroom, Teen's room and storage. At the parking level, there is bicycle storage, a car servicing area and a woodworking room.

FACT SHEET - Cranberry Commons Cohousing Development

Demographic	• Families and seniors with shared values.
Zones	CD (Comprehensive development)
Lot size	• 20,117 sq.ft.
Density	• 1.3 FSR
Units	 22 homes: 10 apartments and 12 townhomes; Smallest unit a bachelor apartment 493 sq.ft.; Largest unit a 3 bedroom townhouse 1,267 sq.ft.
Height	• 35-40 feet
Parking Standards	• Total 38 stalls (32 residents and 6 visitor stalls)
Orientation	• All unit kitchens face towards the inner courtyard (to support connection with neighbours) and also face outwards to the street to allow for the balance of privacy.
Ownership	• Strata ownership
Other Provisions	Rezoning required

1. Private small homes mixed with large shared amenities

Because the resident group is involved in all decisions related to the design, the homes can be as large or as small as they choose. However the desire to live more sustainability and the opportunities for sharing that exist with the extensive common amenities means the homes can be much smaller without negatively impacting life style.

2. An intentional community that prioritizes neighbourliness

Cohousing residents participate in the planning, design, ongoing management and maintenance of their community– the final product is a direct response to the needs and desires of the group. They meet once or twice a month to address each of these processes. The cohousing model for decision-making works with individual interests while balancing the interests of the whole in order to come to a solution that is in the best interest of the group. In that process they build the bonds that are the foundation for on-going community. In *Cranberry Commons*, one of the residents is 95 years old, living independently, but benefiting from the support of the community.

3. Contributes to affordability and environmental sustainability

Cohousing neighbourhoods tend to offer environmentally sensitive, pedestrian-oriented design, at a price that is comparable to conventional homes in the local area. However, because of the social structure and access to shared resources, cohousing homes provide opportunities for reducing home sizes and thus living costs that are not available in conventional neighbourhoods. Since one of the deep-rooted principles of cohousing is to reduce the community's ecological footprint, choices related to compact design, energy management and sustainable material use tend to be prevalent. In the case of *Cranberry Commons*, the homes included solar panels to augment domestic hot water, high-efficiency in-floor radiant heating, water-efficient toilets and showers, resource-efficient building materials, and non-toxic interior finishes.

1. Lengthy and complicated development process

Cohousing is predicated on a large group of committed individuals coming together to find, secure and develop a property. This is a complicated process for an experienced developer, let alone a group of passionate individuals. In the case of *Cranberry Commons*, they had to form their own development company and contribute their own money in order to purchase a property. The fact that they were seeking a walkable, affordable neighbourhood complicated matters, as they competed directly with developers for desirable lots. Groups need to work with experienced professionals and many groups make the mistake of thinking they can do it themselves. The Vancouver group spent five years trying to make a project happen before coming to the realization that they needed to hire professional help. Once professionals were involved, the project took approximately three and a half years from site acquisition to move-in.

2. Consensus-based decision-making model

A traditional strata property is made up of a council of homeowners that use a voting system, based on proportionate unit entitlement, to set rules about the use of common and private space for all residents. A cohousing strata is based on a consensus decision-making model. While not everyone has to agree, all residents are invited to share their opinions and are asked to strive for agreement, in all of their decisions. In the case of stalemates, residents are asked to consider whether or not they can live with the result, and if the response is 'yes,' a decision can be reached. This is a highly involved and challenging process that tests the residents' ability to compromise, communicate and keep the collective good of the community in mind.

6. Laneway Houses Vancouver, British Columbia



THE BIG IDEA

Backyard homes for family or rental

Street view of laneway house and principal residence. Credit: Smallworks.

On July 28th, 2009 Vancouver City Council approved a bylaw amendment allowing small homes to be built in the backyards of single-family residences. With one of the largest proportions of single-family lots in North America, laneway housing marked a important decision by the City of Vancouver to introduce policies of urban intensification into low-density neighbourhoods. Many Vancouver residents had been anxiously awaiting the new housing form, attracted by the role laneway housing could play as a mortgage-helper and easing the financial burdens of homeownership in city's expensive real estate market. For others, laneway housing had the potential to solve family problems, such as providing aging parents and adult children with a home of their own.

Early iterations of laneway housing (LWH) were introduced to the public through *EcoDensity* neighbourhood consultations in the early 2000s, however, it would take many more years before Vancouver became the first city in North America to widely embrace the idea of building small homes in residential backyards.

In July 2009, Council adopted laneway housing regulations and guidelines for properties in the RS-1 and RS-5 single-family districts, which make up 94 percent of the city's single-family lots. In November 2010, after 100 laneway housing permits were issued, staff reported to City Council with a *Monitoring Report on Laneway Housing Development*. Council directed staff to report back with amendments to address key issues of neighbourliness, livability, and length of the permitting process. Staff reported to Council with proposed amendments to the laneway housing regulations and guidelines, as well as the expansion of the laneway housing program into new RS districts in spring 2013.

Well over 1,500 laneway house permits have been issued in Vancouver since they became legal in 2009.

Laneway Housing Program

According to the city's specifications, laneway houses are detached dwellings located in the backyard of a single-family lots, ranging in size from 500 sq.ft. to 900 sq.ft. The program allows for the placement of

a small residential building on almost every 33 foot wide (or larger) detached housing lot in Vancouver. The laneway housing program has established design guidelines which must be followed to access a development permit.

Vancouver is not the only municipality in the region to permit laneway housing, however, it has implemented the most expansive, inclusive program. Homeowners can undertake a laneway home development while retaining or establishing a secondary suite (basement apartment) in the main



Laneway house on a corner lot, approximately 700 sq.ft.. Credit: Lanefab.

home - adding to the overall density of the lot. As long as the lots meet certain minimum requirements, laneway housing is permitted in the city's entire single-family home lots, allowing over 70,000 homeowners to build them on their property.



Laneway house on a corner lot, approximately 700 sq.ft. Credit: Lanefab.



Edwardian-style laneway home, approximately 500 sq.ft.. Credit: Smallworks.

Laneway housing has been present in the community over the last century and has many different names including coach houses, carriage homes, granny flats, garden suites and infill housing. In the early 1900s, a coach house was sometimes the first unit built on a lot to house the owners while the principal residence was constructed. The coach house sometimes survived afterwards at the rear of the lot. Usually they were replaced by a garage. Other times they were built to provide housing for expanding or extended families.

FACT SHEET - Laneway Houses in Vancouver

Demographic	• Young professionals, small families and retirees.
Zones	• RS-1 & RS-5 (Single-family dwelling district)
Minimum lot size	• 33ft. x 122ft.
Number of units	 3 units are allowed on the property. A principal dwelling with secondary suite and laneway home
Unit size	 The floor area of a laneway house must be a minimum of 26m² (280ft²), with a possible relaxation down to 19m² (204ft²); The maximum floor area of a laneway house is determined by multiplying the lot area by 0.16. This results in maximum unit sizes of approximately 56m² (644ft²) on standard 33' x 122' lots, and 84m² (900ft²) on 50' x 122' lots. The maximum size of a laneway house is 900ft², regardless of lot size.
Height	 A 1 storey laneway house is limited to the same maximum height as a garage, which ranges from 3.7m (12ft.) if a flat roof or to 4.6m (15ft.) for a sloped roof; A laneway house with a partial upper storey can have a maximum height of 5.5m (18ft.) to 6.1m (20ft.) depending on roof type and pitch; The partial upper storey (measured to the extreme outer limits) is restricted to 60% of the footprint of the laneway house. This is intended to limit shadowing and overlook on neighbouring backyards.
Open Space Requirement	 A laneway house should have access to private outdoor space in the backyard and/or on an upper level deck facing the lane; Landscaping is encouraged along the edge of the lane. A permeable surface is required for parking areas. Green roofs, green walls, and drought-tolerant plantings and deciduous trees are also encouraged.
Parking Standards	• A minimum of one unenclosed and uncovered parking space MUST be provided on site adjacent the laneway house for both one and 1 and 1½ storey laneway houses. The parking space may be for the use of any of the dwelling units on site.
Privacy standards	 To enhance both livability and neighbourliness, upper level decks are allowed, but are limited in size and must face the lane, not the backyard or a neighbouring garden; Upper level windows facing sideyards and gardens are limited and/or designed to increase privacy and reduce overlook of neighbouring properties. If a 0.6m (2ft.) sideyard setback is provided, windows are not permitted along the side facing the sideyard.
	NOTE: A more comprehensive list of laneway house requirements across various municipalities in Metro Vancouver can be found in the Appendix and at: www.smallhousingbc.org/

1. Typifies gentle densification

Unlike towers and apartment buildings, laneway housing is a relatively benign form of densification. Since the homes are hidden away from the street and smaller than the principal residence, the added density is not immediately visible. With pressures to accommodate new residents in urban centers and move away from unsustainable land use patterns, laneway housing offers a reasonable solution for existing residential neighbourhoods.

2. Flexible housing arrangements

Laneway housing facilitates intergenerational living and more flexible family arrangements. The homes can be used for aging family members, adult children, caregivers and homeowners wishing to downsize.

3. Acts as a mortgage helper

Vancouver has the highest housing prices in Canada. A 2012 article on homeownership, written by the Vancouver Sun's Tracy Sherlock, calculated that owning a single-family detached bungalow in the city would take up 91 percent of a typical household's pre-tax income. The revenue generated from the rental of a laneway house can currently range from \$1500 to \$3000 per month, which can contribute substantially to mortgage payments.

1. Neighbourhood resistance

Single-family neighbourhoods are often characterized by a uniformity of available housing options. The introduction of a housing form that facilitates more residents into low-density communities has been met with some resistance. Opponents have raised concerns about the lack of available parking, privacy (since some homes look onto their neighbour's backyard), shading on adjacent lots, and the impact on housing prices. The development process is also very disruptive. Laneway house construction typically involves noisy and messy processes with cranes, hammering and many truck loads of product, which can last for months and aggravate neighbours.

2. Permanence of built form

Unlike a basement suite which can be easily re-absorbed into the main home if circumstances change, a laneway house is much more permanent. Even if the financial stability of the homeowner changes and they no longer need the income from a rental property, the laneway house cannot be easily re-absorbed. To reclaim a backyard would require the laneway house to be destroyed...an expensive solution.

3. Cost prohibitive

Even though the homes are small, the construction costs are significant, with the average development ranging from \$250K to \$350K. This can be mostly attributed to the nature of infill housing, which is typically done on a case-by-case basis and requires navigation of existing infrastructure - such as other homes, cars, power lines etc. Similar to cottage housing, laneway homes can cost more since they retain the more expensive elements of housing such as kitchens and bathrooms, while forfeiting inexpensive additions, such as extra bedrooms.

7. Suites in Duplexes

City of North Vancouver, British Columbia



THE BIG IDEA

Four residences within a duplex that meet fire and safety codes.

Front view of first legal duplex with secondary suites Credit: City of North Vancouver and Terry Sidhu.

The City of North Vancouver is a waterfront municipality located on the north shore of Burrard Inlet, directly across from Vancouver, British Columbia. It is unique within the region because of its small size (11 km²) and highly urbanized land use. Pressures to accommodate a growing population, coupled with limited affordable housing options, have driven the city to diversify their residential rental and homeownership options, ranging from apartments, townhouses and coach houses. Residents of single-family homes have not been exempt from the housing pressures and the uptake on secondary suites within single-family homes has been tremendous.

The trend first began in the 1990s, as homeowners seeking mortgage helpers illegal created secondary suites. In 1997, the City of North Vancouver responded by approving secondary suites within detached single-family homes.

Secondary suites have not remained limited to detached single-family homes. Within the last five years, the City of North Vancouver noted well over 100 instances where residents added suites to their duplexes. Recognizing that the units served an important role of providing affordable rental housing stock, the City was hesitant to enforce their own bylaw restricting their use to single-family homes. After much deliberation, the city enacted a moratorium on the enforcement of their bylaw, in 2012. They also initiated steps to address the health and safety issues within existing duplex suites and establish the parameters for the development of secondary suites within duplexes.

In March 2013, the City of North Vancouver passed a bylaw amendment allowing the development of secondary suites within duplexes. They are the first municipality in North America to allow for the provision of an accessory dwelling within a duplex.

The bylaw amendment legalizes the development of new dwelling units on the City's 670 lots with duplex designation, in the *Official Community Plan.* This lays the foundation for upwards of 1,300 accessory suites. The change will result in a more efficient use of land in close proximity to the city's service core, with little or no visual change to established neighbourhoods.

Accessory Dwelling Units in Two Unit Residential Buildings

A duplex, or semi-detached house, is a structure where two dwellings are attached side-by-side (or back-to-front) by a common wall(s). There is no dwelling above or below each unit, and each has its own separate entry. The installation of a secondary suite in a new or existing single-family dwelling or duplex is permitted in the City of North Vancouver, subject to both the *City of North Vancouver Zoning Bylaw* and the *British Columbia Building Code* (BCBC).

As defined by the BCBC, a secondary suite is an additional self-contained dwelling unit within single-family dwelling or duplex that includes cooking and sleeping facilities and a washroom.

The bylaw amendment includes the following requirements:

- The owner of the building must live in one of the units;
- The accessory suite must be enclosed within the principal building;
- An off-street parking space must be provided;

A secondary suite is an additional separate dwelling unit either in the basement or the ground floor, within a home that would normally accommodate only one dwelling unit.

- Secondary suites are limited to one per principal dwelling unit;
- The size of the suite is limited to a minimum of 400 sq.ft. and a maximum of 969 sq.ft. OR 40 percent gross floor area, whichever is less; and
- The accessory unit shall not be stratified as a separate unit under the Strata Property Act.



View of secondary suite entrance from inside the unit. Credit: City of North Vancouver and Terry Sidhu.



Pathways to secondary suites from back alley. Credit: City of North Vancouver and Terry Sidhu.

FACT SHEET - Suites in Duplexes

Demographic	Students and young professionals.
Zones	• RT-1 (Two-family dwelling district)
Minimum lot size	• 4800 sq.ft.
Number of units	 1 accessory unit per duplex; 4 units total if both basements are developed into suites.
Unit size	 Minimum of 400 sq.ft.; Maximum of 969 sq.ft.
Height	• 33 ft maximum height.
Open Space Requirement	• 35 percent of the lot size must be dedicated to open space.
Usable porches	 Porches and decks cannot exceed 10 percent of usable floor space; Recessed porches are preferred.
Parking Standards	• 1 additional parking space for accessory suite.
Privacy standards	• Minimum of 8 ft. of private outdoor amenity space.
Separation of units	 Smoke tight barrier and a wall with 1 hour fire protection rating; A 6.1m separation between duplex and rear garage.
Approval process	Development permit process.
Tenure	Owner must occupy one of the duplex units;The secondary suite may be used for rental or family.
Other provisions	• The entry to a secondary suite should be a discrete element when viewed from the street.

1. Staggered changes led to improved policy choices

The City of North Vancouver spread out the implementation of the bylaw amendment over several years. The timing of each successive lever allowed for appropriate public consultation and feedback, as well as the time necessary to modify the policy and legislative levers. For example, the bylaw was suspended in 2012 and amended (following community consultation) in 2013. Design guidelines aimed at improving livability were only developed and approved in 2014. The delay ensured that the design guidelines addressed real challenges regarding the implementation of the bylaw.

2. Responsive community engagement strategy

The City of North Vancouver ensured that many of the concerns expressed by residents - such as parking shortages, traffic congestion, overcrowding and character change - could be addressed through the planning process. The City's engagement process included a survey, several open houses and city council hearing. Furthermore, residents were given the option to opt-out of a zoning change on their property, if they felt strong opposition.

3. Facilitated hidden density

Since the accessory dwellings are located within the duplex, the increase in density is not explicitly visible from the street.

4. Increases housing options

The option to develop a duplex within a secondary suite, or retrofit an existing duplex to support one, increases the options available to potential homeowners. Such options become particularly appealing for families with children seeking a mortgage helper, as well as multi-generational families looking for a two-family home.

1. Challenges to fire and safety standards

The *British Columbia Building Code* (BCBC) provisions make secondary suites in duplexes difficult and cost prohibitive to build. Currently, under the building code, a duplex building with an accessory unit is considered a four-plex. This results in a requirement, among other considerations, for a firewall between units, and makes conversions in existing buildings impractical. A firewall is a non-combustible wall, usually made of concrete. Such a wall is only really feasible within a new development and is nearly impossible within older housing stock. While the City of North Vancouver is working with the Province and developers to address this, current regulations limit the option to new construction.

2. Allocating space for parking

Parking can prove to be a challenge when adding a suite to an existing duplex, or in the case of a new construction. The City of North Vancouver intends to keep the requirements unchanged. Therefore, an additional parking space would be required for the new suite. This can be costly for a homeowner to do themselves, as well as reduce green space available on the lot. As transit infrastructure improves, planners will have to identify where parking requirements could potentially be reduced.

3. Compromised livability in existing duplexes

There are design and construction challenges when creating accessory suites in duplexes. In existing duplexes, the challenge of meeting design guidelines for daylighting and livable suites would be very difficult for a building with a sunken basement. The firewall retrofit is also not always feasible. As a result, this bylaw amendment will most likely apply to new developments rather than existing housing stock - greatly reducing the potential impact of the policy.

8. Lock-off Suites

Burnaby, British Columbia



THE BIG IDEA

Basement suites within apartments.

View of multi-family residential building with lock-off suites located in UniverCity.

The City of Burnaby was the first municipality in North America to legalize secondary suites within apartments. Also called lock-off suites, they enable owners of condominiums to rent out extra space in their homes. Burnaby is a municipality east of Vancouver, British Columbia with a population of almost 250,000. The city has two large post-secondary schools - Simon Fraser University and British Columbia Institute of Technology. Those institutions have approximate student populations of 23,000, and 18,000, respectively, and a significant proportion of those students require rental housing.

In 2000, prompted by a proposed development adjacent to the Simon Fraser University campus, the City of Burnaby introduced zoning to allow secondary suites in apartment buildings.

The proposed development has become *UniverCity* - an intact high-density, mixed-use, transit accessible, walkable and family-friendly community at the top of a mountain. *UniverCity* is managed by the *Simon Fraser University Community Trust* and one of the goals of which is to champion innovative

neighbouhood development approaches. Lock-off suites are one such innovation and a product of the collaboration between the *Trust* and the City of Burnaby.

Lock-off Suites

The lock-off suites were created in response to the greater rental need on Burnaby mountain, due to the large student population at Simon Fraser University. The P11 and P11e zones were created in the municipality to facilitate lock-off suites. The terminology used at the time was "multi-flex housing." However, the term "lock-off suites" has emerged as the more popular vernacular, within Metro Vancouver.

At the time of their inception, lock-off suites were seen as a mechanism to prevent a culture of investors purchasing units and renting them to students. Instead, the apartments were designed to appeal to families and singles that might, at some point, want to rent the semi-private suites for additional revenue. The lock-off suites are currently in three developments: *NOVA 1, NOVA 2,* and *One UniverCity Crescent*. There is currently one additional project slated to incorporate the lock-off suites in its design.

The design guidelines were inspired by hotel rooms that feature separate suites in the same unit, by using a lockable door between its rooms.

Review and Approval Process

The requirements for approval within UniverCity are comparable to other multi-family units - requiring topographic data, a grading plan, floor plans, materials, and massing documentation. However, in order to approve the lock-off suites at *UniverCity*, the development application must also include:

- A summary of public consultation activities and input; and
- Certification by Simon Fraser University and Burnaby Mountain Community Corporation that the development meets their development guidelines.



Floor plan of lock-off suite. Credit: Perkins & Co.

FACT SHEET - Lock-off Suites

Demographic	• Students and extended family.
Zones	• P11 and P11e (Public and Institutional Districts).
Minimum lot size	• 43,057.53 sq.ft.
Density	• 0.45
Number of units	 Minimum 10 per building, maximum of 50 percent of total units can be lock-off suites; The suites can take up a maximum of 35 percent of gross floor area of building.
Unit size	• Minimum 258 sq.ft.
Height	 P11: 4 stories maximum (54 ft.); P11e: 10 stories maximum (110 ft.)
Lot coverage	P11: 30 percent of lot area;P11e: 35 percent of lot area.
Parking Standards	• 1 additional parking space for accessory suite.
Bicycle parking	 1 residential parking space unit; 2 visitor bicycle parking spaces per unit.
Privacy standards	Secondary Suite is lockable.
Approval process	Development Permit Process.
Tenure	 Strata title ownership; Owner must occupy one of the duplex units, and the lock-off suite can be used for rental or family.
Other provisions	• If the unit is made available for rent then it must be registered with the Student Housing Registry at Simon Fraser University.

1. Increased housing options

The lock off-suites provide an additional form of rental housing that introduces newer suites, at a reasonable rental rates. The newer suites have greater design and livability standards, as they have gone through an appropriate review process. Unlike secondary suites in single-family homes, lock-off suites allow a renter to live without a car, by virtue of the housing type being more connected to transit and amenities.

2. Increase affordable rental stock

When compared to the rents in purpose-built rental buildings, the rate for secondary suites is typically seen to be lower. The rents for the lock-off suites in Burnaby range from \$525 per month to \$750 per month. The lock-off suites are considered another form of secondary suites. According to the *Canadian Mortgage and Housing Corporation*, secondary suites have been estimated to make up as much as one fifth of the rental units in British Columbia. The inclusion of these suites into new condominiums can significantly increase the rental stock in cities.

3. Mortgage helper

A homeowner of an apartment can factor in rental income when calculating mortgage payments. The additional rental income can greatly help to meet mortgage payments. This rate can be affordable for a renter who, in Vancouver, would pay an average of slightly over \$1,000 for a one-bedroom apartment (Numbeo, *Cost of Living in Vancouver, Canada*).

4. Room for extended family

Multi-generational housing arrangements are increasing, as a result of the high cost in housing in Metro Vancouver and an emerging consumer that values shared living arrangements with family. The ability to use the units for adult children or aging parents is one option presented by the lock-off suites. In the case of one building in *UniverCity*, the secondary suite is on a separate floor, for additional privacy.

1. High construction costs

The requirements for the suite which include a second kitchen, lockable doors, and fireproofing standards, add to construction costs. The increased construction costs are passed on to the consumer and overall purchasing prices tend to be higher, when compared to a traditional 2- or 3-bedroom unit.

2. Parking availability

All secondary suites have had issues with the new tenants needing more parking space. In the case of *UniverCity*, the parking requirements were lowered due to transit accessibility and the walkable nature of the community. However, the community (which is situated atop Burnaby Mountain) is still located far from other amenities and communities in Burnaby and, as a result, rates of car ownership are higher than expected.

3. Security of tenure

The hidden nature of these suites makes poor rental practices more likely. Landlords may increase rent prices unfairly and rapidly. Additionally, the agreements may be informal in nature, so the tenants can be evicted without proper notice. Registration into a secondary suites program and enforcement of the *Residential Tenancy Branch* are important for successful implementation of the lock-off suites - or secondary suites, in general - as they provide protection for the renter.

4. Incentivizing lock-off suite construction

Lock-off suites are more complicated and costly to build than typical apartment buildings and, since profit margins are sufficient in traditional development, there are few incentives to build them. Furthermore, in areas that are considered more affordable - such as suburban municipalities - there may not be a market for this type of accommodation.

9. Micro Suites San Francisco & Los Angeles, California



THE BIG IDEA

Tiny homes with multipurpose space

Micro-suite development in San Francisco, California. Credit: The Harriet Building Panoramic Interests

San Francisco is a city that has had a notorious affordability problem, similar to the metropolitan Vancouver region. Over the last 10 years, wealthy high-tech programmers and entrepreneurs seeking an opportunity to live in the culturally rich city, have flooded the housing market. The influx of capital has increased rental rates and decreased vacancy in many areas of the city. San Francisco has taken steps to tackle their affordability problem using a historically large stock of public housing, stringent rent control regulations on over 100,000 rental units, and the development of micro suites.

The creation of micro suites - or efficiency suites - was done in response to the challenge of affordable housing. The choice was predicated on the belief that smaller unit sizes would allow increased density of units in a similar sized lot, and the smaller unit size would command a smaller rent. The efficiency units are also an effort to engage the middle class, in a city where policies are meant to help the poorest and the existing housing serves the upper-middle and wealthy classes.

The Efficiency Dwelling Units Ordinance

In 2012, the San Francisco Planning Department introduced *Efficiency Dwelling Units,* authorizing the development of micro-suites in the city.

San Francisco planning department set out several requirements for the development of the suites:

- The minimum suite envelope was defined as 220 sq.ft., measured from the inside perimeter of the exterior walls of the unit. It can include closets, bathrooms, kitchen cabinets, living, and sleeping areas.
- A minimum of 150 sq.ft. must be retained for the living area.
- Each unit must be equipped with a kitchen sink, cooking appliance and refrigeration facilities, each having a clear working space of not less than 30 inches.
- Each unit is required to have a separate closet.
- A separate bathroom containing a water closet, lavatory and bathtub or shower is required.
- No more than 2 residents can inhabit the micro suite.
- The open space requirements are calculated based on number of units built and the location of these units.
- 15 percent of the approved units must be priced below market rate. Exceptions can be made for suites that are intended for student housing.



Multi-purpose furniture is important for Micro Suites. View of kitchen and living area. Credit: The Harriet Building Panoramic Interests.



The table can be used as a workspace or eating area by day. Credit: The Harriet Building Panoramic Interests.



The same unit converts to a bed. Credit: The Harriet Building Panoramic Interests.

FACT SHEET - Micro Suites

Demographic	 Singles, high-tech professionals and millennials.
Zones	• Mixed-use and multi-family zones.
Lot size	Dependent on zone.
Density	Dependent on zone.
Number of units	• 375 maximum.
Unit size	 150sq.ft. for living area; 220 sq.ft. for total unit.
Height	Dependent on zone.
Open Space Requirements	• 50 sq.ft. – 300 sq.ft. per unit dependant on location.
Parking	 Bicycle parking required, zero parking requirements in the urban core; Car share parking requirement.
Green space	• There is no mandatory green space requirement for efficiency suites, however there are appropriate landscaping and street tree requirements for street facing buildings.
Review process	• Full application and council review.
Tenure	• Strata title ownership or rental.
1. Increased density

Micro suites allow for high levels of density without towers. The units are best located in mid-rise apartment buildings, where the density can be hidden. An example is Vancouver's Burns Block building, which has 30 units contained in a 6 story building, with the first level serving as commercial space.

The San Francisco Planning Department conducted an analysis that demonstrated that a 50,000 sq.ft. micro suite building can gain as much as 32 percent in additional suites (55 units). This can be a very large gain for the rental stock in a city, non-market units, or other subsidized housing.

2. Improved affordability

The San Francisco Planning Department demonstrated that the overall cost of construction is similar to the traditional-sized apartment. However, the absolute cost of rental or ownership of these units is lower than a traditional-sized unit. The average rental price in San Francisco regularly increases, with the average price of a studio apartment in 2014 being greater than \$2,000 monthly. The new micro units have been shown to reduce the rent to \$1,200 - \$1,500 monthly which is a 25 to 40 percent drop from market rates.

3. Housing for millennials and singles.

The inner cities are attracting more and more young people, while the demand for larger suburban houses decrease. This is creating a significant demand for one- or two-bedroom units close to amenities, and micro suites are poised to fill this demand.

4. Meeting social housing goals.

According to the San Francisco Planning Department, the key advantage of micro suites is the promise of affordable social housing. Building subsidized housing is expensive for government or nonprofits, and this alternative can become a cost effective solution to that problem. While upfront costs may be similar, the operating costs can be lower for the suites. Micro suites can also be purposebuilt for seniors with limited mobility, persons with special needs, or at risk youth.

1. Lack of prior examples and successes

The affordability crisis is an emerging trend in North America, partially due to increasing land constraints. Micro suites are a response to those constraints. However, there are no historical examples in the western world where micro units have gone through a full life-cycle. Thus, the degree to which this housing type is sustainable - versus a simple trend - is difficult to gauge.

2. Livability

A major drawback for micro suites has been the perception that they compromise livability. The lack of space makes storage a challenge and the multi-purpose nature of the space may not be practical. Natural lighting and visibility also tends to be reduced, as windows can only be built on one small wall.

3. "Twitter Apartments"

Tenancy rights activists, as well as affordable housing advocates, have taken issue with micro suites, asserting that they are intended for high-tech workers to have a 'crash pad' and that they speak to the fact that is okay to 'box people up.' Opponents believe that San Francisco should do more to make family housing affordable. In response, the city limited the number of micro suites that can be built per building.

10. Tiny Homes Portland, Oregon / Vancouver, BC



THE BIG IDEA

Mortgage-free, bylaw exempt, ecologically sensitive smallliving.

A demonstration tiny house village in the District of Columbia.. Credit: Boneyard Studios.

It would be impossible to discuss the innovations that have occurred in small housing over the last two decades, without paying tribute to the tiny house movement. It is an architectural and social movement that encourages the development of small homes, as a means to live minimalist lifestyles that are both environmentally and financially sustainable.

The tiny house movement is most often associated with a few key individuals who, over the course of several decades, influenced the thinking of ten of thousands of people. In the 1980s, an architect named Lester Walker published a book of photographs and drawings called *Tiny Houses: or How to Get Away From It All*. The book included pictures of the dune shacks in Provincetown, Massachusetts; 200 sq.ft. houses built in Texas, in the late nineteenth century by German farmers; and the 140 sq.ft. houses that San Francisco built in 1906 for survivors of the earthquake.

In 1998, Sarah Susanka published the book *The Not So Big House* which is credited with starting the backlash against supersized homes. Susanka challenged Americans to think about housing as a sanctuary that simplifies our lives, rather than taxing our energies in maintaining it.

Soon afterwards, in 1999, Jay Shafer built a 110 sq.ft. home on wheels and lived in it for 5 years. His decision to place his home on a trailer platform was a deliberate choice to circumvent "minimum size standards" required by city bylaws. The trailer platform made the home mobile and, as a result, exempt from the municipal regulatory framework. His 'tiny' decision became instrumental in propelling the tiny house movement into the realm of possibility for thousands of North Americans and he

would go on to become the first tiny house builder/designer, as well as an author of several books.

Outside of the thought leaders on the subject, the tiny house movement is often explained as a response to several external factors, such as climate change, ecological degradation, the economic crisis and a rejection of consumerism.

Mirroring the interest in small homes, a burgeoning industry has emerged to support the proliferation of tiny houses. There are dozens of blogs, books and even a television



One of the first tiny house designs by Jay Shafer. Credit: Tumbleweed Houses and The Small House Book.

show dedicated to exploring the phenomenon. Builders have sprung up to meet the consumer demand for prefab trailer homes. Workshops, equipping tiny house enthusiasts with the tools to build their own home, regularly sell out. The first tiny house hotel opened its doors in 2010, and several communities have begun to explore how the houses can be used to address homelessness.

Tiny Homes

Although there is no authority on the definition of tiny homes, the emergent understanding is that they range from between 80 to 180 sq.ft. They are detached houses, usually on a trailer bed, and often fall under the category of accessory building or 'shed'. Since they are typically built as a mobile unit, they are usually between 6 and 8 ft wide and between 10 ft. and 18 ft. long. Similar to micro-suites, space is simple, consisting of one multi-functional space with a private washroom. Many are designed with a small loft space that houses a bed.

Surprisingly, it is illegal to inhabit a tiny home in most urban centres in North America. Referred to as *minimum size standards*, the purpose of these restrictions is to preserve health, safety and accessibility. According to Canada's *National Building Code*, living areas within dwelling units, either as separate rooms or in combination with other spaces, cannot be less than 145 sq.ft. The *Code* also stipulates a minimum kitchen size of approximately 40 sq.ft., a bedroom of 105 sq.ft., dining room of 75 sq.ft. and space allocated for a toilet, shower and/or bathtub.

On the other hand, temporary housing is often described in building codes as "any tent, trailer, motor home or other structure used from more than 30 calendar days" (Shafer J, 2009). Such structures are often exempt from building codes and, hence, development permits etc. So long as a tiny home is built to be portable, it can (if unplugged periodically) be inhabited on the lot of an existing residence indefinitely.

Vancouver Tiny Homes

Vancouver and the Lower Mainland have demonstrated a great interest in tiny homes. From workshops equipping tiny homesteaders with the skills to build their own shelter, to builders such as Western Camera Buildings Inc. selling mobile units across British Columbia for between \$30,000 and \$70,000, the tiny house movement is alive and well in the region.



Interior view shows main floor and loft Credit: Tumbleweed Houses and The Small House Book



The Caravan Tiny House Hotel comprises 6 tiny houses in Portland, Oregon. Credit: Sharable Blog.



Tiny house built in Vancouver, BC Credit: Camera Building Inc.

Subtractive design: A welldesigned little house is like an oversized house with the unusable parts removed. Such refinement is achieved through subtractive design — the systematic elimination of all that does not contribute to the intended function of a composition. In the case of residential architecture, everything not enhancing the quality of life within a dwelling must go. Anything not working to this end works against it. Extra bathrooms, bedrooms, gables and extra space require extra money, time and energy from the occupant(s). Superfluous luxury items are a burden. A simple home, unfettered by extraneous gadgets, is the most effective labor-saving device there is.

Jay Shafer

1. Facilitates simpler, more sustainable lifestyles

By virtue of the smaller footprint, residents of tiny homes own fewer possessions and consume less. Additionally, a tiny house uses less materials to build and energy to maintain. According to Jay Shaffer, his homes were built with 4,800 pounds of building materials, less than 100 pounds of which went to the local landfill. Each produced less than 900 pounds of greenhouse gases during a typical lowa winter. In contrast, the average American house consumes about three quarters of an acre of forest, produces about 7 tonnes of construction waste and emits 18 tons of greenhouse gases, annually.

2. Affordable housing option

According to Western Camera Buildings Inc., their typical tiny homes sell for between \$30,000 and \$70,000. For individuals that choose to undertake the project themselves, these costs can be reduced even further. For many, this is an accessible path to homeownership.

3. Advances the conversation on the role of housing today

Tiny homes exemplify a shift towards simpler living, financial freedom and more time for ourselves and loved ones. While most Canadians and American's cannot imagine living in a home barely 100 sq.ft., many are seeking greater balance between work life and personal time. The tiny house movement inspires great deliberation on the value we place on money, time, possessions and people.

4. Exempt from most bylaws and development permits

Development permits and municipal regulatory frameworks are complicated, expensive and onerous processes. By virtue of the fact that most tiny homes are built on a trailer bed and are typically considered a de facto shed and do not have to gain permission or approval from municipally governments.

5. Cost savings in space can be allocated towards better finishings

Energy efficient windows, green roofs, hand-selected wood in a typical home can significantly increase development costs. However, these items are more feasible in tiny homes because the number and size required is greatly reduced.

1. Securing a location for the tiny home

While building a tiny home may be feasible and accessible to many individuals, finding a location to set-up the house may be more difficult. Unlike most traditional options for homeownership, tiny homes do not come with a location. Instead, the homeowner must either own or have access to an existing property, where the house can be placed.

2. Difficult to access traditional tools for homeownership

Ironically, one of the greatest benefits of tiny homes - the fact that they are outside of the regulatory framework - is also a significant drawback. Because tiny homes are not recognized as permanent dwellings, banks will not loan individuals money to build them. Similarly, insurance companies are unlikely to protect the contents from theft, fire or floods and service providers are challenged to connect tiny homes with water, electrical and internet provisions.

3. Insufficient amount of storage

A common complaint for residents of small housing is the lack of storage. This is exacerbated in a tiny house. There is little to no room for storing items, forcing residents to significantly downsize the number of items they retain and use in their household.



- Accessory Dwelling Unit (ADU) An additional living quarter on a typical single-family lot. ADUs can be attached to the principal home such as with basement suites. However they are detached from the primary dwelling unit such as coach houses or laneway home.
- **Basement suite** One form of a secondary suite where the lower floor of a single family home, or townhouse is given up for rent. The suite has livability requirements if registered and can feature a separate entrance. The basement suite can also have a private kitchen and bathroom.
- **Coach homes** A detached dwelling located in the back yard of a typical single-family residential lot. In most cases the coach house is smaller in size than the principal dwelling.
- **Comprehensive development** Comprehensive Development Zoning is typically used in large, mixed-use, and complicated plans. This form of zoning enables a municipality to negotiate detailed guidelines and specifications for all aspects of a development in an integrated manner.
- **Cottage housing** Multiple detached homes that are 1,000 square feet or less and are arranged around a common open space rather than street facing. There are typically 8 to 12 homes that share a common courtyard for example. The parking is tucked away at the rear of the home.
- **Cluster housing** The mechanism or strategy that facilitates small housing grouped together around a large open space. Lot size, setbacks, and private open space requirements are usually reduced in order to create a neighborhood that is more compact.
- **Detached townhomes** Detached townhomes have 2 or more floors and an exterior entrance. However unlike traditional townhomes, they are structurally independent and do not share common walls. Instead they have a 6inch (or more) separation that may be covered by flashing.
- **Efficiency suite** Terminology used in San Francisco which is similar to Micro-Suites" in the Canadian context. The small sized nature of the apartment makes maximum use of dwelling unit yield on a lot.

Granny Flat - A small separated unit in the rear yard of a single family lot. The granny flat is a detached, self-contained dwelling located totally on the ground floor in the rear yard of a single family residential lot with lane access.

- Laneway housing A detached small house at the rear of a single family lot. There are many variations in terminology, however the laneway house term has become popular in Vancouver due to the prevalence of existing lanes in the city's neighborhoods. The house can be used for residential, parking, and accessory uses.
- **Lock-off suite** A rental suite that is placed within a strata apartment or townhouse. Can feature a small kitchen and bathroom and has a lockable, separating door within the strata unit.
- Mother-in-law suite Similar to a granny flat, but the terminology is used more in Britain, New Zealand, and Australia. The small unit can be rental or for family use. The unit is typically built above a garage, but not always and will generally have a separate entrance. The suites will typically accommodate an elderly family member.
- **Micro-suite** Apartment buildings that usually meet the minimum size requirement for livable space according to local building code. Most suites are below 500 square feet, and as little as 150 square feet for livable space in San Francisco.
- Multi-flex family housing The zoning terminology applied by the City of Burnaby to facilitate rental suites within a mixed-use type development. The rental suite would be built within a strata apartment building or townhouse.
- **Pocket Neighbourhood** A cluster of neighbouring housing or apartments gathered around gathered around a shared open space – a garden courtyard, a pedestrian street, series of joined backyards, or a reclaimed alley – all of which have a clear sense of territory and shared stewardship. They can be in urban, suburban or rural areas.
- **Secondary suite** An additional separate dwelling unit either in the basement or the ground floor, within a home that accommodate only one dwelling unit. The suite is usually meant for rental purposes under the legislation in British Columbia.

- Single Room Occupancy (SRO) Units Short-term or long-term accommodation in single rooms that are usually subsidized by senior levels of government. These suites generally lack a private bathroom and kitchen but are provided in a shared arrangement. The purpose of the SRO is to provide housing for those who are at risk of being homeless.
- **Corner-Lot "Captain's Homes"** These homes typically include 3-5 units with a single entry, shared front porch, common front yard, and a backyard with private space. Parking is shared, with an entry from the side street or the alley. These homes are ideal for large corner lots either in the downtown or residential areas.
- The New "Boarding House"- These homes are a combination of a captain's home and an adult family home. They can include private space with cooking facilities, a shared social space, and intimate work space. Like the captain's homes, corner lots in the downtown corridor are suitable.



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Sample Cottage Housing Development Plan



Development plan for cottage housing in Delta, British Columbia Credit: Southlands community plan by Century Group

Sample Cottage Housing Parking and Setback Details



Front view photo of de facto cottage housing in Vancouver, British Columbia. Credit: Tatlow Park from City of Vancouver website

Sample Cottage House

Replication of sample parking plan and cottage design. Image credit: Cottage Housing Development - Lehigh Valley Planning Commission



Cohousing Principles

- Cohousing is based on private ownership of complete, selfcontained homes centered around and focused on shared facilities such as children's play spaces, adult meeting spaces, library, office, workshop, guest rooms, common kitchen and dinning room, gardens, greenhouse and other features the members may choose. Although every home has its own complete kitchen, shared dinners are typically available a few days each week, at the common house for those who wish to participate.
- Participatory process residents participate in planning and development so that the design directly meets their needs.
- The physical design encourages a sense of community, providing opportunities for spontaneous connection as well as maintaining the option for privacy.
- Non-hierarchical structure and decision-making.

3rd North American Cohousing Conference Seattle, September 1997

Cohousing in British Columbia

Belterra Cohousing is a new cohousing unit is being built on Bowen Island, BC. This unit will feature 30, 2 story townhome units in 5 separate buildings. Some of the features of the common house will include a large commercialstyle kitchen, dining area, workshop area, guest rooms, and children's play room. The majority of units were sold before completion of construction, but the remaining units are typically priced from \$420,000 to \$440,000.



View of cohousing development on Bowen Island Credit: Belterra Cohousing

Laneway Housing in Vancouver



All RS single-family zones can build a laneway house on their lot. Credit: City of Vancouver



Permitted laneway houses as of February 2013. Credit: City of Vancouver

Design Issues for Micro Suites

How do you fit appliances and electronics?	• Thinner and smaller appliances and electronics can be sourced.
How do you address large pieces of furniture such as tables, couches and a bed?	• Murphy beds, which can be tucked away into a wall, are a useful solution. Sourcing modular and multi-purpose furniture is also key.
How do you accommodate storage?	 Make ceilings higher and building storage space above closets and cabinetry.
What about open space?	 Requirements should follow a similar process as other multi- family buildings in order to preserve livability.

Micro Suites in North America

	New York City (USA)	Vancouver (Canada)	San Francisco (USA)	Surrey (Canada)
Size of Units	• 275-300 sq.ft.	• 226 sq.ft.	 150 sq (minimum living area) 220 sq.ft. for total unit envelope 	• 300-648 sq.ft.
Requirements	 Entire building cannot consist of micro suites 40% of micro suites must be below market rental 	 Only 1 person may occupy Mandatory housing agreement for rental 	 2 persons maximum Must contain a kitchen and bathroom. 	• N/A
Tenure	Strata title ownership or rental	• Rental	Strata title ownership or rental	Strata title ownership
Cost to rent or own	 Monthly rent varies by income. \$939/month for those who earn 80 percent of the area's average annual income, or \$55,000 annually per couple \$1,873 for those earning 155 percent, or \$106,640 per couple 	• Average monthly rent of \$875-\$1100	 Average monthly rent of \$1200- \$1500 \$199,000-300,000 Ownership 	Average cost to purchase is \$130,900 to \$240,900.

Laneway Housing in Metro Vancouver

LOCATION	West Vancouver	City of North Vancouver	District of North Vancouver	Richmond
BYLAW OR POLICY	• Coach Houses (2014)	 Accessory Coach House Program (2010) 	Coach Houses (2014)Bylaw 3210	 Granny Flats -Bylaw 8922 (2012) Coach Houses Bylaw 8922 (2012)
HOUSING TERM AND DESCRIPTION	 Coach House A coach house replaces "carriage house," which means a detached unit that is smaller than the primary dwelling on a residential lot, and maybe attached to the garage. All RS single family zones. 	 A coach house is a detached non-strata unit also known as granny suite, laneway house, garden suite and carriage house. They are accessory to a principal one- unit dwelling. All RS single family zones 	 Coach Houses Coach houses are compact homes, usually built in the rear year of a single-family residential lot, that are smaller than the principal dwelling. Limited to residential lots 	 Granny Flat and Coach House A granny flat is a detached, self-contained dwelling located totally on the ground floor in the rear yard of a single family residential lot with lane access. A coach house is a detached, self-contained dwelling located beside and above the garage accessed by a lane in the rear yard of a single family residential lot. RE1 (single detached zone –
ZONING	RD1 and RD2 zones (duplex dwelling zones)	An no single ranning zones	greater than 10000 sq ft. Some exceptions for corner lots and homes with laneways. Development variance permit required.	Edgemere)
NUMBER OF ALLOWABLE DWELLINGS PER LOT	• 2 - principal dwelling, secondary suite or coach house	 2 – principal dwelling, secondary suite or coach house 	• 2 – principal dwelling, secondary suite or coach house	 2 – principal dwelling, secondary suite or coach house
TENURE	Rental or family use	Rental or family use	• Rental or family use	Rental or family use
UNIT SIZE	• A maximum floor area not exceeding the lesser of 10% of lot area or 1238 sq ft, whichever is less	 The maximum floor area of a 1 storey coach house is 800 sq ft. The maximum floor area of a 2 storey coach house is 1000 sq ft. 	• Maximum size not exceeding 968 sq ft plus a 232 sq ft garage.	 The minimum floor area of a granny flat is 355 sq ft and the maximum is 452 sq ft. The minimum floor area of a coach house is 355 sq ft and the maximum is 645 sq ft.
HEIGHT AND STOREY LIMITS	 1 and 2 storey homes are allowed. A 1 storey is limited to 15ft. A 2 storey can have a maximum height of 22ft.The upper storey is restricted to 60 percent of the footprint of the coach house. 	 1 and 2 storey homes are allowed. A 1 storey is limited to 10ft if it is a flat roof or 15ft for a sloped roof. A 2 storey can have a maximum height of 22ft. 	 1 and 2 storey homes are allowed A 1 storey is limited to 15 ft A 2 storey is limited to 22 ft 	 1 and 2 storey homes are allowed. A granny flat is limited to 16ft A 2 storey can have a maximum height of 24ft.
MINIMUM LOT SIZE	• NA	• 3900 sq ft	 10,000 sq ft 6,000 sq ft and greater will be considered if it is a corner lot or is on a laneway. 	• 4843 sq ft for a granny flat and 5920 sq ft for a coach house
LOCATION ON LOT (SETBACKS, DISTANCE FROM PRINCIPAL HOME)	 The coach house must be set back from the rear property line by a minimum of 6ft and 4ft for any portion of the building containing an enclosed garage. There must be a minimum separation of 16ft between the coach house and principal house. 	 The coach house must be set back 2.5 ft from the rear property line. There must be a minimum separation of 16ft between the coach house and principal house. 	 The coach house must be set back 4 ft from the rear property line and 8ft from the side yard. There must be a minimum separation of 20 ft between the coach house and the principal dwelling. 	 A granny flat or coach house shall be located within 4ft and 26ft of the rear lot line. There must be a minimum separation between the principal house and a granny flat of 10ft or 14ft for a coach house.
PARKING REQUIREMENTS	• 1 off-street parking required exclusively for the use of the coach house.	 2 onsite parking spaces are required (one parking space for each unit) A maximum of one enclosed stall in the Accessory Coach House is permitted. 	• 3 onsite parking spaces are required (2 parking spaces for the principal unit and 1 for the coach house)	 1 parking space is required and must be accessed from lane. It must be unenclosed and uncovered.
LANDSCAPING AND ALLOCATION OF OPEN SPACE	• Design private open space between the dwelling and the coach house, so that it is useable open space for occupants.	 The coach house can occupy up to 15% of the lot. Prominent existing trees and vegetation should be retained. 	 Retain mature vegetation where possible Landscaping encouraged along rear lot line Required usable outdoor private space for coach house occupants. 	 Prominent existing trees and vegetation should be retained. 30% of the lot area is restricted to landscaping with live plant material.

Laneway Housing in Metro Vancouver

LOCATION	Vancouver	Coquitlam	Delta - Ladner	Maple Ridge
BYLAW OR POLICY	Vancouver Laneway Housing Program (2009)	Housing Choices Development (2011)	Single Family Infill Residential (1999)	• Garden Suites (2008)
HOUSING TERM AND DESCRIPTION	 Laneway house A laneway house is a small house at the rear of a lot near the lane and includes both a dwelling unit and parking/accessory uses. 	 Garden Cottage/Carriage House A garden cottage is an accessory residential suite to a one-family dwelling unit. It is a one-storey building with the suite at-grade. A carriage house is an accessory residential suite, located on the second storey above a garage. 	 Coach House A coach house refers to a second dwelling unit located in an accessory building on a lot. The accessory building is typically a separate garage with the dwelling unit situated on the second storey or at ground level. 	 Detached Garden Suite A detached garden suite is a self-contained second dwelling unit that is separate, subordinate in size and accessory to the principal dwelling unit. The unit may be a free-standing structure, or may be located beside or above a detached garage or other accessory structure."
ZONING	 All RS single family zones, RT11 (two-family dwelling district - Norquay) and RM7 (multiple-dwelling district – Norquay) 	• RT1 (Two-family residential)	• RS9 (Infill residential zone)	• All RS single family zones and A zones (agriculture)
NUMBER OF ALLOWABLE DWELLINGS PER LOT	 3 – principal dwelling, secondary suite and laneway house 	 2 – principal dwelling and garden cottage or carriage house 	 2 – principal dwelling, secondary suite or coach house 	 2 – principal dwelling, secondary suite or coach house
TENURE	Rental or family use	Rental or family use	Rental or family use	Rental or family use
UNIT SIZE	 The maximum floor area of a laneway house is determined by multiplying the lot area by 0.16. This results in maximum unit sizes of approximately 644 ft sq on standard 33 x 122 ft lots, and 900 ft sq on 50 x 122 lots. The maximum size of a laneway house is 900 ft sq, regardless of lot size. The minimum size of a laneway house is 280 ft sq with a possible relaxation down to 204 ft sq. 	• The maximum size of the garden cottage or carriage house is 540 sq ft.	 The maximum floor area of a coach house is 1184 sq ft. The minimum floor area of a coach house is 452 sq ft. 	 The maximum floor area of a garden suite is 968 sq ft. The minimum floor area of a coach house is 398 sq ft.
HEIGHT AND STOREY LIMITS	 1 and 2 storey homes are allowed. A 1 storey is limited to 12ft if it is a flat roof or 15ft for a sloped roof. A 2 storey can have a maximum height of 18ft to 20ft depending on roof type and pitch. The upper storey is restricted to 60 percent of the footprint of the laneway house. 	 1 storey homes are allowed. Height limits are not specified. 	 1 and 2 storey homes are allowed. Coach houses must be clearly distinguishable from principal structures in terms height. A 2 storey can have a maximum height of 27ft for a flat roof and 32ft for a sloped roof. 	• Height limits are informed by underlying zoning.
MINIMUM LOT SIZE	• 3595 sq ft and 32.15 ft wide	• 3983 sq ft and 33 ft wide	• 3552 sq ft	• 5995 sq ft
LOCATION ON LOT (SETBACKS, DISTANCE FROM PRINCIPAL HOME)	 The laneway house must be set back from the lane a minimum of 3ft, and more where possible. Entries facing the lane should be set back a minimum of 5ft There must be a minimum separation of 16ft between the laneway house and principal house for both 1 and 2 storey laneway houses. 	 Setbacks 4' rear setback 6' interior side setback 12.5' exterior side setback 	 Setbacks: 82' front setback 3' side setback 5' rear setback 	 10 ft rear setback on average Distance from principal building varies on the zone
PARKING REQUIREMENTS	 A minimum of 1 unenclosed and uncovered parking space MUST be provided on site adjacent the laneway house. The parking space may be for the use of any of the dwelling units on site. 	• A minimum of 1 parking space per garden cottage or carriage house plus the 2 parking spaces for the principal house for a total of 3 spaces, provided on site.	• One parking space per "secondary suite" is required.	 1 spot for 1 bedroom garden suite 2 spots for 2 bedroom garden suite Must register for parking covenant with Land Titles Office.



URBAN HEAT ISLANDS

Doug Kelbaugh FAIA wrote this Lean Urbanism white paper on combating the urban heat island effect

WHITE PAPER ON URBAN HEAT ISLANDS, for the Project for Lean Urbanism

Cooling Urban Heat Islands

"...large cities in the U.S. (tend) to be warming at more than twice the rate of the planet as a whole as a result of the loss of naturally vegetated land covers...global estimates of climate change are likely to underestimate rates of warming in the very places where most of the global population now resides: cities."

Brian Stone, The City and the Coming Climate, 2012

I. WHAT ARE URBAN HEAT ISLANDS?

The Urban Heat Island (UHI) and Urban Heat Island Effect (UHIE) are two interchangeable terms that describe the higher air and surface temperatures in cities relative to their suburbs and hinterland. The phenomenon is easily conflated and confused with what is usually described as climate change (CC) or global warming. There is considerable overlap, but also consequential difference. In short, CC is a global phenomenon, and UHI is a local phenomenon. They are both heating up cities, but in different ways.

The local increase in UHI is *not* from GHGs trapping more heat in the atmosphere, but from a local increase in palpable, or *sensible heat* (as opposed to latent heat, which is not detectable). This heat comes from two sources: hot gases emitted from tailpipes and chimneys, and from dark surfaces - blackish rooftops, streets and parking lots - that radiate heat, because they have been heated by the sun to temperatures hotter than the surrounding air and surfaces. (It's like dark sand on a beach, which not only burns your feet but also heats the air right above and creates warm convection currents.) Both heat sources raise the average urban temperature higher than the surrounding suburbs and rural countryside, which have fewer tailpipes, chimneys and dark surfaces per acre. The rural to urban temperature gradient can be 5 to 7 or more degrees Fahrenheit (F) at a given time, with heat waves that can double this delta between a city's center(s) and hinterland.



Fig. 1 - Air and especially surface temperatures are higher in the central city than surrounding suburban and rural areas.

Land surface temperatures vary even more dramatically, with deltas of over 75 degrees F.



Figure 2 – Surface temperature temperatures in August in metropolitan Boston.

Brian Stone, a Georgia Institute of Technology Professor of Urban Planning and UHI expert, has written that cities like Atlanta have experienced more climatic modification from local UHI than from global CC.¹ He suggests that hotter temperatures amplified by UHI will soon make outdoor activities for more than a few hours per day too uncomfortable for most Atlantans. Indeed, heat waves in most large American cities are trending hotter and more frequent, with the increasing need for "cool centers" that are open to people whose homes are dangerously hot. These air-conditioned sanctuaries (with back-up generators) are typically in institutional buildings open to the public, like municipal libraries and schools, where citizens can find relief, including extended stays if necessary. Annual deaths from heat waves are increasing,² and more of these centers will be needed to cope with hotter and longer episodes. According to the *New York Times* (6/6/15) "The July-August 2010 heat wave in western Russia killed about 54,000 people…from 1981 to 2010, the average American experienced about four dangerously hot and humid days… By 2030, that level is expected to more than double, to about 10 days per summer." Cities in hot, humid tropical zones will be especially hard hit with the sickening and deadly combination of higher temperatures and more humidity.

There are a host of potential motivators engendered by problems around the world - from urban air pollution and congestion to health problems and infrastructure failure, not to mention the more global phenomenon of sea level rise, extreme weather, storm water flooding, drought, famine, etc. The particular cocktail of concerns will vary from climate to climate, culture to

culture, and economy to economy. For many urbanized places, especially those in hot and in temperate climates, rising temperatures and heat waves kill more people than all other natural disasters (although many more homeless people die from extreme cold, arguably victims more of poverty than climate). And because hotter urban temperatures impact not just poor and marginal areas but all areas of the metropolis, their impact is being widely felt. Indeed, the loss of air-conditioning in a large Middle-Eastern city during a heat wave in the summer of 2015 triggered civil unrest as or more intense than the geo-political violence in this war-torn area.

II. WHY URBAN HEAT ISLANDS ARE TIMELY AND HELPFUL

The UHI is an opportunity, as well as a burden for cities. Very importantly and very fortuitously, ways to mitigate and adapt to local UHI are complementary to ways to address global CC. But as a 5-10 year rather than a 50-100 year challenge, it can more immediately and more effectively motivate people to modify their behavior. UHI is manageable, with concrete steps that give direct, clear feedback. Because its negative impacts beget quick, concrete attention, UHI also tends to privilege adaptation above mitigation. And adaptation tends to feel proactive, direct and satisfying. And because UHI can threaten human health, it is a personal stimulant. On the other hand, it can be argued that it gives cities a bad name for being hotter than suburbia and the countryside, at precisely the time that more people are moving to urban places. Indeed, if severe enough, UHI could dampen, even reverse migration to cities.

III. UHI MITIGATION AND ADAPTATION STRATEGIES

There are three ways to mitigate and adapt to UHI in order to achieve urban cooling. 1. The first is *higher albedo*, which is a technical way of saying more reflective roofs and pavements. Albedo is measured by the Solar Reflectivity Index (SRI), which indicates the percentage of solar radiation that is reflected back through the earth's atmosphere into outer space, before it heats up any terrestrial mass or air. It's a significant metric because solar energy that hits light colored surfaces is reflected back into space before it makes the photothermal conversion, that is, before it changes from short wave to longer wave infrared radiant heat, which in turn would be trapped by the earth's atmosphere. The incoming solar energy enters and immediately bounces back off our planet without heating it up, passing directly through the atmosphere and its GHGs in both directions. Accordingly, white and light colored horizontal surfaces with a high SRI – primarily roofs and pavement– increase the urban albedo, and thereby reduce the ambient air temperature. By converting half a city's rooftops to green roofs, it is estimated that temperatures can be diminished by up to 3.5 degrees F.⁸ (Planted green roofs offer a number of environmental benefits, but a recent study suggests that white roofs actually are more effective, by directly bouncing solar radiation back through our atmosphere. The study compared three types of roofs – green, black and white – and concluded that white roofs have measurable economic benefits, and that they are also three times more effective than the other two roof types at fighting UHI.)⁹

Obviously, the infrastructure for motorized vehicles is a fat target for albedo enhancement. The paved street and road surfaces tend to be dark colored asphalt, which absorbs the solar radiation and heats the air temperature above them. The surface area devoted to vehicles in motion is immense, as is the paved parking areas for vehicles at rest. In some cities, the combination - call it "motorized space" - is a very high percentage of the land area. Both areas can be literally lightened up with paint, made all the more timely by recent technical and cost

breakthroughs in durable pavement coatings. (It's also worth noting that painting can often be done by volunteer or "guerilla" labor in an initiative often referred to as Tactical Urbanism.)



Fig. 4a - In downtown Detroit, Michigan, empty sites make for "motorized space" of about 60%.



Fig. 4b - In cities that have been visited by less decline, the percentage is lower, but still surprisingly high. This widely-published photo of parking lots in downtown Houston, Texas purportedly embarrassed the City into building several public venues and arenas in the area – the paved area shown considerably exceeds 50%.

More reflective surfaces, especially horizontal ones like roofs and pavement, are very effective ways to bounce back solar radiation before it heats up the surface and nearby air. Deep street canyons that have lighter building facades can redouble the benefits.



Fig. 5a – The reflectivity of roof and pavement surfaces is sensitive to color, and varies widely.



Fig. 5b - Princeton University students painting a roof white in New York City.

2. The second strategy is *sensible heat reduction,* that is, to reduce the local production and release of sensible heat into the urban environment, in the form of hot air and other gases. This means decreasing the combustion of hydrocarbon fuels in both motor vehicles, power plants and industrial processes. Compact, walkable, bikable, transit oriented urbanism is an effective way to reduce tailpipe emissions of heat, but this is beyond the lean seam. Building HVAC systems that emit lower temperature fumes can play a positive role. Better insulated buildings also help to reduce sensible heat radiating and convecting from their exterior surfaces, as well as reduce hot chimney emissions. Last, lower tech, passive cooling and dehumidification devices can reduce the voluminous hot air pumped into the urban air shed by air conditioning systems, which are energy-intensive, heat-spewing mechanical systems.
3. The third strategy is creating *cool micro-climates* within the city. This cooling is achieved primarily with plants, especially shade trees, as well as by urban morphologies that enhance cooling breezes that are stifled by crowded and tall buildings. Trees are the great natural multitaskers of the environment. Trees along streets, roads and in parking lots constitute a large and particularly effective part of the urban tree canopy. The list of the environmental contributions of vegetation is long: trees provide cool shade, evapo-translpiration (evaporation from leaves) that cools and moistens the air, carbon sequestration, particulate pollution filtration, soil retention, water retention, animal habitat, nuts, fruits, flowers and fragrance, while absorbing sound, shaping/softening public space and bestowing beauty and biophilic presence. Every culture seems to relish trees and the dappled light they filter (probably because humans are believed to have originally evolved under the canopy at the forest edge, overlooking the savannah of east Africa). Urban street trees often grow larger, with bigger canopy spread, than trees in a forest, because they have less competition from other trees. Accordingly, a healthy urban specimen can have many times the cooling capacity of a forest tree. Green "living walls" and planted green roofs also have cooling benefits, but are less cost-effective and require more maintenance and irrigation than trees on terra firma. In hot, arid climates, water fountains and pools can also cool the air by evaporation, as can mechanical "swamp coolers," which do not discharge sensible heat and use less electricity as air conditioning.

Three main UHI reduction strategies:

1. Albedo Enhancement (lighter-colored roofs, pavement and walls)

2. Sensible Heat Reduction (less hot gas from tailpipes, chimneys and air conditioners)

3. Cool Micro-climates (trees and

vegetation to shade, filter, cool the air, etcAnd vegetation that provides cover for while providing scale, beauty and other amenities)

Trees are also known to increase real estate values, especially along tree-lined streets. They've even been shown to decrease crime.¹⁰ Trees and other vegetation can also decrease mental fatigue, improve worker attitudes on the job, and reduce stress as well as feelings of anger, depression, or anxiety.¹¹ There are a few negative externalities of trees, such as increased water demand, raking and removal of fallen leaves, maintenance costs, allergies, and resistance from some residents who don't want trees in front of their homes.

criminals is also an obvious downside.

Many cities have lost their forest cover – Atlanta has lost half its tree cover in the last quarter century, while Seattle has lost a third - but studies have shown that recouping Atlanta's original tree cover could lower air temperatures by more than 12 degrees F on the hottest days and diminish heat waves even more.¹² According to the U.S. Conference of Mayors, at least 135 cities have tree inventories, planting and maintenance programs, and almost half of them have adopted tree canopy goals.¹³ For instance, Washington, D.C., has incorporated a citywide 40 percent tree canopy goal. To achieve this goal by 2032, the city must increase its canopy cover from the existing 35 percent by planting 8,600 trees per year. Seattle plans to increase its tree canopy from 18 to 30% in 30 years.¹⁴ Many of the trees are being planted along streets, roads, sidewalks and biking/walking paths. Melbourne, Australia - where they're not just planting trees but an "urban forest" to deal with increasing temperatures - plans to double the forest canopy from around 22% to around 40% over the next 20 years. In city that is 4-7 degrees C hotter than its green suburbs, their research indicates that that will actually cool the city by four of hose degrees.¹⁵ Urban trees are part of a larger global reforestation effort, one that is arguably about recarbonizing the environment, while we try to decarbonize our lives.



Fig. 6 – Trees are the great multi-taskers of urban cooling.

All three of these strategies are proven antidotes to global CC, on top of their urban cooling benefits. Importantly, they directly *adapt* to CC by tempering increasing global air temperatures, while quietly and indirectly helping to *mitigate* these increases. They are achievable, easily understandable strategies that lend themselves to distributed, democratic action at the local scale. The bottom-up, low-tech nature of albedo enhancement, which can be as easy as applying white paint to rooftops, is consistent with both Tactical Urbanism and Lean Urbanism (two parallel spin-offs of New Urbanism, the former focused on small, temporary interventions and the latter on workarounds relaxation of onerous regulations on small- and middle-scale, permanent development). Planting and watering street trees and other vegetation along sidewalks and in median strips can be done with volunteer labor, and is consistent with Tactical, Lean and New Urbanism. Reducing tailpipe and chimney heat can be achieved by both low- and high-tech techniques, with the most effective and leanest strategy being the negatrip – simply walking and biking, rather than driving - in compact, location-efficient, mixed-use, transit-served neighborhoods consistent with pre-automobile cities and New Urbanism.

These techniques are local, accessible, appreciable ways to *adapt* to UHI, while obliquely *mitigating* it. Albedo enhancement and reforestation "are the single most effective option available to cities …none is more effective and less energy-intensive than planting trees."¹⁷ And, unlike infrastructure, which begins to degrade and lose value the moment it is installed, a tree increases in value and size for decades after it's been planted. Combining tree planting with avoided local deforestation makes for "*adaptive mitigation*," which is a more potent and effective way to synergistically address UHI.

UHI mitigation will be both more effective and more appealing in cities in hot, humid climate zones, where increasing summer temperatures will continue to make outdoor activity more uncomfortable and in some cases prohibitively inhospitable and unhealthy. "Simulations in the NASA-funded research suggest that the number of 'high heat stress' days in Houston will more than double by mid-century, researchers said. In some areas, the number could triple, they said."¹⁸ A long list of American cities – Baltimore, Birmingham (AL), Charleston (SC), Charlotte,

Denver, Memphis, Nashville, Richmond, St. Louis, and Washington (DC) are estimated to see 5 to 9 times as many heat stress days (either above 90 or 100 degrees, depending on geographic location/climate zone) by 2050 and 18 to 33 as many by 2100.¹⁹ More distressingly, by the end of this century, the Persian Gulf region could be hit by waves of heat and humidity so severe that simply being outside for several hours could threaten human life, according to a recent study. UHI, in conjunction with CC, could overwhelm the human body's ability to cool itself through perspiration and ventilation.

Because cooling UHIs emphasizes adaptation over mitigation, it appeals to the human proclivity for short-term thinking and prompt action, especially in times of crisis. Its concrete initiatives provide a proactive sense of progress amidst the vagaries and uncertainties of the unfurling disruption of the earth's weather and climate. Urban cooling is essential for cities to continue to attract more residents, and to keep their existing populations from migrating to their relatively cooler suburbs and countryside, where their larger carbon footprints would make *both* cities and suburbs ever hotter. Urban cooling is about addressing a real, costly and accelerating physical problem.

FOOTNOTES

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- 13. "Protecting and Developing the Urban Tree Canopy," U.S. Conference of Mayors, 2008, p.8
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ORIGINAL GREEN SCORECARD

A scorecard for lean green building. (Courtesy Stephen Mouzon.)

Original Green Scorecard

Building Type: Homes

Region: Southeastern US Coast

Place Metrics

Region

Largest settlement close enough that you might work or shop there (city, town, village, or hamlet)

Locality

Settlement Rating (periodically rated and available to all citizens) Neighborhood Rating (periodically rated and available to all neighbors) Transect Zone Walk Appeal to Nearest Grocery (from Neighborhood Scorecard for this address) Walk Appeal to Work (from Neighborhood Scorecard for this address)

Building Metrics

Building Configuration

Building Faces to (North, East, South, West) Building to North Property Line (LF) Building to East Property Line (LF) Building to South Property Line (LF) Building to West Property Line (LF) Overall Dimension Front to Back (not including porches) Overall Dimension Side to Side (not including porches) How far is the first level finished floor above BFE (Base Flood Elevation)? Number of Exterior Building Corners

Site Footprints (SF)

Total Lot Area

Frontage Area Heated Footprint Unheated Indoor Footprint Porch Footprint Behind Frontage Porch Footprint in Frontage Outdoor Rooms Behind Frontage Lawn Landscape Beds (not part of outdoor room edges)

Conditioned Area (SF)

Main Level Second Level Higher Levels Conditioned Basement Number of Bedrooms Number of Residents

Unconditioned Area (SF)

Unfinished Bonus Space North Porch East Porch South Porch West Porch Outdoor Rooms

Exterior Walls

Main Level Wall Height Upper Levels Wall Height North Wall (LF, either outside house or inside courtyard, typical) East Wall (LF) South Wall (LF) West Wall (LF)

Doors & Windows

Primary Window Type (double-hung, single-hung, casement, fixed) Main Level Primary Window Size (sash width & height) Upper Level Primary Window Size (sash width & height) North Wall Main Level Windows & Glazed Doors (count, with smaller or larger windows approximated by counting fractions so that if primary window is 32"x78" (17.333 SF) and secondary window is 24"x54" (9 SF) then it takes approximately two secondary windows to equal one primary window North Wall Upper Levels Windows & Glazed Doors (count, as above) East Wall Upper Levels Windows & Glazed Doors (count, as above) East Wall Upper Levels Windows & Glazed Doors (count, as above) South Wall Upper Levels Windows & Glazed Doors (count, as above) South Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above) West Wall Upper Levels Windows & Glazed Doors (count, as above)

Porches & Balconies

Finish Floor Minimum Elevation Above Sidewalk (at front porch)

Eaves & Roofs

Primary Roof Slope Secondary Roof Slope Primary Roof Shape (hip, gable, shed) Eave Overhang Bell-Cast Eave? (this is one of several metrics that will be illustrated, so that people know what the term means) Sacrificial Eaves? (can blow off in a hurricane, leaving the main roof untouched)

Attachments & Sitework

Frontage Fence, Hedge or Wall? Height? Neighbor's Fence? Private Yard Fence or Garden Wall? Height? Lane or Alley Fence? Height?

Sustainable Place Credits

Most of the accounting of the sustainability of the place where a building is built comes from the rating of the settlement (city, town, village, or hamlet) and the rating of the neighborhood, but the building itself can contribute in some ways as well to creating a sustainable place, and those ways are measured by these credits. Please note that there should be a mechanism to account for whether each item is already required within the urban coding or not. Anything required by the neighborhood already gets credit in the neighborhood rating, so these would only be available when they go above and beyond what the neighborhood requires. But because the settlement, neighborhood, and building ratings are meant to plug seamlessly together, this is something that can be automated "under the hood."

Nourishable Credits

Plants

Yard Gardens (SF)

Includes front yards, side yards, etc... basically, any part of the yard around a house where plants grow primarily on the ground.

Roof or Terrace Gardens (SF)

Arbor Gardens (SF)

Wall Gardens (LF)

Balcony or Porch Gardens (LF)

Window Gardens (LF)

Animals

Most animals have correlating homes under "built things."

Chickens

Fish

Bees (only available in T2-T3)

Bees should probably be further limited to a certain minimum lot size, or maybe to a minimum distance from a neighbor's property.

Goats (only available in T2)

Cows (only available in T2)

Pigs (only available in T2)

Built Things

Rainwater Collection (gallons of barrels/cisterns)

Earth to Earth

Are there mechanisms for composting kitchen wastes in a way that will not be smelled by the neighbors?

Chicken Coop		
Fish Pond		
Bee Hives		
Greenhouse		
Garden Pavilion		

Accessible Credits

Gift to the Street

Does this building give a gift to the street that either refreshes people walking by (like a fountain), delights them (like a beautiful frontage garden), directs them (like a tower to create a goal in the middle distance), entertains them, informs them (like a clock or a sundial), helps them remember (like a memorial) or gives them a place to rest?

Place to Park a Bike

Is there a place where bikes for each of the inhabitants may be secured?

Side Wall Windows

Is there at least one window within 8' of the front corners of the building at both the main and upper levels?

Serviceable Credits

Home Office

Does this home have a dedicated office within it, or one that at most would double as a guest suite?

Home Workshop

If this home is located on the end of a block, is there a workshop (that might include a retail display window) where the side street meets the alley? If not located here, is there a workshop (without retail) on the alley or rear lane?

Live/Work

Does this unit have a workspace identifiable as such on the building frontage?

Securable Credits

Eyes on the Street

<calculated from windows on frontage and height above sidewalk because the likelihood of window treatments being left open varies with height above sidewalk>

Strong Blocks

Is there a fence, hedge, or wall that separates the private frontage from the private yard behind? If so, are there fences, hedges, or walls regulating access to all private yards around the house?

Sustainable Building Credits

Many of the sustainable building credits are calculated in whole or in part from the building metrics collected at the beginning. Other credits collect credit-specific data that may be numeric, yes/no, or multiple-choice (radio buttons).

Lovable Credits

Things That Reflect Us - Human Form

Door Proportion

Do doors reflect the vertical proportion of the standing human body, which is the way we walk through a door?

Porch Bay Proportion

Is the height of the columns greater than the space between columns so that the columns frame vertically-proportioned spaces that reflect the vertical proportions of the humans that may be standing within them?

Window Pane Proportion

Do window panes reflect the vertical proportion of the human face?

Horizontal Arrangement

Does at least the face (entry) of a building reflect the symmetry of the horizontal arrangement of the human face?

Vertical Arrangement

Does the building as a whole and all of its major parts reflect the vertical arrangement of the human body with a top (head), middle (body), and bottom (feet)?

Composure of the Face

Did you give as much thought to the composition and composure of the face of this building as you would to your own face and bodily appearance before going to a formal dinner? Be honest... this is one of a handful of credits based entirely on the honor system.

Things That Reflect Us - The Human Hand

Made by Hand

Is there at least one major element or surface both inside and outside this building that is obviously not machine-made?

Lovable Equipment

Is equipment that is open to view designed not just as a piece of machinery, but instead (like an old chimney or cast-iron radiator) as an object meant to be at least somewhat lovable?

Skills of the Region

Is there at least one major component in this building created by the skills of craftspeople in this region that you can't get somewhere else?

Built from Things Nearby

Is there at least one building element that has materials harvested or quarried within 200 miles of this building site? Is it obvious to anyone that this is a local material? (2 levels of credit)

Things That Delight Us - Sensual Delight

Embers on the Hearth

Is there some setting (such as a fireplace) for producing non-mechanical heat on cold evenings during the short coastal winters?

Cool Summer Breeze

Are windows arranged on at least two sides of every principal room so that places people sit for periods of time can be comfortably cross-ventilated?

Sound of Water

Are there windows that open to the sound of a fountain outdoors?

Birdsong and Children Playing

Do windows open to places children play, or near trees where birds might be singing?

Windows in the Walls

Does the percentage of glass in the walls of the house reflect the percentage of broad daylight that should be admitted to the interior (12% - 30%) for comfortable interior light levels?

Things That Delight Us - Group Delight

Sitting Where You'll Meet

Is the private frontage designed so that people feel comfortable sitting outside (like on a porch) where unplanned conversations might occur with someone they don't yet know? (will include diagrams; may self-calculate if I can figure it out.)

Things That Delight Us - Memory Delight

A Memorable Place

Is there something about this building and its site that distinguishes it from every other place on earth?

Things That Delight Us - Intellectual Delight

Stories to Tell

Does this building tell some sort of story that can be appreciated by people other than just the architects?

Things That Delight Us - Sheltering Delight

Embracing Spaces

Does this building combine with its fences, hedges, and landscape walls to enclose exterior spaces, either in courtyards or outdoor rooms?

Sheltering Roof

Does the roof start high and end low, visibly sheltering this house from the elements? (this credit is most important in T₂ and T₃ where roofs are most visible and least important in T₅, where most of them are not visible at all).

Things That Delight Us - Challenging Delight

Bracing Spaces

Is there any place in or around this building that might be a bit spine-tingling? Like maybe a tower room high above the street?

Things That Put Us In Harmony - Mathematical

Proportions of Principal Spaces

Are principal spaces in and around this building well-proportioned either rationally (4:3, 3:2, 2:1, 1:1) or irrationally (Golden Mean, square root of 2)?

Things That Put Us In Harmony - Simplicity

Necessary Things

Do you really need everything in this design? There's no scientific answer to this question; instead, it's a gut feeling. So do you? Really? This credit runs entirely on the honor system.

Things That Put Us In Harmony - Authenticity

Signs of Depth

Does this building use solid timber posts instead of boxed columns built of thin boards, even if there are checks and splits that reveal the fact that this is solid timber?

Things That Put Us In Harmony - Natural Laws

Visible Means of Support

Is it obvious from the details and spans of this building how things are being held up, and that it is capable of standing up long into the future?

Things That Put Us In Harmony - Natural Forms

Ornament

Is this building adorned in some way with elements based on the human form, animal forms or plant forms?

Things That Put Us In Harmony - Region

Regional Wisdom

Did the design of this building begin with architectural wisdom collected in this region over the past two centuries?

Durable Credits

Commodities vs. Proprietary Products

Repaired by Your Children

What percentage of the value of this house is built of elements that are commodities, not proprietary, so that they may be repaired and you can buy replacement parts a generation from now after the manufacturer is out of business, or the component has been taken out of production?

Patchable Parts

Able to be Maintained

What percentage of the value of this house is built of elements that are patchable and make no claims at being "no-maintenance" (because what that really means is that those elements cannot be maintained, but when they fail, they must be ripped out entirely and replaced).

Carbon Impact

Life Cycle Impact

Divide the carbon impact of building materials and construction energy by the expected lifespan of the building to get the carbon impact per year.

Durable Materials

Open Spaces

What percentage of structural cavities such as the spaces between wall studs or floor joists have been opened up to breathe so they no longer conceal moisture, mold, mildew, and bugs?

Aging Gracefully

Without regular pressure-washing, will the exterior wall materials of this building look better or worse in 25 years? In 100 years?

Real Masonry

Does masonry on this building hold itself up with masonry arches or stone lintels, not needing steel elements that will rust? Are they real load-bearing masonry walls? (2 levels of credit)

Insulated Roofline

Do you insulate the rafters with closed-cell foam insulation instead of insulating the ceiling so that pipes, ducts, and things stored in the attic stay near room temperature and perform better?

Insulated Crawl Space

Do you insulate your crawl space with durable rigid wall insulation instead of fiberglass batts in the floor that soak up moisture and harbor mold and mildew?

Durable Outside Walls

From most flammable to least flammable, are exterior wall finish materials primarily vinyl or plastic, wood, steel, concrete or cementitious, or stone?

Wall Base

Are the foundation walls finished in a visibly different color or surface from the main building walls so they can be refinished more frequently without requiring the entire wall to be refinished?

Chamfered Posts

Are wood posts chamfered at the corners to make them more durable to physical abuse?

Hurricane Hardening

Walls That Can Take a Bath

What percentage of wall finishes that would normally be sheetrock have been replaced on the first level with materials that are less susceptible to water damage? On upper levels?

Heavy Piers

How much heavier are your piers than structurally necessary so that they can resist impact from water-borne debris in a storm?

Main Level Elevation

<self-calculating... the higher above BFE, the better... to a point>

Durable Roofline

<this one uses roof metrics already collected for roof slopes, shapes, and edge conditions... multiple levels of credit here>

Shuttered Openings

<self-calculating for solid shutters from data collected earlier>

Instructed Operation

Operating Manual Thickness

How big are your operating manuals? The thinner the manual, the more likely the system will be running long into the future. The best systems operate in ways that are self-evident. This is one of the honor system credits.

Adaptable Credits

Proximity to the Street

Front Yard

<self-calculates from metrics collected earlier... the closer a building is, the more things it can be used for>

Ceiling Height

Ceilings in the Region

<self-calculates based on pre-Thermostat Age ceiling heights in the region>

Simple Shapes

Simplicity of Massing

<self-calculates based on footprint area, exterior building corners, and linear feet of first level walls>

Simple Paths

Simplicity of Circulation

Are the first building forms you see when approaching the building the walls that enclose spaces you stay, or spaces you move through?

Envelope Attachment

Attachable Percentage

What percentage of the exterior wall of this building allows for attachment of partitions, cabinets, and fixtures. (Hint: start by eliminating all glass in the wall, then eliminate other fragile things as well.)

Patchable Attachment

How easily can something attached to the envelope of this building be removed and the points of attachment be patched so that evidence of the previous attachment is no longer visible?

Pipes

Spaces & Chases

Are building services concealed in the building in such a way that you can access them later without destroying finished surfaces?

Frugal Credits

Condition People First

Outdoor Rooms

<self-calculates percentage of outdoor to indoor rooms>

Outdoor Room Shapes

Are outdoor rooms shaped convexly, so you can stand at any point in the room and see any other point in the room?

Outdoor Room Walls

Are your outdoor rooms enclosed by building walls, fences, hedges, or landscape walls?

Outdoor Room Floors

Is each outdoor room floored with a different material from adjacent rooms?

Outdoor Room Furnishings

Is every outdoor room furnished with places to sit? How many of the outdoor rooms are furnished with tables?

Outdoor Room Fixtures

How many outdoor rooms are equipped with other fixtures such as fountains, outdoor kitchens, and outdoor cabinets?

Smaller & Smarter

Building Size Credit

<self-calculated based on data collected earlier>

Grow Zones

How many Grow Zones are reserved in the plan through which the house may be expanded in the future? How many of them allow expansion towards the sunlight?

Booths

Are you using a dining booth instead of a dining room? And have you wired and equipped it so it can triple as a homework station and home office?

Insulating Bed Alcoves

Are you nestling beds into curtained alcoves that can be closed on winter nights, allowing body heat to warm the air while the thermostat is turned down low throughout the house?

Armoires vs. Closets

Are you using armoires instead of closets, saving space and a little money while storing just as many clothes in a more interesting enclosure?

Stair Nooks

Is space under stairs used for reading nooks, kids' nooks, or night nooks instead of being wasted? Or maybe pantries or half baths?

Baskets Under Beds

Are you using the space under beds for storage baskets?

Window Sill Shelves

Are window sills flat and extra wide so they double as shelves?

Boarded Walls

What percentage of your walls are finished with boards instead of sheetrock so that you can attach shelves, hooks, and other storage devices and even appliances and cabinets at any point on the wall without looking for a stud?

Open Walls

What percentage of interior boarded walls are you opening up from one side, installing shelving in space that would have otherwise been wasted? And are

you varying the stud width according to what you want to store? Like 2x10 studs for a library wall that holds standard-size books?

Light Wings

Light and Air

<self-calculates daylighting and cross-ventilation likelihood>

Material Processing

Embodied Energy

How highly-processed are the major structural materials and other materials that make up the majority of your building in terms of BTUs per pound of material? <this one will likely be answered by radio buttons, with the user selecting the primary materials>

Waste Not

Building Reuse

If there was an existing building on your site, what percentage of the building did you use in the design of this building?

Recycled Materials

What percentage of the total value of this building is made up of recycled materials? <radio buttons for general percentage ranges>

Surrounded by Heirlooms

What percentage of furniture and fixtures in this building were manufactured for a previous owner?

Green Shed

Does this building have a Green Shed for recycling, storage of excess building materials, and plant potting? Does the Green Shed also collect solar electricity or hot water on its roof?

Fresh Air Laundry

Is there a Laundry Eave under which clothes may be hung to dry that will shelter them in the event of a rain shower?

Landscape Irrigation

Are you using plant material that is native or well-adapted to this place so that it does not require long-term irrigation?

Healthy Place

Mower-Free Garden

Is the landscape design of this property completely free of turf grass? If not, how much grass are you using?

Animal House

How many beneficial species of non-humans are sheltered or fostered in this design?

Pest Control

Do you sprinkle boric acid into concealed spaces before sealing them up? It's deadly to roaches, but completely non-toxic to humans.

Biting Bugs

Do you use natural botanical sprays in your mosquito misting system?

Fresh-Air Parking

Do you park cars or other gas-powered vehicles in open air, like under a carport? If enclosed in a garage, is the garage separated from the rest of the house by outdoor air so that exhaust fumes cannot enter the house directly from the garage?

Local Green Power

Wind Power

Do you generate electricity with wind turbines? How many watts?

Solar Electricity

Do you generate solar electricity? How many watts?

Solar Hot Water

Do you generate hot water from the sun? How many gallons per day?

Solar Ready

Even if you're not actively collecting solar energy right now, have you oriented enough of your roof toward the sun that you can collect enough solar energy in the future?

That's all for now... I have another 20 or so items to add to this Frugal section, but am exhausted and want to get this out tonight to get some comments rather than waiting to finish it later. All thoughts and commentary are much appreciated!

~Steve Mouzon

SUSTAINABLE URBANISM MODULE

A guide and SmartCode module for energy performance metrics. by Doug Farr and Leslie Oberholtzer.

Sustainable Urbanism Performance-based SmartCode Module

PREPARED BY FARR ASSOCIATES: LESLIE OBERHOLTZER, DOUG FARR WITH ASSISTANCE FROM MONICA RICHART AND APRIL HUGHES

> You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete.

R. Buckminster Fuller

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STANDARDS FOR ARTICLE 2, ARTICLE 3, AND ARTICLE 4 ZERO NET ENERGY BUILDINGS PUBLIC DARKNESS VEHICLE MILES TRAVELED TREE CANOPY COVER STORMWATER MANAGEMENT STANDARDS FOR ARTICLE 5	. 5
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SMARTCODE ANNOTATED

ARTICLE 3

ZERO NET ENERGY BUILDINGS

This section activates Table SU1, Table SU2, and Table SU3. The Architecture 2030 Challenge, which has been put forward by the non-profit organization Architecture 2030 (www.architecture2030.org) is used in those tables as a benchmark goal for building energy use reduction. It proposes that all new buildings produce no greenhouse gas emissions by the year 2030. Buildings are responsible for 48% of all energy consumption in the United States, making them the single largest contributor to greenhouse gas emissions. The baseline to establish reductions should be taken from an established regional average by the applicable building type (e.g., edgeyard house, rearyard building, mixed use building) from a set year, such as the year of the code adoption.

These goals should be applied on the Building Scale per each Transect Zone. However, communities seeking a particular city-wide goal may consider requirements for District Energy Generation. For that reason Article 3 Standards are included.

See Table SU1 for additional standards and annotations.

See Table SU2 for details on Surface to Volume Ratio and Building Orientation.

See Table SU3 for details on Shading of Glazing.

PUBLIC DARKNESS

This section activates Table SU4, which addresses standards at the light source to maintain desired general ambient light levels across the Transect. Lighting standards protect against glare, preserve the night sky, and reduce unnecessary energy use from overlighting. Rural zones tend to be darker, while higher levels of outdoor lighting may be more suitable in mixed use urban zones.

See Table SU4 for additional standards and annotations.

VEHICLE MILES TRAVELED

This section activates Table SU5, which adapts the 2030 Community Campaign benchmarks to each Transect Zone for reduction in Vehicle Miles Traveled (VMT).

The 2030 Community Campaign is based on sustaining us as "a nation of neighborhoods." The Intent section of the SmartCode spells this out. The average American family is dependent on cars to meet its daily needs, driving on average 21,500 miles a year. Vehicle miles traveled by Americans is expected to grow 2.5% per year, increasing energy consumption and carbon omissions contributing to climate change. Additionally, obesity and other side effects of inactive lifestyles are predicted to shorten life span as much as five years per American.

Base VMT to establish the percentage decrease should be calculated from local or regional community data from 2005. (National baseline from 2005 per the American Planning Association, the Environmental and Energy Study Institute, and the 2030 Community Campaign, is 8,000 VMT per person).

Methods recommended to achieve the goal are listed in Table SU5 as more appropriate or more efficient for some Transect Zones, though many of the methods may be utilized across the Transect. Development patterns contribute to reducing VMT as do policies and strategies for Transportation Demand Management (TDM).

See Table SU5 for additional standards and annotations.

TREE CANOPY COVER

This section activates Table SU6, which provides a goal for minimum tree canopy cover by Transect Zone as well as methods to achieve these goals. Tree canopy cover cools the urban environment, traps air pollutants, absorbs carbon dioxide, and intercepts rainwater to reduce stormwater runoff. The minimum tree canopy coverage goals for each zone in this table have been developed as a benchmark for the local community. The amounts should be calibrated to the community, based on the climate. The methods are standards to achieve these goals and promote tree health and survival.

See Table SU6 for additional standards and annotations.

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ARTICLE 3. NEW COMMUNITY SCALE PLANS

3.X. ZERO NET ENERGY BUILDING STANDARDS

3.X.1. GENERAL

- a. Communities and their buildings shall be designed and constructed to reduce energy consumption to the percentages defined in Table SU1. Performance goals shall be met by projects approved on or after January 1 of the year listed in the left column.
- b. Methods provided in Table SU1, Table SU2, and Table SU3 are intended for guidance in reaching these goals.
- c. The development's annual electricity purchased from renewable sources through an energy contract shall be limited to the percentage listed in Table SU1 for each Transect Zone. Any such contract shall specify a minimum term of two years.
- d. See Article 5 standards in this Module for specific requirements for buildings.

3.X.2. SPECIFIC TO ZONES T2, T3, T4

a. A minimum of 70% of Lots shall be oriented within 30 degrees of true east/ west.

3.X.3. SPECIFIC TO ZONES T5, T6

a. A District Energy system shall be installed for any development of two or more buildings.

3.X. PUBLIC DARKNESS

3.X.1 GENERAL TO ALL ZONES T1, T2,T3, T4, T5, T6 AND SD

a. All exterior lighting shall conform to the shielding, brightness and curfew standards defined in Table SU4.

3.X. VEHICLE MILES TRAVELED

3.X.1. GENERAL

- a. Communities shall be designed to reduce Vehicle Miles Traveled (VMT) to the percentages defined in Table SU1. Performance goals shall be met by projects approved on or after January 1 of the year listed in the left column.
- b. Methods provided in Table SU1 are intended for guidance in reaching these goals.
- c. A bicycle system shall be incorporated into New Community Plans. See the Thoroughfare Module for Tale 4C and the Cycling Module.
- d. At least one of the Community Scale Transportation Demand Management policies listed in Table SU5 shall be provided.

3.X. TREE CANOPY COVER

3.X.1. GENERAL

- a. Standards listed in Table SU6 shall be met in order to establish a minimum tree canopy cover over a New Community.
- b. Existing trees may be utilized to meet the canopy requirements. When existing trees do not meet the requirements, new trees of species appropriate for the bioregion and form appropriate for the Transect Zone shall be planted. See Table 6 Public Planting.

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STORMWATER MANAGEMENT (ARTICLE 3)

This section activates Table SU7, which establishes standards for managing rainwater as close to where it falls as is reasonable. Limiting the change in stormwater runoff volume, in addition to runoff release rates, is a fundamental practice to avoid overtaxing community and regional stormwater infrastructure and to preserve the health of waterways. Incorporating stormwater management features into the design of the city and its open spaces maximizes land use without the need for retention basins that are only utilized for holding water during a storm event.

See Table SU7 for additional standards and annotations.

ZERO NET ENERGY BUILDINGS (ARTICLE 5)

This section activates Table SU1, Table SU2, and Table SU3. It is also possible to use this text section, with some modification, without a table. The Architecture 2030 goals should be applied on the Building Scale per each Transect Zone. However, communities seeking a particular citywide goal may consider requirements for District Energy Generation. For that reason Article 3 Standards are also included on Page M5.

See Table SU1 for additional standards and annotations. See Table SU2 for details on Surface to Volume Ratio and Building Orientation.

See Table SU3 for details on Shading of Glazing.

Municipality

3.X. STORMWATER MANAGEMENT

3.X.1 GENERAL

- a. A District Stormwater System shall manage stormwater on site to serve all or a portion of the community. The system shall meet the standards listed in Table SU7. Lot Level standards may contribute to the total.
- b. If the District Stormwater System serves more than one Transect Zone, the standards for the largest Transect Zone in area shall be followed.
- c. A development may follow the standards of a lower Transect Zone, but shall never follow the standards of a higher Transect Zone.
- d. If the Community Scale standards are met without Lot Level standards, then the Lot Level standards may be waived.

ARTICLE 5. BUILDING SCALE PLANS

5.X. ZERO NET ENERGY BUILDING STANDARDS

5.X.1 GENERAL TO ALL ZONES T2, T3, T4, T5, T6 AND SD

- a. The following minimum R values shall be utilized for all buildings:
 - i. Walls: [established for locale]
 - ii. Roof: [established for locale]
 - iii. Windows: [established for locale]
- b. Fifty percent of the windows on a building shall be operable. The operable windows should be distributed to maximize the direction of prevailing breezes.
- c. A minimum daylight factor of 2%, per USGBC LEED for New Construction requirements, shall be provided in 75% of regularly occupied interior areas.
- d. There shall be a direct line of sight to glazing from 90% of all regularly occupied spaces.
- e. The Solar Reflectivity Index for flat roofs shall be a minimum of 78. The Solar Reflectivity Index for sloped roofs shall be a minimum of 29.
- f. The Solar Reflectivity Index for pavement shall be a minimum of 29.
- g. All south facing windows shall be shaded. See Table SU3 for appropriate methods.
- h. The use of wind turbines and solar photovoltaic/solar thermal energy systems is permitted.
- i. Any building's annual electricity purchased from renewable sources through an energy contract shall be limited to the percentage listed on Table SU1 for each Transect Zone. Any such contract shall specify a minimum term of two years.

5.X.1 SPECIFIC TO ZONES T2, T3, T4 AND SD

- a. Buildings should be oriented as provided on Table SU2.
- b. Buildings should meet Surface-to-Volume Ratios as provided on Table SU2.

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PUBLIC DARKNESS (ARTICLE 5)

This section activates Table SU4, which addresses standards at the light source to maintain desired general ambient light levels across the Transect. Exterior lighting of the private frontage affects Public Darkness, so this brief Article 5 reference to Table SU4 is important.

Lighting standards protect against glare, preserve the night sky, and reduce unnecessary energy use from overlighting. Rural zones tend to be darker, while higher levels of outdoor lighting may be more suitable in mixed use urban zones.

This section and Table SU4 should replace the older SmartCode Lighting Module for Article 5.

VEHICLE MILES TRAVELED (ARTICLE 5)

The 2030 Community Campaign provides a benchmark for reduction in Vehicle Miles Traveled (VMT). This section for Article 5 activates portions of Table SU5 that address the Building Scale.

TREE CANOPY COVER (ARTICLE 5)

This section activates Table SU6, which provides a goal for minimum tree canopy cover by Transect Zone as well as methods to achieve these goals. Trees on private property are counted toward Community Scale canopy cover, therefore this Article 5 section is included. The amounts on the table should be calibrated to the community, based on the climate. The methods are standards to achieve these goals and promote tree health and survival.

See Table SU6 for additional standards and annotations.

STORMWATER MANAGEMENT (ARTICLE 5)

This section activates Table SU7, which establishes standards for managing rainwater as close to where it falls as is reasonable. The Lot Level standards apply at the Building Scale of Article 5. See Table SU7 for additional standards and annotations.

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5.X. PUBLIC DARKNESS

5.X.1 GENERAL TO ALL ZONES T1, T2,T3, T4, T5, T6 AND SD

a. Exterior building lighting shall conform to the shielding, brightness and curfew standards defined in Table SU4.

5.X. VEHICLE MILES TRAVELED

5.X.1. GENERAL TO ALL ZONES T1, T2, T3, T4, T5, T6 AND SD

- a. Parking requirements shall be waived for car-free housing and reduced for Transit-Oriented Development (TOD).
- b. All non-residential buildings with more than [x] occupants shall provide bicycle amenities (racks, lockers, and showers) per the Cycling Module.
- d. All non-residential buildings with more than [x] occupants shall provide a minimum of three of the Transportation Demand Management policies listed in Table SU5.

5.X. TREE CANOPY COVER

5.X.1 GENERAL TO ALL ZONES T2,T3, T4, T5, T6 AND SD

- a. Standards listed in Table SU6 shall be met in order to establish a minimum tree canopy cover over a New Community or Infill Community.
- b. Existing trees may be utilized to meet the canopy requirements. When existing trees do not meet the requirements, new trees of species appropriate for the bioregion shall be planted. See Table 6 Public Planting.

5.X.2 Specific to zones T4, T5, T6

a. Structural soil shall be utilized adjacent to tree pits.

5.X. STORMWATER MANAGEMENT

5.X.1 GENERAL

- a. Lots shall meet the standards for Lot Level runoff volume and Runoff Release Rate as listed in Table SU7, unless such standards are waived due to District Stormwater Management accomplishing the district goal.
- b. A Lot may follow the standards of a lower Transect Zone, but shall never follow the standards of a higher Transect Zone.

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TABLE SU1 - ZERO NET ENERGY BUILDINGS

The Architecture 2030 Challenge, which has been put forward by the non-profit organization Architecture 2030 (www.architecture2030.org) is used in this table as a benchmark goal for building energy use reduction. It proposes that all new buildings produce no greenhouse gas emissions by the year 2030. Buildings are responsible for 48% of all energy consumption in the United States, making them the single largest contributor to greenhouse gas emissions. The baseline to establish reductions should be taken from an established regional average by the applicable building type (e.g., edgeyard house, rearyard building, mixed use building) from a set year, such as the year of the code adoption.

These goals should be applied on the Building Scale per each Transect Zone. However, communities seeking a particular city-wide goal may consider requirements for District Energy Generation.

Methods recommended to achieve the goal are listed as more appropriate or more efficient for some Transect Zones, though many of the methods may be utilized across the Transect. The first step is to reduce the need for the energy through efficient building methods. Secondly, increase efficiencies by generating energy as close to the use as possible, through on-site energy generation or District Energy. Finally, utilize renewable energy sources to reduce, and eventually eliminate, the use of fossil fuels for energy generation. These methods are defined based on the typical central city in the United States and should be calibrated for the specific municipality's regional climate and character.

Method: Energy Demand Reduction

Building energy use reduction is achieved by combining traditional site specific building practices with current material technology. The passive building methods listed below need to be calibrated with building types to maximize energy savings.

Surface to Volume Ratio

Surface to Volume Ratio is the amount of surface exposed to the outside per volume of building unit. Fewer exterior wall surfaces per unit, or smaller surface-to-volume ratios, minimizes heat gain in the summer and heat loss in the winter. See Annotation for Table SU2.

Building Orientation

Building orientation describes buildings sited for passive energy use. See Table SU2.

Building Envelope Efficiency

A highly efficient building envelope significantly reduces the energy usage of a building. Efficiency is measured by its "R-value," which refers to the resistance to heat flow of the wall, roof, door, window, floor, or foundation membrane. There are many methods for insulating against heat flow and these vary by region and structure type. Minimum R-Values for the parts of the building envelope should be determined for the location and established as part of the code.

Natural Cooling

Natural Cooling refers to the process of building design to allow cool air to enter the building during warm months and hot air to exhaust without mechanical means, i.e. through a thermal chimney.

Appropriate Glazing

Appropriate glazing refers to a regionally-appropriate amount of glazing per building face for optimum passive solar heating and cooling. Typically, a building with 40-50% of its glazing on the south building facade and less than 20% glazing on all other facades will optimize passive solar. Appropriate glazing can typically reduce energy use by up to 20% and is most applicable where southern light is not obstructed. Communities may consider more explicit glazing requirements according to their location.

Operable Windows

Natural ventilation through operable windows reduces energy use by approximately 15%. Typically, buildings should be required to have a minimum of 50% of the glazing to be operable, distributed to maximize use of prevailing breezes on the site.

Shading of Glazing

Shading of glazing should be utilized for preventing excess heat gain in warmer months. See Table SU3.

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ZERO NET ENERGY BUILDINGS

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Table SU1: Zero Net Energy Buildings. This summary table provides goals for achieving Zero Net Energy buildings within each Transect Zone. Projects must achieve an energy savings goal of the percentage of baseline energy used. Additionally, methods are recommended for Transect Zones where they will meet the goals most efficiently, though many of the methods may be utilized in all Transect Zones.

ARCHITECTURE 2030 CHALLENGE: GOAL FOR ZERO NET ENERGY	T2	T3	T4	T5	Т6	SD
Projects approved prior to 2010	60%	50%	50%	50%	50%	100%
Projects approved in or after Year 2010	80%	70%	60%	60%	60%	100%
Projects approved in or after Year 2015	100%	80%	80%	70%	70%	100%
Projects approved in or after Year 2020		100%	90%	80%	80%	100%
Projects approved in or after Year 2025			100%	90%	90%	100%
Projects approved in or after Year 2030				100%	100%	100%
METHOD: ENERGY DEMAND REDUCTIO	N - BUILDING SCA	LE (ARTICLE 5)				
Surface to Volume Ratio (see Table SU2)			•		-	-
Building Orientation (see Table SU2)	•	-	•			-
Building Envelope Efficiency		-	•			-
Natural Cooling	-	-	-	-	-	-
Appropriate Glazing	•	-	-	•	-	-
50% Operable Windows		-	-	-	=	-
Shading of Glazing (see Table SU3)	•	-	-	•	-	-
Daylighting	•	-	-	-	-	-
High Albedo Roofs (sloped > 29, flat > 78)	•	•	•	•	-	•
High Albedo Pavement (>29 SRI)	•	-	-	•	-	-
Landscape Siting	•	-	-			-
METHOD: BUILDING/LOT RENEWABLE EN	NERGY GENERATI	ON (ARTICLE 5)				
Wind Energy Generation	•	•	•			<u> </u>
Solar PV	•	•	•			<u> </u>
Solar Thermal	•	•	•	•		
Groundsource Heat Exchange (Geothermal)	•	•	•	•	-	
Biomass	•	-				
METHOD: DISTRICT ENERGY GENERATION	ON - COMMUNITY	SCALE (ARTICLE	2, ARTICLE 3 & A	RTICLE 4) & MUI	TIPLE BUILDING	S (ARTICLE 5)
Non-Renewable Heat and Cool				•	•	
Combined Heat and Power					•	
Groundsource Heat Exchange (Geothermal)			•	•		
Biomass			•			
Other Renewable			•	•		
METHOD: LONG TERM CONTRACTING (M	IINIMUM TWO YEA	R CONTRACT)				
Maximum Amount of Power	10%	15%	15%	20%	20%	20%

• Method is appropriate and most efficient toward achieving the goal within this Transect Zone.
(cont.Table SU1 - Zero Net Energy Buildings)

Daylighting

Daylighting refers to the use of daylight as a primary source of general illumination in a space, providing opportunities for energy savings. A minimum daylight factor of 2%, per USGBC LEED for New Construction requirements, should be provided in 75% of regularly occupied interior areas as well as a direct line of sight to vision glazing from 90% of all regularly occupied spaces. The result of this practice will typically be narrower buildings. Daylighting techniques should be coordinated with Shading of Glazing techniques in warm climates so they do not conflict.

High Albedo Roofs

High albedo surfaces have both a light color for high solar reflectance and high emittance, an ability to reject heat back into the environment. High albedo roofs prevent heat absorption; this cooling effect can reduce energy use within the building by 13 -15%. In most US climates, flatter roofs should have a minimum Solar Reflective Index rating of 78. For sloped roofs, the Solar Reflective Index can be lower, with a minimum of 29.

High Albedo Pavement

Similar to high albedo roofs, high albedo pavement surrounding the building has a cooling affect on the environment, reducing the heat island effect and the energy required to cool buildings in the area. For most US climates, the Solar Reflective Index rating for pavement should be minimum of 29.

Landscape Siting

Landscape design can impact building energy use. Locating or maintaining existing evergreen vegetation on the north side of a building can block winter wind, reducing the need for additional heating. By the same token, deciduous material that shades buildings from the summer sun reduces the need for additional cooling. Energy savings are sitespecific and vary according to micro-climate and region.

Building/Lot Energy Generation

On-site energy generation is energy generated for the use of a single building. Excess energy can feed back into the grid, but a connection to the grid is not necessary for individual production. Lower Transect Zones tend to be more conducive to on-site energy systems where their use will not impose on, or be impeded by, neighboring uses and buildings.

Wind Energy Generation

On-site wind energy consists of one large or several smaller turbines, either pole mounted on a lot or mounted on the roof of a building. As a means of achieving reduction of fossil fuel use, on-site energy generation is currently best suited for larger lots with ample wind levels and less demand. In the higher Transect Zones where there is more density, the amount of energy generated from wind is in limited proportion to the energy used by the high number of multiple users in the building. As technology improves, on-site wind energy generation may become a more significant factor in the T-5 and T-6 zones. See the Wind Power sub-module by Jaime Correa and Associates at www.smartcodecentral.org.

Solar Photovoltaic / Solar Thermal

Solar Photovoltaic energy systems require access to solar radiation and the roof area, to install enough panels for the building's energy demands. This is most often the case in lower Transect Zones up to T-4. Solar Thermal for water heating does not require as many panels per user, and is therefore an option for some buildings with solar access and limited roof area, typically up to T-5.

Groundsource Heat Exchange (Geothermal)

A Groundsource Heat Exchange system or geothermal system uses the consistent temperatures below the earth's surface to provide heating and cooling services. In winter, pipes buried in the ground near the building bring heat from the relatively warmer ground into the house. In summer, hot air from the house is pulled into the relatively cooler ground and reduces the amount of energy needed to cool the already cooler air. This type of system can be utilized in any Transect Zone.

Biomass

On-site biomass energy is produced by burning organic matter, such as a woodchip burning stove. Biomass production is an alternative for lower T-zones and is most effective by burning waste products. In higher T-zones, on-site biomass energy generation is much less efficient than other forms of energy or district biomass energy generation.

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ZERO NET ENERGY BUILDINGS

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(cont. Table SU1 - Zero Net Energy Buildings)

District Energy Generation

District Energy systems produce thermal energy for heating, cooling and hot water at a central plant, for use in the immediately surrounding community. District Energy facilities, both renewable and non-renewable, have less carbon output because there is less energy loss due to shorter conveyance distances. District Energy systems typically consume 40% less fuel and produce 45% less air emissions than conventional energy generation. These systems can serve small developments or larger areas up to several miles; however, the energy demand must support the cost of construction and running the system. It is best utilized in higher T-zones where there are energy loads sufficient to justify the infrastructure installation, as well as both day and evening energy users.

Non-renewable Heat and Cool

Non-renewable fuels, such as natural gas, are the most common and traditional form of District Energy. As discussed above, the use of district generated heating and cooling, even non-renewable, significantly reduces energy consumption.

Combined Heat and Power

District Combined Heat and Power plants, also known as cogeneration plants, recover normally wasted heat from electrical generation processes to heat nearby buildings, doubling the efficiency of the facility. It is well suited to institutional, commercial, industrial, and large residential developments.

District Groundsource Heat Exchange (Geothermal)

A District Groundsource Heat Exchange system is similar to a building geothermal system, but serves more than one building or lot. A centrally located groundsource heat exchange system can serve several users. Other forms of geothermal energy, such as very deep wells tapping the hot rock or water below the earth's surface, are typically larger in scale, but can be utilized for District Energy generation in some areas of the country.

Biomass

Biomass District Energy, produced from burning organic matter, is best used where a fuel source is readily available. The fuel is typically a waste product such as urban or industrial wood waste and agricultural residues. District biomass plants can provide better filtration of emissions than individual systems. Biogas plants use methane released from decomposing organic garbage or manure.

Other Renewable Sources

New options for renewable District Energy sources are growing, including solar and micro-hydro facilities. Technology improvements in small scale plants make these rapidly developing renewable energy sources accessible to businesses and communities. They should always be considered to achieve the goal of Net Zero Energy development.

Method: Long Term Contracting

Long term contracting is a method for purchasing renewable energy from a large energy provider, where the renewable energy is not for that particular building or development, but is fed into the entire energy grid. At the present time, it can be difficult for buildings, especially in the T-6 zone, to achieve Zero Net Energy through energy use reductions and energy generation. Therefore, long term contracting helps these buildings achieve their goals, while encouraging large energy providers to utilize renewable energy sources. The contract should be long term, ensuring utilization of the renewable energy into the future. Should the contract expire, new methods should be incorporated to make up for the loss of savings. This portion of the table is intended to require that no more than a certain percentage of the annual electricity from renewable sources should be credited by such a contract. Percentages are allocated by Transect Zone.

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ZERO NET ENERGY BUILDINGS

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TABLE SU2- SURFACE TO VOLUME RATIOAND BUILDING ORIENTATION

Surface to Volume Ratio and Building Orientation are most applicable at the Building Scale. On the Community Scale, however, lot and even block orientation can result directly in a particular building orientation, particularly in combination with the SmartCode's requirement for facades to be parallel to the thoroughfare in higher Transect Zones. In addition, lot dimensions combined with allowable numbers of stories and story heights can result in particular surface to volume ratios.

Surface to Volume Ratio

Surface to Volume Ratio is the amount of surface exposed to the outside per volume of building unit. Modeling performed by Alan Chalifoux has demonstrated that energy savings can be maximized by reducing the surface to volume ratio as much as possible. Energy use is decreased through each successive decrease in surface to volume ratio. Fewer exterior wall surfaces per unit, or smaller surface to volume ratios, minimizes heat gain in the summer and heat loss in the winter. A unit with two shared walls uses approximately 14-28% less energy (depending on the region) than a detached unit.

Building massing and stacking can reduce the number of exterior walls per unit; therefore, the multi-unit buildings in higher Transect Zones are typically more efficient than single-unit buildings. However, in high-rises the added systems such as elevators and water pumps may increase overall building energy use. This is one reason the model SmartCode caps T-6 at eight stories.

Building Orientation

Building orientation describes buildings sited for passive energy use. Typically, orienting the building or unit on an east-west axis provides smaller eastern and western exposures. The longer southern exposure allows passive heating in the winter, and shading the glazing from the higher summer sun reduces cooling needs.

Building orientation can reduce energy use by 15-30%. This method is most applicable in lower T-zones with larger lots and greater solar access, though orientation should be considered in all cases. New Comunity Plans should take thoroughfare and block orientation into account.

Municipality

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Table SU2: Surface to Volume Ratio and Building Orientation. This table shows the most basic building types and the level of their Surface to Volume Ratio and recommended orientation to achieve lowest energy use. The black lines on the building envelopes indicate shared walls. Each shared wall reduces a unit's surface-to-volume ratio.



•Typically utilized in these Transect Zones.

Chart information for the single unit and townhouse building adapted from energy modeling performed by Alan Chalifoux.

TABLE SU3 - SHADING OF GLAZING

The table illustrates multiple methods for shading glazing. Shading should be utilized to prevent excess heat gain in summer months. Southern facing windows should be shaded during summer months. However, shading should not interfere with walkability in mixed use areas by blocking views into shopfronts nor should they compromise safety by removing "eyes on the street." Shading techniques should be coordinated with Daylighting techniques so they do not conflict.

Trees

Mature deciduous trees, grown in favorable conditions, can shade glazing, especially for one to three story buildings that would occur in the lower Transect Zones. While trees can provide shading of lower stories of buildings in higher Transect Zones, their impact on reducing energy consumption in these taller buildings is minimal. In the higher zones, species should be selected with high canopies that do not block visual access to shopfronts nor interfere with "eyes on the street." In the base SmartCode, very narrow urban thoroughfares in T-5 and T-6 are exempted from tree requirements, so conflicts should be avoided in calibration of the code with this Module. See Section 3.7.3 and Section 5.11 of the base code for Public Frontages and Landscape Standards.

Awnings

Awnings provide levels of shading similar to trees, in that they have more impact on energy use of shorter buildings. Awnings are particularly helpful for shopfronts, reducing reflections in the windows and providing shelter for window-shoppers. Some types of awnings can be retracted in winter months to provide daylighting. See Section 5.7 of the model SmartCode for awning standards.

Porch

Porches, galleries, and arcades provide significant shading of windows on the ground floor. Balconies and double galleries can provide shading for upper story glazing. See Table 7 Private Frontages in the model SmartCode for Gallery and Arcade frontages.

Roof Overhang

Providing an appropriate roof overhang is a common method for providing shading of glazing. In most climates,

the overhang should be designed to shade the angle of the sun during summer months, while allowing the sun to penetrate the glass during the winter months.

Exterior Shade

Exterior shades can be utilized in extreme circumstances on the upper floors of the building. Use of exterior shades on lower floors can result in a hostile pedestrian environment. See options above for more appropriate lower floor shading devices. Louvered exterior shades can also be used to provide a friendlier facade.

Light Shelf

Interior and exterior light shelves can be utilized to divert the rays of the sun from penetrating the glazing directly, while providing indirect daylighting.

Deep Windows

Setting windows in deep frames is a traditional method for providing shading of glazing. The depth of the window can reduce the amount light penetrating the window in summer months, while permitting lower sun angles to light and warm the interior during colder months. Deep windows may also add to visual interest and three-dimensionality on a facade.

Double Skin

Double-skinned buildings are used more widely in Europe; however, use of a double skin can provide unique passive heating and cooling opportunities. The cavity between the two building skins allows for trapped, solar heated air to be circulated into the interior space during winter months. During summer months, the cavity provides protection from solar heat gain on the interior to reduce cooling needs. Additionally, windows on the interior can be open without exposure concerns, such as wind and rain, and for safe nighttime cooling. Use of responsive controls also can optimize the thermal performance of this system.

Municipality

SHADING OF GLAZING

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TABLE SU3: Shading of Glazing This table illustrates methods to achieve high levels of shading glazing within each Transect Zone.



These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

PUBLIC DARKNESS

The Public Darkness table defines standards to maintain desired general ambient light levels across the Transect. Lighting standards protect against glare, preserve the night sky, and reduce unnecessary energy use from overlighting. Rural zones tend to be darker, while higher levels of outdoor lighting may be more suitable in mixed use urban zones. See Table 5 of the base SmartCode and the Lighting and Lighting Design Modules at www.transect.org.

Lighting is regulated by the type of lamp and the effective brightness, or lumens. A "full cutoff" luminaire does not allow light above a horizontal plane and directs light downward without allowing light to escape upwards where it is no longer useful. Dimmers and other similar methods of managing light output assist in reducing energy usage and lowering the impacts on the dark night sky.

"Initial lamp lumens" is a measure of how much light the lamp is emitting near the beginning of its life, as most highefficiency light sources decline in light output over time. Shielded luminaires limit light trespass beyond the property line and prevent the lamp from being directly visible. A lighting curfew promotes a dark night sky by restricting commercial lighting during late-night non-business hours. This may occur after the official close of business to allow employees to leave the building safely.

Municipality

PUBLIC DARKNESS

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TABLE SU4: Public Darkness. This table outlines standards for preserving public darkness. They apply to the Public Frontage and the Private Frontage.

	T1	T2	T3	T4	T5	Т6
Ambient Light Levels	none	very low	very low	low	medium	high
STANDARDS	·					
Maximum Lighting Standards	Minimal electric lighting; should be turned off most of the time	Minimal lighting, all Full Cutoff, controlled with motion sensors	Minimal lighting, all Full Cutoff, controlled with motion sensors	Full Cutoff lighting, controlled with dimmers, time switch or motion sensors	Full Cutoff lighting, some low wattage, non-Full Cutoff lighting; controlled with dimmers, time switch or motion	Full Cutoff lighting, some non-Full Cutoff lighting; controlled with dimmers, time switch or motion sensors
Maximum Allowed Initial Lamp Lumens/sf	1.25- 1.6 lu/sf	2.5-3.2 lu/sf	2.5-3.2 lu/sf	3.3-4.2 lu/sf	7.6-9.7 lu/sf	10.9-13.9 lu/sf
Maximum Lamp Allowance (Lumens)	6500 lu	17,000 lu	17,000 lu	24,000 lu	44,000 lu	60,000 lu
Required Shielding	Fully shielded Luminaire with no uplight or better	Fully shielded Luminaire with no uplight or better	Fully shielded Luminaire with no uplight or better	Shielded Luminaire or better	Partially shielded Luminaire or better	For best practice, do not exceed T-5 requirements
Lighting Curfew for Non-Residential	8 pm or close of business, whichever is later	10 pm or close of business, whichever is later	10 pm or close of business, whichever is later	10 pm or close of business, whichever is later	12 am or close of business, whichever is later	12 am or close of business, whichever is later

Chart information compiled from: Model Lighting Ordinance (draft), Nancy Clanton, Clanton & Associates

TABLE SU5 - VEHICLE MILES TRAVELED

The 2030 Community Campaign provides a benchmark for reduction in Vehicle Miles Traveled (VMT). This table adapts that benchmark to each Transect Zone.

The 2030 Community Campaign is based on sustaining us as "a nation of neighborhoods." The Intent section of the SmartCode spells this out. The average American family is dependent on cars to meet its daily needs, driving on average 21,500 miles a year. Vehicle miles traveled by Americans is expected to grow 2.5% per year, increasing energy consumption and carbon omissions contributing to climate change. Additionally, obesity and other side effects of inactive lifestyles are predicted to shorten life span as much as five years per American.

Base VMT to establish the percentage decrease should be calculated from local or regional community data from 2005. (National baseline from 2005 per the American Planning Association, the Environmental and Energy Study Institute, and the 2030 Community Campaign, is 8,000 VMT per person).

Methods recommended to achieve the goal are listed as more appropriate or more efficient for some Transect Zones, though many of the methods may be utilized across the Transect. Development patterns contribute to reducing VMT as do policies and strategies for Transportation Demand Management (TDM).

Methods: Built measures - Community Scale

(Article 2, Article 3, and Article 4)

Increase Transit and Provide Transit-Supportive Densities

Part of increasing mobility options is providing access to efficient public transportation. Each transit type requires some level of residential density to support an efficient, useful system. Appropriate "origin" Transect Zones are provided based on typical situations and industry studies, though their associated densities should be calibrated to the municipality. Local studies may take into account drivership or bus lines feeding to a rail station, but access from the pedestrian shed should be prioritized. A range of values is inclusive of varying levels of transit service. Though the table may designate a type of transit appropriate for the Transect Zone, in many cases other destination zones are required. For example, commuter rail is suitable at T-3 densities, but likely requires numerous stops and a T-6 destination. An origin station may also be a destination station if it is mixed use, thus changing the recommended densities. Commuter rail is even more difficult to prescribe by the Transect, as one rail line may stop in the T-5 zones of several towns and neighborhoods to collect riders for the ultimate destination. See the Transit Oriented Development (TOD) SmartCode Module at www.transect.org for more precise tools.

Create Walkable Neighborhoods

Small block sizes and high street connectivity, as defined by number of intersections in a square mile, are the basis for a walkable community. The number of intersections required per square mile should be calibrated by region and should be applied per quarter-section (160 acres) to correspond to SmartCode Community Unit sizes. Maximum block sizes are essential, because the Transect Zones are fine-grained and an average interpolated from a square mile may permit some overlong blocks. See Table 14c for model SmartCode maximums, to be locally calibrated if necessary, and see the Place Types in Comprehensive/General Lans Module for other baseline performance measures.

See Article 3 of the SmartCode and Appendix XI of the *SmartCode v9 and Manual* for additional information on block configuration.

A mix of daily uses for complete neighborhoods, such as corner stores and child care, supports a pedestrian lifestyle by reducing the need for trips outside the neighborhood. Commercial nodes should be provided every quarter mile to serve each pedestrian shed or quarter-section.

Pedestrian oriented streetscape improvements increase the safety of pedestrians, contribute to a more pleasant walking environment, and encourage longer and more frequent trips on foot. The appropriate private frontages can provide transitional spaces between the public sidewalk and the private interior of the building. Buildings oriented to the pedestrian provide interest, accessibility, and "eyes on the street" for safety. See Table 7 Private Frontages, Section 5.6 Building Disposition, and Section 5.7 Building Configuration in the base code.

Transit-Oriented Development (TOD) is development located within a half mile of a rail or Bus Rapid Transit (BRT) station, typically with higher densities to support increased amounts of retail and services as well as ridership. Additionally, automobile parking should be significantly reduced, if not eliminated, in TODs. See Section 3.2 and Section 3.3.4 of the model SmartCode.

(continued)

Municipality

VEHICLE MILES TRAVELED

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 Table SU5: Vehicle Miles Traveled. This table establishes goals for reducing vehicle miles traveled (VMT) as a percentage of current average VMT for the region. Additionally, the table provides methods to reduce trips per Transect Zone.

2030 COMMUNITY CAMPAIGN: VEHICLE MILES TRAVELED (VMT) REDUCTION GOALS	T2	Т3	T4	T5	T6	SD
prior to 2010	10%	10%	10%	10%	20%	
Year 2010	10%	10%	20%	20%	30%	
Year 2015	20%	20%	30%	40%	50%	
Year 2020	30%	30%	40%	50%		
Year 2025	40%	40%	50%			
Year 2030	50%	50%		1		
METHODS: BUILT MEASURES - REGIONAL SC	ALE (ARTICLE 2)	, COMMUNITY	SCALE (ARTICLE 3	3 & ARTICLE 4)		
Increase Transit & Provide Transit- Supportive Densities (origin stations shown)	1 DU/ 20 AC	4-8 DU/ AC	6-36 DU/ AC	18-48 DU/ AC	36-96 DU/ AC	
Bus	<u> </u>	•	•	•	•	•
Bus Rapid Transit (BRT) or Light Rail			•	•	•	•
Rapid Rail			-	•	•	-
Commuter Rail		=	•	-	-	-
Create Walkable Neighborhoods						
Block Perimeter (See Table 14)		=	•	-	•	-
Daily Uses within 1/4 Mile			-		•	-
Public Frontage (Streetscape) Improvements			-	•	•	-
Buildings Oriented to the Pedestrian	1		-	-	-	•
Transit Oriented Development				•	•	-
Create Bikeable Neighborhoods						
Bicycle System	1	•		-	-	•
Bicycle Amenities (locker, shower etc.)			-			•
Bicycle Parking				-	•	•
Bicycle Rental/ Bicycle Share Program				-	•	•
METHODS: TRANSPORTATION DEMAND MAN	AGEMENT POLIC	Y - REGIONAL	SCALE (ARTICLE 2), COMMUNITY S	SCALE (ARTICLE	3 & ARTICLE 4)
Transit Passes	•		•			•
Carshare (per hour car rental)			•	•	•	•
Taxi Service			•	•	•	•
Permit Home Occupation Uses	•	•	•	•	•	•
Shopping Parking Charges				-	•	•
METHODS: TRANSPORTATION DEMAND MANA	GEMENT POLICY	/ - BUILDING S	CALE (ARTICLE 5)			
Provide Incentives for Transit Use						
Transit Passes	•			-		•
Guaranteed Ride Home	•			-	-	•
Convenient Park & Ride	•					
Support Ridesharing/Carpooling						
Rideshare/Carpool Parking	•			-		•
Rideshare/Carpool Programs	•			-	-	
Reduce Trips					1	
Compressed Work Week	•				•	1.
Telework/Telelearning	•		-			
Manage & Reduce Parking			Ì			
Car Free Housing					i .	
Inclusion of Street Parking Counts in Parking						
Minimum Requirements		•	-	•	•	•
Off Street Maximum Parking Requirements			-		•	•
Shared Parking Among Users (see Table 12)						
Unbundle Parking from Rent			-		•	•
Workplace Parking Charges	•				-	•

(cont. Table SU5 - Vehicle Miles Traveled)

Create Bikable Neighborhoods

Neighborhoods, especially in the higher Transect Zones, should incorporate a system of bicycle lanes, trails, or routes into the larger regional system. Standards for bicycle parking along with bicycle amenities create bicycle friendly environments. See the Cycling for Complete Streets Module for bicycle parking standards, based on dwelling units or number of employees, and the Complete Streets Module for thoroughfare types and lane widths appropriate for each Transect Zone.

Methods: TDM Policy - Community Scale

Transit passes can be issued by a company or agency to cover transit costs at a discounted rate and to make using multiple modes more convenient.

Carshare rental programs are similar to a standard car rental except that use is scheduled by hour and not by day, allowing rental on a per trip basis. Many successful carshare programs have been implemented in major cities, becoming very popular in the higher Transect Zones.

Improvements in taxi service availability and reliability support transit options. They can be used for Guaranteed Ride Home programs or in case of emergencies.

Home occupations reduce vehicular trips substantially by eliminating the commute to the office. The SmartCode permits a variety of home occupations even in the more residential zones. See Table 10 and Table 12 in the base code.

Pricing parking on its availability has been shown to reduce the need for construction of additional parking spaces, especially in shopping areas.

TDM Policy - Building Scale

Provide Incentives for Transit Use

Transit passes can be issued by a company or agency to cover transit costs at a discounted rate and to make using multiple modes more convenient.

Guaranteed ride home programs support alternative transit by providing an occasional subsidized ride in the case of an emergency or when normal transit options are unavailable. This provides peace of mind to employees who might otherwise not want to sacrifice the flexibility of an individual car.

Convenient Park and Ride locations are part of a commuter rail system. These facilities should be accessible for drivers, cyclists, and pedestrians.

Support Ridesharing/Carpooling

Several people going to the same location, or nearby, can ride together in one car. Buildings or companies can encourage this with preferred parking spaces or parking fee discounts to rideshare/carpool vehicles. A system for ridesharing can be set up at the destination, to help riders connect with drivers.

Reduce Trips

Several methods have been shown to reduce overall trips in a community and can work across the Transect. Many of these methods would be tied to the user of a development. A compressed work week means that employees work fewer but longer days to make up the 40 hour work week, reducing the number of days of commuting.

Telework/Telelearning uses phone, internet, and fax connections to substitute for face-to-face interaction. Jobs that are information-based are ideal for telework options. In a five-day work week, two days of telework reduces commuting trips by 40 percent.

Manage & Reduce Parking

Efficient use of parking reduces driving and helps to maintain and incentivize compact building patterns. Where other types of transportation are available, car-free housing that does not require parking should be permitted and encouraged, and provided in conjunction with other TDM practices, such as a carshare program.

On-street parking should be counted towards minimum parking requirements to reduce the need for off-street parking and to cut down on unnecessary impervious surface and lighting. Parking maximums are recommended to prevent excess parking in higher Transect Zones where transit is an option. Allowing shared parking reduces redundant parking spaces for users who park at different times. These strategies have financial benefits to property owners and improve walkability by reducing curb cuts and the degradation of urban spatial definition from surface lots. See Table 11 in the base code for the Shared Parking Matrix.

Pricing parking on its availability reduces the need for additional parking spaces. Unbundling parking fees from rental payments, especially in higher Transect Zones, exposes the real cost of the parking and allows the user to opt for no parking, possibly living car-free. Workplace and shopping parking charges are similar, in that they shift the cost of parking to the driver and relieve or reimburse non-drivers. Parking cash-out programs are one form of this strategy, in which employers reimburse employees who choose not to use employer subsidized parking.

SMARTCODE MODULE Municipality

VEHICLE MILES TRAVELED

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TREE CANOPY COVER

This table provides a goal for minimum tree canopy cover by Transect Zone as well as methods to achieve these goals. Tree canopy cover cools the urban environment, traps air pollutants, absorbs carbon dioxide, and intercepts rainwater to reduce stormwater runoff. The minimum tree canopy coverage goals for each zone in this table have been developed as a benchmark for the local community. The amounts should be calibrated to the community, based on the climate. The methods are standards to achieve these goals and promote tree health and survival.

Methods:

Canopy cover is a measurement of total mature tree canopy within a Transect Zone from trees located on all private lots, parking lots, open space, and street rights-of-way. Existing trees may be utilized to meet the canopy requirements, and when existing trees do not fulfill the requirements, new trees should be planted. Tree canopy is measured at mature size, established by regional growth patterns. See

Public Canopy Cover Standards - Community Scale (Article 2, Article 3 & Article 4)

Civic Space Minimum Canopy Cover

Public canopy requirements apply to civic open spaces and thoroughfares. Civic space often provides a large amount of tree canopy towards meeting the goal. The standards for these spaces are balanced to allow for sunny areas as well. See Table 13 of the model SmartCode for types of Civic Spaces.

Street Tree Requirements

Continuous street trees are an important component of the urban canopy. However, in the base SmartCode, very narrow urban thoroughfares in T-5 and T-6 are exempted from tree requirements, so conflicts should be avoided in calibration of the code with this Module. Visibility into shopfronts and "eyes on the street" should be considered when selecting tree species. See Section 3.7.3 and Section 5.11 of the base code for Public Frontages and Landscape Standards, and Table 5 Public Planting.

Private Canopy Cover Standards - Building Scale (Article 5)

Private Lot Minimum Canopy Cover

Each private lot shall also meet a minimum canopy cover requirement towards achieving the overall goal. The requirements are set to allow a balance between sun and shade on each parcel. The canopy requirements are for the lot as a whole and should be calibrated for each These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

municipality. Tree canopy cover on green roofs may be utilized to meet this requirement, if mature canopy can be achieved by the planting method.

Street Tree Requirement

Parking lot canopy requirements are set to minimize the heat island effect of parking lots and shade a large portion of the paved area. On lots with buildings, yards, and parking lots, the parking lot should be calculated separately, per this section of the table.

Healthy Trees Standards

Canopy cover requirements are measured at mature growth, relying on a healthy planting method to achieve that maximum canopy size. While planting mix and pit size should be established based on local methods, two planting requirements are typically underutilized, especially in urban locations: permeable surface requirements and use of structural soil. See the Natural Drainage and Light Imprint Modules at www.smartcodecentral.org.

Minimum Permeable Surface per Tree

Permeable surfaces allow air and rainwater to permeate soils within the root zone of the tree. Permeable surface requirements have been set in the higher Transect Zones to accommodate trees in treewells with or without tree grates, though these levels are below the minimums to foster healthy urban tree growth. In T-4, the minimum of 270 square feet is the equivalent of a 9' wide planting strip with medium or large trees planted 30' on center. Highly permeable pavement adjacent to the tree well in walkways or on-street parking areas should be utilized in addition to both these areas, though not required in the table. In lower Transect Zones, where more space is available, the permeable surface required is equivalent to approximately 50% of the canopy area, or "drip zone," the minimum for healthy large tree growth.

Structural Soil Requirement per Tree

With reduced permeable surfaces, structural soil adjacent to the tree well can improve the health of the tree by providing areas for tree roots to penetrate, especially below pavement. Recommended surface areas for structural soils are minimal and should be calibrated to the community. These amounts are in addition to the permeable surface area required. At a minimum, structural soil should be provided adjacent to trees in tree wells in T-5 and T-6, though the municipality may elect to increase the structural soil area to a percentage of the mature canopy area, between 50% and 100%. Structural soil can be utilized below any pavement surface.

Municipality

TREE CANOPY COVER

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Table SU6: Tree Canopy Cover. This table establishes a goal for minimum tree canopy cover per Transect Zone and established methods for providing adequate coverage, via minimum canopy requirements and healthy tree requirements.

GOAL	T1	T2	T3	T4	T5	T6	SD
Tree Canopy Cover Goal by Zone	0	0	45%	30%	25%	15%	40%
PUBLIC CANOPY COVER STANDARDS - CO	DMMUNITY SCAL	E (ARTICLE 2, AF	RTICLE 3 & ARTI	CLE 4)			
Civic Space Minimum Canopy Cover	none	none	50%	50%	50%	30%	50%
Street Tree Requirements	naturalistic	naturalistic	clustered	30′ o.c.	30' o.c.	30' o.c.	30′ o.c.
PRIVATE CANOPY COVER STANDARDS - E	BUILDING SCALE	(ARTICLE 5)					
Private Lot Minimum Canopy Cover	none	1 per15,000 sf of Lot or 6%	1 per 10,000 sf of Lot or 10%	1 per 7500 sf of Lot or 12%	none	none	by Warrant
Parking Lot Minimum Canopy Cover	30%	30%	30%	30%	30%	30%	30%
HEALTHY TREES STANDARDS							
Minimum Permeable Surface per Tree	450 sf	450 sf	450 sf	270 sf	25 sf	25 sf	by Warrant
Structural Soil Requirement per Tree	none	none	none	180 sf	250 sf	250 sf	by Warrant

For Healthy Urban Trees, refer to the Urban Horticulture Institute, Cornell University.

STORMWATER MANAGEMENT

This table establishes standards for managing rainwater as close to where it falls as is reasonable. Limiting the change in stormwater runoff volume, in addition to runoff release rates, is a fundamental practice to avoid overtaxing community and regional stormwater infrastructure and to preserve the health of waterways. Incorporating stormwater management features into the design of the city and its open spaces maximizes land use without the need for retention basins that are only utilized for holding water during a storm event.

Standards

The term "retain" refers to the permanent retention of water onsite, through reuse or infiltration. A certain amount of retention is necessary to avoid overtaxing both the municipal system and the watershed. The requirements are more lenient for the higher T-zones, with the understanding that these areas tend to have higher levels of imperviousness and less space for handling stormwater. This is compensated for in the stricter requirements for the lower T-zones. A development can always follow the standards of a lower Transect Zone, but can never follow the standards of a higher Transect Zone. For example, a T-6 zone may meet the standards of a T-4 zone, but not vice-versa.

Using "percentage of the change" as a standard takes into account the soil quality in any given locale. If the development occurred on soils with poor infiltration to begin with, the development would not be penalized for that. For example, if runoff volume measures 100 units before development and 120 units after, the percentage is taken from the 20-unit change.

For this submodule, the term "district" refers to the area served by the District Stormwater System. This district could be a series of lots and buildings in just one Transect Zone, or a Community Plan area or SmartCode District development containing two or more Transect Zones. If the District Stormwater System serves more than one Transect Zone, the standards for the Transect Zone that contains the most area shall be utilized.

District Stormwater System

When an entire district or neighborhood is planned at once, one stormwater management system may be developed to manage the whole development. Increased runoff in one area can be balanced by greater infiltration in another, through incorporation into a collective District Stormwater System. The standard on this portion of the table assumes that both the Lot Level standards and the District Stormwater System are being implemented. Release rates and runoff volumes apply to the entire district.

Lot Level with District Stormwater System

A lot development within an existing or simultaneously developed district development has standards for the lot that will assist in meeting the standards of the district as a whole. However, the Lot Level controls may be waived so that it is not necessary to measure release rates from the lots, as long as it is demonstrated that the District Development standard will be met without them.

Lot Level without District Stormwater System

When no District Stormwater System is present, each lot development is responsible for its own stormwater runoff volume and release rate. Standards for the Transect Zone apply to each lot separately. This is not the ideal scenario, especially for the release rates, but it accommodates the reality of existing urbanism where lots in the higher Transect Zones often don't have room for retention or detention. Nor does the existing older hardscape on such lots have the ability to allow infiltration.

General Infiltration Methods

The methods included in this table are more generalized than the Light Imprint methods, intending only to introduce the types of methods that will be necessary to meet the standards. Light Imprint *infiltration* methods may be substituted for this list; however, Light Imprint *conveyance* methods should be utilized only for the Lot Level, with a District Stormwater System to convey the water to the district system management feature, such as a community-wide bioretention area.

Hard Surface Treatments

While applicable everywhere, hard surface treatments are very effective in higher T-zones where open space is limited. Permeable paving allows water to infiltrate even in frequently trafficked areas. Green roofs can reduce runoff by 20-90% depending on construction and season, while slowing peak discharge in storm events. Green roofs are especially relevant in higher T-zones and Special Districts (SD) where large flat roofs comprise a high percentage of the impervious surface area. See www.greenroofs.org.

Reuse of Rainwater

Rainwater for irrigation and use within a building is another management technique that is applicable even in higher Transect Zones, though currently it is most effective in the lower T-zones. Irrigation is a simple way to redirect collected rainwater to vegetated areas, eliminating the use of drinking water for irrigation. Methods can be as simple (continued)

Municipality

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Table SU7: Stormwater Management. This table provides methods for on-site stormwater management to minimize post-development increases in stormwater runoff.

	T1	T2	T3	T4	T5	Т6	SD
STANDARDS - REGIONAL SCALE (ARTICLE 2),	COMMUNITY S	SCALE (ARTIC	LE 3 , ARTICL	E 4) OR MULTI	PLE BUILDING	S (ARTICLE 5)	
District Stormwater System Development of a community or portion of a community with a centralized system.							
Runoff Volume: retain this percentage of the change in runoff volume between post- development impervious surface and pre- development land surface for the 2 year event	100%	100%	70%	50%	20%	10%	by Warrant
2 Year Allowable Runoff Release Rate: as a percentage of the pre-development 2 year discharge rate	100%	100%	60%	60%	50%	50%	by Warrant
100 Year Allowable Runoff Release Rate: as a percentage of the pre-development 100 year discharge rate	100%	100%	60%	60%	50%	50%	by Warrant
STANDARDS - BUILDING SCALE (ARTICLE 5)		•					
Lot Level with District Stormwater System							
Runoff Volume: retain this percentage of the change in runoff volume between post- development impervious surface and pre- development land surface for the 2 year event	100%	100%	70%	40%	30%	30%	n/a
Lot Level without District Stormwater System							
Runoff Volume: retain this percentage of the change in runoff volume between post- development impervious surface and pre- development land surface for the 2 year event	100%	100%	70%	40%	30%	30%	n/a
2 Year Allowable Runoff Release Rate: as a percentage of the pre-development 2 year discharge rate	100%	100%	150%	200%	n/a	n/a	n/a
100 Year Allowable Runoff Release Rate: as a percentage of the pre-development 2 year discharge rate	100%	100%	150%	200%	n/a	n/a	n/a
GENERAL INFILTRATION METHODS							
Hard Surface Treatment							
Permeable Pavement		<u> </u>	•	•	•	•	•
Green Root				•	•	•	•
Reuse of Rainwater							
Reuse, Irrigation				-		•	
Linoar Infiltration	•	•		-		-	•
	1		1				
vegetated Swale (Bioswale)	•	•	•	•			•
Vegetated Stormwater Planters					•	•	•
Area Infiltration							
Rain Garden		-	-	-	in parking lots		-
Retention Basin		•	-		-		•
District Methods							
Retention Areas		•			Ì		
Underground Gravel Storage							

Chart information from Tom Price, Conservation Design Forum

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

(cont. Table SU7 - Stormwater Management)

as a rain barrel, or as complicated as an entire irrigation system. A Greywater system uses collected water for non-potable uses, such as flushing toilets. Some level of purification may be required by local building codes.

Linear Infiltration

These strategies allow water to infiltrate into the ground while moving overflow water to a final destination, which may be an infiltration area as part of a larger management plan or the municipal storm drain. These are most applicable along roads, lot lines, and in parking lot islands, to absorb runoff from the pavement and filter out pollutants. An open, vegetated swale (bioswale) is most appropriate in lower T-1 to T-4 zones. Hard-edged, vegetated planters are appropriate in the T-4 to T-6 zones. See also the basic Natural Drainage Module by PlanGreen, available in text form at www.smartcodecentral.org.

Area Infiltration

A rain garden is a small scale feature that collects and infiltrates rainwater on a lot by lot basis or as a culmination of a linear infiltration system. It may be an open, sloped area or a hard-edged planter. Rain gardens are extremely effective and easy to install in T-2 to T-4 zones and are also useful in parking lots in T-5. Retention basins are larger scale rain gardens that are typically large open grass areas, but may be planted similarly to a rain garden. For a Lot Level system, these are most appropriate in the lower Transect Zones because of the large land area required.

District Stormwater System Methods

Retention areas that are designed as part of a larger stormwater management plan are appropriate in lower T-zones (T-1 to T-4) when they are incorporated into public spaces and parks. Retention areas should always be functional as a recreational or environmental area, along with their stormwater management role. Retention areas should be shallow with shallow side slopes, covering a large area that may fill with water during a storm event. As the water infiltrates, the area becomes dry and is utilized as any other large landscape area.

Underground gravel storage areas can be utilized in all Transect Zones. In lower T-zones, they can be used under large pavement, such as a parking lot, or lawn areas in civic spaces for storage and infiltration of rainwater. In higher T-zones, underground gravel storage areas can be utilized under plazas or streets to store stormwater until it infiltrates or is reused.

SMARTCODE MODULE Municipality

STORMWATER MANAGEMENT

Farr Associates Version 1.0

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

Municipality

DEFINITIONS OF TERMS

Farr Associates Version 1.0

ARTICLE 7. DEFINITIONS OF TERMS - SUSTAINABLE URBANISM

Albedo: the amount of solar radiation reflected by a surface.

Biomass: fuel derived from living or recently dead organic material.

Building Envelope: collectively, all components of a building that enclose conditioned or unconditioned above-ground space, including foundation, roof, walls, doors and windows.

Carshare: a type of short term vehicle rental which can substitute for car ownership by providing cars parked within neighborhoods.

Combined Heat and Power: characterizing a District Energy plant that manages on-site energy generation to recover heat from electrical generation for use in industrial processes, or in heating and cooling systems.

Daylight Factor: a measurement for daylight in a building, calculated as a ratio of the unshaded exterior illuminance on a horizontal plane, under a fully overcast sky, over interior illuminance on a horizontal plane. The higher the daylight factor, the more natural light is available in the room.

District Energy: technology for energy production and distribution in which a central plant provides energy for multiple users.

District Stormwater System: a stormwater system that manages runoff from multiple Lots.

Double Skin: an additional external building Facade that allows air to circulate in the space between the two Facades, providing an extra layer of insulation and air flow.

Full Cutoff: a Luminaire type that does not allow any light to be emitted or reflected above a horizontal plane.

Green Roof: a building roof partially or completely covered with vegetation and soil, or a growing medium, over a waterproofing membrane. Green roofs may be categorized as Extensive, Semi-Intensive, or Intensive, depending on the depth of the planting medium and the amount of maintenance required. *See Natural Drainage Standards Module.* (Syn: eco-roof, living roof, greenroof)

Ground Source Heat Exchange: a process by which the relatively constant temperature below ground is used in building climate control systems as a heat source for heating, or a heat sink for cooling.

Initial Lumens: a measure of how much light a lamp is emitting near the beginning of its life.

Lamp: The source of illumination in a lighting fixture.

Light Shelf: a horizontal overhang placed in a window above eye level, which reflects daylight onto the ceiling and deeper into a room. The overhang of the shelf also provides shade near the window to reduce window glare.

Linear Infiltration: a method to allow water to infiltrate into the ground while moving overflow to a final destination.

Lumen: a measure of brightness.

Luminaire: a light unit or fixture including any bulb(s), tube(s), housing, reflective shield, lens and/or ballast.

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

Municipality

DEFINITIONS OF TERMS

Farr Associates Version 1.0

One-hundred Year Storm Event: a 24-hour rainstorm having a one percent chance of occurrence in any given year.

Photovoltaic (PV): capable of producing voltage when exposed to radiant energy, especially light.

Rideshare: a transportation mode in which vehicles carry additional passengers. (Syn: carpooling.)

Runoff Release Rate: the quantity per unit of time at which stormwater runoff is released from upstream to downstream land.

Solar Reflective Index (SRI): a measure of the constructed surface's ability to reflect solar heat, as shown by a small temperature rise. Numerically, standard black is 0 and a standard white is 100.

Stormwater Runoff Volume: the volume of water that results from precipitation that is not absorbed by the soil, evaporated into the atmosphere, or entrapped by ground surface depressions and vegetation, and that flows over the ground surface.

Structural Soil: a load-bearing soil that resists compaction to allow for healthier tree root growth. Angular gravel within the soil mix allows air and water to permeate while supporting pavement loads.

Surface to Volume Ratio (S/V Ratio): the amount of surface exposed to the outside per volume of building unit.

Transportation Demand Management (TDM): policies and strategies that are the basis for decisions made related to transportation demand and choice of mode.

Two Year Storm Event: a 24-hour rainstorm having a fifty percent chance of occurrence in any given year.

Zero Net Energy: energy production of a building that is equal to or greater than what the building consumes.

TOOL FOR GENERATIVE HAMLET GROWTH

This tool grew out of the Salon des Refuses project. The tool has a table appended to coordinate T-zones and types of infrastructure. (Courtesy Paul Crabtree.)





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The Challenges.

- 1. Legacy ranchlands are being lost to piecemeal sprawl due to economic hardships (particularly estate taxes).
- 2. Vast areas of rural America are currently zoned for 2 to 5 acre development.
- 3. Ranchers strongly resist efforts by regional planners to eliminate or curtail existing vested development rights, and often mistrust the complexities of TDRs and PDRs.
- 4. Reducing the vested rights through rezoning can inhibit the use of conservation easements because the tax benefits of the conservation easement are reduced or eliminated.
- 5. Ranchers, when strapped, visit the local surveyor, carve out a few parcels, and sell them.



- 6. Efforts to reduce this sprawl, such as clustering and conservation land developments are improvements (triage, really); but still usually result in cocooned, auto-dependent, exclusive, monocultures lacking in community, connectivity, and sustainability. They usually do not create synergy with the local agriculture, but actually create conflicts with it.
- 7. Even a SmartCode-compliant Hamlet, when restricted to 30 to 80 acres will comprise only portions of a complete neighborhood.

The pattern of this form of rural sprawl is illustrated in a Google Earth image of the San Luis Valley in southern Colorado. The irrigation pivots have a radius of ¼ mile, or ½ mile diameter. The white line at the bottom of the image indicates a one mile long section line. Variants of residential subdivision lots are apparent including large lots located along quarter-section lines, and large lots on a cul-de-sac road.

History and Background. Many great traditional villages, towns and cities in America began as hamlets that were originally platted as complete townsites – many around a new railroad depot. See image below, from Reps' *The Making of Urban America*. Buyers or builders would purchase lots and build structures and infrastructure as it became feasible to do so. The platted townsite provided the framework for generative growth, infill, infrastructure, and civic spaces. The first settlers could develop a home/business with a large garden or small farm located on several lots that could eventually be infilled with homes and/or businesses on each lot. "First and Main" was established at a central crossroads a block or two from the depot.

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Figure 233. The Illinois Central Associates Standard Town Plat

Goals. A simple, generative antidote to the sprawl-inducing equity problem of the rancher in the form of hamlets that are not static, uncentered, exclusive, isolated, and/or vehicle-centric; but have good locations, modest beginnings, relevance to agriculture, and a long-term blueprint for eventual growth into complete neighborhoods.

"Ranch Hamlet" Idealized Example. A ranch family owns 640 acres (a 1 mile by 1 mile Jeffersonian section), and wants to keep ranching, but land equity is needed to pay a 25%-50% estate tax at each generation. The property has existing county roads at the perimeter, and has a 2 acre/unit vested right due to prior/existing conventional zoning. The conventional path for the rancher in financial straits is to visit the local surveyor, have him carve out a lot or two, and sell them to pay the bills. Then repeat as necessary.

See Appendix A for illustrations of a more sustainable process, which would consist of a long-range plan that would begin modestly but create a framework for generative growth into a complete neighborhood:

- 1. Establish the vested conventional zoning right for this particular property by netting out undevelopable lands, and laying out a development scenario for the property with 2 acre lots under the old/existing conventional zoning.
- 2. Catalogue and map the land that is not suitable for development or ranching, such as wetlands, steep slopes, forests, streams, lakes, etc. In this example, this consists of 7 quarter sections (280 acres).
- 3. Designate 40 acres (1320' x 1320') at one quadrant of an existing road junction for townsite platting. Ideally this location would eventually serve as one quadrant of a complete ped shed, would have 3 other ownerships at the intersection, has public transit, and could be considered a growth node for the region. The other three quadrants of the intersection would be suitable to develop and add to the TND in the future in similar fashions.
- 4. Design a long-range plan and plat for the townsite core, and immediate perimeter. Include the blocks, lots, thoroughfares, alleys, civic space and T-Zones on a "20-Year Regulating Plan" that is, a long range plan for what the Hamlet will be expected to become in 20 years or so. In this example the Hamlet plan (including rural perimeter lots) yields nearly 245 lots. Using an idealized Aliquot parts platting procedure each block in the Hamlet core is 270' x 270' and the typical lot size is 30' x 125'.
- 5. Plan progressively larger layers of T2 parcels around the Hamlet core. In this example there are T2 Villa (1/2 acre), T2 Garden (2.5 acre), T2 Orchard (5 acre), and T2 Ranch (40 acre) parcels.
- 6. File a Plat of the lots, blocks, parcels and thoroughfares of the "20-Year Regulating Plan". (Review the local property tax implications to ensure that the property is taxed on actual use, not on the basis of platted lots.)
- 7. Establish a generative process of phasing from a very modest beginning, to a final succession to the 20-Year Regulating Plan, as follows:
 - a. Generation One: The 280 acres of Open Space are zoned T1 and the rest is zoned T2. No new roads are built. Each new building site must front an existing road and consist of enough platted lots to accommodate onsite well and septic systems in this example, about an acre. Street trees are planted on the existing roads and any necessary road and drainage repairs/upgrades are done. Upon sale of any lot a predetermined assessment goes into a Townbuilding Escrow Account that will be used to build streets and community water and sewer at Generation Four. The Regulating Plan and code will have to regulate the disposition of improvements in the early generations so that the ultimate

TND can be realized without major reconfigurations. Twenty building sites are available at this Generation.

- b. Generation Two: After selling a number of lots, the rancher now has the funds to build two new gravel roads around the perimeter of the 40 acre Hamlet core, creating access to twenty-four more T2 parcels.
- c. Generation Three: More new road segments will accommodate seventeen more settlers.
- d. Generation Four: A central water and sewer system is built, financed by the Townbuilding Escrow Account, POA assessments and settler investments. Complete streets and alleys are built, and the pioneer settlers can sell their extra lots for infill. T-Zone upgrades to T3 and T4 take effect.
- e. Generation Five: After a given threshold of buildout, or the growth of other adjacent Hamlets at the crossroads, the final zoning succession to T5 takes place per the 20-Year Regulating Plan. A total of 245 lots have been created.

SmartCode Application. The SmartCode calibration could work in this general fashion:

- 1. Prepare a Sector Map through public charrette visioning in accordance with Article 2.
- Revise Article 3.3.1b to limit the gross size of a Hamlet to 30 to 80 acres at a ratio of 40 acres of T3+ per 640 acres (1:16), so that 600 acres will be preserved as T2 or T1 for every 40 acres of Hamlet. Another, or additional, approach could be that no new Hamlet shall be allowed within 2 miles of an existing Hamlet, center to center. The development application would have to involve between 480 and 1280 acres.
- 3. Require or incentivize that Hamlets be located at an existing crossroads, with all wedges of the crossroads under separate ownerships, and each appropriate for Hamlet development. These crossroads should, in fact, be designated on the Sector Map.
- 4. Add Sector Tables to the SmartCode that provide graphic examples of the framework for the generative succession.
- 5. Add additional Table 15's for the various versions of T2 (Villa, Garden, Orchard, and Ranch). These would provide form-based standards for exemplary local versions of these rural typologies, as revealed by synoptic surveys and charrette stakeholders. Metrics would be types of building and structures and their forms and dispositions, fencing and crop arrangements, landscaping and access, etc.
- 6. This example could be called the "Ranch Hamlet Module". Other modules could be done for "Wine Country", "Grain Belt", "Cotton Belt", "Horse Country", etc.

Observations. Typically, this example of Ranch Hamlets would have a minimum separation of 2 miles under a full regional build-out where the vested right is 2 acre lots. Larger separations, and greater rural to urban ratios would occur where the vested right is greater than 2 acres. The gross area of land to be converted to T3 and above in this example is about 6%, while over 90% becomes protected T2 and T1.

Paul Crabtree, PE, CNU President Crabtree Group, Inc.



Ranch Hamlet 20 Year Regulating Plan

Transect Zones

	T1 - Open Space
	T2 - Rural
	T3 - Neighborhood Edge
	T4 - Neighborhood General
	T5 - Town Center
	Civic Reservations
CS	CS-Civic Space Reserve
	Legend
	Street Right-of-Way
	Alley Right-of-Way
	Section Line





EXISTING COUNTY ROAD - 60' RIGHT-OF-WAY (TYP)

Ranch Hamlet 20 Year Regulating Plan

Transect Zones

	T1 - Open Space						
	T2 - Rural						
	T3 - Neighborhood Edge						
	T4 - Neighborhood General						
	T5 - Town Center						
	Civic Reservations						
CS	CS-Civic Space Reserve						
	Legend						
	Street Right-of-Way						
	Alley Right-of-Way						
	Section Line						
T2-V	(Rural) Villa						
T2-G	(Rural) Garden						
T2-O	(Rural) Orchard						
T2-R	(Rural) Ranch/Farm						
AC	Acres						
TYP	Typical						



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245 (TOTAL) BUILDING SITES - COMPLETE PUBLIC WATER & SEWER - COMPLETE STREETS



GENERATION TWO - 24 NEW BUILDING SITES









Note Generation Five Scale



SUCCESSION TO T5 TRANSECT ZONE

Ranch	Hamlet	Core
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Transect Zones

T1 - Open Space T2 - Rural T3 - Neighborhood Edge T4 - Neighborhood General T5 - Town Center **Civic Reservations** CS CS-Civic Space Reserve Legend Street Right-of-Way Alley Right-of-Way **Property Line** New Building Site Existing Building Site Pedestrian Shed Limits New Gravel Road Existing Gravel Roaad New Paved Road TYP Typical



GREEN INFRASTRUCTURE

LOT AND BUILDING

ORIGINAL GREEN/PASSIVE SOLAR	T1	T2	Т3	T4	T5
ADAPT TO LOCAL CLIMATE AND RESOURCES VS DEFAULT TO GLOBAL SUPPLY CHAINS					
ACCESSORY DWELLING UNIT					
LOCALLY-SOURCED BUILDING MATERIALS					
OUTDOOR LIVING (PAVILIONS, TERRACES, PORCHES)					
GREEN WALL					
YARD GARDENS					
ROOF, BALCONY AND WINDOW GARDENS					
FISH POOL					
CHICKEN COOP (NO ROOSTERS IN T4)					
COMPOST DRUMS					
GARDENER SHED					
SHADING OF GLAZING					
REAR LAUNDRY LINE (SUCH AS ROPE AND PULLEY IN TA)					
LONG SIDE FACES SOUTH LESSER WINDOWS NORTH WEST EAST					
EAVES AND AWNINGS SOUTH, WEST, EAST					
RAINWATER HARVESTING CISTERN OR POOL					
IREES					
BIOSWALE					
PERVIOUS PAVING					
ENERGY CONSERVATION		12	13	14	15
LOW ENERGY APPLIANCES					
LOW ENERGY LIGHTING					
MOTION SENSOR LIGHTING					
SUPER-INSULATION					
AIR-TIGHTNESS					
HEAT/AIR EXCHANGER					
ATTIC VENT FANS					
SMART METERING					
TECHNO-GREEN	T1	T2	T3	T4	T5
SOLAR THERMAL HOT WATER					
SOLAR PHOTOVOLTAICS					
ROOF IS FLAT, OR HAS PITCH(ES) THAT MATCH LATITUDE FOR SOLAR PV (33 DEGREES = 7:12)					
GROUND, AIR OR WATER SOURCE HEAT PUMP					
ABSORPTION COOLING AND HEATING WITH SOLAR HOT WATER					
WIND TURBINE (VERTICAL AXIS IN T4 AND T5)					
COMBINED COOLING, HEAT & POWER TURBINES					
HEAT EXCHANGERS TO UTILIZE DISTRICT HEATING					
RECYCLED WATER FOR TOILETS AND LAUNDRY					
SITE IRRIGATION RAINWATER					
SITE IRRIGATION RECYCLED WATER	l				
GREEN ROOF					
SOLAR/WIND POWERED EV CHARGING STATION					
BATTERY STORAGE, THERMAL SOLAR STORAGE, OR INTERTIE WITH GRID	l				
RECOGNIZABLE ARCHITECTURAL THEME					
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	II		I		

See http://www.transect.org/modules.html for more details about incorporating sustainability into the community plan							

LEAN INFRASTRUCTURE PRESENTATION

Paul Crabtree provided this presentation on Lean Infrastructure from 2013.
Lean Infrastructure

Lean Urbanism Council



Lean Infrastructure Definition



Tenets. Lean Infrastructure:

Anticipates immediately foreseeable development, whereas conventional infrastructure often anticipates a massively increased level of urbanization and funding to match.

Remains nimble by banking the savings (or refraining from overburdening the tax base) for unforeseeable needs.

De-emphasizes economies of scale in favor of the economy of avoiding overprovision and the pragmatism of smaller-scale interventions.

Favors many manageable projects over a few grandiose ones, until the skill sets for maintenance and construction nearly converge.

Favors an economy of means, but also favors open extensibility over pennypinching.

Lean Infrastructure Definition



Concerns itself with life-cycle costs (not just capital costs), including the recognition that peaks followed by collapses in the extraction of finite resources at the planetary level will have local ramifications.

Fosters competency and depends on it, eschewing over-specification.

Remains visually and experientially accessible except for very good reasons.

Takes a cautionary stance towards proprietary or exotic products, or products or systems that are dependent on cheap oil.

Utilizes patterns that have a looser, parametric connotation than the strict standards of conventional public works manuals. Patterns are especially applicable to retrofits of conventional sprawl infrastructure.

Recognizes that intensifications of urbanization should be balanced with enhancements of nature.

Employs a declension of green to gray infrastructure that aligns with the rural-tourban transect.

Lean Infrastructure Definition



Examples:

Light Imprint drainage, the Sky Method of incremental subdivision, and Original Green infrastructure approaches that integrate natural, time-proven, and environmentally sound methodologies in support of normative human environments are models of Lean Infrastructure.

The ethos of Lean Infrastructure could in some ways be represented by the smaller projects of the Imperial and Royal Engineers of the turn-of-the-20th-century British Empire, and pay-as-you-go projects of the American settlement-building pioneers.



Imperial Engineering



Roman – Massive Longstanding Infrastructure, Civilization Building.











Imperial Engineering - Roman

British – Lean Infrastructure, Good Placemaking.







CRABTREE GROUP, INC.

Imperial Engineering - British

American – Gold-plated Infrastructure, Car-Centric, Terrible Placemaking.



Imperial Engineering - American



Incremental Streets and Roads





Dirt Roads



Frugality in the Long-Term



World Oil Production 1900-2080



Petroleum Production





Rising Cost of Asphalt





/w.luzypie.com



A once-common practice no longer so viable.

Types of Unpaved Roads ("Art of Roadmaking" – 1910)



HARWOOD FROST KESSINGER LEGACY REPRINTS



Unpaved Roads

CHAPTER VII

EARTH, GRAVEL, SAND AND CLAY ROADS

EARTH ROADS

THE term "Earth Roads" includes all those constructed of natural soil, whether loam, clay or sand, without a crust or other road covering. The earth road is the cheapest form of road as regards first cost, and is generally the pioneer in any new country. In its simplest form it consists of dirt from the sides, simply thrown up into the center, with little or no regard for the formation of a crown for the lateral shedding of rain-water. The bulk of the country roads of America are made of earth alone, and as a well-made earth road forms an excellent foundation for a graveled or a broken stone road, and its construction is in many cases preparatory to a more permanent improvement, the importance of scien tific design and construction will be easily seen.



FIG. 79.-Earth Road With Flat Surface, as ordinarily constructed.





Earth, Gravel, Sand, Shell Roads

GRAVEL ROADS

Gravel furnishes a very acceptable substitute for stone as a material for the construction of roads with a moderate amount of travel, and, when well constructed, a gravel road is a satisfactory one. It has to commend it its ease of laying and case of repair, but it has not the durable qualities of a good broken-stone road when subjected to heavy travel.



LUCINDA WILLIAMS CAR WHEELS ON A GRAVEL ROAD



CRABTREE GROUP, INC.

Earth, Gravel, Sand and Shell Roads

SANDY ROADS

There are many miles of sandy roads in different parts of the country, and the remarks as to drainage, shaping, etc., do not apply to them in their natural condition. The wetter they are kept the better they are. Sand, when confined, will support almost any weight, the objection to sand alone as a road material lying in the total absence of any binding or cementing qualities. Sandy roads are good only when damp. It is useless to form or crown sand roads, as they do not require drainage. They should be made either flat, or lower in the center than at the sides, and trees and undergrowth should be allowed to grow as near the road as possible, as they help to retain the moisture. For temporary improve-

ment of sandy roads a layer of cut straw, hay, bark, sawdust or any material that will retain moisture and offer some resistance to benefit, but for a semi-permanent improven be mixed with the sand in proper proportions clay road.



Earth, Gravel, Sand, and Shell Roads



Good_roads.pdf

Construction and Maintenance of Oyster Shell Roads*

By JOSIAH MILLER, County Engineer, Salem County, New Jersey

Oyster-shell roads have been in use in Salem county for about thirty years. They have given satisfaction for many years, but the time has come when the cost of this material makes it necessary for the road builder of today to look well into its merits, and to take advantage of those methods of construction which will give the best results. The usual —In fact, almost the only method of building a shell road in our section is to "ridge" the road to the limit, and then place on top of this ridge as few shells as is possible, and allow travel to "break them down."

The shall road, as usually constructed, rarely has a depth of eight inches of loose shells, and seldom has a width of eight fact when first iaid down. I think it will be found that these are the extremes of depth and width used by our township officials on ordinary roads. The width usually increases slightly during the process of "breaking dows," and the depth will of course, decrease likewise, depending upon the care exercised by the official in charge. The road must be carefully attended to during the breaking down period, keeping it free from ruts, and the shells raked in and in proper shape.

It has been found by experience that the life of shells is materially increased by keeping the roadbed dry. This accounts for the unusual amount of crown given to our shell roads. This crown grows rapidly less in a short time, owing to the breaking down and consolidation of the material. The sub-grade is never compacted in any manner, except by ordinary traffic, and this also helps to relieve the situation as it settles into place. If the road to be improved has been a gravel or shell road, the shells are dumped and spread on the road without preparing it in any way for their reception, except to give the road a crown where it happens to be flat, and this is often done by using more shells in the low places.

In fact, the same methods of construction and maintenance that have been followed for generations back by township officials in construction and repair of ordinary roads have been and are still followed in the construction and maintenance of shell roads. When shells are first placed on a road, the traveling public will naturally use the sides of the road as long as possible, and it seems to me that I have known them to refuse to drive on the shells for a longer time than this, if such a condition can be conceived. In time they are forced by stress of weather to drive on the shells. In the meanwhile they have "nibbled" at the edges of the shell bed, more or less, and have driven on the main body of shells for short distances here and there along the line of the road. This has naturally widened out the shell bed in places, and when the road surface is broken down into a really fit condition to travel on, there are places where the shell bed is noticeably thin. These places are in most cases filled up immediately, and in from three to six months after construction, depending on the time of year and the character of the soll on which it is built, the road is in a more or less fit condition to travel over with comfort. Shell roads, when once in good condition, are undoubtedly more satisfactory to travel over, both for horse and man, than the great majority of our roads. They are almost noiseless, and seem to possess a realliency that I have never seen equalled by any material that can be considered by a rural road district.

Dampness will cause shells to become soft and useless for road purposes in a short time. 'A few years ago I removed some shells from the abutment of a bridge, where they had

"Prom the annual report of the State Commissioner of Public Roads of New Jersey.

teen used as filling in the days when shells were to be had almost for the asking. They had been subjected to the ebb and flow of the tides for many years. When taken out they were, to the eye, in almost the same condition as when placed there. The laborers usually use forks in handling shells, but in this case they were obliged to resort to shovels because the forks pierced the shells so easily that it forced them to abandon their use. These shells were placed on the approach to the bridge, and in less than a year the road at that point was in almost the same condition as before. The shells were soft and had also lost all the cementing qualities they possessed, and practically disappeared in that length of time. Shells possess the power of cementation to a very great degree, and in this lies their chief value as a road material. They are not hard nor will they stand much wear, but when cemented together they present a smooth, firm surface, and will then give an extraordinary amount of wear, when the actual softness of the material would lead to their condemnation by one who was ignorant of their other good qualities.

In 1896 our first shell road under the provisions of the State All Act was laid down. It was in the township of Magnington, on a nortion of the "King's Highway" that was laid out from Salem to Burlington in 1682. This had always been considered one of the best roads in the county. It was on a fairly heavy clay loam soll, which had been coated with a sandy gravel so many times that it was practically a sand road when it was decided to improve it. The shell bed on this road was laid ten feet wide and twelve inches deen, as have been all our shell roads built under State aid. A portion of this road was built with a shoulder, and this raised such a storm of protest that the balance of the road was built in the usual manner, by placing the shells np the prepared surface without backing them up. The first repairs to this road were made on the shouldered portion, and consisted of a thin coating of shells down the centre of the shell bed. This was done within the first two or three years after the construction of the road. The other portion of the road has since been repaired from time to time. Four years ago I measured the shells on this road and found the shells on the shouldered portion to be fully one inch deeper than those on the other portion of the road, with no appreciable difference in the quality and soundness of the shells. On this particular road the shouldering or backing up of the shells with earth was beneficial rather than detrimental. On the other hand, the lownship of Lower Penns Neck built a shell road about thirty years ago on a clay loam bottom. This was backed up, and in a comparatively short time the road was completely worn out. This was then re-surfaced in the usual manner, and was for many years a good piece of road.

It will be seen from the foregoing sketch of the history of shell roads, that while the material has been in use for thirty years, there has been no intelligent application of the experience gained. Shells, as well as all other road materials, have their peculiarities, and these have not been intelligently studied. Shells and limestone are, in my opinion, about on equal ground as a road material. Both are comparatively soft, both have excellent cementing qualities, and both make a firm, smooth road when at their bost. How dampness affects limestone, I am unable to say, but should be inclined to the opinion that it affected the cementing quality to a great extent.

Shell roads have been repaired in Salem county by simply dumping shells on the surface of the road wherever, in the optaion of the official in charge, they are needed, and allowing travel to grind them into the road. In fact, oys-

Google





Earth, Gravel, Sand, and Shell Roads

iPad

CHAPTER VIII

BROKEN-STONE ROADS

A BROKEN-STONE road is one built of small fragments of stone laid on a suitable earth foundation and compacted together into a solid mass. It is uncertain just when this system of road construction was invented, but as near as can be ascertained, the first systematic construction of brokenstone pavements was carried on in France in 1764 by M. Tresaguet, who built many miles of such pavements in the latter part of the eighteenth century. In the early part of the nineteenth century two systems were introduced into England, the first by Telford, the second by Macadam. From these two pioneers of good roads, modern engineers have drawn the principles upon which all present-day broken-stone roads are built. Such roads are generally known as "macadam" roads;





Broken-Stone Roads



4592690220_8e9ca83b66_z.jpg flickr.com

In Fuenterroble a cross-section of a Calzada Romana, or...

640 x

Broken-Stone Roads - Ancient Roman



TRESAGUET'S METHOD, 1764 (Fig. 113).—"The bottom of the foundation is to be parallel to the surface of the road. The first bed or foundation is to be placed on edge and not on the flat, in the form of a rough pavement, and consolidated by beating with a large hammer; but is unnecessary that the stones should be even one with the other. The second bed is to be equally placed



FIG. 113 .- Cross-section of French Road Built by Tresaguet.

by hand, layer by layer, and beaten and broken coarsely with

a large hammer, so that the stones may no empty spaces remain. The last bed, ness, is to be broken to about the size hammer, or a sort of anvil, and thrown u a shovel to form the curved surface. O be given to choose the hardest stone for one is obliged to go to more distant quarrithe stone for the body of the road. Th





Broken-Stone Roads - Tresaguet - 1764

TELFORD'S METHOD, 1824 (Fig. 114) .- "Upon the level bed prepared for the road materials a bottom course or layer of stones is to be set by hand in the form of a close, Telford's firm pavement. The stones set in the middle of the method. road are to be seven inches in depth; at nine feet from the center, five inches; at twelve feet from the center, four inches; and at fifteen feet from the center, three inches. They are to be set on their broadest edges lengthwise across the road, and the breadth of the upper edge is not to exceed four inches in any case. All the irregularities of the upper part of the said pavement are to be broken off by the hammer, and all the interstices to be filled with stone chips firmly wedged or packed by hand with a light hammer, so that when the whole pavement is finished there shall be a convexity of four inches in the breadth of fifteen feet from the center.

Grovel or	21 n Stone	120 13
	anan and ananya an	and the second second

FIG. 114.-Telford's Shrewsbury and Holyhead Rod

"The middle eighteen feet of pavement is to be conhard stones to the depth of six inches. Four of inches to be first put on and worked in by carriages a care being taken to rake in the ruts until the surfacfirm and consolidated, after the remaining two inches be put on.

"The paved spaces on each side of the middle eig are to be coated with broken stones or well-clean up to the footpath or other boundary of the road make the whole convexity of the road six inches from to the sides of it, and the whole of the materials covered with a binding of an inch and a half of gor free from clay or earth."





MACADAM'S METHOD.—Macadam omitted the foundation of large stones, claiming that it was not only useless but injurious. He placed on the natural soil, a layer of stone broken into cubes of about one and a half inches in their greatest dimensions, and spread equally over the surface of the road, to a depth of ten or twelve inches.



Broken-Stone Roads - Macadam - 1827









Broken-Stone Roads - Thickness Comparison

Tarmac - 1901

Stone Block

Cobblestone

Brick

Wood Block/Plank

Asphalt



Concrete

Concrete Pavers - Impervious and Pervious

Other Surface Materials - Paving



Construction Cost per Mile



Construction Cost Comparisons (FHWA 2005)



Maintenance Cost per mile



Maintenance Cost Comparisons



Average Maintenance Costs Several MN Counties





Figure 7. Five-Year Average Four-County Surface-Related Maintenance Cost/Mile vs AADT

Paved \$2,460/mile (plus \$131,000/mile every 20 years)

Gravel \$4,160/mile.

Minnesota DOT Maintenance Costs 2010



One important factor in pedestrian crashes is *SPEED...*

The probability of a pedestrian being severly injured and/or killed when struck by a vehicle increases as the motorist speed increases. Figure 1 shows the correlation of vehicle impact speed and pedestrian death rates. As vehicle speeds increase the ability of the driver to stop in time for crossing pedestrians also significantly decreases.



Figure 1: Pedestrian's chances of death if hit by a motor vehicle(Ref. UKDOT)





County	State	Links
Stutsman County	North Dakota	http://online.wsj.com/article/SB10001424052748704913304575370950363737746.html
		http://www.co.stutsman.nd.us/
Coshocton County	Ohio	http://blog.cleveland.com/metro/2010/08/some_ohio_roads_reverting_to_g.html
Ashtabula County	Ohio	http://blog.cleveland.com/metro/2010/08/some_ohio_roads_reverting_to_g.html
Otter Tail County	Minnesota	http://www.startribune.com/local/118713504.html?refer=y
Elkhart County	Indiana	http://www.abc57.com/home/top-stories/Road-funding-crisis-to-cause-paved-road-to-revert-to-gravel-
Montcalm County	Michigan	http://usatoday30.usatoday.com/news/nation/2010-02-03-gravel-roads_N.htm?csp=ht
Hancock County	Indiana	http://usatoday30.usatoday.com/news/nation/2010-02-03-gravel-roads_N.htm?csp=hf
Richland County	North Dakota	http://www.maine.gov/mdot/csd/mlrc/documents/pdf/Rd&BrarticleApril2011.pdf
Brown County	Indiana	http://posttrib.suntimes.com/news/10991137-418/cash-short-counties-go-back-to-gravel-roads.html
Owen County	Indiana	http://posttrib.suntimes.com/news/10991137-418/cash-short-counties-go-back-to-gravel- roads.html
Jackson County	Michigan	http://www.mlive.com/news/jackson/index.ssf/2011/07/jackson_county_road_commission_12.html
Vermillion County	Indiana	http://tribstar.com/news/x2029122906/Budget-squeeze-has-some-counties-returning-to-gravel- roads/print

http://www.maine.gov/mdot/csd/mlrc/documents/pdf/Richmond1993PavedvsGravelStudy.pdf

http://www.mnltap.umn.edu/publications/exchange/2012/spring/lowvolume.html

http://www.nxtbook.com/nxtbooks/naylor/NAPS0311/#/36

	Michigan	
Calhoun County		
Benzie County		
Iron County		http://www.lrrb.org/media/reports/trs1007.pdf
Montcalm County		
Alpena County		
Sequoyah County	Oklahoma	http://www.newson6.com/global/story.asp?s=13094256



Many Counties are Reverting from Paved to Gravel

SUCCESSIONAL TRANSECTS



FIG. 13. The Transect is a progression from rural to urban, as can be seen from this sequence entering a typical city (the drawing is by Eusebio Azcue of DPZ). It also has a temporal manifestation, as this series can also be understood as instances of a city maturing by becoming more urban over time. This is analogous to the "successional" concept in nature in where grassland prairie gradually evolves to woodland, and then to a climax forest. In urbanism the climax would be the equivalent of an area designated for historic preservation.

TRANSECT IMAGES 43



Incremental/Successional Streets and Roads



Incremental Streets and Roads



Incremental Streets and Roads



Phoenix, AZ East Van Buren Street at North 37th Street














Incremental Streets and Roads





Mulch on clay, to stone to pavers over 20+ year period

Incremental Streets and Roads







Green Infrastructure: Reduce Runoff: Slow It Down, Spread It Out, Soak It In

Conventional: Pave-Pipe-Dump

Green Infrastructure/Light Imprint vs Conventional





Many small ponds (instead of pave-pipe-and-dump) and pervious areas hold and infiltrate runoff in order to reduce peak runoff rates <u>and</u> runoff volume, and purify the runoff.

Examples: raingarden, pervious road, bioswale.



Green Infrastructure



RAINWATER STRATEGY

SARATOGA SPRINGS, UTAH

TYPICAL 660' x 660' BLOCK

STORMWATER DECISION MATRIX	GREEN INFRASTRUCTURE	CONVENTIONAL INFRASTRUCTURE	LEGEND	
INITIAL CAPITAL COST	***	*	***	Good/Low Cost
MAINTENANCE COMPLEXITY	***	**	**	Moderate/Median Cost
LAND SAVINGS	***	*	*	Poor/High Cost
SUSTAINABILITY	***	*		

ITEM	UNIT	ESTM. QNTY		UNIT COST		TOTAL	
New 36" RCP Drainage Pipe	Lf.	1,460	\$	100.00	S	146,000.00	
New 18" RCP Drainage Pipe	l.f.	600	S	60.00	S	36,000.00	
Drain Basin	ea.	4	S	2,000.00	S	8,000.00	
Curb Inlet	ea.	8	S	1,000.00	S	8,000.00	
Drainage Manhole	ea.	3	S	2,400.00	S	7,200.00	
Detention Pond	acre	0.1	\$	60,000.00	\$	6,000.00	
Soft Costs	%	15%	S	211,200.00	S	31,680.00	
				GRAND TOTAL	\$	243,000.00	
GREEN STREETS COST							
ITEM	UNIT	ESTM. QNTY		UNIT COST		TOTAL	
Bioswale Soil Amendments	s.f.	37,000	S	1.50	5	55,500.00	

64,000.00

GRAND TOTAL \$





Green Infrastructure

Runoff Reduction

Research has shown that permeable surfaces can significantly reduce runoff volumes, thereby reducing the erosive power of stormwater entering creeks. This helps to prevent down cutting of streams and loss of bank stability.

Pollutant Removal

Long term research on permeable roads shows their effective removal of pollutants such as total suspended solids, total phosphorous, total nitrogen, chemical oxygen demand, zinc, motor oil, and copper. In the void spaces, naturally occurring micro-organisms break down hydrocarbons and metals adhere.

Groundwater Recharge

In areas with suitable soils, permeable surfaces allow stormwater to enter the sub-soils, replicating the natural hydrological cycle by allowing for groundwater recharge.

Heat Pollution Reduction

Stormwater pools on the surface of conventional pavement, where it is heated by the sun and the hot pavement surface. By rapidly infiltrating rainfall, porous roads reduce the water's exposure to sun and heat. Cool stream water is essential for the health of many aquatic organisms, including trout and salmon.

Advantages of Permeable Roads







Devastation - Port-au-Prince, Haiti





Scenario A - Core \$165,000,000



Scenario B – Corridor \$23,488,000



Scenario C - Block \$3,230,000

Scenario Comparisons for Total Infrastructure \$

INFRASTRUCTURE COST						A
PHASE 1: COMMERCIAL ONLY 30 COMM. UNITS PER BLOCK. NO RESIDENTIAL	INCREMENT	TOTAL	STREET COST [INCREMENT]	PER CAPITA	PER COMMERCIAL UNIT	ELECTRICAL GENERATING CAPACITY (KILOWATT5)
CORE	\$ 152,667,000	\$152,667,000		N/A	\$ 42, 500	10,541
CORRIDOR	\$ 22,952,000	\$ 229,520,000		N/A	\$ 77,000	1,054
HYBRID CORRIDOR	\$ 93,388,490	\$ 93,388,490	(\$ 93,388,490)	N/A	\$ 46,500	6,448
BLOCK	\$ 2,992,000	\$ 359,088,000		N/A	\$ 99,700	88
PHASE 2: COMMERCIAL FIRST FLOOR, ONE STORY RES ABOVE (74 UNITS=370 PPL/BLOCK)	INCREMENT	TOTAL	STREET COST [INCREMENT]	PER CAPITA	PER RESIDENTIAL AND COMMERCIAL UNIT	ELECTRICAL GENERATING CAPACITY (KILOWATTS)
CORE	\$ 175,105,000	\$175,105,000		\$ 3,900	\$ 14,000	18,250
CORRIDOR	\$ 27,194,000	\$ 271,940,000		\$ 6,100	\$ 26,100	1,825
HYBRID CORRIDOR	\$ 107,114,121	\$ 107,114,121	(\$ 93,388,490)	\$ 4,300	\$15,400	11,164
BLOCK	\$ 3,675,000	\$ 441,000,000		\$ 9,900	\$ 35,300	152
FULL BUILDOUT: COMMERCIAL FIRST FLOOR, THREE STO- RIES RES, ABOVE (230 UNITS=1150 PPL/ BLOCK)	INCREMENT	TOTAL	STREET COST [INCREMENT]	PER CAPITA	PER RESIDENTIAL AND COMMERCIAL UNIT	ELECTRICAL GENERATING CAPACITY (KILOWATTS)
CORE	\$ 221,475,000	\$221,475,000		\$ 1,600	\$ 7,100	34,500
CORRIDOR	\$ 35,994,000	\$ 359,940,000		\$ 2,600	\$ 13,800	3,450
HYBRID CORRIDOR	\$ 135,479,284	\$ 135,479,284	(\$ 93,388,490)	\$ 1,760	\$ 8,800	21,104
BLOCK	\$ 5,275,000	\$ 633,000,000		\$ 4,600	\$ 20,300	287







Infrastructure Cost Nomograph





Preferred Scenario





Rosetown, Kingston Jamaica





Mormon Block – Transect, Cost Estimating, Light Imprint



GENERAL BLOCK COST DETAIL

streets	unit	units/block	unit cost	cost
rd-66-24	lin. ft.	660	\$311	\$205.260
st-66-34	lin ft	660	\$344	\$227 040
st-44-26	lin ft	1800	\$288	\$518 400
al-22-12	lin ft	2024	\$51	\$100,006
a1-22-12	IIII. (L.	2024	sub-total	\$1 050 006
site work			Sub-tota	ψ1,000,000
rough grading - site	ou vd	13000	\$10	\$130.086
nark - sod	sa ft	15376	\$2	\$30,752
nark - tree	62	5	\$350	\$1750
pain noo	ou.	U U	sub-total	\$162 588
culinary water			ous tota	0102,000
water - 8" main	lin ft	2220	\$31	\$68 820
water - 8" valve	68	11	\$2,000	\$22,000
water - 12" main	lin ft	726	\$46	\$33,396
water - 12" valve	68	8	\$2,500	\$20,000
water - fh assembly	ea	8	\$3,000	\$24,000
water - service tap	ea	112	\$50	\$5 600
water - service line	lin ft.	3584	\$14	\$50,176
		0000	sub-total	\$223.992
irrigation				
irrigation - 10" main	lin. ft.	2946	\$40	\$117,840
irrigation - 10" valve	ea.	2	\$850	\$1,700
irrigation - service line	lin. ft.	1120	\$14	\$15,680
irrigation - tap	ea.	112	\$40	\$4,480
			sub-total	\$139,700
sewer	1000 100	1001	A.10	A05 000
sewer - 8" main	lin. ft.	1994	\$18	\$35,892
sewer -16" main	lin. tt.	/26	\$60	\$43,560
sewer - manhole	ea.	11	\$4,000	\$44,000
sewer - service tap	ea.	3	\$50	\$150
sewer - service line	lin. tî.	96	\$6	\$5/6
			sub-total	\$124,178
dry utilities	15. 11	2402		A-FO 000
electric line	lin. II.	3120	\$50	\$156,000
gas line	IIn. TL.	3120	\$25	\$78,000
crip 65kw micro-turbine"	ea.	0000	D-	\$- 000
chp not water service line	lin, TL	3000	\$45 ***	\$135,000
phone line	IIN. TI.	3120	\$ <u>2</u> 5	\$78,000
ton forest			SUD-total	\$447,000
tap rees	20	440	0000	0000 000
culliary water tap ree	ea.	112	\$3,000 \$1,000	\$335,000 \$201 600
secondary water	ea.	140	000,10	Φ201,000 Φ001 000
sewer tap rees	ed.	112	\$1,000	\$201,000
mico			SUD-LOTAL	\$759,200
rawland	anro	12	\$60.000	\$726 000
mobilization permits & overhead	le	1	\$57 034	\$57 924
carrying cost (1.ur @ 10%)		1	\$368,063	\$368.063
	1.4.		sub-total	\$1,151,997



BLOCK METRICS

dime	nsions C	L-CL	areas	(acres)	den	sity
rw	length	width	gross	net	gross	net
132	594	594	12.1	8.1	9.3	13.9
	num	nber of u	inits			
com	mercial u	nits per l	olock	0		
c	office units	s per bloc	sk	112		
1	total units	per bloc	k	112		
			ft	rods		
Total E	Building Fr	ontage	3718	169		
Cost o	f Bldg Fr	ontage	\$1,089	\$23,947		

Mormon Block – Transect, Cost Estimating, Light Imprint





RAINWATER STRATEGY SARATOGA SPRINGS, UTAH TYPICAL 660' x 660' BLOCK

STORMWATER DECISION MATRIX	GREEN INFRASTRUCTURE	CONVENTIONAL		LEGEND
INITIAL CAPITAL COST	***	*	***	Good/Low Cost
MAINTENANCE COMPLEXITY	***	**	**	Moderate/Median Cost
LAND SAVINGS	***	*	*	Poor/High Cost
SUSTAINABILITY	***	*		

CONVENTIONAL PIPE AND POND COSTS ITEM UNIT ESTM. QNTY New 36" RCP Drainage Pipe 1.f. 1,460 \$ New 18" RCP Drainage Pipe 1.f. 600 \$ Drain Resign coa 4 \$

				GRAND TOTAL	\$	243,000.00
Soft Costs	%	15%	5	211,200.00	\$	31,680.00
Detention Pond	acre	0.1	5	60,000.00	\$	6,000.00
)rainage Manhole	ea.	3	S	2,400.00	S	7,200.00
Curb Inlet	ea.	8	S	1,000.00	S	8,000.00
Drain Basin	ea.	4	S	2,000.00	S	8,000.00
New 18" RCP Drainage Pipe	J.T.	600	5	60.00	5	36,000.00

UNIT COST

100.00

TOTAL

146,000.00

ITEM	UNIT	ESTM. QNTY	UNIT COST		TOTAL
Bioswale Soil Amendments	s.f.	37,000	\$ 1.50	S	55,500.00
Soft Costs	%	15%	\$ 55,500.00	S	8,325.00
			GRAND TOTAL	S	64.000.00



Mormon Block – Transect, Cost Estimating, Light Imprint



High Point - Traffic Circle

Cross-cutting Burons



▲ Existing



A Proposal 1



A Proposal 2



High Point - Traffic Circle







High Point - Traffic Circle

Cross-cutting Burons



HIGH COST OF FREE PARKING SLIDES

Slides from a Philadelphia presentation by Donald Shoup.



The High Cost of Free Parking

DONALD SHOUP









Bad parking policy and no parking technology

South Philadelphia



King of Prussia



Lawncrest


Metroplex





Survey of parking requirements for 660 land uses

а

abattoir (see slaughterhouse)

administrative office (see office uses)

accessory dwelling unit

adult use adult use, adult arcade adult use, adult cabaret adult use, adult motion picture theater adult use, adult theater adult use, book store adult use, entertainment facility adult use, massage parlor (see also massage establishment) adult use, sex novelty shop advertising agency (see also office use) agricultural use, unless otherwise specified (see also farm uses) agricultural processing plant (see also industrial uses) agricultural-related industry (see also agricultural use, unless otherwise specified) agricultural sales and service use (see also farm supply store; feed store) aircraft charter service airport (see also airport terminal) airport hangar airport, local/private use airport terminal (see also airport; transportation terminal) ambulance service amphitheater (see also stadium) amusement enterprise (see also recreation facility uses) amusement enterprise, indoor amusement enterprise, outdoor amusement park amusement park, children's amusement park, water ancillary use (see accessory use) animal boarding facility animal breeder establishment animal grooming salon animal hospital animal sales establishment (see pet shop) animal shelter animal training facility antique shop (see also second-hand store) apartment (see dwelling, apartment uses) apartment hotel (see extended-stay hotel) apparel store (see clothing store) appliance and equipment repair establishment (see also equipment uses)

ALL USES

appliance sales establishment aquaculture use aquarium arboretum (see also botanical gardens; community garden) arcade, amusement (see also amusement enterprise uses) archery range (see also rifle range; shooting range) arena (see stadium) armory art gallery (see also cultural uses) art school (see educational facilities, school for the arts) art supplies store artisan workshop (see also live-work studio) artist studio (see also artisan workshop; livework studio) asphalt manufacturing facility (see also industrial use, heavy) assembly hall (see also auditorium; civic center) assisted living (see elderly housing, assisted living) asylum (see mental health facility) athletic field (see also ball field; grandstands; recreation facility uses) auction, automobile auction house auditorium (see also assembly hall; civic center) automated teller machine (ATM) automated teller machine (ATM), exterior, on bank property automobile convenience store (see gas station, mini-mart) automobile dealership (see also motor vehicle sales establishment) automobile graveyard (see automobile salvage yard; junk yard) automobile impound facility (see also towing service) automobile laundry (see car wash uses) automobile maintenance, quick service establishment (see also automobile repair service establishment) automobile mall (see automobile dealership uses) automobile parts store automobile rental establishment (see also motor vehicle rental establishment) automobile repair service establishment (see also gas station; motor vehicle repair service establishment; tire store and

service establishment) automobile salvage vard (see also junk vard) automobile service station (see also gas station)

b

bait shop (see also retail use, unless otherwise specified) bakerv bakery, wholesale ball field (see also athletic field; grandstands; recreation facility uses) ballroom (see also banquet hall; dance hall) bank (see also accessory banking; automated teller machine (ATM); credit union) bank, drive-thru only (see also drive-thru use, unless otherwise specified) bank with drive-thru (see also drive-thru use, unless otherwise specified) bank, without drive-thru banguet hall (see also ballroom; dining room; meeting hall) bar (see also beer garden; bottle club; brew pub; night club) barber shop (see also beauty shop; personal services establishment) baseball field (see ballfield) basketball court batch plant (see concrete production plant) bathhouse (see also health spa; sauna bath) batting cage facility beach, commercial beach, community beauty shop (see also barber shop; personal services establishment) beauty school (see also educational facility; trade school) bed and breakfast home bed and breakfast inn (see also tourist home) beer garden (see also outdoor seating area) bicycle rental and repair shop bicycle repair shop bicycle sales shop billiard hall (see pool hall) big box retail establishment (see also department store; shopping center uses) bingo hall blood donor center blueprinting shop (see also copy shop; printing and publishing facility) boarding house (see also lodging house; rooming house)

adult use, motion picture theater

a

abattoir (see slaughterhouse)

accessory dwelling unit

- 1 additional space, on the same zone lot (Greensboro, N.C., pop. 223,891)
- 1 per attached accessory dwelling unit, in addition to other required spaces (Washoe County, Nev., pop. 339,486)
 - 1 per bedroom (Reno, Nev., pop. 180,480)
 - 1 space (Encinitas, Calif., pop. 58,014)
 - 1 space per unit (Palo Alto, Calif., pop. 58,598)
 - 2 spaces per unit; such space must have convenient access to a street (Smithfield, Va., pop. 6,324)

Bicycle Parking Standard: 0.5 per 1,000; 1 per 20 seats (*Tigard*, Ore., pop. 41,223)

adult use adult arcade

1 parking space shall be provided for every 2 occupants per the allowable occupant load as established by the city's building official or fire mashall, whichever standard is greater. In addition, 1 parking space shall be provided for each employee or independent contractor on the maximum shift. (Santa Clarita, Calif., pop. 151.088)

adult use, adult cabaret

- 1 parking space shall be provided for every 2 occupants per the allowable occupant load as established by the city's building official or fire mashall, which ever standard is greater. In addition, 1 parking space shall be provided for each employee or independent contractor on the maximum shift. (Santa Clarita, Calif., pep. 151.088)
- 1 space per 25 square feet of gross floor area (Garden Grove, Calif., pop. 165,196)



adult use

administrative office (see office uses)

adult use

- 0.3 per seat, plus 3.3 per 1,000 square feet of gross floor area (*Tampa, Fla., pop. 303,447*)
- 1 per 60 square feet (Henderson, Nev., 175,381)
- 10 per 1,000 square feet (Hickory, N.C., pop. 37,222)
- 12 per 1,000 square feet (St. Mary's County, Md., pop. 86,211)
- Minimum: 1 per 500 square feet above first 2,400 square feet
- Maximum: 1 per 150 square feet (Pittsburgh, Pa., pop. 334,563)
- Minimum: 1 per 250 square feet of gross floor area Maximum: 1 per 200 square feet of gross floor area (Glenville, N.Y., pop. 28,183)

1 per 200 square feet (Fort Wayne, Ind., pop. 205,727)
 10 per 1,000 square feet, but not less than 15 (Clark County, Nev., pop. 1,375,365)

adult use, adult motion picture theater

- 1 off-street parking space for each 10 seats or equivalent (San Bruno, Calif., pop. 40,165)
- 1 parking space shall be provided for every 2 occupants per the allowable occupant load as established by the city's building official or fire mashall, which ever standard is greater. In addition, 1 parking space shall be provided for each employee or independent contractor on the maximum shift. (Santa Clarita, Calif., ep. 151.088)
- 1 space for each 8 fixed seats or 1 space for each 100 square feet of spectator assembly area not containing fixed seats (Seattle, Wash., pop. 563,374)



A parking requirement sampler

Barber shop Beauty shop Nunnery Rectory Sex novelty shop Gas station Swimming pool Mausoleum

2 spaces per barber3 spaces per beautician1 space per 10 nuns

- 3 spaces per 4 clergymen
- 3 spaces per 1,000 square feet
- 1.5 spaces per fuel nozzle
- 1 space per 2,500 gallons

10 spaces per maximum number of interments in a one-hour period

San José's minimum parking requirements



Minimum parking requirements in Upper Merrion Sit-down restaurant 1,000 6,600 Entertainment 1,000 6,600 facility **Convention Center** 1,000 5,500 Funeral home 3,300 1,000 Bank 1,000 1,650 1,000 2,000 3,000 5,000 0 4,000 6,000 7,000 8,000

Square feet of building and required parking

Building area
Parking area

San Jose's off-street parking requirements

Parking Spaces	Required by Land Use				
Use	Minimum Parking Required	Applicable Sections			
	per staff				
School, trade and vocational	1 per 3 students, plus 1 per staff				
Entertainment and Recreation					
Arcade, amusement	1 per 200 sq. ft of floor area				
Batting Cages	1 per station, plus 1 per employee				
Bowling establishment	7 per lane	· ·			
Dancehall	1 per 40 sq. ft. open to public				
Driving range	1 per tee, plus 1 per employee				
Golf course	8 per golf hole, plus 1 per employee				
Health club, gymnasium	1 per 80 sq. ft. recreational space				
Miniature golf	1.25 per tee, plus 1 per employee				
Performing arts production per rehearsal space	1 per 150 sq. ft. of floor area				
Poolroom	1 per 200 sq. ft. of floor area				
Private club or lodge	1 per 4 fixed seats on the premises, or 1 per 6 linear feet of seating, plus 1 per 200 square feet of area without seating but designed for meeting or assembly by guests, plus 1 per 500 sq. ft. of outdoor area developed for recreational purposes				
Recreation, Commercial (indoor)	1 per 80 sq. ft. of recreational area				
Recreation, Commercial (outdoor)	20 per acre of site				
Skating rink	1 per 50 sq. ft. of floor area				
Swim and tennis club	1 per 500 sq. ft. of recreation area				

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Editor: Aditya Vardhan (adivar@nettlinx.com)

Planners who set minimum parking requirements: Don't know how much the required parking spaces cost. Don't know how much the parking requirements increase the cost of housing and everything else. Don't know how the parking requirements affect urban design. Don't know how the parking requirements affect congestion. Don't know how the parking requirements affect air pollution. Don't know how the parking requirements affect fuel consumption and CO_2 emissions. Have no training in how to set a parking requirement. Are governmentalizing what should remain private decisions.

Two Mistakes in Parking Policy

Keep curb parking free or cheap
 Require lots of off-street parking

	Construction Cost per Square Foot		Construction	Cost per Space	
City	Underground	Aboveground	Underground	Aboveground	
	\$/sq ft	\$/sq ft	\$/space	\$/space	
	(1)	(2)	(3)=(1)x330	(4)=(2)x330	
Boston	\$95	\$75	\$31,000	\$25,000	
Chicago	\$110	\$88	\$36,000	\$29,000	
Denver	\$78	\$55	\$26,000	\$18,000	
Honolulu	\$145	\$75	\$48,000	\$25,000	
Las Vegas	\$105	\$68	\$35,000	\$22,000	
Los Angeles	\$108	\$83	\$35,000	\$27,000	
New York	\$105	\$85	\$35,000	\$28,000	
Phoenix	\$80	\$53	\$26,000	\$17,000	
Portland	\$105	\$78	\$35,000	\$26,000	
San Francisco	\$115	\$88	\$38,000	\$29,000	
Seattle	\$105	\$75	\$35,000	\$25,000	
Washington, DC	\$88	\$68	\$29,000	\$22,000	
Average	\$103	\$74	\$34,000	\$24,000	

Table 1. The Construction Cost of a Parking Space

Source: Rider Levett Bucknall, Quarterly Construction Cost Report, Fourth Quarter 2012

One structured parking space costs more than the entire net worth of many families.

Median Net Worth of US Households, 2011



Median Net Worth (Excluding Home Equity)



Percentage of US households with zero or negative net worth



	Nation	Median Wealth
1	Australia	\$225,337
2	Belgium	\$172,947
3	Iceland	\$164,193
4	Luxembourg	\$156,267
5	Italy	\$142,296
6	France	\$140,638
7	United Kingdom	\$130,590
8	Japan	\$112,998
9	Singapore	\$109,250
10	Switzerland	\$106,887
11	Canada	\$98,756
12	Netherlands	\$93,116
13	Finland	\$88,130
14	Norway	\$86,953
15	New Zealand	\$82,610
16	Spain	\$66,752
17	Taiwan	\$65,375
18	Sweden	\$63,376
19	Malta	\$63,271
20	Qatar	\$56,969
21	Germany	\$54,090
22	Greece	\$53,365
23	United States	\$53,352
24	Israel	\$51,346

Credit Suisse Global Wealth

Databook, 2014

	Median and Mean Wealth per Adult							
		Median	Mean					
1	Switzerland	\$106,887	\$580,666					
2	Australia	\$225,337	\$430,777					
3	Iceland	\$164,193	\$362,982					
4	Norway	\$86,953	\$358,655					
5	United States	\$53,352	\$347,845					
6	Luxembourg	\$156,267	\$340,836					
7	Sweden	\$63,376	\$332,616					
8	France	\$140,638	\$317,292					
9	Belgium	\$172,947	\$300,850					
10	United Kingdom	\$130,590	\$292,621					
11	Singapore	\$109,250	\$289,902					
12	Canada	\$98,756	\$274,543					
13	Italy	\$142,296	\$255,880					
14	Japan	\$112,998	\$222,150					
15	Germany	\$54,090	\$211,049					
16	Netherlands	\$93,116	\$210,233					
17	New Zealand	\$82,610	\$204,401					
18	Finland	\$88,130	\$196,621					
19	Taiwan	\$65,375	\$182,756					
20	Israel	\$51,346	\$169,064					
21	Qatar	\$56,969	\$156,096					
22	Spain	\$66,752	\$134,824					
23	Malta	\$63,271	\$113,724					
24	Greece	\$53,365	\$111,405					

Credit Suisse Global Wealth Databook, 2014

	Nation	Median	Mean	Ratio
1	United States	\$53,352	\$347,845	6.5
2	Switzerland	\$106,887	\$580,666	5.4
3	Sweden	\$63,376	\$332,616	5.2
4	Norway	\$86,953	\$358,655	4.1
5	Germany	\$54,090	\$211,049	3.9
6	Israel	\$51,346	\$169,064	3.3
7	Taiwan	\$65,375	\$182,756	2.8
8	Canada	\$98,756	\$274,543	2.8
9	Qatar	\$56,969	\$156,096	2.7
10	Singapore	\$109,250	\$289,902	2.7
11	New Zealand	\$82,610	\$204,401	2.5
12	Netherlands	\$93,116	\$210,233	2.3
13	France	\$140,638	\$317,292	2.3
14	United Kingdom	\$130,590	\$292,621	2.2
15	Finland	\$88,130	\$196,621	2.2
16	Iceland	\$164,193	\$362,982	2.2
17	Luxembourg	\$156,267	\$340,836	2.2
18	Greece	\$53,365	\$111,405	2.1
19	Spain	\$66,752	\$134,824	2.0
20	Japan	\$112,998	\$222,150	2.0
21	Australia	\$225,337	\$430,777	1.9
22	Italy	\$142,296	\$255,880	1.8
23	Malta	\$63,271	\$113,724	1.8
24	Belgium	\$172,947	\$300,850	1.7

Median and Mean Wealth per Adult

Credit Suisse Global Wealth Databook, 2014

Three Reforms in Parking Policy

- Charge the right price for curb parking.
 The lowest price that will leave one or two vacant spaces on each block—demand-based pricing
- Establish Parking Benefit Districts to spend the meter revenue in the neighborhoods that generate it.
 Revenue return will make demand-based prices for curb parking politically popular.
- 3. Reduce or remove off-street parking requirements. Do not require additional parking when a building's use changes.

Freedom from parking requirements will allow higher density and new uses for old buildings.

1. Demand-based Parking Prices

- Demand-based prices adjust over time to maintain a few vacant spaces.
- The goal is to keep about 85 percent of the parking spaces occupied all the time.
- The lowest price a city can charge and still leave one or two open spaces on every block.
- If one curb space are open on each side of each block, everyone will see that convenient parking is available everywhere.
- The only thing worse than paying for parking is having no parking.





SFpark: Putting Theory Into Practice

Post-launch implementation summary and lessons learned





MONTH

Parking prices and occupancy rates

Share of SFpark Blocks in Each Occupancy Range





Parking prices in April 2013, 3 pm to 6 pm

Average meter prices *declined* with SFpark

After the 10th rate change in April 2013, only 9 blocks had reached the \$6 per hour cap, and 179 had fallen to the \$0.25 per hour minimum.

Many blocks had been overpriced in the morning.

Parking should be free if many spaces remain empty at the zero price.

Performance pricing leads to higher prices only if prices are so low that no spaces are open.

STOP THE PARKING METER HIKE!

Make the rich pay, not the workers! Don't squeeze workers and small business.

An attack is underway, in San Francisco to push the burden of the economic crisis onto the workers. Transportation officials are attempting to extend metered parking to midnight and Sundays.

In Oakland, a popular movement of small business owners and workers stopped the city's plans to raise parking rates. We can fight back and win!

With this proposal, for almost 24-hours a day your car will be subject to heavy fines. Parking tickets are already astronomical.

THIS IS A TAX ON THE PEOPLE! It's time to organize and defeat the parking meter robbery!

Join the campaign! Call the ANSWER Coalition at 415-821-6545 www.ANSWERsf.org • ANSWER@answersf.org

¡ALTO AL AUMENTO DE LOS PARQUIMETROS!

¡Hagan que los ricos paguen, no los trabajadores! ¡No aprieten a los trabajadores y negocios familiares!

Un ataque está ocurriendo en San Francisco, para poner el peso de la orisis econômica sobre los trabajadores. Oficiales de transporte están intentando extender las horas de los parquimetros hacia medianoche y los domingos.

En Oakland, un movimiento popular de las comunidades, de los trabajadores y de los negocios pequeños detuvieron gran parte de los planes de esa ciudad para aumentar la tarifas de los parquimetros. ¡Si podemos luchar y ganar!

Con esta propuesta, por casi 24-horas al día su coche será sujeto a tarifas altísimas. Multas ya son astronómicas.

¡ESTO ES UN IMPUESTO ILEGAL A LA GENTE!

¡Es la hora para organizarnos y derrotar el robo por los parquímetros!

jÚnete a la campaña! Llame a la Coalición ANSWER al 415.821.6545 www.ANSWERsf.org • ANSWER@answersf.org



STOP THE WAR IN AFGHANISTAN NOW! Protest U.S./NATO War in Afghanistan on 9th Anniversary of Invasion

As the U.S./NATO war in Afghanistan enters its tenth year, casualties on both sides are at an all-time high. Spending on the war in Afghanistan alone is over \$2.5 billion per week—that's \$2,500,000,000 every week—at a time when tens of millions of people have lost their jobs, housing, healthcare and pensions here, and most Afghani people live in extreme poverty.

Join us on Oct. 6 to say NO to war, racism and all bigotry, and YES to meeting the needs of the people!



They oppose foreign wars for oil but demand free parking at home.

Average cruising time before parking declined by 43%



Daily cruising travel per meter declined by 30%



Total vehicle travel for cruising declined by about 2,400 miles per day in the pilot area



Vehicle travel and greenhouse gas emissions declined by 30%



Number of parking tickets declined by 23%



Double parking declined





Food product, general retail and miscellaneous; chain stores excluded


Will charging for curb parking hurt poor people?

Drivers have to pay for their cars and fuel and tires and maintenance and repairs and insurance and registration fees, but I haven't heard anyone argue that those should all be free because charging for them would hurt the poor.





PAY. BY. SPACE

PAY BY: CREDIT CARD

CASH EXACT BILLS REQUIRED \$1, \$5 ONLY

REMEMBER NO IN AND OUT PRIVILEGES NOT TRANSFERABLE PAY STATION TICKETS ARE ONLY VALID IN DESIGNATED PAY STATION AREAS MUST DISPLAY PAY STATION PASS ON DASHBOARD AT ALL TIMES VIOLATORS ARE SUBJECT TO CITATION 21113A CVC



MAINTENANCE HOTLINE WERDAYS 310-304 MAR (7273) ATTR SM & WERDAG: 310-235-304 PAY STATION UNIT #57-1 YOU ARE PARKED IN Charles E Young Dc East







Stall: 05769 Press Number on Keypad to Select Options:

2 Hours \$7.00
1 Hr 30 Min \$5.00
1 Hour \$3.00
40 Minutes \$2.00
20 Minutes \$1.00

www.digitalpaytech.com





























Parking is well used but readily available



The right price Should the price be higher? Should the price be lower? The Goldilocks principle of parking prices. "I know it when I see it."

Cruising for Parking



Off-street: \$20/hour On-street: \$1/hour New York City Cruising for underpriced curb parking Suppose you want to park for one hour while visiting this location. Parking in the garage for one hour costs \$20. Parking on the street for one hour costs \$1.

- Finding a curb space will save you \$19. Would *you* be willing to cruise for a few minutes to save \$19?
- For example, if you cruise 6 minutes (1/10 of an hour) before finding a curb space you will earn money at a rate of \$190/hour
- The city sets the prices for the parking meters, and the city is telling you to cruise for parking.
- This does *not* mean that curb parking should cost \$20/hour.

TABLE 11-5

CRUISING FOR PARKING

Year	City	Share of traffic cruising	Average search time
	1000 C	(percent)	(minutes)
1927	Detroit	19%	
1927	Detroit	34%	
1934	Washington		8.0
1962	New Haven	17%	
1965	London		6.1
1966	London		3.5
1966	London		3.6
1977	Freiburg	74%	6.0
1984	Jerusalem		9.0
1985	Cambridge	30%	11.5
1993	Cape Town		12.2
1993	New York	8%	7.9
1993	New York		10.2
1993	New York		13.9
1997	San Francisco		6.5
2001	Sydney		6.5
2005	Los Angeles	68%	3.3
2007	New York	28%	
2007	New York	45%	
2008	New York		3.8
2011	Barcelona	18%	
Average		34%	7.5





FIGURE 4-Observed Routes of Cruising Vehicles

Probabilty of finding parking space





Key–in-the-door technique to measure cruising for parking

Choose a street where all the curb spaces are occupied and traffic is congested.

Walk to the driver-side door of a car parked at the curb with a key in your hand.

If the first driver who sees you stops to wait for "your" space, much of the traffic is probably cruising for curb parking.

2. Parking Benefit Districts









1978 Plan for Old Pasadena

"The area's been going downhill for years." "It's a bunch of dirty old buildings." "It's filthy." "It's Pasadena's sick child." "The area is unsafe."

Old Pasadena Now



Parking meters with revenue return

- City of Pasadena offered to return all parking meter revenue to Old Pasadena
- Merchants and property owners immediately agreed to install meters
- 690 meters operate until midnight, and on Sunday
- Meters yield \$1.2 million a year for Old Pasadena's 15 blocks, about \$80,000 per block.
Old Pasadena. We've come a long way. This might seem silly to some people, but if not for our parking meters, its hard to imagine that we'd have the kind of success we're enjoying. They've made a huge difference. At first it was a struggle to get people to agree with the meters. But when we figured out that the money would stay here, that the money would be used to improve the amenities, it was an easy sell."

Marilyn Buchanan, Chair, Old Pasadena Parking Meter Zone Advisory Board

Turning Small Change into Big Changes





















NEWS For Immediate Release

Downtown Merchants Support the Parking Meters!

Downtown Ventura, May 5, 2011 - The overwhelming consensus downtown is that the meters are working! Downtown business owners were interviewed and business surveys were conducted over the past two weeks along Main Street in downtown Ventura. The downtown merchants gave the managed parking system a thumbs up with 83% surveyed in support of the meters, 13% neutral, and 4% not in support the meters.

In addition, the revenue generated from the meters is being reinvested into the downtown. The funds help pay for a dedicated police officer and nine police cadets. This has resulted in an overall decrease in crime by 40% and a 15% decrease in calls for service. Funds are also used for new improvements like additional lighting for parking lots, new planters and plant materials, and a cross-the-street banner planned for installation this summer.

Free Wi-Fi is yet another benefit made possible by the meters. Residents and visitors can stay "connected" through the outdoor network provided by the Downtown Parking Management program.

Parking Benefit Districts

Transportation management tool.
Reduces traffic congestion, air pollution, and fuel consumption.
Economic development tool.
Makes curb parking available, increases sales and property tax revenue, and employs people.

3. Remove Off-street Parking Requirements













The solution is in the site.



Effects of removing parking requirements and building job-adjacent housing on former parking lots

Create jobs

Increase the housing supply

Reduce time spent commuting

Reduce spending on cars and fuel

Reduce traffic congestion and air pollution

Increase the demand for smart parking technology

Slow climate change

Pan-Ideological Support for Market-Priced Curb Parking





Political support for market-priced curb parking, parking benefit districts, and no off-street parking requirements Liberals will see that it increases public spending. Conservatives will see that it relies on markets and reduces government regulation. Environmentalists will see that it reduces energy consumption, air pollution, and carbon emissions. Businesses will see that it unburdens enterprise. New Urbanists will see that it improves urban design and enables people to live at high density without being overrun by cars.

Libertarians will see that it increases the opportunities for individual choice.

- Property-rights advocates will see that it reduces regulations on land use.
- Developers will see that it reduces building costs.
- Residents will see that it pays for neighborhood public improvements.
- Affordable housing advocates will see that it reduces the cost of building new housing.
- Neighborhood activists will see that it devolves public decisions to the local level.
- Local elected officials will see that it reduces traffic congestion, encourages infill redevelopment, and pays for local public services without raising taxes.







All of us, if we are reasonably comfortable, healthy and safe, owe immense debts to the past. There is no way, of course, to repay the past. We can only repay those debts by making gifts to the future.

Jane Jacobs

We--you and I, and our government-must avoid the impulse to live only for today, plundering, for our own ease and convenience, the precious resources of tomorrow.

Dwight Eisenhower

As our case is new, so must we think anew, and act anew.

Abraham Lincoln

Smart Parking

Reform depends on leadership from all of you.



The High Cost of Free Parking

DONALD SHOUP

AGRICULTURE ON A 50-FOOT LOT

A drawing of small agriculture on a 50-foot lot. See Agriculture on a 50 foot lot. (Courtesy Sandy Sorlien.).



How to make the most of a lot 50 x 145 feet, as planned by Prof. C. L. Schufeldt. An acre is nearly six times as large.

KEY

- 1. Chickens.
- 2. Rabbits, two or more stories.
- 3. Plums.
- 4. Tool and Feed House.
- 5. Apricots.
- 6. Camphors.
- 7. Fig.

- 10. Pomegranate & Guava.
- 11. Avocado. 12. Goat House.
- 13. Orange.
- 14. Pomelo.
- 15. Lemon.
- 16. Chayote.
- 17. Blackberries, Loganberries, and Raspberries. 18. Grape-covered Pergola. 19. Arbor and Lath-House, 20. Cement walk.
- 21. Driveway (gravel).
- 22. Rosebushes (rose garden).

- 25. Pyrethrum Aur (hedge).
- 26. Passion vine (edible).
- 27. Hydrangea.
- 28. Poinsettia.
- 29. Fuchsia.
- 30. Hibiscus.
- 31. Euonymus Japonica aurea Varigata.
- 32 Grevillea thelmanniana.
- 33. Coprosma.
- 34. Olive.
- 35. Mahonia aquifolium.
- 36. Pittosporum eugenoides.
- 37. Climbing rose.
- 38. Vegetable gardens.

- 41. Hot bed and cold frame.
- 42. Compost hole.
- 43. Ferns.
- 44. Grapevine over garage.
- 45. Kumquat.

One-half the living expense for a family of five persons may be obtained from a lot 50 x 145.

- Author: C. L. Schufeldt, 1124 West 18th St. Los Angeles, Cal.
- Drawn by S. L. Berry, 1303 West Pico St ... Los Angeles, Cal.

FOOD MOVEMENT OF LEAN COMMUNITIES

From Ann Daigle, a draft white paper on hyper-local food (and "slow food").

The Food Movement of Lean Communities

Ann B. Daigle

Executive Summary

The Cottage Food movement, which exemplifies aspects of Lean Urbanism at every step along the food chain, is a highly prolific economic and cultural trend in America winning small, local battles against corporate food - the most highly consolidated industry in the world. Entrepreneurs of the "farm to fork" trend are working locally and collaboratively to wrestle control over food access and community health and revolutionize the food culture in their regions. Strict health regulations and challenges from the established food industry can be overcome if groups work together to change state legislation and local codes, join existing networks for education, marketing and distribution and learn from successful campaigns that take advantage of citizens' support for growing and eating local. Importantly, lessons from the food movement can apply to other industries.

Statement of Need – "Food Is Power"

The current system of centralized food inspection, industrial production and consolidated cheap-food purchasing has not eradicated worldwide hunger as touted. Rather it has replaced malnourishment with high-sugar, high-fat, high-carbohydrate, low-value calories. It has narrowed food choices in much of the industrialized world, is inhibiting self-sufficiency in developing countries and has lead to the highest incidence of obesity, child diabetes and diet-related diseases ever.

"Food is Power." Food is a basic need of every healthy community food and is integral to a Lean Urbanism. The food industry employs the most under-privileged segments of the community who are overwhelmingly young, poor, immigrant and women. Yet these groups can be empowered by the vast number of diverse food-related opportunities without reliance on outside assistance. Local food is healthier, better tasting and contributes to local economies at every point in the farm to fork chain, making it one of the most powerful opportunities for self-sufficiency in a Lean Urban region.

Today, agribusiness monopolies, processors, packagers and distribution operations dominate the world food industry. Nearly 80 percent of Farm Bill subsidies go to the largest 10 percent of farms in America. The five largest grocery chains control one-half the entire grocery market, and Walmart uses an unsustainable "trucking culture" to capture one quarter of every dollar Americans spend on groceries.

Agricultural patents are abused by a handful of biotechnology corporations and one-third of the world's seeds are controlled by four companies. Farmers' share of profits has continued to decline while corporate power has grown and prices for consumers have risen. Customers see filled mega stores and think they are getting increased choice. In actuality conglomerates package their products under different brand names, decreasing real choice and falsely presenting an appearance of fair competition.

The "farm to fork" movement is fighting back and well underway in communities all around the world. It arguably started as "Slow Food" in Italy by a mayor disgruntled with the loss of

the traditional, pleasurable cooking and dining experience.

Today there are over 150,000 more farms in America than there were a dozen years ago. The number of farmers' markets has tripled. Although locally produced food only accounts for four percent of the grocery market (2012 figure), it is rapidly trending upward. More than 1,400 new grocers have recently opened in the U.S. selling primarily local specialty items. To compete for customer preferences, more conventional grocers are stocking local products. Restaurants and food trucks featuring regional fare and the home-based cottage food industries are thriving, having overcome many recent hurdles.

The local food production industry is an eclectic movement that includes various-sized growers, a whole system of food "gatherers and marketers" and food outlets. Entrepreneurs are successfully redefining food culture and finding new ways to generate income in ways that enhance all aspects of Lean Urbanism. Many are connected to educational networks, wellness care and nutritional programs, and are growing support spinoff businesses for warehousing and delivery as well as improving individual and community economies.

Included are restaurants, caterers, food trucks and popup cafés, home canners and bakers, shared kitchens and Mom and Pop co-operatives. Retired school teachers are making a living off their grandmother's cookie recipes, young entrepreneurs are using Spin Farming to maximize profits from minimal space and nutrition professionals and social activists are improving school lunches.

The road to success has been challenging, with hurdles from zoning codes to state and local health regulations to legal opposition by organized consolidators, grocers and restaurant associations.

Farming

Sustainable farms require more workers so create more jobs, and are less highly leveraged financially. They do a better job of feeding people on smaller plots of land than their industrialized counterparts. While per-acre increases in productivity have stagnated in industrial farms, sustainable practices have increased productivity by up to 90 percent.

According to the National Restaurant Association (<u>http://www.restaurant.org/News-Research/Research/What-s-Hot</u>) the biggest long-term trend in the food movement is knowing where one's food comes from and understanding its nutritional value. This is great news for Lean Urbanism and for farmers who increasingly provide restaurant chefs, conventional groceries, specialty stores and meat markets with high-quality local food.

A 2012 U.S. Department of Agriculture Census of Agriculture

(<u>http://www.agcensus.usda.gov/Newsroom/2014/05_02_2014.php</u>) shows that young, beginning principal operators are up 12 percent in 5 years - up 21 percent for Hispanics and more likely to be women. Farms using renewable energy have doubled and sustainable practices are likewise up. Internet use has jumped sharply and farmers are increasingly selling directly to their customers, omitting expensive middlemen and improving the foods' freshness and health benefits. Every size and variety of farm and garden that can enhance Lean Urbanism along the entire rural-to-urban Transect is now represented within cities - traditional family farms and groves, urban farms, commercial gardens, plots, edible co-ops, CSAs, community gardens, civic fruit trees on public ROW, greenhouses, small lean-tos and backyard raised gardens. Regionally, seed exchanges and heirloom varieties of fruits and vegetables are surging, as are free-range, humanely raised chickens, ducks, rabbits and grazing animals such as cattle, goats and lamb. Local dairy products - milk, cheese and yogurt - feature regional specialties produced using rediscovered traditional techniques.

Most serious farmers still choose traditional rural locations, protecting land from potential sprawl. Zoning and Homeowners Associations have presented the most opposition to urban and suburban food growing, but are losing battles as citizens demand the ability to raise tomatoes and edible gardens in their front yards and to host coops and chicken runs.

An extensive report by the Turner Environmental Law Clinic for the City of Atlanta (<u>http://www.law.emory.edu/about-emory-law/news-article/article/turner-environmental-clinic-reports-on-urban-agriculture-in-16-us-metros.html</u>) looked at regulations nationwide and found no single approach. However, most cities do incorporate provisions in their zoning ordinances for urban agriculture, sales of produce and keeping animals (primarily chickens, small livestock and bees), and address issues such as aesthetics and upkeep, setbacks and buffers, water access, impacts to property values, runoff and pesticides.

Food Preparation

Preparing food to sell has proved more of a challenge, for obvious health and sanitation reasons. The cottage food industry involves food prepared from home kitchens. Larger efforts involve shared commercial kitchens, co-ops and food industry incubators for small scale packaged operations and restaurants. Its diverse formats offer great potential to reform physical space and opportunities and access for people in Lean Urbanism.

During the previous decade the packaged food industry mounted a campaign against the threat of home producers. Cities began inhibiting small locals. In response to the resulting public outcry and backed by a nationwide organized effort, all but four states have enacted legislation allowing individuals who bake, jar and can from home to sell their products at fairs, farmers markets or directly to the customer. Most limit the products and unfortunately the dollar amount that can be sold, and allow no second-party resale. CottageFoods.org (<u>http://cottagefoods.org/laws/</u>) is a nonprofit that organizes information nationwide and rates the effectiveness of each state's legislation. Approximately one half of U.S. states have "good" legislation while another third have regulations rated "poor or restrictive."

Shared commercial kitchens have opened in many places for small producers desiring low-cost entry to cook and cater or package and sell foodstuffs on grocery shelves, an excellent opportunity for Lean Urbanism. Aside from large restaurant equipment, most also boast expensive packaging mechanisms, loading docks, networks of suppliers and end users, and provide professional and educational services for things like labeling requirements, bar code and packaging information, business plan development, marketing assistance and other support resources. Kitchens primarily offer tenants regular fixed leases or hourly rates and insurance coverage. New Orleans' based Edible Enterprises is a highly successful public/private collaboration being replicated in cities nationwide and is a model for Lean Urban food education and enterprise. It now has three full commercial kitchens, classroom space and over 60 small local-food clients. (<u>http://www.edibleenterprises.org</u>)

Some incubators expand locals' ability to grow food-based businesses and eventually require "graduation" to their own spaces. Others focus on all aspects of the restaurant industry and are NGOs planted at mixed-use corners in neighborhoods to increase skills and opportunities for underserved residents. Others grow production and packaging startups intended for grocery shelves. Some are highly connected to educational and professional chef networks, or health programs in universities and hospitals – a great way to expand community-building in Lean Urbanism projects.

For example, the ReFresh Project

(<u>http://broadcommunityconnections.org/projects/refresh</u>) is an outgrowth of the Broad Street Main Street program in New Orleans in collaboration with Holly Grove Farm, the Tulane Teaching Kitchen and Goldring Center for Culinary Medicine, the nonprofit restaurant training facility Liberty Kitchens, and Whole Foods. They are committed to handling locally grown products, expanding food industries and access to them, and training medical students and the public about healthy cooking and eating. (<u>http://tulane.edu/news/releases/pr05012013.cfm</u>)

Market & Distribution Networks

Developing markets for local farmers and producers is the most critical part of a successful local food chain, the most difficult to grow, and among the most creative being organized using Lean Urbanism strategies and tactics. Entrepreneurs are experimenting with models of organization, locations of permanent and temporary markets, sales and delivery options and primarily negotiating outside the conventional food service networks - many as socially conscious nonprofits. By establishing and nourishing networks, they are maximizing self-reliance, the percentage of profits that go to the farmer/producer and value accrued to the customer.

Aside from the traditional farmers markets are CSAs (Community Supported Agriculture) and Co Ops that offer regular memberships for weekly baskets of fresh food. Startup distribution companies partner with local producers to creatively organize sales online and offer customers regular home delivery or pickup at central warehouses.

Food trucks are organizing around the country to alter what are probably the most stringent regulations and organized opposition in the food industry. Consistent health codes are an issue, but more important are zoning and other city codes that address where they can locate and the hours they can operate. Primary opposition is from the powerful restaurant and hospitality industry, which sees mobile food trucks as a threat to brick and mortar businesses.

Many places like Portland have good operating codes, but severely limit locations and hours of food truck operation. After a protracted fight, New Orleans adopted one of the most progressive ordinances in the U.S., allowing trucks to utilize public ROW and locate

virtually anywhere without restricting time of day hours except to limit them. Despite controversy, studies show that food trucks are a great, Lean Urban strategy to uncover market demand and identify successful locations for permanent business - which some food trucks have accomplished.

Restaurants are the second largest employers in the nation. They command an impressive 62 percent of the U.S. employee workforce who are prominently women, immigrants and the poor. The conventional brick and mortar model is a tough and expensive industry to break into, however, so testing vendors' and chefs' concepts and food translates into a smart, lean business practice. One Lean Urbanism solution is the pop-up café, which is a temporary setup, often in a larger commercial or civic space, that connects and markets to its target customers primarily via social media.

Recommendation

Communities should pay attention to local food trends and the people involved, and empower all aspects of the agriculture and cottage food movement to make it a key enabler of Lean Urbanism – from farming to gathering to producing and marketing. Given the strong jobs track record and health impacts of the food industry, it has the potential to redefine the physical, cultural, social and economic condition of blocks and neighborhoods, towns, cities and regions.

This is natural for immigrants and especially women, who have always been involved in the nurturing aspects of food growing, cooking and sharing to preserve and mingle their traditions with others, make people happy and create local specialties. African Americans, Vietnamese and Hispanics are responsible for more recent changes in America as the Irish, English, French and Italian were before them. Their impact is visible in both urban and suburban locations, from urban main streets to residential back yards.

The local food movement is Lean Urbanism at its most basic and its most valuable - its most sustainable, sensuous and spiritual.

GREAT QUOTES

Food is the strongest thread in the fabric of our day." \sim Ann Daigle \odot

"Food to a large extent is what holds a society together and eating is linked to deep spiritual experiences."

~ Peter Farbes & George Armelagos, "Consuming Passions"

Laughter is brightest where food is best." ~ Old Irish Proverb

"You don't need a silver fork to eat good food."

~ Chef Paul Prudhomme

"If you really want to make a friend, go to someone's house and eat with him... the people who give you their food give you their heart." ~ Cesar Chavez

"Food should be fun."

~ Thomas Keller

"Food is our common ground, a universal experience."

~ James Beard

"Maybe a person's time would be as well spent raising food as raising money to buy food." ~ Frank A. Clark
ADAPTIVE AGRICULTURAL REUSE (Courtesy Steve Coyle.).

A DAPTIVE A GRICULTURAL REUSE SMARTCODE MODULE

PREPARED BY TOWN-GREEN: STEVE COYLE AND DANIEL DUNIGAN

Because we don't think about future generations, they will never forget us.

Henrik Tikkanen

ADAPTIVE AGRICULTURAL REUSE OF MARGINAL AGRICULTURAL AND PASTURE LANDS THROUGH CARBON SEQUESTRATION AND **CELULOSIC BIOFUELS PRODUCTION**

Two Reuse Programs

The first program consists of growing trees for carbon sequestration; the second, cultivating dedicated, non-food energy crops in marginal agriculture, pasture, and abandoned lands instead of prime arable land. Both provide benefits to the soil, the economy, the environment, and the city or town.

These programs may be administered by municipalities, counties, townships, state, or other governmental agencies, and/or by private and non-profit organizations. The planting and maintenance of tree stands for carbon sequestration, and the cultivation and harvesting of cellulosic biofuels, may occur on public or private land.

Carbon Sequestration through Reforestation and Afforestation

Carbon sequestration through reforestation and afforestation (developing new forests) consists of the long-term absorption and storage of carbon dioxide or other forms of carbon through tree planting. Besides mitigating climate change effects, planting or replanting of trees on marginal crop and pasture lands can create greenbelts around and between urban areas, and transfers CO2 from the atmosphere to the new biomass. Applications may include linear tree stands at urban edges, tree farms and/ or productive fruit and nut orchards that sequester carbon during the healthy life of the tree.

Cellulosic Biofuels Grown on Marginal Crop and Pasture Lands

Cellulosic Biofuels are non-food crops or inedible waste energy fuels produced from wood, grasses, or the non-edible parts of plants. Food prices and land use are not likely to be negatively affected by the growing of new sources of cellulosic biofuels and biomass on marginal crop and pasture lands, nor by converting the crop into fuel through bioenergy technologies. Examples range from sustainably farmed switchgrass, a native perennial grass capable of producing high yields on otherwise non-forested, fallow land, to willow, planted and sustainably managed on marginal land without irrigation or fertilizer.

ARTICLE 3. NEW COMMUNITY SCALE PLANS

The text on the righthand page is available to activate Table AAR-1 as regulatory.

CIVIC ZONES

Some examples of Carbon Sequestration Areas used as Civic Space are groves, forests, orchards, and meadows where hiking and birdwatching is permitted, or forested/ planted greenways that include bikeways. A comprehensive approach to community planning should include attention to multi-function spaces.

Biofuel production and Carbon Sequestration Areas may certainly occur outside planned Community Units, preferably as part of a Transfer of Development Rights (TDR) program. See Section 2.4.3 of the base code. However, if these areas are not within walking distance of the residents of the Community Unit, they cannot be counted as part of the SmartCode's Civic Space allocation for that pedestrian shed.

The Consolidated Agrarian Settlement (CAS) and Clustered Land Development (CLD) Community Units are especially appropriate for DACS and Cellulosic Biofuels programs as described on the following pages, because of their rural character. See Section 3.3. of the base code for Community Unit types.

(The Consolidated Agrarian Settlement is introduced in Version 10 of the SmartCode.)

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ARTICLE 3. NEW COMMUNITY SCALE PLANS

3.X SPECIFIC TO ZONES T1. T2

a. Cellulosic biofuel farming of wood, grasses, or non-food plants shall meet or exceed the latest 2010 draft of the Council on Sustainable Biomass Production (CSBP) Standards for dedicated energy products.

3.X CIVIC ZONES

3.X.X. CIVIC SPACE (CS) SPECIFIC TO ZONES T1, T2, T3 x. Carbon Sequestration Areas within the Community Unit that are also available for public recreation shall be permitted by Warrant within the appropriate Civic Space for the Transect Zone, as provided on Table AAR-1 Biofuels & Carbon Sequestration and Table 13 Civic Space.

ARTICLE 5. BUILDING & LOT SCALE PLANS

- 5.X **BUILDING FUNCTION**
- 5.X SPECIFIC TO ZONES T1, T2
 - x. Cellulosic biofuel farming of wood, grasses, or non-food plants shall meet or exceed the latest 2010 draft of the Council on Sustainable Biomass Production (CSBP) Standards for dedicated energy products.
 - x. Biofuel production shall be permitted by Warrant as provided on Table AAR-1 Biofuels & Carbon Sequestration and Table 12 Specific Function and Use.
- 5.X.X SPECIFIC TO ZONES T1, T2, T3
 - x. Carbon Sequestration Areas shall be permitted by Warrant as provided on Table AAR-1 Biofuels & Carbon Sequestration and Table 12 Specific Function and Use

ARTICLE 7. DEFINITIONS OF TERMS

Biofuel: energy derived from a renewable biological source Cellulosic: comprised of plant material **CO2e:** the unit of measurement used to compare the relative climate impact of the different greenhouse gases. The CO2e guantity of any greenhouse gas is the amount of carbon dioxide that would produce the equivalent global warming potential.

TABLE AAR-1. BIOFUELS & CARBON SEQUESTRATION

This table may be advisory only, or activated as regulatory by the text on the preceding page.

Cellulosic Biofuels Grown on Marginal Crop and **Pasture Lands**

1. The program consists of market and/or regulatory incentives for the cultivation of dedicated, non-food energy crops in marginal agriculture, pasture, and abandoned public and private land.

2. While biomass energy can be derived from garbage, wood, waste, landfill gases, and alcohol fuels, this program is limited to plants approved, recommended, and/or certified by the Council on Sustainable Biomass Production (CSBP) Standards for dedicated energy products. These may include miscanthus, switchgrass, hemp, poplar, and willow, though the first two contain the highest potential for conversion into a biofuel or biodiesel. The program should not include biomass sources primarily used for the generation of heat, especially those that emit significant amounts of carbon dioxide, methane or nitrous oxide.

2. The market incentives for the landowner / farmer for cellulosic biofuel cultivation consist of the potential revenue stream from harvesting biofuel crops from marginal lands. Public lands may be leased for private cultivation. Additional benefits include an increase in the ecological value of the land and protection from built development.

3. The program anticipates that, over the next ten years, cellulosic biofuel crops [e.g., switchgrass or miscanthus] that don't require deep tilling will begin to replace both corn-based biofuels and fossil-fuel fertilized conventional row crops in the agricultural market place.

4. The jurisdiction can provide both market and regulatory incentives consisting of:

• The development of a biorefinery facility that integrates cellulosic/biomass conversion processes and equipment to produce fuels, power, heat, and value-added chemicals from biomass. Biorefineries will become standard facilities for producing biologically-active chemicals and materials from biomass. The jurisdiction may employ zoning and economic development funding as incentives for the facility, and to create a market for local biofuel crop yields.

SCM4

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

- Bio-energy may be generated and supplied in the same area, reducing or eliminating the installation of pipelines. Consolidated Agricultural Settlement (see the v10 SmartCode) may be incentivized through the permitting of such facilities on the landowner's existing farm or ranch.
- The jurisdiction can implement a TDR program to help preserve existing and potential biofuel crop lands.

5. Cellulosic biofuels reduce CO2e, the unit of measurement used to compare the relative climate impact of the different greenhouse gases. (The CO2e quantity of any greenhouse gas is the amount of carbon dioxide that would produce the equivalent global warming potential.) On February 3, 2010, the EPA finalized new regulations for the National Renewable Fuel Standard Program for 2010 and beyond. This program will increase the required volumes of renewable fuel to 36 billion gallons per year by 2022.

Carbon Sequestration Program Components

1. The program consists of methodology for sequestering carbon through tree planting on public and private land.

2. The program requires an agreement between a jurisdiction or an independent management entity representing the jurisdiction, and individual private property owners or public property agencies.

3. Each agreement requires that the landowner plant and maintain tree stands on a designated parcel or parcels preapproved by the jurisdiction. Each transaction benefits both parties: the landowner receives a revenue stream from the jurisdiction based on the monetized carbon market value of the permanent carbon sequestration, in total CO2e metric tons. Additional benefits include an increase in the ecological value of the land and protection from built development.

4. Each agreement requires the protection of the land from any type of wood harvesting or adverse uses in perpetuity using one of the following approaches:

- Purchase Carbon/No Harvest: Landowner plants trees and retains responsibility for crop maintenance up to 99 years with a guarantee of no timber harvest. Jurisdiction purchases carbon credits for 99 years, renewable.
- Lease/No Harvest: Jurisdiction's agent leases land for 99 years usage, plants trees and retains responsibility for crop maintenance for 99 years with a guarantee of no timber harvest. Jurisdiction retains carbon rights for 99 years, renewable. (continued)

SMARTCODE MANUAL VERSION 9.2

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Table AAR-1: Biofuels & Carbon Sequestration. This table provides ways of incorporating Cellulosic Biofluel production and Carbon Sequestration orchards and tree farms along the Transect.



TABLE AAR-1: BIOFUELS & CARBON SEQUESTRATION

Г3	T4	T5	T6	SD	Specific

BY RIGHT

BY WARRANT

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

Donate/No Harvest: Landowner or jurisdiction's 9. The program requires verification and reporting protocols agent plants trees. Landowner donates land in Year 5 to a qualified land management agency or nonprofit; jurisdiction retains carbon rights for 99 years, renewable.

- Donate/Thin: Landowner or jurisdiction's agent plants trees. Landowner donates land in Year 5 to a qualified land management agency or non-profit; jurisdiction retains carbon rights at least 99 years, renewable.
- Lease/Harvest: Jurisdiction's agent leases land for 99 years usage, plants trees and retains responsibility for crop maintenance up to 99 years with a guarantee of no timber harvest. Jurisdiction retains carbon rights up to 99 years. Forest is harvested between Year 71-100.
- For landowner of forest land, the "exercise price" for each of these options is the present value of the discounted capital costs associated with conducting the specific activity. The "donate" option only can be exercised in Project Year 5. The "Thin" option only can be exercised in Year 50 at the earliest.

5. The jurisdiction may develop a local mechanism to secure the carbon credits derived from the sequestration. For example, the city could develop a local "carbon bank" for the sale, purchase, and transfer of carbon credits.

6. Transfer of Development Rights (TDR) may be considered to redirect urban growth away from sequestration or "sending" areas and toward "receiving areas" appropriate for sustainable development. The sending area landowners receive compensation for preserving the sequestration land, and receiving area owners or developers experience greater profits; the jurisdiction implements its sequestration goals using little or no community funds.

7. The program requires, for each target region, an estimate of the lands both suitable and available for long-term tree planting, each landowner's commitment to fulfill the program agreement, and the jurisdiction's capacity to set up, administer, and manage the program.

8. A minimum land area threshold of about 20 acres per contract is recommended for accounting purposes, though smaller parcels may be aggregated into larger, single holdings. Tree stands may be grown in linear configurations sufficiently wide to maintain a functional wind break, habitat needs, visual screening, or "blow-over" protection from shallow root species such as Douglas fir.

to assess the continued health and growth or productivity of each eco-parcel and certify periodic estimates of sequestration values.

10. Besides a formal program, trees can be "infilled" or planted along public rights-of-way as part of its urban forest program.

Additional Program Considerations

1. Both programs require customization, beginning with the research of and adaptation to the environmental, economic, political, and social context. They require initial research in biogeochemistry, soil science, range management science, plant ecology and ecosystem ecology to determine the best approach for long-term carbon storage in trees and soil, and for the production of periodic cellulosic biofuel wood, grasses, or non-food plants.

2. The programs can result in the creation and sustaining of multi-function, biologically diverse greenbelts, croplands, orchards, and forests around cities and within counties, while incentivizing the reclamation, enhancement, and protection of marginal agriculture, pasture, and abandoned lands. The sequestration of carbon and the production of non-food biofuels will reduce atmospheric CO2e, while the growing of cellulosic biofuels offers farmers a local rotational or dedicated non-till crop. Combined with the development of a local biorefinery, the program can provide a marketable biofuel product, and/or a source of clean community energy.

3. As a first step, a small demonstration project is recommended to implement a program with minimal risk.

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Estimated CO2e Metric Tons Sequestration Values

The values below represent general benefits from each program, and should be locally calibrated for each specific application of this Module. This Appendix is advisory only.

Carbon Sequestration Values

TYPE	UNIT	Mean Annua CO2e - metr per acre per
vineyard/orchard	per acre	.59 to 1.68
oak woodlands	per acre	3.71 [2]
coniferous forest	per acre	8.89 [2]
grasslands/shrub	per acre	unknown [3
urban	per tree	

[1] Source: Kroodsma and Field (2006)

[2] Source: Baldacci et al. (unpublished)

[3] not quantified (no factor) and offset by grazing emissio

EROEI (Energy Return on Energy Invested)

FUEL SOURCE	EROEI
biodiesel	3:1
coal	1:1 to 10:1
ethanol	1.2: 1
natural gas	1:1 to 10:1
hydropower	10:1
hydrogen	0.5:1
nuclear	4:1
oil	1.1 to 100:1
oil sands	2:1
solar PV	1:1 to 10:1
wind	3:1 to 20:1

Source: Dana Visalli, 2006 www.energybulletin.net/node/14745

APPENDIX: BIOFUELS & CARBON SEQUESTRATION

Il Seq. ic tons	
year	
1]	
ns	

Cellulosic Biofuel vs. Conventional Fuel Values

CO2 emissions/gallon gasoline =	19.4 pounds/gallon
CO2 emissions/gallon diesel =	22.2 pounds/gallon
CO2 emissions/gallon cellulosic =	5.04 pounds/gallon

AFFORDABLE HOUSING INCENTIVES MODULE

By Munsun Park, Sandy Sorlien, and Emily Talen, PhD.

Affordable Housing Incentives SmartCode Module

PREPARED BY MUNSUN PARK, SANDY SORLIEN AND EMILY TALEN

Exclusionary, discriminatory, and unnecessary regulations constitute formidable barriers to affordable housing, raising costs by 20% to 35% in some communities.

Jack Kemp

The Affordable Housing Incentives Module is regulatory. It is written with "shall" language to be inserted into the Base Code with little or no modification.

The extent to which this content may be implemented is subject to state law and local political support. If the municipality is unable to mandate these standards, they may be changed to "should" language, especially where "shall" appears in colored text, or included in a separate set of design guidelines.

1.X AFFORDABLE HOUSING INCENTIVES

See also the notes for the Incentives Module, subsections 1.X.1a, g & h. Other incentives may be added particular to the local situation. For example, if there are oversized lots in an area where the community supports adding affordable housing, a subdivision incentive may be possible, whereby a property owner can create a substandard lot if it is dedicated to a deed-restricted affordable unit.

Municipalities may want to specify a percentage of affordable housing after which the incentives would apply.

It is important to design affordable units so that there is no discernable outward difference between them and nearby market rate units.

For more detailed policy provisions, see the Affordable Housing Policy Guide at www.transect.org.

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ARTICLE 1. GENERAL TO ALL PLANS

1.X AFFORDABLE HOUSING INCENTIVES

- 1.X.1 To encourage the provision of Affordable Housing, the Legislative Body grants the following incentives:
 - a. Applications containing Affordable Housing that meets this Code shall be processed administratively by the CRC. Others shall be processed by Variance.
 - b. Applications containing Affordable Housing shall be processed with priority over others, including those with earlier filing dates, providing that other applications are not pushed past their deadlines.
 - c. Highest priority for processing and for approval shall be given to applications involving partnership with a community land trust or other non-profit organization responsible for ensuring the long-term retention of the Affordable Housing.
 - d. The municipality shall waive or reduce review fees for applications containing Affordable Housing.
 - e. The municipality may increase Density for projects containing Affordable Housing.
 - f. The municipality may waive or reduce parking requirements for Affordable Housing units located within a quarter mile of a transit stop.
 - g. The municipality shall provide a property tax exemption for Affordable Housing units meeting established criteria.

SUBSIDIARITY - OUR LOCALISM

The article, *Subsidiarity: (Our Localism): A Fundamental Principle Catholic Social Teaching* by Brother David Andrews, CSC. Published in Catholic Rural Life. (Courtesy Christopher (Kip) Bergstrom.)

BROTHER DAVID ANDREWS, CSC Subsidiarity: (Our Localism) A Fundamental Principle in Catholic Social Teaching

n February of the year 2000, Pope John Paul II spoke on democracy to the Holy See's Academy of Social Sciences and reminded his audience that the health of a political community is measured to a large extent with the thermometer of the citizens' participation in public life. Keeping the present phenomenon of globalization in mind, at the social level this means that "smaller social units – whether nations themselves, communities, ethnic or religious groups, families or individuals – must not be namelessly absorbed into a greater conglomeration, thus losing their identity and having their prerogatives usurped."

The Holy Father asserted that "this is nothing other than the principle of subsidiarity, which requires that a community of a higher order should not interfere in the internal life of a community of a lower order, depriving the latter of its rightful functions; instead the higher order should support the lower order and help it to coordinate its activity with that of the rest of society, always with a view to serving the common good. Public opinion needs to be educated in the importance of the principle of subsidiarity for the survival of a truly democratic society."

Thomas Jefferson's Autobiography speaks of the principle:

But it is not by the consolidation, or concentration of powers, but by their distribution, that good government is effected. Were not this great country already divided into states, that division must be made, that each might do for itself what concerns itself directly, and what it can so much better do than a distant authority. Every state again is divided into counties, each to take care of what lies within its local bounds; each county again into townships or wards, to manage minute details; and every ward into farms, to be governed each by its individual proprietor. Were we directed from Washington when to sow, and when to reap, we should soon want bread. It is by this partition of cares, descending in gradation from general to particular, that the mass of human affairs may be best managed for the good and prosperity of all. Abraham Lincoln also understood the principle of subsidiarity:

The legitimate object of government is to do for a community of people whatever they need to have done but cannot do at all, or cannot so well do for themselves in their separate and individual capacities. In all that the people can individualistically do as well for themselves, government ought not to interfere.

Subsidiarity has been recognized by many writers and is one of the seven major principles of Catholic social teaching. It is usually defined by a quote from Pope Pius XI, in *Quadragesimo Anno:* (1931)

Still the most weighty principle, which cannot be set aside or changed, remains fixed and unshaken in social philosophy. Just as it is gravely wrong to take from individuals what they can accomplish by their own initiative and industry and give it to the community, so also it is an injustice and at the same time a grave evil and disturbance of right order to assign a greater and higher association what lesser and subordinate organizations can do. For every social activity ought of its very nature to furnish help (subsiduum) to the members of the body social, and never destroy and absorb them.

In common experience subsidiarity can be compared to parents teaching their children to walk. At times you have to let go, so that the child can take steps on her/his own. You don't do for others what they can do for themselves! So too, with communities, higher level communities, states to towns, nations to states, should not subvert or substitute themselves and their decisions for the decision making that can and should take place at the lower level. When higher levels intervene, it should be a matter of co-operation and co-ordination rather than in power grabs.

The term subsidiarity means "help" not destruction or absorption. Subsidiarity stands for the proposition that action to accomplish a legitimate government objective should in principle be taken at the lowest level of government effectively capable of addressing the problem. (Pope Pius XI, Quadragesimo Anno, sec.79, 1931) Thus, subsidiarity is a bias toward the local.

Like federalism, subsidiarity seeks to ensure that when political entities unite in order to serve better their common ends (be they military, economic, or any other) they nevertheless retain sufficient decisional authority on the relevant subjects so that their subcommunities and populations enjoy in substantial measure the benefits of localism, respect, consideration, as much autonomy as possible. Virtues of self-determination, of flexibility, of preservation of local identities, diversity are part of the notion of subsidiarity.

Subsidiarity implies both a difficult factual inquiry and a delicate exercise in judgment.

Look at the facts:

- l. Does a problem exist?
- 2. Does the government have the means to address it?
- 3. Does the local or state government have the capacity to deal with it?

Political judgment is the called for tool, considering the efficacy of state action, tolerableness of the situation in which localities are relied upon to act and fail to do so adequately, costs of variations in performance from state to state and so on.

The principle of subsidiarity can be applied to congregations, municipalities, towns, and villages, to smaller communities of every kind. It can be applied to issues relating counties to states, small rural schools within a regional school system, to county and township ordinances and regulation making. In all these circumstances it tends to give a bias toward the local communities and local constituents having significant voice in decisions impacting the local communities. It is a fundamental principle, linked to other principles of Catholic Social Teaching. It is a practical application of the belief that each human being has dignity. As such, their dignity needs to be respected when the person is part of a community whose boundaries are smaller or whose capacity for initiative is limited by scale or circumstances. Small is beautiful and deserving of respect, of being treated with dignity.

The principle of subsidiarity should rightly be invoked in support of local control and home rule, of respecting the right of communities to zone, to site, to regulate land use, to enforce police powers ensuring communities health and well being. When states and federal powers limit the capacities of towns, villages, counties and municipalities of self-governance, they frequently violate the right order of things. They violate the principle of subsidiarity. The same is true for corporations organized under civil laws and provided a right to organize by the state or federal powers. We have become well aware of the enervating effects that flow from over-reliance on state institutions. So that state power can be relied upon too much limiting the power of local people to act. Over reliance on "private" institutions produces the same effects. The character of dependence does not change because that dependence is upon a corporate body rather than the state. As the social writer Alexis de Toqueville so clearly understood, individuals and society alike become self governing only by regularly and repeatedly engaging in acts of self-determination. It is the habit that sustains the condition. Alexis de Toqueville celebrated subsidiarity in the local governments of the early republic. For Alexis de Toqueville, small local political communities were seen as essential to a vital democracy:

Local institutions are to liberty what primary schools are to science; they put it within the people's reach; they teach people to appreciate its peaceful enjoyment and accustom them to make use of it. Without local institutions a nation may give itself a free government, but it has not got the spirit of liberty.

As corporations become increasingly independent of the state, as the power of initiative becomes more and more theirs, subsidiarity should become more and more a concern. The biggest danger today is that modern capitalism will overwhelm and dissolve the concrete, the local, and the particular, grass roots institutions, small-scale economies, local economies. A big power can drain small ponds and deconstruct what the British social thinker, Edmund Burke, called "the little platoons" of social life.

Hierarchical, top down schemes ultimately suggest that administrative specialists and organizational planners, experts, can anticipate not only what people's ideas, needs, and desires will be but when they will have them. We are denied opportunities for self-determination; we are stripped of the conditions through which we actuate our human potential. We become objects of administration, instead of persons free and encouraged to engage in successively more significant acts of self-realization.

Subsidiarity:

- requires that social arrangements be ordered to enable individuals to assume personal responsibility
- condemns libertarian individualism that denies human social character
- denounces submergence of individuals into the "mass"
- rejects the notion that places "power" as the pivot in human relationships.

In recognition of the natural sociality of the human being, it can be used to encourage the revivication of small groups and mediating bodies where citizens learn self rule and respect for others.

Individuals and societies become self-governing only by repeatedly and regularly participating in acts of selfgovernment. It is the habit that sustains the condition. Likewise we actuate our human potential through reflection and choice about the concrete details of life. As we become what we do, so are we stunted by our failure or lack of opportunity to assume personal responsibility.

The principle is an organizational norm applicable to institutions of every description, from town government and the other organizations of day-to-day life to transnational schemes like the European Economic Community. Subsidiarity applies as well to educational institutions and programs, social-welfare schemes, health care, and policies that bear on the well being of the foundational institution of civic and political life, the family.

In every context, the lesson is the same: since all rightly ordered societies exist for the individual, the emphasis in establishing any sort of social order must be on setting the conditions that will enhance opportunities for individuals to deliberate, choose, and act for themselves. Orders that fail to do so, because they are inconsistent with human character, eventually will collapse. To be authentically responsible, social and political orders must be structured in a way that permits individuals the maximum opportunity to act responsibly.

Persons, not institutions, are the ends of any society worthy of the name. If we are to avoid the iron cage that results from seeing bureaucracies or the market as our sole alternatives, subsidiarity stands as our guide.

There are several helpful resources for thinking about subsidiarity as a principle of social organization and economic life. I am listing several for your consideration below.

James Coriden. The Parish in Catholic Tradition, Paulist Press, Mahwah, NJ 1996.

Andrew Greeley. No Bigger Than Necessary. New York: New American Library, 1977.

Joshua P. Hochschild. The Principle of Subsidiarity and the Agrarian Ideal http://www.nd.edu/~ndphilo/papers/Subsidiarity.html

Joseph A. Komonchak. Subsidiarity in the Church: The State of the Question (1988) V.8 The Jurist, 298,301

SIGN UP FOR OUR WEEKLY E-BULLETIN

The National Catholic Rural Life Conference sends out an e-bulletin about once a week with news about rural life and environmental justice issues. Mostly these are brief news items with links to more information on various websites. We also send out occasional action alerts, mainly about federal legislation on agriculture, environmental and energy issues.

Just send us your e-mail and we'll include you in our next e-mailing. We welcome anyone who wishes to receive these bulletins, and you can unsubscribe at any time.

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INSTITUTE FOR MARKET TRANSFORMATION CHECKLIST

A generalized checklist produced by the Institute for Market Transformation.

Code Compliance Strategies



Successful strategies for improving compliance with building energy codes

Streamlining Compliance Processes

Winter 2012





treamlining is the practice of improving building regulatory processes to remove overlap and duplication and create more efficient administrative procedures. When implemented properly, this report argues, it not only makes building departments more efficient and effective at enforcing construction code requirements, but also improves customer service and provides financial savings for the local government, its citizens, and private industry. This report examines how streamlining can improve compliance with building energy codes.

Strategy Overview

In this compliance model, governments analyze their building regulatory process, gather input from stakeholders, identify strengths and weaknesses, and determine how to make their process more efficient or "streamlined." After burdensome and duplicative regulatory requirements are removed, local governments can focus on improving their administrative procedures to reduce the time it takes for a new building or building renovation to move through the regulatory process. Areas for improvement often include permit application processing, plan submission and review, and scheduling and conducting inspections. The application of information technology (IT) is a common way for local governments to streamline their process.

Why Streamline?

Burdensome and complicated regulatory processes can drive business out of town. A studyⁱ published by the U.S. Department of Housing and Urban Development states:

In the early 1990s, jurisdictions in the San Jose/Silicon Valley region were surprised when several large information technology firms moved their operations to Austin, Texas. Leadership flew to Austin to learn why. One of the major factors contributing to attracting firms to Austin was a streamlined building codes administration and enforcement program that reduced the amount of time (and cost) for processing permits, gaining plan reviews and conducting inspections.

According to the Alliance for Building Regulatory Reform in the Digital Age, "it is about increasing the efficiency of modern construction codes, rules and regulations and reducing the amount of time it takes to move a new building or building renovation through the regulatory process by as much as 80% annually, saving both the private and public sectors tens of billions of dollars." ⁱⁱ

A response to a survey conducted by the National Conference of States on Building Codes and Standards (NCSBCS) and the Alliance provides evidence that streamlining worked in Ventura County, Calif. Ventura County noted that for its investment of \$160,000 for a permits and inspections software package, the county had saved over \$1,000,000 in costs over a sixyear period, even as their staff shrank by three people and their workload increased by 80%. Furthermore, the final report from the survey stated:

Jurisdictions of all sizes ranging from Los Angeles, CA (population 3,649,000) to Cobleskill, NY (population 4,533) provided data documenting reductions in processing time from 20% to 80% with the application of information technology to one or more codes administration and enforcement processes. Jurisdictions also reported marked improvements in their relationships with their clients/stakeholders (the construction industry, citizens, and their elected officials).ⁱⁱⁱ

Streamlining is one way for local governments to cut costs while improving services, but it can also have an impact on economic development.

Streamlining and Economic Development

As shown above in the example of the San Jose/Silicon Valley region, streamlining can impact economic development. A 2010 report^{iv} from the National League of Cities and the International Economic Development Council, "The Role of Local Elected Officials in Economic Development: 10 Things You Should Know," identifies the regulatory environment as one area to consider in a local economic development strategy. The report states: "For business leaders, time is money; they want to know that the regulatory process provides for timely, reliable and transparent resolution of key issues. If your city's regulatory policies are riddled with delays, confusing and redundant steps and multiple approval processes, a prospective business may very well choose to locate or expand in another commu-

nity." The report also suggests that elected officials should consider going through the process themselves as a new business or a developer would, to gain firsthand experience of the time, cost, hassles, and clarity of the process.

Beginning the Streamlining Process

Regulatory Review

The first step in the streamlining process is to determine what regulatory barriers may exist in a jurisdiction's code administration and enforcement program. This should include both an internal review, as well as soliciting input from clients and other stakeholders. A complete mapping (flow chart) of the regulatory process, across all agencies/departments involved, is essential to identifying areas for improvement. A few examples of burdensome or inefficient processes include:

- Excessive plan review time
- Lack of communication among departments involved in plan approval and/or having departments spread out across different buildings
- Lengthy and complicated process from permit application to certificate of occupancy
- Lengthy or confusing appeals/variance process
- Multiple applications/forms across departments
- Having mostly single-discipline inspectors and/or plan reviewers
- Multiple public hearings

Following the review of the regulatory process, a jurisdiction must identify the strengths and weaknesses, determine the "low-hanging fruit," and prioritize needed changes. This should include a plan for working with the local governing body if changes to a regulation/ordinance or existing government structure are required to implement a more efficient process. For example, one area of weakness may be that each of the departments involved in the approval process is located in a separate building, leading to longer review times. Often consolidating these departments in one building will significantly improve the efficiency of the approval process, but this is likely to require approval of the local governing body. Alternatively, an investment in software can significantly enhance the efficiency of the approval process without the consolidation of departments, though it is still likely to require approval of the governing body. In Gillette, Wyo., an investment in electronic plan review software allows all city departments, as well as the county fire marshal and utilities involved in the plan review process, to receive all documents electronically.

Identifying Areas to Streamline

After inefficiencies in the regulatory framework have been fixed, it is time to determine what administrative areas are appropriate for streamlining. All cost-effective improvements that will enhance the compliance process can be targeted, including:

External Communication

Is the regulatory process (from start to finish) clearly described, including what applications need to be submitted and to where, who is responsible for approval, what is required for submission, what the anticipated time frame is, and what the appeals process is? Is it clear what codes are in effect? Are there printed and electronic materials that help convey the regulatory process?

Internal Communication

How do various offices/agencies/departments involved in the regulatory review process communicate? Is there a central tracking system? Is there one point person responsible for seeing a project through from start to finish? Who has decision-making authority?

Permit Applications

How are permit applications submitted (online, in-person, email)? What are the requirements for submission? How quickly are they processed? How are they tracked? Are pre-application meetings required for larger projects?

Plan Review

How are plans submitted (electronic, paper copies), and to whom? What are the submittal requirements? How are they tracked throughout the review process? What is the average turnaround time?

Inspections

How are inspections scheduled (online, in-person, automated phone system)? Are inspectors "multi-discipline" so they can conduct multiple inspections in one site visit? Are inspections grouped by proximity to one another? How are inspection results tracked? How are inspections conducted (paper checklist, electronic checklist)?

Staff Qualifications and Training

Do staff have the appropriate qualifications/certifications for their area of responsibility? Are there continuing education requirements? Are staff encouraged/reimbursed or otherwise incentivized to pursue additional certifications?

Code Compliance Through Education

What is the inspection failure rate? Are the most common code infractions communicated to stakeholders (i.e., posted on the web or printed and given out)? Is there a training program or are there other educational materials for builders and design professionals to educate them on the building code and code compliance process? Proactive education can reduce inspection times and the number of code violations.

After a thorough review of potential areas to streamline, officials should determine techniques for streamlining those areas identified as the most promising for process improvement. The next section will explore techniques that have proved successful.

Strategies for Streamlining

Many governments across the United States have implemented streamlining to improve their code compliance processes. Information technology is a common and effective way to improve many of the areas listed above. When implementing a streamlining strategy, it is best to start slow, addressing one or two areas of weakness at a time and building upon success. Starting slow and obtaining successful results prevents resistance to future streamlining efforts.

External Communication

How well information is communicated to a local government's customers (i.e., citizens, designers, builders, and developers) has a major impact on their impression of the services they receive. A clearly articulated web page, brochure, or checklist containing all the necessary information for various types of projects, permits, and approvals is key to understanding the regulatory process. Not only does this information assist the customer with understanding the building regulatory process, it helps to eliminate countless phone calls and emails with questions and needless disapprovals due to a lack of information. Fairfax County, Va., provides excellent information on its website, which clearly articulates all steps in the building regulatory process.^v For example, the publication on residential additions contains all the necessary steps from the pre-permit phase through the final inspection. Soliciting input from stakeholders is an easy and effective way to obtain valuable feedback on areas that need improvement.

Internal Communication

Internal communication is as much about organization as it is about proximity. An organized and cohesive system across all departments involved in the building regulatory process allows for ease in tracking projects and clear communication among all the players. In addition, having all the players under one roof facilitates better communication and provides the convenience of a "one-stop shop" for customers. The City of Savannah, Ga., has set up a "one-stop shop" called the Development Services Department, which consolidates all of the city's engineering, inspections, and design and construction staff into one building.^{vi} The use of software can also greatly enhance internal communication by providing ease of project tracking and status updates.

Permit Applications

A permit application is often the first official document submitted to begin the regulatory compliance process. A clearly written and easy to understand permit application accompanied by a checklist of items required to be submitted with it, is an excellent way to reduce questions and frustration with processing incomplete applications. The City of Gillette, Wyo., provides a straightforward permit application that can be submitted as a hard copy or electronically and also provides a residential and commercial plan submittal checklist to ensure that plans submitted with the permit application contain the correct information.^{vii}

Ventura County, Calif., provides a one-stop permitting webpage that provides step-by-step guidance to individuals seeking land use permits for residential, commercial, and industrial projects, including links to the permitting requirements and forms for all county and state departments involved in the permitting process.^{viii} It is important to note that where software is used to process permit applications, it should be compatible with any electronic plan review software, which is discussed in the next section.

Plan Review

The plan review and approval process is one of the most complaint-ridden areas of the regulatory compliance process because it usually takes the longest. It is important that the plan review and approval process be clearly communicated from start to finish. Designers must know what codes they need to comply with and any specific local requirements. Local building departments need an effective way to track plans and revisions upon submission and to determine a plan's status in the regulatory review process.

The City of Dallas, Texas, provides an application checklist and a list of required documents, as well as providing online access for design professionals and contractors to review the comments on their plan reviews.^{ix} As mentioned earlier, Gillette, Wyo., also has an electronic plan review process that incorporates all responsible parties and gives customers "near real-time" online tracking of plans as they move through the review process. It is important to note that moving solely to an electronic plan review process may require a change in state statutes allowing architects and engineers to electronically seal their plans. State elected officials should make this change, where necessary, to enable this very effective streamlining measure.

Inspections

Inspections are a major part of the regulatory compliance process. When not handled efficiently, they can be a logistical nightmare and lead to wasted time and money. An effective system for scheduling inspections is one key area for consideration in streamlining. A central system that allows for online as well as automated phone scheduling can reduce the administrative burden on office staff and add efficiency to the process. Scheduling inspections based on their proximity to one another can greatly reduce travel time, while employing multi-discipline inspectors can reduce the number of trips to one building site. The City of Coppell, Texas, requires all building inspections to be scheduled using either their online or automated phone scheduling system.[×]

Staff Qualifications and Training

Having qualified staff and providing adequate training allows work to be done more efficiently. Building codes are continuously revised and updated, so it is imperative that code officials stay current as the codes are updated in their jurisdiction. Requiring certifications, such as those offered through the International Code Council (ICC) (www.iccsafe.org), is a great way of ensuring that local inspectors and plan reviewers have a minimum level of code knowledge. Requiring ICC Certifications (especially at the state level) allows for consistency across jurisdictions in establishing minimum qualifications for inspectors and code officials. Elected officials should encourage or require training for building department staff by providing funding for training and reimbursement for the cost of achieving certifications. Colleges and universities should explore the development of degree programs for inspectors and code officials. Pennsylvania requires any person engaged in the enforcement of the state's Uniform Construction Code to be a Certified Code Official in each area of work they perform.^{xi}

Code Compliance Through Education

Education is an effective strategy for improving code compliance rates and can help reduce inspection and plan review times. By educating local builders, tradesmen, and design professionals on code requirements, future violations can be reduced. Education can take many forms, including: printed brochures, online courses, classroom training, in-the-field training, and the publication of the most commonly found code infractions. Having local code officials conduct the training allows them to be seen as educators rather than just a policing authority. Code officials can also work through their local chapters of the ICC to provide this training.

Technology

As some of the examples above demonstrate, technology—including software, internet-based applications, mobile devices, electronic seals and signatures, and electronic storage—all have the potential to improve the efficiencies of various code compliance processes. Most jurisdictions across the U.S. have implemented some type of electronic process in place of a less efficient paper version. As technology continues to advance and become more affordable, and as stakeholders continue to request and expect internet-based solutions, the trend of electronic processes replacing paper will increase.

When local officials look to implement new software to enhance their existing processes, it is important that their decision consider how a new software program will interact with and be compatible with their existing programs and devices. For example, a jurisdiction should consider whether new electronic plan review software is compatible with existing electronic permitting, zoning, or finance software. Additionally, jurisdictions should consider their IT policies regarding the download of programs that may be required to view plans electronically. Many jurisdictions prohibit their staff from downloading any programs to their computers without approval from the administrator. Jurisdictions must ensure that their staff are equipped with the appropriate programs to view electronic plans. Often, adopting new electronic tools is well suited for an overall streamlining initiative because it requires a close look at current processes when determining how to transfer them to electronic means. For example, Boca Raton, Fla., reduced its application types from more than 150 to 90 and its permit types from 130 to 12 during its process of moving to a new software program.^{xii}

What Can Streamlining Do for Energy Efficiency?

The national model building energy codes^{xiii} have increased energy saving potential by nearly 30% from 2006 to 2012. Unfortunately, anecdotal evidence suggests that compliance rates with building energy codes are around 50%. Lack of enforcement is one reason for such low compliance rates. The reasons for inadequate enforcement include: (1) lack of funding for additional inspections, (2) lack of knowledge/understanding of building energy codes (qualified staff), and (3) building energy codes are seen as secondary to fire and life safety codes.

By improving the efficiency of regulatory and administrative processes, reasons (1) and (2) above can largely be mitigated. As shown in the Ventura County, Calif., example cited earlier, streamlining can provide substantial savings while improving services. Financial savings can be used to invest in new staff with energy code knowledge and/or certifications, to train and certify existing staff on energy codes, or to contract with a third party to provide energy code services. Improved efficiencies may also allow existing staff to provide more thorough plan review and inspections for building energy code requirements. By providing solutions for reasons (1) and (2), local building departments can treat building energy codes with the same attention as fire and life safety codes.

Conclusion

Streamlining building regulatory processes is a sensible "win-win" approach for government and industry. Improving regulatory and administrative efficiencies can save both time and money for the public and private sectors while not de-regulating or compromising appropriate oversight and safety. When undertaking streamlining initiatives, jurisdictions should consider improvements to their enforcement of building energy code requirements. Building owners, home owners, and tenants who spend less money on their energy costs have more money to invest in the local economy (restaurants, shops, etc.).

Acknowledgements

IMT is grateful for the information provided by Jim Brown, Deputy Building Official, Gillette, Wyo.

- iii. National Conference of States on Building Codes and Standards
- iv. The Role of Local Elected Officials in Economic Development
- v. Fairfax County, Virginia Building Permits Web Page
- vi. Savannah, Georgia Development Services Department
- vii. Gillette, WY Engineering and Development Services
- viii. Ventura County, California One-Stop Permitting Webpage
- ix. Dallas, TX Building Inspection Office
- x. Coppell, TX Building Inspections
- xi. Pennsylvania Dept. of Labor and Industry
- xii. Avolve Software Corp.
- xiii. International Energy Conservation Code and ASHRAE Standard 90.1

i. <u>Guide to More Effective and Efficient Building Regulatory Processes</u> <u>Through Information Technology</u>

ii. Alliance for Building Regulatory Reform in the Digital Age

About the Institute for Market Transformation

The Institute for Market Transformation (IMT), founded in 1996, is a Washington, D.C.-based 501(c)(3) nonprofit organization promoting energy efficiency, green building, and environmental protection in the United States and abroad. The prevailing focus of IMT's work is energy efficiency in buildings. In particular, IMT aims to strengthen market recognition of the link between building energy efficiency and financial value. Our activities include technical and market research, policy and program development, and promotion of best practices and knowledge exchange. IMT is the U.S. hub of the Global Buildings Performance Network. For more information, visit <u>www.imt.org.</u>

About the Global Buildings Performance Network

The Global Buildings Performance Network (GBPN) has a mission to significantly reduce greenhouse gas emissions associated with building energy use by

- Promoting best practices in building energy efficiency and performance
- Offering world class energy efficiency expertise to policymakers and business leaders
- Advancing policies and programs that promote low carbon, energy-efficient buildings worldwide

The GBPN operates in the United States, Europe, China, and India with its global center in Paris. For more information, visit www.globalbuildings.org.

PLAZA APPLICATION AND GUIDELINES

(Courtesy Sandy Sorlien.)



CITY OF PHILADELPHIA PEDESTRIAN PLAZA GUIDELINES & APPLICATION

FEBRUARY 2016

Introduction

The City of Philadelphia is pleased to partner with community groups, non-profits, and businesses to convert underutilized street segments into pedestrian plazas. Pedestrian plazas can dramatically improve the vitality of city public space and reinvigorate our streets, while calming traffic and clarifying intersection geometry.

Pedestrian plazas are permitted by the City of Philadelphia through its Streets Department. Pedestrian plaza hosts receive a one-year Pedestrian Enhancement Permit that is renewable for up to three years. To receive a Pedestrian Enhancement Permit, submit an application (see pages 7 - 13) demonstrating that the pedestrian plaza is consistent with the guidelines established in this document (see pages 4 - 6).



Pedestrian plaza at S. 48th St. and Baltimore Avenue

Questions should be directed to the Pedestrian Plaza Program Manager at:

Office of Transportation & Infrastructure Systems 1401 JFK Boulevard, Suite 1430 Philadelphia PA, 19102 Phone: <u>215-686-9001</u> Email: <u>completestreets@phila.gov</u>

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Placement Guidelines

Pedestrian plaza locations are subject to review by the City's Chief Traffic Engineer. The guidance listed below is subject to the Chief Traffic Engineer's discretion and may be waived if the engineer feels the location and placement is appropriate.

Placement within the Neighborhood

- Pedestrian plazas should utilize excess roadway that does not play an integral role in circulation. Streets that cut diagonally across the grid or have redundant turning areas are especially good candidates for pedestrian plazas.
- Adjacent streets should have posted speed limits of no more than 25 MPH.
- Pedestrian plazas should be located near commercial activity or other uses that generate significant volumes of pedestrian activity.

Placement in Relation to Other Street Elements

- Pedestrian plazas should:
 - Not limit access to fire hydrants;
 - Not interfere with SEPTA.

Maintaining Access to Utilities

- The pedestrian plaza must block not access to utilities, including:
 - Manholes Sewer grates/storm drains Storm drain cleanouts Water shutoff valves

Gas shutoff valves Electric meters Telephone switch boxes

Design Guidelines

Each pedestrian plaza is different, but, in general, the following design guidelines must be met:

General

- Pedestrian plaza elements (planters, tables, chairs, umbrellas, benches, etc.) must be removable by the Permittee.
- Reconstruction or alteration of the street should not be required.
- Paint can be applied to the plazas to mark new pedestrian areas.
- Applicants should consider what balance of open space, seating, and other elements is appropriate for the area.
- Applicants should consider the flexibility of the design for events, seasons, and age groups.

Dimensions

- The Streets Department does not have set requirements for the size of pedestrian plazas or for the size or weight of pedestrian plaza elements, such as planters, tables, chairs, and benches.
- Planters should be large enough to create a sense of enclosure in the space, and to provide an effective buffer between pedestrians and automobiles.
- During its review, Streets Department staff will consider whether, in context, pedestrian plaza elements will create a nighttime security hazard.

Maintaining Pedestrian Access

- Intrusions onto the sidewalk must be limited.
- Pedestrian access to and from the plaza via existing crosswalks should be maintained to accommodate individuals with disabilities as well as pedestrians with strollers, carts, etc.
- Existing pedestrian pathways on the perimeter of plazas should be maintained or improved.

Visibility to Drivers

- Pedestrian plaza elements near the street should contain lightly colored or reflective materials to aid nighttime visibility.
- Planters, umbrellas, and other elements are encouraged to ensure visibility to passing vehicles. These elements should not obscure driver, cyclist, or pedestrian visibility to the detriment of safety.
- Where pedestrian plaza elements lead to the narrowing or an unexpected change in roadway width, the Streets Department may require that reflective strips be placed on some elements.

Protection from Vehicles

- Pedestrian plaza designs may feature reflective hit posts to delineate new pedestrian spaces.
- Wheel stops may be required by the Chief Traffic Engineer. Wheel stops are used to protect the

pedestrian plaza from turning movements associated with parking cars.

Pedestrian Plaza Elements

- Pedestrian elements should generally durable and resistant to weather, changes in temperature, and rust.
- Applicants interested in overhead structures, banners, fabric sails (excluding umbrellas) or other architectural features that may catch wind must provide proof that the structures have the ability to withstand wind loads specified by the Streets Department. Applicants must prove that said structures and canopies pose no risk to the surrounding neighborhood during storms or other instances of severe weather conditions. The Streets Department may require overhead structures like canopies to be sealed by an engineer to ensure they are designed in accordance with building code wind load criteria.
- Any signage that contains a corporate logo shall be considered "Accessory Signage" and must receive Art Commission approval.
- Pedestrian plaza elements (such as benches or planter boxes) must be located at least 18" away from the curb to enable the drivers and passengers of vehicles parked adjacent to the plaza to safely open vehicle doors.

Other

• Bicycle parking can be incorporated into pedestrian plaza design. The design must ensure that parked bicycles do not extend beyond the plaza.

Guidelines for Operations

General Guidelines

- Cleaning and maintaining pedestrian plazas is the responsibility of the permittee. The permittee's responsibilities are detailed in a set of permit special conditions.
- Permittees should keep a copy of their permit and attached special conditions on hand. The permit need not be displayed outside on the pedestrian plaza.
- Any electrical connections intended to provide power to the pedestrian plaza must be approved by the appropriate engineers and may require separate operations and insurance agreements.

Using the Pedestrian Plaza

- Permittees are welcome and encouraged to host events at the pedestrian plaza, so long as events are open to the public, do not create a nuisance in the neighborhood, and comply with all existing regulations.
- Alcohol may not be served in pedestrian plazas.
- Table service is not allowed in pedestrian plazas.
- Pedestrian plazas are public spaces, and should contain a sign that says "Public Plaza | All seating open to the public."

Initial Pedestrian Enhancement Permit Application Process (Year One)

Who can apply for a Pedestrian Enhancement Permit?

Organizations with the capacity to install, clean and maintain a pedestrian plaza can apply. Partnerships are encouraged. Note that the official pedestrian plaza permittee must be the same entity that holds required insurance.

When must I apply?

The City will review pedestrian plaza applications on a rolling basis; there is no fixed deadline. The application process will take at least several months, and may entail multiple meetings with City staff to review the proposed plans and discuss required changes.

What does the application process entail?

- 1. Contact the Pedestrian Plaza Program Manager
 - a. Write to <u>completestreets@phila.gov</u> or call 215-686-9001 to discuss your application, ask any questions, and learn about program updates.
- 2. <u>Submit an Pedestrian Plaza Application</u>
 - a. Submit an application form with required signatures (page 11).
 - b. Submit the following attachments:
 - i. At least two pictures of the area of the proposed closure;
 - ii. A map of the proposed pedestrian plaza location, which should include:
 - 1. The proposed street closure;
 - 2. The street numbers of all buildings on the block;
 - 3. The direction of traffic;
 - 4. The presence and location of: vacant lots or buildings, driveways, fire hydrants, man-holes, storm water inlets, bike parking, utilities (including, but not limited to tree grates, valves, covers, manholes, junction boxes, signs, lights, and poles), street furniture (including but not limited to bus shelters, honor boxes, and benches), and cafe seating;
 - iii. Letters of support from abutting property owners and commercial tenants (see sample on page 16). The City's Pedestrian Enhancement Ordinance requires *"support, in writing, from two-thirds (2/3) of the owners and commercial tenants of properties abutting the Pedestrian Enhancement if there are three or fewer abutting properties, and three-fourths (3/4) of the owners and commercial tenants of properties abutting the Pedestrian Enhancement if there are four or more abutting properties."*
 - c. Applicants are encouraged, but not required, to provide a letter of support from their district council member.
3. <u>Location review</u>

- a. Streets Department staff will review the proposed pedestrian plaza location to ensure it is consistent with the City's guidelines, will not conflict with public works or construction, and will not create conflicts with area public transportation.
- b. The Streets Department may request traffic counts or a traffic study to make this determination, and require documented approval from affected parties (e.g., SEPTA).
- 4. <u>Gather Evidence of Community Support (Concurrent to #5)</u>
 - a. Once Applicants receive location approval from the Streets Department, they must demonstrate community support for the project. Please contact the Pedestrian Plaza Program Manager to discuss options for demonstrating this, which can include a public meeting featuring notice of area residents and property owners. Another option is to submit a petition signed by a representative of at least one-half of the addresses which are both within 75' of the proposed pedestrian plaza and on proposed plaza's same block face or and opposite lock face. Representatives include: owner, tenant, or property manager of either residential or commercial properties. Special circumstances—such as vacant buildings, active construction projects, and/or unconventional numbering, etc., can be accommodated.
 - b. Applicants are encouraged to submit detailed plans to the program manager while finalizing community support.
- 5. Plan Review (Concurrent to #4)
 - a. The plan approval process often consists of two meetings (an initial review and a followup meeting to review revisions); this process can take several months.
 - b. Pedestrian plaza plans do not need to be designed or drawn by a licensed architect or engineer, however generally expedites review.
 - c. Plans must include:
 - i. Proposed street closure;
 - ii. Dimensions showing, if applicable, how the pedestrian plaza will change the widths of pathways available to pedestrians, to demonstrate ADA compliance.
 - iii. Location and size of proposed plaza elements (planters, chairs, etc);
 - iv. The direction of traffic;
 - v. The presence and location of: vacant lots or buildings, driveways, fire hydrants, man-holes, storm water inlets, bike parking, utilities (including, but not limited to tree grates, valves, covers, manholes, junction boxes, signs, lights, and poles), street furniture (including but not limited to bus shelters, honor boxes, and benches), and cafe seating;
 - d. Plans should document proposed changes, if any, to parking regulations (e.g., handicap parking, loading zones, and metered parking).
 - e. Each plaza is different, and the approval of plans may require coordination with other government departments and entities, such as the Philadelphia Parking Authority.

- 6. Submit Temporary Street Closure: Pedestrian Enhancement Permit Application
 - a. Fill out an application, available at <u>http://www.philadelphiastreets.com/images/uploads/resource_library/Street_Closure_for_</u> <u>Equipment_Placement.pdf</u>. The name of the applicant must match that of the organization that holds required insurance. Submit the application as a PDF to the Pedestrian Plaza Program Manager.
 - b. Prepare an application fee of \$125 to cover the cost of review and inspection. Methods of payment include check (made payable to "City of Philadelphia"), money order, cash, and Epay.
 - c. Submit your street closure application (as a PDF) along with your application fee to the Pedestrian Plaza Program Manager as soon as possible and no later than 15 business days prior to planned installation.

7. Provide Proof of Insurance

a. The City's Risk Management Office requires permittees to submit proof of adequate insurance. The City's insurance requirements are considered industry standards for nonprofits and small businesses; it is not intended for these requirements to necessitate the purchase of additional insurance. If you do not believe that your organization meets the specified requirements, please contact the Pedestrian Plaza Program Manager to see if you are covered sufficiently by other components of your insurance policy. The City's requirements are detailed on page 17.

8. Submit Evidence of Community Support

a. Before a permit may be issued, applicants must submit the documentation described in #4 above.

Submit all application materials in PDF form to the Pedestrian Plaza Program Manager at:

Office of Transportation & Infrastructure SystemsPhone: <u>215-686-9001</u>1401 JFK Boulevard, Suite 1430Email: completestreets@phila.gov

Pedestrian Enhancement Permit Renewal (Years 2 & 3) and Reapplication Process (Year 4)

Pedestrian Enhancement Permit Renewal (Years 2 & 3)

Each Pedestrian Enhancement Permit is good for one year. The Permit is renewable for up to three years total. The City will fail to renew a pedestrian plaza permit if the pedestrian plaza poses a safety hazard or if the Permittee has not complied with City guidelines.

To renew a pedestrian plaza permit for another year, follow the steps below:

- 1. Fill out a renewal application a Pedestrian Enhancement permit: <u>http://www.philadelphiastreets.com/images/uploads/resource_library/Street_Closure_for_Equipm</u> <u>ent_Placement.pdf</u>.
 - a. The name of the applicant must match that of the organization that holds required insurance.
 - b. Indicate that "Pedestrian Enhancement Pedestrian Plaza" is the purpose for the requested street closure.
 - c. In the upper left-hand corner, check "extend existing permit" and enter your permit number, which is indicated on the previous season's permit.
- 2. Submit a certificate of insurance demonstrating that the Permittee maintains required insurance (see page 19).

Pedestrian Enhancement Permit Reapplication (Starting Year 4)

The City of Philadelphia Pedestrian Enhancement Ordinance states that Pedestrian Enhancement Permits are renewable for up to three years. After three years, follow the application process described on pages 7 and 8, submitting one final plan for the plaza.

Please note that you may resubmit materials used previously (such as maps, photos, etc.) so long as they are still current, with the exception of (a) your initial application form with required signatures (b) letters of support from property owners abutting the pedestrian plaza (c) a petition of support for the pedestrian plaza (d) letter of support from your local council person (recommended, not required).

Pedestrian Plaza Application – I

Complete this form and submit it to the Pedestrian Plaza Program Manager. The proposed Permittee must hold requisite insurance.

Permittee Information

Name and address of business or organization requesting the permit (proposed Permittee):

Name of contact person for request	ing organization:	
Phone #	Email	

Location Information

Please describe the proposed pedestrian plaza location, indicating as applicable the address(es) of property immediately adjacent to pedestrian plaza:

Requested Start Date of Permit

Returning Pedestrian Plaza?

If so, write your permit number below and indicate whether changes to the plaza are proposed.

Signatures

Application is hereby made to the Philadelphia Streets Department for a revocable permit to install a pedestrian plaza. Applicant acknowledges and agrees that applicant has read and understands the Pedestrian Plaza Permit Special Conditions (pages 12 - 15) and agrees to be bound by the terms thereof upon receipt of a permit to install and operate a pedestrian plaza.

Proposed Permittee, Chairperson/Owner

(Name)

(Signature)

(Date)

Permit Special Conditions

PEDESTRIAN ENHANCEMENT PERMIT EXHIBIT 1- SPECIAL CONDITIONS FOR PEDESTRIAN PLAZAS

The City has established a Pedestrian Plaza Program to temporarily place a Pedestrian Plaza in one or more parking spaces in accordance with the City's Pedestrian Plaza Guidelines. Any Permittee desiring to establish, operate and maintain a Pedestrian Plaza shall agree to be bound by the special conditions contained in this Exhibit.

1. <u>Title, As-Is Condition of Pedestrian Plaza Location</u>.

A. At all times, the Pedestrian Plaza Location shall remain a public right-of-way. No legal title or any other interest in real estate shall be deemed or construed to have been created by anything contained in this Agreement.

B. Permittee acknowledges and agrees that they accept this Permit to enter the Pedestrian Plaza Location in its "AS IS, WHERE-IS, AND WITH ALL FAULTS" condition, including all defects known or unknown, and the City makes no representation or warranty, express or implied, as to (a) any encumbrances, restrictions and conditions which may affect the Pedestrian Plaza Location, (b) the nature or condition of the Pedestrian Plaza Location for installation and operation of the Pedestrian Plaza, and (c) compliance of the Pedestrian Plaza with Applicable Law (defined below). Permittee is relying on its own independent investigation of the condition of the Pedestrian Plaza Location in entering this Agreement.

2. <u>Maintenance Obligations, Use Restrictions, Approvals</u>.

A. <u>Permittee's Maintenance Obligations</u>. Permittee hereby covenants and agrees, for itself, its successors, and assigns to be fully responsible for the costs of installing, operating and maintaining the Pedestrian Plaza as set forth in this Agreement. Permittee shall use and maintain the Pedestrian Plaza in a wholly safe condition; shall maintain any and all stands, tables, chairs, and other structures, and the grounds adjacent thereto in a clean and trim fashion, free of all waste, rubbish, accumulation of garbage, papers, and debris; shall provide and maintain adequate and proper drainage and not permit any drainage to fall or flow across the footways or roadways; shall permit free and unobstructed ingress and egress to, from, and around the Pedestrian Plaza for the protection or facilitation of pedestrian traffic; shall properly store and dispose of all waste matter and trash in accordance with the City's Recycling and Sanitation regulations and keep the Pedestrian Plaza and adjacent sidewalk free and clear of rubbish, trash and waste materials; and, except as approved in accordance with this Agreement or Applicable Law, shall not permit encroachments upon or obstructions of the streets.

B. <u>City's Maintenance Obligations</u>. The City shall not be required to furnish any services or facilities to the Pedestrian Plaza, or to make any repairs or alterations to the Pedestrian Plaza. The City shall not be responsible for any loss or damage to personal property on the Pedestrian Plaza. Permittee assumes sole responsibility for the operation, maintenance and management of the Pedestrian Plaza.

C. <u>Use Restrictions</u>. Permittee agrees that it shall not: permit any use of the Pedestrian Plaza except as specified in this Agreement; permit anything unlawful on the Pedestrian Plaza; permit a public or private nuisance on the Pedestrian Plaza; permit any Hazardous Substances (defined below) on the Pedestrian Plaza; permit an implied dedication of the Pedestrian Plaza; permit anything that disturbs or damages the surrounding properties; permit commercial advertising of any kind, or non-commercial advertising of any kind without the advance written approval of the Department; permit any structures on the Pedestrian Plaza unless specifically permitted by this Agreement; permit illegal drugs on the Pedestrian Plaza unless specifically permitted by this Agreement; or permit standing water to accumulate on the Pedestrian Plaza Area.

D. <u>Approvals by City</u>. Unless otherwise stated in this Agreement or in accordance with Applicable Law, any review, approval, permission, or consent that Permittee is required to obtain from the City under this Agreement shall not be valid or effective unless obtained from the Commissioner of the Department of Streets or the Commissioner's designee (the "Commissioner"). The review, approval, or consent by the Commissioner of any plans, specifications, work or materials submitted or performed by Permittee under this Agreement does not constitute any representation, warranty, or guarantee by the City as to the quality or substance of the matter reviewed or approved or its compliance with Applicable Laws. Permittee must use its own independent judgment as to the accuracy and quality of all such matters and its compliance with Applicable Laws. Review, approval, or consent by the Commissioner under this Agreement does not constitute any review, approval, consent, Permit or permit otherwise required under Applicable Laws by any City department, board, commission, or official.

3. <u>Compliance with Applicable Laws, Hazardous Substances.</u>

A. <u>Applicable Laws</u>. "Applicable Laws" shall mean all applicable present and future Federal, State and City laws, ordinances, orders, rules, regulations, guidelines and requirements.

B. <u>Hazardous Substances</u>. "Hazardous Substance" shall mean: (a) asbestos, flammables, volatile hydrocarbons, industrial solvents, explosives, chemicals, radioactive material, petroleum, petroleum products and by-products, natural gas, synthetic gas, and shall include but not be limited to, substances defined as "hazardous substances", "hazardous wastes", "toxic substances", "pollutants" or "contaminants" as those terms are defined in any of the Applicable Laws; and (b) any and all other materials or substances that any government entity shall determine from time to time are harmful, toxic, or dangerous.

4. **Entry on Pedestrian Plaza Location By City: City Inspection.** The City may enter the Pedestrian Plaza at any time, for any reason, including inspecting the Pedestrian Plaza and/or Pedestrian Plaza Area. Nothing contained in this Section shall create a duty on the City to make any repairs or do any work on the Pedestrian Plaza Location. City inspections shall not be a representation, guaranty, or warranty by the City to Permittee, as to Permittee's compliance with the terms of this Agreement or Applicable Laws.

5. **Insurance.** At all times during the Term of this Agreement, the Permittee shall maintain procure and maintain insurance in the types and amounts as specified below.

Permittee shall, at its sole cost and expense, procure and maintain in full force and effect, for the Term of the Permit Agreement, covering its obligations under this Agreement, the types and minimum limits of insurance specified below. All insurance shall be procured from reputable insurers authorized to do business in the Commonwealth of Pennsylvania and acceptable to the City. All insurance required herein shall be written on an "occurrence" basis and not a "claims-made" basis.

(i) WORKERS COMPENSATION AND EMPLOYERS LIABILITY

(a) Workers Compensation: Statutory limits

(b) Employers Liability: \$100,000 each Accident - Bodily Injury by Accident; \$100,000 Each Employee - Bodily Injury by Disease; and \$500,000 Policy Limit -Bodily Injury by Disease.All States coverage and Pennsylvania Endorsement.

(ii) GENERAL LIABILITY INSURANCE

(a) Limit of liability: \$1,000,000 per occurrence combined single limit for bodily injury (including death) and property damage liability;

(b) Coverage: Premises operations; blanket contractual liability; personal injury liability (employee exclusion deleted); products and completed operations; independent contractors; employees and volunteers as insureds; cross liability; and broad form property damage (including loss of use) liability.

(iii) AUTOMOBILE LIABILITY INSURANCE

(a) Limit of Liability: \$1,000,000 per occurrence combined single limit for bodily injury (including death) and property damage liability.

(b) Coverage: Owned, hired and non-owned vehicles.

The City of Philadelphia, its officers, employees, and agents, shall be named as additional insureds on the General Liability Insurance Policy. Also, an endorsement is required stating that the coverage afforded the City and its officers, employees and agents as additional insureds will be primary to any coverage available to them. The City reserves the right to require Permittee to furnish certified copies of the original policies of all insurance required hereunder at any time upon ten (10) days prior written notice to Permittee. All such policies shall include an endorsement stating that the coverage afforded to these parties as additional insureds will be primary to any other coverage available to them.

Certificates of insurance evidencing the required coverage shall be submitted to the City of Philadelphia, 1515 Arch Street, 14th Floor, Philadelphia, Pennsylvania 19102). Permittee shall furnish certified copies of the original policies of all insurance required under this Agreement, at any time, within ten (10) days after written request by the City.

All insurance policies shall provide for a least thirty (30) days prior written notice to be given to the City in the event coverage is materially changed, cancelled, or not renewed. At least ten (10) days prior to the expiration of each policy, Permittee shall deliver to the City a Certificate of Insurance evidencing a replacement policy to become effective immediately upon the termination of the previous policy.

The insurance requirements set forth herein shall in no way be intended to modify, limit or reduce the indemnifications made in this Agreement by Permittee to City, its officers, employees, and agents, or to limit Permittee's liability under this Agreement to the limits of the policies of insurance required to be maintained by Permittee hereunder.

6. Indemnification: Release.

A. Permittee agrees to defend, indemnify, and hold harmless the City, its departments, commissions, boards, officers, employees or agents, from and against all actions, causes, suits, demands, losses, and liabilities, including the cost of litigation and attorneys fees, by reason of injury (including death) to persons and damage to property in any way arising in connection with this Agreement or rights granted to Permittee hereunder; provided that nothing herein contained shall be deemed to confer upon any third person any right against City, or to vest in said third person any cause of action against City, or to authorize any such person to institute any such suit or suits against City, its departments, commissions, boards, officers, employees or agents. Permittee is not obligated to indemnify, defend, and hold harmless the City against losses, costs, claims, suits, actions, damages, liabilities, and expenses that arise exclusively from the gross negligence or willful misconduct of the City. This Section 8 shall survive the expiration or earlier termination of this Agreement.

B. In consideration of the Permit extended to Permittee by this Agreement, Permittee, and for Permittee's its contractors, and invitees and all persons claiming through any of them (collectively, including Permittee the "Releasing Parties") do hereby remise, quitclaim, release and forever discharge, the City, its departments, commissions, boards, officers, employees or agents, from any and all, and all manner of, actions and causes of action, suits, claims, and demands whatsoever in law or in equity which the Releasing Parties may have against the City its departments, commissions, boards, officers, employees or agents, relating in any way whatsoever to any condition on the Pedestrian Plaza Location, or relating in any way to Permittee's entry onto the Pedestrian Plaza Location, or Permittee's use of the Pedestrian Plaza Location. Permittee voluntarily assumes all risk of loss, damage, or injury, including death that may be sustained by the Permittee, its contractors, or invitees, while in, on or about the Permitted Property. This Section 8 shall survive the expiration or earlier termination of this Agreement.

7. <u>Relocation: Termination of this Agreement.</u>

A. <u>Relocation</u>. Permittee understands and agrees that it shall, upon request of the City, remove the Pedestrian Plaza Location, property including chairs, tables, or other structures, either publicly or privately owned, and that Permittee will absorb all costs and expenses necessary for the performance of such relocation work.

B. <u>Termination</u>.

i. Both the City and Permittee may terminate this Agreement upon thirty (30) days written notice to the non-terminating party at any time, with or without cause. Permittee shall further agree that upon receipt of such notice from the City, Permittee shall vacate the Pedestrian Plaza and leave it in a clean condition, clear of all property and debris and restore the Pedestrian Plaza Area to the satisfaction and approval of the City within thirty (30) days after receiving such notice. The City shall not be liable to Permittee for any compensation, reimbursement or other expenses related to this Agreement.

ii. Permittee agrees that in the event the Pedestrian Plaza is not removed from the Pedestrian Plaza Area and/or if the Pedestrian Plaza Area is not restored to its original condition, the City shall have the right and privilege, at its option, of removing said Pedestrian Plaza, and restoring the footway to its original condition and in event of the City so doing, Permittee shall pay to the City, within thirty (30) days written notice or demand, the costs expended by the City in such removal and/or restoration.

8. <u>Miscellaneous</u>.

A. <u>Governing Law</u>. This Agreement shall be governed in accordance with the laws of the Commonwealth of Pennsylvania. The parties to this Agreement agree to submit to the jurisdiction of the courts, whether federal or state, located in Philadelphia, Pennsylvania.

B. <u>Assignment</u>. Permittee must not transfer, assign, hypothecate, or sub-permit all or any part of its interest under this Agreement without the prior written consent of the City. Subject to the preceding sentence, this Agreement will be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns. Nothing in this Agreement may be construed to mean that the City gives its consent to Permittee to sub-permit this Agreement to another party.

C. <u>Amendment.</u> This Agreement may only be amended, modified or supplemented by an agreement in writing signed by City and Permittee.

D. <u>Headings</u>. The headings in this Agreement are for convenience only and are not a part of this Agreement. The headings do not in any way define, limit, describe or amplify the provisions of this Agreement or the scope or intent thereof.

E. <u>Survival</u>. Any and all agreements set forth in this Agreement which, by its or their nature, would reasonably be expected to be performed after the expiration or earlier termination of this Agreement shall survive and be enforceable after the expiration or earlier termination of this Agreement. Any and all liabilities, actual or contingent, which shall have arisen during the Term, shall survive any termination of this Agreement.

Sample Letter of Support

The following represents a sample letter of support from an adjacent property owner. Applicants are not required to use the exact language below.

Date

Office of Transportation & Infrastructure Systems Suite 1430 1401 JFK Blvd Philadelphia, PA 19102

To Whom It May Concern:

I am the owner of _____ [address and/or entity] and I am writing this letter in support of the pedestrian plaza proposed for _____.

I have met with _____ [proposed permittee] and understand the rules and special conditions governing the placement and operation of pedestrian plazas in Philadelphia.

I am excited to see a pedestrian plaza appear in my neighborhood. If you have any questions, please contact me at_____.

Sincerely,

Insurance Requirements

The City's Risk Management Office requires permittees to maintain adequate insurance for pedestrian plazas. The City's insurance requirements, listed below as an excerpt from the Permit Special Conditions, are considered to be industry standards for non-profits and small businesses. It is not intended for these requirements to necessitate the purchase of additional insurance. If you are unsure whether your policy meets the precise specifications below, please contact the Pedestrian Plaza Program Manager to see if you are covered sufficiently by other components of your insurance policy.

When submitting a certificate of insurance, make sure that:

- The certificate is issued to the City of Philadelphia (1515 Arch Street 14th Floor, Philadelphia 19102);
- The name of the insured matches the name of the Permittee;
- The certificate states that the pedestrian plaza, clearly identified by its location, is covered by the policy;
- The certificate states that the City of Philadelphia, its officers, employees, and agents are named as additional insureds on the General Liability Insurance Policy, and that such coverage afforded the City and its officers, employees and agents as additional insureds will be primary to any coverage available to them (see below).

If you have any questions, or would like to see a sample certificate of insurance filled out to required specifications, please contact the pedestrian plaza program manager.

The following is excerpted from the City's Pedestrian Plaza Special Conditions:

5. **Insurance.** At all times during the Term of this Agreement, the Permittee shall maintain procure and maintain insurance in the types and amounts as specified below.

Permittee shall, at its sole cost and expense, procure and maintain in full force and effect, for the Term of the Permit Agreement, covering its obligations under this Agreement, the types and minimum limits of insurance specified below. All insurance shall be procured from reputable insurers authorized to do business in the Commonwealth of Pennsylvania and acceptable to the City. All insurance required herein shall be written on an "occurrence" basis and not a "claims-made" basis.

(i) WORKERS COMPENSATION AND EMPLOYERS

LIABILITY

- (a) Workers Compensation: Statutory limits
- (b) Employers Liability: \$100,000 each Accident Bodily Injury by

Accident; \$100,000 Each Employee - Bodily Injury by Disease; and

\$500,000 Policy Limit -Bodily Injury by Disease.All States coverage and Pennsylvania Endorsement.

(ii) GENERAL LIABILITY INSURANCE

(a) Limit of liability: \$1,000,000 per occurrence combined single limit for bodily injury (including death) and property damage liability;

(b) Coverage: Premises operations; blanket contractual liability; personal injury liability (employee exclusion deleted); products and completed operations; independent contractors; employees and volunteers as insureds; cross liability; and broad form property damage (including loss of use) liability.

(iii) AUTOMOBILE LIABILITY INSURANCE

(a) Limit of Liability: \$1,000,000 per occurrence combined single limit for bodily injury (including death) and property damage liability.

(b) Coverage: Owned, hired and non-owned vehicles.

The City of Philadelphia, its officers, employees, and agents, shall be named as additional insureds on the General Liability Insurance Policy. Also, an endorsement is required stating that the coverage afforded the City and its officers, employees and agents as additional insureds will be primary to any coverage available to them. The City reserves the right to require Permittee to furnish certified copies of the original policies of all insurance required hereunder at any time upon ten (10) days prior written notice to Permittee. All such policies shall include an endorsement stating that the coverage afforded to these parties as additional insureds will be primary to any other coverage available to them.

Certificates of insurance evidencing the required coverage shall be submitted to the City of Philadelphia, 1515 Arch Street, 14th Floor, Philadelphia, Pennsylvania 19102). Permittee shall furnish certified copies of the original policies of all insurance required under this Agreement, at any time, within ten (10) days after written request by the City.

All insurance policies shall provide for a least thirty (30) days prior written notice to be given to the City in the event coverage is materially changed, cancelled, or not renewed. At least ten (10) days prior to the expiration of each policy, Permittee shall deliver to the City a Certificate of Insurance evidencing a replacement policy to become effective immediately upon the termination of the previous policy.

The insurance requirements set forth herein shall in no way be intended to modify, limit or reduce the indemnifications made in this Agreement by Permittee to City, its officers, employees, and agents, or to limit Permittee's liability under this Agreement to the limits of the policies of insurance required to be maintained by Permittee hereunder.

Pedestrian Plaza Application Checklist

Location Approval

Pedestrian Plaza Application Form	
Site Map	
Site Photographs	
Letters of Support: Adjacent Property Owners	

Design Approval

Pedestrian Plaza Designs	
--------------------------	--

Community Support

Letter of Support: District Councilperson (optional)	
Petition or Demonstration of Community Support	

Final Approvals

Certificate of Insurance	
Street Closure Permit Application	

CANAL URBANISM MODULE

A guide and SmartCode module on how to build adjacent to canals, by Dan Bartman. (More modules are available.)

CANAL URBANISM SmartCode Module

PREPARED BY DAN BARTMAN

Where the conflicting influences of man and nature meet a harmonious silence reigns - perceived in the water's surface reflecting the vertical and horizontal lines it seems to support.

Umberto Franzoi

SMARTCODE MODULE - CANAL URBANISM

This SmartCode Module establishes Waterside standards for Civic Zones and Civic Spaces, Public Frontages and Private Frontages, Thoroughfares, and the configuration of private lots adjacent to canals and canalized rivers for SmartCode-based jurisdictions. This text of the module should be inserted in the base code with subsequent sections properly renumbered. If the Module is used for the Neighborhood Conservation Code, the numbers and placement of tables will be different. Both templates may be downloaded as freeware at www.transect.org.

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

1.4 PROCESS

1.4.X

The success of development that encroaches close to a canal is dependent upon a good relationship between developers and city officials and the agency with authority over the waterway. Including a conditional representative from this organization on the Consolidated Review Committee for waterside projects should remove the need for any supplementary review.

3.5.X WATERSIDE CIVIC ZONES 3.5.X.a.i

Waterside Civic Zones should always include Waterside Civic Frontage along the entire extent of a canal. When this frontage type is used as part of a coordinated system, a canal will function as part of the pedestrian network of an urban or rural area. Because this module is Transect-based, the Waterside Civic Frontage can adjust to the context of surrounding urbanism and serve different needs.

3.5.X.b.i

Waterside Civic Frontage, a type of Public Frontage, is civic in nature because the adjacent waterbody attracts pedestrian activity, provides civic views of the city and can in most cases be used for recreational activities. It can be understood as the interface between two environments, one urban and one aquatic.

3.5.X.b.iii

Waterside Civic Frontage normally features some type of wood, metal or stone railing, parapet, columns or bollards, or change in pavement type along the Bulkhead or embankment of a Canal that allows for the encroachment of urban features while taking into consideration the safety of pedestrians.

3.5.X.d.iii

It is common for businesses or even residents to place cafe table and chairs in the walkway of Waterside Civic Frontage. This should not be discouraged, yet permitted only where appropriate. A 5' sidewalk cannot support cafe seating while at the same time accommodating movement along the water.

SMARTCODE MODULE

Municipality

ARTICLE 1. GENERAL TO ALL PLANS

- PROCESS 1.4
- 1.4.X Waterside projects adjacent to Canals may be subject to supplementary review by the appropriate Local, State or Federal Water Authority.

ARTICLE 3. NEW COMMUNITY SCALE PLANS

SEQUENCE OF COMMUNITY DESIGN 3.2

Canal standards shall be laid out according to Section 3.X. 3.2.X

CIVIC ZONES 3.5

- 3.5.3 CIVIC SPACE (CS) SPECIFIC TO T3-T6 ZONES
 - f. Each Civic Space shall have a minimum of 50% of its perimeter enfronting a Thoroughfare or Canal, except for playgrounds.
- 3.5.X WATERSIDE CIVIC ZONES
 - a. General to all zones T1, T2, T3, T4, T5, T6
 - Waterside Civic Zones dedicated for public use shall be required for all Plan as Waterside Civic Frontage (WCF), Civic Space (CS), and the Canal
 - ii A Waterside Civic Zone may be permitted by Warrant if it does not occupy more than 20% of a Pedestrian Shed, otherwise it is subject to the creation of a Special District. See Section 3.6.
 - Waterside Civic Zones may count toward the Civic Space requirements of iii.

- Waterside Civic Frontage contributes to the character of the waterfront in each Transect Zone and includes the types of Sidewalk, Curb, Planter and trees.
- The Sidewalk of Waterside Civic Frontage shall be designed for use by ii. pedestrians, shall provide access to Lots and Open Spaces, and shall facilitate movement along the waterfront.
- Waterside Civic Frontage shall provide appropriate infrastructure as a iii. access to, the water.

C. WATERSIDE CIVIC FRONTAGE (WCF) SPECIFIC TO ZONES T4, T5, T6

- Waterside Civic Frontage and Waterside Private Frontage shall be Warrant.
- A new Community Plan may designate Mandatory and/or Recommended ii. Retail Frontage for Lots abutting Waterside Frontage.

d. WATERSIDE CIVIC FRONTAGE DESIGN STANDARDS

- allocated within Transect Zones as specified in Table 14x.
- The Sidewalk of Waterside Frontage shall be constructed of non-slip paving ii. materials at a constant elevation, and shall be accessible to handicapped persons throughout the entire length of the waterfront.

Canals within a Community Unit and designated on the New Community

Article 3 by Warrant. If the Canal itself is not available for public boating, swimming or fishing, its area would be excluded from the calculation.

b. WATERSIDE CIVIC FRONTAGE (WCF) GENERAL TO ALL ZONES T1, T2, T3, T4, T5, T6

safety feature to alert pedestrians to the presence of, or impede direct

considered Coordinated Frontage with a single coherent landscape and pavement design. (See Section 5.7). Exemptions are granted by

Waterside Civic Frontage shall be designed as shown in Table 4a and

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

3.5.X.d.vi

If a railing, wall or similar feature is provided as a safety feature in the Waterside Frontage, it may be designed without a flat surface at its top to prevent people and objects from being knocked into the water. This decision should be locally calibrated.

3.7.1 THOROUGHFARE STANDARDS 3.7.1.f

Thoroughfares that terminate at canals must be carefully designed. While they provide views of the canal or waterway for certain lots, the lack of a bridge crossing would create a dead end unless connection to a Waterside Thoroughfare is also supplied.

3.7.1.g

This permits three options for the disposition of private lots along canals. Lots may either directly enfront a canal, Waterside Civic Frontage, or a Thoroughfare. Lots enfronting Waterside Civic Frontage recreate examples from Venice, Italy; San Antonio, Texas, and Los Angeles, California. An appropriately scaled thoroughfare may be disposed between the canal and private lots, recreating the urban form of Amsterdam; New Town St. Charles, Missouri, and St. Petersburg, Russia. Finally, lots may be disposed so as to directly enfront an canal, although this is not recommended practice.

3.7.1.k

The percolation of water behind a canal Bulkhead or embankment threatens the structural integrity of the canal.

3.7.3 PUBLIC FRONTAGES

3.7.3.a.iv

When a Thoroughfare is adjacent to the embankment or bulkhead of a canal, its Public Frontage adjacent to the canal is considered part of the Waterside Civic Frontage and held to the same standards.

3.X CANAL STANDARDS

3.X.1.a

"Variable" is used here in place of the multiple types of canals that exist. The term should be replaced by a locally calibrated identification. Most canal types will support urban activity along their banks, save for irrigation canals and canals used for heavy shipping and ocean-scaled vessels. These two types are identified as Class 2 and Class 3 Canals, and would have separate regulations. Standards in the calibrated code must not conflict with them.

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- iii Obstructions to movement that reduce the clear width of the Sidewalk shall be approved by Warrant.
- iv. In the absence of a Waterside Buffer or Tree Lawn, the Sidewalk shall have a slight grade away from the Waterside edge to direct storm water away from the Canal.
- v. Within the Waterside Civic Frontage, the prescribed types of Public Planting by Warrant to accommodate specific site conditions.
- The top of any railing should be at a constant elevation for the length of vi. the Waterside Frontage
- vii. If called for by Table 4a Waterside Civic Frontage or Table 13 Waterside Frontage shall conform to the standards of Section 3.7.3.
- viii. Waterside Civic Frontage may function as a quay or dock with the provision bulkhead or embankment.

e. WATERSIDE CIVIC SPACE (CS) GENERAL TO ALL ZONES T1, T2, T3, T4, T5, T6

- Waterside Civic Spaces shall be generally designed as described in Table 13a.
- ii. Civic Space shall carry the design of adjacent Waterside Civic Frontage across its extent.

3.7 THOROUGHFARE STANDARDS

3.7.1 GENERAL

- f. All Thoroughfares shall terminate at other Thoroughfares, forming a network. Internal Thoroughfares shall connect wherever possible to those on adjacent sites. Thoroughfares terminating at a Canal and Cul-de-sacs shall be subject to approval by Warrant to accommodate specific site conditions only.
- g. Each Lot shall Enfront a vehicular Thoroughfare, Waterside Frontage or Canal, except that 20% of the lots within each Transect Zone may Enfront a Passage. k. Drainage Swales along Waterside Thoroughfares are permitted by Warrant.
- 3.7.3 PUBLIC FRONTAGES

a. General to all zones T1, T2, T3, T4, T5, T6

iv. The Public Frontage of Waterside Thoroughfares that Enfront a Canal shall be considered Waterside Civic Frontage subject to the prescriptions of Section 3.5.x.

CANAL STANDARDS 3.X

- GENERAL TO ALL ZONES T1, T2, T3, T4, T5, T6 3.X.1
 - a. There shall be three classes of Canals: Class 1 Variable, Class 2 Irrigation, and Class 3 Shipping.
 - the distance of any utility or maintenance Easement maintained by Water Authority.
 - ii. The utility or maintenance Easement of Class 2 Irrigation Canals may be used for authorized pedestrian activities by Variance only.
 - iii

and Public Lighting shall be shown in Table 4a. Spacing may be adjusted

Civic Space, landscape and tree plantings within the Waterside Civic

of boat or ship mooring infrastructure as part of the Waterside Frontage,

Where it does not feature its own design for the waterfront, Waterside

The Waterside Frontage along Class 2 Irrigation Canals shall be set back

Class 3 Shipping Canals shall have a 150 foot wide Buffer on each side.

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- operations infrastructure which shall be zoned as a Special District.
- b. Boats moored or anchored along the embankment or Bulkhead of a Canal shall not take up more than 20% of the Canal width measured at the water's surface.
- c. Boats shall not moor or anchor longer than 12 hours at a Public Mooring Area.
- d. Space to moor or anchor a boat shall not be offered for rent along any unimproved lot abutting any Canal.
- e. Installation of water features within the Right-of-Way of Class 1 Canals shall be permitted by Warrant.

ARTICLE 5. BUILDING SCALE PLANS

- 5.7 **BUILDING CONFIGURATION**
- 5.7.1 GENERAL TO ZONES T2, T3, T4, T5, T6
 - x. The Private Frontage of buildings on Waterside Lots and Lots adjacent to Waterside Civic Frontage shall conform to and be allocated in accordance with Table 7a, Table 14j, and Section 5.x: Waterside Private Frontage Design Standards.
 - x. Waterside Lots disposed between a Thoroughfare and Waterside Civic Frontage shall have a Principal Frontage facing the Thoroughfare and a Secondary Frontage facing the water, as shown in Table 17x.
 - x. Corner Lots Enfronting both a Thoroughfare and a Canal shall provide a handicapped accessible pedestrian connection from the Public Frontage of the Thoroughfare to the Waterside Civic Frontage along the Canal.

WATERSIDE PRIVATE FRONTAGE DESIGN STANDARDS 5.x

- 5.X.1 SPECIFIC TO ZONES T4, T5, T6
 - a. A secondary entrance shall be provided for all buildings with a Waterside Secondary Frontage.
 - b. Waterside Private Frontage and building Facades should emphasize spatial connections among the building, the Waterside Civic Frontage, and the Canal

5.7 BUILDING CONFIGURATION 5.7.1.x

The best example of lots in this situation is along the Riverwalk in San Antonio, Texas. The more formalized Primary Frontages of buildings face the street, while the more 'natural' and informal Secondary Frontages face the Riverwalk.

5.7.1.x

The Waterside Civic Frontage is often at a different elevation from the Public Frontage of corner Lots that enfront both a Thoroughfares and a Canal. This condition is present when, for example, the Waterside Civic Frontage continues under a bridge that crosses over a Canal. This provision ensures a connection between the two public walkways and is required even when a Thoroughfare terminates at the Canal. Along the San Antonio Riverwalk, this connection is either an elevator or a ramp.

5.X WATERSIDE PRIVATE FRONTAGE DESIGN STANDARDS

Additional design standards may be added to this section as desired. Some of the descriptions from Table 7 of this Module may be adapted or expanded to become regulatory.

5.X.1.b

This statement is advisory. It is intended to create active facades along the canal waterfront.

Buffers shall be maintained free of structures or other modification to the natural landscape, including agriculture, with the exception of Canal

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TABLE 4A: Waterside Civic Frontage (adjacent to Lots). Waterside Civic Frontage is the area between the private Lot line and the edge of a Canal. The diagrams of this table are only illustrative; specific designs would be prepared in accordance with individual sites. The text describes the general character of the type. It may be adapted as either Definitions or regulatory standards if desired.

b. Boardwalk: characterized by wooden or similarly styled planking; ofte
A standard boardwalk is built on land with railings on one or both side positioned above a Bulkhead or embankment, but occasionally may e

sharadici of the type. It may be adapted as entre Deminions of regulatory standards in desired.	PLAN
	LOT ► < CANAL R.O.W. PRIVATE FRONTAGE ► < WATERSIDE FRONTAGE
a. Waterside Path: a beaten Path, cinder trail, or paved walkway. May consist of natural vegetation in simple planter strips or a significant Waterside Buffer along the water.	T1 T2 T3 T4
b. Boardwalk: characterized by wooden or similarly styled planking; often on pilings or floating on pontoons. A standard boardwalk is built on land with railings on one or both sides of the walkway and is generally positioned above a Bulkhead or embankment, but occasionally may extend over the water.	T1 T4 T5 T6
c. Waterside Planter: features a Sidewalk and individual or continuous Waterside Planters and a metal, wood or stone railing, parapet, columns or bollards, and/or a change in pavement along the water. Landscaping consists of trees of a single or alternating species aligned in a regularly spaced Allee.	T3 T4 T5 T6
d. Frontage Line Planter : features a Sidewalk, individual or continuous planters along the Frontage Line, and a metal or stone railing, parapet, columns or bollards, and/or a change in pavement along the water. Landscaping consists of trees of a single or alternating species aligned in a regularly spaced Allee, sometimes with other plantings.	· T4 · T5 · T6
e. Waterside Tree Wells: features a Sidewalk, Waterside Tree Wells, and a metal or stone railing, parapet, columns or bollards, and/or a change in pavement along the water. Landscaping consists of trees of a single or alternating species aligned in a regularly spaced Allee.	E T4 T5 T6
f. Canalwalk: features a wide to very wide Sidewalk and a metal, wood or stone railing, parapet, columns or bollards, and/or a change in pavement along the water. May be combined with a Gallery or Arcade Private Frontage.	T4 T5 T6

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

TABLE 4A - WATERSIDE CIVIC FRONTAGE(ADJACENT TO THOROUGHFARES)

This table indicates parking on the side of the thoroughfare opposite the Waterside Civic Frontage (WCF). In lower Transect Zones and where the WCF is relatively narrow, parking will mainly serve the residents of the block and is thereby more useful on the building side. In addition, when the side along the WCF is free of parked cars, the view to the water is more accessible for those passing by, whether by car, transit, bicycle, or foot. To retrofit an overwide thoroughfare, a bikeway may occupy a portion of the vehicular lane along the WCF. Onstreet parking on both sides, with or without a bikeway, facilitates traffic calming if justified by the housing density.

In higher T-zones, especially T-5 and T-6, the Waterside Civic Frontage is more likely to serve as a Common Destination, attracting visitors from outside the neighborhood and region, for recreation and events. In some cases, the WCF (or Waterside Civic Space as shown on Table 13A) may face a one-sided mixed-use shopping street, or larger mixed-use zone, where onstreet parking is important to serve multiple uses.

For more complex combinations of travel modes in combination with Public Frontages, refer to the Complete Thoroughfares, Transit-Oriented Development, and Bicycling Modules at www.transect.org.

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TABLE 4A: Waterside Civic Frontage (adjacent to Thoroughfares). This Public Frontage type adjacent to a Thoroughfare is considered part of the Canal Right-of-Way. The diagrams of this table are only illustrative; specific designs would be prepared in accordance with individual sites. The text describes the general character of the type. It may be adapted as either definitions or regulatory standards if desired.

g. Buffer: a vegetative Waterside Civic Frontage acting as a Buffer betwee Spaces and the Bulkhead or embankment of the Canal. Landscaping consi species aligned in a regularly spaced allee or arrayed in naturalistic clus include a metal, wood or stone railing, parapet, and/or columns or bol opposite the Waterside Frontage, on the building side.

h. Double Planter: features a central Walkway, a continuous Planter along Planter, and a metal, wood or stone railing, parapet, columns or bollards, the water. Landscaping consists of street trees of a single or alternating sp Allee. Onstreet parking is usually opposite the Waterside Civic Frontage

i. Curbside Planter: features a Sidewalk, a continuous Planter along the parapet, columns or bollards, and/or a change in pavement along the wa trees of a single or alternating species aligned in a regularly spaced opposite the Waterside Civic Frontage in lower Transect Zones, on the

j. Curbside Tree Wells: features a Sidewalk, Tree Wells along the Curb, ar columns or bollards, and/or a change in pavement along the water. Land a single or alternating species aligned in a regularly spaced Allee. Ons two-sided in higher Transect Zones.

k. Canalwalk: features a wide to very wide Sidewalk and a metal or stone ra and/or a change in pavement along the water. Onstreet parking may b Transect Zones.

		PLAN
	THOROUGHFARE R.O.W.	 WC FRONTAGE CANAL R.O.W.
een a Thoroughfare, Lots, or Open sists of trees of a single or alternating sters in more rural conditions. May Ilards. Onstreet parking is usually		• T2 T3 • T4
g the Curb, a continuous Waterside and/or a change in pavement along becies aligned in a regularly spaced e, on the building side.		T2 T3 T4
Curb, and a metal or stone railing, ater. Landscaping consists of street Allee. Onstreet parking is usually building side.		• T3 • T4 • T5
nd a metal or stone railing, parapet, dscaping consists of street trees of treet parking may be one-sided or		 T4 T5 T6
ailing, parapet, columns or bollards, e one-sided or two-sided in higher		T5 T6

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TABLE 7A: Waterside Private Frontages. The Private Frontage is the area between the building Facades and the Lot lines. The diagrams of this table are only illustrative; specific designs would be prepared in accordance with individual sites. The text is explanatory only. It may be adapted as either definitions or regulatory standards if desired.

а.	Yard & Private Dock: a planted Frontage wherein the Facade is set to from the Frontage Line with an attached porch permitted to encroach. In presence of adjacent yards, the front yard remains unfenced and is visu continuous with the adjacent yards, supporting a common landscape private dock provides space for the mooring of boats and may be par or perpendicular to the shoreline.
р.	Waterside Yard & Fence: a planted Frontage wherein the Facade is back from the Frontage Line to provide a yard and is separated from Sidewalk with a short wall, fence or shrub row that provides spatial defin to the Waterside Frontage.
с.	Waterside Patio & Fence: the Facade is set back from the Frontage Lir provide a patio and is separated from the Sidewalk with a short wall, fe or shrub row that provides spatial definition to the Waterside Frontage
.t	Waterside Terrace: the Facade is set back from the Frontage Line b elevated Terrace. This type buffers Residential use from urban Sidew and removes the private yard from public encroachment. A short wall, fe or shrub row may be present to provide spatial definition to the Water Frontage. The Terrace type is suitable for conversion to outdoor cafes
э.	Direct Stoop: the Facade is aligned directly along the Frontage Line, adja to the shoreline of a Canal. The entrance to the building is accessed exterior steps and/or a landing or dock encroaching into the water.
	Zaguan: the Facade is aligned directly along the Frontage Line, adja to the shoreline of a Canal. A private passage leads into the buil providing access to internal doors and/or a Thoroughfare, Alley, Pass on the opposite side of the building or a Courtyard internal to the Bl The entrance to the building is accessed by exterior steps and/or a lan or dock encroaching into the water.
g.	Private Portal: a colonnade-supported habitable space that overlaps Setback of the Facade of the first Story, which remains behind the From Line. The portal is accessed by exterior steps encroaching into the wa



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TABLE 13A: Waterside Civic Space. The intended types of Waterside Civic Space are diagrammed and described in this Table. The diagrams are only illustrative; specific designs should be prepared in accordance with individual sites. The text describes the general character of the type. It may be adapted as either definitions or regulatory standards if desired.

public art are often located at the center of the basin.
b. Waterside Square: an open space available for unstructured recreatio Square is normally defined on two sides by building Frontages. Its lands

and trees, formally disposed. Waterside Square disposition serves to provide pedestrian connectivity between the Public Frontage of a nearby Thoroughfare and the Waterside Frontage along a Canal. Public art is located at the center, most likely a water feature.

c. Cross Water Odeon: an open space available for unstructured recreation and Civic purposes. A Cross Water Odeon utilizes both banks of a Canal and is spatially defined by buildings or landscape and vegetation. An audience side of terraced seating directs pedestrian attention toward a stage or civic building across the water. Landscape shall consist primarily of pavement. The stage side functions as performance space and may encroach over the water 20% of the width of the water body.

d. Waterside Plaza: an open space available for Civic Purposes and commercial activities. A Waterside Plaza is normally defined on two sides by building Frontages. Its landscape shall consist primarily of pavement. Waterside Plaza disposition serves to provide pedestrian connectivity between the Public Frontage of a nearby Thoroughfare and the Waterside Frontage along a Canal. Public art is located at the center, most likely a water feature.

e. Waterside Staircase: a space designed to facilitate pedestrian movement from one elevation to another. Civic Staircases always face the water and pedestrians should not be prevented from using the steps as seating space for unstructured recreation. Well-designed staircases provide steps and landings for sitting and steps for traffic flow. Waterside Staircases serve to connect the Waterside Frontage along a Canal or the edge of the water to adjacent Civic Spaces or Lots found at a different elevation.



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TABLE 13: Waterside Civic Space The intended types of Waterside Civic Space are diagrammed and described in this Table. The diagrams are only illustrative; specific designs should be prepared in accordance with individual sites. The text describes the general character of the type. It may be adapted as either definitions or regulatory standards if desired.

f. Waterside Greenway: a linear Civic Space enfronting a Canal or other waterbody, available for unstructured recreation and spatially defined by landscape rather than building Frontages. Usually includes shared use Paths and a Buffer along the Bulkhead or embankment. It may connect with more urban Promenades or Esplanades, and may feature periodic Viewing Stations for overlooking the water.

g. Promenade: a controlled pedestrian sequence designed to be an aesthetic experience. A Promenade is sometimes covered or screened from the sun and may feature periodic Viewing Stations for overlooking the water. Design elements are formally disposed.

h. Esplanade: a controlled pedestrian sequence similar in function to a Promenade that features adjacent or integrated Plazas, Squares, Bikeways and/or in rare cases a vehicular Thoroughfare. Esplanades are more significant in design and width than Promenades. See Promenade.



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Note: All requirements in this Table are subject to calibration for local context.



Waterside Greenway	permitted	permitted	permitted	permitted	not permitted	not permitted
Civic Basin	not permitted	not permitted	not permitted	permitted	permitted	permitted
Waterside Square	not permitted	not permitted	not permitted	permitted	permitted	permitted
Promenade	not permitted	not permitted	not permitted	permitted	permitted	permitted
Esplanade	not permitted	not permitted	not permitted	permitted	permitted	permitted
Cross Water Odeon	not permitted	not permitted	not permitted	not permitted	permitted	permitted
Waterside Plaza	not permitted	not permitted	not permitted	not permitted	permitted	permitted
Waterside Staircase	not permitted	not permitted	not permitted	not permitted	permitted	permitted
f. WATERSIDE CIVIC FRONTA	GE (see Table 13b)					
Waterside Path	permitted	permitted	permitted	permitted	not permitted	not permitted
Buffer	not permitted	permitted	permitted	permitted	not permitted	not permitted
Double Planter	not permitted	permitted	permitted	permitted	not permitted	not permitted
Curbside Planter	not permitted	not permitted	permitted	permitted	permitted	not permitted
Waterside Planter	not permitted	not permitted	permitted	permitted	permitted	permitted
Boardwalk	permitted	not permitted	not permitted	permitted	permitted	permitted
Frontage Line Planter	not permitted	not permitted	not permitted	permitted	permitted	permitted
Curbside Tree Wells	not permitted	not permitted	not permitted	permitted	permitted	permitted
Waterside Tree Wells	not permitted	not permitted	not permitted	permitted	permitted	permitted
Canalwalk	not permitted	not permitted	not permitted	not permitted	permitted	permitted
j. PRIVATE FRONTAGES (see	Table 7)					
Yard & Private Dock	not permitted	permitted	permitted	not permitted	not permitted	not permitted
Walled or Fenced Yard	not permitted	not permitted	permitted	permitted	not permitted	not permitted
Patio & Fence	not permitted	not permitted	permitted	permitted	not permitted	not permitted
Full Terrace	not permitted	not permitted	not permitted	permitted	permitted	not permitted
Waterside Stoop	not permitted	not permitted	not permitted	permitted	permitted	not permitted
Waterside Zaguan	not permitted	not permitted	not permitted	permitted	permitted	not permitted
		not normitted	not normitted	normitted	normitted	not normitted

TABLE 14. SMARTCODE SUMMARY

permitted	permitted	not permitted	not permitted
not permitted	permitted	permitted	permitted
not permitted	permitted	permitted	permitted
not permitted	permitted	permitted	permitted
not permitted	permitted	permitted	permitted
not permitted	not permitted	permitted	permitted
not permitted	not permitted	permitted	permitted
not permitted	not permitted	permitted	permitted

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

TABLE 17 DEFINITIONS ILLUSTRATEDA. Lot Layers and Frontages

ii. Lots Enfronting Waterside Civic Frontage and a Thoroughfare

Lots disposed between a Thoroughfare and Waterside Civic Frontage feature a Principal Frontage of higher pedestrian importance toward the Thoroughfare and a Secondary Frontage of lesser pedestrian importance toward the waterbody. In the base SmartCode, parking is permitted in the second and third layers of most Transect Zones; this may require further regulation in the calibration if parking visible from the Waterside Civic Frontage compromises the civic experience.

B. Waterside Civic Frontage Sections

i. Lots Enfronting Waterside Thoroughfares

On occasion the civic nature of the waterbody attracts so much attention and use that adjacent thoroughfares can be temporarily claimed as Civic Space themselves, blocked off for festivals, races, or just car-free zones. For example, MLK Drive along Philadelphia's Schuylkill River is closed to automobile traffic for a 4-mile stretch every weekend most of the year. Such temporary Civic Space should not count toward the Civic Space minimum in Article 3.

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A. LOT LAYERS AND FRONTAGES

i. Lots Enfronting a Waterside Thoroughfare



ii. Lots Enfronting Waterside Civic Frontage and a Thoroughfare



iii. Lots Enfronting Waterside Civic Frontage



B. WATERSIDE CIVIC FRONTAGE SECTIONS

i. Lots Enfronting a Waterside Thoroughfare (Class 1 Canal)



ii. Lots Enfronting Waterside Civic Frontage (Class 1 Canal)



iii. Lots Enfronting Waterside Civic Frontage (Class 2 - Irrigation Canal)



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ARTICLE 7. DEFINITIONS OF TERMS

Basin: an area alongside or at the end of a Canal, wider than the general width of the Canal, designed for the mooring or turning of boats without impeding the progress of other water traffic. **Bulkhead:** a retaining wall or riprap revetment constructed along a shoreline to control scour, water and ice erosion.

Buffer: a vegetated area, including trees, shrubs, and/or other herbaceous vegetation, that exists or is established to protect a stream system, lake, reservoir, coastal estuarine area or Canal. **Canal:** an artificial linear waterway or artificially improved river used for travel, recreation, shipping, or irrigation that is between 20 and 300 feet in width. **Civic Basin:** a Civic Space type for unstructured recreation, enfronting a Basin. **Cross Water Odeon:** a Civic Space type enfronting both banks of a Canal for Civic purposes and public theatrical productions.

Esplanade: a controlled pedestrian sequence designed to be an aesthetic experience. Esplanades are more significant in design and width than Promenades. See Promenade. Frontage, Principal: the Frontage facing the public space such as a Thoroughfare or Canal of higher pedestrian importance and designated to bear the address and the Principal Entrance to the Building.

Frontage, **Secondary**: the Frontage facing the public space such as a Thoroughfare or Canal that is of lesser pedestrian importance.

Frontage Line: a Lot line bordering a Public Frontage, Waterside Frontage, or Canal. Facades facing Frontage Lines define the public realm and are therefore more regulated than the Elevations facing other Lot lines. See Table 17.

Promenade: a controlled pedestrian sequence designed to be an aesthetic experience. Public Mooring Area: a publicly accessible embankment or Bulkhead for the mooring or anchoring of boats.

Viewing Station: a platform, deck or bumpout for scenic viewing. Waterside: adjacent to a Canal or other waterbody. Waterside Civic Frontage: the area dedicated for public use between the Curb of a Vehicular Lane and the Bulkhead or embankment of a Canal, or between a Frontage Line and the Bulkhead or embankment of a Canal.

Waterside Civic Space: Open Space ded Canal or other waterbody.

Waterside Greenway: a linear Civic Space type enfronting a Canal or other waterbody, available for unstructured recreation and non-vehicular commuting. Waterside Staircase: a Civic Space type enfronting a Canal or other waterbody that provides pedestrian movement from one elevation to another, unstructured recreation, and/or audience seating on steps.

Zaguan: a Private Frontage featuring an entryway passage leading to internal doorways for one or more private residences.

Waterside Civic Space: Open Space dedicated as a publicly accessible waterfront including a

FIRE MITIGATION IN WILDLANDS

A SmartCode module for community fire breaks, courtesy of Martin Dreiling.

FIRE MITIGATION IN THE WILDLAND URBAN INTERFACE SMARTCODE MODULE

PREPARED BY DREILING TERRONES ARCHITECTURE, MARTIN DREILING

To study fire is to inquire into one of the informing processes of the earth. To manage fire is to perform one of the defining acts of human beings. That, distilled, is the sufficient and necessary reason to understand fire.

Steve Pyne 1996

SMARTCODE MODULE Municipality

GENERAL TO ALL PLANS

FIRE HAZARD ASSESSMENT FIRE HAZARD MITIGATION MEASURES

REGIONAL SCALE PLANS

SET ASIDE LANDS SECTOR DESIGNATIONS.....

COMMUNITY SCALE PLANS

SET ASIDE LANDS COMMUNITY UNIT TYPE TRANSECT ZONES..... THOROUGHFARE STANDARDS

BUILDING SCALE PLANS

BUILDING DISPOSITION BUILDING FUNCTION

TABLES

FM-1. COMMON ZONE OF DEFENSE: FUEL TREATM FM-2. COMMON ZONE OF DEFENSE: COMMUNITY FM-3. CONVERSION OF THE WUI TO AUI

DEFINITIONS OF TERMS

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FIRE MITIGATION

IN THE WILDLAND URBAN INTERFACE **SMARTCODE MODULE**

This Module should be used for any planning area that includes Fire Hazard Severity Zones or equivalent. Such zones should be identified for each state. The information should be available from state or local agencies that deal with fire protection.

The term "Fire Hazard Severity Zone" should be changed to the terminology used by the regulating body.

Many local jurisdictions already require a Fire Hazard Mitigation Plan or equivalent when development is proposed in a Fire Hazard Severity Zone. This Module is intended to modify some of the requirements normally stipulated for those plans that are in conflict with principles of good urban design. The primary tool introduced is the Common Zone of Defense.

This Module, therefore, should be used not only to address actual plan proposals or desirable outcomes, but to tactically address fire mitigation issues that may be embedded in current codes, policies or simply local practice.

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ARTICLE 1. GENERAL TO ALL PLANS FIRE MITIGATION IN THE WILDLAND URBAN INTERFACE

FIRE HAZARD ASSESSMENT 1.X

Each plan submitted under this code that includes lands listed by state or local agencies as Fire Hazard Severity Zones (FHSZ) shall include an assessment of specific fire hazard elements present. Assessment shall include the following:

- a. Identification and location of existing Fuel Models based on the 1978 National Fire Danger Rating System (NFDRS) Fuel Model system.
- b. Identification of historic weather patterns affecting fire behavior, including most likely direction of fire origination and propagation.
- c. Identification of the fire history pertinent to the plan area, including location and age of prior burns and Fuel Treatments.
- d. Identification of appropriate Fire Hazard Mitigation Measures for the specific design elements of the plan.

FIRE HAZARD MITIGATION MEASURES 1.X

All plans submitted under this code that include lands within a Fire Hazard Severity Zone shall provide Fire Hazard Mitigation Measures. They shall include specific actions within the plan as well as the set aside of lands on which development may not occur due to high fire hazard. Fire Hazard Mitigation Measures shall include, as a minimum, the following:

- 1.X.1 ZONES OF DEFENSE
 - a. Zones of Defense shall be located between natural areas that are prone to wildfire and buildings and related development.
 - b. Zones of Defense shall be configured in direct response to the adjacent Fuel Models present and shall reflect appropriate treatments and dimensions for those models.
 - c. Zones of Defense shall not be required to be devoid of vegetation or forest cover. Vegetation shall be reduced or otherwise managed such that approaching fires are adequately stopped or stalled such that structures within the ZD do not ignite, and such that firefighters can work safely to fight fires that may enter the Zone of Defense and approach structures.
 - d. Dimensions for Zones of Defense shall be provided as follows, such that fire encroachment will be restricted for the existing Fuel Model.
 - i. The width of a standard Zone of Defense shall be 100 feet minimum and shall include a Reduced Fuel Zone of 70 feet minimum and a Critical Defense Zone of 30 feet minimum.
 - ii. Reduced Fuel Zones shall include Fuel Treatments that reduce the native Fuels while maintaining native landscape character.
 - iii. Critical Zones shall include Fuel treatment or removal such that advancing fires are stopped.
 - iv. Zones of Defense should be decreased or increased in response to specific local conditions of Fuels, topography and weather.
 - v. Zones of Defense may include noncombustible architectural elements, such as walls, both to increase defensive capability and to reduce or modify the overall dimension of the zone, where the adjacent Fuel Model permits.

ZONES OF DEFENSE

The purpose of a Zone of Defense is to prevent fire from moving easily from one fuel type to another, or to otherwise modify the fire type to one of lower intensity. For example, an active crown fire may shift to a ground fire. Zones of Defense can be effective simply by reducing the intensity of vegetation such that a fire is substantially modified as it crosses into a Zone of Defense.

Zones of Defense are typically covered by state and local codes. Care should be taken when reviewing these codes to ensure that their Zones of Defense do not force extreme separation of buildings or the creation of landscape areas that are largely devoid of plants. Local interpretations of these codes can result in removal of all substantial vegetation. In some cases, such as Brush / Scrubland, such clearing is warranted, and agricultural uses should be considered in these areas. But many Fuel Models can achieve adequate treatment simply by restoring conditions that allow natural fires to manage the fuels.

COMMON ZONE OF DEFENSE

This section introduces "Common Zone of Defense," a new term for the concept of collective Zones of Defense around a cluster of structures such as a hamlet (CLD in the SmartCode). Rather than have numerous redundant Zones of Defense generating sprawl patterns, a Common Zone will address the same fire modification and fire fighting issues as a standard Zone of Defense, while facilitating more compact development.

It is important to understand that clustered buildings will necessarily be more fire resistant due to other requirements of standard building codes and, therefore, support the goals of wildfire mitigation.

There will likely be resistance to this from firefighters who will still require space between buildings for fire fighting.

Since a Common Zone of Defense offers greater social and environmental benefits to a community, while generating more efficient development patterns, calibrators can offer these larger zones of defense as a means to mitigate concerns over clustered buildings, and better isolate CLD from wildfire environments.

FUEL MODELS

Fuel Models refer to the particular collection of plant species and plant residual materials that are relevant in a given area. Fuel Models have been identified for most fire-prone areas of the U.S., in accordance with several accepted systems of modeling. The most common is the 1978 NFDRS Fuel Model System; however, other systems have been developed and may be in use by local agencies.

Assignment of local Fuel Models may be determined by State or Local agencies. Alternately, Fuel Models present in a planning area can be determined according to USDA Guidelines, per USDA Technical Report INT-122, Anderson 1982.

For some plans, simplified Fuel Models may be adequate for calibration. In such cases simplified Fuel Models as listed herein should be clearly identified and acceptance by local agencies should be verified. However, if Fuel Models have not been assigned at a fine enough scale to be useful in the development of the plan, it may be necessary to further refine the assignment according to these categories, or by using one of the accepted models in use that includes more diverse categories.

1.X.2 COMMON ZONE OF DEFENSE

- a. For all Fire Hazard Severity Zones, any planned development patterns shall include a Common Zone of Defense as the primary means to isolate developed areas from high fire risk conditions in the surrounding landscape.
- b. A Common Zone of Defense shall protect multiple buildings, compounds, TND edges adjacent to wildlands, and the Urbanized areas of CLD Community Units.
- c. A Common Zone of Defense shall be required for any development within or immediately adjacent to a FHSZ and shall generally comply with state and local regulations regarding standard Zones of Defense for individual buildings, but shall be designed to isolate groups of multiple buildings from adjacent fire hazard areas.
- d. The Common Zone of Defense shall serve multiple purposes beyond the purpose of Fire Modification, including the following:
- i. Agricultural uses that substantially reduce the risk of fire spreading from native Fuel types to Fuel types within the area of development.
- ii. Recreational or other natural area that includes a Fuel type modified for low risk.
- iii. Natural Zones of Defense treated for Fuel reduction such that approaching fires would either reduce in intensity or cease progress when the Zone of Defense is encountered.
- e. The Common Zone of Defense shall include adequate access for fire fighting equipment within the proposed Thoroughfare system.
- f. Individual Zones of Defense around isolated buildings shall be utilized where isolated buildings are permitted by this Code. Such individual Zones of Defense shall be designed per state and local requirements and shall be contiguous with public Thoroughfares.

1.X.3 Specific Response to Fuel Models present

- a. Development shall be directly responsive to the Fuel Models present in the plan area. Fuel Models present shall be identified as part of the Fire Hazard Mitigation Measures.
- b. When Fuel Models have not been assigned as part of a FHSZ, or via other mechanisms by local or regional jurisdictions, development areas shall be differentiated among the following three Fuel types as a minimum: i. Grassland
- ii. Brush / Scrubland
- iii. Forest Lands
- c. Fuel Treatment shall be designed to respond directly to the Fuel Models present. All Fuel Treatment shall be designed to isolate development areas from areas where wildfire may occur. Fuel treatment shall also be designed to reduce risk of wildfire ignition caused by escaping structure fires.
- d. Fuel Treatment shall not require the full removal of natural vegetation, landscape materials or agricultural planting in or near the development area or within the Zone of Defense, except as may be required for a specific Fuel type as provided in Section 1.X.4 below.

SMARTCODE VERSION 9.2

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1.X.4 GENERAL REQUIREMENTS FOR BASIC FUEL TYPES

Grassland Fuel Models

Grassland fires are usually easier to fight than other fuel types. Development in areas of grassland fuels shall anticipate fast-moving ground fires with lower height and lower risk of spotting. Fires may recur at high frequency and development shall anticipate regular recurring fire at the scale of seasons.

a. ii This may require multiple treatments per season as growth recurs.

Brush / Scrubland Fuel Models

Development in areas of brush/scrubland pose the highest fire threat as these lands burn often based on quick fuel growth. Brushlands can burn very hot and frequently; brushland species often regenerate quickly and fuel loads can accumulate rapidly. There may be greater effects from topography including rapid and random fire spread, high frequency of spotting and high energy release.

Expect high annual fuel accumulation, ongoing and frequent Fuel Treatment and high difficulty for fire fighting.

b. ii This may require multiple treatments per season as growth recurs.

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1.X.4 GENERAL REQUIREMENTS FOR BASIC FUEL TYPES

a. Grassland Fuel Models : General Requirements i. Development should include a low to moderate level of isolation between

- development areas and areas prone to wildfire.
- Fuel Treatment as the primary mitigation of threat to structures. Fuel Treatment shall occur as often as needed to remove or reduce natural grass regeneration.
- plant material via mowing to levels that will not allow wildfire to progress or develop high heat.
- occur between grasslands and agricultural installations, and between agricultural areas and development areas. Agricultural planting shall not add to the Fuel Load in the treatment areas and shall include diverse species exhibiting different Fuel characteristics, including seasonal maturation that does not coincide with the likely fire season.
- v. Development shall anticipate the possibility of light airborne ash and sparks, and shall include Fuel Treatments internal to the development areas adjacent to grasslands.
- risk of structure fire from low temperature ash.
- vii.Extent of Fuel Treatment may be reduced by the used of noncombustible walls and other landscape elements that will impede fire progress and isolate development from likely wildfire areas.
- b. Brush / Scrubland Fuel Models: General Requirements
- i. Development should include a high level of isolation between development areas and areas prone to wildfire.
- ii. Development shall anticipate fast moving, horizontally advancing fires of high heat and shall include Fuel Treatment as the primary mitigation of threat to structures. Fuel Treatment shall occur as often as needed to remove or reduce natural brush / scrub regeneration.
- iii. Development shall anticipate that fires will recur frequently in the same area, possibly on an annual basis, and shall require frequent and ongoing Fuel Treatment appropriate to the Fuels present.
- tions of the treatment area to ensure that fire spread does not approach development areas. Replacement by grasses and low landscaping shall be permitted provided regular treatment occurs, and provided that landscape materials are highly varied and carry low risk of ignition.
- v. Agricultural operations are permitted, provided that adequate firebreaks occur between brushlands and agricultural installations, and between agricultural areas and development areas. Agricultural planting shall not add to the Fuel Load in the treatment areas and shall include diverse species exhibiting different Fuel characteristics, including seasonal maturation that does not coincide with the likely fire season.

ii. Development shall anticipate horizontally advancing fires and shall utilize

iii. Fuel Treatment shall not require full removal of vegetation, but shall reduce

iv. Agricultural operations are permitted, provided that adequate firebreaks

vi. Development shall include roof and material selections designed to reduce

iv. Fuel Freatment shall require full removal of brush and scrub in critical por-

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Forest Land Fuel Models

Forests lands present the most complex fire management challenges because fire has been suppressed for so long that fuel accumulations are large and unbalanced with any natural fire resistance capabilities. In fire adapted landscapes, fire typically manages the understory fuel loads on a regular basis in such a way that intense fires rarely ignite and older trees can generally resist fire damage.

Crown Fires are the most devastating in a forest setting. Fuel Treatments will seek to reduce Crown Fires by eliminating Ladder Fuels and to modify an existing Crown Fire so that it drops back down to the ground (by reducing understory fuels).

c. ii This may require multiple treatments per season as growth recurs.

1.X.5 TOPOGRAPHY

Restrictions based on topography will likely harmonize with other environmental concerns including stormwater, geotechnical considerations and seismic considerations. Many places that offer high risks for wildfire also offer high risks for at least one of these other concerns.

Additionally, in certain locations recurring wildfire is often coupled with landslides caused by removal of vegetation. This is typical for scrublands where thin soils may be present and underlying stability is low.

The primary focus for topography should be on fires that can move upslope rapidly. This concern increases as slope increases, and mitigation should increase in severity concomitantly, to the limit that no development should occur on, or at the top of, steep slopes, draws, or canyons.

1.X.6 WEATHER PATTERNS

Consideration of weather patterns requires fine grained observation of specific sites and will not necessarily generate regional-scaled information.

Specific weather events, such as lightning strikes, are hard to predict, particularly when the weather at the moment of the event may be highly variable. In general, site planning consideration for weather will address other issues such as stormwater, flooding, and/or high winds as they affect structures and access. Appropriate response to these items will generally deliver an adequate response to fire as well.

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- vi. Development shall anticipate the possibility of light to heavy airborne ash and sparks of moderate to high temperatures, and shall include Fuel Treatments internal to the development areas adjacent to brush / scrubland areas. vii. Development shall include roof and material selections designed to reduce risk of structure fire from high temperature ash.
- c. Forest Land Fuel Models: General Requirements i. Development should include a moderate level of isolation between development areas and areas prone to wildfire, coupled with both Fuel Treatment
- plan area. ii. Development shall anticipate horizontally advancing fires and shall utilize Fuel Treatment as the primary mitigation of threat to structures. Development in Forest Lands shall assume fire threats from all types of fire, including Crown Fires, Ground Fires, Spotting and Firebrands. Fuel Treatment shall occur as often as needed to remove or reduce Understory materials and Ladder Fuels.
- iii. Development shall anticipate intermittent fires with long spans of time between fire events and shall include a mechanism for ongoing Fuel Treatment and Fuels Maintenance spanning seasons and possibly decades.
- shall be removed or reduced such that forest character is maintained, yet Fuel Loads are reduced such that a fire would be adequately modified to reduce or eliminate threat to development.
- occurs in adjacent Forest Lands to modify an advancing fire to one of lower intensity, or to prevent advance into areas of differing Fuels.
- and shall include diverse species exhibiting different Fuel characteristics including seasonal maturation that does not coincide with the likely fire season.
- with complex Zones of Defense that provide isolation from intense fire types, while preserving forest amenities that provide assets for development and promote forest health.
- 1.X.5 RESTRICTED DEVELOPMENT BASED ON TOPOGRAPHY Development shall not be permitted in areas that exhibit high fire risk based on topography. See Table FM-1d. These areas shall include:
 - a. steep slopes of xx percent minimum grade where convection can generate increased winds, updraft and upslope fire progression
 - b. draws and canyons where convection can generate extreme drafts coupled with high radiant heat from constrained geography
 - c. areas where historic fire patterns reflect repeated fire occurrence.
- 1.X.6 RESTRICTED DEVELOPMENT BASED ON PREVAILING WEATHER PATTERNS Development shall not be permitted where historic weather patterns generate high risk of fire, either via fire propagation or ignition. See Table FM-1de. Considerations shall include:

and wider areas of Fuel reduction. When appropriate, wide area Fuel Treatment as part of a forest stewardship program shall be included in the

iv. Fuel Treatment shall not require the full removal of plant materials. Materials

v. Agricultural operations are permitted provided adequate Fuel Treatment

vi. Agricultural planting shall not add to the Fuel Load in the treatment areas

vii.Development patterns shall include high levels of Fuel Treatment coupled

FUEL TREATMENT

Fuel Treatment requirements for landowners will be covered by other local or regional regulations. These codes should be reviewed for potential conflicts with the development goals of this code and addressed as part of this calibration. Specific attention should be paid to local codes that favor non-native landscaping or irrigated turf.

ments should be aimed at returning existing landscapes to a condition that mimics natural conditions, where fire has not been suppressed but has been allowed.

Moisture of Extinction is a value specific not only to each fuel type but to the arrangement of the fuel. In typical wildfire regulations, for each fuel model there will be a defined Moisture of Extinction above which fire safety goes up. Local climate and weather patterns play a part. This is how the fire severity signs are set, such as "Fire Hazard Today: Low."

O-1 PRESERVED OPEN SECTOR

This section allows for Fuel Treatment activities that may be sensible or required in otherwise preserved lands. In many cases, strategic Fuel Treatments may make sense some distance away from an area of development to prevent fire from moving into certain higher risk topographic settings. This is an issue of overall wildland fire management, but may occur within a plan area.

At a finer scale, this section also addresses the problem of difficulties arising with Fuel Treatment on public and private lands adjacent to development. This should be calibrated, depending on the nature of the plan, to require access to adjacent lands, even if already developed, for Fuel Treatment from a systems point of view.

This suggests that each private property within a plan area shall provide access for Fuel Treatments when subsequent development, as identified in the plan, occurs. It essentially establishes "treatment rights" for all development identified in the plan. It also reduces the ability of adjacent land owners to limit planned development based on refusal to allow fuels treatment. However, inclusion of this section requires careful definition of "Treatment" in the adopted code such that environmental, cultural and social values are preserved.

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1.X.7 INITIAL FUEL TREATMENT

While not necessarily addressed by local codes, Fuel Treat- Initial Fuel Treatments, prior to development, may be required and the limits of those treatments will likely be the subject of negotiation. For non-conventional development patterns like those supported by transect-based codes, the extent and pattern of Fuel Treatments may pose conflicts with regard to resource and habitat preservation in adjacent areas, as well as the general landscape qualities sought for the plan area. Fuel Treatments proposed should be finely tuned to the specific Fuel Models and the local climate, such that over-treatment does not occur.

SET ASIDE LANDS

This section assumes that within the WUI there will be lands identified as part of the Fire Hazard Assessment that are not suitable for development specifically due to wildfire considerations.

O-2 RESERVED OPEN SECTOR

This section provides for Fuel Treatment as part of stewardship activities that can return lands to a condition of natural fire management as a means to protect the WUI as well as restore particular lands to natural performance.

The O-2 Sector is intended for lands that should be preserved, but are privately owned and not yet preserved. It is typically a temporary designation. It may be reassigned to O-1 or G-1 during the course of a planning charrette or over a series of revised plans, or years later.

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- a. high risk of lightning strikes on ridgelines, knolls, and other exposed locations
- rapid fire movement should ignition occur, including draws, steep slopes facing prevailing winds, or upslope conditions relative to likely wildfire advance
- c. specific climate zones, typical Fuels moisture during highest risk fire seasons, and typical Moisture of Extinction for the Fuel Models present.

1.X.7 INITIAL FUEL TREATMENT

- a. For all SFHZ areas where development may occur, Initial Fuel Treatments shall be included as part of the Fire Hazard Mitigation Measures.
- b. Initial Fuel Treatments shall comply with state and local codes.
- dimensions of the Common Zone of Defense specified for each plan area.

1.X.8 FUEL MAINTENANCE

a. Plans shall include an operational strategy for ongoing Fuel Maintenance, in accordance with and subject to enforcement by state and/or local statutes.

ARTICLE 2. REGIONAL SCALE PLANS

SET ASIDE LANDS 2.X.

a. Lands in a Fire Hazard Severity Zone that are set aside for the purpose of fire hazard mitigation, and that are not designated for agricultural uses or currently in private ownership for agricultural uses, shall be permanently assigned to the O-1 Preserved Open Sector. Such lands in private ownership shall be assigned O-2 Reserved Open Space Sector for intended reassignment to O-1 through Transfer of Development Rights or other compensatory actions, or to the G-1 Restricted Growth Sector, allowing only CLD development in the future.

SECTOR DESIGNATIONS 2.X.

a. Undeveloped lands in Fire Hazard Severity Zones shall be limited to designation as O-1, O-2, G-1, or G-2. Developed lands in the FHSZ shall be assigned to the G-4 Infill Growth Sector.

2.X.1 **O-1 PRESERVED OPEN SECTOR**

- a. Lands in Fire Hazard Severity Zones designated O-1 may include Fuel Treatments at Sector boundaries adjacent to other Sectors where structures may be present, and in other locations where Fuel Treatments provide a strategic advantage for fire hazard mitigation for existing and proposed development and for general stewardship purposes.
- b. Lands in Fire Hazard Severity Zones designated O-1 may include agricultural production and structures, timber production and structures, and parklands facilities and structures by Warrant.
- 2.X.2 O-2 RESERVED OPEN SECTOR
 - a. Fuel Treatment in O-2 and O-1 shall return undeveloped lands within the Sector to a condition in which naturally occurring fires generate ongoing Fuels Maintenance.
- 2.X.3 G-1 RESTRICTED GROWTH SECTOR AND G-2 CONTROLLED GROWTH SECTOR
 - a. Lands in Fire Hazard Severity Zones designated G-1 or G-2 may include agricultural production and related structures.

b. prevailing winds coupled with topographic features that will likely increase

c. Initial Fuel Treatments shall be coordinated with the specific configuration and

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ARTICLE 3. COMMUNITY SCALE PLANS

SET ASIDE LANDS 3.X

a. Lands mapped in a Community Plan that occur in a Fire Hazard Severity Zone and are set aside for the for the purpose of fire hazard mitigation, and that are not designated for agricultural uses or currently in private ownership for agricultural uses, shall be permanently assigned to Civic Space or the O-1 Preserved Open Sector.

3.3 COMMUNITY UNIT TYPES

3.3.X GENERAL

a. Development occurring in or adjacent to a Fire Hazard Severity Zone shall be limited to the following:

i. TND where the existing or proposed WUI occurs, provided the WUI is modified via a Common Zone of Defense per Article X. ii.CLD as regulated in Section 3.3.1 of the SmartCode and including a Common Zone of Defense per Section 3.3.X below.

3.3.X SPECIFIC TO CLD

a. If any part of the Urbanized area of a planned CLD falls inside or adjacent to a Fire Hazard Severity Zone, the entire Urbanized area shall be subject to a Common Zone of Defense separating it from the Fire Hazard Severity Zone. The required 50% T1/T2 zone in the CLD may act as part of the Common Zone of Defense if it satisfies the other requirements of this Code for a Zone of Defense.

TRANSECT ZONES 3.4

3.4.X SPECIFIC TO ZONE T2 WITHIN A FIRE HAZARD SEVERITY ZONE

- a. Individual structures permitted by this Code that are justified within the FHSZ in support of land management, stewardship, agricultural production, and related residential and industrial structures shall include individual Zones of Defense and shall be located adjacent to public roads for ease of access for fire fighting.
- b. Multiple structures comprising a compound shall utilize a Common Zone of Defense such that clusters of buildings are isolated from adjacent fire hazards as a group. The Common Zone of Defense may be increased in dimension to ensure isolation and to protect structures without requiring individual Zones of Defense.
- c. Multiple, but separate, individual structures or compounds that may be permitted by this Code (such as farmsteads) shall be located in close proximity to each other such that Zones of Defense or Common Zones of Defense overlap or occur directly across roadways as a means to facilitate fire fighting and discourage a pattern of sprawl. See Table FM-2.
- 3.4.X SPECIFIC TO ZONE T3 WITHIN OR ADJACENT TO A FIRE HAZARD SEVERITY ZONE a. Any T-3 zone at the edge of a TND shall be located such that a Common Zone of Defense occurs between the T-3 zone and any T-2 zone, T-1 zone or O-1 Preserved Open Sector that includes areas listed as Fire Hazard Severity Zones. The Common Zone of Defense shall separate the wildlands from the edge of T-3 and eliminate the need for special consideration of T-3 with regard to wildfire.

3.4 SPECIFIC TO ZONE T-2

This section is intended for Community Scale Plans where O-2 and G-1 Sectors or T-2 agricultural and stewardship zones are identified and development potential is present. While T-2 lots may be very large (20 acres minimum in the model SmartCode), in the FHSZ, buildings are disposed near public thoroughfares. This satisfies much of the fire fighting concern because the structures are readily accessible.

Additionally, it seeks to establish individual property patterns in traditional ways such that, should development intensify, these T-2 patterns closely associated with public roads may generate opportunities for transition to the CLD (hamlet) scale.

3.4 SPECIFIC TO ZONE T-3

In most communities developed and protected under this Code, T-3 will be the primary development zone associated with the WUI. The T-3 zone, if protected by a Common Zone of Defense on the outer edges, is effectively a transition between wildland fire risks and the more intensely developed T-4 zone where wildland fire is likely to be irrelevant and urban fire fighting techniques come into play. This is particularly the case in larger villages and towns, such as the TND Community Unit type or several adjacent TNDs.

Additionally, this section allows for T-3 / T-4 levels of development as part of a CLD (hamlet) pattern that is entirely surrounded by a Common Zone of Defense. In this case the T-3 need not be on the edges only.

The Common Zone of Defense is intended to isolate wildfire from clustered development in the first place by generating a larger overall Zone of Defense than would be generated by sprawl development patterns. The goal is to eliminate the WUI by creating, instead, an Agricultural-Urban Interface (AUI) at the T-2 / T-3 boundary. The T-3 development then requires no different fire mitigation than any urban development. Thus buildings may be closely spaced with the understanding that building codes (health/safety codes) already require increased fire resistance for such configurations.

It is also the intent of this section to require access for fire fighting via a street and alley system, but to link the requirements for those thoroughfares back to the other provisions of the SmartCode, rather than deferring to typical agency standards for their dimensions. It is not appropriate to include street and alley standards here, as they should be considered as systems rather than isolated responses to individual concerns. See Section 3.7 of the base code and the Complete Thoroughfares Module.

ARTICLE 5: BUILDING SCALE PLANS

Rather than develop a full set of slightly varied requirements for individual buildings (or specifically combat those required by standard codes), the Module uses the Common Zone of Defense method to make the case that buildings in the development area are, as a clustered unit, sufficiently separate (and easily protected) from severe wildfire risks. This requires careful delineation of the Common Zones of Defense so that they are, in fact, defensible when reviewed by fire protection officials.

Emphasis on conversion of the WUI to an AUI (or equivalent) is intended to shift the conversation from incidental fire protection of development to intentional modification of fuel types such that fire does not approach development in a threatening manner.

However, in the T-2 zone, or T-1 or Civic Space (CS) by Warrant or Variance, there may be isolated buildings that are permitted by the SmartCode within a Community Plan, but which would require individual Zones of Defense. Ideally, advance planning with careful placement (disposition) of such buildings and facilities would allow normal T-2 development within a Common Zone of Defense, though this is not always possible. See Table FM-2 and Table FM-3.

The Common Zone of Defense rationale should establish that the resulting buffer is somewhat larger (community scaled) than a typical Zone of Defense, and thus provides far better fire protection and access for whatever fire fighting may be necessary.

BUILDING DISPOSITION SPECIFIC TO ZONES T1, T-2, CZ

This section expands relevant issues for T-2 partly to support specific development patterns and partly to defend against other codes that encourage sprawl.

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It reinforces street friendly locations for development partly to support fire fighting efforts and partly to reinforce the natural succession of Transect Zones for future intensification, following the traditional settlement patterns of Article 3 and Article 4 of the base SmartCode.

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THOROUGHFARE STANDARDS 3.7

- 3.7.X GENERAL TO DEVELOPMENT WITHIN OR ADJACENT TO FIRE HAZARD SEVERITY ZONES
 - a. In Fire Hazard Severity Zones, public Thoroughfares shall be the primary means of accessing private Lots for fire fighting access.
 - b. Common Zones of Defense that protect CLD and TND Community Unit types shall include access and connectivity per the Intent of this Code, Section 1.3.

ARTICLE 5. LOT AND BUILDING SCALE PLANS

5.X **BUILDING DISPOSITION**

- 5.X.1 GENERAL TO ALL ZONES
 - a. Buildings that are protected by a Common Zone of Defense shall not require individual Zones of Defense.
 - a. Buildings shall be disposed such that they can be easily accessed for fire fighting and shall favor site locations adjacent to streets, roads or other public Thoroughfares.
- 5.X.2 FUEL TREATMENT AND FIRE RESISTANCE
 - a. Fuel Treatment as required on Lots shall extend to the public Thoroughfare. See Table FM-1.
 - b. Individual buildings shall be designed per the applicable building codes for fire resistance. Clustered buildings shall be designed for fire resistance to the extent required by the applicable building codes for buildings in close proximity to each other that are not within a Fire Severity Hazard Zone.

5.X.3 SPECIFIC TO ZONES T1, T2, CIVIC ZONES (CZ)

- a. Individual structures permitted by this Code, by Right or by Warrant, that are not part of a CLD Community Unit and that are justified in support of land management, stewardship, agricultural production, related residential and industrial structures, etc. shall require individual Zones of Defense.
- Zone of Defense may protect all structures.

5.X **BUILDING FUNCTION**

5.X.1 SPECIFIC TO ZONE T2

> a. Marshalling yards, animal and product handling and other agricultural uses may occupy portions of the Common Zone of Defense.

b. Multiple structures comprising a compound shall be clustered so that a Common

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TABLE FM-1 COMMON ZONE OF DEFENSE FUEL TREATMENTS

Zones of Defense should be explicitly tuned to the fuel types present in the plan area, as different fuel types will result in somewhat different fire patterns. As fire moves through a landscape and encounters different fuel types its character changes. The goal of wildland fire suppression is not necessarily to extinguish a fire, but to modify it such that its intensity matches the natural fire resistance (and adaptation) of the subject landscape.

Fuel includes living trees and plant material, dead and decaying material on the ground including duff and slash, buildings and appurtenances, vehicles, chemicals, agricultural products, etc.

All Zones of Defense, whether Common or not, should be calibrated to each plan area, and should address the existing codes regarding dimensions as well as desirable dimensions.

The language in this table is regulatory. It may be modified to be advisory ("should" instead of "shall") as local politics require.

Slope Issues / Climate Issues

Responses to topographic and climate/weather issues are highly sensitive to local conditions and are best informed by fire history in the plan area. Code elements addressing these items should focus on development / no development settings, as there are minimal responses available to better suit development for these circumstances. The primary tool is expansion of the Zone of Defense (a de facto "no-development" response).

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e. Common Zone of Defense: Climate Issues
Prevailing winds during fire season

TABLE FM-1: COMMON ZONE OF DEFENSE FUEL TREATMENT

Development Area	Fuel Treatment shall be implemented as follows: • Understory treatment throughout the Zone of Defense • tree reduction or removal in the Critical Zone • conversion to agriculture in the Critical Zone • trees shall be permitted in the Critical Zone and within the development area when Ladder Fuels are managed.
– Development Area	Fuel Treatment shall be implemented as follows: • Fuel reduction throughout the Zone of Defense • conversion to agriculture in the Critical Zone • trees shall be prohibited in the Critical Zone • trees shall be permitted within the development area when Ladder Fuels and Crown Fuels are managed.
Development Area	Fuel Treatment shall be implemented as follows: • Fuel Reduction and Fuel Management throughout Zone of Defense • conversion to agriculture in the Critical Zone • trees shall be permitted in Critical Zone and within the development area when Ladder Fuels are managed • Critical Zone may be reduced by Warrant via inclusion of walls, grade breaks, and other barriers.
Reduced Fuel in development at critical edges	 Where topography includes slopes, draws, canyons and other features that focus wind effects, the Zone of Defense shall be increased. Development shall be prohibited on slopes, and limited to benches, ridges and other locations where fire fighting in the Critical Zone is facilitated. Within development, Fuel sources shall be reduced at edges adjacent to increased Zone of Defense
Reduced Fuel in development at windward edges	 Where prevailing winds (during fire season) coincide with wildland Fuel sources, the Zone of Defense shall be increased. The reduced Fuel zone shall be limited to grasses or agrarian production. Within development, Fuel sources shall be reduced at edges adjacent to the increased Zone of Defense (see diagram).
These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

TABLE FM-2 COMMON ZONE OF DEFENSE COMMUNITY SCALE PATTERNS

This table provides a basic sampling of plan types in which Common Zones of Defense are relevant. It contrasts a small cluster where each building has its own Zone of Defense with a small ag compound pattern that would enable a Common Zone of Defense. Larger clusters and CLD (hamlets) should use this pattern as well. The edge of a TND is also appropriate for a Common Zone of Defense.

A basic review of the literature on both fire mitigation and fire behavior is recommended before entering into a discussion of the specific use of, and dimensions for, the Common Zone of Defense for each group of buildings or full neighborhood.

All Zones of Defense, whether Common or not, should be calibrated to each plan area, and should address the existing codes regarding dimensions as well as desirable dimensions.

The language in this table is regulatory. It may be modified to be advisory ("should" instead of "shall") as local politics require.

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a. Prohibited Pattern: Conventional Sprawl · Conventional sprawl patterns shall not be permitted that generate redundant Zones of Defense, increased building spacing, and/or complex fire fighting situations.

b. Individual Buildings, Compounds, Farmsteads, Agricultural / Stewardship, Proto-Hamlets:

· Zones of Defense shall be provided around single structures. • Multiple structures shall be clustered per this Table, items b, c, and d. · Common Zones of Defense shall be provided around clusters of multiple structures. Structures shall be located close enough to public Thoroughfares for direct fire fighting access. · Zones of Defense shall be contiguous with public Thoroughfares. • Multiple buildings and compounds under separate ownership shall be located in close proximity to each other to reduce the total quantity of individual Zones of Defense and to initiate development patterns that favor emergent CLD development. In such cases, Zones of Defense may overlap.

c. CLD with Common Zone of Defense:

• For CLD Community Unit types, Common Zones of Defense shall be provided to isolate development from Fire Hazard Severity Zones. See Section 3.3.X.

 Common Zones of Defense shall provide adequate isolation from likely wildfire threats via distance, Fuel Treatment and fire fighting access, such that resulting development shall be regulated by this Code and the local Building Codes and shall not require more restrictive regulation in response to proximity to Fire Hazard Severity Area.

d. Common Zone of Defense at Edge of TND; Agrarian Urban Interface (AUI):

· For TND Community Unit types, Common Zones of Defense shall isolate development from Fire Hazard Severity **Zones**

• Common Zones of Defense shall extend between relevant edges of TND and the Fire Hazard Severity Zone. • WUI shall be converted to AUI, thus separating wildland fire fighting requirements from urban fire fighting requirement

· Farmsteads and related agrarian compounds may occur within the Agrarian Urban Interface per item b. above.

TABLE FM-2: COMMON ZONE OF DEFENSE **COMMUNITY SCALE PATTERNS**











These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

TABLE FM-3 WUI CONVERSION TO AUI

This table provides a diagram of the interrelated aspects of some basic development types that may occur within a plan area. It contrasts recent conventional scattered "suburban" development with older patterns that traditionally separated development and wildfire risks.

Table FM-2 and Table FM-3 both reflect the overall intent of this Module, which is to separate development from fire risk at the scale of the community rather than the scale of the building.

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a. Prohibited Pattern:

• Dispersed development that requires numerous and redundant Zones of Defense and increases the extent of the WUI shall not be not permitted.

b. Permitted Pattern:

· Conversion of the WUI to AUI at the edge of existing or planned development shall be permitted.

• For isolated development, compounds with Common Zones of Defense located adjacent to public Thoroughfares shall be permitted.

• For CLD and other clustered development, as well as the edges of TND, Common Zones of Defense that convert WUI to AUI shall be permitted.

ARTICLE 7. DEFINITIONS OF TERMS

Agrarian Urban Interface (AUI): the geographic area where urban development, even at low intensities, interfaces directly with low Fuel agricultural lands. It includes former wildlands in a Fire Severity Hazard Zone that have been modified to reduce fire risk by supporting agriculture. i.e., crop lands, grazing lands and support facilities. The AUI buffers wildlands from development such that a Wildland Urban Interface no longer exists. Brush / Scrubland Fuel: areas of short to tall brush, chaparral and/or loosely spaced small trees accompanied with other brushland shrubs.

Common Zone of Defense: a Zone of Defense surrounding a collection of buildings rather than only one building.

Critical Zone: the designated portion of the Zone of Defense closest to development. See Table FM-1.

Crown Fire: fire that moves through the crown of trees in a continuous tree canopy, whether supported by heat from a Surface Fire below or a fire that is expanding solely via the crown.

Crown Fuel: combustible plant material in the tree canopy.

FHSZ: see Fire Hazard Severity Zone.

Firebrand: rolling or falling debris already burning.

Fire Extinction: the complete extinguishing of a fire via elimination of Fuel, changes in weather or actual suppression.

Fire Hazard Severity Zone (FHSZ): specific area designated by state or local agencies as prone to severe fire occurrence and related risks. The designation results from prior federal and state fire hazard assessment and planning, and calibrates specific areas to applicable codes.

Fire Modification: the changing of a fire type, usually from an intense type to one of lower intensity, either by direct suppression, or by Fuel Treatment along the course of a fire.

Forest Lands Fuel: any woodlands, from small deciduous trees to thick conifer climax forests.

Fuel: any material, natural or human-made, that is combustible during a wildfire event.

Fuel Load: the quantification of Fuel in a particular area.

Fuel Maintenance: the regular cutting, thinning, trimming and removal of Fuels on a repeated basis as a means to implement long-term Fuel Management

Fuel Management: the cutting, thinning or removal of Fuels as a means to reduce the spread of a wildfire or modify its particular characteristics.

Fuel Model: a description of a particular collection of varied Fuels that occur in specific geographic areas. Fuel Models can describe regional scale or very localized conditions depending on the nature of the subject area and the variability of Fuels within the area. Fuel Models typically have a relationship to the type of fire that can be expected, and are used to describe geographic conditions for the purpose of Fire Modification.

ARTICLE 7. DEFINITIONS OF TERMS

Fire fighting and fire management activities utilize a number of terms not commonly used in other areas of land management. Since the application of this module will likely require debate with fire officials regarding appropriate mitigation methods, some terms have been selected specifically to harmonize with the language that will likely be used in coordination with these officials. While these may seem counterintuitive, or there may be lay terms available, this Module, when used in a code, will likely be scrutinized heavily by groups that speak this language.

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Fuel Reduction: the removal of accumulated Fuels to reduce the spread of wildfire or modify an approaching fire to a lower level of intensity.

Fuel Treatment: the task of reducing, maintaining or otherwise modifying the Fuel Loads in a given area.

Grassland Fuel: Fuelcharacterized by grasslands and intermittent shrub areas with isolated trees or wooded areas. Grassland Fuel types can burn often with relatively low long-term damage.

Ground Fire: fire that progresses at or below the ground surface via combustion of duff, debris, deep slash or peat.

Initial Treatment, Initial Fuel Treatment: the first Fuel Treatment to occur in conjunction with a development area, usually done before any construction begins.

Ladder Fuels: Fuels that allow a Surface Fire to climb up through the tree canopy and possibly generate a Crown Fire.

Moisture of Extinction: the Fuel moisture content at which a fire will not spread, or spreads only sporadically and predictably.

Reduced Fuel Zone: the designated portion of the Zone of Defense between wildlands and the Critical Zone. See Table FM-1.

Spotting, Spot Fires: fires that are started as a result of airborne ash and sparks from a nearby fire front, or from Firebrands.

Surface Fire: fire that moves along the ground surface via combustion of grasses, shrubs and slash.

Understory: Shrubs, grasses, and young trees that grow below established trees in older forests.

Urbanized: developed at the intensity of the T-3 zone or higher.

Wildland Urban Interface (WUI): the geographic area where urban development, even at low intensities, interfaces directly with wildlands. It includes areas where older traditional development has approached the edge of wildlands, but particularly where more recent suburban and exurban development has penetrated into wildlands that were not previously utilized for agriculture or some other form of human settlement.

Zone of Defense: an area of substantial or complete Fuel Treatment, creating a fire break between buildings and approaching fires and a safe zone in which fire fighters may operate. See Common Zone of Defense.

1944 CIA SABOTAGE TOOLKIT

A PDF scan of the toolkit, intended for wartime use.

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Per guidance from the Chief/DRRB CIA Declassification Center, you may consider the document declassified... If you use an exact copy of the document in your presentations, please draw a line through the classification markings to prevent confusion. Use the information as you see fit.

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UNCLASSIFIED

SIMPLE SABOTAGE

S'rategic Services (Provisional)

STRATEGIC SERVICES FIELD MANUAL No. 3

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UNCLASSIFIED

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Office of Strategic Services

Washington, D.C.

17 January 1944

This Simple Sabolage Field Manual — Strategic Services (Provisional) — is published for the information and guidance of all concerned and will be used as the basic doctrine for Strategic Services training for this subject.

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The contents of this Manual should be carefully controlled and should not be allowed to come into unauthorized hands.

The instructions may be placed in separate pamphlets or leaflets according to categories of operations but should be distributed with care and not broadly. They should be used as a basis of radio broadcasts only for local and special cases and as directed by the theater commander.

AR 380-5, pertaining to handling of secret documents, will be complied with in the handling of this Manual.

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William J. Donovan

Director

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1. INTRODUCTION

<u>a</u>. The purpose of this paper is to characterize simple sabotage, to outline its possible effects, and to present suggestions for inciting and executing it.

b. Sabotage varies from highly technical coup de main outs that require detailed planning and the use of specially trained operatives, to innumerable simple acts which the ordinary individual citizen-saboteur can perform. This paper is primarily concerned with the latter type. Simple sabotage does not require specially prepared tools or equipment; it is executed by an ordinary citizen who may or may not act individually and without the necessity for active connection with an organized group; and it is carried out in such a way as to involve a minimum danger of injury, detection, and reprisal.

c. Where destruction is involved, the weapons of the citizen-saboteur are salt, nails, candles, peobles, thread, or any other materials he might normally be expected to possess as a householder or as a worker in his particular occupation. His arsenal is the kitchen shelf, the trash pile, his own usual kit of tools and supplies. The targets of his isabotage are usually objects to which he has normal and inconspicuous access in everyday life.

d. A second type of simple sabotage requires no destructive tools whatsoever and produces physical damage, if any, by highly indirect means. It is based on universal opportunities to make faulty decisions, to adopt a noncooperative attitude, and to induce others to follow suit. Making a faulty decision may be simply a matter of placing tools in one spot instead of another. A non-cooperative attitude may involve nothing more than creating an unpleasant situation among one's fellow workers, engaging in bickerings, or displaying surliness and stupidity.

<u>e</u>. This type of activity, sometimes referred to as the "human element," is frequently responsible for accidents, delays, and general obstruction even under normal conditions. The potential saboteur should discover what types

of faulty decisions and non-cooperation are normally found in his kind of work and should then devise his sabotage so as to enlarge that "margin for error."

2. POSSIBLE EFFECTS

<u>a</u>. Acts of simple sabotage are occurring throughout Europe. An effort should be made to add to their efficiency, lessen their detectability, and increase their number. Acts of simple sabotage, multiplied by thousands of citizensuboleurs, can be an effective weapon against the enemy. Sinshing tires, draining fuel tanks, starting fires, starting arguments, acting stupidly, short-circuiting electric systems, abrading machine parts will waste materials, manpower, and time. Occurring on a wide scale, simple sabotage will be a constant and tangible drag on the war effort of the enemy.

b. Simple sabotage may also have secondary results of more or less value. Widespread practice of simple sabotage will harnss and demoralize enemy administrators and pollce. Further, success may embolden the citizen-saboteur eventually to find colleagues who can assist him in subotage of greater dimensions. Finally, the very practice of simple sabotage by natives in enemy or occupied territory may make these individuals identify themselves actively with the United Nations war effort, and encourage them to assist openly in periods of Allied invasion and occupation.

3. MOTIVATING THE SABOTEUR

a. To incite the citizen to the active practice of simple sabotage and to keep him practicing that sabotage over sustained periods is a special problem.

b. Simple sabotage is often an act which the citizen performs according to his own initiative and inclination. Acts of destruction do not bring him any personal gain and may be completely foreign to his habitually conservationist attitude toward materials and tools. Purposeful stupidity is contrary to human nature. He frequently needs pressure, stimulation or assurance, and information and suggestions regarding feesible methods of simple subotage.

(1) Personal Motives

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(a) The ordinary cltizen very probably has no immediate personal motive for committing simple sabotage. Instead, he must be made to anticipate indirect personal gain, such as might come with enemy evacuation or destruction of the ruling government group. Gains should be stated as specifically as possible for the area addressed: simple sabotage will hasten the day when Commissioner X and his deputies Y and Z will be thrown out, when particularly obnoxious decrees and restrictions will be abolished, when food will arrive, and so on. Abstract verbalizations about personal liberty, freedom of the press, and so on, will not be convincing in most parts of the world. In many areas they will not even be comprehensible.

(b) Since the effect of his own acts is limited. the saboteur may become discouraged unless he feels that he is a member of a large, though unseen, group of sabotcurs operating against the enemy or the government of his own country and elsewhere. This can be conveyed indirectly: suggestions which he reads and hears can include observations that a particular technique has been successful in this or that district. Even if the technique is not applicable to his surroundings, another's success will encourage him to attempt similar acts. It also can be conveyed directly: statements praising the effectiveness of simple sabotage can be contrived which will be published by white radio, freedom stations, and the subversive press. Estimates of the proportion of the population engaged in sabotage can be disseminated. Instances of successful sabotage already are being broadcast by white radio and freedom stations, and this should be continued and expanded where compatible with security.

(c) More important than (a) or (b) would be to create a situation in which the citizen-saboteur acquires a sense of responsibility and begins to educate others in simple sabotage.

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(2) Encouraging Destructiveness

It should be pointed out to the saboteur where the circumstances are suitable, that he is acting in selfdefense against the enemy, or retaliating against the enemy for other acts of destruction. A reasonable amount of humor in the presentation of suggestions for simple sabotage will relax tensions of fear.

(a) The saboteur may have to reverse his thinking, and he should be told this in so many words. Where he formerly thought of keeping his tools sharp, he should now let them grow dull; surfaces that formerly were lubricated now should be sanded; normally dligent, he should now be lazy and careless; and so on. Once he is encouraged to think backwards about himself and the objects of his everyday life, the saboteur will see many opportunities in his immediate environment which cannot possibly be seen from a distance. A state of mind should be encouraged that anything can be sabotaged.

(b) Among the potential citizen-saboteurs who are to engage in physical destruction, two extreme types may be distinguished. On the one hand, there is the man who is not technically trained and employed. This man needs specific suggestions as to what he can and should destroy as well as details regarding the tools by means of which destruction is accomplished.

(c) At the other extreme is the man who is a lechnician, such as a lathe operator or an automobile mechanic. Presumably this man would be able to devise methods of simple sabotage which would be uppropriate to his own facilities. However, this man needs to be stimulated to re-orient his thinking in the direction of destruction. Specific examples, which need not be from his own field, should accomplish this.

(d). Various media may be used to disseminate suggestions and information regarding simple sabotage. Among the media which may be used, as the immediate situation dictates, are: freedom stations or radio, false or official leaflets. Broadcasts or leaflets may be directed toward specific geographic or occupational areas, or they may be general in scope. Finally, agents may be trained in the art of simple sabotage, in anticipation of a time when they may be able to communicate this information directly.

(3) Safety Measures

(a) The amount of activity carried on by the saboteur will be governed not only by the number of opportunities he sees, but also by the amount of danger he feels. Bad news travels fast, and simple sabotage will be discouraged if too many simple saboteurs are arrested.

(b) It should not be difficult to prepare leaflets and other media for the saboteur about the choice of weapons, time, and targets which will insure the saboteur against detection and retaliation. Among such suggestions might be the following:

(1) Use materials which appear to be innocent. A knife or a nail file can be carried normally on your person; either is a multi-purpose Instrument for creating damage. Matches, pebbles, hair, salt, nails, and dozens of other destructive agents can be carried or kept in your living quarters without exciting any suspicion whatever. If you are a worker in a particular trade or industry you can easily carry and keep such things as wrenches, hammers, emery paper, and the like.

(2) Try to commit acts for which large numbers of people could be responsible. For instance, if you blow out the wiring in a factory at a central fire box, almost anyone could have done it. On-the-street sabotage after dark, such as you might be able to carry out against a military car or truck, is another example of an act for which it would be impossible to blame you.

(3) Do not be afraid to commit acts for which you might be blamed directly, so long as you do so rarely, and as long as you have a

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plausible excuse: you dropped your wrench across an electric circuit because an air raid had kept you up the night before and you were half-dozing at work. Always be profuse in your apologies. Frequently you can "get away" with such acts under the cover of pretending stupidity, Ignorance, over-caution, fear of being suspected of sabotage, or weakness and duliness due to undernourishment.

 $(\underline{4})$ After you have committed an act of casy sabotage, resist any temptation to wait around and see what happens. Loiterers arouse suspicion. Of course, there are circumstances when it would be suspicious for you to leave. If you commit sabotage on your job, you should naturally stay at your work.

4. TOOLS, TARGETS, AND TIMING

<u>a</u>. The citizen-saboteur cannot be closely controlled. Nor is II reasonable to expect that simple sabotage can be precisely concentrated on specific types of target according to the requirements of a concrete military situation. Attempts to control simple sabotage according to developing military factors, moreover, might provide the enemy with intelligence of more or less value in anticipating the date and area of notably intensified or notably slackened military activity.

b. Sabotage suggestions, of course, should be adapted to fit the area where they are to be practiced. Target priorilies for general types of situations likewise can be specified, for emphasis at the proper time by the underground press, freedom stations, and cooperating propaganda.

(1) Under General Conditions

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(a) Simple sabotage is more than malicious mischief, and it should always consist of acts whose results will be detrimental to the materials and manpower of the enemy.

(b) The saboteur should be ingenious in using his every-day equipment. All sorts of weapons will present themselves if he looks at his surroundings in a different light. For example, emery dust — a powerful weapon — may at first seem unobtainable, but if the saboteur were to pulverize an emery knife sharpener or emery wheel with a hammer, he would find himself with a plentiful supply.

(c) The saboteur should never altack targets beyond his capacity or the capacity of his instruments. An inexperienced person should not, for example, attempt to use explosives, but should confine himself to the use of matches or other familiar weapons.

(d) The saboteur should try to damage only objects and materials known to be in use by the enemy or to be destined for early use by the enemy. It will be safe for him to assume that almost any product of heavy industry is destined for enemy use, and that the most efficient fueld and lubricants also are destined for enemy use. Without special knowledge, however, it would be undesirable for him to attempt destruction of food crops or food products.

(e) Although the citizen-saboteur may rarely have access to military objects, he should give these preference above all others.

(2) Prior to a Military Offensive

During periods which are quiescent in a military sense, such emphasis as can be given to simple sabotage might well center on industrial production, to lessen the flow of materials and equipment to the enemy. Slashing a rubber tire on an Army truck may be an act of value; spoiling a batch of rubber in the production plant is an act of still more value.

(3) During a Military Offensive

(a) Most significant sabotage for an area which is, or is soon destined to be, a theater of combat operations is that whose effects will be direct and immediate. Even if the effects are relatively minor and localized, this type of sabotage is to be preferred to activities whose effects, while widespread, are indirect and delayed.

(1) The saboteur should be encouraged to attack transportation facilities of all kinds.

Among such facilities are roads, railroads; automobiles, trucks, motor-cycles, bicycles, trains, and trams.

(2) Any communications facilities which can be used by the authorities to transmit instructions or morale material should be the objects of simple sabotage. These include telephone, telegraph and power systems, radio, newspapers, placards, and public notices.

(3) Critical materials, valuable in themscives or necessary to the efficient functioning of transportation and communication, also should become targets for the citizen-saboteur. These may include oil, gasoline, tires, food, and water.

5. SPECIFIC SUGGESTIONS FOR SIMPLE SABOTAGE

a. It will not be possible to evaluate the desirability of simple subolage in an area without having in mind rather specifically what individual acts and results are embraced by the definition of simple sabotage.

b. A listing of specific acts follows, classified according to types of larget. This list is presented as a growing rather than a complete outline of the methods of simple sabotage. As new techniques are developed, or new fields explored, it will be claborated and expanded.

(1) Bulldings

Warchouses, barracks, offices, hotels, and factory buildings are outstanding targets for simple sabotage. They are extremely susceptible to damage, especially by fire; they offer opportunities to such untrained people as janitors, charwomen, and casual visitors; and, when damaged, they present a relatively large handicap to the enemy.

(a) Fires can be started wherever there is an accumulation of inflammable material. Warehouses are obviously the most promising targets but incendiary sabotage need not be confined to them alone.

(1) Whenever possible, arrange to have the fire start after you have gone away. Use a

candle and paper combination, setting it as close as possible to the inflammable material you want to burn: From a sheet of paper, tear a strip three or four centimeters wide and wrap it around the base of the candle two or three times. Twist more sheets of paper into loose ropes and place them around the base of the candle. When the candle flame reaches the encircling strip, it will be ignited and in turn will ignite the surrounding paper. The size, heat, and duration of the resulting flame will depend on how much paper you use and how much of it you can cramp in a small space.

(2) With a flame of this kind, do not attempt to ignite any but rather inflammable materials, such as cotton sacking. To light more resistant materials, use a candle plus tightly rolled or twisted paper which has been soaked in gasoline. To create a briefer but even hotter flame, put celluloid such as you might find in an old comb, into a nest of plain or saturated paper which is to be fired by a candle.

(3) To make another type of simple fuse, soak one end of a plece of string in grease. Rub a generous pinch of gunpowder over the inch of string where greasy string meets clean string. Then ignite the clean end of the string. It will burn slowly without a flame (in much the same way that a cigarette burns) until it reaches the grease and gunpowder; it will then flare up suddenly. The grease-treated string will then burn with a flame. The same effect may be achieved by using matches instead of the grease and gunpowder. Run the string over the match heads, taking care that the string is not pressed or knotted. They too will produce a sudden flame. The advantage of this type of fuse is that string burns at a set speed. You can time your fire by the length and thickness of the string you chose.

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 $(\underline{4})$ Use a fuse such as the ones suggested above to start a fire in an office after hours. The destruction of records and other types of documents would be a serious handicap to the enemy.

(5) In basements where waste is kept, janitors should accumulate oily and greasy waste. Such waste sometimes ignites spontaneously, but it can easily be lit with a cigarette or match. If you are a janitor on night duty, you can be the first to report the fire, but don't report it too soon.

($\underline{6}$) A clean factory is not susceptible to fire, but a dirty one is. Workers should be careless with refuse and janitors should be inefficient in cleaning. If enough dirt and trash can be accumulated an otherwise fireproof building will become inflammable.

 $(\underline{7})$ Where illuminating gas is used in a room which is vacant at night, shut the windows tightly, turn on the gas, and leave a candle burning in the room, closing the door tightly behind you. After a time, the gas will explode, and a fire may or may not follow.

(b) Water and miscellaneous

(1) Ruin warehouse stock by setting the nutomatic sprinkler system to work. You can do this by tapping the sprinkler heads sharply with a hammer or by holding a match under them.

(2) Forget to provide paper in toilets; put tightly rolled paper, hair, and other obstructions in the W. C. Saturate a sponge with a thickstarch or sugar solution. Squeeze it tightly into a ball, wrap it with string, and dry. Remove the string when fully dried. The sponge will be in the form of a tight hard ball. Flush down a W. C. or otherwise introduce into a sewer line. The sponge will gradually expand to its normal size and plug the sewage system.

(3) Put a coin beneath a bulb in a public

building during the daytime, so that fuses will blow, out when lights are turned on at night. The fuses themselves may be rendered ineffective by putting a coin behind them or loading them with heavy wire. Then a short-circuit may either start a fire, damage transformers, or blow out a central fuse which will interrupt distribution of electricity to a large area.

 $(\underline{4})$ Jam paper, bits of wood, hairpins, and anything else that will fit, into the locks of all unguarded entrances to public buildings.

(2) Industrial Production: Manufacturing

(a) Tools

 $(\underline{1})$ Let cutting tools grow dull. They will be inefficient, will slow down production, and may damage the materials and parts you use them on.

(2) Leave saws slightly twisted when you are not using them. After a while, they will break when used.

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 $(\underline{3})$ Using a very rapid stroke will wear out a file before its time. So will dragging a file in slow strokes under heavy pressure. Exert pressure on the backward stroke as well as the forward stroke.

 $(\underline{4})$ Clean files by knocking them against the vise or the workpiece; they are easily broken this way.

(5) Bits and drills will snap under heavy pressure.

($\underline{6}$) You can put a press punch out of order by putting in it more material than it is adjusted for — two blanks instead of one, for example.

(7) Power-driven tools like pneumatic drills, riveters, and so on, are never efficient when dirty. Lubrication points and electric contacts can easily be fouled by normal accumulations of dirt or the insertion of foreign matter. (b) Jil and lubrication systems are not only vulnerable to easy sabotage, but arc critical in every machine with moving parts. Sabotage of oil and lubrication will slow production or stop work entirely at strategic points in industrial processes.

(1) Put metal dust or filings, fine sand, ground glass, emery dust (get it by pounding up an emery knife sharpener) and similar hard, gritty substances directly into lubrication systems. They will scour smooth surfaces, ruining pistons, cylinder walls, shafts, and bearings. They will overheat and stop motors which will need overhauling, new parts, and extensive repairs. Such materials, if they are used, should be introduced into lubrication systems past any filters which otherwise would strain them out.

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(2) You can cause wear on any machine by uncovering a filter system, poking a pencil or any other sharp object through the filter mesh, then covering it up again. Or, if you can dispose of it quickly, simply remove the filter.

(3) If you cannot get at the lubrication system or filter directly, you may be able to lessen the effectiveness of oil by diluting it in storage. In this case, almost any liquid will do which will thin the oil. A small amount of sulphuric acid, varnish, water-glass, or linseed oil will be especially effective.

 $(\underline{4})$ Using a thin oil where a heavy oil is prescribed will break down a machine or heat up a moving shaft so that it will "freeze" and stop.

(5) Put any clogging substance into lubrication systems or, if it will float, into store oil. Twisted combings of human hair, pieces of string, dead insects, and many other common. objects will be effective in stopping or hindering the flow of oil through feed lines and filters.

(6) Under some circumstances, you may be able to destroy oil outright rather than interfere with its effectiveness, by removing stop-r is from lubricating systems or by puncturing the drums and cans in which it is stored.

(c) Cooling Systems

(1) A water cooling system can be put out of commission in a fairly short time, with considerable damage to an engine or motor, if you put into it several pinches of hard grain, such as rice or wheat. They will swell up and choke the circulation of water, and the cooling system will have to be torn down to remove the obstruction. Sawdust or hair may also be used to clog a water cooling system.

(2) If very cold water is quickly introduced into the cooling system of an overheated motor, contraction and considerable strain on the engine housing will result. If you can repeat the treatment a few times, cracking and serious damage will result.

 $(\underline{3})$ You can ruin the effectiveness of an air cooling system by plugging dirt and waste into intake or exhaust valves. If a belt-run fan is used in the system, make a jagged cut at least half way through the belt; it will slip and finally part under strain and the motor will overheat.

(d) Gasoline and Oil Fuel

Tanks and fueling engines usually are accessible and easy to open. They afford a very vulnerable target for simple sabotage activities.

(1) Put several pinches of sawdust or hard grain, such as rice or wheat, into the fuel tank of a gasoline engine. The particles will choke a feed line so that the engine will stop. Some time will be required to discover the source of the trouble. Although they will be hard to get, crumbs of natural rubber, such as you might find in old rubber bands and pencil erasers, are also effective.

(2) If you can accumulate sugar, put it in

the fuel tank of a gasoline engine. As it burns together with the gasoline, it will turn into a sticky mess which will completely mire the engine and necessitate extensive cleaning and repair. Honey and molasses are as good as sugar. Try to use about 75-100 grams for each 10 gallons of gasoline.

(3) Other impurities which you can introduce into gasoline will cause rapid engine wear and eventual breakdown. Fine particles of pumice, sand, ground glass, and metal dust can easily be introduced into a gasoline tank. Be sure that the particles are very fine, so that they will be able to pass through the carburetor jet.

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(4) Water, urine, wine, or any other simple liquid you can get in reasonably large quantities will dilute gasoline fuel to a point where no combustion will occur in the cylinder and the engine.
will not move. One pint to 20 gallons of gasoline is sufficient. If salt water is used, it will cause corrosion and permanent motor damage.

(5) In the case of Diesel engines, put low flashpoint oil into the fuel tank; the engine will not move. If there already is proper oil in the tank when the wrong kind is added, the engine will only limp and sputter along.

($\underline{6}$) Fuel lines to gasoline and oil engines frequently pass over the exhaust pipe. When the machine is at rest, you can stab a small hole in the fuel line and plug the hole with wax. As the engine runs and the exhaust tube becomes hot, the wax will be melted; fuel will drip onto the exhaust and a blaze will start.

 $(\underline{7})$ If you have access to a room where gasoline is stored, remember that gas vapor accumulating in a closed room will explode after a time if you leave a candle burning in the room. A good deal of evaporation, however, must occur from the gasoline tins into the air of the room. If removal of the tops of the tins does not expose enough gasoline to the air to ensure copious evaporation, you can open lightly constructed tins further with a knife, ice pick or sharpened nail file. Or puncture a tiny hole in the tank which will permit gasoline to leak out on the floor. This will greatly increase the rate of evaporation. Before you light your candle, be sure that windows are closed and the room is as air-tight as you can make it. If you can see that windows in a neighboring room are opened wide, you have a chance of setting a large fire which will not only destroy the gasoline but anything else nearby; when the gasoline explodes, the doors of the storage room will be blown open, a draft to the neighboring windows will be created which will whip up a fine conflagration.

(e) Electric Motors

Electric motors (including dynamos) are " more restricted than the targets so far discussed. They cannot be sabotaged easily or without risk of injury by unskilled persons who may otherwise have … good opportunities for destruction.

 $(\underline{1})$ Set the rheostat to a high point of resistance in all types of electric motors. They will overheat and catch fire.

(2) Adjust the overload relay to a very high value beyond the capacity of the motor. Then overload the motor to a point where it will overheat and break down.

(3) Remember that dust, dirt, and moisture are enemies of electrical equipment. Spill dust and dirt onto the points where the wires in electric motors connect with terminals, and onto insulating parts. Inefficient transmission of current and, in some cases, short circuits will result. Wet generator motors to produce short circuits.

' $(\underline{4})$ "Accidentally" bruise the insulation on wire, loosen nuts on connections, make faulty splices and faulty connections in wiring, to wiste electric current and reduce the power of electric motors.

(5) Damage to commutators can reduce the power output or cause short circuiting in direct-current motors: Loosen or remove commutator holding rings. Sprinkle carbon, graphlic, or metal dust on commutators. Put a little grease or oil at the contact points of commutators. Where commutator bars are close together uridge the gaps between them with metal dust, or sawtooth their edges with a chisel so that the teeth on adjoining bars meet or nearly meet and current can pass from one to the other.

($\underline{6}$) Put a piece of finely grained emery paper half the size of a postage stamp in a place where it will wear away rotating brushes. The emery paper—and the motor—will be destroyed in the resulting fire.

(7) Sprinkle carbon, graphite or metal dust on slip-rings so that the current will leak or short circuits will occur. When a motor is idle, nick the slip-rings with a chisel.

($\underline{8}$) Cause motor stoppage or inefficiency by applying dust mixed with grease to the face of the armature so that it will not make proper contact.

($\underline{9}$) To overheat electric motors, mix sand with heavy grease and smear it between the stator and rotor, or wedge thin metal pieces between them. To prevent the efficient generation of current, put floor sweepings, oil, tar, or paint between them.

(10) In motors using three-phase current, deeply nick one of the lead-in wires with a knife or file when the machine is at rest, or replace one of the three fuses with a blown-out fuse. In the first case, the motor will stop after running awhile, and in the second, it will not start.

(f) Transformers

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 $(\underline{1})$ Transformers of the oil-filled type can be put out of commission if you pour water, salt water, machine-tool coolant, or kerosene into the oil tank.

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(2) In air-cooled transformers, block the ventilation by pilling debris around the transformer.

 $(\underline{3})$ In all types of transformers, throw carbon, graphite or metal dust over the outside bushings and other exposed electrical parts.

(g) Turbines for the most part are heavily built, stoutly housed, and difficult of access. Their vulnerability to simple sabotage is very low.

(1) After inspecting or repairing a hydro turbine, fasten the cover insecurely so that it will blow off and flood the plant with water. A loose cover on a steam turbine will cause it to leak and slow down.

(2) In water turbines, insert a large piece of scrap iron in the head of the penstock, just beyond the screening, so that water will carry the damaging material down to the plant equipment.

(3) When the steam line to a turbine is opened for repair, put pieces of scrap iron into it, to be blasted into the turbine machinery when steam is up again.

 $(\underline{4})$ Create a leak in the line feeding oil to the turbine, so that oil will fail on the hot steam pipe and cause a fire.

(h) Boilers

(1) Reduce the efficiency of steam boilers any way you can. Put too much water in them to make them slow-starting, or keep the fire under them low to keep them inefficient. Let them dry and turn the fire up; they will crack and be ruined. An especially good trick is to keep putting limestone or water containing lime in the boiler; it will deposit lime on the bottom and sldes. This deposit will provide very good insulation against heat; after enough of it has collected, the boiler will be completely worthless.

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(3) Production: Metals

(a) Iron and Steel

(1) Keep blast furnaces in a condition where they must be frequently shut down for repair. In making fire-proof bricks for the inner \cdot lining of blast furnaces, put in an extra proportion of tar so that they will wear out quickly. . and necessitate constant re-lining.

(2) Make cores for casting so that they are filled with air bubbles and an imperfect cast results.

(3) See that the core in a mold is not properly supported, so that the core gives way or the casting is spoiled because of the incorrect position of the core.

 $(\underline{4})$ In tempering steel or iron, apply too much heat, so that the resulting bars and ingots are of poor quality.

(b) Other Metals

No suggestions available.

(4) Production: Mining and Mineral Extraction

(a) Coal

(1) A slight blow against your Davy oil lamp will extinguish it, and to light it again you will have to find a place where there is no fire damp. Take a long time looking for the place.

(2) Blacksmiths who make pneumatic picks should not harden them properly, so that they will quickly grow dull.

(3) You can easily put your pneumatic pick out of order. Pour a small amount of water through the oil lever and your pick will stop working. Coal dust and improper lubrication will also put it out of order.

 $(\underline{4})$ Weaken the chain that pulls the bucket conveyers carrying coal. A deep dent in the chain made with blows of a pick or shovel will cause it to part under normal strain. Once a chain breaks, normally or otherwise, take your time about reporting the damage; be slow about taking the chain up for repairs and bringing it back down after repairs.

(5) Derall mine cars by putting obstructions on the rails and in switch points. If possible, pick a gallery where coal cars have to pass each other, so that traffic will be snarled up.

 $(\underline{0})$ Send up quantities of rock and other useless material with the coal.

(5) Production: Agriculture

(a) Machinery

(<u>1</u>) See par. 5 <u>b</u>. (2) (c), (d), (e).

(b) Crops and livestock probably will be destroyed only in areas where there are large food surpluses or where the enemy (regime) is known to be requisitioning food.

(1) Feed crops to livestock. Let crops harvest too early or too late. Spoil stores of grain, fruit and vegetables by soaking them in water so that they will rot. Spoil fruit and vegetables by leaving them in the sun.

(6) Transportation: Railways

(a) Passengers

(1) Make train travel as inconvenient as possible for enemy personnel. Make mistakes in issuing train tickets, leaving portions of the journey uncovered by the ticket book; issue two tickets for the same seat in the train, so that an interesting argument will result; near train time, instead of issuing printed tickets write them out slowly by hand, prolonging the process until the train is nearly ready to leave or has left the station. On station bulletin boards announcing train arrivals and departures, see that false and misleading information is given about trains bound for enemy destinations.

(2) In trains bound for enemy destinations, attendants should make life as uncomfortable

as possible for passengers. See that the food is especially bad, take up tickets after midnight, call all station stops very loudly during the night, handle baggage as noisily as possible during the night, and so on.

(3) See that the luggage of enemy personnel is mislaid or unloaded at the wrong stations. Switch address labels on enemy baggage.

(4) Engineers should see that trains run slow or make unscheduled stops for plausible reasons.

(b) Switches, Signals and Routing

(1) Exchange wires in switchboards containing signals and switches, so that they connect to the wrong terminals.

(2) Loosen push-rods so that signal arms do not work; break signal lights; exchange the colored lenses on red and green lights.

(3) Spread and spike switch points in the track so that they will not move, or place rocks or close-packed dirt between the switch points.

(4) Sprinkle rock salt or ordinary salt profusely over the electrical connections of switch points and on the ground nearby. When it rains, the switch will be short-circuited.

(5) See that cars are put on the wrong trains. Remove the labels from cars needing repair and put them on cars in good order. Leave couplings between cars as loose as possible.

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(c) Road-beds and Open Track

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(1) On a curve, take the bolts out of the tie-plates connecting to sections of the outside rail, and scoop away the gravel, cinders, or dirt for a few feet on each side of the connecting joint.

(2) If by disconnecting the tic-plate at a joint and loosening sleeper nails on each side of the joint, it becomes possible to move a sec-

tion of rail, spread two sections of rai, and drive a spike vertically between them.

(d) Oil and Lubrication

(1) See 5 b. (2) (b).

 $(\underline{2})$ Squeeze lubricating pipes with pincers or dent them with hammers, so that the flow of oil is obstructed.

(e) Cooling Systems

(1) Sec 5 b (2) (c).

(f) Gasoline and Oil Fuel

(<u>1</u>) See 5 <u>b</u> (2) (d).

(g) Electric Motors

(1) See 5 b (2) (e) and (f).

(h) Bollers

(1) Sce 5 b (2) (h).

(2) After inspection put heavy oil or tar in the engines' boilers, or put half a kilogram of soft soap into the water in the tender.

(i) Brakes and Miscellaneous

(1) Engines should run at high speeds and use brakes excessively at curves and on downhill grades.

(2) Punch holes in air-brake valves or water supply pipes.

 $(\underline{3})$ In the last car of a passenger train or or a front car of a freight, remove the wadding from a journal box and replace it with oily rags.

(7) Transportation: Automotive

(a) Roads. Damage to roads [(3) below] is slow, and therefore impractical as a D-day or near D-day activity.

' $(\underline{1})$ Change sign posts at intersections and forks; the enemy will go the wrong way and it may be miles before he discovers his mistakes. In areas where traffic is composed primarily of enemy autos, trucks, and motor convoys of various kinds, remove danger signals from curves and intersections.

(2) When the enemy asks for directions, give him wrong information. Especially when enemy convoys are in the neighborhood, truck drivers can spread rumors and give false information about bridges being out, ferries closed, and detours lying ahead.

(3) If you can start damage to a heavily traveled road, passing traffic and the elements will do the rest. Construction gangs can see that too much sand or water is put in concrete or that the road foundation has soft spots. Anyone can scoop ruts in asphalt and macadam roads which turn soft in hot weather; passing trucks will accentuate the ruts to a point where substantial repair will be needed. Dirt roads also can be scooped out. If you are a road laborer, it will be only a few minutes work to divert a small stream from a sluice so that it runs over and eats away the road.

 $(\underline{4})$ Distribute broken glass, nails, and sharp rocks on roads to puncture tires.

(b) Passengers

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(1) Bus-driver can go past the stop where the enemy wants to get off. Taxi drivers can waste the enemy's time and make extra money by driving the longest possible route to his destination.

(c) Oil and Lubrication

(1) See 5 b. (2) (b).

 \cdot (2) Disconnect the oil pump; this will burn out the main bearings in less than 50 miles of normal driving.

(d) Radiator

(1) Sec 5 b. (2) (c).

(e) Fuel

(1) See 5 b. (2) (d).

(1) Battery and Ignition

(1) Jam bits of wood into the ignition lock; loosen or exchange connections behind the switchboard; put dirt in spark plugs; damage distributor points.

(2) Turn on the lights in parked cars so that the battery will run down.

(3) Mechanics can ruin batteries in a number of undetectable ways: Take the valve cap off a cell, and drive a screw driver slantwise into the exposed water vent, shattering the plates of the cell; no damage will show when you put the cap back on. Iron or copper filings put into the cells i.e., dropped into the acid, will greatly shorten its life. Copper coins or a few pleces of iron will accomplish the same and more slowly. One hundred to 150 cubic centimeters of vinegar in each cell greatly reduces the life of the battery, but the odor of the vinegar may reveal what has happened.

(g) Gears

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 $(\underline{1})$ Remove the lubricant from or put too light a lubricant in the transmission and other gears.

(2) In trucks, tractors, and other machines with heavy gears, fix the gear case insccurely, putting bolts in only half the bolt holes. The gears will be badly jolted in use and will soon need repairs.

(h) Tires

(1) Slash or puncture tires of unguarded vehicles. Put a nail inside a match box or other small box, and set it vertically in front of the back tire of a stationary car; when the car starts off, the nail will go neatly through the tire.

 $(\underline{2})$ It is easy to damage a tire in a tire repair shop: In fixing flats, spill glass, benzine, caustic soda, or other material inside the casing which will puncture or corrode the tube. If you put a gummy substance inside the tube, the next flat will stick the tube to the casing and make

it unusable. Or, when you fix a flat tire, you can simply leave between the tube and the casing the object which caused the flat in the first place.

(3) In assembling a tire after repair, pump the tube up as fast as you can. Instead of filling out smoothly, it may crease, in which case it will wear out quickly. Or, as you put a tire together, see if you can pinch the tube between the rim of the tire and the rim of the wheel, so that a blow-out will result.

($\underline{4}$) In putting air into tires, see that they are kept below normal pressure, so that more than an ordinary amount of wear will result. In filling tires on double wheels, inflate the inner tire to a much higher pressure than the outer one; both will wear out more quickly this way. Badly aligned wheels also wear tires out quickly; you can leave wheels out of alignment when they come in for adjustment, or you can spring them out of true with a strong kick, or by driving the car slowly and diagonally into a curb.

(5) If you have access to stocks of tires, you can rot them by spilling oil, gasoline, caustic acid, or benzine on them. Synthetic rubber, however, is less susceptible to these chemicals.

(8) Transportation: Water

(a) Navigation

(1) Barge and river boat personnel should spread false rumors about the navigability and conditions of the waterways they travel. Tell other barge and boat captains to follow channels that will take extra time, or cause them to make canal detours.

(2) Barge and river boat captains should navigate with exceeding caution near locks and bridges, to waste their time and to waste the time of other craft which may have to wait on them. If you don't pump the bilges of ships and barges' often enough, they will be slower and harder to navigate. Barges "accidentally" run aground are an efficient time waster too.

(3) Attendants on swing, draw, or bascule bridges can delay traffic over the bridge or in the waterway underneath by being slow. Boat captains can leave unattended draw bridges open in order to hold up road traffic.

 $(\underline{4})$ Add or subtract compensating magnets to the compass on cargo ships. Demagnetize the compass or maladjust it by concealing a large bar of steel or iron near to it.

(b) Cargo

(1) While loading or unloading, handle cargo carelessly in order to cause damage. Arrange the cargo so that the weakest and lightest crates and boxes will be at the bottom of the hold, while the heaviest ones are on top of them. Put hatch covers and tarpaulins on sloppily, so that rain and deck wash will injure the cargo. Tie float valves open so that storage tanks will overflow on perishable goods.

(9) Communications

(a) Telephone

(1) At office, hotel and exchange switchboards delay putting enemy calls through, give them wrong numbers, cut them off "accidentally," or forget to disconnect them so that the line cannot be used again.

(2) Hamper official and especially military business by making at least one telephone call a day to an enemy headquarters; when you get them, tell them you have the wrong number. Call military or police offices and make anonymous false reports of fires, air raids, bombs.

(3) In offices and buildings used by the enemy, unscrew the earphone of telephone receivers and remove the diaphragm. Electricians and telephone repair men can make poor connections and damage insulation so that cross-

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talk and other kinds of electrical interference will make conversations hard or impossible to understand.

(4) Put the batteries under automatic switchboards out of commission by dropping nails, metal filings, or coins into the cells. If you can treat half the batteries in this way, the switchboard will stop working. A whole telephone system can be disrupted if you can put 10 percent of the cells in half the batteries of the central battery room out of order.

(b) Telegraph

 $(\underline{1})$ Delay the transmission and delivery of telegrams to enemy destinations.

(2) Garble telegrams to enemy destinations so that another telegram will have to be sent or a long distance call will have to be made. Sometimes it will be possible to do this by changing a single letter in a word — for example, changing "minimum" to "miximum," so that the person receiving the telegram will not know whether "minimum" or "maximum" is meant.

(c) Transportation Lines

 $(\underline{1})$ Cut telephone and telegraph transmission lines. Damage insulation on power lines to cause interference.

(d) Mall

(1) Post office employees can see to it that enemy mail is always delayed by one day or more, that it is put in wrong sacks, and so on.

(e) Motion Pictures

(<u>1</u>) Projector operators can ruin newsreels and other enemy propaganda films by bad focusing, speeding up or slowing down the film and by causing frequent breakage in the film.

(2) Audiences can ruin enemy propaganda films by applauding to drown the words of the speaker, by coughing loudly, and by talking.

(3) Anyone can break up a showing of an

enemy propaganda film by putting two or three dozen large moths in a paper bag. Take the bag to the movies with you, put it on the floor in an empty section of the theater as you go in and leave it open. The moths will fiy out and climb into the projector beam, so that the film will be obscured by fluttering shadows.

(1) Radio

(1) Station engineers will find it quite easy to overmodulate transmissions of talks by persons giving enemy propaganda or instructions, so that they will sound as if they were talking through a heavy cotton blanket with a mouth full of marbles.

(2) In your own apartment building, you can interfere with radio reception at times when the enemy wants everybody to listen. Take an electric light plug off the end of an electric light cord; take some wire out of the cord and tie it across two terminals of a two-prong plug or three terminals of a four-prong plug. Then take it around and put it into as many wall and floor outlets as you can find. Each time you insert the plug into a new circuit, you will blow out a fuse and silence all radios running on power from that circuit until a new fuse is put in.

(3) Damaging insulation on any electrical equipment tends to create radio interference in the immediate neighborhood, particularly on large generators, neon signs, fluorescent lighting, X-raymachines, and power lines. If workmen can damage insulation on a high tension line near an enemy airfield, they will make groundto-plane radio communications difficult and perhaps impossible during long periods of the day.

(10) Electric Power

(a) Turbines, Electric Motors, Transformers

(1) See 5 \underline{b} . (2) (e), (f), and (g).

(b) Transmission Lines

(1) Linesmen can loosen and dirty insula-

tors to cause power leakage. It will be quite easy, too, for them to tie a piece of very heavy string several times back and forth between two parallel transmission lines, winding it several turns around the wire each time. Beforehand, the string should be heavily saturated with salt and then dried. When it rains, the string becomes a conductor, and a short-circuit will result.

(11) General Interference with Organizations and \sim Production

(a) Organizations and Conferences

(1) Insist on doing everything through "channels." Never permit short-cuts to be taken in order to expedite decisions.

(2) Make "speeches." Talk as frequently as possible and at great length. Illustrate your "points" by long anecdotes and accounts of personal experiences. Never hesitate to make a few appropriate "patriotic" comments.

(3) When possible, refer all matters to committees, for "further study and consideration." Attempt to make the committees as large as possible — never less than five.

 $(\underline{4})$ Bring up irrelevant issues as frequently as possible.

(5) Haggle over precise wordings of communications, minutes, resolutions.

($\underline{0}$) Refer back to matters decided upon at the last meeting and attempt to re-open the question of the advisability of that decision.

 $(\underline{7})$ Advocate "caution." Be "reasonable" and urge your fellow-conferences to be "reasonable" and avoid haste which might result in embarrassments or difficulties later on.

(8) Be worried about the propriety of any decision — raise the question of whether such action as is contemplated lies within the jurisdiction of the group or whether it might conflict with the policy of some higher echelon.

(b) Managers and Supervisors

 $(\underline{1})$ Demand written orders.

(2) "Misunderstand" orders. Ask endless questions or engage in long correspondence about such orders. Quibble over them when you can.

(3) Do everything possible to delay the delivery of orders. Even though parts of an offer may be ready beforehand, don't deliver it until it is completely ready.

 $(\underline{4})$ Don't order new working materials until your current stocks have been virtually exhausted, so that the slightest delay in filling your order will mean a shutdown.

(5) Order high-quality materials which are hard to get. If you don't get them argue about it. Warn that inferior materials will mean inferior work.

(6) In making work assignments, always sign out the unimportant jobs first. See that the important jobs are assigned to inefficient workers of poor machines.

 $(\underline{7})$ Insist on perfect work in relatively unimportant products; send back for refinishing those which have the least flaw. Approve other defective parts whose flaws are not visible to the naked eye.

 $(\underline{8})$ Make mistakes in routing so that parts and materials will be sent to the wrong place in the plant.

(9) When training new workers, give incomplete or misleading instructions.

 $(\underline{10})$ To lower morale and with it, production, be pleasant to inefficient workers; give tham undeserved promotions. Discriminate against efficient workers; complain unjustly about their work.

(11) Hold conferences when there is more. critical work to be done.

 $(\underline{12})$ Multiply paper work in plausible ways. Start duplicate files.

 $(\underline{13})$ Multiply the procedures and clearances involved in issuing instructions, pay checks, and so on. See that three people have to approve everything where one would do.

(14) Apply all regulations to the last letter.

(c) Office Workers

(1) Make mistakes in quantities of material when you are copying orders. Confuse similar names. Use wrong addresses.

(2) Prolong correspondence with government bureaus.

(3) Misfile essential documents.

(4) In making carbon copies, make one too. few, so that an extra copying job will have to be done.

(5) Tell important callers the boss is busy or talking on another telephone.

(6) Hold up mail until the next collection.

 $(\underline{7})$ Spread disturbing rumors that sound like inside dope.

(d) Employees

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(1) Work slowly. Think out ways to increase the number of movements necessary on your job: use a light hammer instead of a heavy one, try to make a small wrench do when a big one is necessary, use little force where considerable force is needed, and so on.

(2) Contrive as many interruptions to your work as you can: when changing the material on which you are working, as you would on a lathe or punch, take needless time to do it. If you are cutting, shaping or doing other measured work, measure dimensions twice as often as you need to. When you go to the lavatory, spend a longer time there than is necessary. Forget tools so that you will have to go back after them. $(\underline{3})$ Even if you understand the language, pretend not to understand instructions in a foreign tongue.

 $(\underline{4})$ Pretend that instructions are hard to understand, and ask to have them repeated more than once. Or pretend that you are particularly anxious to do your work, and pester the foreman with unnecessary questions.

(5) Do your work poorly and blame it on bad tools, machinery, or equipment. Complain that these things are preventing you from doing your job right.

($\underline{\beta}$) Never pass on your skill and experience to a new or less skillful worker.

 $(\underline{7})$ Snarl up administration in every possible way. Fill out forms illegibly so that they will have to be done over; make mistakes or omit requested information in forms.

($\underline{8}$) If possible, join or help organize a group for presenting employee problems to the management. See that the procedures adopted are as inconvenient as possible for the management, involving the presence of a large number of employees at each presentation, entailing more than one meeting for each grievance, bringing up problems which are largely imaginary, and so on.

(9) Misroute materials.

(10) Mix good parts with unusable scrap and rejected parts.

(12) General Devices for Lowering Morale and Creating Confusion

(a) Give lengthy and incomprehensible explanations when questioned.

(b). Report imaginary spies or danger to the Gestapo or police.

(c) Act stupid.

(d) Be as irritable and quarrelsome as possible without getting yourself into trouble.

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(e) Misunderstand all sorts of regulations concerning such matters as rationing, transportation, traffic regulations.

(f) Complain against ersatz materials.

(g) In public treat axis nationals or quislings coldly.

(h) Stop all conversation when axis nationals or quislings enter a cafe.

(i) Cry and sob hysterically at every occasion, especially when confronted by government clerks.

(j) Boycott all movies, entertainments, concerts, newspapers which are in any way connected with the quisling authorities.

(k) Do not cooperate in salvage schemes.

POCKET CODE

This code features building types prominently, and its frontages, signs, thoroughfares, and civic spaces should be understood as type-based. (Courtesy Sandy Sorlien.)

THE POCKET CODE

SECTION I. Intent

To protect and encourage walkable neighborhoods, including downtowns. The Intent is further expressed in the Transect Zone descriptions below, locally customized to the character and goals of the community, and in the CNU Charter at <u>www.cnu.org/charter</u>.

NEIGHBORHOOD TRANSECT ZONES

T3: a quiet mostly residential area of larger lots and detached and/or semi-detached dwellings, within walking distance of higher Transect Zones.

T4: a more populated, mostly residential area of smaller lots and several dwelling types and corner stores.

T5: a well-populated Main Street area with a full mix of uses within the zone and potentially within buildings.

T6: the most populated, most urban part of a major downtown. This zone is reserved for cities that are regional transit hubs with region-serving civic and cultural institutions in their core. Otherwise, T5 usually suffices for the center of town.

SECTION II. Rules for Private Lots & Buildings

This section applies where Transect Zones have been mapped.

BUILDING TYPES

Detached T3: [2.5] stories max. Front setback no min-max, Side setback [12] ft min.

Frontages: Porch, Yard/Garden, Fence/Wall

Detached T4: [3.5] stories max. Front setback [24] ft max, Side setback [5] ft min.

Frontages for House: Porch, Yard/Garden, Stoop, Fence/Wall

Frontages for Corner Store: Shopfront, Gallery, Cafe Patio, Dooryard, Fence/Wall

Semi-Detached T4: [3.5] stories max. Front setback [24] ft max, no min.

Frontages: same as Detached T4

Attached T4: [3.5] stories max. Front setback [12 ft] max, no min.

Frontages for Rowhouse: Porch, Stoop, Terrace, Dooryard, Fence/Wall

Frontages for Corner Store: Shopfront, Gallery

Attached T5,T6: [4.5] stories max. Front setback [6] ft max.

Frontages: Stoop, Terrace, Dooryard, Fence/Wall, Shopfront, Corner Gallery, Corner Arcade

Multi-Unit Building T4: [4.5] stories max. Front setback [24] ft max.

Frontages: Yard/Garden, Stoop, Dooryard, Fence/Wall, Corner Shopfront, Corner Gallery, Fence/Wall

Multi-Unit Building T5 and T6: [5.5] stories max T5, [8.5] stories max T6. Front setback [6] ft max.

Frontages: Stoop, Dooryard, Shopfront, Gallery, Arcade, Fence/Wall

FRONTAGE DESIGN

- Upon development or redevelopment of a lot, the property owner shall improve the public frontage as needed to conform with the thoroughfare type as mapped per Section II.
- A balcony, stoop, bay window, or open porch may encroach the front setback. A gallery, arcade, or stoop may encroach onto the public sidewalk. Public frontage lines may move if public easement is preferred.
- Glazing on [mandatory shopfronts, if so designated] shall be clear and cover at least [50%] of the facade portion between [2 to 12] ft above the sidewalk.
- Awnings on shopfronts, if any, shall be minimum [4] ft deep. Adjustable roll-up awnings are encouraged.
- Cafe patios are permitted only where a cafe use is permitted.
- •Fences and walls along the public way shall be [4] ft or lower. Chain link fencing is prohibited on frontages.
- T3,T4: the private frontage shall not be paved, with the exception of driveways, cafe patios, and terraces where permitted.
- •T5,T6: Buildings shall occupy 100% of their lot width, except for passages up to [10] ft wide.
- •T5,T6: Store displays, window signs, or curtains on the ground floor shall not obstruct views in or out of any business.

SIGNS

- T3,T4: Signs for home businesses shall be limited to unlighted projecting signs or nameplates on the facade, no larger than [4] sf.
- T4: Signs for retail businesses shall be limited to one projecting sign per entrance, each no larger than [4] sf, and one signband any length on the facade, no higher than [3] ft; **or** one yard sign no larger than [6] sf on a post no higher than [6] ft. Signs may be externally lighted.
- T5, T6: Same as T4 retail but projecting signs may be [6] sf.
- T4, T5, T6: Lettering on awnings shall be limited to the valance area. No exterior signs may be lighted internally or generated digitally.

PARKING

- •There are no parking minimums.
- •T-3,T-4 parking shall be at least [20] ft behind the facade.
- •T-5,T-6 parking shall be behind the buildings, invisible from adjacent sidewalks.
- Parking garages shall have liner shopfronts at the ground floor and liner offices or apartments above. Parking floors should be level with ramps in the center.
- Parking shall be generally permitted on-street in all zones (T3-T6).
- T3,T4 driveways shall be a maximum [10] ft wide to the facade.
- T5,T6 driveways shall be a maximum [20] ft wide where visible.

BUILDING USE

If a use table is desired, refer to Table 4E and Table 4F of the Neighborhood Conservation Code, available at <u>www.smartcodelocal.com</u>. Otherwise, use intensity is constrained by form. Community or block associations may be created to negotiate local use conflicts.

SECTION III. Rules for Neighborhood / Downtown Planning

If further large-scale planning is anticipated, this section may be included in the adopted code.

RECOMMENDED TRANSECT ZONES FOR COMMUNITY UNIT TYPES

per planned or identified 1/4 mi radius walkshed

Hamlet / Pocket Village: T3+T4

Full Village / Town: T3+T4+T5

Pocket Neighborhood: T3+T4, or just T4

Full Neighborhood: T4+T5, or T3+T4+T5

Downtown: T4+T5, or T5+T6, or T4+T5+T6

- Land not mapped as Transect Zones or Civic areas remains regulated under the existing ordinance.
- •The Community Unit (CU) may be larger or smaller than the walkshed. Each walkshed associated with the CU shall contain two or more Transect Zones (which may be outside the actual coded area).
- •Walksheds should have no more than [60%] T3 by land area.

THOROUGHFARES

• Thoroughfares may be customized and allocated from the Complete Thoroughfares, Bicycling, or Transit Modules according to their Transect Zone context. Existing Thoroughfares should be identified by type and measurements and marked on the Transect Zoning Map, along with intended types if different.

• Vehicular thoroughfares that are not safe for pedestrians to share shall have continuous sidewalks.

LOT WIDTH MAXIMUMS

- T3 120 ft. T4 60 ft. T5 180 ft. T6 length of block.
- Flag lots are permitted if front doors of rear dwellings are visible from the sidewalk.

CIVIC SPACE RESERVE

•Reserve Civic Spaces on the Transect Zoning Map to comprise at least [5%] of the walkshed associated with the planned Community Unit (CU). Each must border a thoroughfare. Existing Civic Spaces that comport with the standards below may be counted. See Glossary for definitions of these types.

Pocket Parks shall be no more than 1/2 acre.

Greens shall be 1/2 acre to 8 acres.

Squares shall be 1/2 acre to 5 acres and bounded on at least [2] sides by a street with buildings.

Plazas shall be 1/2 acre to 2 acres and bounded on at least [2] sides by a street with buildings.

Playgrounds should be placed so there is one within [800] ft of each dwelling in the CU.

• Large parks, playing fields, and greenways require separate plans.

CIVIC BUILDING RESERVE

- Reserve sites on the Transect Zoning map, with or without a Civic Space. Standards for Civic Buildings may be determined by the community in a public process. Civic uses may also be accommodated in any T5 or T6 building.
- Each CU should have a meeting hall within walking distance, inside or outside the mapped area.

SECTION IV. Glossary

Accessory Unit: apartment sharing ownership and utility connections with a principal building, either inside it or in an outbuilding.

Arcade: arched or columnated frontage supporting habitable space that overlaps the sidewalk.

Attached Building: one of three or more buildings in a row attached at side lot lines, yard in rear.

Bungalow: small detached dwelling with porch or stoop frontage. Variant: Cottage.

Bungalow Court: area containing several bungalows of the same style. Variant: Cottage Court.

Cafe Patio: a paved, masonry, or boardwalk terrace for cafe tables.

Civic: pertaining to not-for-profit organizations and public places dedicated to arts, culture, education, recreation, religion, government, or transit.

Community Unit: a planned or regulated settlement containing Transect Zones.

Detached Building: freestanding building, yards in back and one or both sides and usually in front.

Dooryard: private frontage with low fence/wall at lot lines and small front garden, with zero-step entry.

Flag Lot: a lot behind another lot, accessed from a thoroughfare by easement across the front lot.

Gallery: attached cantilevered shed or lightweight colonnade overlapping the sidewalk.

Green: informal multi-use planted outdoor space.

Multi-Unit Building: large building under single ownership or condo agreement containing multiple dwelling units, offices, and/or shops.

Outbuilding: small building behind and subordinate to the principal building on a lot.

Pocket Park: small but usable green or paved outdoor space.

Porch: roofed outdoor extension of a dwelling, large enough for group seating.

Plaza: formal multi-use paved outdoor space.

Principal Building: the main building on a lot.

Private Frontage: the private land and built extensions between the facade and the frontage line, or attached to the facade overlapping the sidewalk.

Public Frontage: the portion of a thoroughfare between the private lot line and the curb.

Semi-Detached Building: building attached to another at side lot line, yards in back and one side.

Shopfront: partially or fully glazed first story suitable for retail, often with an awning.

Square: formal multi-use planted and paved outdoor space.

Stoop: private frontage consisting of a step or steps overlapping or near the sidewalk.

Thoroughfare: a public way for use by vehicular, pedestrian and/or bicycle traffic.

Transect: a cross-section or path through the environment, used to analyze a range of habitats.

Transect Zone: a habitat with distinctive character, customized for zoning the human environment.

Waiver: administrative approval of a minor deviation from a measurable standard of this Code.

SECTION V. Legal

AUTHORITY

- •The action of [Municipality, State] in the adoption of this Code is authorized under [Charter of the Municipality, Section X] and [Local and State Statutes, Section X].
- This Code was adopted to support the civic purposes of the [Municipal Comprehensive/General Plan]. It promotes the health, safety, and general welfare of [Municipality, State] and its citizens.
- •This Code was adopted and may be amended by vote of the [Planning Commission] and [Legislative Body or Town Meeting].

APPLICABILITY

- The rules of Section II of this Code apply to all lots and buildings within the area known as [Walkable Neighborhood District]. See Transect Zoning Map attached. For this area, this Code replaces the [Existing Zoning Ordinance] in its entirety. The [Local Health and Safety Codes] remain in effect. Rules with "should" are optional but recommended.
- •The planning rules of Section III are available by right for any developer with a parcel of [5 acres] or more, or for the [Municipality] to extend the coverage of Section II.

ADMINISTRATION

- Applications for individual projects adhering to Section II (Lots & Buildings) shall be approved administratively, including any Waivers.
- Applications for Community Unit plans using Section III (Neighborhood/Downtown Planning) are subject to public review. They may be prioritized over conventional plans submitted under the existing zoning ordinance, or otherwise fast-tracked or incentivized. Rules for such expediting should be listed here.
- Administrative Waivers may be granted for variations from explicit (measurable) standards when they do not undermine the Intent of this Code. See Section I.
- Conventional variance and appeals procedures are otherwise compatible with this Code.

LEAN CODE TOOL

Lean Code Tool, by Susan Henderson and Matthew Lambert with Bill Spikowski.

The Project for Lean Urbanism is managed by the Center for Applied Transect Studies and has received support from the John S. and James L. Knight Foundation.

LEAN CODE TOOL

Incremental Code Reform



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Susan Henderson Matt Lambert with Bill Spikowski

leanurbanism.org



LEAN CODE TOOL

Writing a new zoning code is time-consuming, politically fraught with landmines, and in most places, unlikely to happen. But many zoning codes can be adapted to allow Lean Urbanism and improve or create walkable, livable environments, with a limited number of strategic revisions. This tool outlines a Lean process that non-experts can use to revise their codes for incremental code reform.

becision Points Identify how to use this Tool for the local context



Νο



Parking may produce barriers to walkability and economically viable development



Procedural Strategies

Changes that will most effectively implement a predictable, Lean process



42 Use Strategies

Segregated uses limit redevelopment and vibrant, mixed-use environments



Urban Form

Incremental improvements to walkability within the Lean context



500 Sign Strategies

Strategies to reduce the complications of sign ordinances



Site Development Attainable reform associated with lean site plans





Transportation Strategies

The single greatest impact on walkability and redevelopment









DECISION POINTS

"If we have learned nothing else from the 20th century, we should at least have grasped that the more perfect the answer, the more terrifying its consequences. Incremental improvements upon unsatisfactory circumstances are the best that we can hope for, and probably all we should seek. "

~ Tony Judt

The focus of this tool is on the small number of issues that are most important over a variety of contexts while overcoming multiple barriers to redevelopment. It begins with a series of decision points that help the reader select the best strategies for incremental code reform.

1. Does your comprehensive plan support infill and walkable urban places?



PROCEED

- SEE LEAN COMPREHENSIVE PLAN TOOL
- 2. Are there political support, community buy-in, and staff capacity in place to implement significant Lean code reform? This system tags strategies as:



he tool also organizes changes by urban context.

There are different requirements for areas trying to incentivize urban infill and adaptive reuse versus those hoping to implement sprawl repair. Some strategies are appropriate for both situations. All strategies are tagged with the icon for the relevant context:



Finally, each strategy identifies the barrier that it is responding to:





FINANCIAL BARRIER
1.0 **PROCEDURAL STRATEGIES**

Regulatory procedures are the single greatest barrier to Lean Urbanism and code reform. This section focuses on changes that will most effectively implement Lean Urbanism + walkability at the process level.

Rezoning, Zoning Modification, and Use Permit Process



NON-CONFORMING

1.1 Adjust regulations for nonconforming buildings and uses.



SITUATIONS:

 Standards for nonconforming buildings or uses can be unnecessarily burdensome.

STRATEGIES:

adaptive re-use.

Rewrite the nonconforming section of the Existing buildings are an important resource to zoning code to remain strict on nuisances any community. Zoning regulations that govern but more lenient on improvements and 'nonconformities' often do unwitting damage to this resource. These regulations should be written to minimize the effects of nonconfor-**DISCUSSION:** mity except where buildings or their uses are offensive or true nuisances. Simple strategies When zoning regulations or districts are changed, existing buildings may not meet include increasing the amount of allowable the new standards. Most codes don't require improvements to nonconforming buildings and immediate changes for those buildings, but providing clear criteria that authorize further improvements if they would bring buildings over time their new nonconforming status becomes a burden. These buildings often closer into compliance. cannot be expanded or their uses cannot be changed without coming into full compliance



with the new standards. In other cases, expansions are limited to an arbitrary dollar amount or percentage of value.



1.2 City Provided Design Assistance



SITUATIONS:

- Regulations may not explain the City's goals for new buildings.
- The application process is complicated for applicants.

STRATEGIES:

- Trained staff or an on-call urban designer could assist applicants in understanding how the City's code and vision could apply to their property.
- Applicants who use these services could be rewarded with expedited permitting.

DISCUSSION:

A City's goals are often not apparent from reading detailed code documents. Infill and redevelopment can be complicated. Where these are important priorities, a City can provide formal or informal design services. Developers who use these services may qualify for expedited processing of their applications. Reducing missteps can save time and money for all parties while assisting in the realization of the municipality's vision.

1.3 Improve Review Process





SITUATIONS:

 There is no interdepartmental review process.
 Review process is not described graph-

STRATEGIES:

 Establish a cross-departmental review process.

ically.

Provide a graphic representation of the application review process including submittals, departments, review periods, fees, and approval process.

DISCUSSION:

Many cities put applicants in awkward positions when different departments have separate review processes. Sometimes city departments disagree on an application; in other cases, one department may not review applications on a timely basis. Cross-departmental review committees can resolve these problems. Applicants should not be expected to mediate interdepartmental disputes or face unnecessary delays after submitting applications.

should not be expected to mediate interdepartmental disputes or face unnecessary delays after submitting applications. Application review processes are often complicated and unclear. Complicated processes are

a burden to applicants who must invest additional time and money into the review process rather than in the development project.

1.4 Adopt the International Existing Building Code [IEBC]



SITUATIONS:

Older buildings can become a liability rather than an asset when building codes designed for new construction are retroactively applied to renovations of older buildings.



STRATEGIES:

- Adopt the International Existing Building Code (IEBC).
- Amend the IEBC to reduce barrier when changing uses.

s **DISCUSSION:**

International Existing Building Code can be adopted. This simple option is often overlooked even in communities that need it the most.

During the adoption process, cities can adjust the definition of buildings of historic value to address their own situation. For instance, if adaptive reuse of mid-century buildings is desired, buildings of historic value could include all structures built prior to 1970.

Adjustments can also be made to ease changes in use; adaptive re-use is often the saving grace for older buildings.

REFERENCES:

- International Codes Council: http://www.iccsafe.org/
- 2012 IEBC: <u>https://law.resource.org/pub/us/code/ibr/icc.iebc.2012</u>. pdf
- City of Phoenix Adaptive Reuse Code: <u>https://www.phoenix.gov/</u> pddsite/Pages/pddarp.aspx

1.5 Right-Size Application Fees



SITUATIONS:

- single fee.
- Fees do not vary by project size.

STRATEGIES:

- Combine all department-specific fees into a single fee per application.
- Scale application fees by project size.

DISCUSSION:

Application review and permitting fees should be clear and easily accessible, however they are often difficult to find and obscure in their organization. All fees should be made available in a single location that is well organized and publicly accessible. Where possible, fees should be flat and common fees should be combined. Fees should be adjusted to reflect the policies of the community. If infill and suburban retrofit is a priority, fees in those environments should be less.

Application fees are separated by department, trade, or other means that do not provide a

1.6 Clear and objective standards



SITUATIONS:

- Code provisions are written in paragraph format.
- Details of code provisions are not listed in numeric or bulleted lists.
- Multiple regulations are combined in complex requirements.
- Regulations and guidelines are mixed in regulatory documents.
- Regulations require judgment from municipal officials.

STRATEGIES:

- Consider following Federal Plain Language Guidelines in re-writing regulatory documents.
- Rewrite regulations based upon objective criteria.

DISCUSSION:

Complex and obscure regulations narrow the field of developers to those very familiar with the local process and code. Applicants unfamiliar with the codes are unable to easily determine what can be built without spending time and money interpreting difficult code language. Similarly, subjective standards make the development process unclear and unpredictable.

Achieving clear and objective standards may be difficult in places where power is derived through obscurity and subjective judgment. However these discretionary decisions stifle development and perpetuate the current condition.

REFERENCES:

Federal Plain Language Guidelines: <u>http://www.plainlan-</u> guage.gov/howto/guidelines/FederalPLGuidelines/index. cfm?CFID=3965234&CFTOKEN=84e9551179213e74-D40DDD46-F CEF-C15E-D688DC7BB375A0D1&jsessionid=7EC634354AEF98F-CDD198ABE622CE4E9.chh

1.7 Eliminate subjectivity in design review guidelines



SITUATIONS:

Applicants are subject to zoning and development regulations as well as design guidelines addressing style, specific site conditions, and other conditions not directly regulated by zoning.

STRATEGIES:

Eliminate subjectivity in design review guidelines. While design guidelines may be appropriate in some situations, such as historic districts, the requirements should be clear and objective.

DISCUSSION:

Because state enabling legislation limits municipal power in zoning, many places rely upon guidelines as part of design review processes. Due to the discretionary nature of most guidelines, they tend to create an unpredictable development environment. Complexity and unpredictability are major burdens and limit the development community to those players who have experience in the system and political connections. Any requirements should be clear, concise, and not exposed to negotiation.

1.8 Lot splits | small subdivisions



SITUATIONS:

State legislation permits abbreviated processes for small subdivisions but the City's subdivision processes do not provide an abbreviated path.

STRATEGIES:

Amend subdivision regulations to provide an abbreviated subdivision process in coordination with state legislation.

DISCUSSION:

Some state legislation permits the subdivision of small properties or a limited number of lots through an abbreviated process. Where this is available, the process should be included in municipal subdivision ordinances and those ordinances simplified for urban conditions.

1.9 Walkable mixed-use district subdivision standards



SITUATIONS:

 Subdivision regulations do not differentiate between suburban districts and rural, urban or mixed-use districts.

STRATEGIES:

Create a separate set of subdivision requirements for compact, walkable zoning districts.

DISCUSSION:

Subdivision requirements often introduce unin-**DISCUSSION:** tended complications in compact, walkable Regulations tend to be oriented toward new conditions because they are written for subdevelopment on large sites, not reuse and urban contexts. When subdividing property in small site development. Standards are setup mixed-use districts, applicants may be conprimarily for the impacts of large development. fronted with suburban street requirements, Thresholds of development should be estabutility requirements, buffering, and other inaplished to clarify which standards apply to small lots and which apply to large developments. propriate standards.

1.10 Set development thresholds

BARRIER			
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CAPACITY			
L			
CONTEXT			
[Ui]			

SITUATIONS:

Development and redevelopment is subject to one set of standards regardless of scale or scope.



STRATEGIES:

Provide relief for small-scale redevelopment and adaptive reuse.

Determine minimum thresholds where expensive standards may be set aside, for example adaptive reuse conditions may be permitted by right. This strategy requires inter-departmental coordination for determination of threshold standards and adjustments.

Thresholds are a central theme of Lean Urbanism. One-size-fits-all standards disadvantage small projects because they must account for

the largest possible impact and subject all to those standards.

REFERENCES:

- Tigard Triangle Lean Code: <u>http://www.tigard-or.gov/tigard_triangle.</u> php#leanCode
- Phoenix Adaptive Reuse Tiers: <u>https://www.phoenix.gov/pddsite/</u> Documents/dsd trt pdf 00390.pdf



1.11 By-right standards



SITUATIONS:

Planning boards and elected officials comment on and negotiate over by-right standards with applicants.

STRATEGIES:

Develop criteria for clear and objective by-right standards with levels of required review.

DISCUSSION:

There's an assumption in many local governments that by-right development still has a certain amount of discretion and the administrative procedures can be a challenge. Develop by-right thresholds that include:

- NO APPROVAL REQUIRED: Very small projects such as interior changes, changes in use within the same category, and small, unheated projects like decks that are well within the permitted setbacks and lot coverage.
- **BUILDING PERMIT ONLY:** No zoning review required, if in compliance with all lot requirements.
- ADMINISTRATIVE REVIEW: Staff review required if application is within 5% [locally calibrated] of the by-right lot standards.

1.12 Revise impact fees [system development charges]



DISCUSSION:

In most jurisdictions impact fees are based upon a suburban model with a perpetual growth scenario. Many systems are tied to numbers of residential units, and greatly disincentivize high-density development. Impact fees should be realigned to reflect location and transit access.

REFERENCES:

http://www.scholarsstrategynetwork.org/sites/default/files/ssn_basic_ facts trosper and burge on mitigating urban sprawl1.pdf

https://www.huduser.gov/portal/publications/impactfees.pdf

2.0 **URBAN FORM**

This tool's purpose is not to advocate for a formbased code, but rather to address the small steps that improve urban form. It can build local capacity that may result in more substantial code reform over time.

T1 NATURAL	T2 RURAL	T3 SUB-URBAN	T4 GENERAL URBAN	T5 URBAN CENTER	T6 URBAN CORE	SD SPECIAL
ZONE	ZONE	ZONE	ZONE	ZONE	ZONE	DISTRICT

Transect Diagram (Duany Plater-Zyberk & Company)

2.1 Do not require a minimum number of stories



SITUATIONS:

■ Zoning code requires a minimum number of stories for buildings in a zone. This is common with pre-recession form-based codes for main street environments.

STRATEGIES:

Remove minimum stories for buildings.

DISCUSSION:

Many form-based codes and urban planners single story structures will be redeveloped once required height minimums to ensure walkability there is sufficient market demand. Requiring and street enclosure, particularly in a main multistory structures where there is not suffistreet condition. While this is aspirational, it is cient market demand burdens landowner and no longer considered a best practice post-remay restrict development. cession. Successional growth dictates that



(Duany, Plater-Zyberk & Company)

T6-URBAN CORF-6 STORIES T6-URBAN CORF-8 STORIES T6-URBAN CORF-12 STORIES T6-URBAN CORF-12 STORIES



2.2 Front setback regulations



SITUATIONS:

- Front setbacks often specify minimums only; on large parcels, buildings can be any distance from the street, encouraging parking lots in front of buildings
- In urban contexts, small front setbacks are sometimes permitted but setback ranges or maximums are not specified.

STRATEGIES:

Amend front setback regulations to specify setback ranges instead just minimums.

DISCUSSION:

A minimum setback alone allows buildings to be unrelated to sidewalk and street activity. Setback ranges or maximum setbacks can ensure interaction between sidewalks and ground floor uses.

Especially In walkable neighborhoods, buildings should be close to sidewalks to provide a relatively consistent street enclosure. This is especially important for mixed-use and commercial buildings. In walkable urban contexts, maximum front setbacks are often 12' (not applying to forecourts or terraces), but local observations should be used to set regionally appropriate maximums.

Even in non-pedestrian areas, maximum setbacks ensure that buildings have at least minimal relations with street activity.



(Tigard Lean Code)

2.3 Parking lot location matters



SITUATIONS:

Parking lots routinely separate buildings from sidewalks and streets.

STRATEGIES:

- Establish parking location criteria that prohibit large parking lots between urban buildings and the street, and limit parking between suburban buildings and the street.
- Where alleys do not exist, consider permitting parking at the side of building with a short wall or hedge to screen parked cars from the street.

DISCUSSION:

This is a critical strategy in suburban retrofit situations.

Many urban areas have borrowed suburban zoning codes that allow or even require large front setbacks; the result is often a parking lot between a new building and the street, even in historically, walkable neighborhoods.

In either case, these locational strategies are fairly simple to draft and implement.



(Tigard Lean Code)

2.4 Convert height restrictions to stories



SITUATIONS:

Height is measured in feet

STRATEGIES:

Regulate height in stories

DISCUSSION:

There are many reasons to convert height regulation from feet into stories, and most of them are environmental and economic. If the applicant is able to build taller ceilings and thus taller windows, they may effectively daylight spaces and increase natural ventilation. Taller ceilings also make spaces more desirable and easier to keep occupied.

When height is limited by feet, the developer will fit as much program into the envelope as possible, often resulting in lower ceilings. Additionally the streetscape that results tends to be made up by buildings exactly as tall as the height limit, and therefore a consistent and flat facade that lacks variety.

Regulating height in terms of stories allows the developer to choose the story height according to market demands. Ground floor height may be permitted to be up to 20 feet for nonresidential uses and upper stories are permitted up to 14 feet, floor to ceiling. The structural and mechanical space should not be regulated as it varies by construction type and use.





Building area is restricted by Floor Area

Ratio.

STRATEGIES:

- **OPTION 1**: Remove FAR restrictions. Building area should be regulated by a combination of lot coverage, height, and setbacks.
- **OPTION 2**: Right-size FAR by studying the desired building mass per district.
 - 2.A: Where FAR does not include structured parking in high-density districts, revise FAR to include the area of structures.

DISCUSSION:

Many zoning codes restrict the area of buildings according to Floor Area Ratio (FAR), which is related to the total area of a lot. For example, a FAR of 2.5 on a 10,000 sf lot permits a building with a total area of 25,000 sf. While this seems to make sense, there is no clear connection between the building area permitted and the desired character for the district. Often FAR restrictions are out of scale with district character, permitting far less building than could be accommodated. Because lot coverage, height, and setbacks are all regulated, building size is controlled without the unnecessary complication of FAR.

Because this issue can be contentious, a first step may be to reform FAR. In order to determine appropriate FAR for different districts, the lot coverage, setback, and height restrictions for the zone should be tested on a series of sites to determine the FAR associated with the desired character.

REFERENCES:

FAR was a contentious topic in the Miami21 process. The solution was to right-sized FAR by aligning it more closely with the height, setback, and lot coverage restrictions of real sites.



2.6 Implement a pedestrian/access street grid (A/B)



SITUATIONS:

All streets in an urban mixed-use district are held to a very high standard. This is more likely to occur in a form-based code because it prioritizes the design of frontages.

STRATEGIES:

- Regulate pedestrian and access streets with two sets of standards. Pedestrian streets, or the A-grid, have the highest walkability standards, and access streets, or the B-grid, are permitted to accommodate access, deliveries, larger vehicles, and less urban formats.
- B-grid regulations should:
 - Reduce frontage buildout requirements
 - Reduce, but not remove, glazing requirements
 - Permit parking at the frontage with a wall or hedge
 - Maintain the pedestrian street standard for the first 50' of the access street to protect the quality of the intersection.

DISCUSSION:

Many codes that promote walkability and urban infill require a high standard for frontages along every street. This is critical for the success of the walkable environment, however, consideration must also be given for access, deliveries, garbage collection, etc. In infill situations and existing downtowns, block and lot sizes are often not coordinated with the reality of automobile access. Adding a grid of service, or access streets, alleviates the barrier of creating a high-quality streetscapes everywhere. New development doesn't often require such as system because automobile and delivery access can be coordinated through the design of place. Where A-B grids are implemented, they provide for a targeted high-quality street network. Once this network has been achieved, the B-streets may be reconsidered.

3.0 SITE DEVELOPMENT

Many site plan requirements limit the potential for lean, walkable development. This section will address both the most critical and the most attainable issues associated with site plan regulations.



Washington D.C. {Dhiru Thadani)



3.1 Eliminate or right-size minimum lot size requirements



SITUATIONS:

- Minimum lot size requirements are regulated.
- Minimum lot size is greater than 1,500 Another option is to right-size for the consquare feet in mixed-use, mainstreet, or text. Townhouse lots may be as small as 1,000 downtown areas. square feet. Small lot single family often occupies lots of 3,000 - 4,500 square feet. Small STRATEGIES: mixed-use buildings may be as small as 3,000 • **OPTION 1**: Eliminate minimum lot size square feet. This must be locally calibrated to requirements. The building code, lot covthe desired context.

- erage, and setbacks provide sufficient constraints to ensure lots are buildable.
- OPTION 2: Right-size minimum lot sizes in

mixed-use areas, main streets, and downtowns.

DISCUSSION:

Often lot size minimums are regulated according to the suburban context. Compact, walkable, mixed-use areas usually include a wide variety of lot sizes. Small lots are essential to variety and vibrancy in these areas.

The simplest solution is to eliminate lot size minimums altogether. This is not as controversial as it may seem. In absence of lot size minimums, a developer creating new lots is still subject to a series of constraints. Because resulting units must be marketable, a the following indirectly regulate minimum lot size:

- MARKET: building sizes, unit sizes, and tenant spaces must meet minimum marketable floor areas.
- **BUILDING CODE:** the building code includes minimum sizes for dwelling units, bedrooms, and other spaces.
- **HEIGHT AND SETBACKS**: building height and lot setbacks limit the extent of the building.
- LOT COVERAGE: lot coverage further restricts the building envelope beyond lot setbacks.



3.2 Eliminate buffer requirements in mixed-use districts



SITUATIONS:

Buffer requirements exist between uses or lots in mixed-use districts.

STRATEGIES:

Eliminate buffer requirements within mixed-use districts.

DISCUSSION:

Buffering between uses is carried over from conventional suburban development where each use category is tightly controlled and separated from others. While it may be necessary to buffer between mixed-use districts and areas remaining suburban in character, buffer requirements are not compatible within mixed-use areas. Mixed-use relies upon the direct adjacency of multiple uses, and buffering restricts these relationships.

There may be a need for transitions between intensities of mixed-use, but this is best handled through height and step backs rather than buffers.

3.3 Reform vehicular site access standards



SITUATIONS:

- Driveways may exceed 24 feet in width in mixed-use areas.
- Curb cuts are permitted more frequently than every 100 feet.

STRATEGIES:

- Limit the maximum width of driveways to 24 feet for two-way travel and 12 feet for one-way travel.
- Encourage off street parking areas to connect between properties and share access points.
- **OPTION 1**: Where alleys exist, restrict vehicular access to sites to alleys and side streets only.
- **OPTION 2**: Where alleys do not exist, restrict vehicular access to one point per site except where life safety requires separate ingress and egress.

DISCUSSION:

Excessive curb cuts increase the number of pedestrian and vehicle conflicts. Site access should be limited where possible. Each driveway and curb cut along a main street deteriorates walkability. Access and parking areas should be shared between lots, with access provided from side streets and alleys where they exist.



Comprehensive Plan)

3.4 Regulate minimum connectivity standards



SITUATIONS:

- Existing blocks exceed 2,400 feet in perimeter length in areas identified for suburban retrofit.
- Gated subdivisions are permitted and common.

STRATEGIES:

- Restrict new blocks in mixed-use areas to a maximum of 2,400 feet in perimeter length.
- Add connectivity standards for new streets when large parcels, 3 acres or greater, are subdivided.
 - Where a large lot is redeveloped and the block it is within exceeds 2,000 feet in perimeter, require a new street and connections to adjacent parcels or streets.
- Regulate connections to adjacent properties, and streets. If the connection cannot be made, stub-outs should be provided for future connections.

DISCUSSION:

Small blocks are necessary for walkability. When suburban areas are retrofitted to walkable urban development, 600 feet is a common metric used as a maximum block length for walkable districts. Long blocks provide pedestrians and cyclists with fewer route choices, reducing overall walkability.

Adding streets can be difficult in retrofit situations, both from a right-of-way acquisition standpoint and funding. However if a district is in the process of redevelopment or is not yet redeveloping, right-of-way should be reserved or acquired early before acquisition becomes cost prohibitive.



Comprehensive Plan)

3.5 Regulate maximum block sizes



SITUATIONS:

- Block size maximums are not regulated in urban areas.
- Existing blocks exceed 2,000 feet in perimeter length in areas identified for urban infill.

 Superblocks are permitted and vacation of street and alley right-of-way is possible.

STRATEGIES:

- **OPTION 1**: Identify locations where new streets may be added with the least impact on existing properties, resulting in blocks close to or less than 2,000 feet in perimeter length.
 - **1.A**: Acquire the right-of-way required for the new street and construct the street.
 - **1.B**: Map the right-of-way and require dedication from affected properties as they redevelop. Construct the street once the right-of-way is assembled.
- OPTION 2: Add requirements for new streets within superblocks, 6 acres or greater.
- **OPTION 3**: Where full streets cannot be added, mid-block pedestrian paths may be inserted to increase walkability.

DISCUSSION:

In the urban context, 500 feet is a common metric used as a maximum block length for walkable districts, although 350 feet is closer to ideal. Where blocks consistently exceed 500 feet, they tend to perform poorly for ground floor commercial. Additionally, long blocks provide pedestrians and cyclists with fewer route choices, reducing overall walkability.

4.0 PARKING STRATEGIES

Conventional parking standards create a tremendous economic burden to redevelopment while also single-handedly creating one of the greatest barriers to walkability in the 20th and 21st centuries.

4.1 Reduce parking stall and aisle sizes



SITUATIONS:

- Minimum off-street parking aisle and stall sizes are larger than commonly accepted standards. For 90-degree parking, this is a total of 60 feet for a bay of two parking rows and a two-way aisle.
- On-street parking spaces are required to be larger than 7 feet wide and 22 feet long.

STRATEGIES:

- Revise the minimum off-street parking aisle and stall sizes to match commonly accepted minimum standards.
- Revise the minimum on-street parking space to 7 feet wide by 22 feet long.



DISCUSSION:

Efficient parking lot design provides more buildable area on a site. Where minimum off-street parking design standards require larger than normal stalls and aisles, building area or pervious surface is reduced. While eliminating minimum requirements is not likely in most municipalities, the dimensional requirements should be sized to reduce excessive impervious surface.

On-street parking is also often required to be larger than necessary. This results in wider and more expensive streets and may limit its availability. On-street parking space minimums should be 7 feet wide by 22 feet long.



4.2 Enable shared parking



SITUATIONS:

Shared parking between multiple uses is not permitted.

STRATEGIES:

Adopt a shared parking strategy and revise regulations.

DISCUSSION:

A significant number of uses only require parking during limited periods of time. Religious facilities are a good example, with peaks on one or two days a week. Outside of these times, any dedicated parking spaces are empty. Residential parking in urban areas is similar; it is in demand primarily in the evening but less so during the day. Regulations should allow multiple nearby uses to share their parking, reducing the total number of spaces while not affecting the demand.

Shared parking strategies have been widely implemented, proving the concept. APA has studied and published a shared parking schedule worksheet that determines overlapping demand for parking shared between multiple uses. This table should be integrated into parking requirements, enabling the reduction of spaces on a single lot with multiple uses.

REFERENCES:

APA Parking Solutions: https://www.planning.org/pas/infopackets/subscribers/pdf/ eip24part1.pdf

Mary Smith, "Shared Parking," Urban Land Institute, 2nd Edition, 2005; 158 pages from the ULI Bookstore https://uli.bookstore.ipgbook.com/ shared-parking-products-9780874209396.php



4.3 Reduce parking requirements for affordable housing



SITUATIONS:

Affordable housing requires the same number of parking spaces as market rate housing.

STRATEGIES:

Adopt reduced parking requirements for affordable housing. The reduction depends upon the region, the urban | suburban context, and public transportation access.

DISCUSSION:

While parking for multi-family housing is often a contentious issue, affordable multi-family housing frequently requires less parking than market rate housing. Car ownership is an expensive proposition and many families are only able to afford one vehicle, if that. When affordable housing is required to provide market rate parking spaces, many spaces sit unused and represent a waste of public funding.

- If access to transit is nearby, affordable housing may only require 0.5 spaces per unit.
- Where public transportation is not available, parking may be required at 0.75-1 space per unit. Requirements above this are usually excessive and wasteful.

REFERENCES:

Kyle Smith, Daniel Kay Hertz, Cindy Copp & Peter Haas, Stalled Out: How Empty Parking Spaces Diminish Neighborhood Affordability, March 2016, CNT at http://www.cnt.org/sites/ default/files/publications/CNT Stalled%20 Out 0.pdf

	Center for Neighborhood Technology parking
	demand estimating and database tools from
	various regions:
	http://www.cnt.org/tools/greentrip-parking-da-
Э	tabase
Э	http://www.rightsizeparking.org
	http://www.transformca.org/landing-page/gre-
	entrip

4.4 Count on-street parking



SITUATIONS:

On-street parking does not count toward the required parking by adjacent lots.

STRATEGIES:

Permit on-street parking along lot frontages to count toward required parking for the lot.

DISCUSSION:

Parking requirements are often excessive and burdensome, particularly in infill situations, and may limit opportunities for redevelopment. Where on-street parking is provided, it can account for a significant number of parking spaces for every block. Because parking spaces cost approximately \$9,550 for surface spaces and \$19,050 for structured spaces, including land, construction and design costs, but excluding the cost of operations. (Victoria Transport Policy Institute, 2016) This poses a serious financial barrier to development and redevelopment.

Additionally, each space consumes approximately 300 square feet of usable site area. Adaptive reuse situations are extremely sensitive to parking where changes i use may require more parking than can be provided on the lot. In order to equitably share on-street spaces, they should count only for the lots that are directly adjacent to the space.

4.5 Reduce minimum parking requirements



SITUATIONS:

Minimum on-site parking counts are regulated.

STRATEGIES:

Reduce minimum parking requirements in mixed-use and walkable urban districts.

DISCUSSION:

Most minimum parking requirements are derived from the Institute of Transportation Engineers (ITE) studies and trip generation related to use categories. However the ITE studies were performed in conventional suburban places. A recent study by the University of California in Davis shows that mixed-use districts generate approximately 40% fewer vehicle trips on average than the numbers estimated by ITE's methodologies. Parking ratios are overestimated by the same amounts as they are also based upon estimated vehicle trips. Prior to the UC Davis study, an early 2000's study of mixed-use developments showed a 30% reduction, however they used poorly selected examples.

Requiring more parking than is necessary is a financial barrier to development, wastes site area for parking, and increases impervious surface and stormwater management issues. Minimum parking, if used at all, should be conservative. A good starting point is the parking ratios published by Metro, the Portland, Oregon region Metropolitan Planning Organization. These numbers represent the highest minimum parking requirements that a municipality can set for mixed-use districts.

REFERENCES:

Oregon Metro parking, see table 3.08-3: http://www.oregonmetro.gov/ sites/default/files/chap308.pdf



4.6 Reevaluate off-street parking requirements



SITUATIONS:

Off-street parking is required for every parcel and often for every use on a parcel, with the number of spaces specified without any local analysis of demand.

STRATEGIES:

 Reevaluate whether off-street parking should be required in all districts.

DISCUSSION:

Minimum off-street parking requirements have been a mainstay of zoning codes for decades. In recent years, their negative effects have been widely documented, including the validity of the data upon which most were established, the high costs imposed on new construction, and the negative effects of oversized parking lots on our communities and the environment.

There is significant merit to removing minimum parking requirements altogether. In some areas, apartments cannot be rented without two spaces per unit while in others the absence of parking (and the attendant lower rent) may be more valuable than even one space. A restaurant may require 30 spaces in a drive-to location and no space at all in a walk-to location.

Financiers may require a minimum number off-street spaces in order to finance a project and developers may foresee advantages providing abundant parking at their full expenbecause buildings with limited parking m have fewer potential users over time. Parking so regulated by market demand and financi requirements, that to regulate minimums in zoning ordinance is redundant.

REFERENCE:

Seattle economic development strategy: <u>http</u> council.seattle.gov/2012/05/10/removing-mi imum-parking-requirements-where-unneeded

Market-based parking requirements: <u>http://</u> www.uctc.net/access/42/access42 almanac. pdf

ces	Why minimum parking requirements are bad
	business: <u>http://shoup.bol.ucla.edu/Trouble.</u>
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ect,	Case for parking maximums instead of
to	minimums: <u>http://www.shoupdogg.com/</u>
nse	wp-content/uploads/sites/10/2015/08/Putting-
nay	a-Cap-on-Parking-Requirements.pdf
g is	
ing	The true cost of minimum parking requirements
na	for housing, office and retail: <u>http://shoup.bol.</u>
	ucla.edu/HighCost.pdf
	Effect of parking minimums on the poor: <u>https://</u>
<u>o://</u>	www.washingtonpost.com/news/in-theory/
<u>iin-</u>	wp/2016/03/03/how-parking-requirements-
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5.0 USE STRATEGIES

Most zoning ordinances are explicit in the segregation of use and density. This section considers strategies to lighten this regulation to encourage economic development within the evolving city.

Since contemporary zoning was introduced in the United States in the early 20th century, ordinances have become more and more rigorous in the control of land use. Use has been the regulatory tool of choice over the last century to exclude specific activities, and potentially types of people, from a community.

As uses and densities have become more and more explicit, regulations have limited a municipality's ability of nimbly respond to markets, trends, and consumer demand. Suburbia has been the most unfortunate products of this high degree of separation.



5.1 Permit residential uses on ground floors in urban districts.



SITUATIONS:

 Ground floor residential is not permitted in urban districts.

STRATEGIES:

Permit ground floor residential uses.

DISCUSSION:

Zoning codes often require ground floor commercial uses in mixed-use and urban districts. While main streets should be primarily commercial at the ground floor, requiring commercial use can limit economic development. Often an excessive amount of commercial space required that the market is not able to support. As a result developers may be forced to build commercial space that sits vacant, which is a drain on finances, neighborhood vibrancy, and hinders walkability.

Restricting ground floor residential may also eliminate the ability of small developers to develop mixed-use buildings that rely upon ground floor units to meet ADA requirements. Many mixed-use districts consist of a mix of uses horizontally along a street, not vertically. In some markets vertical mixed-use can be difficult to achieve. And in markets where it is common, it should not be required. The local market should determine the use composition, and apartment buildings along a main street can still add vibrancy.



5.2 Permit, but do not require mixed use in urban districts



SITUATIONS:

- Mixed-use is required in a zoning district
- Mixed-use is not permitted in any district.

STRATEGIES:

Permit mixed-use, but do not require it.

DISCUSSION:

Mixed-use is critical to neighborhood vibrancy, ensuring a high degree of activity. Where main streets, downtowns, and urban neighborhoods exist or are desired, mixed-use must be permitted.

Mixed-use should be an available option, not a requirement. Successful mixed-use districts are not usually entirely mixed-use, rather they include some single-use buildings, residential and commercial, alongside buildings that are mixed-use. The mix should be flexible and determined by the market.



5.3 Permit non-hazardous, smallscale manufacturing and light industrial in mixed-use districts.



SITUATIONS:

Historically, manufacturing and industrial uses trial are not permitted in urban, or mixed-use have been restricted from proximity to housing districts. due to the noxious nature of those uses: their noise, smell, and effect on air and water quality. Contemporary small-scale manufacturing and light industrial, however, are not incompatible and light industrial in urban or mixed-use with residential or mixed-use neighbors prodistricts. vided there are some basic constraints.

- Small-scale manufacturing and light indus-STRATEGIES: Permit non-hazardous, small manufacturing
- Control types of development with the following regulations:

 - Maintaining workspace in urban districts • Limit building footprint assists in economic diversity and increases • Limit building width the supply of local jobs. Workspace is critical • Control environmental impacts includto successful, 24-hour mixed-use districts, ing glare, noise, fumes, and combustion. and the character of workspace is diversifying. The widest set of uses should be permitted in mixed-use districts, restricting only those that are socially and physically noxious.

DISCUSSION:



SITUATIONS:

- The zoning code provides a separate list of uses for each zoning district.
- The zoning code consolidates uses into a single use table, but the table is extremely lengthy and complex.

STRATEGIES:

- Remove unnecessary distinctions between uses that have similar impacts.
- Consolidate zoning districts where the distinctions between districts are minor.
- Eliminate district-by-district lists of uses and replace them with a matrix that shows uses and zoning districts.
- Simplify overly complex matrices.

DISCUSSION:

Collapse similar uses. A specific use does not require its own category unless it is to be excluded in more than one district. Many zoning codes suffer from overly specific use designations that may unintentionally limit beneficial, unforeseen uses and add unnecessary complexity. The prohibited if not permitted clause can be very detrimental to new use development

Ideally, uses should be specified according to the broadest category possible, such as Residential, Office, Service, Retail, Manufacturing, Industrial, and Food Service, with as few specific distinctions as possible. In reality there are few outward differences between specific use sub-categories, and those that are regulated by the building code. This strategy enables easier change of uses, keeps buildings occupied, and assists with a robust economy. 5.5 Expand home occupation and live/work allowances



SITUATIONS:

- Home occupations are not allowed or are heavily restricted.
- Live/work units are not allowed or are allowed only in very limited areas.

STRATEGIES:

- Permit home occupations in all residential zoning districts.
- Expand allowances for home occupation square footage, visitation and employees.
- Permit live/work units in most, if not all, zoning districts.

DISCUSSION:

Home-based businesses expand the local economy. Permitting homebased businesses also contributes to home affordability and may assist in the costs of childcare. Some level of home occupation should be permitted in all zoning districts.

In mixed-use districts and more urban neighborhoods, restrictions to size, allowances for employees, and the ability of customers to come to the business location should be expanded or eliminated. Often residential use is prohibited or restricted in commercial or mixed-use districts, excluding the opportunity to develop live/work units. These should be permitted in most, if not all zoning districts. Live/works tend toward small office or service uses and have minimal traffic and parking demands. While some single-family areas may resist their inclusion, they have a very low impact on a neighborhood. At a minimum they should be permitted in all zones except low-density single-family and industrial.





oyees. zoning districts.

5.6 Reduce requirements for change of use



SITUATIONS:

Change of use often results in nonconforming situations, significant impact fee assessments, increases in parking, and older buildings remaining empty and suffering from disinvestment.

STRATEGIES:

Simplify the process for change of use to avoid unnecessary financial and regulatory barriers.

DISCUSSION:

Mixed-use districts rely upon the ability of space to change use over time to remain vibrant. As market demands shift, use should be able to adapt. However many codes and ordinances present significant financial and regulatory barriers to adapting use by the imposition of higher parking requirements, unattainable stormwater infrastructure in an infill condition, nonconforming conditions, and assessment of impact fees.

Together concurrency, new parking, and impact fees could cost a coffee shop conversion \$50,000 on top of their hard costs in some municipalities. (City of Tigard, OR) The results are vacant storefronts, reduced walkability, and negative impacts to the street or neighborhood. Imposing harsh concurrency standards for change of use hampers economic development. Change of use within an existing building should be permitted with as few requirements as possible. When buildings are redeveloped, they may be assessed for concurrency.

5.7 Coordinate zoning use categories with the International Building Code (IBC)



SITUATIONS:

Zoning use categories do not align with the use categories in the IBC.

STRATEGIES:

Revise zoning use categories to align with the larger use categories within the International Building Code.

DISCUSSION:

Both zoning and building codes regulate use and often the two sets of categories have little to do with each other. This requires applicants to reconcile differences between the two codes. While both codes types were developed independently, building codes are heavily based upon use to determine standards of safety while zoning addresses use to avoid general nuisance.

Zoning uses also address differences in explicit uses that affect issues such as parking demand, traffic generation, and noise, but may be revised to match the larger set of IBC uses with conditions or restrictions as necessary to control environmental impact. The result is a tighter coordination between zoning and building regulation, and a much simpler process for applicants.



6.0 **SIGN STRATEGIES**

Sign regulations can be some of the most complex standards in a zoning ordinance. This short section focuses on the simplification of permit requirements and physical standards.



6.1 Permit signs by right.



SITUATIONS:

Sign regulations require conditional permits or excessive specifications even for the most routine types of signs.

STRATEGIES:

Permit common signs by right.

DISCUSSION:

Sign permits are difficult for most businesses to acquire and maintain, yet restrictions do little to control quality and visual pollution. Many complex sign codes result in conditions that are not significantly different from suburban commercial strips. Sign standards should be simple and all common signs should be permitted with minimal requirements from businesses and developers.

6.2 Simplify sign requirements.





SITUATIONS:

Sign standards are lengthy and complicated.

STRATEGIES:

Simplify sign restrictions and permit requirements.

DISCUSSION:

Reed v. Gilbert probably requires changes to most sign codes, and provides the opportunity to improve them at the same time. Obviously, all sign code changes must be very conscious of First Amendment conflicts and require legal counsel.

Signage standards are some of the most convoluted requirements in most zoning documents, and permit requirements are unnecessarily complicated. Most restrictions are common across sign types but often are unnecessarily repeated.

Permit requirements are frequently excessive. Signage standards should be simple, concise, and aimed at predictability and permit expediency.

7.0 TRANS-PORTATION STRATEGIES

Transportation strategies consistently address all the barriers in more categories than any single other topic.



7.1 Reduce minimum parking and travel land widths



SITUATIONS:

- Vehicular travel lane minimums exceed 10 feet in width.
- Parallel parking lane minimums exceed 7 feet in width.

STRATEGIES:

- Adopt a vehicular travel lane of 10 feet for walkable districts.
- Adopt a parallel parking lane of 7 feet for walkable districts.

DISCUSSION:

Roadway width is the primary determinant of vehicle speed, and vehicle speed is a determinant of pedestrian safety in walkable districts. In order to increase pedestrian safety, vehicles must be slowed. The most effective means of slowing vehicles is to right-size the roadway.

Public works standards frequently include minimum travel lane and parallel parking lane widths that encourage high-speed conditions. In many municipalities, these can be as high as 12 and 9 feet respectively. Every inch of width over the bare minimum increases vehicle speed and decreases pedestrian and cyclist safety. Vehicular travel lanes should be permitted at 10 feet generally and 9 feet in residential portions of walkable districts. Provisions may be provided for 10.5 feet along bus routes to address mirror conflicts. Parallel parking lanes should be permitted at 7 feet generally, which accommodates the widest private vehicles.

7.2 Use Effective Turning Radius



SITUATIONS:

 Minimum curb return radius in mixed-use districts is greater than 15 feet.

STRATEGIES:

- OPTION 1: Adopt a new series of curb return radii for mixed-use streets, by street type.
- OPTION 2: Adopt reductions to curb return radii to account for on-street parking and bicycle facilities. Curb return radius may be reduced by the combined width of bicycle and parking facilities to a minimum of 10 feet.

DISCUSSION:

Curb radii at intersections control the speed at
 which vehicles turn. Most municipalities use a
 standard set of curb return radii by functional
 classification of roadway, often with 25 feet as
 the smallest radius. These suburban standards
 are dangerous in walkable districts. Drivers
 that turn at high speeds are less likely to notice

pedestrians and bicycles, endangering these roadway users. Tight curb radii signal drivers to slow or stop before making a turn.

Curb radius minimums may are justified as accommodation for emergency vehicles with longer wheelbases than private vehicles. The effective radius strategy accounts for the fact that travel lanes are not always directly adjacent to curbs, so turn movements may follow a wider radius than the curb. Parking lanes and bicycle lanes move the travel lane away from the curb and result in an effective turning radius much larger than the actual curb radius. While an effective radius is large, a tight curb radius still signals drivers to take turns cautiously.

7.3 Revise clear sight triangles in urban conditions



SITUATIONS:

- A single sight triangle standard is applied in all contexts rural, suburban and compact urban.
- Sidewalks and adjacent planters are greater than 8 feet wide.

STRATEGIES:

- Exempt private property from requirements imposed by sight triangles in a compact urban context.
- Revise sight triangle standards according to the width of public frontage (sidewalk + planter) and the presence of parking lanes.

DISCUSSION:

Sight triangles are imposed at intersections in order to ensure drivers can see oncoming traffic on intersecting streets. They often restrict planting, buildings, furniture, and parking near the intersection to provide a clear view for drivers.

The intent of sight triangle regulations is sound, however they are often



Urban sight distance: (ITE)

imposed without regard for context. Where there are wide sidewalks, planters, and parallel parking, drivers are further from the right-ofway edge than they are in suburban conditions. Technically sight triangles should be measured from the point of view of drivers, and therefore account for distance from right-of-way and curbs, see the illustration above from the Institute of Transportation Engineers' Context Sensitive Solutions. In practice, sight triangle regulations usually specify a distance from the property line, assuming a standard condition for position of curb relative to the right-of-way and position of driver relative to the curb.

In most compact urban environments, every intersection is controlled through signals or stop signs. This control decreases the hazards associated with limited view.

Applying rural and suburban sight triangle requirements to urban contexts results in unbuildable lot areas at corners. Urban character relies on buildings at the majority of lot corners and non-contextual sight triangles can inadvertently erode urban character.

REFERENCES:

ITE Context Sensitive Solutions urban sight triangles: <u>http://library.ite.org/pub/e1cff43c-</u> 2354-d714-51d9-d82b39d4dbad

7.4 Reduce traffic impact study requirements



SITUATIONS:

 Traffic impact studies are required for most projects including change of use, adaptive reuse, expansion, redevelopment, and new development.

STRATEGIES:

- Determine a threshold below which projects may be exempted from providing traffic impact studies.
- Adjust existing code language to reflect the threshold exemption.

DISCUSSION:

Traffic impact studies are generally needed for a suburban condition where all new uses generate new vehicle trips, without significant trip chaining, multi-modal access, or parkonce opportunities. Additionally, the suburban context includes transportation systems with limited connectivity and the built-in inefficiencies of functional classification. In these conditions new construction, redevelopment, and changes in use can result in significant traffic increases. These traffic increases may require additional roadway lane miles, turning lanes, and other similar system modifications.

Where mixed-use projects are inserted into suburban contexts, the anticipated impact of the whole project is studied and assessed. Subsequent construction and changes in use should not result in additional traffic studies or assessment for new traffic interventions. In rare cases a new use may result in a significant number of new trips. This threshold should be determined and anything that falls below it should not be assessed.

Traffic studies and the cost of off site improvements are expensive. By determining a scale or trip estimate threshold, traffic studies may be exempted for any project under the minimum.

In existing mixed-use districts or districts with urban street grids, traffic studies are generally unnecessary. Only major redevelopment projects adding atypical uses to an urban district generate traffic in amounts requiring mitigation. These projects include convention centers, sports arenas, and other uses which generate significant traffic in peak conditions.

The traffic impact assessment model is built to augment suburban transportation system funding where maintenance and upgrades aren't supported by adjacent tax revenues. In urban, mixed-use areas, the adjacent tax base is able to fund transportation system upgrades and maintenance. Additionally, by trip chaining, park-once, walking, and biking, transportation system impacts are lower for most uses.

7.5 Adopt the UC Davis Modified Trip Generation Standards for mixed-use areas



SITUATIONS:

- One or more walkable, mixed-use districts exist or are allowed.
- Transportation impact is considered in determining fees, off site improvements, on site facilities, or other aspects of development.

STRATEGIES:

- BASELINE: Adopt the UC Davis Trip Generation methodology, for use in walkable, mixed-use districts.
 - **OPTION 1**: Provide for a blanket 40% reduction in trip generation estimates over the numbers estimated by the ITE Trip Generation Manual.
 - **OPTION 2**: Following the UC Davis Trip Generation methodology, study actual local trip generation in mixed-use areas and publish the results as the standard trip estimates for use in mixed-use areas.

DISCUSSION:

The Institute of Transportation Engineer's (ITE) Trip Generation Manual has been adopted in most municipalities as the standard methodology for estimating vehicle trips. The manual and methodology was created solely for suburban contexts, yet it is applied equally to urban contexts. A series of studies have proven that the manual overestimates vehicle trips for walkable, mixed-use areas, rural areas, and areas served by transit or with a large population of cyclists. Trip generation is often tied to off-site transportation improvements that developers may be required to provide as part of a development agreement, costing tens of thousands to millions of dollars to complete.

The University of California at Davis created an alternative methodology aimed at walkable, mixed-use and multi-modal places. Collectively the areas studied in creating this methodology show an average trip generation that is 40% below those estimated by the ITE's trip generation manual.

The ITE manual is meant to provide a methodology, it is incorrectly used as a source for

the number of vehicle trips generated by any given use. Proper use of the manual would require that local traffic studies be performed in accordance with the manual's methodology, determining the average vehicle trips generated by different uses in the local context. Because such a study is expensive, complicated, and time consuming, it is rarely performed. As a result the suburban conditions which the ITE measured for their manual is the default context assumed in almost all traffic studies.

As a minimum step towards correcting this issue, a blanket 40% reduction of the numbers stated within the ITE trip generation manual may be used, following the results of UC Davis's study. The Metropolitan Planning Organization for the Portland, Oregon – Metro has employed a similar strategy. Metro permits a blanket 30% reduction of the numbers stated within the ITE trip generation manual for areas identified as centers and main streets, essentially mixeduse areas. This methodology was developed prior to the UC Davis study.

REFERENCES:

- UC Davis study: https://its. ucdavis.edu/research/publications/?frame=https%3A%2F%2Fitspubs.ucdavis. edu%2Findex.php%2Fresearch%2Fpublications%2Fpublication-detail%2F%3Fpub id%3D2432
- Oregon Metro (MPO, Portland, Oregon region) Urban Growth Management Functional Plan: http://www.oregonmetro.gov/ urban-growth-management-functional-plan

Lean Codes

While the aspirational, XL version of zoning reform is a formbased code, until the capacity and budget exists to develop one, many incremental steps are available to local government that will support Lean development while improving walkability.





ADAPTIVE CODE

The Adaptive Code by Andrew Burleson.

FOURTHENVIRONMENT

REAL ESTATE DEVELOPMENT + URBAN DESIGN

- 1 2 WORK
- 3 TOOLS
- 4 IDEAS

THE ADAPTIVE CODE an idea under construction

What

The Adaptive Code is a concept for a new way of regulating real estate development in cities. The code is meant to be simple and minimalistic, while providing a framework for a city to thrive in all <u>four environments</u>.

Why?

We need a lightweight, straighforward, foolproof form-based code that can be understood and implemented by *anyone*. The code needs to make sense to people of all political leanings, and it needs to work for 100+ years without being recalibrated.

For a longer explanantion of why we should bother with an Adaptive Code, feel free to read our introductory paper, which explains the problems with the current system and more of the rationale behind the proposed code.

Download the Introduction [PDF 142kb]

Inspired by Nature

Cities are messy and chaotic, so how do we best manage them? If we look to nature for inspiration we can find many examples of city-like systems that function quite well.

Consider the termite mound. Individual termites have no intelligence, but by following a few simple behavioral rules they create incredibly efficient mounds. Termite mounds, anthills, and behives are all examples of natural phenomena called Complex Adaptive Systems.

Characteristics of a Complex Adaptive System

- **Emergence:** agents in the system are unpredictable and interact in apparently random ways. Patterns emerge from these interactions, and the agents react to these patterns.
- **Self-Organizing:** there is no hierarchy of command and control, the system continuously reorganizes itself to adapt.
- Sub-optimization: complex adaptive systems do not need to be perfect to thrive.
- Simple Rules: the rules governing the system are quite simple, even when the emerging patterns are rich and complex. For instance, all the rivers and lakes and waterfalls in the world operate on one simple rule: water always finds its own level.
- **Diversity:** the greater the variety in the system the stronger and more stable it is.
- Edge of Chaos: a system in equilibrium cannot adapt and will die, a system in chaos ceases to function. The most productive system lives on the edge of chaos, with maximum variety and creativity creating new possibilities.

What does this teach us about cities?

If cities are complex adaptive systems, we need to change our regulatory philosophy.

We need to let go of top-down planning, and instead find the simple rules that allow self-organizing, bottom-up emergence.

The Adaptive Code is a schematic framework for such a system.

Principles of the Code

- 1. Favor free-markets over management, bottom-up emergence over top-down administration.
- 2. Only regulate what is essential to:

- a. Promote long-term stability and appreciation in property values.
- b. Eliminate externalities.
- c. Favor consumption-based fees over flat-rate services.

The Model

1. Start with a street pattern.

(diagram)

All development must extend this pattern outward or offer equivalent connectivity.

Allow half-streets and dead-ends to facilitate incremental extension of the urban fabric.

2. Establish a transect of complete street types.

(diagram)

All new streets must conform within acceptable limits to one of these types.

3. Map existing streets to the new types.

Any non-conforming streets must be reconfigured the next time they are rebuilt.

4. There may only be one street type per block segment.

Block segments run from intersection to intersection. Adjacent block segments may only change up or down by one level of intensity.

5. Define appropriate building scale and disposition requirements for each street type.

All future development must conform to the requirements associated with the type of street on which it is located.

6. Universal building requirements:

 All buildings must have an inhabitable ground floor fronting onto any public street. • Off-street parking is not allowed to be located between the building and the public street.

7. Greenfield developments may be built at any intensity

The developer must provide the appropriate street type for whatever intensity of development he wishes to construct. Connecting block segments on the edge of the site must be scaled within one intensity level of adjacent segments.

The City will not fund any portion of any cost associated with extending infrastructure to greenfields.

8. Option to scale-up by right:

If the city or a developer wishes to increase the allowable intensity of development on a block face they must first upgrade the infrastructure accordingly. A developer who pays the full cost of upgrading an entire block segment to the next level of intensity gains the right to build at a higher intensity level on that block segment.

9. No parking minimums or maximums.

The city will use congestion-pricing and parking meters to regulate the supply of on-street parking in such a way that there is always one space available on each block face.

10. No land-use zoning, but no externalities allowed.

Maximum noise and light levels specified for each street type by hour of day. Proximity limits for noxious uses allowed, e.g. adult-oriented businesses may be limited from building in proximity to schools.

11. Miscellaneous

No new construction in flood plains. No flat-rate solid waste collection, instead charge for solid waste by the pound.

Conclusion

Within this framework, individuals have maximum freedom to enjoy their property as they see fit, while eliminating the ability of development to fragment the urban fabric, and greatly reducing the ability to degrade the pedestrian realm. The human-scale city is able to emerge organically.

Thank you for considering this concept, I hope you find it interesting. If you have questions or comments:

- Email <u>andrew@fourthenvironment.com</u>
- Follow @burlesona on Twitter
- Tweet with the hashtag #adaptivecode

If you like this idea and would like to hear from me occasionally about this and other projects I'm working on, please <u>sign up for my email list</u>. I'll send you updates a couple of times per year.

```
On Jun 5, 2013, at 2:35 PM, Sandy Sorlien
<sandysorlien@comcast.net> wrote:
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Found my notes on Andrew Burleson's **Adaptive Code** from last year. Some wording is my summary or paraphrase. Many good ideas.

Characteristics of a Complex Adaptive System

Emergence Self-Organizing Sub-Optimization Diversity Simple Rules Edge of Chaos

"...find the simple rules that allow self-organizing bottom-up emergence." Principles of the Code 1. Favor free-markets over management, bottom-up emergence over top-down administration 2. only regulate what is essential to: a. promote long-term stability and appreciation in property values b. eliminate externalities c. favor consumption-based fees over flat rate services The Model: 1. start with a street pattern (shows grid) 2. establish a transect of complete street types 3. map existing streets to the new types 4. there may be only one street type per block segment (int to int.) Adjacent segments may only go up or down by one level of intensity (SS-wrong idea?) 5. define appropriate bldg scale and sisp requirements for each street type. [note - I do not know what I meant by "sisp"] 6. Universal Bldg requirements - all must have "habitable ground floor front on the public street"

- off street parking must not be located between bldg & public street.

7. greenfld dev may be built to any level of intensity. The City WILL NOT fund any portion of any cost associated with extending infrastructure to greenfields.

8. Option to scale up by right (if you, dev or city, pay for added infrastructure)

9. no parking mins or maxes. use congestion pricing & smart meters

10.. no land-use zoning, but no externalities allowed some proximity limits OK.. light & noise levels transect based.

11. misc
no new constr in flood plain
no flat-rate solid waste collection; charge by pound.

THE DUMB CODE

A basic building code from David Mayernik
A COMMON SENSE CODE FOR URBAN ARCHITECTURE aka The Dumb Code

GOALS

- establish minimum standards of urban and rural architectural harmony without prescribing stylistic constraints or specific patterns of development
- reestablish durability, beauty, and craft in building standards

ADVANTAGES

- clarifies relationship of built and natural environments
- controls building heights, and therefore urban hierarchies
- generates facade and volume standards without mandating style
- fire resistant, durable, sustainable, beautiful

GENERAL URBAN AND BUILDING PRESUMPTIONS AND PARAMETERS

- presumes only two kinds of development: "urban" (>16 units or 60%FAR/acre) and "nonurban" (<0.25 units or 1.25%FAR/acre)
- "urban" presumes zero lot line (other by variance only); "non-urban" has no constraints
- masonry bearing wall preferred
- pitched roofs mandated
- prioritizes stair-accessibility (i.e. elevators necessary only for disabled use)
- mandated for urban densities, recommended otherwise

SPECIFIC BUILDING REQUIREMENTS ("THE CODE")

I. Foundations

- i. masonry or
- ii. gravity-loaded, mass concrete walls (no reinforced concrete below grade)
- II. Wall construction
 - i. integral, monolithic masonry bearing wall (reinforced where necessary only for excessive lateral load resistance and seismic loads); no cavity walls, metal shelf angles, lateral ties, etc. permitted
 - ii. self-supporting masonry openings (arches, jack arches, stone or timber lintels) only; no metal lintels permitted
 - iii. insulating masonry blocks and/or insulation within interior furring as required
 - iv. lime or high lime mortars only
 - v. exposed surfaces may be stone, brick, or stucco only
 - vi. exposed heavy timber with masonry or hemp-lime infill is only allowable urban wood structural system; timber with other infill permitted in "non-urban" areas only

III.Floor structure

- i. timber joists and beams, or
- ii. masonry or tile vaults preferred
- iii. cast in place un-reinforced concrete shells (vaults, domes, etc.)
- iv. reinforced concrete slabs with no exterior exposure

IV. Roofs

- i. minimum pitch 2:12 (in hot, dry climates only; otherwise minimum 4:12)
- ii. timber truss and/or masonry/un-reinforced concrete shell vault are only permissible structural systems
- iii. only inert, non-combustible sheathing (stone or slate, clay tile, bronze, copper, lead or lead-coated copper); no exposed wood sheathing, nor asphalt or other synthetic materials

VARIANCES

Only where pre-industrial, local precedents allow

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DOWNTOWN LAFAYETTE CODE

This code is to be collated into Lafayette's existing code. (Courtesy Nathan Norris.)

89-13 "D" Downtown

Purpose: the 'D'' district implements the Mixed-Use Center future land use category of PlanLafayette. This provides the highest density and intensity in the City and Parish, and preserves its unique character and function.



(a) Permitted Uses. See § 89-21.

(b) General Provisions

(1) Intent

- **a.** To provide development standards that enhance and protect the core downtown amenities of vibrancy as characterized by human activity and interaction; convenience to one's daily needs; and public space as defined by high quality outdoor rooms.
- **b.** To ensure the appropriate character and function for private property having the following characteristics:
 - 1. Buildings are aligned parallel to the street, built close to the sidewalk, and configured to minimize gaps between buildings in order to physically shape the street as an outdoor room.
 - 2. Sidewalks are shaded with awnings and galleries.
 - 3. Shopfronts maximize transparency with clear windows.
 - 4. Location of all off-street parking, both surface and structured, screened from street view.
 - 5. Main building entries face the sidewalk to increase activity on the street.
 - 6. Building Facade height must be a minimum to create a sense of enclosure and a maximum to avoid eliminating sunlight from the outdoor room.
 - 7. A sufficient amount of openings facing the street, such as windows and doors, create interest and enhance security.
- **c.** To ensure the appropriate character and function for the public realm having the following characteristics:
 - 1. Thoroughfares designed for vehicle speeds not to exceed 25 mph for a sense of comfort and safety.
 - 2. Encourage outdoor dining so long as an adequate walkway width is maintained.
 - **3.** Defined "Furnishing Zone" allowing placement of trees, bicycle parking, parking meters, street lights, and other streetscape elements.
 - 4. Sidewalks shaded with street trees where awnings and galleries are not present.
 - 5. On-street parking serves as a buffer for people walking and dining, helps reduce vehicle speeds, and provides convenient parking for shoppers and guests.
 - 6. Walkways are wide enough to allow at least two people to walk side-by-side comfortably.



Intent as adapted from the Downtown Action Plan adopted June 10, 2014

(c) Establishment of Lot Lines and A_D & B_D Streets

- (1) Definition of Front Lot Line(s): A Front Lot Line is the front or side (in the case of a corner lot) lot line along a public street or pedestrian right-of way. All lots shall have at least one front lot line.
- (2) Definition of Side and Rear Lot Lines: Side and Rear Lot Lines are established as follows:
 - a. Side Lot Lines are established between adjoining lots.
 - **b.** Rear lot lines are those that do not intersect with a front lot line or that abut an alley.
 - **c.** Corner lots have two side lot lines, unless the second side lot line abuts an alley or a residential district in which case it is considered a rear lot line.
- (3) Establishment of A_D & B_D Streets: All existing and future streets and pedestrian rights of way within and immediately adjacent to this zoning district shall be classified as either an "A_D" Street or "B_D" Street where:
 - **a.** "A_D" Streets are designed at the highest standards for vibrancy as characterized by human activity and interaction, and public spaces defined by high quality outdoor rooms.
 - **b.** "B_D" Streets allow for reduced Frontage standards allowing for more flexibility and a limited vehicular interface.
 - **c.** Corner lots have two Front Lot Lines. Where two "B_D" Streets meet, one frontage shall adhere to "A_D" Street Frontage standards.
- (4) A_D & B_D Streets Map: An official A_D and B_D Street Map as adopted and amended from time to time by the provisions of this Ordinance is provided below:





(d) Building Placement

- (1) Setbacks
 - a. Front Setback: Maximum 10.0 feet.
 - **1.** Front Setback Area: The area within the front setback shall be the Front Setback Area and shall be used for:
 - A. placement and articulation of the building Facade;
 - B. establishing required minimum Public Walkways;
 - C. providing additional sidewalk space for outdoor dining and other commercial-related activities,
 - D. street furniture and non-permanent planters; and
 - **E.** in the case of a Residential Frontage, landscaped yards and building access such as porches and stoops.
 - 2. Required Front Setback for Walkway: Where a minimum Public Walkway width requirement has not been met, a setback is required in accordance with Building Interface and Public Frontage Standards.
 - **3.** Required Front Setback at Corner: To ensure adequate pedestrian circulation and visibility at corners, corner lots shall maintain a minimum corner setback formed by the line joining two points measured 20.0 feet along the edge of pavement on each side to their intersecting point.
 - 4. Corner Line of Sight: All Required Lines of Sight shall be calculated at no higher than a 25mph design speed as determined by Lafayette Consolidated Government Department of Public Works.
 - **b.** Side Setback: There shall be no required setback where a Party Wall is built at the lot line, otherwise a minimum 5.0 foot side setback is required where:
 - 1. no party wall is to be built, or
 - 2. the abutting lot is zoned Residential.
 - c. Rear Setback: Minimum setbacks from a rear lot line shall be as follows:
 - 1. 12.0 feet from the center-line of an alley, or
 - 2. 10.0 feet from a rear lot line adjoining another Downtown parcel or Commercial district, or
 - 3. 20.0 feet from a rear lot line adjoining a lot zoned Residential.
 - **d.** Secondary Building Setbacks: On lots with more than one building and where the Frontage Buildout requirements of this district have been met, additional buildings on a lot shall not be subject to the front setback and Frontage Buildout requirements.





(2) Frontage Buildout

- **a.** Frontage Buildout: The Facade of a building shall be built to a minimum percentage of the Front lot Line width within the maximum allowed front setback as follows:
 - 1. For Frontages on an "A_D" Street with a Front Lot Line width of 100.0 feet or less, a minimum of 80% of the Facade must be built within the Front Setback Area.
 - 2. For Frontages on a "A_D" Street with a lot widths greater than 100.0 feet, a minimum of 90% of the Facade must be built within the Front Setback Area.
 - 3. For Frontages on a "B_D" Street: a minimum of 40% of the Facade must be built within the Front Setback Area.
 - 4. Pedestrian Passages and Vehicular Access through buildings having habitable space built above them to a minimum depth of 18.0 feet and within the Front Setback Area shall be counted toward minimum Frontage Buildout requirements.
- **b.** Building Depth: The Frontage Buildout shall be built to the minimum building depth from the front Facade as follows:
 - 1. Parking garages along "B_D" Streets shall build out their required Frontage Buildout to a minimum Building depth of 12.0 feet.
 - 2. All other buildings shall be built to the minimum depth of 18.0 feet.
 - **3.** The Building Depth shall be Habitable Space as described in subsection (f)(1) Building Interface General.
- **c.** Facade Alignment: Facades facing the Front Lot Line shall be built parallel to the Front Lot Line or to the tangent of a curved Front Lot Line.
- **d.** Building Footprint: The maximum Building Footprint on a lot shall be 90% of the lot unless the lot is less than 10,000 square feet or has alley access, in which case it shall have no maximum.



(e) Building Height

- (1) Building Height: There are no maximum building heights within the Downtown district except as they are limited by the following:
 - **a.** Parking for Buildings over 5 Stories: Buildings over five (5) stories shall be subject to additional Parking standards as set forth in subsection (g) Parking & Access; and
 - **b.** Stepbacks for Buildings over 5 Stories: Buildings over five (5) stories shall have a minimum building stepback of 10.0 feet starting at the sixth floor.
- (2) Building Facade Height: All buildings shall have a minimum 20.0 foot building facade height as measured from the Walkway. Building facade height for single story buildings shall be measured from the Walkway to the top of a parapet or eaves line.
- (3) Habitable Roofs: As described in § 89-27 Building Height, Habitable Space within enclosed attics, towers, and penthouses with an area equaling 50% or less of the building area of the story immediately below shall not be counted as a story. Non-conditioned rooftop space, covered or uncovered, such as rooftop terraces and patios are permitted, but are not included as Habitable Space.
- (4) Building Height Exceptions: Elements that are exempt from building height regulations are as described in § 89-27 Building Height.
- (5) Commercial Ground Story: Commercial ground stories shall have a minimum 13.0 foot floor to ceiling height.
- (6) Residential Ground Story: Residential ground stories shall:
 - a. Be raised a minimum of 24.0 inches from sidewalk level; and
 - b. Have a minimum 10.0 foot floor to ceiling height.
- (7) Minimum Story Height: All stories shall have a minimum floor to ceiling height of 9.0 feet.



not considered a story.

Habitable roofs with an area no more than 50% of the area of the story immediately below are

(f) Building Interface

- (1) General
 - **a.** Private Frontage Interface: The Private Frontage shall be established as the area within the Front Setback Area from the Front Lot Line up to and including the Facade and the required Habitable Space.
 - b. Habitable Space: Habitable Space is building area suitable for active human use such as residential, office, retail, and institutional uses. Parking and warehousing are examples of non-Habitable Space. The required Building Depth as described in § (d)(2) Frontage Buildout shall be Habitable Space.
 - **c.** Primary Building Entry: Habitable space at the Front Lot Line shall have its primary entry(s) within the Front Setback Area. Upper stories shall have direct access to the Front Setback Area.
 - **d.** Private Frontage Interfaces: There are two possible Private Frontage types. Private Frontages are limited to the following, and are to be designed in conformance to their applicable standards (as noted):
 - **1.** Commercial Frontage (f)(2)
 - **2.** Urban Residential Frontage (f)(3)
 - e. Frontage Attachments: Galleries and Awnings are not required. Galleries and Awnings shall not overlap the Walkway and/or encroach into the public right-of-way unless constructed in accordance with (f)(4) Building Interface: Gallery Standards and (f)(5) Building Interface: Awning Standards.
 - f. Upper Story Facade Requirements
 - 1. Glazing above the first Story Façade shall be a minimum of 20% of the Façade wall area.
 - 2. Low pitch or flat roofs on new buildings shall be enclosed by a parapet that is a minimum of 3.0 feet in height, or as necessary to screen the view of mechanical equipment from the Walkway. Existing buildings shall screen mechanical equipment through a parapet or by other means.
 - 3. Upper story balconies can extend over public sidewalk to maximum depth of 4.0 feet.
 - **g.** Development over Accessways: To achieve a connected street wall and for more efficient use of land, buildings may extend over pedestrian and vehicular accessways to internal blocks as follows:
 - 1. Required Pedestrian Passages shall form a continuous minimum at-grade opening of 12.0 feet sidewalk to ceiling height and a width of 8.0 feet.
 - 2. Vehicular access to structured and surface parking having the following unobstructed dimensions:
 - **A.** a minimum opening height of 10.0 feet in height, or 14.0 feet in height when over a shared alley or street with service or emergency functions; and
 - **B.** a minimum width of 12.0', or a minimum width of 20 feet (18 feet curb face to curb face minimum) when over a shared alley or street with service or emergency functions. The maximum width of the opening shall be 24 feet.
 - **h.** Required Pedestrian Passage: Any block length having 300.0 feet or more of continuous building Frontage shall be required to have an unobstructed pedestrian passageway for emergency service access.
 - i. Building Facades: Buildings wider than 100 feet shall be divided into distinct and separate Building Facades no wider than 100.0 feet.





- (2) Building Interface: Commercial Frontage
 - a. Minimum Glazing: Facades along "A_D" Streets shall be glazed with no less than 50% of the first story measured between the ground and 10.0 feet of the Walkway. Facades along "B_D" Streets shall be glazed with no less than 30% of the first story measured between the ground and 10.0 feet of the Walkway. Mullions, muntin and frames that are no wider than 4.0 inches shall be included as part of the Glazed area.
 - **b.** Glass Transparency: All glass shall be transparent with a maximum 15% reflectivity. Any window tinting, graphics, and interior affixed window shades that create a permanent opaque or translucent condition are prohibited, except for allowed signage.
 - c. Setback Landscaping: Setbacks shall be paved and shall be available for outdoor dining and furnishing where the minimum Walkway width is established as required in § (h)(3).
 - **d.** Shading of Private and Public Frontage: In addition to shade provided by street trees where they are provided, shading of the private and public frontage can be achieved through the combination of a Gallery and/or Awning Frontage.



- (3) Building Interface: Urban Residential Frontage
 - **a.** Minimum Glazing: Facades shall be glazed with no less than 25% of the first story measured between 2.0 feet and 10.0 feet of the Walkway.
 - **b.** Glass Transparency: All glass shall be transparent with a maximum 15% reflectivity. Window tinting and interior affixed window shades that create a permanently opaque or translucent condition are prohibited. Window shading and privacy can be achieved through interior adjustable window treatments, and/or operable exterior shutters.
 - **c.** Raised Ground Story Access: Access to the required minimum 24.0 inch raised residential ground story can be achieved through exterior or interior steps and ramping.
 - d. Flex Frontage: The raised residential ground story requirement shall be waived where:
 - **1.** The ground story at the Frontage to a minimum depth of 18.0 feet is built to a commercial building standard;
 - 2. No other residential room is at the frontage;
 - **3.** There is a separate entry for the Residential and Commercial areas of the building, and a lockable interior connection between the areas.
 - e. Shallow Setback Landscaping: After minimum walkway requirements are met, setbacks less than 6.0 feet may be landscaped or paved.
 - **f.** Deep Setback Landscaping: After minimum walkway requirements are met, setbacks over 6.0 feet of the walkway shall be landscaped.
 - **g.** Deep Setback Planter Wall: After minimum walkway requirements are met and where setbacks from the Walkway are greater than 6 feet, a required landscaping wall shall be built at the perimeter of the yard, measuring a minimum 18.0 inches in height and 4.0 inches in depth. A side wall is not required where the planter wall is continuous with an abutting yard.



- (4) Building Interface: Gallery Standards
 - **a.** Gallery Standards: Galleries may not cover the public frontage unless the following standards are met:
 - 1. Galleries shall have the following minimum dimensions:
 - A. depth: 8.0 feet
 - **B.** height to ceiling: 11.0 feet
 - C. clear height: 8.0 feet
 - 2. Galleries are not permitted above the third story.
 - **3.** No element of a gallery shall encroach closer than 1.0 foot to the face of curb, or 2.0 feet when adjacent to overhead utilities or a Drive Lane (as opposed to a Parking Lane).
 - 4. All gallery roof overhangs above 20.0 feet from the sidewalk can be built to the face of curb where overhead utilities are not present.
 - 5. Galleries shall have a consistent depth.
 - 6. Galleries may include a vertical shade between columns to within 7.0 feet of the sidewalk.
 - 7. Galleries shall include illumination of the sidewalk.
 - 8. Galleries shall not be built over an electrical transformer.
 - **9.** When built within the public right-of-way, Galleries are subject to applicable agreements with LCG and utility providers.



- (5) Building Interface: Awning Standards
 - **a.** Awning Standards: Awnings may not cover the public frontage unless the following standards are met:
 - 1. Awnings shall have a minimum depth of 4.0 feet from the facade.
 - **2.** Retractable Awnings may cover sidewalks to the face of curb and to a minimum height of 7.0 feet from the sidewalk.
 - **3.** Fixed Awnings shall be built to a minimum height of 8' from the Sidewalk and to within 0.5 feet of the curb.
 - **4.** Awnings shall not extend closer than 2.0 feet from the face of curb when adjacent to overhead utility lines or a Drive Lane (as opposed to a Parking Lane).
 - 5. The fabric fringe of an awning may extend as a vertical shade to within 7.0 feet of the sidewalk where it does not impede the walkway.
 - 6. Fixed Awnings shall not be built over an electrical transformer.
 - 7. When built within the public right-of-way, Awnings are subject to applicable agreements with LCG and utility providers.



(g) Parking & Access

- (1) Vehicle Parking Space Requirements:
 - **a.** There shall be no minimum parking space requirements for all buildings of five (5) stories or less.
 - **b.** For buildings over five (5) stories, parking shall be provided on the lot, screened from the Walkway as per the provisions of this code, and the minimum number of required parking spaces for the entire building shall be as follows:
 - 1. Retail: 3 Spaces / 1000 sf
 - 2. Office: 2 Spaces / 1000 sf
 - 3. Residential: 1 Space / Unit
 - 4. Accommodations: 1 Space / Room
- (2) Location of Off-Street Parking: Off-Street Parking shall not be viewable from the Walkway unless the following conditions are met:
 - **a.** Parking Garage Standards $\int (g)(3)$, or
 - **b.** Parking Screen Standard $\int g(g)(4)$.
- (3) Parking Garage Standards: The following applies to parking garages:
 - **a.** Parking garages along "B_D" streets shall be masked from view of the Walkway by the required Frontage Buildout (d)(2) for the first story. The remainder of the garage may be unmasked provided the following standards are met:
 - 1. Upper stories of the parking garage shall have a facade where all openings are vertically proportioned.
 - 2. Any exposed parking spaces at the ground story shall be subject to § (g)(4) Parking Screen Standards.
 - **b.** Parking garages along "A" streets shall be fully masked by the required Frontage Buildout (d)(2) to the height of the parking garage.



- (4) Parking Screen Standards
 - **a.** Opaque Height: 40.0 inches minimum, 8.0 feet maximum vertical distance from the top of the Walkway.
 - **b.** Material: Rigid opaque materials to minimum depth of 4.0 inches, and to the minimum height after which other materials may be used to the maximum height. Decorative metal in combination with vegetative landscaping can be used in place of rigid materials. Chain-link and wood fences are not permitted. Vegetative landscaping shall achieve and maintain the required minimum Opaque Height within one year of installation.
 - **c.** Setback Landscaping: Parking Screens shall be set back a minimum of 2.0 feet from the Walkway and may be landscaped or paved. In no case shall a Parking Screen be set closer to the Walkway than the Building Facade.
 - **d.** Parking Screens shall allow openings no wider than 24.0 feet for vehicles, and provide openings as needed for pedestrian access along the rear of the building.
- (5) Parking and Loading Access
 - a. Loading facilities and service areas shall not be visible along "AD" Street Walkways.
 - **b.** Loading facilities and service areas are permitted within the Front Setback Area of a building on a "B_D" Street, but shall not count toward the required Frontage Buildout.
 - c. Garbage enclosures shall not be visible from view of a Walkway.
 - **d.** Where a lot abuts an alley, parking shall be accessed from the alley.
 - e. Drive Aisle Dimensions: Minimum 24.0 feet for two way traffic. One-Way drive aisles are allowed only for angled parking (both back-in/head-out and head-in/back-out) with dimensions as follows:
 - 1. 45 degree parking stall: minimum 12.0 foot drive aisle
 - 2. 60° degree parking stall: minimum 16.0' foot drive aisle
 - 3. 75° degree parking stall: minimum 23.0' foot drive aisle
 - f. Parking Stall Dimensions:
 - 1. Width as measured on-centre: Minimum 8.0 feet, typically 9.0 feet, or a minimum 9.5' to accommodate door openings where the side of a stall is directly adjacent to a wall or vertical element over 6.0 inches in height.
 - 2. Length: Minimum 18.0 feet.
 - **g.** Vehicular entrances to off-street parking lots and parking garages shall be no wider than 24.0 feet at the Front Lot Line.





(h) Public Frontage

- (1) Public Frontage: The public frontage shall be established as the area between the Front Lot Line and the face of curb.
- (2) Public Frontage Components: The public frontage has three primary components.
 - **a.** The Furnishing Zone: The area between the face of curb and the Walkway utilized for street light standards, utility poles, street furniture, outdoor dining, planting areas, and tree planting.
 - **b.** The Walkway: A continuous, unobstructed, accessible, paved area dedicated to pedestrian movement along the private frontage. Walkways are required on all public frontages.
 - **c.** The Interface Zone: The area between the Walkway and the Building Facade (not including residential yards) available for outdoor dining, sidewalk signs, street furniture, non-affixed planters, and outdoor merchandising.
- (3) Minimum Walkway Widths: Minimum, unobstructed Walkway widths shall be established as follows:
 - **a.** A minimum of 8.0 feet on "A_D" Streets.
 - **b.** A minimum of 5.0 feet on " B_D " Streets.
 - **c.** Unobstructed Front Setback Areas that are paved at the same grade as the adjoining Walkway shall be counted toward the minimum Walkway width.
 - d. Bollards installed for pedestrian safety shall not be considered an obstruction to a Walkway.
 - e. Non-permanent outdoor dining may encroach into an "A_D" Street Walkway provided that a minimum 5.0 feet clear is maintained.



DEVELOPMENT DESIGN CENTER EXPLAINED

This explanation of the Development + Design Center from Lafayette's Downtown Action Plan explains the rationale behind creating the center.

III. Development + Design Center

Development in the downtown is complex because there are a multitude of landowners (both public and private), a wide variety of infrastructure conditions, and no master developer coordinating its overall development like a large-scale suburban greenfield project.



To help mitigate these challenges as well as speed redevelopment and improve the quality of development, the Development & Design Center (DDC) was established as an entity within the Downtown Development Authority in August of 2013 with the creation of the Director of Design position.

The DDC has five primary responsibilities:

1. Implement the Downtown Action Plan. The DDC is the primary entity tasked with facilitating the day to day implementation of this Downtown Action Plan. This also includes ongoing efforts to provide information to various stakeholders about the vision for the downtown and the basis for the vision.

2. Facilitate Promotion & Coordination of Downtown Development. The downtown competes with large-scale developments in the suburbs that have centralized sales and coordinated development operations. The DDC serves as informal sales office by actively promoting the downtown to prospective residents, businesses, visitors and developers in collaboration with Downtown Lafayette Unlimited. The DDC also helps facilitate coordination between property owners.

3. Concierge. The DDC serves as a concierge for development that supports the vision of the downtown.

4. Mediator. The DDC may act as a mediator when a conflict arises between a developer and an entity involved in the development process such as the local government, utility service provider or neighbor.

5. Research & Development Conceptual Design Services. The DDC provides conceptual schematic design services to owners and developers of property in the downtown upon request. This includes the creation of conceptual master plans, illustrations, regulatory documents and other planning documents that will increase the speed of redevelopment in the downtown.



Figure 5 Development Focus Areas

Development Focus Areas

- (1) Centre-Ville / Main Street
- (2) Mouton Place
- (3) University Gate
- (4) Vermilion Street/Marchě
- (5) Versailles
- 6 Uptown (7) Iberia/Congress Gateway
- (8) Jefferson Center (Entertainment District) (13) Railway/I-49 Interface
- 9 Vermilionville
- 10 University/Saint Streets
- (1) Johnston/UL Connection
- (12) Johnston/Freetown Transition
- (14) Congress/La Place Transition
- Downtown Cultural District Boundary

625

1,250

3125

-----**DDA District Boundary**

This process speeds redevelopment in three ways:

A. Making the Numbers Work. A lot of development does not happen because the owner cannot figure out how to make the numbers work. If the owner does not understand how the numbers can work, he or she is likely to refrain from paying a local architect, engineer, builder or planner to help them out. This is how property becomes "stuck." To get off "stuck" (i.e., get to the point where the owner will hire a local practitioner to move forward), the DDC will provide free conceptual design services that show the owner or developer the best route for maximizing value on the property. Many times this will involve showing the owner different development opportunities (such as incremental development opportunities), or simply making the long-term value proposition more clear. In this way this process will speed the time it takes for an owner to hire a local practitioner to help him or her move forward on the redevelopment of the property.

B. Pre-empting Poor Design. Downtown development can also be slowed down by poor design. That is to say that if something is built that diminishes the core benefits of a downtown (e.g., no windows, suburban orientation with parking in front of the building, poor proportions, etc.), it can slow down the speed of redevelopment around it. Instead of trying to fix design problems after an owner has already invested money in a specific design, it is much more productive to collaborate with the developer from the very beginning of the process.

C. On-Site Availability. Development is complex and anything but static. Issues pop up throughout the development process that were not contemplated during the conceptual design process. Instead of relying upon outside consultants who have limited availability, the DDC is available throughout the development process to make sure everything stays on track without a sacrifice to the quality of the project.

Development Focus Areas

To fulfill its mission to promote, coordinate, and provide conceptual master plans that implement the plan, a key strategy for the Development and Design Center is the establishment of Development Focus Areas as shown in Figure 5. These will establish an identity for smaller areas within the downtown for the purposes of planning, development, and marketing. This allows coordinated action to occur in increments smaller than the scale of downtown but larger than an individual property. Character areas are intended to:

- · Identify and prioritize streetscape improvements;
- Guide potential property consolidation, re-subdivision, and coordinated development opportunities;
- Develop localized parking strategies including on-street, off-street, and structured parking facilities;
- Explore possibilities for new and/or expanded public spaces; and
- Allow for joint marketing of development opportunities under a common identity and brand.

Procedural Review

Given the critical role that the DDC plays in helping coordinate development in the downtown, it should receive concurrent notice from property owners of all submissions that are made to the Planning, Zoning & Codes Department.

III. Development + Design Center: Actions And Investments

1. Foster and support the establishment and advancement of the Development and Design Center.

2. Target redevelopment of the old federal courthouse site to bring multi-family residential and mixed-use development into the downtown. Investments will likely include preparing the site for sale to private developers.



(Source: DDA)

3. Complete interior and exterior renovation of the parish courthouse and surrounding streets (Centre-Ville)

4. Initiate and develop plans, strategies, and stakeholder outreach for University Gateway, Mouton Place, Jefferson Center, Versailles, Iberia/North Gateway, Vermilion, and other Development Focus Areas as the demand arises.

5. Identify and fund strategic demonstrations of new and/or pioneering development projects such as lining parking lots with permanent or temporary small-scale mixed use buildings.

6. Advance and improve base mapping, and both physical and computerized 3d models, for the downtown.

STORE SIZE CAPS

This toolkit is from the Institute for Local Self-reliance.

Community Protection Policy Kit: Store Size Cap Ordinance

Introduction

A size cap ordinance prohibits the construction of retail stores larger than a certain size. Dozens of cities and towns across the country have enacted these ordinances. The limits vary, but 50,000 square feet is about average.

Size caps help to sustain the vitality of small-scale, pedestrian-oriented business districts, which in turn nurture local business development. They also prevent the many negative impacts of big box development, such as increased traffic congestion and over-burdened public infrastructure, and they protect the character of the community by ensuring that new development is at a scale in keeping with the traditional built environment and surrounding landscape.

When faced with a store size cap ordinance, a retailer that typically builds larger stores will either opt not to build or will design a smaller store that fits within the cap.

What this kit contains:

- 1. "How Big is Too Big?" Flyer and Poster for Distribution
- 2. Common Questions: How to Answer the Opposition
- 3. Model Size Cap Ordinance
- 4. Key Decisions in Drafting a Size Cap Proposal
- 5. Tips for Building Support for a Store Size Cap
- 6. Examples of Communities that have Adopted Size Caps
- 7. Sample Materials from other Campaigns





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How Big is Too Big?



A typical Wal-Mart or Target supercenter, with its parking lot, occupies an area equal to more than dozen football а fields. Since 1990, retail development in the U.S. has consumed about 500,000 acres, or 780 square miles more than half the size of Rhode Island.



Wal-Mart, Target, Home Depot, Lowe's, and other retailers build stores that are several acres in size. Their parking lots are even larger, typically occupying a land area three times the size of the store itself.

And the big boxes keep getting bigger. Wal-Mart, for example, has been closing its superstores and building supercenters, which are about twice as large on average (100,000 vs. 200,000 square feet) and include a full supermarket.

Bigger Stores, Bigger Impacts

Many of the negative impacts that big-box retailers have on communities and local economies are directly related to the size of their stores:

Diminished competition—The bigger the store, the bigger the bite it will take out of the local economy. Wal-Mart's U.S. stores, for example, annually average \$418 sales per square foot (Wal-Mart 2005 Annual Report), meaning a 200,000-square-foot supercenter is designed to capture \$84 million each year. Most communities, even fast-growing areas, cannot absorb a store of that scale without severe revenue losses to existing businesses, including both locally owned stores and competing supermarkets and shopping centers.

As these businesses contract and close, residents are left with fewer choices and less competition. Some towns and neighborhoods now depend on a single big-box store for certain goods. Evidence suggests that these retailers may raise prices once they attain a dominant market position.

Heavier Traffic—The larger the store, the larger the geographic region from which it pulls customers and the higher the traffic counts. A 200,000-square-foot superstore typically generates more than 10,000 car trips on weekdays and more on Saturdays. (See our Impact of Big-Box Stores on Traffic fact sheet.)





Excessive land consumption—While neighborhood and downtown business districts, with their multi-story buildings and reduced need for parking, are relatively efficient users of land, big-box retailers are buildozing vast tracks of field, forest, and farm land.

Retail chains have been consuming land at about ten times the rate of growth in consumer spending. Since 1990, some 500,000 acres—an area more than half the the size of Rhode Island—has been developed for retail, mostly big-box stores.

Spoiled local character—Massive big-box stores surrounded by asphalt are out of proportion with the scale of traditional commercial districts and residential neighborhoods, fueling sprawl and undermining the character of our cities, towns, and rural areas.

Solution: Store Size Caps

Dozens of cities and towns have enacted local zoning ordinances that prohibit stores over a certain size. Examples include:

- Ashland, Oregon—Limits retail stores to no more than 45,000 square feet.
- Ravalli County, Montana—Caps stores at 60,000 square feet.
- Madison, Wisconsin—Restricts retail buildings to a footprint of 100,000 square feet.
- Damariscotta, Maine—Bars stores over 35,000 square feet.

Store size caps prevent the many negative impacts of big-box development, such as increased traffic and over-burdened public infrastructure. They help to maintain the vitality of local business districts and protect the character of the community by ensuring that new development is at a scale in keeping with existing buildings. Store size caps are not discriminatory. They do not ban retailers such as Home Depot and Target. Rather, they mandate that those companies build stores that are an appropriate size for the community.

Store size caps are legal. Through their land use zoning ordinances, cities have long had the power to control the scale of development by, for example, limiting building heights or setting minimum house lot sizes. Store size caps are a recent variation on these types of regulations and have been validated by the courts as a legitimate use of municipal authority.



Store size cap ordinances foster small-scale, walkable business districts.

Communities consider many factors in deciding what's an appropriate size limit for retail stores. Here are some useful reference points:

- Average Rite Aid: 13,000 sq. ft.
- Average Barnes & Noble: 25,000 sq. ft.
- Average Best Buy: 37,000 sq. ft.
- Supermarkets: range from 10,000 to 90,000 sq. ft. and average 44,000 sq. ft.
- Football field: 57,000 sq. ft.
- Average Home Depot (including garden area): 128,000 sq. ft.
- Wal-Mart supercenters: range from 99,000 to 250,000 sq. ft. and average 187,000 sq. ft.

For examples of size cap ordinances, see: <u>http://www.newrules.org/retail/size.html</u>





Common Questions: How to Answer the Opposition

Are store size caps legal?

Yes. Cities and towns have long had the authority—through the zoning powers granted to them by state law—to control the scale of development. Most municipal zoning codes are filled with provisions that regulate scale by, for example, restricting the height of buildings or setting a minimum acreage for house lots.

Store size caps are merely a variation on this long-standing use of zoning to ensure that new development is of a scale appropriate to the community. As such, they are perfectly legal. Indeed, scores of cities and towns have restricted the size of stores and their laws have not been challenged by big-box retailers.

Didn't Wal-Mart sue a city in California that adopted a law banning superstores?

Wal-Mart did seek to overturn an ordinance adopted by Turlock, California, on the grounds that it was discriminatory and illegally interfered with competition.

The ordinance at issue was not a straight size cap on all stores. Instead, the law only bans stores over 100,000 square feet that devote more than 5 percent of their floor area to groceries. While supercenters are affected, other kinds of big-box stores that do not carry food are not.

Even so, Wal-Mart lost in both state and federal court. Courts in both jurisdictions upheld Turlock's ordinance, ruling that the restrictions are constitutional, do not unduly harm competition, and are a valid use of municipal zoning authority.

Doesn't it go against the free market to ban certain types of businesses and prevent them from competing?

Size caps do not single out particular companies and prevent them from doing business. Instead they require all retailers to build stores that are appropriately sized for the community. Wal-Mart, Home Depot, and other chains are free to open stores so long as those outlets do not exceed the size limit—a limit that local businesses are also subject to.

Size caps are not only fair, but they foster greater competition and more consumer choice by not allowing a single giant supercenter to become the only place where residents can buy certain kinds of goods. Size caps instead facilitate a market composed of a diversity of small and mid-sized stores.





If 50,000 square feet is okay, why not 51,000 square feet? Aren't size caps rather arbitrary?

The size limit being proposed was not chosen at random. It is the result of much research into what other cities and towns have done and what size limit makes the most sense for this community.

The research overwhelmingly indicates that the cost to communities of large-scale retail development far outweighs the benefits. Deciding exactly where to draw the line is not always easy—there's always someone who will argue that a particular number is arbitrary—but we have to draw it somewhere.

Didn't Wal-Mart get around a size cap in a Maryland community by building two smaller stores side-by-side?

This particular size cap ordinance, in Calvert County, was poorly worded. Most size cap ordinances, including the one proposed here, define two or more adjacent buildings operated by one company as a single retail store for the purposes of the size cap (meaning the total square footage of all the buildings cannot exceed the cap).

Although Wal-Mart did propose two side-by-side stores in Calvert County, public outcry over the plan ultimately led the company to drop its proposal.

Won't a size cap hurt economic development? What has been the experience of cities and towns that have size caps?

Communities commonly report that, while store size cap ordinances stop some development, they actually foster other kinds of economic development. The caps have blocked massive retail projects, but ushered in downtown investment and encouraged small-scale, mixed use and pedestrian-oriented development.

After the passage of 65,000-square-foot cap in Rockville, Maryland, a site slated for a big-box store was instead developed as a multi-story residential building with retail stores and restaurants on the first floor. In Arcata, California, a prohibition on big-box development has had the effect of steering new investment into the downtown instead. The downtown has virtually no retail vacancy and a new multi-story building was recently erected on a long-standing vacant lot.

None of the size cap ordinances that we are aware of—some are more than a decade old—have been repealed.





Model Ordinance

This is a very basic size cap ordinance that can serve as a starting point for crafting your proposal.

LARGE-SCALE RETAIL ORDINANCE

WHEREAS the city finds that large-scale retail development can result in substantial impacts to the community, including noise, traffic, and loss of local character;

WHEREAS the city finds that large-scale retail development imposes additional costs on public facilities and services;

WHEREAS the city finds that large-scale retail development is inconsistent with the goals contained in the comprehensive plan;

WHEREAS the city finds that limiting the size of retail stores is necessary to foster a competitive and diverse mix of retail establishments;

WHEREAS the city finds that limiting the size of retail stores will promote a more efficient use of land;

WHEREAS the city finds that limiting the size of retail stores is necessary to facilitate a safe and comfortable pedestrian scale environment;

NOW, THEREFORE, BE IT ORDAINED by the city:

That in all zoning districts, no single retail establishment, whether located in a single building or combination of buildings, shall exceed 50,000 (fifty thousand) square feet of gross floor area in the aggregate.

The term "gross floor area" shall include indoor and outdoor space utilized for retail display and sale of goods. The gross floor area of adjacent stores shall be aggregated in cases where the stores (1) are engaged in the selling of similar or related goods, wares or merchandise and operate under common ownership or management; (2) share checkstands, a warehouse, or a distribution facility; or (3) otherwise operate as associated, integrated or co-operative business enterprises.





Key Decisions in Drafting a Size Cap Proposal

What will be the geographic extent of the cap?

Most store size cap ordinances apply to the entire city or town. In some larger cities, size caps are implemented on a neighborhood by neighborhood basis, allowing for variation in the size limit depending on the needs and circumstances of each neighborhood.

A number of counties have also adopted store size caps. Usually county zoning rules affect only the unincorporated land that lies outside of the jurisdiction of cities and towns within the county. In some cases, however, county laws supersede municipal laws and apply to land both beyond and within town boundaries.

Should the cap apply to the building footprint or to the "gross leasable area"?

A few communities cap only the footprint of the building. This approach allows for larger stores provided they are multi-story. A footprint cap of 50,000 square feet, for example, would accommodate a 200,000-square-foot store spread over four floors.

The vast majority of communities with store size cap laws apply the limit to the gross leasable area, or the GLA, of the store. GLA refers to the total floor space that the store occupies. A 50,000-square-foot cap on GLA would not allow for a store larger than that, whether on one or more stories.

Because many of the economic, community, and traffic impacts of big-box retailers are tied to the size of the stores, not the footprint of the buildings, we strongly recommend that size cap laws specify GLA.

Encouraging or mandating that retailers build multi-story buildings that accommodate other uses, such as residential or offices on upper floors, is also an excellent idea. Doing so will not only produce a more efficient and pedestrian-friendly land use pattern, but it will create a better environment for nurturing new locally owned businesses. Fostering multi-story buildings, however, is best achieved through design standards, rather than through a footprint ordinance.

What should be the size limit?

This depends on the circumstances and the long-term goals of the community. Every community is different and must make its own determination about what makes sense.

Here are some factors worth considering:





- Where other communities have drawn the line—Most cities and towns that have size caps in place set the limit somewhere between 25,000 and 75,000 square feet (see the examples included in this kit). A cap of 50,000 square feet—which is somewhat larger than the average supermarket (44,000 square feet) and smaller than a football field (57,000 square feet)—is close to average.
- Population and shopping choices—Communities have enough spending power to support only so much retail. A town of 10,000 might only be able to sustain a total of 400,000 square feet of retail, so a cap of 20,000 square feet makes sense to ensure a good mix of different businesses. Although it might seem like a very different environment, the same dynamic is at work in many big cities, where a neighborhood business district serves a similarly small population within a short radius. A number of urban neighborhoods have capped retailers at 10,000 square feet or less to foster a mix of many different stores.
- The size of existing retail stores—Some communities adopt a cap that is the size of the largest store in town. However, it is also entirely legitimate to set a limit that is *smaller* than existing stores. Indeed, it's often only after experiencing the negative effects of one or more big-box stores that many communities decide they cannot accommodate additional large-scale development. While size caps apply to all future construction and do not force changes on existing oversized stores, they do prevent those stores from expanding further.
- Your transportation goals—A smaller cap encourages more stores within closer proximity to more homes, and thus less driving. Consider—and this is a very rough-sketch example—that a market with 40,000 people generates enough spending on hardware and building supplies (according to national averages) to support either a single 140,000-square-foot big-box or seven to eight 20,000-square-foot stores scattered across the city and providing hardware and related goods within a short distance of many residents.

For a list of average store sizes for different retail chains, see the "How Big is Too Big?" flyer included in this kit.

Should you allow for some flexibility for stores in a certain size range?

Some communities have taken a tiered approach. They have adopted an absolute cap of, say, 60,000 square feet, while requiring proposals for stores in a smaller size range—say, 20,000 to 60,000 square feet—to pass a community impact review and obtain a special use permit to build. This approach recognizes that stores in a certain size range may or may not have adverse impacts, depending on the particular store and location, and therefore should be considered on a case-by-case basis. For more on community impact review ordinances, see ILSR's New Rules web site at http://www.newrules.org/retail/impact.html.





Tips for Building Support for a Store Size Cap

Form a broad coalition.

Your message will be especially powerful if decision-makers hear it from a broad range of people. Reach out to business owners, labor unions, religious leaders, environmentalists, community and neighborhood groups, and, of course, your friends and neighbors.

Develop a campaign plan to educate your neighbors and elected officials.

You will find many tools and resources on the Big Box Tool Kit web site at http://www.bigboxtoolkit.com to help you make the case about the impact of big-box stores and the need for a size cap. See especially the campaign guidance under Section I ("Where to Start: How to Stop a Big Box") and the educational materials in Section 3 ("Educate Your Neighbors: Facts on Big-Box Impacts") and Section 4 ("Find Answers: Studies, Experts & Advice")

Use visuals.

This is crucial. Most people have no idea how big 50,000 or 100,000 square feet is, and opponents will take advantage of this by trying to portray your proposal as unreasonable. Distribute the "How Big is Too Big?" flyer included in this kit or blow it up as a poster for public meetings. Or develop your own graphic to illustrate stores sizes, perhaps in relation to a local landmark. Citizens in one community, for example, started with an aerial photo of their downtown and overlaid the outline of 200,000-square-foot supercenter and its parking lot. You should also think about ways that you can convey size in talking about the cap. For example, if you are proposing a size cap of 50,000 square feet, you might tell people you want to bar stores larger than a football field.

Quote from your community's comprehensive plan.

Read your community's comprehensive plan and find statements within the plan that support limiting retail sprawl and strengthening downtown and neighborhood businesses. Then quote from the plan as you make the case for the cap, particularly when talking to city officials. (If you need a basic overview of local land use policy and comprehensive plans, please see Section I ("Where to Start: How to Stop a Big Box") of the Big Box Tool Kit web site at http://www.bigboxtoolkit.com).





Examples of Communities with Size Caps

Here are some examples of the dozens of communities that have enacted store size cap ordinances. Additional details and the full text of all of these ordinances can be found on ILSR's New Rules web site at www.newrules.org/retail/size.html

Rockville, MD-65,000 square feet (2000)

Cities and Towns

Andover, MA—65,00 square feet (2007)	Santa Eo NIM I EO 000 aguara faat (2001)		
Agoura Hills, CA—60,000 square feet (2002)	Santa Fe, Nrim 150,000 square leet (2001)		
Ashland $OR = 45,000$ square feet (1995)	Skaneateles, NY—45,000 square feet		
	Taos, NM—80,000 square feet (1999)		
Belfast, ME—75,000 square feet (2001)	Walpole, NH—40.000 square feet (2000)		
Bellingham, WA-90,000 square feet (2007)			
Boxborough, MA—25,000 square feet (2000)	Warwick, NY—60,000 square feet (2002)		
Portoman MT 75 000 equare fact (2002)	Westford, MA—60,000 square feet (1995)		
Bozeman, 171 — 75,000 square reet (2005)	Counties		
Charlevoix, MI—45,000 square feet (2005)	Coconing County Arizona (Flagstaff) 70,000		
Cottage Grove,WI—60,000 square feet (2006)	square feet (2001)		
Easton, MD—65,000 square feet (2000)	Kauai, Hawaii—75,000 square feet (2007)		
Hailey, ID—36,000 square feet (1995)	Talbot County, MD—65,000 square feet (2003)		
Homer, AK—45,000 square feet (2004)	Tuolumne County, CA—60,000 square feet (2004)		
Madison,Wisconsin—100,000 square feet (building footprint) (2005)	Neighborhoods		
Mt. Shasta, California—50,000 square feet (2005)	Brookside in Kansas City, MO—10,000 square feet (or 25,000 square feet for grocery stores) (2000)		
Neptune Beach, FL—60,000 square feet (2006)	Coconut Grove in Miami, FL—70,000 square feet		
North Elba, NY—40,000 square feet (1998)	(2005)		
Northhampton, MA—90,000 square feet (2002)	San Francisco, CA—Several San Francisco neigh- borhood cap stores at 4,000-6,000 square feet		



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Front and back of a flyer developed by Our Town Damariscotta in their successful campaign for a 35,000-square-foot size cap in Damariscotta, Newcastle, and several other towns in Maine.



Front and back of a flyer developed by Our Town Damariscotta in their successful campaign for a 35,000-square-foot size cap in Damariscotta, Newcastle, and several other towns in Maine.



TIGARD LEAN CODE DRAFT

A portion of a draft code for Tigard, Oregon. (Courtesy Matthew Lambert.)

18.620.020 DEVELOPMENT THRESHOLDS

Sections:

A Development Thresholds

- 1. *Development thresholds* provide for regulations based upon the size and scope of development according to TABLE 18.620.02 and the following:
 - a. Development thresholds are determined by site size and development scope.
 - i. Site size determines the four primary *development threshold* categories.
 - ii. Development scope determines the following three subcategories:
 - (01) Subcategory A: change of use, building modifications, and modifications to the site resulting in no addition to building floor area.
 - (02) Subcategory B: change of use, building modifications, and modifications to the site resulting in a limited addition of building floor area as defined in TABLE 18.620.02.
 - (03) Subcategory C: all others not within Subcategory A or B.

B Nonconforming Development

- 1. Chapter 18.760.040 Criteria for Nonconforming Situations Section C Nonconforming development is extended by the following:
 - a. Criteria for determining that a nonconformity is decreased through enlargement:
 - i. Where an existing structure exceeds the maximum setback from a *pedestrian street*, an enlargement that reduces the setback is deemed to decrease the nonconformity.
 - (01) The depth of the enlargement must exceed its width except where the enlargement meets maximum setback requirements.
 - ii. Where an existing structure does not satisfy the minimum *building frontage* along a *pedestrian street*, an enlargement that occupies additional frontage is deemed to decrease the nonconformity.
 - (01) The width of frontage occupied by the enlargement must exceed the depth of the enlargement except where the enlargement causes the site to meet minimum *building frontage*.
 - b. Criteria for determining that a nonconformity is decreased through alteration:
 - i. Where an existing structure exceeds the maximum setback or does not satisfy the minimum *building frontage* along a *pedestrian street*, alterations which activate the *pedestrian street* frontage as follows are deemed to decrease the nonconformity:
 - (01) Adding outdoor seating, covered or uncovered.
 - (02) Adding outdoor merchandise displays.
 - (03) Adding provisions for mobile vendors, such as food trucks.
 - (04) Adding streetscreens.

C Special Adjustments

The following modify the provisions of Section 18.370.020.C in accordance with TABLE 18.620.02.

- 1. Dedication of Right-of-Way
 - a. Required:
 - i. Where MAP 18.620.C requires the dedication of right-of-way, the applicant is required to provide the dedication.
 - ii. Development thresholds 1A, 1B, 1C, and 2A:
 - (01) The City may provide assistance in the dedication process.
- 2. Street Frontage Improvements
 - a. General:
 - i. Sites within subcategories A and B are deemed to fulfill the requirements of Section 18.810.030.A.5.c, qualifying for a future improvements guarantee in lieu of completing full street improvements.
 - b. Trees:
 - i. The applicant is required to plant trees along *frontages* according to the spacing requirements of TABLE 18.620.18.
 - ii. The applicant may choose to provide a future improvements guarantee for other improvements required by Section 18.620.100.
- 3. Build Streets and Trails
 - a. Right-of-way Only:
 - i. Sites within subcategories A and B are deemed to fulfill the requirements of Section 18.810.030.A.5.c, qualifying for a future improvements guarantee in lieu of completing full street improvements.
 - ii. The applicant may choose to provide a future improvements guarantee for improvements required by Section 18.620.100.
- 4. Stormwater Quality Management
 - a. <= Pre-Dev:
 - i. Peak stormwater release rate must be less than or equal to the existing conditions on site.
 - b. Fee in Lieu:
 - i. The applicant may pay a fee in lieu of meeting the peak stormwater release rate requirement, per SCHEDULE TO BE DETERMINED BY CITY OF TIGARD.
 - c. All others:
 - i. Peak stormwater release rate must be less than existing conditions on site by the percentage specified in TABLE 18.620.02.
- 5. Stormwater Conveyance
 - a. Exempt:
 - i. The applicant is exempt from the requirements of Section 18.810.100.
- 6. Sewer Main to Site
 - a. Exempt except per County req:

- i. This applicant is exempt from the requirements of Section 18.810.090, except where upgrades are required by Washington County Health & Human Services.
- 7. Water Main Upsizing
 - a. Water main upsizing may be required by the Tualatin Valley Water District which is outside of the City's authority.
- 8. Traffic Study
 - a. Exempt except with drive-thrus:
 - i. A traffic study is not required unless a drive-thru is included.
 - b. Limited scope:
 - i. Where the Institute of Transportation Engineers Trip Generation Manual, current edition, estimates that site development would result in fewer than 1,000 new trips, a traffic study is not required.
 - (01) The applicant must provide a table detailing the estimate, prepared by a transportation engineer licensed in the State of Oregon.
- 9. Parking along Pedestrian Street Frontages
 - a. General:
 - i. Vehicles must be able to maneuver on site to prevent backing movements onto arterials or collectors except for sites within *development thresholds 1A and 1B*.
 - b. < 50% of Frontage:
 - i. Parking setbacks from *pedestrian street frontages* is reduced to eight feet.
 - ii. Where parking occupies less than 50% *pedestrian street frontage* length, the applicant is exempt from *streetscreen* requirements of Section 18.620.070.E.
 - c. Street Screen Required:
 - i. Parking setbacks from *pedestrian street frontages* is reduced to eight feet.
 - ii. A *streetscreen* is required in accordance with Section 18.620.070.E.
- 10. Parking along Access Street Frontages
 - a. General:
 - i. Vehicles must be able to maneuver on site to prevent backing movements onto arterials or collectors except for sites within *development thresholds 1A and 1B*.
 - b. Exempt:
 - i. Parking setbacks from access street frontages is reduced to three feet.
 - ii. Appllicants are exempt from *streetscreen* requirements of Section 18.620.070.E along *access street frontages*.
 - c. Street Screen Required:
 - i. Parking setbacks from *access street frontages* is reduced to three feet.
 - ii. A streetscreen is required in accordance with Section 18.620.070.E.

TABLE 18.620.02 Special Adjustments Matrix

Threshold	Site Size	Character	Right-of-Way Dedication	Street Frontage Improve- ments	Build Streets and Trails	Stormwater Quality Management	Stormwater Conveyance
1A	0 - 1 acres	Adaptive reuse, no additions	Required	Trees only	Right-of- way Only	<= Pre-Dev (or fee in lieu)	Exempt
1B	0 - 1 acres	<800 sf addition, 2 story max	Required	Trees only	Right-of- way Only	<= Pre-Dev (or fee in lieu)	Exempt
1C	0 - 1 acres	All Other	Required	Per Section 18.620.100	Per Section 18.620.100	<= Pre-Dev	Per Section 18.620.100
2A	1 - 3 acres	Adaptive reuse, no additions	Required	Trees only	Right-of- way Only	<= Pre-Dev (or fee in lieu)	Exempt
2B	1 - 3 acres	<1,200 sf addition, 2 story max	Required	Trees only	Right-of- way Only	<= Pre-Dev	Per Section 18.620.100
2C	1 - 3 acres	All Other	Required	Per Section 18.620.100	Per Section 18.620.100	10% Less than Pre-Dev	Per Section 18.620.100
3A	3 - 6 acres	Adaptive reuse, no additions	Required	Trees only	Right-of- way Only	<= Pre-Dev (or fee in lieu)	Exempt
3B	3 - 6 acres	<1,200 sf addition, 2 story max	Required	Trees only	Right-of- way Only	10% Less than Pre-Dev	Per Section 18.620.100
3C	3 - 6 acres	All Other	Required	Per Section 18.620.100	Per Section 18.620.100	20% Less than Pre-Dev	Per Section 18.620.100
4A	> 6 acres	Adaptive reuse, no additions	Required	Trees only	Right-of- way Only	<= Pre-Dev (or fee in lieu)	Exempt
4B	> 6 acres	<1,200 sf addition, 2 story max	Required	Trees only	Right-of- way Only	20% Less than Pre-Dev	Per Section 18.620.100
4C	> 6 acres	All Other	Required	Per Section 18.620.100	Per Section 18.620.100	30% Less than Pre-Dev	Per Section 18.620.100

TIGARD TRIANGLE LEAN CODE

City of Tigard, OR

Threshold	Sewer Main to Site	Water Main Upsizing	Traffic Study	Parking along Pedes- trian Street Frontages	Parking along Access Street Frontages
1A	N/A except per County requirement	Per TVWD	Exempt except with drive-thrus	Exempt except with < 50% of frontage drive-thrus	
1B	N/A except per County requirement	Per TVWD	Exempt except with drive-thrus	< 50% of frontage	Not restricted
1C	Per Section 18.620.090	Per TVWD	Exempt except with drive-thrus	Per Section 18.620.070	Per Section 18.620.070
2A	N/A except per County requirement	Per TVWD	Limited scope	< 50% of frontage	Not restricted
2B	Per Section 18.620.090	Per TVWD	Limited scope	< 50% of frontage	Not restricted
2C	Per Section 18.620.090	Per TVWD	Limited scope	Per Section 18.620.070	Per Section 18.620.070
3A	Per Section 18.620.090	Per TVWD	Limited scope	< 50% of frontage	Not restricted
3B	Per Section 18.620.090	Per TVWD	Per Section 18.810.030. CC	< 50% of frontage	Street Screen Required
3C	Per Section 18.620.090	Per TVWD	Per Section 18.810.030. CC	Per Section 18.620.070	Per Section 18.620.070
4A	Per Section 18.620.090	Per TVWD	Limited scope	Street Screen Required	Not restricted
4B	Per Section 18.620.090	Per TVWD	Per Section 18.810.030. CC	Street Screen Required	Street Screen Required
4C	Per Section 18.620.090	Per TVWD	Per Section 18.810.030. CC	Per Section 18.620.070	Per Section 18.620.070

1948 SAN FRANCISCO CODE

Delete this text and replace it with your own content.

Lithotype Process Company, San Francisco.

**

ZONING MAP BOOK

For City and County

of

SAN FRANCISCO

DOCUMENTS DEPARTMENT

CONTAINS

• COMPLETE CITY MAP

- SECTIONAL ZONING MAPS
- DISTRICT BOUNDARY MAP
- SET BACK MAP
- ZONING ORDINANCE

THE FOLLOWING LETTER FROM THE CITY PLANNING COMMISSION IS RE-PRODUCED FOR YOUR GUIDANCE IN USING THIS BOOK.

	CITY PLANNING COMMISSION	
	February 2, 1948	100 Larkin Street, Civic Center San Francisco 2, California File No.: "
Lithotype Proce 523 Folsom Stre San Francisco,	ess Co. et 5, Calif.	
Dear Sir:		
In repl requesting our maps which your future, we find with our office should be kept is used:	y to your letter of Janua Zoning Division to check company proposes to publ your maps to be in subst copy. However, the foll in mind whenever the prop	ry 7, 1948 a set of zoning ish in the near antial agreement owing points osed publication
1. The maps used as a of the Ci should be different 2. No noncom	are purely diagrammatic and general guide only. (The ty Planning Department of consulted for exact bound zones.) forming uses are shown.	nd should be Block Books San Francisco daries of the
3. Many chan definite 4. Some chan occurred	ges of Use District class stipulations are not inclu- ges of Use District class after July 1947 are not in	ifications with uded. ifications that ncluded.
We belive a definite need City Planning Co Francisco.	eve that your proposed publ for general information ode and Minimum Lot Size (lication will fill concerning the Ordinance of San
	Yours very th	ruly,
	T. J. Kent, Pirector of H	Planning.
TJK:dch	V	

Copyright 1948

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523 FOLSOM STREET SAN FRANCISCO 5, CALIFORNIA TELEPHONE DOUGLAS 2-2026 Lithographed in the United States of America

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SET BACK MAP PAGE 23

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MINIMUM LOT SIZE ORDINANCE . . PAGE 27







MAP DESIGNATIONS FOR USE OF PROPERTY MAPS

 FIRST RESIDENTIAL DISTRICT
 IGHT INDUSTRIAL DISTRICT

 SECOND
 "

 COMMERCIAL
 "

INDEX MAP





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Improvement Clubs - Tract Names - Subdivisions

A - WESTERN ADDITION

- A-1 Marina
- A- 2 Jefferson-Lafayette P WEST OF TWIN PEAKS
- A- 3 Hayes Valley A- 4 Upper Fillmore A- 5 Fillmore
- A- 6 Van Ness-Polk-Larkin P- 3 Lakeside

B - NORTH BEACH

B-1 Telegraph Hill

C - RUSSIAN HILL

D - NOB HILL

D-1 Chinatown

E - PARK-PRESIDIO (RICHMOND)

- E-1 Seacliff
- E- 2 Pleasant View
- E- 3 Francisco Heights
- E- 4 Presidio Terrace E- 5 Ewing Terrace R OCEANVIEW

F - HAIGHT-ASHBURY

G - HAIGHT-FILLMORE

- H CENTRAL BUSINESS DISTRICT
- I SOUTH OF MARKET

J - POTRERO

J-1 Southern Heights

K - INNER MISSION

- K-1 24th St. District
- K- 2 Market-Guerrero K- 3 Noe Valley

O - PARKSIDE

P-1 Pinelake Park P-2 Merced Manor P-4 Park-Merced P-5 Ingleside Terrace P-6 Mt. Davidson Park P-7 Balboa Terrace P-8 St. Francis Wood P-9 West Portal P-10 Pacific Terrace P-11 Forest Hill P-12 Forest Hill Extension P-13 Merritt Terrace P-14 Claremont Court P-15 Miraloma Park P-16 Sherwood Forest P-17 Westwood Highlands P-18 Monterey Heights P-19 Westwood Park

Q - INGLESIDE HEIGHTS

S - OUTER MISSION

- S-1 Sunnyside
- S-2 Colonial Park
- S- 3 Mission Terrace
- S-4 Cayuga
- S-5 Excelsior
- S- 6 West-end Addition
- S-7 Crocker-Amazon

T - GLEN PARK

U - FAIRMOUNT

V - BERNAL HEIGHTS

- V-1 Peralta Heights V- 2 Crescent District
- V- 3 Holly Park
 - V- 4 St. Mary's Park



BASIN

K- 4 29th-Castro

L - EUREKA VALLEY W - BAYVIEW

L- 1 East-West of Castro W- 1 Portola Heights

M - TWIN PEAKS AREA

X - SAN BRUNO

X-1 University Mound

N - SUNSET

N-1 Golden Gate Heights Y - VISITACION VALLEY N-2 Sunset Heights N-3 Irving Street Irving StreetY-lSunnyvaleMerchants AssociationY-2Bayside Hills

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SET-BACK MAP

Indicates set-back restrictions. Consult City Planning Commission for detailed information.

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CITY PLANNING CODE

(Part II, Chapter II of the San Francisco Municipal Code)

Amended and corrected as of July, 1947

Article 1. General Zoning Regulations. Article 2. Zoning Procedure. Article 3. Building Set-Back Lines. Article 4. General Provisions. Article 5. Miscellaneous Provisions.

ARTICLE 1

GENERAL ZONING REGULATIONS

Sec. 1. Definitions.

(a) Accessory

Apartment. Building.

(c) (d) Business or commerce.

District.

(e) (f) Dwelling.

Hotel. Industry. Lot. (g) (h)

- Story. Street line. Use.
- (j) (k) (l)
- Use districts. First residential district. Second residential district. Sec. Sec. 23456789
- Sec.
- Sec. Sec.
- Sec.
- Sec.
- Sec.
- Second residential district. Commercial district. Light industrial district. Heavy industrial district. Unrestricted district. Non-conforming building and uses. Change in district boundaries. Unlawful use—Certificate of occupancy. District boundaries Sec. 10. Sec. 11. Sec. 12.

District boundaries. Completion of proposed buildings and restoration of building wholly or Sec. 13. partly destroyed

Sec. 14. Use of property zone maps.

SEC. 1. Definitions. For the purpose of Sections 1 to 14, inclusive, of this Article and Section 100 of Article 4 of this Chapter certain terms herein used are herewith defined, all words used in the present tense shall include the future; all words in the singular number shall include the plural number; the word "lot" includes "plot", and the word "building" includes "structure".

(a) Accessory. The word "accessory" means a subordinate building or por-tion of a main building whose use is incidental to that of the main building;

(b) **Apartment.** The word "apartment" means a room or suite of two (2) or more rooms in a tenement house, occupied or suitable for occupation as a residence for one (1) family doing its own cooking on the premises. One (1) person may be construed to be a family;

(c) **Building.** The word "building" means a structure for the support, shelter or enclosure of persons, animals or chattels, and when separated by division walls of masonry from the ground up, and without openings, then each portion of such building shall be deemed a separate building;

(d) **Business or Commerce.** The words "business" and "commerce" mean the occupation or employment of buying, bartering, selling and exchanging goods, wares and merchandise or other personal property or real property, or any inter-ests therein for profit or livelihood, and also the ownership or management of office buildings, offices and recreational or amusement enterprises;

District. The word "district" means an entire city block, any part thereof or two (2) or more contiguous blocks;

(f) **Dwelling.** The word "dwelling" means any house or building or portion thereof which is occupied in whole or in part as the home, residence or sleeping place, either permanent or transient, of one (1) or more human beings;

(g) Hotel. The word "hotel" means a building or part thereof, designed or used for supplying shelter and food to residents, and containing more than fifteen (15) guest rooms;

(h) **Industry.** The word "industry" when used in Sections 1 to 14, inclusive, of this Article means the storage, repair, manufacture, preparation or treatment of any article, substance or commodity whatsoever and including the operation of garage and stables;

(i) Lot. The word "lot" shall mean land bounded by definite lines and occu-pied or to be occupied by a building or its accessory buildings, together with the land, yards, courts and area spaces used in connection with such buildings.

(j) **Story.** The word "story" means that portion of a building included between the surface of any floor and the surface of the next floor above it, or if there be no floor above it, then the space between such floor and the ceiling next above it;

Street Line. The term "street line" means the boundary line between street and abutting property;

not involving the conduct of a business, but including the office of a musician, physician or dentist or other person authorized by law to practice medicine when situated in the same dwelling used by such person as his or her place of residence; and a garage or group of garages containing space for passenger automobiles for the exclusive use of the tenants in the main building on the premises;

(g) A dwelling designed for and intended to be used for two (2) families providing that at least five thousand (5,000) square feet of open area shall remain upon the lot upon which such structure is erected.

The Central Permit Bureau, subject to the approval of the Bureau of Building Inspection, Fire Department and Health Department, may issue permits for the erection within a First Residential District of a temporary building for commerce or industry incidential to the construction of a building or the development of a residential district, and they may also issue permits for the erection within such districts of a stable for not more than two (2) cows or two (2) horses.

SEC. 4. Second Residential District. In a Second Residential District no build-ing or premises shall be used and no building shall be constructed or altered which is arranged, designed or intended to be used for any purpose other than the pur-poses specified in Section 3 of this Article and those of a:

- Tenement house or apartment house;
- Flat; Boarding or lodging house; Hotel;
- (c) (d)
- Library;
- (e) (f)
- Police station; Fire station;

(g) (h) (g) Fire station; (h) Health institutions, homes for the aged and nursing homes; for the ac-commodation of not to exceed eight (8) inmates, provided, however, that no sign, advertising matter or other device of any character shall be displayed on any por-tion of the exterior of such building or premises which will give any outward in-dication of the character of its occupancy;

Day Nursery or Nursery School, provided, however, that no sign, advertising matter or other device of any character shall be displayed on any portion of the exterior of such building or premises which will give any outward indication of the character of its occupancy.

SEC. 5. Commercial District. In a Commercial District no building or prem-ises shall be used and no building shall be constructed or altered, which is ar-ranged, intended or designed to be used for any of the following specified trades, industries and uses:

(a) Automobile repair shop, unless conducted in connection with a public garage and as part thereof;

- (b) Bakeries employing more than five (5) persons;
- Blacksmith or horseshoeing establishments; (c)
- Bottling works; (d)
- (e) Carting, express or hauling yard or storage yard other than for fuel;
- Warehouses and storage houses; (f)
- Marble, granite, stone or monumental works; (g)
- Contractors' plant or storage yard; (h)
- Cooperage; (i)
- Laundry; (j)
- (k) Lumber yard;
- Uses excluded from the Light Industrial District; (1)

(m) Any kind of manufacturing other than manufacturing clearly incidental to a retail business conducted on the premises or light manufacturing conducted on any floor above the ground floor of a building;

(n) Provided, further, however, there may be maintained in a Commercial District the following:

Printing shops and the business of publishing a newspaper;
 Light Industries clearly incidental to the operation of an amusement park;
 Electric sub-stations and telephone exchanges;
 Public garages and gasoline service stations may be conducted in a Commercial District only under permits granted by the Fire Department.
 Establishments for hand ironing only and not employing more than five

(5) employees.

No uses permitted by Sections 3 and 4 of this Article shall be excluded from Commercial District.

Provided, further, that the restrictions herein provided shall be subject to the provisions of Section 9 of this Article in so far as existing non-conforming uses are concerned.

SEC. 6. Light Industrial District. All uses permitted in a Commercial Dis-trict shall be permitted in a Light Industrial District. In a Light Industrial District no building or premises shall be used and no building shall be constructed or altered which is intended or designed to be used for any of the following specified trades, industries or uses:

- Acetylene gas manufacture; Ammonia, chlorine or bleach powder manufacture; 3.

Asphalt manufacture or refining; Blast furnace; Boiler works; Brick, tile or terra cotta manufacture; Celluloid manufacture or treatment; Creosote treatment or manufacture; Coko evens;

- 6.
- Coke ovens;

8. 9. 10. Dyestuff manufacture;

(1) Use. The word "use" means the purpose for which a building is or may be occupied.

SEC. 2. Use Districts. For the purpose of regulating and establishing the location of trades and industries, businesses, dwellings and location of buildings designed for specific uses, the City and County of San Francisco is hereby divided into six (6) classes of districts: (1) First Residential District, (2) Second Residential District, (3) Commercial District, (4) Light Industrial District, (5) Heavy Industrial District, (6) Unrestricted District, as shown on the use of property zone maps, Sections 1 to 14, inclusive, which accompany the original enactment and are hereby declared to be part hereof hereby declared to be part hereof.

Property Zone Maps Nos. 5A and 6A are hereby substituted for Property Zone Maps Nos. 5 and 6, and said maps 5A and 6A shall hereafter be deemed to show the respective specific uses of property embraced within the respective areas shown on said maps.

The use districts designated on Zone Maps 1-to 4, 5A, 6A and 7 to 14, inclusive, are hereby established. The use of property zone map designations which accompany said use of property zone maps are hereby declared to be part hereof. No building or premises shall be erected or used for any purpose other than a purpose permitted in the use district in which such building or premises are located.

SEC. 3. First Residential District. In a First Residential District no building or premises shall be used and no other building shall be constructed or altered which is arranged, intended or designed to be used for any purpose other than for:

- (a) Single family dwelling;
- (b) School;
- Church; (c)
- Community Club house; (d)
- (e) Nurseries, farms, truck gardens and greenhouses;
- The usual accessories located on the same lot with these various buildings (f)

- Gas manufacture:
- Gunpowder manufacture or storage;
- Lampblack manufacture; 13.
- Lime, cement or plaster of paris manufacture; Petroleum refining; 14. 15.
- Potash refining;

- 16. 17. 18. 19. 20. 21. Rolling mill; Ship yard; Smelting of iron;

- Stockyards; Stockyards; Storage or baling of scraps, paper, rags or junk; Sulphuric, nitric or hydrochloric acid manufacture; Tar roofing or tar waterproofing manufacture; Wool pulling and scouring. 22.
- 24.
- 25.
- 26. Yeast plant;

27. Those uses which constitute a nuisance or which may be noxious or offensive by reason of the emission of odor, dust, smoke, gas or noise;
28. All uses excluded from Heavy Industrial Districts except single dwellings, flats and tenement houses.

Iron, steel or brass foundries operating closed furnaces may be conducted in this district upon permit from the Board of Supervisors, but not otherwise.

SEC. 7. Heavy Industrial District. In a Heavy Industrial District no build-ing or premises shall be used and no building shall be constructed or altered which is arranged, intended or designed to be used for any of the following specified

- (a) Single dwelling, flat or tenement house;
- (b) Abattoir;

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- (c) Candle factory;
- (d) Distillation of coal, bones or wood;
- (e) Fat rendering;
- (f) Fertilizer manufacture;

(g) Glue, size or gelatin manufacture; trades, industries or uses:

(h) Incineration or reduction of garbage, offal, dead animals or refuse; Tallow, grease or lard manufacture. (i)

Provided, the erection and maintenance of dwelling quarters in connection with any industrial establishment for the family of a watchman may be allowed.

SEC. 8. Unrestricted District. In the Unrestricted District no use restrictions are placed on any of the property except as are imposed by law or municipal ordinance.

SEC. 9. Non-Conforming Building and Uses. Any non-conforming use (exist-ing on the 26th day of September, 1921, may be continued) and any existing build-ing designed, arranged, intended or devoted to a non-conforming use may be recon-structed or structurally altered and the non-conforming use therein changed subject to the following regulations:

(a) The cost of reconstruction or structural alteration of such a building shall in no case exceed fifty (50%) per cent of its assessed value, nor shall the building be enlarged unless the use thereof is changed to a conforming use;

(b) No non-conforming use shall be enlarged at the expense of a conforming use;

(c) In a Residence District no building or premises devoted to a use per-mitted in a Commercial District shall be changed into a use excluded from the Commercial District;

(d) In a Residence or Commercial District no building or premises devoted to a use permitted in a Light Industrial District shall be changed into a use ex-cluded from a Light Industrial District;

(e) In a Residence, Commercial or Light Industrial District no existing build-ing or premises devoted to a use excluded from the Light Industrial District shall be structurally altered if its use shall have been changed since the 26th day of September, 1921, to another use also excluded from a Light Industrial District. A change of use for the purpose of this subsection shall be deemed to include any change from a use included in an enumerated subdivision of Section 6 to a use included in another enumerated subdivision of Section 6;

(f) In a Residence, Commercial or Light Industrial District no building or premises devoted to a use excluded from a Light Industrial District shall have its use changed to another use which is also excluded from a Light Industrial District if the building shall have been structurally altered since the 26th day of Septem-ber, 1921. A change of use for the purpose of this subsection shall be deemed to include any change from a use included in an enumerated subdivision of Section 6 to a use included in another enumerated subdivision of Section 6.

SEC. 10. Change in District Boundaries. If any area hereafter transferred to another district by a change in district boundaries by an amendment, the pro-visions of Sections 1 to 14, inclusive, of this Article and Section 100 of Article 4 of this Chapter, in regard to the premises or building existing on the 26th day of September, 1921, shall apply to buildings or premises at the time of passage of such amendment in such transferred area.

SEC. 11. Unlawful Use—Certificate of Occupancy. It shall be unlawful to use or permit the use of any building or premises except as exempted hereinafter in this Section or part thereof hereafter constructed, erected, changed or converted wholly or in part in its use or structure until a Certificate of Occupancy to the effect that the building or premises or the part thereof so constructed, erected, changed or converted and the proposed use thereof conform to the provisions of Sections 1 to 14, inclusive, of this Article and Section 100 of Article 4 of this Chap-ter, shall have been issued by the Central Permit Bureau.

In the case of such buildings or premises it shall be the duty of the Central Permit Bureau to issue a Certificate of Occupancy within ten (10) days after a request for the same shall be filed in the office of the Central Permit Bureau by any owner of a building or premises or any part thereof so constructed, erected, changed or converted, and the proposed use thereof conforms with all the require-ments herein set forth.

A newly constructed frame one or two family dwelling shall be exempted from necessity for issuance of Certificate of Occupancy provided its application for building permit clearly shows that it is to be used as a one or two family dwelling. Alterations, changes or reconstruction of such dwellings shall, however, be gov-erned by all provisions of this Section.

A temporary Certificate of Occupancy for a part of a building may be issued by the Central Permit Bureau. Upon written request from the owner, the Central Permit Bureau shall issue a Certificate of Occupancy for any building or premises existing on the 26th day of September, 1921, certifying after inspection the use of the building or premises and whether such use conforms to the provisions of Sec-tions 1 to 14, inclusive, of Article 1 of this Chapter.

SEC. 12. District Boundaries. District boundaries are, unless otherwise indi-cated, street lines, but where two (2) or more district designations are shown within a block two hundred (200) feet or less in width, the boundary of a less restricted district shall be deemed one hundred (100) feet back from its street lines. Where two (2) or more district designations are shown within a block more than two hundred (200) feet in width the bounding line shall be deemed one hundred thirty-seven and one-half (137½) feet back from the street line of the less restricted district, or shall be the rear lot line of the lots fronting on the less restricted district, provided, however, in no event shall the boundary line extend further back than one hundred thirty-seven and one-half (137½) feet from the street line of the less restricted district. Where uncertainty exists as to the exact boundary line, the line shall be determined by the City Planning Commission upon written application and a record thereof kept in the office of that Com-mission. mission.

SEC. 13. Completion of Proposed Buildings and Restoration of Building Wholly or Partly Destroyed. Nothing herein contained shall require any change in the plans, construction or designated use of a building for which a building permit has been heretofore issued, provided, however, the work of construction must be commenced under such permit within ninety (90) days after the 26th day of September, 1921, and must be diligently prosecuted until the completion of the building for which such permit has been granted. Nothing in Sections 1 to 14, inclusive, of Article 1 of this Chapter shall prevent the restoration of a building wholly or partly destroyed by fire, earthquake, explosion, act of God or act of a public enemy, or prevent the continuance of the use of such building or part thereof as such use existed at the time of such destruction of such building or part thereof, or prevent a change of such existing use under the limitations provided thereof as such use existed at the time of such distriction of such unlang of part thereof, or prevent a change of such existing use under the limitations provided in Section 9 of this Article. Nothing in Sections 1 to 14, inclusive, of Article 1 of this Chapter shall prevent the restoration of a wall declared unsafe by the De-partment of Public Works.

Sec. 46. Ruling of commission-Appeal.

Sec. 47. Stipulations.

Sec. 48. Time limit-Reversion.

Sec. 49. Building permits-Proceedings pending.

SEC. 40. Proceedings to Change Zoning Classifications and for Special Variances.

(For Future Use)

SEC. 41. Hearings. The City Planning Commission shall consider and hold hearings on proposed changes in the classification of the use to which property in •the city and county may be put, and the establishment or changing of building setback lines, in either case, on its own motion or on the application of an interested property owner.

SEC. 42. Applications. The petition for rezoning or for the establishment or change of building set-back lines shall be addressed to the City Planning Com-mission, and it shall contain a description of the property sought to be reclassified or on which the building set-back lines are to be established or changed, and shall state the change desired and the particular use to which the applicant desires to put the property. The petition shall be signed and verified by the owner of the property or by his authorized agent. There shall be submitted therewith a map showing the boundaries of the area sought to be reclassified or on which building set-back lines are to be established or changed, and also showing each separate piece of property within a distance of three hundred (300) feet from the exterior boundaries of the area sought to be changed, and giving the Assessor's block and lot number of each separate piece of property and the name or names of the owner thereof. There shall also be included in said petition the names and addresses of all owners of property shown on said map, showing the particular lot or lots owned by each owner. owned by each owner.

SEC. 43. Fees. Upon filing said petition for rezoning or for the establishment or change of building set-back lines the petitioner shall pay a fee of Thirty (\$30.00) Dollars for every block as delineated on the Assessor's Block Book wherein the property is sought to be rezoned or wherein the establishment or change of building set-back lines is requested.

SEC. 44. **Posting and Publication.** The City Planning Commission shall, at least twenty (20) days before hearing any petition to change the classification of the use to which property in the city and county may be put, or to establish or change building set-back lines on any property, cause to be conspicuously posted, throughout the area within three hundred (300) feet of the property sought to be reclassified or on which building set-back lines are to be established or changed, at not more than one hundred (100) feet in distance apart, but not less than six (6) in all notices of intention to consider the motion or petition to change the zoning not more than one hundred (100) feet in distance apart, but not less than six (6) in all, notices of intention to consider the motion or petition to change the zoning classification or building set-back lines of such property and the use to which said property may be put. Said notice shall be headed in conspicuous letters, not less than one (1) inch high, "Notice of Proposal to Change Zoning Classification or Set-Back Lines" (as the case may be) and shall state the nature of the change desired and the place, date and hour set for hearing thereon. The Commission shall also, not less than twenty (20) days prior to said hearing, cause to be published at least once in the official newspaper, notice of the time and place of said hearing. said hearing.

SEC. 45. Notice by Mail. The City Planning Commission shall also, not less than ten (10) days prior to said hearing, mail notices of said hearing to the ap-plicants for the proposed change of zone or set-back lines, and all persons whose names and addresses are shown as being owners of property within three hundred (300) feet of all exterior boundaries of the property sought to be reclassified or on which the building set-back lines are sought to be established or changed, and the Clerk of said Commission shall file with the Commission an affidavit to the effect that all such notices have been duly mailed.

SEC. 46. Ruling of Commission—Appeal. Upon the completion of the hearing of any proposed change, the City Planning Commission shall, by resolution, ap-prove or disapprove the proposed change, which if approved, shall not become effective for thirty (30) days. Notice of the action of the Commission shall be mailed to the applicant by the City Planning Commission. Property owners af-fected may appeal to the Board of Supervisors from any ruling of the City Plan-ning Commission by filing protests in writing against such ruling with said Board of Supervisors within thirty (30) days of the date of the City Planning Commis-sion's resolution thereon, which protests shall state the reason therefor and shall designate the location of the property owned by the protestant or protestants by the Assessor's block and lot number and the Post Office address of each protestant. Such appeal shall be sent to the City Engineer for checking, and he shall inform the Board of Supervisors as to the percentage of property delineated upon the map mentioned in Section 42 of this Article, the owners of which have joined in said protest or appeal. protest or appeal.

SEC. 47. Stipulations. The City Planning Commission, in acting on any appli-cation for reclassification of property or for the establishment or change of build-ing set-back lines, may accept stipulations in writing from the applicant or appli-cants should said requested reclassification or change be granted, as to the char-acter of the improvements which will be placed on said property. Said stipulation shall be filed with the Commission, and any change in classification or set-back lines affecting said property may be made contingent upon the conditions con-tained on said stipulations being observed by the applicant or applicants or by his or their successors in interest, and said conditions shall be included in any resolu-tion or order reclassifying said property or changing set-back lines thereon, and said reclassification or change shall at all times be and remain contingent upon the observance of said conditions, and no improvements shall be constructed thereon in violation of said conditions.

SEC. 48. Time Limit—Reversion. The City Planning Commission, in reclassi-fying any property or changing or establishing building set-back lines thereon, shall provide in any resolution or order reclassifying said property, or changing said set-back lines thereon, that said property so reclassified or changed shall be used for the purposes for which it was reclassified or changed, within a specified period of time, and that the failure to use the same for said purposes shall cause said property to revert to the zone or classification from which it was changed.

SEC. 14. Use of Property Zone Maps. The official and original copy of the use of property zone maps shall be kept in the office of the Clerk of the Board of Supervisors. Certified copies thereof shall be deposited with the City Planning Commission and with the Department of Public Works; also one (1) such copy shall be filed for record in the Recorder's office.

ARTICLE 2

ZONING PROCEDURE

Sec. 40. Proceedings to change zoning classifications and for special variances.

Sec. 41. Hearings.

Sec. 42. Applications.

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Sec. 43. Fees.

Sec. 44. Posting and publication.

Sec. 45. Notice by mail.

SEC. 49. Building Permits—Proceedings Pending. No application for a build-ing permit shall be approved by the City Planning Commission on any property on which proceedings are pending for a reclassification of the same or for the establishment or change of building set-back lines thereon.

ARTICLE 3

BUILDING SET-BACK LINES

Sec. 75. Definitions.

- Sec. 76. Proceedings to establish or change building set-back lines.
- Sec. 77. Hearings.
- Sec. 78. Application.
- Sec. 79. Fee.
- Sec. 80. Posting and publication.
- Sec. 81. Notices by mail.
- Sec. 82. Ruling of the commission-Appeal.
- Sec. 83. Buildings between set-back lines and streets prohibited.
- Sec. 84. Garages.
- Sec. 85. Penalty.
- Sec. 86. Building permits-Proceedings pending.

CITY PLANNING CODE

SEC. 75. **Definitions.** (a) **Street.** Wherever the word "street" occurs in Sections 83 and 84 of this Article it shall be held to include all streets, avenues, boulevards, highways or other public ways in the City and County of San Francisco, which have been or may hereafter be dedicated and open to public use.

(b) **Structure.** The word "structure" as used in Section 83 and 84 of this Article shall not be deemed to include any coping, a fence not higher than three (3) feet, retaining wall, walk or stairway leading to a building.

SEC. 76. Proceedings to Establish or Change Building Set-Back Lines. (For Future Use)

SEC. 77.	Hearings	(For	Future	Use)	

- SEC. 78. Application. (For Future Use)
- SEC. 79. Fee. (For Future Use)
- SEC. 80. Posting and Publication. (For Future Use)
- SEC. 81. Notices by Mail.

(For Future Use)

SEC. 82. Ruling of the Commission—Appeal. (For Future Use)

SEC. 83. Buildings Between Set-Back Lines and Streets Prohibited. From and after the taking effect of such ordinance establishing any set-back line or lines, it shall be unlawful for any person, firm or corporation to construct or place any building, wall, fence or other structure, provided however, a bay window not more than fifteen (15) feet wide and projecting not more than two (2) feet over said set-back line may be erected, within the space between a street line and the set-back line so established, and the Central Permit Bureau shall refuse to issue any permit for any building or structure to be erected or placed on such space.

SEC. 84. Garages. Where the average slope of the area between the street line and the established set-back line ascends from the street line and exceeds fifty (50%) per cent, a garage may be erected in such area, provided that the top of such garage does not extend above the level of the first floor of the building erected on the lot.

SEC. 85. **Penalty.** Any person, firm or corporation violating any of the provisions of any ordinance establishing any set-back line or lines, pursuant to Sections 75, 83 and 84 of this Article, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by fine of not more than \$500, or by imprisonment in the County Jail for a period not more than six months, or by both said fine and imprisonment.

Each person, firm or corporation shall be deemed guilty of a separate offense for each day during any portion of which any violation of such ordinance is per-mitted, continued or committed by such person, firm or corporation, and shall be punished therefore as provided in the ordinance.

SEC. 86. Building Permits-Proceedings Pending.

(For Future Use)

ARTICLE 4

GENERAL PROVISIONS

Sec. 99. Regulating Subdivision of Land and Use of Lots for Dwelling Purposes (See page 27).

Sec. 100. Building permits.

Sec. 101. Interpretation—Purpose.

Sec. 102. Enforcement.

SEC. 100. **Building Permits.** No building permit shall be issued by the Central Permit Bureau, subject to the approval of the Bureau of Building Inspection, the Fire Prevention Bureau, the Fire Marshal and the City Planning Commission for the erection or alteration of any building or structure contrary to the provisions of Sections 1 to 14, inclusive, of Article 1 of this Chapter.

Each application for a building permit hereafter filed with the Central Permit Bureau shall be accompanied by a statement as to the use of the building to be constructed or altered on blanks to be furnished by the Central Permit Bureau. On each application there shall be shown an accurate block plan of the location of the building on the lot drawn to a scale of sixteen (16) feet to one (1) inch.

SEC. 101. Interpretation—Purpose. In interpreting and applying the provi-sions of Sections 1 to 14, inclusive, of Article 1, of this Chapter and Section 100 of this Article they shall be held to be the minimum requirements adopted for the promotion of the public health, safety, comfort, convenience and general welfare. It is not intended by Sections 1 to 14, inclusive, of Article 1, of this Chapter and Section 100 of this Article to repeal, abrogate, annul or in any way to impair or interfere with any existing provision of law or ordinance or any rules, regulations or permits previously adopted or issued or which shall be adopted or issued pur-suant to the law relating to the use of buildings or premises; nor is it intended by Sections 1 to 14, inclusive, of Article 1, of this Chapter and Section 100 of this Article to interfere with or abrogate or annul any easement, covenant or other agreements between parties; provided, however, that where Section 1 to 14 in-clusive, of Article 1, of this Chapter and Section 100 of this Article imposes a greater restriction upon the use of buildings or premises than is imposed or regreater restriction upon the use of buildings or premises than is imposed or re-quired by such existing provisions of law or ordinance or by such rules, regula-tions or permits or by such easements, covenants or agreements, the provisions of Sections 1 to 14, inclusive, of Article 1, of this Chapter and Section 100 of this Article shall control.

mitted by such person, firm or corporation, and shall be punishable as herein provided.

ARTICLE 5

MISCELLANEOUS PROVISIONS

- Sec. 125. Establishment of carpet beating works, etc., within certain limits prohibited.
- Sec. 130. Maintenance of brick kilns in certain limits prohibited .
- Sec. 135. Maintenance of slaughter houses and slaughtering of cattle regulated.
- Sec. 140. Establishments for rendering or reducing of animal or vegetable sub-stances within certain limits prohibited.
- Sec. 141. Rendering, etc., regulated.
- Sec. 146. Establishment, maintenance or use of rock crushing machines within certain limits prohibitd.
- Sec. 147. Penalty.

SEC. 125. Establishment of Carpet Beating Works, Etc., Within Certain Limits Prohibited. It shall be unlawful for any person, firm or corporation to erect or establish any carpet beating works, tannery or shoddy mill within the following described limits of this city and county, to wit:

Commencing at a point where Channel street intersects the water front line at the northern extremity of China Basin; thence running northerly, northwesterly and westerly along the established water front line to the eastern line of the Presidio reservation; thence southerly along the easterly line of the Presidio res-ervation to the southerly line of the Presidio reservation; thence westerly along said southerly line of the Presidio reservation to the shore line of the Pacific Ocean; thence westerly and southerly along the shore line of the Pacific Ocean to the western extremity of Ocean avenue; thence easterly along Ocean avenue to Mission street; thence northeasterly and northerly along Mission street to Twenty-sixth street; thence easterly along Twenty-sixth street if produced to a point where said street would intersect Potrero avenue if produced in a southerly direction. Commencing at a point formed by the intersection of Army street with San Bruno avenue; thence northerly along San Bruno avenue to Twenty-fifth street; thence easterly along Twenty-fifth street to Wisconsin street; thence northerly along Wis-consin street to Eightenth street to Potrero avenue; thence northerly along Po-trero avenue to Division street; thence easterly along Division street to Channel street; thence northeasterly along Channel street to the waters of the bay and the point of commencement.

SEC. 130. Maintenance of Brick Kilns in Certain Limits Prohibited. It shall be unlawful for any person, firm or corporation to build or cause to be built, to establish or maintain, or cause to be established or maintained, any brick kiln, or to burn or cause to be burned, any brick within that portion of the city and county bounded by Steiner, Sanchez, Market and Seventeenth streets, Corbett and Ocean House roads (avenue), Bellevue, Thirteenth and Mission streets, Serpentine ave-nue, York, Twenty-fifth and Yolo streets and the waters of the bay.

SEC. 135. Maintenance of Slaughter Houses and Slaughtering of Cattle Reg-ulated. It shall be unlawful for any person, firm or corporation to establish or maintain any slaughter house or to slaughter cattle, hogs, calves, sheep or other animals within the city and county, except within that tract of land bounded and described as follows: Commencing at the point of intersection of the easterly line of Third street with the southwesterly line of Arthur avenue, and running thence southeasterly along said southwesterly line of Arthur avenue to the northwesterly line of Ingalls street; thence southwesterly along said northwesterly line of Ingalls street to the southwesterly line of Galvez avenue; thence northwesterly along the said southwesterly line of Galvez avenue to the southeasterly line of Third street; thence northeasterly along said southeasterly line of Third street to the said easterly line of Third street; thence northerly along said easterly line of Third street to said southwesterly line of Arthur avenue and to the point of commence-ment.

SEC. 140. Establishments for Rendering or Reducing of Animal or Vegetable Substances Within Certain Limits Prohibited. It shall be unlawful for any person, firm or corporation to maintain or operate any establishment for the rendering or reducing of tallow or other animal or vegetable substance or to carry on or con-duct the business of rendering or reducing the same within the city and county, except within that certain tract of land bounded and described as follows: Com-mencing at the intersection of the easterly line of Third street with the southwest-erly line of Arthur avenue, and running thence southeasterly along said south-westerly line of Arthur avenue to the northwesterly line of Ingalls street; thence southwesterly along said northwesterly line of Ingalls street south to the bay shore; thence westerly along the line of the bay shore to the southeasterly line of Third street; thence northeasterly along said southeasterly line of Third street to the easterly line of Third street; thence northerly along said easterly line of Third street to said southwesterly line of Arthur avenue and to the point of commence-ment. ment.

SEC. 141. Rendering, Etc., Regulated. The rendering, reducing, heating or steaming of any animal or vegetable substance generating noisome or unwhole-some odors as gaseous vapors must be conducted in steam-tight kettles, tanks or boilers and in such manner as shall entirely condense, decompose, deodorize or destroy the odors, vapors or gaseous products.

SEC. 146. Establishment, Maintenance or Use of Rock Crushing Machines Within Certain Limits Prohibited. No person, company or association shall estab-lish, maintain or use any rock crushing machine operated by steam, gas, electric, vapor or other motive power, within that portion of the City and County of San Francisco bounded as follows:

SEC. 102. Enforcement. It shall be the duty of the Department of Public Works, Department of Public Health, Police Department, Fire Department and Department of Electricity to enforce the provisions of Sections 1 to 14, inclusive, of Article 1, of this Chapter and Section 100 of this Article.

Any person, firm or corporation violating any provisions of this ordinance shall be guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine of not more than \$500.00 or by imprisonment for a term not exceeding six months, or by both such fine and imprisonment. Such person, firm, or corporation shall be deemed guilty of a separate offense for each and every day during any portion of which any violation of this ordinance is committed, continued or per-

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"By The Embarcadero, Van Ness avenue, Bay street, Laguna street, Lewis street, Lyon street, southerly and westerly boundaries of the Presidio, the Pacific Ocean from the Presidio to the intersection of the Great Highway and Lincoln way, Lincoln way, Arguello boulevard, Frederick street, Masonic avenue, Roose-velt way, Fifteenth street, Castro street, Seventeenth street, Douglass street, Romain street, Burnett avenue, Surrey street, Detroit street, Joost avenue, Circular avenue, Diamond street, Chenery street, Thirtieth street, San Jose avenue, Army street, York street, Twenty-fifth street, Potrero avenue, Brannan street."

SEC. 147. **Penalty.** Any person, company or association violating the provisions of Section 146 of this Article shall be deemed guilty of a misdemeanor and upon conviction thereof, shall be fined a sum not exceeding Five Hundred (\$500.00) Dollars nor less than Twenty-five (\$25.00) Dollars, or by imprisonment in the County Jail of said City and County of San Francisco for a term not exceeding six (6) months nor less than three (3) days or both such fine and imprisonment.

Regulating Subdivision of Land and Use of Lots for Dwelling Purposes

Bill No. 4375, Ordinance No. 4162 (Series of 1939), as follows:

An ordinance amending Article 4, Chapter II, Part II, of the San Francisco Municipal Code, by adding Section 99 thereto, relating to the subdivision of land and the use of lots for dwelling purposes; by amending Section 100, of Article 4, Chapter II, Part II, relating to buildings permits and by amending Sections 101 and 102 of Article 4, Chapter II, Part II, to include reference to Section 99 as added by this ordinance.

Be it ordained by the People of the City and County of San Francisco, as follows:

Section 1. Article 4, Chapter II, Part II, of the San Francisco Municipal Code is hereby amended by adding a new section to be known as Section 99, reading as follows:

SEC. 99. (a) New Subdivisions—Lot Areas. In all areas hereafter subdivided, where a subdivision map is to be filed for approval, all lot lines shall be shown on said map, and such lots shall conform in dimension to the neighborhood pattern as determined by the City Planning Commission. Where a neighborhood pattern does not exist, lots shall have a width of not less than 33 feet. No subdivision shall be approved which does not comply with the provisions of this section.

(b) New Subdivisions—Lot Coverage. No dwelling shall be constructed upon a lot in a new subdivision for which a map has been approved in accordance with the provisions of this section, which will cover more than 65 per cent of the lot area, or which provides for an open rear yard less than 25 feet in depth. The provision of open spaces between dwellings on adjacent lots is optional, but where such side yards are provided, the distance between dwellings shall be not less than 6 feet.

(c) **Resubdivision.** Except as provided in Subdivisions (d) and (e) hereof, in any area previously subdivided no lot or land unit shall be established and indicated upon a map or maps filed for record which has an area less than 2500 square feet, or a width less than 25 feet, and no building shall be constructed upon any such lot which will cover more than 65 per cent of the lot area, or which provides for an open rear yard less than 15 feet in depth.

(d) **Corner Lots—First Residential Districts.** In any area previously subdivided in a First Residential District, the area lying within 100 feet of the corner of a block, measured along each street from such corner, can be resubdivided into lots having a minimum width of 25 feet and a minimum depth of 70 feet; provided, however, that where the City Planning Commission finds that existing conditions do not permit the establishment of the minimum depth of 70 feet such areas can be resubdivided into lots having a street frontage of not less than 25 feet and a depth of not less than 57.5 feet. No building shall be constructed upon any such lot which will cover more than 75 per cent of the lot area, or which provides for an open rear yard less than 15 feet in depth.

(e) **Corner Lots—Second Residential Districts.** In any area previously subdivided in a Second Residential District, the area lying within 100 feet of the corner of a block, measured along each street from such corner, may be resubdivided into lots having a minimum width of 25 feet and a minimum depth of 57.6 feet. No building shall be constructed upon any such lot which provides an open rear yard of a depth less than set forth in the table given in Section 15682 of Article II, Chapter 7 of the California State Housing Act.

(f) Lots Now of Record Excepted. Wherever a map showing subdivided lots is of record in the office of the Recorder or the office of the Assessor at the time of the enactment of this section, any lot as shown having dimensions less than those required by this section may, nevertheless, be used as the site for a dwelling, provided that the requirements as to coverage and rear yards of Subdivision (d) shall apply thereto.

(g) Variances. The City Planning Commission may, upon application, grant variances from any of the provisions of this section, after public notice and hearing,

if it is of the opinion that special circumstances exist in the particular case, and that unnecessary hardship would result from the strict interpretation and enforcement of such provision. The procedure governing such applications, and the granting or denial of such variances, shall be the same as that prescribed by ordinance for zoning changes.

Section 2. Section 100 of Article 4, Chapter II, Part II, of the San Francisco Municipal Code, is hereby amended to read as follows:

SEC. 100. **Building Permits.** Building permits for the erection or alteration of any building or structure, shall be issued by the Central Permit Bureau only after approval by the Bureau of Building Inspection, the Division of Fire Prevention and Investigation and the City Planning Commission and shall not be issued contrary to the provisions of Sections 1 to 14, inclusive, of Article 1 or Section 99 of Article 4 of this Chapter.

Each application for a building permit hereafter filed with the Central Permit Bureau shall be accompanied by a statement as to the use of the building to be constructed or altered on blanks to be furnished by the Central Permit Bureau. On each application there shall be shown an accurate block plan of the location of the building on the lot drawn to a scale of sixteen (16) feet to one (1) inch.

Section 3. Sections 101 and 102 of Article 4, Chapter II, Part II, of the San Francisco Municipal Code, are hereby amended to read as follows:

SEC. 101. Interpretation-Purpose. In interpreting and applying the provisions of Sections 1 to 14, inclusive, of Article 1 of this Chapter and Sections 99 and 100 of this Article, they shall be held to be the minimum requirements adopted for the promotion of the public health, safety, comfort, convenience and general welfare. It is not intended by Sections 1 to 14, inclusive, of Article 1 of this Chapter and Sections 99 and 100 of this Article to repeal, abrogate, annul or in any way to impair or interfere with any existing provision of law or ordinance or any rules, regulations or permits previously adopted or issued or which shall be adopted or issued pursuant to the law relating to the use of buildings or premises; nor is it intended by Sections 1 to 14, inclusive, of Article 1, of this Chapter and Sections 99 and 100 of this Article to interfere with or abrogate or annul any easement, covenant or other agreements between parties; provided, however, that where Sections 1 to 14, inclusive, of Article 1, of this Chapter and Sections 99 and 100 of this Article imposes a greater restriction upon the use of buildings or premises than is imposed or required by such existing provisions of law or ordinance or by such rules, regulations or permits or by such easements, covenants or agreements, the provisions of Sections 1 to 14, inclusive, of Article 1, of this Chapter and Sections 99 and 100 of this Article shall control.

SEC. 102. **Enforcement.** It shall be the duty of the Department of Public Works, Department of Public Health, Police Department, Fire Department and Department of Electricity to enforce the provisions of Sections 1 to 14, inclusive, of Article 1, of this Chapter and Sections 99 and 100 of this Article.

Read Second Time and Finally Passed—Board of Supervisors, San Francisco, November 25, 1946.

I hereby certify that the foregoing ordinance was finally passed by the Board of Supervisors of the City and County of San Francisco.

JOHN R. McGRATH, Clerk.

Approved San Francisco, November 26, 1946.

R. D. LAPHAM, Mayor.



PINK CODE DRAFT (Courtesy Andrés Duany.)

IGNITE HIGH POINT



Draft 5/17/2013

FREEMAN KENNETT DPZ

****** "Pink Code" DRAFT 1 (Note: This format is a "dashboard interface" for the applicant. The notes in parentheses are for the calibrators. code. The unavoidable legalisms, like wires and ducts, will be woven throughout this text in red ink-- on a file till necessary fi). APPLICABILITY -Pink Zone is an overlay category designated on the Ignite High Point Regulating Plan V 1.0. -These provisions and procedures, when in conflict, shall take precedence over all others. Those not addressed by this this code continue to be applicable. -This code deploys Six Transect Zone that replace the existing zoning categories. INTENT -Determinations made at the four Enabling Levels shall be guided by this Intent Section. -This Ignite High Point Interim Zoning Ordinance (the "Pink Code") is intended to lighten the legalistic complexity and the procedural burden (the "red tape") that impedes: A. The construction of new building economically. B. The inexpensive recycling of existing building. B. Expeditious and time-certain permitting. C. Responsible self-building. D. Business incubation. F. The construction of very affordable housing. G. Innovative design and technical experimentation. -An additional Intent of this code is to support the character of the underlying base Zones as describe T6 URBAN CORE ZONE (description to be inserted) T5 URBAN CENTER ZONE T4 GENERAL URBAN ZONE T3 SUB-URBAN ZONE T2 RURAL ZONE T1 NATURAL ZONE (Note: this is an operational list to guide decisions the four Levels of enabling. It spares the applicant the usual aspirational sentiments about social equity, ecological responsibility etc.which appear in the base) PROCEDURES -An Enabling process shall be available at five levels. The applicant may choose to engage directly at any level of Enabling. .LEVEL ONE: For projects that follow this and all applicable codes may

certified by a licensed professional architect or engineer. The CRC shall be notified at commencement of construction and at completion. The certified professional shall inspect, and the CRC may inspect the site for compliance. The prerequisite for application is a letter or non-objection from the majority of the immediately adjacent property owners. LEVEL TWO: for projects that warrant a deviation that nevertheless complies with the Intent of this Code and/or applicable codes. A warrant may be granted directly by CRC. A negative determination must re returned within 6 working days. LEVEL THREE: a direct determination by the City Manager at the request of the project applicant. LEVEL FOUR: approval by vote of the City Council in public hearing. -A negative determination may be appealed to the next higher level. A negative determination at Level four reverts the application to Level Two. -The Consolidated Review Committee (the CRC) shall consist of a representative of every relevant department as appointed by the City Manager. The CRC shall be chaired be a delegate of the City Manager. The members shall be authorized to make discretionary decisions in support of the Intent of this code. In the event of an impasse the decision shall be made in consultation at Level Three.

RESIDENTIAL INTENSITY

-There shall be no minimum size for room or dwelling required. -Residential Density shall be calculated on the basis of the street frontage of the lot or the block. (Note: This incentivizes smaller blocks as an example, four 200X200 ft blocks have almost double the frontage one of the standard 200X800 ft block).

-Alleys providing rear access to parking shall be considered street frontage. (Note: to strongly incentivize alleys) T6 The average frontage per dwelling shall be 12 ft T5 The average frontage per dwelling shall be 24 ft and not less than 18 ft. T4 The average frontage per dwelling shall be 36 ft and not less than 24 ft. T3 The average frontage per dwelling shall be 54 ft and not less than 36 ft. T2 The average frontage per dwelling shall be 90 ft and not less than 54 ft. T1 The average frontage per dwelling shall be determined by the Council. (Note that the system is flexible and parametric. Since the market privileges freestanding dwellings there is no need to provide side setbacks in order to assure a predominance of the house type in T3 and T4. Because of

COMMERCIAL INTENSITY

-Commercial Density. Based on the calculated allocation of residential density, with a conversion factor of 1000sf of commercial space per dwelling allocated. (Note that this discourages commercial use in the less dense T-zones. So it is soft mixed use control)

-All other uses shall be as requested by the applicant and determined by negotiation at Level TWO and/or above. (Note that this goes directly to where the decision is made anyway--without red tape)

the smaller lots, T5 building types will tend to be rowhouses, sideyard

houses or double houses. T 6 will tend to be apartments.)

FRONTAGE SETBACKS

In the event of an infill lot the frontage may match one or the other of the adjacent buildings, or an average of the two. Or at the discretion of the CRC, the following shall apply.

T6 At least 80% of the facade of a building shall be set between 3 and 12 ft from a frontage line. T5 At least 80% of the facade of a building shall be set between 3 and 12 ft from a frontage line. T4 At least 60% of the facade of a building shall be set between 3 and 24 ft from a frontage line. T3 At least 60% of the facade of a building shall be set between 24 and 54ft from a frontage line. T2 The facade shall be set in consultation with the Council T1 The facade shall be set in consultation with the Council -The remainder of the facades may be set back further. -Those portions of the setback which are not paved must be landscaped. (Note, facades are on frontages by definition and levations are on the other, internal or rear, property lines. Those setbacks are otherwise assured by window access to light, by fire code, and by the designer so it is not our job. BUILDING HEIGHT -Building height shall be measured to the top of the tallest parapet or the average eave height as follows: T6 The maximum building height shall be 4 stories excluding basement and habitable attic.k T5 The maximum building height shall be 3 stories T4 The maximum building height shall be 3 stories, " T3 The maximum building height shall be 2 stories, " T2 The maximum building height shall be as determined by the CRC T2 The maximum building height shall be as determined by the CRC PARKING PROVISION -Parking associated with a lot or a building thereupon is not required on or off the lot. -Parking on a lot, if provided, shall not exceed 2 per principal dwelling, plus 1 per ancillary dwelling and 4 per 1000 sf of commercial space. -At the discretion of the CDC, for the demonstrated purposes of a. convenience, b. mortgage qualification and/or c. property appraisal, the municipality may lease those parking places a. On the street directly along the frontage of a lot and/or b. Municipal Parking within the pedestrian shed of the lot. -Parking, when provided on the lot shall be a. if open, setback to behind the facade of the building b. if roofed, setback twenty feet behind the facade of the building c. an enclosed garage may be aligned with, or in front of, the facade if it designed and equipped to become a commercial space.

TENT ENCAMPMENTS AND TINY HOUSE VILLAGES

Tent Encampments and Tiny House Villages as a Crisis Response to Homelessness, from the Low Income Housing Institute.

Tent Encampments and Tiny House Villages as a Crisis Response to Homelessness



www.LIHI.org



Low Income Housing Institute

LIHI owns and manages over 50 properties in 6 counties in the Puget Sound region, serving a wide variety of individual and family populations: homeless, low-income, disabled, senior, young adult, veteran, refugee. Additionally, LIHI runs three Urban Rest Stops that offer homeless persons free shower, laundry, and other hygiene services. LIHI also partners in operation of 3 homeless encampments.

Cheryl Chow Court 50 apartments for seniors



August Wilson Place 57 workforce apartments

Housing First Models







Ernestine Anderson Place 60 apartments for homeless and low-income seniors **Gossett Place** 63 apartments for homeless vets, young adults and the mentally ill **University Commons**

49 apartments for homeless young adults with a food bank on the ground floor.





Olympia Commons 43 apartments for homeless young adults, vets, disabled, and others



Seattle Housing and Resource Effort LARGEST SHELTER & ENCAMPMENT NETWORK IN THE PACIFIC NORTHWEST



Nickelsville









Why Tent Cities are Needed

Severe lack of shelters Severe lack of affordable housing Survival: WITHOUT SHELTER PEOPLE DIE! 10,000 Homeless in King County4,505 Unsheltered67 Homeless Deaths in 2015

Tent Cities/Encampments INTERIM SURVIVAL MECHANISMS From its inception King County's 10 year plan to End Homelessness recognized that Interim Survival Mechanisms are a legitimate response to help meet the immediate safety and survival needs of individuals who have no access to safe shelter.



Tent Encampments and Tiny House Villages in Seattle



Background

• History of Tent Encampments in Seattle



Background

• How Tent Encampment Works:

- Democratic & Self-managed
- Weekly meetings real democracy
- Strict Code of Conduct (Sobriety, Non-violence)
- NO Sex Offenders
- Dumpster and Port-a-Potties provided
- Security workers at all times/Litter patrols daily
- Bus tickets provided
- LIHI Case Management (TC5 Interbay)

• Advantages of Encampments

- o Community
- Cooperation
- Safety/Security
- o Empowerment
- Point of engagement
- Cost-effective
- Couples/Families stay together (Pets are allowed)

Background

The Low Income Housing Institute (LIHI) began hosting and providing services to Nickelsville in September of 2013 when the encampment was forced to move off of the City of Seattle land on W. Marginal Way that they had occupied for several years.

For the first year the encampment was located at our property on S. Jackson St. in the Central District.

Religious Sponsor: Tabernacle Missionary Baptist Church

Nickelsville then moved to

S. Dearborn St.

in September, 2014

Religious Sponsor: Lutheran Church of the Good Shepherd



Oct 2014

Seattle Mayor Convenes Emergency Task Force on Unsheltered Homelessness

- Tent encampment legislation
- Mayor announces 100 bed shelter
- Use of City-owned and other public spaces for sheltering homeless people
- Funds for homeless youth shelter beds
- Tiny Houses
- Regional response: City funds used for shelter in King County outside of Seattle



Seattle Mayor Ed Murray

Encampment Legislation

• Federal:

RLUIPA - Religious Land Use and Institutionalized Persons Act The land use-related provisions of the Religious Land Use and Institutionalized Persons Act of 2000 (RLUIPA) prohibit state and local governments from regulating land use in a manner that: discriminates against or among religious institutions, 42 U.S.C. ' 2000cc(b); or imposes a substantial burden on religious exercise, unless the regulation is the least restrictive means of serving a compelling government interest.

• WA State:

ESHB 1956 - Authorizing religious organizations to host temporary encampments for homeless persons on property owned or controlled by a religious organization.

• City of Seattle:

- Existing ordinance allowing churches to host encampments
- New ordinance passed on March 30, 2015 allowing 3 encampments of up to 100 residents each on public or private land (without church host).
 - > City issued RFQ to identify tent city sponsors
 - > LIHI in Partnership with Nickelsville and SHARE are chosen to run the 3 encampments.
- Mayor Murray declares state of emergency due to homelessness on Nov 2 and city councils allocates \$7.3 million in 2016 budget to address problem.

Simple Small Sturdy Sleeping Structures

To serve families, who would often show up in the middle of the night, we partnered with Home Depot to build small huts.







Tiny Houses

As we got more involved with, committed to, and experienced with encampments, we realized that houses are much better than tents and that we could do much better than shacks.

We began to reach out to schools and training programs and soon were partnering with them to build inexpensive, but quality, durable Tiny Houses, complete with electricity and heat.



Materials List for one Tiny House

REF.# SKU OTY UM DESCRIPTION PACK PRICE EACH EXTENSION R01 0000-837-133 2.00 EA AVA-12FT PT CON SECT FIR. A Y \$317.86 \$355.97 R02 0000-821-044 3.00 EA L2NA12IN FIRE BLOCK.// A Y \$36.84 \$855.57 R03 0000-186-698 1.00 EA 2X6-0FT #2/BT R KD HEM FIR / A Y \$\$26.15 \$10.38 R05 0000-186-698 1.00 EA 2X6-0FT #2/BT R KD HEM FIR / A Y \$\$22.15 \$\$21.14 R06 0000-192-692 2.00 EA 1/2.32 HEAVY DUTY ADH 100.2 (M2E) A Y \$\$22.85 \$\$13.04 R07 0000-732-922 1.00 EA 1/14/F HOT GAU / QUET GAT LB / A Y \$\$2.85 \$\$11.04 R08 0000-132-272 1.00 EA 1/14/F HOT GAU / QUET GAT LB / A Y \$\$4.83 \$\$55.4 R10 0000-33-737 1.40 EA 2X4-12FT PERDIM KD HEM FIR / A Y \$\$4.83 \$\$55.4	STOCK M	ERCHANDISE TO	BE DELIN	ERE!	D:		-	STA	
BRI 0000-387-333 2.00 EA AX4-12F PF CON SELECT FIR / ONE NOT SELECT FIR / State State <tht< th=""><th>REF#</th><th>SKU</th><th>QTY</th><th>UM</th><th>DESCRIPTION</th><th>Ph</th><th>TAX</th><th>PRICE EACH</th><th>EXTENSION</th></tht<>	REF#	SKU	QTY	UM	DESCRIPTION	Ph	TAX	PRICE EACH	EXTENSION
BR02 0000-314-210 8.00 FAI 2XXX2XIV FREE BLOCK / A Y 52.84 58.85 R03 0000-816-643 3.00 FAI FRAHPIG KKA ADUISTABLE POST BASE / A Y 55.61 \$110.3 R04 0000-186-685 10.00 EA 2X6-6FT #2/BTR KD HEM FIR / A Y 55.15 \$110.3 R05 0000-185-894 3.00 EA 2X6-6FT #2/BTR KD HEM FIR / A Y 52.15 \$11.3 R06 0000-185-894 3.00 EA 2X2-6FT #2/BTR KD HEM FIR / A Y 52.21 \$11.44 R07 0000-743-989 6.00 EA 12X3-21 160.00 EA 12X4-21 53.11.00 A Y 54.54 \$45.54 R08 0000-132-272 10.00 EA 12X4-14CT PEREMUMA KD HEM FIR / A Y \$4.64 \$511.00 R10 0000-335-373 14.00 EA 12X4-872 FIRAMUM KD HEM FIR / A Y \$54.65 \$517.27 R11 0000-182-752 0.00 EA 12X4-872 FIRAMUM KD HEM FIR / A Y	R01	0000-387-133	2.00	EA	4X4-12FT PT CON SELECT FIR /	TAF	Y	\$17.78	\$35.56
R03 0000-621-044 3.00 EA EP444PH02 atXa ADJUSTABLE POST BASE / A Y \$56.62 \$519.86 R04 0000-186-865 1.000 EA 2X8-2FT #2/BTR KD HEM FIR / A Y \$53.43 \$53.43 R06 0000-195-894 3.00 EA 2X8-2FT #2/BTR KD HEM FIR // A Y \$53.43 \$53.43 R06 0000-102-924 20.00 EA 123.327 4X8 TAG PLYWOOD / A Y \$52.55 \$511.00 R07 0000-132-272 1.00 EA 124.327 4X8 TAG PLYWOOD / A Y \$52.55 \$511.00 R08 0000-132-272 1.00 EA 124.27 478.02 AMAH VURRICANETE / A Y \$54.55 \$51.37 R10 0000-315-373 14.00 EA 2X4-12FT PE8EMUMAD HEM FIR / A Y \$54.55 \$51.37 R10 0000-315-400 TA EA 2X4-12FT PE8EMUMAD NUHTEWOOD STUD / A Y \$52.65 \$51.43 R14 0000-631-640 TA EX 2X4-12FT PEREMUMAD NUHTEWOOD STUD / A Y \$51.82 \$56.64 R14 0000-631-6375 6.00 EA 124.72 T	R02	0000-314-210	3.00	EA	12INX12IN PIER BLOCK /	A	Y	\$2.84	\$8.52
Bits 0000-188-714 200 EA 288-12FT #2RTTR KD HEM-IR/ A Y \$51.03 R05 0000-915-896 1000 EA 288-96T #28TR KD HEM FIR/ A Y \$52.15 \$81.45 R06 0000-915-394 3.00 EA 23322 4'X8 T&G PLYWODD / A Y \$52.25 \$51.00 R07 0000-743-895 6.00 EA PL375 HEA/VP DUTX AUH 10002 VCEU A Y \$52.25 \$51.10 R08 0000-353-573 14.00 EA 24.27 105 \$28.41 \$63.55 \$11.00 R10 0000-353-573 14.00 EA 24.12FT \$PERMUM KD HEM FIR / A Y \$54.56 \$51.77 R12 0000-516-400 1.00 \$26.57 PERMUM KD WHTIFWOOD STUD / A Y \$22.65 \$34.40 R13 0000-516-400 1.00 \$46.387 4'X8' SMART SIDE SIDING / A Y \$22.65 \$34.92 R14 0000-18-807 1.000 EA 145.67 4'X8' SMART SIDE SIDING / A	R03	0000-621-044	.3.00	EA	EPB44PHDG 4X4 ADJUSTABLE POST BASE /	A	Y	\$6,62	\$19.86
R05 0000-148-685 10.00 EA 23A3 S3A3 S3A3 S3A3 S3A3 S3A3 R06 0000-132-394 3.01 EA 23372 4X8 T36 PLYWOOD / A Y \$22.81 \$31.41 R07 0000-742-895 6.00 EA PL375 HEAVY DUTY ADH 1002 VOG / A Y \$22.85 \$11.00 R08 0000-712-292 2.00 EA H2.5A2 TBGA 2MAX HURRICANETHE / A Y \$34.55 \$11.00 R09 0000-132-272 10.00 EA 24.41471 TPEREMUM KD HEM FIR / A Y \$34.55 \$51.77 R12 0000-186-802 15.00 EA 24.41271 ER/HUM KD WHITEWOOD STUD / A Y \$20.65 \$34.87 R13 0000-918-876 2.00 EA XMAT 127 EK/HUR COD STUD / A Y \$22.95 \$36.51.77 R14 0000-918-876 2.00 EA XMAT 127 EK/HUR COD STUD / A Y \$22.95 \$23.65 \$37.87 R14 0000-948-876 </td <td>R04</td> <td>0000-186-714</td> <td>2.00</td> <td>EA</td> <td>2X6-12FT #2/BTR KD HEM-FIR /</td> <td>A</td> <td>Y</td> <td>\$5.15</td> <td>\$10.30</td>	R04	0000-186-714	2.00	EA	2X6-12FT #2/BTR KD HEM-FIR /	A	Y	\$5.15	\$10.30
R06 0000-015.394 3.00 EA [2332" 4X8" T&G PLWYOD/ / ADH 1002 VEXI A Y \$227.15 \$81.44 R07 0000-713-895 6.00 EA [PL37 F HEAVY DUTY ADH 1002 VEXI A Y \$2.28 \$13.66 R08 0000-102-924 2.00 EA [PL37 F HEAVY DUTY ADH 1002 VEXI A Y \$3.05 \$11.00 R09 0000-132-272 1.00 EX [1-14" HOT CALV JUST YIGHT LB / A Y \$4.54 \$4.55 R11 0000-186-802 1.600 EA [2x4-12FT GREMMUM KD HEM FIR / A Y \$3.46 \$55.47 R11 0000-616-802 1.000 EA [2x4-12FT GREMMUM KD HEM FIR / A Y \$2.05 \$3.48 R13 0000-616-807 1.000 EA [2x4-28'H GREMMUM KD HEM FIR / A Y \$2.65 \$5.67 R15 0000-618-807 1.000 EA [2x4'HEM HEM KD WHITEWOOD / A Y \$2.65 \$5.67 R16 0000-618-807 1.000 EA [2x4'HEM HEM RD ARD ARD / A Y \$5.61 <tr< td=""><td>R05</td><td>0000-186-695</td><td>10.00</td><td>EA</td><td>2X6-8FT #2/BTR KD HEM FIR /</td><td>A</td><td>Ý</td><td>\$3.43</td><td>\$34.30</td></tr<>	R05	0000-186-695	10.00	EA	2X6-8FT #2/BTR KD HEM FIR /	A	Ý	\$3.43	\$34.30
R07 0000-743-895 6.00 EA P.375 HEAVY DUTY ADH 1002 V(CE) A Y \$\$228 \$\$136 R08 0000-102-924 20.00 EA P.25A2 18GA ZMAX HURRICAVENTE/ A Y \$\$055 \$\$11.00 R09 0000-132-272 10.00 EA P.25A2 18GA ZMAX HURRICAVENTE/ A Y \$\$454 \$\$455 R10 0000-186-002 15.00 EA ZX4-147T FREMUM KD HEM FIR / A Y \$\$453 \$\$554 R11 0000-186-002 15.00 EA ZX4-127T FREMUM KD HEM FIR / A Y \$\$205 \$\$344 R13 0000-690-695 10.00 \$\$43 28*78' SMART SIDE SIDING / A Y \$\$277.00 \$\$277.00 R14 0000-691-876 6.00 EA \$1532*428' PL YWOOD / A Y \$\$22.95 \$\$15.82 \$\$94.92 R16 0000-692-876 3.00 EA \$34X4-BT CEDAR BOARD / A Y \$\$15.82 \$\$94.92 R16 0000-161-877 6.00 EA \$15.82 \$\$16.81 \$\$16.81 R17 <td>R06</td> <td>0000-915-394</td> <td>3.00</td> <td>EA</td> <td>23/32" 4'X8' T&G PLYWOOD /</td> <td>A</td> <td>Y</td> <td>\$27.15</td> <td>\$81.45</td>	R06	0000-915-394	3.00	EA	23/32" 4'X8' T&G PLYWOOD /	A	Y	\$27.15	\$81.45
R08 000-102-924 20.00 EAI H2 5A2 18GA ZMAX HURREGNERTY A Y \$9.55 \$11.0 R09 0000-132-272 1.00 EXI 1-14" HOT GALV JUST "GAT LB / A Y \$9.454 \$3.455 R10 0000-332-373 14.00 EA ZX4-12FT "FREMIUM KD HEM FIR / A Y \$3.453 \$55.17.0 R11 0000-186-802 15.00 EA ZX4-12FT "FREMIUM KD WHITEWOOD STUD / A Y \$3.265 \$3.488 R13 0000-590-095 10.00 EA JAX 2450* "PREMIUM KD WHITEWOOD STUD / A Y \$3.27.00 \$227.00 R14 0000-694-876 ZI, 000 - EA JAX 428" LYWOOD / A Y \$5.82 \$94.92 R16 0000-618-897 ZI, 000-276-262 3.00 EA JAXA-8FT CEDAR BOARD / A Y \$1.5.82 \$94.92 R19 0000-18-897 1.00 EA JAXA-8FT CEDAR BOARD / A Y \$1.5.82 \$94.92 R16 0000-276-262 3.00 EA JAXA-8FT CEDAR BOARD / A Y \$2.2.65	R07	0000-743-895	6.00	EA	PL375 HEAVY DUTY ADH 100Z VOC	A	Y	\$2.28	\$13.68
R09 000-132-272 1.00 EX 1.14" HOT GALV JOST NGR 116/ A Y 94.55 R10 0000-335-373 14.00 EA 2X4-14FT PREMIUM KD HEM FIR / A Y 94.03 \$56.44 R11 0000-686-602 15.00 EA 2X4-12FT PREMIUM KD WHITEWOOD STUD / A Y \$2.05 \$33.48 R13 0000-690-095 10.00 EA 2X4-32F PREMIUM KD WHITEWOOD STUD / A Y \$2.70 \$2.77.0	R08	0000-102-924	20.00	EA	H2.5AZ 18GA ZMAX HURRICANETIE /	A	Y	\$0.55	\$11.00
R10 0000-335-373 14 00 EA 2x4-14FT PREMIMIX KD HEM FIR / A Y \$\$4.03 \$\$56.45 R11 0000-180-6802 15.00 EA 2x4-12FT EREMIMIX KD HEM FIR / A Y \$\$3.45 \$\$51.77 R12 0000-510-6402 17.00 EA 2x4-12FT EREMIMIX KD WHITEWOOD STUD / A Y \$\$2.05 \$\$3.44 R13 0000-590-995 10.00 QA 2x8* PREMIUM KD WHITEWOOD STUD / A Y \$\$2.25 \$\$3.65 R14 0000-694-876 g db EA 8*X12* TEXTURED STRAND LAP SONG / A Y \$\$2.26 \$\$2.96 R15 0000-181-897 10.00 EA 34X4-8FT CEDAR BOARD / A Y \$\$2.86 \$\$2.96 R16 0000-181-897 10.00 EA X142-2 PRIMER 20941 1280Z / A Y \$\$1.64 \$\$3.46 R18 0000-124-670 1.00 EA KIL2 2 PRIMER 20941 1280Z / A Y \$\$1.92 R21 0000-140-770 1.00 EA KIL2 PRIMER 20941 1280Z / A Y \$\$2.83 \$\$5.64	R09	0000-132-272	1.00	BX	1-1/4" HOT GALV JOIST HOR TLB /	A	Y	\$4.54	\$4.54
R11 0000-186-802 1500 EA 2x4-127 EPENMUM KD UHEM FIR/ A Y \$3.45 \$51.77 R12 0006-161-840 17.00 EA 2x4-327 EPENMUM KD UHITEWOOD STUD / A Y \$2.05 \$3.48 R13 0000-6590-965 10.00 £4.818*X12* TEXTURED STRAND LAP SONG / A Y \$22.70 \$227.70	R10	0000-335-373	14.00	EA	2X4-14FT PREMUM KD HEM FIR /	A	Y	\$4.03	\$56.42
R12 0000-161-640 17.00 EA 2x4695 PREMIUM KD WHITEWOOD STUD / A Y \$205 \$34.8 R13 0000-590-905 10.00 (4) 30 ⁴ 7x3 'SMART SIDE SIDING / A Y \$27.70 \$277.00 \$277.81 \$298.50 \$298.50 \$298.50 \$298.50 \$298.50 \$298.50 \$298.50 \$298	R11	0000-186-602	15.00	EA	2X4-12FT PREMIUM KD HEM FIR /	A	Y	\$3.45	\$51.75
R13 0000-599-095 10.00 6A Y S27.70 S27.70 R14 0000-694-876 2.00 EA (8*X12 TEXTURED STRAND LAP SONG / A Y S22.5 S15.51 R15 0000-915-378 6.00 EA (15/32* 4X8* PLYWOOD / A Y S15.82 S24.95 R16 0000-161-897 10.00 EA (34/X4*BT CEDAR BOARD / A Y S21.64 S24.95 R17 0000-727-626 3.00 EA (34/X4*BT CEDAR BOARD / A Y S11.64 S34.66 R18 0000-140-770 1.00 EA (8/X2*L2T CEDAR BOARD / A Y S11.64 S34.66 R20 0000-258-830 1.00 EL #15 ROOFING FELT 4-S0.7 A Y S19.24 S19.22 R21 0000-644-377 1.00 RL EVER ROFING FELT 4-S0.7 A Y S24.25 S50.0 R22 1000-1507 1.00 RL EVER ROFING FELT 4-S0.7 A Y S24.25 S50.0 R23 10001-14	R12	0000-161-640	17.00	EA	2X4-96" PREMIUM KD WHITEWOOD STUD /	A	Y	\$2.05	\$34.85
R14 0000-694-876 gdb EAI **X12* TEXTURED STRAND LAP SDNG / A Y \$82,25 \$15,62 R15 0000-915-378 6.00 EAI \$5/32* 4'X8' PLYWOOD / A Y \$52,80 \$52,90 R16 0000-915-378 6.00 EAI \$4X4-8FT CEDAR BOARD / A Y \$52,96 \$22,98 \$36,16 \$16,13 \$16,13 \$16,13 \$16,13 \$16,13 \$16,13 \$16,13 \$16,13 \$16,21 \$19,22 <t< td=""><td>R13</td><td>0000-509-095</td><td>10.00</td><td>EA</td><td>3/8 4'X8' SMART SIDE SIDING /</td><td>A</td><td>Y</td><td>\$27.70</td><td>\$277.00</td></t<>	R13	0000-509-095	10.00	EA	3/8 4'X8' SMART SIDE SIDING /	A	Y	\$27.70	\$277.00
R15 0000-915-378 6.00 EA 15/32" 4/X8" PLYWOOD / A Y \$15.82 \$\$4.9 R16 0000-161-897 10.00 EA 3/4X6-12FT CEDAR BOARD / A Y \$\$2.96 \$\$22.96 R17 0000-722-826 3.00 EA 3/4X6-12FT CEDAR BOARD / A Y \$\$1.64 \$\$34.6 R18 0000-322-946 2.00 EA 3/81R GALVANIZED ZBAR / A Y \$\$16.13 \$\$16.17 R20 0000-232-946 2.00 EA HIL2 Z PRIMER 20941 12802 / A Y \$\$19.2 \$\$19.2 R21 0000-894-803 2.00 EA 1-1/21X 1-1/2 GALV ROOF EDGE / A Y \$\$2.52 \$\$5.0 R22 1000-016-507 1.00 RL EVERBILT 9X150'7 G GRMS HOUSE WRAP / A Y \$\$2.31 \$\$19.2 R23 1001-184-319 8.00 BD SUPREME METRIC ESTATE GRAY 25 YR / A Y \$\$2.93.8 \$\$18.7 R24 0000-944-319 2.00 BX 8D 2 3/8 IN SINKER NAL 5 IB BX / A Y \$\$9.38 \$\$18.7	R14	0000-694-876	- A.de	EA	8"X12' TEXTURED STRAND LAP SDNG /	A	Y	\$8.25	\$16.50
R16 0000-161-897 10.00 EA 3/4X4-8FT CEDAR BOARD / A Y \$2,96 \$329,9 R17 0000-322-826 3.00 EA 3/4X6-12FT CEDAR BOARD / A Y \$11,64 \$334,6 R18 0000-322-946 2.00 EA 3/8IN GALVANIZED Z-BAR / A Y \$11,61 \$56,69 R19 0000-140-770 1.00 EA KILZ 2 RIMER 20941 12802 / A Y \$16,13 \$16,11 R20 0000-694-803 2.00 EA 1-1/2IN X 1-1/2 GALV ROOF EDGE / A Y \$19,24 \$19,24 R21 0000-694-803 2.00 EA 1-1/2IN X 1-1/2 GALV ROOF EDGE / A Y \$22,55 \$50 R22 1000-001-607 1.00 RL EVERBILT 9X150'76 GRMS HOUSE WRAP / A Y \$23,11 \$184,8 R24 0000-944-317 2.00 BX 602 3/8 IN SINKER NALE 5 IB X/ A Y \$93,38 \$187,7 R25 0000-944-317 2.00 BX 3/4" ELECTRO GALV STAPLES 1250PK / A Y \$93,38 \$187,7 R26 0000-9193-534 1.00 EA 3470 MI4" 510 GALV STAPLES 1250PK /	R15	0000-915-378	6.00	EA	15/32* 4'X8' PLYWOOD /	A	Y	\$15.82	\$94.92
R17 0000-727-626 3.00 EA 3/4X6-12FT CEDAR BOARD / A Y \$11.54 \$33.4.6. R18 0000-322-946 2.00 EA 3/8IN GALVAN/ZED Z-BAR / A Y \$2.83 \$5.6 R19 0000-140-770 1.00 EA KILZ 2 PRIMER 20941 12802 / A Y \$16.13 \$16.13 \$16.13 \$16.13 \$16.13 \$16.13 \$16.13 \$16.13 \$16.13 \$16.13 \$16.13 \$16.14 \$19.24 \$19.2 \$19.2 \$12.2 \$10.0 RL #15 ROOFING FELT 4-SQ / A Y \$12.24 \$19.2 \$19.2 \$2.1 \$100-001-507 1.00 RL EVERBILT 9X150' 76 GRMS HOUSE WRAP / A Y \$22.52 \$5.0 R23 1001-188-139 8.00 BD SUPREME METIC ESTATE GRAY 25 YR / A Y \$23.81 \$18.48 R24 0000-944-319 2.00 BX 8D 2 38 IN SINKER NAL5 L5 BX / A Y \$9.38 \$18.71 R25 0000-944-319 2.00 BX 364 2 480 (M14'' T50 GALV STAPLES 1250PK / A Y \$27.0 \$2.77 \$2.70 \$2.77	R16	0000-161-897	10.00	EA	3/4X4-8FT CEDAR BOARD /	A	Y	\$2.96	\$29.60
R1B 0000-322-946 2.00 EA 3/8IN GALVANIZED Z-BAR / A Y \$22.83 \$5.56 R19 0000-140-770 1.00 EA KILZ 2 PRIMER 20941 12802 / A Y \$16.13 \$16.13 R20 0000-258-830 1.00 RL #15 ROOFING FELT 4-SQ / A Y \$19.24 \$19.24 R21 0000-694-803 2.00 EA 1.1/2IN X 1-1/2 GALV ROOF EDGE / A Y \$25.25 \$5.0 R22 1000-01-507 1.00 RL EVERBILT 9X150'76 GRMS HOUSE WRAP / A Y \$82.65 \$82.61 R23 1001-188-138 8.00 BD SUPREME METRIC ESTATE GRAY 25 YR / A Y \$9.38 \$18.71 R25 0000-944-319 2.00 BX 16D 31/4" 5LB COATED SINKER / A Y \$9.38 \$18.71 R25 0000-193-534 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$2.70 \$2.71 R26 0000-690-521 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A	R17	0000-727-626	3.00	EA	3/4X6-12FT CEDAR BOARD /	A	Y	\$11.54	\$34.62
R19 0000-140-770 1.00 EA KILZ 2 PRIMER 20941 12802 / A Y \$16,13 \$16,17 R20 0000-258-830 1.00 RL #15 ROOFING FELT 4-SQ / A Y \$19,24 \$19,2 R21 0000-894-803 2.00 EA 1-1/2IN X 1-1/2 GALV ROOF EDGE / A Y \$25,25 \$50 R22 1000-01-507 1.00 RL EVERBILT 9Y1507 76 GRMS HOUSE WRAP / A Y \$22,311 \$184,81 R24 1000-944-319 2.00 BX BD SUPREME METRIC ESTATE GRAY 25 YR / A Y \$23,311 \$184,81 R24 0000-944-317 2.00 BX I6D 3 1/4" SLB COATED SINKER / A Y \$9,38 \$18.71 R25 0000-943-354 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$9,38 \$18.71 R27 0000-172-618 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$16.27 \$11.62 R28 0000-158-602 2.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$16.27 \$11.72	R18	0000-322-946	2.00	EA	3/8IN GALVANIZED Z-BAR /	A	Y	\$2.83	\$5.66
R20 0000-258-830 1.00 RL #15 ROOFING FELT 4-SG / A Y \$19.24 \$19.2 R21 0000-694-803 2.00 EA 1-1/2IN X 1-1/2 GALV ROOF EDGE / A Y \$52.52 \$5.0 R22 1000-001-507 1.00 RL EVERBLT 9X150'76 GRMS HOUSE WRAP / A Y \$52.52 \$5.0 R23 1001-188-139 8.00 BD SUPREME METRIC ESTATE GRAY 25 YR / A Y \$52.51 \$82.65 \$82.65 R23 1001-188-139 8.00 BD SUPREME METRIC ESTATE GRAY 25 YR / A Y \$59.38 \$18.71 R24 0000-944-319 2.00 BX BD 2 3/8 IN SINKER NAIL 5 LB BX / A Y \$59.38 \$18.71 R25 0000-944-327 2.00 BX 16D 3 1/4" 5LB COATED SINKER / A Y \$59.38 \$18.71 R26 0000-193-534 1.00 EA ARROW 1/4" T50 GALV STAPLES 120PK / A Y \$52.70 \$27.71 R27 0000-178-618 1.00 EA ARROW 1/4" T50 GALV STAPLES 120PK / A Y \$51.62 \$31.62 R28 <	R19	0000-140-770	1.00	FA	KILZ 2 PRIMER 20941 12807 /	A	Y	\$16.13	\$16.13
R21 0000-894-803 2.00 EA 1-1/2IN X 1-1/2 GALV ROOF EDGE / A Y \$15,22	R20	0000-258-830	1.00	RI	#15 ROOFING FELT 4-SQ /	A	Y.	\$19.24	\$19.24
R22 1000-001-507 1.00 RL EVERBLE 9X150 76 GRMS HOUSE WRAP / A Y S82,65 S82,65 R23 1001-188-139 8.00 BD SUPREME METRIC ESTATE GRAY 25 YR / A Y \$23,11 \$184,8 R24 0000-944-319 2.00 BX [8D 2 3/8 IN SINKER NAIL 5 LB BX / A Y \$23,11 \$184,8 R24 0000-944-327 2.00 BX [8D 2 3/8 IN SINKER NAIL 5 LB BX / A Y \$9,38 \$18.7 R25 0000-944-327 2.00 BX 16/2 31/4" 5LB COATED SINKER / A Y \$9,38 \$18.7 R26 0000-172-618 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$9,95 \$9.99 R27 0000-158-602 2.00 EA 12"X12" FLANGE CENTER - BROWN / A Y \$16.27 \$16.27 R28 0000-300-774 1.00 EA SATIN NICKEL FANCY MUSHROOM COMBO / A Y \$12.67 \$12.67 R31 0000-254-265 2.00 EA NEW WORK 1G 22.5CU / A Y	R21	0000-894-803	2.00	EA	1-1/2IN X 1-1/2 GALV ROOF EDGE /	A	Y	\$2.52	\$5.04
R23 1001-188-139 8.00 BD SUPREME METRIC ESTATE GRAY 25 YR / A Y \$23.11 \$18.48 R24 0000-944-319 2.00 BX 8D 2 3/8 IN SINKER NAIL 5 LB BX / A Y \$9.38 \$18.7 R25 0000-944-327 2.00 BX 16D 3 1/4" 5LB COATED SINKER / A Y \$9.38 \$18.7 R26 0000-193-534 1.00 BX 3/4" ELECTRO GALV. ROOFING 5 LB / A Y \$9.95 \$9.99 R27 0000-172-618 1.00 EA ARROW 1/4" 750 GALV STAPLES 1250PK / A Y \$2.70 \$2.70 R28 0000-690-521 1.00 EA WALL VENT DUCTING KIT / A Y \$16.27 \$16.27 R29 0000-158-602 2.00 EA NEW WORK 1G 22.5CU / A Y \$16.67 \$12.67 R31 0000-254-265 2.00 EA NEW WORK 1G 22.5CU / A Y \$0.49 \$0.99 R32 0000-636-801 1.00 EA 36X24 2500 SL WHT LOWE OBS 1/1 WD / A Y \$0.665 \$1.30	822	1000-001-507	1.00	RI	EVERBILT 9'X150' 76 GRMS HOUSE WRAP /	A	Y	\$82.65	\$82.65
R24 0000-944-319 2.00 BX 8D 2 3/8 IN SINKER NAIL 5 LB BX / A Y \$93.8 \$18.7 R25 0000-944-327 2.00 BX 16D 3 1/4" 5LB COATED SINKER / A Y \$93.88 \$18.7 R26 0000-193-534 1.00 BX 3/4" ELECTRO GALV. ROOFING 5 LB / A Y \$93.88 \$18.7 R26 0000-193-534 1.00 EA (ARROW 1/4" T50 GALV STOPLES 1250PK / A Y \$9.95 \$9.9 R27 0000-172-618 1.00 EA (ARROW 1/4" T50 GALV STOPLES 1250PK / A Y \$16.27 \$11.2 R28 0000-690-521 1.00 EA (ARROW 1/4" T50 GALV STOPLES 1250PK / A Y \$16.27 \$16.27 R29 0000-158-602 2.00 EA (MALL VENT DUCTING KIT / A Y \$15.72 \$31.4 R30 0000-254-265 2.00 EA NEW WORK 1G 22.5CU / A Y \$16.27 \$90.9 R32 0000-636-801 1.00 EA (36X24 2500 SL WHT LOWE OBS 1/1 WD / A Y \$0.49 <td< td=""><td>R23</td><td>1001-188-139</td><td>8.00</td><td>BD</td><td>SUPREMEMETRIC ESTATE GRAY 25 VR /</td><td>A</td><td>V</td><td>\$23.11</td><td>\$184.88</td></td<>	R23	1001-188-139	8.00	BD	SUPREMEMETRIC ESTATE GRAY 25 VR /	A	V	\$23.11	\$184.88
R25 D000-944-327 2.00 BX 16D 3 1/4" 5LB COATED SINKER / A Y \$\$9.38 \$\$167.7 R26 0000-944-327 2.00 BX 16D 3 1/4" 5LB COATED SINKER / A Y \$\$9.38 \$\$167.7 R26 0000-193-534 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$\$9.95 \$\$9.9 R27 0000-690-521 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$\$2.70 \$\$2.71 R28 0000-690-521 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$\$2.70 \$\$2.71 R28 0000-690-521 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$\$2.70 \$\$2.71 R28 0000-690-521 1.00 EA ARROW 1/4" T50 GALV STAPLES 1250PK / A Y \$\$16.27 \$\$16.27 R30 0000-300-774 1.00 EA ARNCW WORK 16 22.5CU / A Y \$\$16.77 \$\$12.67 R31 0000-242626 2.00 EA NEW WORK 16 22.5CU / A Y \$\$0.49 \$\$0.99 </td <td>R24</td> <td>0000-944-319</td> <td>2.00</td> <td>BX</td> <td>(8D 2 3/8 IN SINKER NAIL 5 I B BX /</td> <td>A</td> <td>Ý</td> <td>\$9.38</td> <td>\$18.76</td>	R24	0000-944-319	2.00	BX	(8D 2 3/8 IN SINKER NAIL 5 I B BX /	A	Ý	\$9.38	\$18.76
R26 0000-193-534 1.00 BX 105 5 // CEN CONCENTS A Y \$1.00 BX 3/4* ELECTRO GALV. ROOFING 5 LB / A Y \$1.00 BX 3/4* ELECTRO GALV. ROOFING 5 LB / A Y \$1.00 BX 3/4* ELECTRO GALV. STAPLES 1250PK / A Y \$1.00 BX 3/4* ELECTRO GALV. STAPLES 1250PK / A Y \$1.00 S2.70 \$2.71 \$2.70 \$2.70 \$2.71 \$2.70 \$2.71 \$2.71 \$2.71 \$2.71 \$2.71 \$2.71 \$2.	825	0000-944-327	2.00	BX	15D 3 1/4" 5LB COATED SINKER /	A	V	\$9.38	\$18.76
R27 0000-172-618 1.00 EA ARRCW 1/4" T50 GALV STAPLES 1250PK / A Y \$2.70 \$2.7 R28 0000-690-621 1.00 EA WALL VENT DUCTING KIT / A Y \$16.27 \$16.2 R28 0000-300-774 1.00 EA VENT PUCTING KIT / A Y \$16.27 \$16.2 R30 0000-300-774 1.00 EA SATIN NICKEL FANCY MUSHROOM COMBO / A Y \$15.72 \$31.4 R31 0000-254-265 2.00 EA NEW WORK 1G 22.5CU / A Y \$0.49 \$0.9 R32 0000-614-287 2.00 EA NEW WORK 1G 22.5CU / A Y \$0.49 \$0.9 R33 0000-614-287 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0.65 \$1.3 R34 0000-212-261 2.00 EA 16WHT NYL MIDWAY OUTLET WALLPLT / A Y \$0.45 \$0.9 R35 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$1.22 \$1.22 R36	R26	0000-103-534	1.00	BX	3/4" ELECTRO GALV ROOFING 5 LB /	A	Y	\$9.95	\$9.95
R28 0000-690-521 1.00 EA WALL VENT DUCTING KIT / A Y \$16.27 \$16.27 R29 0000-158-602 2.00 EA 12"X12" FLANGE CENTER - BROWN / A Y \$15.72 \$31.4 R30 0000-300-774 1.00 EA SATIN NICKEL FANCY MUSHROOM COMBO / A Y \$12.67 \$12.67 R31 0000-254-265 2.00 EA NEW WORK 1G 22.5CU / A Y \$0.49 \$0.90 R32 0000-636-801 1.00 EA 36X24 2500 SL WHT LOWE OBS 1/1 WD / A Y \$0.065 \$11.30 R33 0000-614-287 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0.45 \$0.90 R33 0000-212-261 2.00 EA 1G WHT NYL MIDWAY OUTLET WALLPLT / A Y \$0.45 \$0.90 R35 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$1.42 \$1.22 R36 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$1.42 \$1.22 <td>R27</td> <td>0000-172-618</td> <td>1.00</td> <td>EA</td> <td>ARROW 1/4" T50 GALV STAPLES 1250PK /</td> <td>A</td> <td>Y.</td> <td>\$2.70</td> <td>\$2.70</td>	R27	0000-172-618	1.00	EA	ARROW 1/4" T50 GALV STAPLES 1250PK /	A	Y.	\$2.70	\$2.70
R29 0000-158-602 2,00 EA 12"X12" FLANGE CENTER - BROWN / A Y \$15.72 \$31.4 R30 0000-300-774 1,00 EA SATIN NICKEL FANCY MUSHROOM COMBO / A Y \$12.67 \$12.6 R31 0000-254-265 2.00 EA NEW WORK 1G 22.5CU / A Y \$0.49 \$0.99 R32 0000-636-801 1.00 EA 36X24 2500 SL WHT LOWE OBS 1/1 WD / A Y \$0.65 \$11.30 R33 0000-614-287 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0.65 \$11.30 R34 0000-212-261 2.00 EA 16A WHT SNGLPOLE TGGL SWTCH / A Y \$0.45 \$0.99 R35 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$1.22 \$1.22 R36 0000-268-550 1.00 EA 14-2 NM W/G 250 FT / A Y \$10.88 \$217.60 R37 0000-614-637 20.00 EA 11N 4FT X 8FT POLYSTYRENE / A Y \$11.08 \$21.70 <	R28	0000-690-521	1.00	FA	WALL VENT DUCTING KIT /	A	V	\$16.27	\$16.27
R30 0000-300-774 1.00 EA SATIN NICKEL FANCY MUSHROOM COMBO / A Y \$12.67 \$12.67 R31 0000-254-265 2.00 EA NEW WORK 1G 22.5CU / A Y \$0.49 \$0.98 R32 0000-636-801 1.00 EA 36X24 2500 SL WHT LOWE OBS 1/1 WD / A Y \$0.49 \$0.98 R33 0000-614-287 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0.65 \$1.37 R34 0000-212-261 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0.65 \$1.37 R35 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$0.45 \$0.97 R36 0000-268-550 1.00 EA 14-2 NM W/G 250 FT / A Y \$33.22 \$33.22 R37 0000-614-637 20.00 EA 11N 4FT X 8FT POLYSTYRENE / A Y \$10.88 \$217.60 R39 0000-722-359 1.00 EA NEW WORK CEILING 3'' 18CU W/LUG / A Y \$10.88 \$217.60	R29	0000-158-602	2.00	EA	12"X12" FLANGE CENTER - BROWN /	A	Y	\$15.72	\$31.44
R30 0000-254-265 2.00 EA NEW WORK 1G 22.5CU / A Y \$0.49 \$0.99 R31 0000-254-265 2.00 EA NEW WORK 1G 22.5CU / A Y \$0.49 \$0.99 R32 0000-636-801 1.00 EA 36X24 2500 SL WHT LOWE OBS 1/1 WD / A Y \$0.49 \$0.99 R33 0000-614-287 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0.65 \$1.31 R34 0000-212-261 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0.65 \$1.31 R35 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$0.45 \$0.91 R36 0000-268-550 1.00 EA 14-2 NM W/G 250 FT / A Y \$33.22 \$33.22 R37 0000-614-637 20.00 EA 11N 4FT X 8FT POLYSTYRENE / A Y \$10.88 \$217.60 R39 0000-722-359 1.00 EA NEW WORK CEILING 3'' 18CU W/LUG / A Y \$11.70 \$1.70 R4	R30	0000.300.774	1.00	EA	SATIN NICKEL FANCY MUSHROOM COMBO /	A	Ŷ	\$12.67	\$12.67
R31 0000-636-801 1.00 EA 36X24 2500 SL WHT LOWE OBS 1/1 WD / A Y \$90,87 \$90,87 R32 0000-636-801 1.00 EA 36X24 2500 SL WHT LOWE OBS 1/1 WD / A Y \$90,87 \$90,87 R33 0000-614-287 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0,65 \$130 R34 0000-212-261 2.00 EA 1G WHT NYL MIDWAY OUTLET WALLPLT / A Y \$0,65 \$130 R35 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$1,22 \$1,22 R36 0000-268-550 1.00 EA 14-2 NM W/G 250 FT / A Y \$33,22 \$33,22 R37 0000-614-637 20.00 EA 11N 4FT X 8FT POLYSTYRENE / A Y \$10,88 \$217.60 R39 0000-722-359 1.00 EA NEW WORK CEILING 3" 18CU W/LUG / A Y \$10,88 \$2205.60 R40 0000-915-378 13.00 EA 15/32" 4'X8' PLYWOOD / A Y \$113.05 \$113.00	R31	0000-254-265	2.00	EA	NEW WORK 1G 22 5CU /	A	V	\$0.49	\$0.98
R32 0000-614-287 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0.65 \$1.37 R33 0000-614-287 2.00 EA 15A WHT SNGLPOLE TGGL SWTCH / A Y \$0.65 \$1.37 R34 0000-212-261 2.00 EA 1G WHT NYL MIDWAY OUTLET WALLPLT / A Y \$0.45 \$0.97 R35 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$1.22 \$1.21 R30 0000-268-550 1.00 EA 14-2 NM W/G 250 FT / A Y \$33.22 \$33.21 R37 0000-614-637 20.00 EA 11N 4FT X 8FT POLYSTYRENE / A Y \$10.88 \$217.60 R39 0000-722-359 1.00 EA NEW WORK CEILING 3" 18CU W/LUG / A Y \$11.70 \$1.70 R40 0000-915-378 13.00 EA 15/32" 4'X8' PLYWOOD / A Y \$113.05 \$113.05 R42 0000-663-624 1.00 EA (36"X80" RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05	R32	0000-636-801	1.00	E	36X24 2500 SL WHT LOWE ORS 1/1 WD /	A	V	\$90.87	\$90.87
R33 0000-212-261 2.00 EA IG WT NULL PLT A Y \$0.00 \$1.00 <td>R33</td> <td>0000-614-287</td> <td>2.00</td> <td>EA</td> <td>154 WHT SNGLPOLE TOGL SWTCH /</td> <td>A</td> <td>V.</td> <td>\$0.65</td> <td>\$1.30</td>	R33	0000-614-287	2.00	EA	154 WHT SNGLPOLE TOGL SWTCH /	A	V.	\$0.65	\$1.30
R35 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$1.22 \$1.21 R36 0000-249-408 1.00 EA PLASTIC KEYLESS LAMP HOLDER / A Y \$1.22 \$1.21 R36 0000-268-550 1.00 EA 14-2 NM W/G 250 FT / A Y \$33.22 \$33.21 R37 0000-614-637 20.00 EA 11N 4FT X 8FT POLYSTYRENE / A Y \$10.88 \$217.61 R39 0000-722-359 1.00 EA NEW WORK CEILING 3" 18CU W/LUG / A Y \$17.70 \$1.70 R40 0000-915-378 13.00 EA 15/32" 4'X8' PLYWOOD / A Y \$15.82 \$205.66 R42 0000-663-624 1.00 EA (36"X80" RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05 MERCHANDISE TOTAL \$1.905.5 \$1.305 \$113.05 \$113.05 \$113.05 \$113.05	P34	0000-212-261	2.00	FA	AG WHT NYL MIDWAY OUTLET WALLPLT /	A	V.	\$0.45	\$0.90
R30 0000-268-550 1.00 EA PLASHO REFERENCE A Y \$33.22 \$33.22 R30 0000-268-550 1.00 EA 14-2 NM W/G 250 FT / A Y \$33.22 \$33.22 R37 0000-614-637 20.00 EA 11N 4FT X 8FT POLYSTYRENE / A Y \$10.88 \$217.61 R39 0000-722-359 1.00 EA NEW WORK CEILING 3" 18CU W/LUG / A Y \$17.0 \$1.70 R40 0000-915-378 13.00 EA 15/32" 4'X8' PLYWOOD / A Y \$15.82 \$205.66 R42 0000-663-624 1.00 EA 36"X80" RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05	1235	0000.249.408	1 00	EA	PLASTIC KEVLESS LAMP HOLDER /	A	V	\$1.22	\$1.22
R37 0000-614-637 20.00 EA HIN 4FT X 8FT POLYSTYRENE / A Y \$10,88 \$217.6 R39 0000-722-359 1.00 EA NEW WORK CEILING 3" 18CU W/LUG / A Y \$10,88 \$217.6 R40 0000-915-378 13.00 EA 15/32" 4'X8' PLYWOOD / A Y \$15,82 \$205.6 R42 0000-663-624 1.00 EA (36"X80" RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05 R42 0000-663-624 1.00 EA (36"X80" RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05	R30	0000-268-550	1.00	EA	14-2 NM W/G 250 FT /	A	V	\$33.22	\$33.22
R39 0000-722-359 1.00 EA NEW WORK CEILING 3" 18CU W/LUG / A Y \$1.70 \$1.71 R40 0000-915-378 13.00 EA 15/32" 4'X8' PLYWOOD / A Y \$15.82 \$205.66 R42 0000-663-624 1.00 EA (36"X80" RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05 R42 0000-663-624 1.00 EA (36"X80" RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05	R37	0000-614-637	20.00	EA	TIN AFT Y SET POLYSTYPENE /	Δ	V	\$10.88	\$217.60
R40 0000-915-378 13.00 EA 15/32" 4'X8' PLYWOOD / A Y \$15.82 \$205.61 R42 0000-663-624 1.00 EA 36"X80" RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05 R42 0000-663-624 1.00 EA 36"X80" RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05	B30	0000.722.350	1.00	EA	NEW WORK CEILING 3" 18CH WILLIG /	A	V	\$1.70	\$1.70
R42 0000-663-624 1.00 EA 36"X80".RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05 R42 0000-663-624 1.00 EA 36"X80".RH BASIC FLUSH IS NBM / A Y \$113.05 \$113.05	PAD	0000-722-355	19.00	E	15/22-4/X8 PL VW/OOD /	A	V	\$14.87	\$205.66
MERCHANDISE TOTAL: \$1,905.5	P40	0000-913-378	100	EA	38"YAO" RH BASIC ELLISH IS NEM /	A	V	\$113.05	\$113.05
	17.92	0000-000-024	1.00	1 67		ME	RCHA	NDISE TOTAL	\$1,905.55

Tulalip Tribe Dedication Celebration of First Two Tiny Homes





Built by TERO Tulalip Apprenticeship Program



Ballard Encampment Opens November, 2015 - 5 Tiny Houses









Ballard Encampment Site Plan



Good Shepherd Encampment Opens January, 2016 - 15 Tiny Houses








Good Shepherd Tiny House Village











Lutheran Church of the Good Shepherd Tiny House Village with Nickelsville



17 PROPOSED UNITS

Future Site: Othello Village



Model Agreement w/Church Sponsors

- Grant of License
- Use & Use Restrictions
- Term
- Maximum Users
- Move-In Notice/ Waiver of Relocation Benefits/Agreement not to Sue
- Sex Offender Checks
- Landscape Buffers & Right of Way
- Parking
- Signs
- Services for Occupants
- Community Outreach
- Inspections

- Rules & Regulations/ Code of Conduct
- Security
- Condition of Property
- Insurance Requirements
- Utilities
- Termination of License
- Meals
- Indemnification & Hold Harmless
- Notices
- Nondiscrimination
- No Religious Participation Requirement

Staff & Services

While building higher quality shelters for the encampment helped meet an immediate need, our primary goal was to move families into housing and get them the services they needed to improve their situation.

LIHI Supportive Services Manager Charese Jones was assigned to find housing for families (and singles) and almost immediately we were moving children off the streets in less than one day.

We cannot stress enough the importance of having dedicated, knowledgeable staff to help encampment residents find housing and services.

> LIHI Supportive Services Manager Charese Jones (right) and family of 3 who were moved into LIHI housing in Rainier Valley.



Specific Services

- Housing resources
- Basic food
- Help with benefits, daycare, school, job search
- Partnerships with
 - ➢ Public Health (Kids Plus)
 - YWCA's Late Night program
 - ➢ Family Housing Connection
 - Mary's Place shelter and other providers
- Transportation: local and long distance
- Reunification with families and relatives

Successes







Recent News Coverage

- Kiro Story
- Fox 13 Story

(Requires Internet Connection)

LEAN WASTEWATER TREATMENT TOOLS

Steve Coyle wrote this paper based on his extensive experience in developing countries.

Background:

The UNICEF Generation 2030 Africa reports that the current one billion-plus population will double within 35 years and the 18 and younger population will increase to almost one billion. During the same time period, over 50% of Africans will be living in cities, taxing the supporting infrastructure and natural resources, from water to energy. Concurrently, the impacts of climate change from increasing greenhouses gas emissions will stress both natural and built environments.

Villages, towns and cities require durable, simple, and low maintenance infrastructure from potable water service, and wastewater treatment and facilities to storm water collection and flood protection, electric power, streets, sidewalks, and pathways. The following set of Lean Tools can be deployed in hamlets, villages, towns, and cities using local labor and materials.

Lean, Scalable, and Incremental Wastewater Treatment Systems

Un-Lean Wastewater Treatment: Central Wastewater Treatment

Sewage collection and treatment generally does not exist in many developing or "third world" settlements or is often limited to private septic tanks, holding tanks or cesspools that often malfunction because of an aging system and lack of proper maintenance. The conventional "top down" approach to wastewater collection and treatment consists of a central sewage treatment plant connected by a network of gravity flow piping and pump stations to individual building and other facility waste drains.

Many buildings in these places remain unplumbed and streets lack sanitary piping and manholes. There are often no lift stations nor reliable power for the pumps necessary to force effluent over hills and long, flat runs that defy gravity flow. A typical city wastewater system can cost millions of dollars, followed by decades to excavate streets, install piping, and plumb buildings where the waste is generated, to treat the waste at the treatment plant.

Unclean Wastewater Treatment: Individual Examples

Instead, besides unreliable private septic tanks, holding tanks, and cesspools, residential buildings dump raw sewerage directly into streams, creating pollution challenges on water resources and increasing the frequency and intensity of water-borne disease.

The Block Scale Micro-Treatment System

Where and when municipal or large community-scale treatment systems are infeasible because of geography, costs, or other constraints, or when such facilities are planned in the distant future, a microtreatment system should be considered. Block scale wastewater treatment consists of a conventional, site built concrete septic tank and drain or leach field. This small-scale system, located directly adjacent to groups of individual dwellings or apartments, requires an area sufficient for the tank and drainfield, adequate soil conditions, and accommodative topography to permit installation. However, the work can be completed frugally using local labor and materials without excavating equipment.

An installation can accommodate a few homes to many dozens of buildings. The wastewater generated in each residence or small commercial and institutional building is collected and conveyed from each building's wastewater drain pipes by gravity directly into a common septic tank. The secondary wastewater treatment and the disposal of the resulting liquid or effluent occurs in a common drain or leach field, and/or through a constructed wetlands. The small scale septic system provides an

incremental part of any longer term, central sewage collection and treatment system. The wastewater collection and treatment also provides a critical part of storm water management to assure that the wastewater will be treated to an acceptable level before entering creeks and other waterways.



Excavation with new partial wall section for a new septic tank serving a school with no wastewater treatment for over 600 students, construction courtesy of Engineers Without Borders, Gabon.

The Lean Septic Tank, Leach or Drainage Fields

The concrete septic tank consists of a single or multi-chambered watertight vault which accomplishes approximately 45-50% of the ultimate treatment. The walls, with in and out pipe sleeves, should be reinforced concrete or, where forming is difficult, concrete block filled with a slurry mix and vertical reinforcement, with the inside wall faces parged to minimize absorption of effluent. A reinforced concrete floor and cover with access port completes the construction. Cement, sand, aggregate and reinforcing steel are available throughout Africa and Asia. Concrete blocks are usually hand made.



A block scale septic system under construction. The buried tank at left of the image connects to the field.

From the tank, a "subsurface flow system" creates a below-surface flow through a permeable medium, keeping the water being treated below the round, mostly avoiding the development of odors and other nuisances. The media is typically soil, sand, gravel or crushed rock. The lean leach field or drainage field is typically a shallow, hand dug excavation containing network of perforated pipes laid in underground crushed stone or gravel-filled trenches to help dissipate the effluent in the pipes from the septic tank. Pre-settled effluent from the tank flows to a simple distribution box that routes the effluent into the individual pipes that configured into a pattern that fits the area provided and the topography, for example, long and narrow, short and wide, or terraced on a hillside. Each pipe and trench percolates the liquid into the subsurface soil for absorption and subsequent filtering, as dissipates the liquid through evaporation through the minimal gravel or turf covering. Where soils are less permeable, the field can be raised above grade with the soil, sand, gravel or crushed rock contained around the perimeter.



Below grade leach or drain field diagram above, with perforated pipes in gravel, and a planted leach field after installation, below.



Natural or Constructed Wetland

Free water surface systems are designed to simulate natural wetlands, with the treated effluent flowing over the soil surface at shallow depths. In the wetter climates, natural or artificially constructed wetlands or swamps can be employed as a part of the wastewater treatment flowing from the septic tank. The process reduces contaminants and if appropriately designed and operated, can be used for secondary (in place of the drainage field) and tertiary wastewater (flowing from an drainage field that overflows). Natural and constructed wetlands should be considered with block and neighborhood scale septic tank and/or leach field systems when space permits and they are close to creeks and streams.



Constructed wetlands, above, connected to a concrete septic tank (not shown), image courtesy Fondazione Osservatorio Astronomico di Tradate Messier.

Lean, Plumbed Facilities

Wastewater systems of any size require sufficient quantities of wastewater collected and distributed to the septic tank, typically from toilets, baths, showers, and sinks. Wastewater from tubs, showers and sinks can be separately collected as "grey water"; liquid waste without suspended solids which can be minimally treated, though the expense and complication of installing two separate plumbing drains is outside the "lean" criteria of inexpensive and relatively simple to build.

In reality, many developing urban areas contain few plumbed dwellings. The traditional and lean approach in settings where buildings lack interior plumbing is the use of community or local water spigots, and outhouses that often dump waste directly into shallow drainage channels that overflow during rain storms spreading unsanitary waste. In place of outhouses, inexpensive building shells

containing community toilets, sinks, and showers can be locally constructed and connected to the small scale wastewater system. When buildings are eventually plumbed, their internal wastewater piping is extended to the exterior drainage pipe.

Construction and Maintenance

To develop small scale treatment systems, a local government or group of homeowners or businesses must acquire land sufficient to locate the common tank and field, and then organize and finance construction by a contractor or using local labor. The contractor or local tradesmen excavate and build the septic tank, install the sewer lines from tank-to-buildings and tank to distribution box, and excavate the drainage field and install the interconnected pipes. Depending on site conditions and complexities, part or all of the system can be completed by the residents and neighbors with hand tools.

The small scale wastewater treatment process requires adequate management and supervision of siting, construction, and maintenance to build and successfully operate a reliable system. Periodic maintenance of the tank and the field is essential. Management can be accomplished through the local government or an organization of homeowners or businesses that assume responsibility for tank and leach field maintenance; even constructed wetlands must be cleaned every decade or so. Any ongoing cost should be paid by the homeowners or businesses through annual or monthly fees that cover the pumping out of the septic tank or replacing damaged or clogged drain field pipes.

The Lean Approach

The lean wastewater system provides an efficient and relatively quick means to provide sanitary waste collection and treatment. Rather than waiting to connect to a central plant that may take many years to build plus the time required to install sewer pipes between the plant and buildings, the microsystem can be installed in the interim prior to the construction of a central plant. When street piping is completed, the individual septic tanks can be connected directly to the sewer mains and function like a pre-installed manhole. A construction process that uses local labor and materials helps build the skills and confidence necessary for achieving greater self-sufficiency while improving community health.

Stephen Coyle

BICYCLING MODULE

A guide and SmartCode module on how to build bicycle infrastructure, by Mike Lydon, with Zachary Adelson and Tony Garcia. (More modules are available.)

BICYCLING SmartCode Module

PREPARED BY MIKE LYDON, WITH ZACHARY ADELSON AND TONY GARCIA

The bicycle is the most efficient machine ever created: Converting calories into gas, a bicycle gets the equivalent of three thousand miles per gallon.

Bill Strickland

BICYCLING STANDARDS

- 1.3 INTENT
- 3.7 THOROUGHFARE STANDARDS
- 5.9 **PARKING AND DENSITY CALCULATIONS**
- 5.10 **PARKING LOCATION STANDARDS**

BIKEWAY & FACILITY TYPE SUMMARY TABLE B1, FOR ARTICLE 6 BIKEWAY TYPES TABLE B2, FOR ARTICLE 6 BICYCLE PARKING REQUIREMENTS TABLE B3, FOR ARTICLE 6 BICYCLE PARKING FACILITY TYPES TABLE B4, FOR ARTICLE 6 BICYCLE PARKING - GENERAL LOCATION STANDARDS TABLE B5, FOR ARTICLE 6

DEFINITIONS OF TERMS FOR ARTICLE 7

COMPLETE THOROUGHFARE ASSEMBLIES WITH BIKEWAYS FOR ARTICLE 6, TABLE 4C

SMARTCODE MODULE - BICYCLING

This Bicycling Module is transect-based. All or part of it ARTICLE 1. GENERAL TO ALL PLANS may be adopted with a customized SmartCode as regulatory, advisory, or merely permissive ("shall," "should" or "may") or it may be provided as an auxiliary set of guidelines for developers and/or municipalities. Any mandatory regulations must be activated by the sections on the facing page or similar language. Even advisory or permissive standards are more likely to be used if they are activated by text within the code.

The Bicycle Tables may need further calibration with By Right and Warrant bullets, as local regulations, politics, and physical conditions require. While all Bikeways, Bicycle Parking Facilities, and Countermeasures require site-specific analysis and informed judgment for applicability, "By Right" shall mean that the proposed facility is applicable and permitted, while "Warrant" shall mean that further analysis is almost always appropriate. Spaces left blank in a table mean that a facility is generally not compatible with that Transect Zone in terms of habitat character.

The Bicycle Module tables may be appropriate in various places in Article 6, before the SmartCode Summary Table 14. As always, the insertion of new tables will require the renumbering of subsequent tables and a Find/Replace of those numbers throughout the code text. The Bikeway Assemblies should be included with other Thoroughfare Assemblies, found in the Complete Thoroughfares Module (formerly Table 4C).

If any part of this Module is used, the appropriate definitions should be added to Article 7 during calibration.

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

BICYCLING STANDARDS 1.3 INTENT

These goals may be added to the Intent section of the base SmartCode.

ARTICLE 3. NEW COMMUNITY PLANS 3.7 THOROUGHFARE STANDARDS

If any tables of this Module are to be mandatory or advisory for New Community Plans (the public realm), they should be activated using this or similar language in the code text. The word "shall" may be replaced with "should" if the tables are merely advisory.

Bicycle lanes and other bikeways that widen the rightof-way are not advised for new thoroughfares designed for the urban contexts of T-3, T-4, T-5, and T-6. They are, however, useful for retrofitting overwide existing thoroughfares.

The Existing Thoroughfares Module is helpful for codes that apply only to already urbanized areas, i.e., the G-4 Sector. For such codes, the sections here may be correlated to that Module, albeit with different numbering, and then into the final code.

ARTICLE 5. BUILDING SCALE PLANS 5.9 PARKING & DENSITY CALCULATIONS 5.10 PARKING LOCATION STANDARDS

If any tables of this Module are to be mandatory or advisory for the private realm, they should be activated using this or similar language in the code text.

SMARTCODE MODULE

Municipality

ARTICLE 1. GENERAL TO ALL PLANS

1.3 INTENT

- 1.3.1 THE REGION
 - i That development should provide contextual Bikeways for both short and long distance movement, as well as bicycle parking facilities for short and long term storage.
 - . That the regional Bikeway network should be well-integrated with the regional and local transit network.

1.3.2 THE COMMUNITY

- j. That Civic, institutional, and Commercial destinations should adapt their facilities to accommodate bicyclists.
- k. That bicycle parking types may correspond to the rural-to-urban Transect, but should be efficiently allocated by land use type, building size, and/or number of residents/employees.
- I. That bicycling should be recognized as an essential form of transportation and recreation within neighborhoods and throughout the region.
- m. That the local Bikeway network should be well-integrated with regional and local transit network.
- n. That new Thoroughfares in urban contexts should be designed to target speeds that are safe for bicyclists without dedicated Bicycle Lanes.

ARTICLE 3. NEW COMMUNITY PLANS

- 3.7 THOROUGHFARE STANDARDS
- 3.7.2 VEHICULAR LANES
 - b. A Bikeway network consisting of shared use Bicycle Trails, shared use Bicycle Paths, Bicycle Routes, and/or Bicycle Lanes shall be provided throughout the community, as defined in Article 7 Definitions of Terms and allocated according to Table B2.
 - c. All Thoroughfares shall permit bicycling, with the exception of limited-access Highways.
 - d. All Bikeway and Countermeasure pavement markings and safety and wayfinding signing shall adhere to the same standards as automobile Vehicular Lane markings and signing.
 - e. Bicycle Trails and Bicycle Paths shall be physically separated from motor vehicle Thoroughfares, except for intersection crossings.
- 3.7.3 **PUBLIC FRONTAGES**
 - A. SPECIFIC TO ZONES T4, T5, T6 iv. Within the Public Frontages, the prescribed types of bicycle parking facilities
 - shall be as shown in Table B4 and Table B5.

ARTICLE 5. BUILDING SCALE PLANS

- PARKING AND DENSITY CALCULATIONS 5.9
- BICYCLE PARKING REQUIREMENTS GENERAL TO ZONES T2, T3, T4, T5, T6 5.9.3 a. The amount of bicycle parking required per lot shall be regulated by Table B3.
- PARKING LOCATION STANDARDS 5.10
- 5.10.6 BICYCLE PARKING LOCATION STANDARDS SPECIFIC TO ZONES T4, T5, T6 d. Location and type of bicycle parking shall be regulated by Table B4 and Table B5.

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

TABLE B1. BIKEWAY & FACILITY TYPESUMMARY

This table coordinates 18 types of Bikeways, Bicycle Parking Facilities, and Countermeasures (which mitigate unsafe or unappealing bicycling conditions) for constructing new thoroughfares or retrofitting existing ones. These techniques and measures are by no means comprehensive, as site specific design is encouraged and local calibration essential. Some known bicycling accommodations are intentionally omitted from this module because they compromise other aspects of urbanism. For example, Wide Curb Lanes unnecessarily expand roadway width, thereby encouraging automobile speeding, while not meaningfully attracting bicycle use - probably for that very reason.

Each of these 18 types is applied to one or more of the Transect Zones, yet existing conditions or other limitations may require one or more of them to be deleted, or other types added, in the calibration.

For example, the more intensive Bikeway design techniques, including bicycle lanes, are not necessary within the more urban zones of a greenfield site because urban thoroughfares based on the SmartCode are designed from the beginning to be safe for bicycling. However, in existing urbanism it is often advisable to convert excessive space dedicated to automobiles to space for pedestrians and bicyclists. Therefore some Bikeways are marked as suitable for retrofit only.

ADDITIONAL RESOURCES:

Bicycle Boulevard Planning and Design Guidebook, Initiative for Bicycle and Pedestrian Innovation <www.ibpi. usp.pdx.edu/guidebook.php>

Cycle Tracks: Lessons Learned, Alta Planning + Design <www.altaplanning.com/cycle+tracks.aspx>

FHWARails-With-Trails: Lessons Learned Report, Federal Highway Administration <www.fhwa.dot.gov/environ-ment/rectrails/rwt/>

BIKESAFE: Bicycle Countermeasure Selection System <www.bicyclinginfo.org/bikesafe/>

Cities for Cycling, National Association of City Transportation Officials <www.nacto.org/workshops.html>

SMARTCODE MODULE

Municipality

Table B1: Bikeway & Facility Type Summary - This table prescribes opportunities for the placement of Bikeways, facilities, and Countermeasures across the Transect.

Note: All requirements in this Table are subject to calibration for local context.

a Dikoway Typos



a. Dikeway iypes							
Shared Use Bicycle Trail	permitted	permitted	permitted				
Shared Use Bicycle Path			permitted	permitted	permitted	Warrant	Warrant
Bicycle Lane (Conventional)	permitted	permitted	permitted	retrofit by Warrant	retrofit by Warrant	retrofit by Warrant	Warrant
Shared Vehicular Lanes	permitted	permitted	permitted	permitted	permitted	permitted	Warrant
b. Bicycle Parking							
Bicycle Rack (standard)	Warrant	permitted	permitted	permitted	permitted	permitted	Warrant
Bicycle Rack (decorative, public art)	Warrant	Warrant	Warrant	Warrant	permitted	permitted	Warrant
Bicycle Shelter	Warrant	permitted	permitted	permitted	permitted	permitted	Warrant
Bicycle Locker	Warrant	permitted	Warrant	Warrant	permitted	permitted	Warrant
Bicycle Station					Warrant	permitted	Warrant
c. Bikeway Countermeasures							
Safety and Route Signing	permitted	permitted	permitted	permitted	permitted	permitted	Warrant
Peg-a-Track		Warrant	permitted	permitted	permitted	permitted	Warrant
Shared Vehicular Lane Marking (Sharrow)			permitted	permitted	permitted	permitted	Warrant
Bicycle Inductor Loop		Warrant	permitted	permitted	permitted	permitted	Warrant
Physically-Separated Bicycle Lane		Warrant	Warrant	retrofit by Warrant	retrofit by Warrant	retrofit by Warrant	Warrant
Contra-Flow Bicycle Lane			Warrant	retrofit by Warrant	retrofit by Warrant	retrofit by Warrant	Warrant
Buffered Bicycle Lane		Warrant	Warrant	retrofit by Warrant	retrofit by Warrant	retrofit by Warrant	Warrant
Bicycle Box			Warrant	retrofit by Warrant	retrofit by Warrant	retrofit by Warrant	Warrant
Shoulder	permitted	permitted	Warrant				Warrant

BIKEWAY TYPES

This table prescribes placement of the basic types of Bikeways across the Transect. They may or may not be part of a marked Bicycle Route. They include: two types of shared use facilities to be used equitably with pedestrians, including runners, and other non-motorized transport, i.e., Bicycle Trails in more rural Transect Zones, and Bicycle Paths in more urban Transect Zones; various types of Bicycle Lanes (conventional, buffered, physically-separated, etc.), and all Shared Vehicular Lanes, including Bicycle Boulevards. Specific subtypes are shown in the Assemblies and Definitions sections of this Module. Bicycle Lanes are appropriate for the retrofit of existing overwide thoroughfares, but if added to new thoroughfares in urban contexts, they may have negative impacts on safety by increasing thoroughfare width and therefore automobile speed and pedestrian crossing distance, and by increasing intersection conflicts.

The language on the right side of this table is regulatory. Some localities may require or prefer that regulatory language appear in the main text.

As with the SmartCode's thoroughfares for motor vehicles, a Bikeway consists of the Riding Surface (the actual roadbed or pathway on which the bicycle travels) and its Public Frontage, if the latter is specific to the Bikeway. In the case of a Bicycle Lane, because it is already part of a multi-use thoroughfare, the Public Frontage specified in the Assemblies of this Module matches that for the associated Complete Thoroughfare for Table 4C. See also Table 4A of the base code. Calibrators must take care to reconcile the various options.

New Bikeways should provide identifiable and safe connections to an existing regional or community-scale Bikeway network, and should increase access to recreation, employment, education and commercial amenities. They should also connect to the existing transit network.

A complete Bikeway network includes a rich tapestry of types that accommodate the many skill levels and preferences of bicyclists. It is especially important to attract those who want to bicycle, but have been deterred by the perception - and reality - of unsafe conditions.

When selecting a Bikeway type, the existing vehicular thoroughfare width, traffic speed and volume, land use, urban form, etc. must be analyzed. Next, a communal vision for future urban character must be coordinated with thoroughfare type and vehicular movement to determine which Bikeway type is appropriate. These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

For example, a physically-separated bicycle lane (cycle track) provides a high level of service, but is only appropriate where intersections and curb cuts are limited and/ or where turning conflicts can be mitigated with Countermeasures, like the two-stage signalized left-turn that includes bicycle queuing space, or other similar design techniques.

In this Module, Shared Use facilities may be either Bicycle Trails or Bicycle Paths. The two terms are often used interchangeably, but there are important distinctions in detailing and use that correspond to the Transect. A Bicycle Trail is more appropriate for rural environments where it is used mainly for recreational purposes, as fewer destinations exist along its trajectory. Bicycle Trails may follow more meandering, scenic routes, may use a wider variety of surface treatments (pavement or a more pervious material such as compact gravel or dirt), and typically intersect with fewer thoroughfares than their more urban counterparts. Bicycle Trails generally attract less use than Bicycle Paths, and may be as narrow as a single-track mountain bike trail.

A Bicycle Path is more urban in character, is almost always paved with asphalt or concrete, and is used for utility and commuting as well as recreation. It typically requires more intensive stormwater considerations, lighting, and detailed pavement markings. Other SmartCode Modules are helpful in this regard, including Light Imprint, Sustainable Urbanism, Light Levels, Lighting Design, and Landscape.

Bicycle Paths are appropriate within greenways, parks, and waterfronts in urban Transect Zones, and alongside some urban rail right-of-ways. Thoroughfare crossings may occur, but should be unobtrusive so that movement may remain safe and as continuous as possible.

Although the conversion of underutilized railroad right-ofways to shared use Bikeways is increasingly common due to the Rails-to-Trails movement, rail infrastructure should be preserved for future use as transit. The preferred "Railswith-Trails" include their own design standards (See: *FHWA Rails-With-Trails: Lessons Learned Report*).

In North America, innovative Countermeasure applications, many inspired by success in Europe, are in various stages of experimentation. Shared Vehicular Lane Markings (Sharrows) were recently adopted into the 2009 Manual on Uniform Traffic Control Devices (MUTCD). Two new Countermeasures include bicycle boxes and colored bicycle lanes. A full understanding of these types should be achieved prior to their calibration and implementation, using the Resource list in this Module.

SMARTCODE MODULE

Municipality

 Table B2: Bikeway Types - This table describes opportunities for the placement of several Bikeway types across the Transect. A Bicycle Route may be comprised of any or all of these physical types. Bicycle Lanes should be used primarily for retrofit of existing overwide Thoroughfares.



BICYCLE PARKING REOUIREMENTS

Bicycle Parking Requirements, as they are associated with Article 5 Building Scale Plans, are applicable to both New Communities and Infill/Retrofit.

This table may be locally calibrated and incorporated into the Building Function & Parking Calculations tables in the base code. The goal is to provide the adequate facility enhancement and the appropriate bicycle parking ratios for the general land uses in each Transect Zone.

Bicycle parking should not be calculated as a portion of automobile parking requirements because supply and demand for that mode are not an adequate indicator of actual bicycle parking need. Furthermore, if a municipality adopts automobile parking maximums, or later reduces such parking requirements, the amount of bicycle parking would also be reduced when the opposite may be necessary. Therefore, bicycle parking ratios should be based on Building Function (e.g., a gym needs more bicycle parking than a lumberyard) and quantifiable indicators like unit count, employee count, or building square footage. Table B3 coordinates these elements for common land use types across the Transect.

Transect Zones with higher densities and higher degrees of mixed-use generally require higher ratios of bicycle parking.

Civic Zones and some Special Districts, especially schools and universities, vary widely in their placement and function, and with their large populations of active young people, may attract heavy bicycle use. Therefore, the bicycle parking ratios in Table B3 for these areas is very general, and should be further calibrated to local conditions. The same is also true for Transit Stops and Industrial Uses.

For small scale lodging, office, and retail buildings, bicycle parking requirements may be waived if adequate and adjacent short and long term parking facilities are provided by the municipality within the public frontage. Threshholds should be locally calibrated.

While the provision of bicycle parking and shower facilities are included in the LEED and LEED-ND rating system, they are not required. Thus, municipalities with or without LEED regulations should consider incentivizing or rewriting land use codes to ensure that adequate bicycle parking facilities are included where appropriate.

In general, a good bicycle parking plan should specify the number of bicycle parking spaces by Building Function, require long-term parking for all workplaces, transit stations and multi-unit residential or mixed-use buildings, and require adequate short-term parking for almost all other land

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uses. Such plans or codes should also provide site planning standards that include rack/locker design and placement requirements, especially within the public frontage. These details may be added to this Module as needed.

Because bicycling is not yet a popular mode of transportation in most North American contexts, Table B3 is geared towards cities with a bicycle mode share of 5% or less. (By comparison, as of late 2009 Copenhagen had a 37% bicycle mode share for commuting, and an even higher share among city residents.) In places demonstrating a higher mode share, higher bicycle parking ratios may be needed. Bicycle parking ratios should be reviewed in conjunction with bicycle master plan updates, or at least every five years, to ensure that supply meets demand.

SMARTCODE MODULE

Municipality

Table B3: Bicycle Parking Requirements - This table prescribes minimum parking ratios within each Transect Zone and assumes a bicycle mode share of 5% or less. Requirements may be met within the building, Private Frontage, Public Frontage, or a combination thereof.

	SHORT TERM PARKING	G (See Table 10)	
	T2 T3	T4	T5 T6
RESIDENTIAL Single-Family	no spaces required	no spaces required	n/a
Multi-Family	n/a	Min. 2.0 spaces .05 spaces / bedroom	Min. 2.0 spaces .10 spaces / bedroom
OFFICE	no spaces required	Min. 2.0 spaces 1.0 / add. 20,000 sq. ft.	Min. 2.0 spaces 1.0 / add.15,000 sq. ft.
RETAIL	Min. 2.0 space, 1.0 / add.10,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 5,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 5,000 sq. ft.
INDUSTRIAL	TBD	TBD	TBD
CIVIC Non-Assembly	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.
Assembly	Min. 2.0 spaces 1.0 / add. 20,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 15,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.
SCHOOL			
Elementary/	Min. 2.0 spaces	Min. 2.0 spaces	Min. 2.0 spaces
High School	1.0 / add. 25 students	1.0 / add. 20 students	1.0 / add. 20 students
University	Min. 2.0 spaces 1.0 / add. 20 students	Min. 2.0 spaces 1.5 / add. 20 students	Min. 2.0 spaces 1.0 / add. 10 students
TRANSIT STATION	TBD	TBD	TBD
	T2 T3	T4	T5 T6
RESIDENTIAL Single-Family	no spaces required	no spaces required	n/a
Multi-Family	n/a	Min. 2.0 spaces .15 spaces / bedroom	Min. 2.0 spaces .20 spaces / bedroom
OFFICE	no spaces required	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.	Min. 2.0 spaces 1.5 / add. 10,000 sq. ft.
RETAIL	Min. 2.0 space, 1.0 / add. 10,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.
INDUSTRIAL	TBD	TBD	TBD
CIVIC Non-Assembly	Min. 2.0 spaces 1.0 / add.15 employees	Min. 2.0 spaces 1.0 / add.15 employees	Min. 2.0 spaces 1.0 / add.10 employees
Assembly	Min. 2.0 spaces 1.0 / add.20 employees	Min. 2.0 spaces 1.0 / add.20 employees	Min. 2.0 spaces 1.5 / add.10 employees
SCHOOL			
Elementary/ High School	Min. 2.0 spaces 1.0 / add. 20 students	Min. 2.0 spaces 1.0 / add. 20 students	Min. 2.0 spaces 1.0 / add. 20 students
University	Min. 2.0 spaces 1.0 / add.15 students	Min. 2.0 spaces 1.5 / add. 10 students	Min. 2.0 spaces 1.5 / add. 10 students
TRANSIT STATION	TBD	TBD	TBD

		. ,	
	T2 T3	T4	T5 T6
RESIDENTIAL Single-Family	no spaces required	no spaces required	n/a
	,		1// a
Multi-Family	n/a	Min. 2.0 spaces .05 spaces / bedroom	Min. 2.0 spaces .10 spaces / bedroom
OFFICE	no spaces required	Min. 2.0 spaces 1.0 / add. 20,000 sq. ft.	Min. 2.0 spaces 1.0 / add.15,000 sq. ft.
RETAIL	Min. 2.0 space, 1.0 / add.10,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 5,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 5,000 sq. ft.
INDUSTRIAL	TBD	TBD	TBD
CIVIC Non-Assembly	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.
Assembly	Min. 2.0 spaces 1.0 / add. 20,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 15,000 sq. ft.	Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.
SCHOOL			
Elementary/ High School	Min. 2.0 spaces 1.0 / add. 25 students	Min. 2.0 spaces 1.0 / add. 20 students	Min. 2.0 spaces 1.0 / add. 20 students
University	Min. 2.0 spaces 1.0 / add. 20 students	Min. 2.0 spaces 1.5 / add. 20 students	Min. 2.0 spaces 1.0 / add. 10 students
TRANSIT STATION	TBD	TBD	TBD
	LONG TERM PARKING	(See Table 10)	
	T2 T3	T4	T5 T6
RESIDENTIAL	T2 T3	T4	T5 T6
RESIDENTIAL Single-Family	T2 T3 no spaces required	T4 no spaces required	T5 T6 n/a
RESIDENTIAL Single-Family Multi-Family	T2 T3 no spaces required n/a	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom	n/a Min. 2.0 spaces .20 spaces / bedroom
RESIDENTIAL Single-Family Multi-Family OFFICE	T2 T3 no spaces required n/a no spaces required	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces 1.5 / add. 10,000 sq. ft.
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, 1.0 / add. 10,000 sq. ft.	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft.
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL INDUSTRIAL	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, 1.0 / add. 10,000 sq. ft. TBD	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL INDUSTRIAL CIVIC Non-Assembly	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces Min. 2.0 spaces 1.0 / add. 10 employees
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL INDUSTRIAL CIVIC Non-Assembly Assembly	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, Min. 2.0 space, 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces Min. 2.0 spaces 1.0 / add. 15 employees Min. 2.0 spaces 1.0 / add. 20 employees	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces Min. 2.0 spaces 1.0 / add. 10 employees Min. 2.0 spaces 1.5 / add. 10 employees
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL INDUSTRIAL CIVIC Non-Assembly Assembly SCHOOL	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10 employees Min. 2.0 spaces 1.0 / add. 10 employees Min. 2.0 spaces 1.5 / add. 10 employees
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL INDUSTRIAL CIVIC Non-Assembly Assembly SCHOOL Elementary/	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees Min. 2.0 spaces	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees Min. 2.0 spaces	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.10 employees Min. 2.0 spaces 1.5 / add.10 employees Min. 2.0 spaces
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL INDUSTRIAL CIVIC Non-Assembly Assembly SCHOOL Elementary/ High School	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees Min. 2.0 spaces 1.0 / add.20 students	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees Min. 2.0 spaces 1.0 / add.20 students	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10 employees Min. 2.0 spaces 1.5 / add. 10 employees Min. 2.0 spaces 1.5 / add. 20 students
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL INDUSTRIAL CIVIC Non-Assembly Assembly SCHOOL Elementary/ High School University	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees Min. 2.0 spaces 1.0 / add.20 students Min. 2.0 spaces 1.0 / add.20 students Min. 2.0 spaces 1.0 / add.20 students	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees Min. 2.0 spaces 1.0 / add. 20 students Min. 2.0 spaces 1.0 / add. 20 students	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.10 employees Min. 2.0 spaces 1.5 / add.10 employees Min. 2.0 spaces 1.5 / add.10 students Min. 2.0 spaces 1.5 / add. 20 students Min. 2.0 spaces
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL INDUSTRIAL CIVIC Non-Assembly Assembly SCHOOL Elementary/ High School University	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, Min. 2.0 spaces, 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces Min. 2.0 spaces 1.0 / add. 15 employees Min. 2.0 spaces 1.0 / add. 20 employees Min. 2.0 spaces 1.0 / add. 20 students Min. 2.0 spaces 1.0 / add. 15 students Min. 2.0 spaces 1.0 / add. 15 students	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees Min. 2.0 spaces 1.0 / add.20 students Min. 2.0 spaces 1.0 / add. 10 students TBD	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces Min. 2.0 spaces 1.0 / add. 10 employees Min. 2.0 spaces 1.5 / add. 10 employees Min. 2.0 spaces 1.0 / add. 20 students Min. 2.0 spaces 1.0 / add. 20 students Min. 2.0 spaces 1.5 / add. 10 students Min. 2.0 spaces 1.5 / add. 10 students
RESIDENTIAL Single-Family Multi-Family OFFICE RETAIL INDUSTRIAL CIVIC Non-Assembly Assembly SCHOOL Elementary/ High School University	T2 T3 no spaces required n/a no spaces required Min. 2.0 space, 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add. 15 employees Min. 2.0 spaces 1.0 / add. 20 employees Min. 2.0 spaces 1.0 / add. 20 students Min. 2.0 spaces 1.0 / add. 20 students Min. 2.0 spaces 1.0 / add. 15 students Min. 2.0 spaces 1.0 / add. 15 students	T4 no spaces required Min. 2.0 spaces .15 spaces / bedroom Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. TBD Min. 2.0 spaces 1.0 / add.15 employees Min. 2.0 spaces 1.0 / add.20 employees Min. 2.0 spaces 1.0 / add.20 students Min. 2.0 spaces 1.0 / add. 10 students TBD	T5 T6 n/a Min. 2.0 spaces .20 spaces / bedroom Min. 2.0 spaces Min. 2.0 spaces 1.5 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10,000 sq. ft. Min. 2.0 spaces 1.0 / add. 10 employees Min. 2.0 spaces 1.10 / add. 10 employees Min. 2.0 spaces 1.5 / add. 10 employees Min. 2.0 spaces 1.0 / add. 20 students Min. 2.0 spaces 1.0 / add. 10 students TBD TBD

BICYCLE PARKING FACILITY TYPES

Bicycle Parking Facility Types are applicable to both New Communities and Infill/Retrofit. They may be associated with either the Public Frontage (see the Bikeway Assemblies of this Module) or private lots.

Bicycle Parking is often excluded or insufficiently addressed in the planning, urban design and development process. As a result, accessible, attractive, and lockable parking facilities for short and long term use are often undersupplied or poorly located. When done well, both private and public bicycle parking initiatives complement the Bikeway network by encouraging more people to bicycle. Decision makers must take bicycle parking into consideration during the initial planning and design process.

To be truly effective, bicycle parking solutions must take the needs, behaviors, and preferences of people who bicycle into account. Meeting these needs will encourage and increase bicycle use and avoid haphazard solutions that reinforce anarchic parking behavior, threaten bicycle security, and ultimately deter use.

Municipalities should create and oversee bicycle parking plans at the scale of the city and in conjunction with county and/or state and owned rights-of-way and the officials who oversee them. However, such plans should be implemented and maintained at the scale of the neighborhood. Certain Special Districts, areas of high activity, and neighborhoods of unique character may provide opportunities to make use of bicycle parking facility designs that reinforce an existing built or natural aesthetic, or help define a new one. So-called "decorative" racks must be be readily identifiable and built to the same standards as other bicycle racks so that their design does not compromise the intended function.

Once implemented, bicycle parking must be well maintained, so that all parking areas remain clean, orderly and free of abandoned or vandalized bicycles.

Bicycle parking is to be allocated across the Transect by type, but detailed in quantity and location by land use, demand, and building size. As an example, a civic space, a movie theatre, and a transit station may be in the same Transect Zone, but each requires its own bicycle parking solution. Regardless, bicycle parking must be placed as close as possible to the associated destination, at least as close as any related automobile parking.

Bicycle parking facility types and styles are numerous. Several common types are shown in Table B4. These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

Bicycle Rack: The most simple, recognizable, and effective form for short term parking is the "inverted U-rack." A single rack provides two bicycle parking spaces and allows the bicycle's frame to be secured with at least two points of contact—a pre-requisite for all acceptable bicycle rack types.

Bicycle Shelter: Shelters provide all-weather protection, and are intended for longer term use within areas of higher intensity, like transit stops, fitness gyms, civic buildings and civic space, trail heads, and educational institutions. Shelters should be simple to use, well-lit, and highly recognizable. Shelters also provide an opportunity to display a map of the regional and local bicycle network, as well as any other relevant information.

Bicycle Locker: Bicycle Lockers provide an all-weather, high-security, and long term parking solution. Lockers are ideal for transit stops, park and rides, civic buildings, educational institutions, and large apartment buildings/ commercial towers. Bicycle Lockers should be wellmaintained and monitored.

Bicycle Station: Stations provide the highest level of service for medium and long term parking. They are intended to be regional hubs of bicycling activity and are therefore ideal for the most urban Transect Zone, T-6. Bicycle Stations often include shower and changing facilities, bicycle repair and rental, attended or automated parking, and food and beverage services.

ADDITIONAL RESOURCES:

Bicycle Parking Guide, Association of Pedestrian and Bicycle Professionals, 2010 <www.apbp. org/?page=Publications>

Bicycle Parking Manual, Danish Cyclists Federation, 2008 <www.dcf.dk/composite-848.htm>

Bicycle Parking Guide, City of Cambridge, MA, 2008 <www.cambridgema.gov/cdd/et/bike/bike_pkng_brochure.pdf>

SMARTCODE MODULE

Municipality

TABLE B4: Bicycle Parking Types. This table shows five common types of Bicycle Parking facilities. Standards should be calibrated to the needs of each municipality.



By Right
 By Warrant

٢3	T4	T5	T6	SD	Standards
	-	-	-	-	Racks shall be capable of securing bicycles with at least two points of contact. Simple, easily identifiable forms should be used. Racks may be placed in the Private Frontage, Public Frontage, or within buildings.
		•	•	•	Decorative racks shall be recognizable as bicycle parking facilities and shall be held to the same performance standards as other bicycle racks. Such racks may be provided for Civic Buildings, Civic Spaces, and other locations of historic, social, or cultural importance.
		-	-		Shelters shall be highly recognizable and integrated with transit and/or related land uses requiring medium or long term bicycle parking needs. Each shelter shall include bicycle parking racks capable of securing bicycles with at least two points of contact.
		-	-		Bicycle Lockers shall be placed in a highly visible and well-lit location, but shall not disrupt the function and order of the public realm. They should be monitored and maintained to discour- age vandalism.
			-		Bicycle Stations should be located in highly visble locations, ideally near transit. They should offer a variety of services that may include repair, rental, cafe, lockers, showers, and storage facilities.

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SMARTCODE MODULE

Municipality

Table B5: Bicycle Parking - General Location Standards - This table prescribes the general relationship among the distance from parking facility to destination, the parking duration, and the parking facility type provided.

BICYCLE PARKING GENERAL LOCATION STANDARDS

The placement and location of bicycle parking and other end-of-trip facilities is crucial in making bicycling more attractive and feasible. Bicyclists want to park as closely and conveniently to their destination as possible. In this regard, they are no different from motorists, as searching for bicycle parking can be equally frustrating as searching for motor vehicle parking. Short term facilities, like bicycle racks and shelters, should be located as close as possible to the destination(s) they serve. This is especially important for public spaces served by retail uses and transit stops.

Long term parking, such as bicycle lockers and stations, should also be as convenient as possible. However, the protection from inclement weather and the enhanced level of safety/service that long term facilities afford the user can make up for a less convenient location. Similarly, shower, changing rooms, and locker facilities need not be located inside the destination they serve.

Table B5, which was adapted from the Danish Cycling Federation's Guide to Bicycle Parking, demonstrates the general relationship between short term and long term parking, as well as the desired distance and level of service required to meet the needs of bicyclists.



BICYCLE PARKING - GENERAL LOCATION STANDARDS

Adapted from the Danish Cyclists Federation

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

SMARTCODE MODULE

Municipality

ARTICLE 7. DEFINITIONS OF TERMS BICYCLE MODULE

> Bicycle Boulevard: a Thoroughfare with shared Vehicular Lanes that introduces traffic calming and wayfinding solutions to give movement priority to bicyclists. Bicycle Box: a section of pavement designed to give bicyclists using a Bicycle Lane a head start at signalized intersections. A Bicycle Box is often colored and includes a standard white bicycle pavement marking. It improves visibility between motorists turning right and cyclists traveling through the intersection. (Syn: advance stop line)

> Bicycle Inductor Loop: a coil of wire embedded in a Thoroughfare surface that detects the presence of a bicycle and prioritizes an intersection signal for it. Bicycle Lane: a lane reserved for bicycle travel within a vehicular Thoroughfare. Bicycle Locker: an enclosed and secured locker that provides bicycle parking for long term use.

> Bicycle Path: a dual-direction Bikeway that is physically separated from vehicular Thoroughfares, usually shared with pedestrians, runners, and rollerbladers and detailed for the more urban Transect Zones. (Var: shared use path)

> of one or more types of Bikeways over its trajectory. Bicycle Shelter: a roofed shelter that provides multiple bicycle racks for public use.

> Bicycle Station: a building that provides self-service, attended indoor valet, or automated bicycle parking services, often accompanied by showers, lockers, bicycle repair and rental facilities.

> Bicycle Trail: a dual-direction Bikeway that is physically separated from vehicular Thoroughfares, usually shared with pedestrians, runners, and rollerbladers and detailed for the more rural Transect Zones. (Var: shared use path)

> Bikeway: a continuously designated segment of the Right of Way that provides exclusive, preferential, or equal priority for bicycle travel. It includes the Riding Surface and any Curbs, markings, and protective barriers, and any plantings, lighting, and furniture that are specific only to the Bikeway.

> Buffered Bicycle Lane: a Bicycle Lane separated from vehicular travel and/or parking lanes by striped pavement markings which function as a buffer. (Syn: enhanced bicycle lane)

> Contra-Flow Bicycle Lane: a designated Bicycle Lane marked to allow bicyclists to travel against the flow of traffic.

> Conventional Bicycle Lane: a Bicycle Lane for which the only separation from vehicular traffic is pavement striping.

> Countermeasure: a design technique or facility intended to mitigate unsafe or unappealing bicycling conditions.

> Diverter: a design intervention that limits vehicular traffic from entering all or part of a Thoroughfare but that enables bicycles to pass through. Peg-a-Track: parallel dashed pavement markings that continue a Bicycle Lane through an intersection. (Var. Peg-a-Trak)

DEFINITIONS OF TERMS

Any of these Bicycle Module terms used in a calibration of a SmartCode should be incorporated into Article 7 of the base code. Some definitions appear here for terms that are already in the base code (e.g., Bicycle Lane), but the definitions in this Module are more specific. Calibrators should modify any disparities according to local intent.

- Bicycle Route: a route marked with signs to be amenable to bicycling, often comprised

SMARTCODE MODULE

Municipality

Physically-Separated Bicycle Lane: a uni- or bi-directional Bicycle Lane separated from the motor vehicle travel lanes by Curbs, railings, plantings, parked cars, and/ or grade separation. (Var: cycle track, sidepath) Riding Surface: the portion of a Bikeway used for cycling, the equivalent of the Vehicular Lanes or roadbed for motor traffic Shared Vehicular Lane Marking: a pavement marking featuring a bicycle symbol and chevron, applied to a Thoroughfare too narrow to accommodate Bicycle Lanes and with vehicular target speeds slow enough to allow cyclists to move safely with motor vehicles. (Syn: Sharrow) Sharrow: see Shared Vehicular Lane Marking.

Shoulder: a paved portion of a Thoroughfare that exists outside of its Vehicular Lanes.

Shy Zone: a painted buffer between parked cars and a Bicycle Lane.

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SMARTCODE MODULE

ST-57-20-BL

HW RD

ST

DR AV

CS

BV

RA

RI

ΡT

PS

BLC

BI B

BLB2

BLP

BLS

BI X

SL

Thoroughfare Type

Right-of-Way Width

Pavement Width

PUBLIC FRONTAGE

Drainage Type

Curb Radius

Walkway Type

Planter Type

Landscape Type

VEHICULAR LANES

Traffic Lane Width

Parking Lane Width

Pedestrian Crossing Time

Riding Surface Width

Intersection Treatment

Bicycle Parking

TRANSITWAY TYPE

Target Speed

BIKEWAY TYPE

Movement

Median Width

TRANSITWAY TYPES See TOD Module

ASSEMBLY DESIGNATION

Transect Zone Assignment

Municipality

Thoroughfare Type J

THOROUGHFARE TYPES

Right of Way Width

Pavement Width

Transportation

Highway

Road:

Street:

Drive:

Avenue:

Boulevard:

Rear Alley:

Rear Lane:

Path:

Passage:

Commercial Street:

BIKEWAY TYPES

Bicycle Lane:

Buffered

Shoulder

Conventional

Buffered - Two-Way

Physically Separated

With Bicycle Box

Bicycle Boulevard:

Shared Vehicular Lane:

Bicycle Trail (Shared Use): BT Bicycle Path (Shared Use): BP

KEY

BT-

Bicycle Trail
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BT - Bicycle Tr
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TABLE 4C. BIKEWAY ASSEMBLIES

Included here are ten assemblies with detailed Bikeway standards that may be added to the base SmartCode during local calibration, and others may be created as necessary using the same template. They replicate closely the thoroughfare standards of municipal public works manuals and are intended to supplement the Complete Thoroughfares Module (Table 4C). Assemblies in all SmartCode transportation modules have specific measurements because they are meant to refer to an exact place. They should be considered examples and may be calibrated.

The Bikeways drawn here are to scale and include supporting information below them. These assemblies combine a vehicular thoroughfare similar to those found in the SmartCode Complete Thoroughfares Module with a Bikeway type selected from this module. In the final calibrated code, the assembly may be extended to include one or more Transit types, if applicable. A complete thorough fare designed from scratch would require all transportation provisions to be considered together, along with drainage, which also must be correlated to the Transect. (See LightImprint.org, the Natural Drainage Module, and the Landscape Module for techniques.)

The assemblies in this module that include bicycle lanes in the higher T-zones are intended only for retrofit of existing thoroughfares, as noted on the assembly table. Properly designed thoroughfares in New Urbanist communities have low target speeds so bicycle lanes are generally not necessary. In fact, they may be counter-productive to a safe pedestrian and bicycling realm, widening the curbto-curb crossing distance as well as the sense of spatial enclosure that slows down motorists. When bicyclists are not present, bicycle lanes actually may cause motorists to feel safer driving faster (they are farther from parked cars and trees), which in turn makes bicyclists less likely to use that thoroughfare for bicycling. Sharing traffic lanes with very slow-moving traffic is safer. For example, the vehicular lanes for the Bicycle Path assembly are wider than advised for New Urbanist design in the T-zones shown, making the path a good solution for cycling.

While parking lanes in the Complete Thoroughfares Module may be 7' for narrower ROWs and therefore slower target speeds, restriping of an overwide thoroughfare may call for 8' parking lanes when placed between a conventional (striped only) bicycle lane and the curb. This helps reduce the likelihood of the motorist "dooring" the cyclist. A wider-than-minimum bicycle lane is also indicated in this case. Again, these are retrofit strategies only.

Standards for the separations on Physically-Separated Bicycle Lanes are not given because the materials and widths vary depending on context - curbs, planters, bollards, raised pavement or other tools may be used.

Bicycle Boulevards are a new and highly specific street type to be used for retrofitting corridors where primarily residential land uses abut the thoroughfare. The Bicycle Boulevard assembly drawn here shows a partial diverter and specific pavement markings to communicate the priority movement of bicyclists. In reality, diverters should be used sparingly, and are just one of many techniques used to articulate a Bicycle Boulevard. Other measures include wayfinding signs, reduced speed limits, medians designed for cyclists, neighborhood traffic circles, and the removal of stop signs along the corridors. Please refer to the Bicycle Boulevard Planning and Design Guidebook for further information on where this bikeway type is most applicable.

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TABLE 4C BIKEWAY ASSEMBLIES - NEW OR RETROFIT

V-10	BP-V-10
(Shared Use)	Bicycle Path (Shared Use)
ries	varies
feet	10 feet
⁻ 2, T3	T3, T4, T5
vale	Swale, Curb
/a	n/a
la	n/a
la	n/a
alistic	naturalistic, planted
la	n/a
la	11 feet
la	one side @8 feet marked
la	n/a
la	n/a
ail (Shared Use)	BP - Bicycle Path (Shared Use)
feet	10 feet
irection	dual direction
ned	signed, signalized
cle Shelter	rack, Bicycle Shelter, Bicycle Locker
la	n/a

SMARTCODE MODULE

Municipality

KEY 51-57-20-BL	
Thoroughfare Type 🚽 👖 👖	
Right of Way Width	
Pavement Width	
Transportation	
	,
Highway: HW	
Road: RD	
Drive: DR	
Avenue: AV	
Commercial Street: CS Boulevard: BV	
Rear Alley: RA	
Rear Lane: RL	
Paul: P1 Passage: PS	
BIKEWAY TYPES	
Bicycle Trail (Shared Use): BT Bicycle Path (Shared Use): BP	
Bicycle Lane: BL	
Conventional BLC	
Buffered - Two-Way BLB2	
Physically Separated BLP	
Shoulder BLS With Bicycle Box BLX	
Shared Vehicular Lane: SL	
Bicycle Boulevard: BB TRANSITWAY TYPES See TOD Module	
ASSEMBLY DESIGNATION	
Thoroughfare Type	
Right-of-Way Width	
Right-of-Way Width Pavement Width	
Right-of-Way Width Pavement Width Transect Zone Assignment	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES	
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Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed	
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Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed Pedestrian Crossing Time BIKEWAY TYPE Riding Surface Width Movement Intersection Treatment	
Right-of-Way Width Pavement Width Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed Pedestrian Crossing Time BIKEWAY TYPE Riding Surface Width Movement Intersection Treatment Bicycle Parking	



HW-66-40-BLS
Highway with Shoulder
66 feet
40 feet
T1, T2
Swale
15 feet
n/a
13 foot continuous Swale
naturalistic
n/a
12 feet
n/a
over 35 mph
12 seconds
BLS - Bicycle Lane / Shoulder
8 feet
with traffic
signed, signalized
opportunistic, rack, Bicycle Shelter
See Transit Module



TABLE 4C BIKEWAY ASSEMBLIES - NEW OR RETROFIT

CS-60-32-SL
Commercial Street w/ Shared Lane Marking (Sharrow
60 feet
32 feet
T3, T4, T5, T6
4" raised Curb
10 feet
14 foot Sidewalk both sides
6 foot tree wells
trees at 30' o.c. avg.
n/a
9 feet
both sides @ 7 feet marked
25 mph
10 seconds
SL - Shared Vehicular Lane (Sharrow)
9 feet
with traffic
signed, signalized, Bicycle Inductor Loops
rack, Bicycle Shelter
See Transit Module

SMARTCODE MODULE Municipality

KEY ST-57-20-BL		
Thoroughfare Type J		
Right of Way Width		
Pavement Width		
Transportation		
THOROUGHFARE TYPES		
Highway: HW		
Road: RD Street: ST		
Drive: DR		
Avenue: AV		
Boulevard: BV		
Rear Alley: RA		
Path: PT		
Passage: PS		
BIKEWAY TYPES Bicvcle Trail (Shared Use): BT		
Bicycle Path (Shared Use): BP		
Bicycle Lane: BL Conventional BLC		
Buffered BLB		
Buffered - Two-Way BLB2		
Shoulder BLS		
With Bicycle Box BLX		
Shared Vehicular Lane: SL Bicycle Boulevard: BB		
TRANSITWAY TYPES See TOD Module		
ASSEMBLY DESIGNATION		
Thoroughfare Type		Comme
Right-of-Way Width	-	
Pavement Width	-	
Transect Zone Assignment	-	
PUBLIC FRONTAGE		
Drainage Type		
Curb Radius		
Walkway Type		
Planter Type		
Landscape Type	_	
Median Width	_	
VEHICULAR LANES		
Traffic Lane Width		
Parking Lane Width	_	
Target Speed	_	
Pedestrian Crossing Time		
BIKEWAY TYPE		
Riding Surface Width		
Movement		
Intersection Treatment		signed
Bicycle Parking	I	ack, Bio
TRANSITWAY TYPE		

TABLE 4C BIKEWAY ASSEMBLIES - RETROFIT



SMARTCODE MODULE

Municipality

KEY ST-57-2	20-BL	
Thoroughfare Type 🗴 🖡	ĪĪ	
Right of Way Width		
Pavement Width		
Transportation	-	
THOROUGHFARE TYPES	;	
Highway: Bood:	HW	
Ruau. Stroot	ST	
Drive:	DR	
Avenue:	AV	
Commercial Street:	CS	
Boulevard:	BV	
Rear Alley:	RA	
Rear Lane:	RL	
Passage [,]	PS	
BIKEWAY TYPES	10	
Bicycle Trail (Shared Use):	BT	
Bicycle Path (Shared Use):	BP	
Bicycle Lane:	BL	
Conventional	BLC	
Buileieu Buffered - Two-Way	BLB BI B2	
Physically Separated	BLDZ	
Shoulder	BLS	
With Bicycle Box	BLX	
Shared Vehicular Lane:	SL	
Bicycle Boulevard:	BB a TOD Madula	
TRAINSTIWAY TYPES See		
ASSEMBLY DE	SIGNATION	
Thoroug	hfare Type	
Right-of-	Way Width	
Dava	mont Width	
Paver		
Iransect Zone A	Assignment	
PUBLIC	FRONTAGE	
Dra	inage Type	
С	urb Radius	
Wa	Ikway Type	
Р	lanter Type	
Lands	scape Туре	
Me	edian Width	
VEHICU	LAR LANES	
Traffic I	Lane Width	
Parking I	Lane Width	
Та	rget Speed	
Pedestrian Cro	ossing Time	
BIK	EWAY TYPE	
Riding Sur	rface Width	
3	Movement	
Intersection	Treatment	
Bicy		
)	cle Parking	ra
TRANSI	cle Parking	ra



AV-84-56-BLX
Avenue with Bicycle Lane with Bicycle Box
84 feet
56 feet
(retrofit) T3, T4, T5
4" raised Curb
10 feet.
14 foot Sidewalk both sides
6 foot tree wells
trees at 30' o.c. avg.
10 feet.
10 feet, turn lane10 feet
both sides @ 8 feet marked
35 mph
16 seconds
BLX - Bicycle Lane with Bicycle Box
5 feet with 14' deep box
with traffic
signalized, Bicycle Box
rack, Bicycle Shelter, Bicycle Locker, Bicycle Station
See Transit Module

14' 7' 5' , 10', 10', 10', 10', 5', 7' 14'

TABLE 4C BIKEWAY ASSEMBLIES - RETROFIT

CS-104-76-BLB					
Commercial Street with Buffered Bicycle Lanes					
104 feet					
76 feet					
(retrofit) T5, T6					
4" raised Curb					
10 feet					
14 foot Sidewalk both sides					
6 foot tree wells					
tree wells 30' o.c. avg.					
n/a					
10 feet					
both sides @ 7 feet marked					
above 35 mph					
24 seconds					
BLB - Buffered Bicycle Lane					
5 feet with 4' striped buffer and 2' Shy Zone					
with traffic					
signalized, Peg-a-Track, colored, Bicycle Box, Bicycle Inductor Loops					
rack, Bicycle Shelter, Bicycle Locker, Bicycle Station					
See Transit Module					

KEY ST-57-20-BL
Thoroughfare Type 」 🗍 🏌
Right of Way Width
Pavement Width
Transportation
THOROUGHFARE TYPES
Highway: HW
Street: ST
Drive: DR
Avenue: AV Commercial Street: CS
Boulevard: BV
Rear Alley: RA
Path: PT
Passage: PS
BIKEWAY TYPES Bicycle Trail (Shared Use): BT
Bicycle Path (Shared Use): BP
Bicycle Lane: BL
Buffered BLB
Buffered - Two-Way BLB2
Physically Separated BLP Shoulder BLS
With Bicycle Box BLX
Shared Vehicular Lane: SL Bicycle Boulovard: BP
TRANSITWAY TYPES See TOD Module
ASSEMBLY DESIGNATION
Thoroughfare Type
Right-of-Way Width
Pavement Width
Transect Zone Assignment
Transect Zone Assignment PUBLIC FRONTAGE
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed
Transect Zone Assignment PUBLIC FRONTAGE Curb Radius Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed Pedestrian Crossing Time
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed Pedestrian Crossing Time BIKEWAY TYPE
Transect Zone Assignment PUBLIC FRONTAGE Curb Radius Curb Radius Ualkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed Pedestrian Crossing Time BIKEWAY TYPE Riding Surface Width
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed Pedestrian Crossing Time BIKEWAY TYPE Riding Surface Width Movement
Transect Zone Assignment PUBLIC FRONTAGE Drainage Type Curb Radius Walkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed Pedestrian Crossing Time BIKEWAY TYPE Riding Surface Width Movement Intersection Treatment
Transect Zone Assignment PUBLIC FRONTAGE Curb Radius Curb Radius Ualkway Type Planter Type Landscape Type Median Width VEHICULAR LANES Traffic Lane Width Parking Lane Width Target Speed Pedestrian Crossing Time BIKEWAY TYPE Riding Surface Width Movement Intersection Treatment Bicycle Parking

SMARTCODE MODULE

Municipality

© Mike Lydon and Zachary Adelson 2010

SMARTCODE VERSION 9.2

TABLE 4C BIKEWAY ASSEMBLIES - RETROFIT





DR-68-40-BLB2	2
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Drive with 2-Way Buffered Bicycle Lane

68 feet
40 feet

(retrofit) T4, T5, T6

4" raised Curb

10 feet

14 foot Sidewalk both sides

6 foot tree wells

tree wells 30' o.c. avg

n/a

10 feet

one side @ 7 feet marked

30 mph

12 seconds

BLB2 - Two-Way Buffered Bicycle Lane

5 feet each way with 3 ft striped buffer

dual direction

signalized, Peg-a-Track, colored, Bicycle Box, Bicycle Inductor Loops rack, Bicycle Shelter, Bicycle Locker, Bicycle Station

See Transit Module

LIGHT IMPRINT MATRIX

Simple matrix of methods for mitigating stormwater, from Thomas E. Low

LIGHT IMPRINT Stormwater Matrix SmartCode Module

PREPARED BY TOM LOW / DUANY PLATER-ZYBERK & COMPANY

All the water that will ever be is, right now.

National Geographic, 1993

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

LIGHT IMPRINT STORM DRAINAGE MATRIX

This table summarizes a comprehensive strategy that can supplement the basic Natural Drainage Standards in this volume. The Light Imprint initiative coordinates over sixty tools and resources for environmental, infrastructural, and cost efficiency concerns. Because it is transect-based, all or part of Light Imprint may be adopted with a SmartCode, or provided as an auxiliary set of guidelines for developers. Definitions will be necessary for some terms on this table. Full descriptions of all the tools, along with a comprehensive introduction and set of case studies, are located in the complete Light Imprint Handbook. Information is available at www.lightimprint.org.

SMARTCODE MODULE

LIGHT IMPRINT STORM DRAINAGE MATRIX

Municipality

Note: All requirements in this Table are subject to calibration for local context.



a. PAVING							Maint, Cost
Compacted Earth	-	•	•				L S
Wood Planks	•	•	•				Н \$\$\$
Plastic Mesh/Geomat		•	•	•			L \$
Crushed Stone/Shell		•	•	•			M \$
Cast/Pressed Concrete Paver Block							22 1
Grassed Collular Diastic	Ì						222 M
Crassed Cellular Concrete		1		-	-		M \$\$\$
Grassed Central Concrete			-	•	-	•	I M I \$\$5
Pervious Asphalt		1	•	•	•	•	I L I \$\$
Asphalt			•	•	•	•	I LI\$
Concrete			•	•	-	•	L SS
Pervious Concrete			•	•	•	•	L SS
Stamped Asphalt				•	•	•	222
Stamped Concrete							222 1
Dee Crevel		1			-	-	
				-		-	
Stone/Masonry Paving Blocks	1	1	1	•	•	•	L 1 \$\$\$
Wood Paving Blocks on Concrete					•	•	L \$\$\$
Asphalt Paving Blocks					•	•	M SS
b. CHANNELING							
Natural Creek							1 \$
Torracing							M ¢¢
Terracing		-			1		1 1/1 1 3 3
vegetative Swale	-	•	-		1		
Drainage Ditch	•	•	•				I LI\$
Stone/Rip Rap Channels		•	•	•			L SS
Vegetative/Stone Swale			•	-	•		L \$
Grassed Cellular Plastic				•	•		M \$\$\$
Grassed Cellular Concrete							222 M
Contained Contract		1					M
Soakaway mench				-			I M 1335
Slope Avenue	1	1	•	•	•		I M I \$\$\$
French Drain			•	•	•		I M I \$
Shallow Channel Footpath/Rainwater Conveyor			•	-	•	•	LLS
Concrete Pipe	1			•	•	•	L SS
Gutter				•	•	•	L SS
Planting Strip Trench							
Meeenny Trough			1				
Masonry Irougn				•	-		
Canal				•	•	•	I H I SSS
Sculpted Watercourse, i.e. cascades					•	•	M \$\$\$
Concrete Trough					•	•	L SS
Archimedean Screw					•	•	L \$\$\$
C STORAGE							
Invitation Dand							
Retention Basin with Sloping Bank		•	•				I L I SS
Retention Basin with Fence		•	•	•			L SS
Retention Hollow			-	-			M S
Detention Pond			•	-			L \$
Vegetative Purification Bed			•	•	•		M SS
Elowing Dark						-	22 M
Detention Dand							
			-	-			I NI I 55
Landscaped Tree Well				•	•		L \$\$
Pool/Fountain				•	•	•	H I \$\$\$
Underground Vault/Pipe/Cistern-Corrugated Metal				-	-	•	L SS
Underground Vault/Pipe/Cistern-Precast Concrete					•		L SS
Underground Vault/Pipe/Cistern-Cast in place Concrete				•	•	•	22
Grated Tree Well						•	22
Underground Vault/Dine/Cieters Directi-							I L I 33
Underground Vault/Pipe/Cistern-Plastic						-	I L I 333
Paved Basin					•	•	I M I \$\$\$
d. FILTRATION							
Wetland/Swamp	•	•					L \$
Filtration Ponds							22 1
Shallow March							M S
Surface Landscape	-	-	-				
Surrace Lanuscape	•	•					
Natural Vegetation	•	•	•	•	•	•	I
Constructed Wetland		•	•				I M I \$
Bio-Retention Swale		•	•				M \$\$
Purification Biotope		•	•	•			H SS
Green Finger	1		•		•		222
		-					
Roof Garden				-			M eee
Roof Garden		•	•	•	•	•	M \$\$\$
Roof Garden Rain Garden			• •	•	•	•	M \$\$\$ M \$\$
Roof Garden Rain Garden Detention Pond			•	•		•	M \$\$\$ M \$\$ L \$
Roof Garden Rain Garden Detention Pond Grassed Cellular Plastic			•	•		•	M \$\$\$ M \$\$ L \$ M \$\$
Roof Garden Rain Garden Detention Pond Grassed Cellular Plastic Grassed Cellular Concrete							M \$\$\$ M \$\$ L \$ M \$\$5 M \$\$5 M \$\$5

*NOTE - Maintenance is denoted as L=Low, M=Medium and H=High.

ECONOMICS OF STREET TYPES

Frank Starkey created this in April, 2014.

The Economics of Street Types

Frank Starkey April, 2014

Premises The Problem A Lean Proposal Product and Process

Premises

Definitions/Distinctions:

- Streets are thoroughfares *within* settled areas ("settlements" includes hamlets, neighborhoods, towns, cities).
- Streets must be interconnected at a walkable density (measured by intersection density or max block perimeter)
- Roads and highways are thoroughfares *between* or *among* settled areas.

Streets create real estate value:

- Streets create value for *individual properties* by creating frontage *and* providing transportation (facilitating mobility) (ref. the old s-curve DoT diagram of functional classification.
- (Roads/highways create value for *settlements* by connecting them together.)
- Value depends on street type, which is comprised of:
 - The functionality of the street (where it leads; what it connects to)
 - Amount of traffic carried
 - Mix of short- medium- and long-distance travel
 - Length
 - The character of the street itself
 - Amount of traffic
 - Mix of traffic (pedestrian, bicycle, transit, cars, trucks)
 - Physical design (place within network, geometry, accoutrements)
 - Collectively, these can be expressed as "Functional Classification" but only if that definition is more nuanced than the DoT version (ref: Rick Hall proposal to expand definition, as well as FLDoT's Chapter 19 and ITE's Context-Sensitive Solutions)
- Value creation occurs at, and is expressed in, the frontage line of private lots with the street
- Therefore, the design of frontage (both public and private), is a critical component of value creation, and should be seen as an economic imperative, not "merely" an aesthetic one.

Different types of real estate uses "value" different kinds of streets

- There is a reasonable proportionality between street type and its economics:
 - *the array of street types and the types of uses that derive value from them* (T3 residential "values" leafy and quiet; T5 "values" robust and busy);
 - the amount of transportation/traffic a given street type carries and the amount that its fronting owners will tolerate or demand (T3 tolerates low volumes; T5 demands high volumes);
 - *the amount* (in linear footage) *of a given street type and the demand for it* (T3 requires more linear footage per unit and total than T5);
 - the cost of building/maintaining/upgrading a given street type and the value created by it (T3 streets are cheap and T3 lots are lower value *per front foot*; T5 streets are expensive and the lots are high-value)

- Streets "naturally" fall into a hierarchy of types, which correspond to the Urban Transect
- An appropriately conceived street can be paid for by its builder (be it government, private developer or both) from the value it creates.

Supply/demand economics can logically guide the building of streets

- A commercial street costs more and generates more salable value per front foot.
- Single-family residential streets are relatively cheap to build per linear foot, but single family lots are able to pay much less per front foot.
- Building a more elaborate street enhances this value and concentrates the intensity of demand, in a straightforward cost/benefit/market analysis.
- Street developers are thus motivated to build the highest-quality street the (immediate) market will support. (Wise developers will ensure there is a mechanism for improving every street in the future, as well.)

Assigning costs:

- **Interconnected streets** create transportation value for the whole settlement (ref: Create more value than you capture. Tim O'Reilly): they **externalize** *value*.
- The cost of building and maintaining a street should be born directly by its fronting properties.
 - This is a reciprocal social contract between property owners and the community: We maintain our respective streets, and we share them with each other, as well. We all pay; we all benefit.
 - In a proper network hierarchy, the shared demand on a given street is proportional to the costs of that street.
 - Property taxes are an appropriate mechanism to fund streets, though the method should be improved. (ref; the Fiscal Impact Quotient proposal by Peter Katz)
- The cost of building and maintaining a road/highway should be born collectively by the settlements it connects.
 - "User Fees" (eg gas tax and tolls) as well as regional/state/national taxation are appropriate mechanisms to fund highways.
- Some streets do not contribute to network mobility (eg dead-ends and gated streets)
 - These create limited value for their fronting lots, by locking them into residentialonly uses forever.
 - More pointedly, these externalize *all* of their mobility demand (and travel distances for those residents are generally greater, too). This disproportionate external demand should be paid for by those properties. Impact Fees and increased property taxes are an appropriate mechanism to do this, provided they are used to offset the costs of all the other streets.
 - With appropriate cost allocation, such streets will be fairly priced into rareness, but they need not be prohibited entirely.
- The external costs of building roads for externalized travel demand drop almost entirely out of the equation. Along with it drops the ludicrous voodoo of traffic engineering studies and their attendant costs, time delays, and exactions for building highway interchanges five miles away.
- This fundamentally alters a huge portion of a developer's (or a municipality or individual lot owner) financial model. By only having to pay for the streets one builds one's focus can be on gleaning the highest value out of those streets. (See Development In Action below)
- *Settlements are dynamic systems,* and tend generally (but not always linearly) toward greater density and intensity over time.
- *The array of street types broadens over time* with greater intensification in higher Transect Zones as values rise more steeply there.
- *Rebuilding/upgrading a street can correspond with the rise in value* (or change in use) *of its fronting properties. Upgrading* a street can create and/or respond to this rise in value.
- *Every street is subject to change* in function, density and/or intensity, if its design can accommodate that change.
- Long-term real estate value depends on the ability of a street to adapt to changing conditions, including economic, social, demographic, technological, environmental, etc. (ref: Pace Layering; Stewart Brand as adapted by Hank Dittmar)
- *A mechanism is needed for upgrading streets <u>block by block</u> in response to or anticipation of these changes. (Ref: The Sky Method, Steve Mouzon)*

The Problem



Distortions in contemporary suburban street/road/"stroad"-building and funding

- *Decouples mobility and frontage as value creators.* This creates roads that only provide transportation and "streets" that provide only frontage (and "collectors" that provide neither!).
 - Local streets (including "driveways" within commercial parking lots) and collector roads are typically built by private developers, who reap the benefit of the initial value creation by selling single-family lots and multifamily or commercial tracts.
 - Arterials and Highways are built by the public sector, but without meaningful funding that is tied to new development. (ref: Chuck Marohn's "Growth Ponzi Scheme" argument) Impact fees are an attempt at this but because of the enormous externalized cost of the system redundancies, development interests successfully resist a true cost recapture. General funds, (sometimes via bond issuances) are forced to make up the difference, but can never quite make it. Road building, by definition, falls further and further behind demand.
- *The functional classification diagram is misapplied*. Different functional class thoroughfares are arranged in a branching rather than a parallel (or "tartan" grid) pattern
- *Automobile traffic is concentrated at too-few intersections,* which require over scaling and long signal timing and get congested anyway.
- *The road pattern is redundant,* hence costly and land consumptive
- *Trip distances are made too long* and itineraries are too dispersed for any transportation mode besides automobiles (which is the least efficient mode in most every measure.)
- Street and road types are "neither/nor" in both character and function:
 - Commerce clusters along roads/highways because of their concentration of traffic (ie customers), exacerbating congestion;
 - Road connections between settlements congest to the point of non-function
 - Commercial lacks foot traffic (which is arguably better for commerce)
 - Local "streets" in dead-end patterns, often with gates, contribute nothing to network mobility, stymie future value increases, and prohibit changes in use

• "One-size fits all" engineering/construction standards result in streets that are often either over-built or under-built for their context. (*residential streets are gold-plated*, while "stroads" lack amenities for pedestrians and bicycles.)

Costs exceed value:

- Overall transportation system costs are higher:
 - Requires excessive lane-mileage and miles-traveled per unit of mobility (trip);
 - Requires excessive numbers of automobiles (per household and overall) and their associated engines, tires, mass, energy consumption and pollution;
 - Requires excessive provision of parking spaces (ref: Shoup);
 - Household transportation costs are higher due to requisite car ownership and high VMT (vehicle-miles traveled)
 - Excessive maintenance costs
 - Excessive (and ultimately futile) costs to mitigate congestion (primarily through roadway and intersection expansion.)
- Social costs are higher:
 - Directly through limited mobility, excessive time spent driving (and in traffic), high transportation injury and fatality rates;
 - Indirectly through increased social segregation (abetted by single-use zoning), and the rigidity and "placeless-ness" of commoditized development practice (see below re: threshold scale of development), and declining social capital (ref: Putnam and Oldenburg)
- The suburban roadway network externalizes *costs*:
 - Privately-funded local streets and collector roads shift "transportation-bearing" road-building costs to the public sector;
 - Transportation Impact Fees and related concepts attempt to charge new development but cannot (politically) fully recapture these double costs.
 - Publicly-funded arterials and highways shifts social costs to the private sector.
 - We pay too much money for roads and then pay again with our lives.
- Minimum threshold scale of development is blown up:
 - Intersections with primary roads may only be made by building large new collector roads, whose excessive cost must be amortized over a large acreage of salable lots/parcels.
 - The new intersections of collector and arterial create demand for large chunks of non-residential uses, increasing project complexity, risk, and economic requirements (*but little demonstrable benefit to the residential lots.*)
 - Economies of scale and rapid sales velocity must be achieved to "make the numbers work", leading to standardized, less market-responsive "product offerings."
 - Big Finance is required, along with specialized large-scale developers with less local knowledge.
 - Big Finance and Professional Developers (and the required phalanx of consultants and their corollary regulators) add cost, time and risk to development.
 - Incremental and successional development is impossible (ref: Lean Urbanism, generally)
- Value creation and retention is limited
 - All this puts downward pressure on real estate sales prices (to achieve volume and velocity), construction quality, and on responsiveness to local and emerging market demands

- Oversized commodity "neighborhoods" on dead-end street networks are created for a momentary "market" and restricted from future adaptation (abetted by zoning and deed restrictions)
- Commercial development is similarly oversized and constricted, so that its eventual (and inevitable) redevelopment is extremely difficult (ref: Suburban Retrofits and Sprawl Repair)
- Local investment capital is squeezed out of local real estate investment, except as an "end user." The value creation "bump" of real estate development largely leaves the local economy (ref: BALLE).
- Unless a location is extremely lucky, this calcified, commoditized state ultimately becomes obsolete, a term which should not naturally be applied to real estate (buildings, perhaps, but not lots!)
- When velocity and volume are king, quality is the first thing to go. Marketing takes over. Cynicism follows.

A Lean Proposal

Government Planning can create a framework for Lean Urbanism by stripping its planning functions back to street *planning*, and then allowing market forces to flesh out the urbanism. This is simpler than trying to force mixed uses, and it was the way towns and cities were planned for centuries before Modern planning.

Plan the Street Network First:

- Planning should return to simply laying out street networks.
 - Ensure that every street segment can both create and sustain value for its fronting lots by connecting to other streets with a network density sufficient to support all modes of travel (measured by intersection density or max block perimeter);
 - Ensure that every street segment contributes transportation capacity to the overall network: *This should be a simple visual assessment, not a complicated traffic planning computer model!*
 - Locate road connections from one settlement to another, where they are separated by either:
 - Rural Preserve (permanently protected agriculture or environmental land);
 - Rural Reserve land, held for future development.
 - Locate highways (which run among settlements but do not provide land access)
 - Locate trails and future rail corridors.
 - (This is where traffic engineering belongs where the factors are fairly simple, and the roads need only to be sized properly, and where automobile travel can reign. Interconnected streets are almost always oversized because as a network they operate so efficiently. Furthermore, local streets demand design nuance that is undermined by the traffic engineering mindset.)
 - Roads between settlements must be restricted from urban development but connect directly to primary streets (boulevards and Main Streets) through settlements, where commercial activities are likely to locate.

Building Form Second:

- *Allow* for a Transect-based Form-Based Code to be enacted by a landowner or developer;
- *Provide* a Transect-based Form-Based Code only where needed to guide infill- and redevelopment *and keep it minimal.* Resist the temptation to pile on all those sexy modules but do make them optional.
- *Allow* for a *very* wide variety of street designs to be deployed on a block-by-block basis;
- *Allow* for a *very* wide variety of building types and frontages, with only minimal metric requirements to correspond to the street type (ie Transect Zone).
- *Don't mess up the street frontages!* If you keep the street types and frontages right, the proper private frontages are more likely to follow: mess up the street frontage and the buildings will change very quickly! (ref: pictures of buildings changing in response to street changes)

Mixing of uses will come in due time, following market forces.

Oh yeah, and Zoning? Fuggedaboutit. Euclid made it legal; it didn't make it mandatory. Let go and Let God!

- If that causes your head to explode, then either:
 - or establish performance standards, such as ambient standards (noise, light, smell, vibration, etc.)
 - translate your zoning code into a form-based code.

Get rid of Impact Fees for transportation, and stop building government roadways to handle new development's primary transportation.

The Product and Process

Development Decision-Making in Action:

If I am a developer planning to build a new neighborhood (or portion of a neighborhood), my market research will ask how much I can charge for frontage on each of the different types of streets, what should be the character of those streets, and how much demand (expressed in front feet) there is. I can combine this with preliminary cost estimates from my contractor to come up with my development program. (This is akin to a homebuilder's method for determining product mix, but without the burdensome metric of economies of scale needed for each type).

Based on this information I can instruct my planners to include the programmed mix and proportions of different street types. For example, they are to include "X" linear feet of "Main Street" (eg T4-0 or T5), with such-and-such a level of finish/amenity (i.e. brick v. concrete sidewalks, street furniture, etc.) for which I will be able to charge so-much-per-linear-foot. Then there will be "Z" linear feet of "Elm Street" (eg T3, T4-R) and a fair amount of "Meridian Street" (eg T4-R or T4-O) that I can shift from one use to the other during my build-out. That gives me a transitional zone into which additional commercial or higher-density residential can "squirt", or that I can put into an interim use so that I can hold for much higher values when the market matures a little more.

"Main Street" will cost the most, and be worth the greatest dollars per foot but I will have demand for the least amount of it. "Elm Street" will be the cheapest to build, and be worth the fewest dollars per foot, but I'll "make up for it with volume" as they say. "Meridian Street" will be in the middle on all counts. (This is where I have the greatest potential upside if I do a great job building a community or outside factors intervene in my favor. These are the "Black Swan" streets, per Nassim Taleb's formulation.)

Rather than negotiating with my municipality over disconnected and abstract fees for the costly trips they are assuming on behalf of my future residents, I will be calculating the best way to create value from the streets I am building anyway. I want the greatest delta between my costs and sale price and I will try to figure out how to design the project a way that *all* the lots are more valuable.

My best way to do that is by creating an "amenity" that a) I don't have to pay much for (or, ideally, I get PAID for) and b) that creates more value than it costs. Parks and recreational amenities are part of this equation, but they cost me money and I have to ask the residents to pay to maintain them so that will only get me so far. Gates and cul-de-sacs are too expensive except for the very small, tip-top of the market, and they don't create any value for anyone else. The really powerful stuff is the convenience of having daily needs nearby and easy to get to. Schools, preschools, churches, YMCAs and libraries are all nice IF I can land one, and they don't cost me much, if anything.

But commercial! Commercial land I can <u>sell</u>! Commercial is stuff people use every day! Groceries, yeah, but grocery stores are big and hard to make money at unless I have just the right location. C-Stores are too crappy to put in a neighborhood. A corner store is good if I can make the numbers work and find a good operator. A pizza joint. A coffee shop, hair salon, barber shop, a gym, a wine bar, a sushi place, a bodega. What if someone works at home and needs a co-working space? Better yet, a place to have an office "downtown" instead of in the dining room... Maybe I need to start with food trucks and temporary buildings instead of starting with bricks-and-mortar stores when there are few customers. Suddenly I'm motivated to get creative about commercial opportunities, *in order to sell houses and sell them for more*!

Working Differently:

For Local Government:

- Retrain and redeploy your traffic planners to do useful engineering. They're trained civil engineers so their talents could be employed to design beautiful streets, roadways, bridges and other infrastructure.
- Retrain and redeploy your zoning administrators and development review staff to help facilitate the myriad small-scale local "lay" developers (eg dentists, insurance agents and retired schoolteachers) through the design and building permit process. Ensuring that frontages are correct should be their only regulatory function.
- Unchain your environmental review staff from the trees and bird counts and deploy them to help the general public better understand the value of natural and rural lands. And employ them to get important lands protected.
- Put the Director of Public Works, Building Official and Fire Chief together in one office, and incentivize them to collaborate and find efficient solutions together. Reward them monetarily when they reduce costs (but not quality) or create excess value. If they won't work together, get new ones who will.

For large landowners:

• Get familiar and comfortable with form-based codes, and figure out how to use them to create value. Then either enact one on your land or sell to a developer who really understands them (not just paying lip-service to it). Maintain an equity position in the development if you can.

For "large" developers (i.e. you've built subdivisions before):

- Familiarize yourself with transect zones and form-based codes and figure out how to squeeze value out of them (hint: build just enough street for each use, but make it beautiful so they sell well and add value to all the other streets!).
- Learn about the local market and learn how to look FORWARD at the market rather than the typical "rear-view mirror" market study approach. *In addition to* the fat part of the bell curve, also learn the micro-markets and "long-tails", where there is unmet market demand. You'll be much more able to meet that demand profitably now that you can build in small increments.
- Figure out how to "future proof" both your street network and your buildings so that they can adapt to changing markets over time. That "future" may just get here while you're still developing and you will want to be able to capture the value. If you're a build-and-hold developer, this is even more important.
- Start paying more attention to local capital, not just the international capital markets. Your chiropractor will likely be a better equity partner than Gigantor Equity, LLC with its 20% IRR expectations, 10-year horizon and \$100 Million minimum deal size.

For "small" developers:

- Be of good cheer, for you will now have immensely more opportunities to build small projects. Blocks and lots on meaningful streets will once again be plentiful.
- Make your talents known to the large developers, who won't want to play at the small scale. Buy their lots and build stuff. Reward the ones who have good plans, who build the best streets and deliver the best customers.

- Let your creativity fly, and find lots of different ways to skin the cat. You don't have to stick with a "proven" model; you can be entrepreneurial with a single lot!
- Make your talents known to local business people who will need new space developed for them, or who will need help learning how to develop their own buildings.

For planning consultants:

- Learn how to write a lean and mean form-based code for a developer and learn how to administer it (it ain't rocket science):
- Contract with the developer (or municipality) to administer it.

For Land Use Attorneys:

• Make yourself useful and affordable to small developers: there will be much more work for them than there is for the big guys.

SMALL CHANGE INDEX INDICATORS Small Change's Change Index.

The Small Change Index's Scoring System

The Change Index is Small Change's proprietary scoring system that illustrates the impact its projects have on its surroundings. The Change Index uses data points such as an area's walk – and bike-ability, public transit access, proximity to green space, availability of commercial and cultural amenities and other measures of quality of life to produce a composite score of 1-10 (10 being the best) to gauge the possibilities of a project.

Calculating your Change Index.

The majority of our metrics apply to both commercial and residential real estate projects. A few only apply to one or the other. C denotes a commercial metric and R denotes a residential one.

Mobility

Walkscore over 70: The Walkscore is a composite number that indicates the pedestrian friendliness of the project and its proximity to important amenities. The higher the Walkscore, the less someone needs to rely on a car, therefore reducing personal costs and environmental impact. A score of 70 and over is considered "very walkable." All scores are sourced via walkscore.com. (C + R)

Bikescore over 70 : The Bikescore is a composite number that indicates the ease of using a bicycle as a mode of transportation to and from the project. Bikescore takes into account both the friendliness of the surrounding topography and the biking culture of the area. The higher the score, the more bike friendly the area will be. A score of 70 and over is considered "very bikeable." All scores are sourced via walkscore.com. (**C + R**)

Dedicated bike lane within ¼ mile : Dedicated bike lanes provide an additional level of safety for those who use bicycling as their means of transportation. A study of adults living in Seattle found that those living within a half-mile of a dedicated bike lane were 20% more likely to ride their bike. (**C + R**)

Transit score over 50 : Transit is a critical component of a healthy city. Better transit means less congestion, increased mobility and unlocked economic potential. The Transit Score indicates public transportation options close to the project. The higher the score, the better the options and frequency of public transit nearby. All scores are sourced via walkscore.com. (**C** + **R**)

Commercial/business corridor within 1 mile: Local businesses keep money circulating within a community and reduce the distance that people need to travel to obtain goods and services. An attendant effect of a high concentration of neighborhood businesses means that alternate methods of transportation such as walking, biking and public transit are more likely to be utilized. **(R)**

Bike racks for occupants: Providing bike racks for building occupants increases the likelihood that individuals will choose biking as their mode of transportation.**(C)**

Car sharing station within ½ mile : Car sharing stations allow users to utilize a car only when one is truly needed. The service eliminates the personal expense of owning a vehicle – thereby acting as an individual economic stimulus for other products and/or savings – and lowers the number of cars on the road, thereby lessening traffic congestion. (**C + R**)

Transit-oriented Development : Transit-oriented development (TOD) is a type of mixed-use community development integrated into a walkable neighborhood and located within a half-mile of public transportation. (**C + R**)

<u>Sustainability</u>

Adaptive reuse / brownfield site : A brownfield site is defined as industrial or commercial property that is abandoned or underused and is often environmentally contaminated. The ability to reuse something that already exists, whether it is a building or land, is a fundamental element of sustainability. This not only reduces our environmental footprint, it also allows for the revitalization of a building or site. (C + R)

Green building practices : The implementation of green and sustainable building practices ranges from including energy efficient lights and windows to building with sustainably harvested or local materials to providing rain catchment systems. Any attempt made to eliminate the negative effects of the building on the environment is a positive change. (**C + R**)

Minimized site disturbance : Any disturbance of undeveloped land changes the natural balance of the site and leads to soil erosion and water management issues. Preserving existing noninvasive trees, native plants, and pervious surfaces and ensuring that one hundred percent of the development footprint occurs on previously developed land can meet the need to minimize site disturbances. (**C** + **R**)

In a principal city: Principal cities meet certain population and employment criteria. Being in a principal city identifies the project as supporting urban growth. Meeting any of the following criteria qualifies a location as a principal city: (**C + R**)

- 1. The largest incorporated place in a CBSA (Core Based Statistical Area) with a population of at least 10,000, or if no such incorporated place exists, the largest incorporated place or census-designated place in the CBSA. This designates the largest principal city.
- 2. Incorporated or census-designated places that have a population of at least 250,000 in which the number of workers is 100,000 or more
- 3. Places with a population between 50,000 and 250,000 where the number of workers exceeds the number of working residents
- 4. Places with a population between 10,000 and 50,000 where the number of workers i) exceeds the number of working residents and ii) are at least one-third of the population of the largest principal city.

Park or plaza within ½ mile : The close proximity of green space to a project allows for recreation outside the immediate proximity of the project site. This gives individuals a place to be outdoors, which improves mental and physical health and strengthens community ties. (**C** + **R**)

Reduced parking footprint : By reducing a project's parking footprint to less than 20% of the total developable land, environmental harm associated with parking facilities – land consumption and rainwater runoff – is minimized. **(C)**

In a mixed-use neighborhood : A mixed-use neighborhood is an area that has clusters of diverse land use, making it more likely that residents can find all of their needs within that neighborhood. Mixed-use neighborhoods flush with residential and commercial amenities support walking, biking and use of public transit. **(C)**

Urban farm within 1 mile : Having an urban farm near the site means that individuals will be able to buy fresh, healthy produce locally – something many urban communities to do not have access to. Residents will also be supporting the local economy. **(R)**

Economic Vitality

At least 10 jobs created (1 per 500 SF): The creation of jobs helps the local economy. Workers earn money and spend it in the surrounding community. Jobs created can apply both to construction workers who build the project, or to employees who occupy the buildings once the project is complete. (C + R)

More than 10 jobs created : The more jobs that are created in an area, the more people – and money – will be concentrated in that area. This leads to additional development, increasing the economic vitality of the community. (**C + R**)

In an historically underserved community : Underserved communities have higher poverty rates, higher unemployment rates, lower property values, and a higher number of city-owned or abandoned buildings or vacant lots. Choosing to develop these areas is the first step in achieving economic growth for the immediate area *and* for the city at large, revitalizing fallow land for future growth. (**C** + **R**)

Activates the street : Activating the street encourages pedestrian-friendly development and a sense of safety and livability in a community. Creating connections between the inside and outside of buildings – think front porches on homes, or sidewalk cafes for local businesses – accomplish this. (C + R)

Third place within ½ mile : A "third place" is a gathering place that is an extension of people's homes. It may be a coffee shop, bar, restaurant, bookstore, etc. This is a place where an individual feels comfortable, enjoys meeting others, stays for significant periods of time and visits frequently. (**C + R**)

Affordable housing : Everyone deserves decent housing. Affordable homeownership can stimulate the local economy by stabilizing and populating a neighborhood with permanent residents. Homeowners take ownership not only of their new house, but of the neighborhood as well, adding personal, community and economic investment in an area. (**R**)

Incubator / co-working space : Incubators and co-working spaces foster interactions and the exchange of ideas, and support the growth of startups, driving economic vitality in the area. **(C)**

REVOLVE DETROIT GUIDEBOOK

This is a guidebook from REVOLVE Detroit.



















GUIDE TO DETROIT'S RETAIL EVOLUTION



REVOLVE is a program of the Detroit Economic Growth Corporation. It is designed and implemented in collaboration with many partners.

PREFACE

The REVOLVE Guidebook is a collection of resources to support Detroit's Retail Evolution. Whether you are starting a business, installing a public art project, restoring a building, or promoting a neighborhood, this is your one-stop shop for practical how-to information regarding the revitalization of Detroit's neighborhood business districts.

The guidebook is designed for a broad audience of entrepreneurs, artists, community organizations, and building owners with the common goal of activating vacant space. It is oriented to help stakeholders work together and take action. Included are checklists, flow-charts, permits, and much more in easy-to-understand, ready-to-use formats.

Some of the information may not be applicable to you. However, we believe that

good things happen faster when we work together and have a mutual understanding of the to-do list. The guidebook is developed specifically for Detroit. However, much of the information is transferable to other cities or applications of urban revitalization.

Finally, there is no "one way" to do this. Every neighborhood requires a unique approach. This guidebook tells you how we facilitate Retail Evolution at REVOLVE. We encourage you to familiarize yourself with these resources and do things in your own way. We also realize that things evolve. Consider this a living document. We encourage you to share your feedback and lessons learned to improve this guide by emailing us at info@revolvedetroit.com.

We ask just one thing of you: Be revolutionary. - Michael Forsyth, Program Manager

REVOLVE would like to thank the following contributors to this guidebook:





DACHA PERFORMANCE INSTALLATION SPACE | LIVERNOIS AVE. | DETROIT, MI

"IF WE BUILD IT, WE WILL COME."



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CHAPTER I: REVOLVE DETROIT

POP-UP COFFEE SHOP | LIVERNOIS AVE. | DETROIT, MI Manda Moran

HOW TO USE THIS SECTION OF THE GUIDEBOOK

This section of the guidebook highlights the theory and practices behind the REVOLVE Detroit program. It was written with two audiences in mind: potential REVOLVE partners and participants, as well as other organizations interested in developing innovative approaches to revitalize neighborhood business districts.

REVOLVE DETROIT

REVOLVE Detroit is a collaborative program of the Detroit Economic Growth Corporation (DEGC), which partners with community leaders, building owners, entrepreneurs, and artists to activate vacant storefronts with transformational businesses and art installations. The goal of the program is to foster Retail Evolution in Detroit's neighborhood business districts.

At its core, REVOLVE uses "pop-up" as a catalyst to accomplish three main objectives: 1) recruit and grow full-time tenants, 2) spark public and private investment, and 3) change the image and experience of neighborhood business districts. REVOLVE combines pop-up with other tools, such as incentives to support building restoration and technical assistance for entrepreneurs. In other words, we use small, short-term actions to spark big impacts and long-term investment in neighborhoods, businesses, and buildings.

POP-UP: NEW MODELS FOR BUSINESS AND SPACE

At REVOLVE, we define a pop-up as a temporary use, such as a business, art installation, or event that activates a vacant or under-utilized space. While many definitions and variations exist, the operative word is "temporary." Pop-ups are meant to create low-cost, low-risk opportunities to transform a place quickly for a limited amount of time. For example, pop-up business models can allow entrepreneurs to test their business in a location for a month before signing a long-term lease. This offers the opportunity to make money, make adjustments to a business model, and prove to financers and landlords that a business can succeed. Building owners benefit from getting a prospective long-term tenant and unprecedented marketing. Neighborhoods benefit from new energy and a great new business. Temporary art installations are serving as a medium to re-engage various audiences in rethinking what is possible in a place, often times catalyzing a new image or interest in investment. Art can create real value in vacant space where the market value cannot yet bear business investment. Pop-ups are also becoming an increasingly popular marketing tool. Established companies are using pop-up to reveal a new product or elevate their brand. Whether the idea or the investment is big or small, pop-ups offer great experience, exposure, and excitement.

DIFFERENT APPROACHES TO ACTIVATE BUSINESS AND SPACE



One or two day event. Vendors. Music. Food. Drink.



Where will we be next? It's a surprise.



Art first. Retail second.



Open temporarily. Close. Re-open somewhere else.



A pop-up inside of a pop-up. Programming = pop-up success.



Open pop-up inside an established shop. Co-promote. Co-benefit.



Test location and business. Experiment. Evaluate. Act.



Lease with free rent and/or out clause in 3-6 months. Intend to lease.



Go all in. Open permanently.

I. REVOLVE DETROIT | THE REVOLVE MODEL



There are three fundamental elements to REVOLVE Detroit: Partnership, Strategy, and Tools. This section of the guidebook presents the basics of the program and the theory behind it.

PARTNERSHIP

REVOLVE partners with four stakeholders to support Retail Evolution.

NEIGHBORHOODS	TRANSFORM NEIGHBORHOODS INTO VIBRANT RETAIL DISTRICTS. Match entrepreneurs with opportunities to transform vacant spaces into viable places. Create buzz by changing the conversation, image, and experience on the street and online. Grow and attract high-quality and long-term businesses.
BUILDING OWNERS	REVOLUTIONIZE THE RETAIL DEVELOPMENT AND RECRUITMENT PROCESS. Match property owners with temporary and permanent businesses. Apply innovative marketing techniques to reach new tenant prospects and customers. Connect property owners with a suite of resources to create retail-ready space.
ENTREPRENEURS	CREATE VENUES FOR NEW BUSINESS VENTURES. Connect entrepreneurs with Detroit's prime neighborhood retail spaces and property owners. Create a low-cost, low-risk environment to experiment, test, and refine your business model. Assist with permitting, marketing, and resources to grow your business.
ARTISTS	RE-IMAGE NEIGHBORHOODS THROUGH CREATIVE EXPRESSION. Use the arts to spur economic development and neighborhood revitalization. Showcase Detroit's world-class art scene to engage new audiences in-person and online. Transform the image and potential of Detroit's neighborhoods.

I. REVOLVE DETROIT | THE REVOLVE MODEL

STRATEGY

REVOLVE applies a four-step strategy to transform business districts.

1	PLAN	Establish partnerships, secure building owner commitments, and develop common vision and strategy.		
	LAUNCH	Pop-up business at one prime location to engage community and illustrate the benefits of temporary use. Support art installations at several spaces to spark district interest. Issue small grants and provide fast, visible impacts in storefronts. Support major marketing to promote participants and opportunities.		
	SCALE	Increase pop-up business activity. When permanent tenants are secured, issue grants and assist with financing to support build-out, leverage private investment, and close the financial gap for tenants.		
OPEN	TRANSFORM	Leverage success and awareness to keep recruiting new businesses. Construction and business financing and gap funds help support larger projects and private investment after the market is stimulated. This establishes a performance-based model for investment.		

TOOLS

REVOLVE applies a three-tier investment strategy to support sustainable transformation.

	PROGRAM OPERATIONS	Goal: Approach: Theory:	Provide staff, marketing, and entrepreneur technical assistance. Budgeted by REVOLVE. Wrap-around services and strong program management are necessary for program success.
	POP-UP FUND	Goal: Approach: Theory:	Support temporary business, art installations, and events. Competitive grant awards and/or discretionary programmed funds. "Lighter, quicker, cheaper" investments in transformational placemaking.
Ĭ	RETAIL Readiness fund	Goal: Approach: Theory:	Create move-in-ready space. Matching grants leverage private investment. Assist with project financing. Direct investments into space is also indirect investment into full-time tenants.

THE RETAIL EVOLUTION PROCESS

The following graphic shows how REVOLVE uses these tools and strategies to foster Retail Evolution in Detroit business districts.



RETAIL EVOLUTION

- Assess district and building challenges/needs.
- Build "the team" of community leaders, building owners, and existing businesses.

PROGRAM TASKS

- Meetings/planning with community.
- Evaluate building conditions.
- MOU and establish commitments and responsibilities.
- Develop vision/strategy for execution.



RETAIL EVOLUTION

- Assess demand for new businesses and art.
- Build "the team" by identifying new entrepreneurs and artists to contribute to revitalization.

PROGRAM TASKS

- Issue request for proposals.
- Interviews and due diligence with entrepreneurs and artists.
- Curate mix of uses.
- Generate media buzz.
- Assess team capacity and fill gaps on participant needs.



RETAIL EVOLUTION

- Demonstrate demand for businesses and art.
- Build excitement.
- Build capacity around actions that lead to revitalization.

PROGRAM TASKS

- Develop common vision, expectations, and plan for executing strategy amongst all team members.
- Issue small grants to support temporary uses.
- Prepare space.
- Engage community.



RETAIL EVOLUTION

- Meet market demand.
- Build leverage to do more local capacity.

PROGRAM TASKS

- Press/public announcements.
- Assist with permitting.
- Support local leadership's continued efforts.



RETAIL EVOLUTION

- Demonstrate demand for long-term investment.
- Build permanent assets.

PROGRAM TASKS

- Issue grants if necessary.
- Assist with financing for build-out costs.
- · Assist with permitting.



RETAIL EVOLUTION

- Demonstrate demand for building renovation.
- Build case for business investment.

PROGRAM TASKS

- Assist with lease negotiations.
- Assist with project financing.
- Publicize wins.
- Keep recruiting.

CHAPTER 2: CASE STUDIES AND BEST PRACTICES

LTIC

CRAFTWORK | AGNES STREET | DETROIT, MI

2. CASE STUDIES AND BEST PRACTICES | WEST VILLAGE



HOW TO USE THIS SECTION OF THE GUIDEBOOK

The following is a case study of Retail Evolution in the West Village neighborhood of Detroit. It is a story of how a partnership between local leaders, building owners, entrepreneurs, and artists transformed an entire block of vacant storefronts into one of Detroit's hottest new retail districts. The case study features multiple stakeholder perspectives, processes, benefits, challenges, and lessons learned.

ABOUT WEST VILLAGE

Located three miles east of downtown, West Village is part of a collection of unique waterfront communities that locals affectionately refer to as "the Villages." The Villages has long been recognized for its diversity. Historic neighborhoods, high-rise condos, edgy lofts and apartments, affordable rental properties, and new construction homes accommodate a diversity of people and lifestyles. Nearby landmarks, such as Belle Isle and the Detroit River, define the area's unique and charming identity. Despite the tremendous collection of assets that contributed to a high quality of life, a missing ingredient remained just a few years ago: a walkable, neighborhood business district.

Developing a recipe to create a business district from scratch started in 2011 with two ingredients: creativity and beer. Local residents worked together to transform a vacant lot into a temporary community beer garden, "Tashmoo Biergarten." It was a smashing success that discovered a broader community that was thirsty for more opportunities to meet over food and drink. Entrepreneurs took note. In the fall of 2012, REVOLVE Detroit partnered with the Villages Community Development Corporation (Villages CDC), two building owners, entrepreneurs, and artists to transform an entire block of vacant storefronts next to the beer garden on Agnes Street between Parker and Van Dyke. A call for entries for pop-up and permanent businesses was launched to assess the demand for business investment in the area. Of the 25 applicants, most were interested in locating permanently in West Village. Over the course of the next year, partners collaborated to create three pop-up businesses, host several events, and recruit four permanent businesses to fill the entire block. The end result, fully completed in the summer of 2014, includes Craft Work (full-scale bar and restaurant), Detroit Vegan Soul (vegan café), The Red Hook (coffee and pastry shop), and Tarot and Tea (retail boutique).

The following details the perspectives, contributions and lessons learned from various partners that contributed to the transformation.

2. CASE STUDIES AND BEST PRACTICES | WEST VILLAGE | POP-UP EVENT



ABOUT

Tashmoo Biergarten is a European-style, outdoor beer garden that activated a vacant lot in West Village with a series of five pop-up events. With their first event in September 2011, Tashmoo helped spark a movement in West Village. They showcased the vibrancy of the neighborhood, while demonstrating tremendous demand for a new business.

HOW IT HAPPENED

"All good ideas start with beer," says West Village resident Aaron Wagner, who along with his now wife Suzanne Vier, had the idea to run a pop-up community beer garden in West Village. They presented the concept to the Villages Community Development Corporation to gain their support. The Villages backed the idea and helped bring the concept to life by providing insurance, obtaining non-profit liquor licenses, and promoting the event in the community. For more information on non-profit liquor licenses **click here**.

On opening day in fall 2011, Tashmoo Biergarten made enough money to cover all of their out-of-pocket expenses and all funds went back to the Villages CDC. Tashmoo Biergarten helped changed the image and awareness of West Village, while building a loyal following. Now, Tashmoo has gone on the road to bring the beer garden to other areas of Detroit.

CHALLENGES

As an outdoor experience, weather was always the biggest hurdle for the beer garden. Good weather meant more people and profit. Uncertainty in how much profit an event would generate made initial out-of-pocket expenses problematic.

Volunteers were also crucial, playing a big role in executing events by saving on cost, time, and sweat. Social media platforms, such as Facebook and Twitter, were key in getting the word out for helpers and promotional purposes.

Liquor licenses, or lack of, are what make and break these events. Only 12 liquor licenses are allowed per calendar year for each non-profit. Tashmoo Biergarten partnered with Waldorf School, a 501c3, to get a liquor license. When collaborating with non-profits, all proceeds are issued to them.

BENEFITS

Aaron's event and marketing background, combined with Suzanne's entrepreneur and savvy outreach skills, made them a great pair. A combined 7,500 people were at Tashmoo Biergarten's first 5 events. People from all over metro Detroit came out to West Village, some having no previous knowledge that the area existed. The events showcased the strong community, labeling it as a new destination for residency, retail, and recreation.

Because the events were temporary, it was easy to purchase products as needed, load materials into a truck, and drive to the destination. A loyal group of volunteers and regular customers continue to come out to support Tashmoo Biergarten wherever they pop-up.

LESSONS LEARNED

At the end of their 2011 pop-up tenure, Tashmoo Biergarten decided to change their strategy in small ways moving forward. They believed that many things went amazingly well, but realized that each event is unique. They never had the same amount of customers at each event— sometimes the line was longer than anticipated and they didn't have enough product. It was about learning to work through the challenges, such as rain or lack of volunteers. Preparation for the best and worst turnout is crucial to each event on an individual level.

With the pop-up process being new territory to everyone, a great deal of work was involved to organize the first event. They had to develop processes to coordinate with various stakeholders, build and gather furniture, develop marketing strategies, and design the Tashmoo brand. In the end, it was about finding the right people to talk to, untangling the process of getting licenses in time for beer orders, and keeping things organized up front with consistent communication to pull off the events.

2. CASE STUDIES AND BEST PRACTICES | WEST VILLAGE | COMMUNITY LEADERSHIP



ABOUT

Brian Hurtienne, AIA LEED AP, is the executive director of the Villages Community Development Corporation (Villages CDC). He holds a bachelor's degree in architecture and is a registered historic architect with the state of Michigan. Brian brings nearly 30 years of experience as an architecture consultant and instructor, along with nine years of entrepreneurial experience running his own architecture firm, BVH Architecture. His expertise was invaluable to fostering new businesses and leading renovation of commercial storefronts in historic West Village.

HOW IT HAPPENED

In early 2012, following a successful run with Tashmoo Biergarten, two apartment building owners with vacant ground floor retail space approached the Villages for help recruiting businesses to occupy their vacant storefronts on Agnes Street. There were four vacant storefronts in two buildings, which resulted in an entire block with no street presence. The spaces neighbored Tashmoo Biergarten. That summer, the Villages wrote and received a grant from the Kresge Foundation to execute a retail planning effort in the neighborhood. Brian contacted Michael Forsyth of the Detroit Economic Growth Corporation (DEGC) to discuss the underlying needs and explore opportunities to collaborate for retail recruitment and renovations. The collaborative effort would serve as the pilot for the DEGC's newly formed REVOLVE Detroit program.

The Villages CDC was able to build strong working relationships with the building owners, as the DEGC's REVOLVE program was able to bring additional funds to the initiative while also elevating retail recruiting and marketing efforts. The Villages CDC, REVOLVE, and the building owners issued a joint request for proposals seeking pop-up and permanent businesses. DEGC leveraged its strong relationships with the press to market the RFP, while the Villages and building owners hosted open houses for interested entrepreneurs. The RFP received an overwhelming response, with over 25 applicants, including both well-established businesses, along with first time entrepreneurs—many of which sought permanent leases.

The Villages and REVOLVE facilitated a series of interviews to vet the candidates with owners and worked with both building owners to help curate an optimal mix of retailers. Within two months, letters of intent had been signed to fill all of the vacant storefronts permanently. The Villages and REVOLVE worked together to activate the spaces with pop-up businesses, while leases were negotiated and renovations planned. Pop-ups included a coffee and bake shop called Coffee and (___) and an apparel shop called PRAMU, which morphed into a retail shop with an art gallery and event space. The pop-ups took on a life of their own, spinning off into another art gallery and a pop-up holiday movie theater.

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Pop-ups helped create tremendous buzz while engaging the community in what it was like to have a business district again. Pop-ups built momentum into the launch of new permanent businesses, all while engaging the community and marketing the area to a broader audience.

CHALLENGES

The Villages played an important role, solving many challenges that went into activating these spaces. The Villages helped facilitate zoning variances to allow the new permanent uses and provided gap funding alongside the REVOLVE program to support the costs of renovations. While there was a rich engagement process with tremendous outcomes, once the project was complete, there was a need to acknowledge the people who contributed the small things throughout the years to create a stable neighborhood that in turn, created the foundation to attract retail. There are people who have lived in these areas for a long time who do trash pick-ups and watch the streets late at night that should be recognized in revitalization projects.

BENEFITS

There is a significant value in using temporary uses to build the foundation and demand for permanent uses. Tashmoo Biergarten set the groundwork and built the buzz in 2011 by activating a vacant space and acting as a social community gathering spot. Pop-up shops along Agnes created a more permanent, albeit temporary space to engage the community in redevelopment of the business district, while building and sustaining momentum. Pop-up events, coupled with a robust communications and marketing strategy, were used to unveil the permanent businesses at the Villages Fall Festival to further build excitement for the new, up and coming retail district.

Collaboration also created tremendous value. Partnering with the DEGC's REVOLVE program helped match the funds from the Villages, and also increased the human capital for the project. Joint retail recruiting, marketing, and interviewing resulted in a more efficient and effective project.

LESSONS LEARNED

The public often views pop-ups as short-term businesses inside of permanent spaces. Detroit uses pop-ups to create value out of a space that otherwise had none. The community wants to know that the space they see and interact with will always be there— that they can come back next year and it will occupied. Continuity has to happen; otherwise pop-up becomes about starting over again, which isn't what these initiatives are about. Though pop-ups switch in and out, individually, they get the chance to open a better business next time around after learning what takes place during their most recent pop-up term.

2. CASE STUDIES AND BEST PRACTICES | WEST VILLAGE | BUILDING OWNERS



ABOUT

West Village Manor is owned by LAND, Inc., a Michigan non-profit real estate development corporation. It was one of the properties that participated in the REVOLVE program in West Village. Jackie Bejma is Executive Director of LAND, Inc. She worked with the Brian Hurtienne of the Villages CDC and Michael Forsyth of REVOLVE to facilitate a pop-up art gallery and temporary window art installations, while helping start three new permanent businesses in the building: Detroit Vegan Soul, The Red Hook, and Tarot and Tea. Jackie's role was, in partnership with Brian and Michael, to review the 25 proposals that were submitted, to interview the entrepreneurs who submitted those proposals, and then to provide project management for renovations to the commercial spaces that would eventually be occupied by chosen entrepreneurs.

HOW IT HAPPENED

LAND, Inc. acquired the West Village Manor building in 2009, a three-story apartment building with ground floor retail space. Since acquisition, the commercial spaces, along with those in the neighboring Parkstone Building, remained predominately vacant. All of the units needed renovation. Traditional brokers were ineffective in recruiting high quality tenants with the capacity to take on both business and renovation investments. Vacant storefronts combined with a lack of funds to renovate the spaces were hurting cash flow on the property.

The Villages CDC and REVOLVE met with LAND, Inc. to discuss the possibility of conducting a pop-up business competition at the building, with the hopes of building demand to fill the space full time. It seemed to be a win-win proposition that could generate interest in the community, draw attention to affordable commercial space for emerging entrepreneurs, and drive new and exciting developments. LAND, Inc.. participated in a joint request for proposals for pop-up and permanent businesses, which produced tremendous interest. The RFP discovered many new prospects, and eventually introduced us to three new full-time tenants. LAND, Inc. reviewed all the proposals, interviewed top entrepreneurs, and ultimately decided which entrepreneurs to lease to in collaboration with the Villages, REVOLVE, and the adjacent building owner. West Village hosted a series of pop-up events, an art gallery, and then provided project management for renovations to the commercial spaces for the permanent tenants.

CHALLENGES

The challenge hosting pop-ups is the transition between the end and the beginning of construction. More coordination was needed to ensure a smooth and timely process between the pop-up tenant and the contract. The primary challenges were associated with preparations for permanent tenants. Permitting, inspections, and the inevitable unknowns that come with older buildings caused delays in construction. Lease negotiations with permanent tenants took longer than expected. In particular, legal assistance for lease negotiations can be a challenge for small business start-ups with limited access to funds.

BENEFITS

Partnership with the DEGC's REVOLVE program and the Villages CDC was extremely beneficial. The number and quality of responses received from entrepreneurs interested in opening a shop in the building was a surprise. Having the DEGC promote the initiative led to higher quality responses. It provided more choices and helped find the ideal tenant in a shorter amount of time, increasing cash flow and bringing in resources for renovations. Although pop-up wasn't needed to vet prospective permanent tenants, it was a great way to bring life back to the space at little or no cost to the landlord. The pop-ups were extremely creative in making small improvements to the space that had a big impact. Additionally, the publicity and media centered on West Village was what the area needed for recognition and sustainability. Now, the entire block is full and enjoying a comeback that is believed to have a lasting impact.

LESSONS LEARNED

In addition to marketing and collaboration provided by REVOLVE and the Villages, technical assistance for the entrepreneurs is also needed. Assistance with legal, back office/back of house business operations, and inventory controls are all things that small businesses need to thrive over the long-term, but they also need it at the outset of start-up. Many small-scale entrepreneurs also need coaching and support during the first year of operations. Access to capital is not the only challenge. It is also capacity, understanding of the market, and understanding of the business itself.



ABOUT

Coffee and (____) made its debut as a pop-up in West Village in the fall of 2012. The shop is ran by classically trained pastry chef and West Village resident, Angela Foster. The pop-up offered seasonal pastries, locally roasted coffee, teas, and artisan hot cocoa. The basic concept, "Coffee and (whatever Angela decided to bake that day)," was perfectly suited for the temporary nature of the business. The pop-up lasted about 90 days on Agnes Street, filling the community's insatiable demand for a cozy gathering spot and caffeine while amassing a large following in the press and social media. Coffee and (____) built on its success in West Village to help launch its next pop-up in the Jefferson-Chalmers neighborhood of Detroit, which is potentially going permanent in 2014.

HOW IT HAPPENED

Angela received an e-mail from FoodLab Detroit, a group of Metro Detroit food entrepreneurs, about REVOLVE Detroit's request for proposals and attended open houses to see the retail spaces in West Village. Angela was just moving into the neighborhood from Delaware and wanted a public meeting space that allowed her to connect with her neighbors. She looked at the West Village initiative as an opportunity to open a coffee shop that acted as the engagement space she was looking for.

She developed a business plan in response to the RFP. After a few interviews with the project team and building owners, she was chosen to open a pop-up shop. While the space most recently served as a restaurant, the kitchen was inoperable and the space was inhabitable.

She borrowed furniture, plants, a coffee mug collection, and a record player. Angela and her friends joined the building owners, the Villages and REVOLVE for a few late night sessions cleaning the space. REVOLVE and the Villages helped secure more furniture from the neighborhood. Angela obtained a temporary food permit from the Detroit Institute of Population Health and began cooking pastries out of a commercial kitchen. She signed a license agreement with the building owner that was provided by REVOLVE in substitute for a lease. REVOLVE helped generate press for the opening and the shop took on a life of its own. Angela's pastries and personality were a hit in the community, and soon the neighborhood began to take ownership in the shop. People brought more furniture and music. Someone even let Angela borrow an espresso machine. The rotating menu of pastries created something new to market every day. In the last two weeks, Coffee and (____) featured their most popular items to drive traffic to the store before the pop-up was over.

CHALLENGES

Angela desired to create a name for herself. As a barista in college and a pastry chef later on in the Virgin Islands, she sought to have the same credibility in her new city. For the first two weeks of the pop-up term, one of her former pastry assistants flew into town to help launch the coffee shop's social media presence

Because there wasn't a kitchen in the space, Angela had to commute to and from a commercial kitchen in Madison Heights to West Village daily. Someone would fill in at the shop while she would go bake. For her, the easiest part was standing behind the counter, the hardest being the lack of sleep and demands if being both a baker and business owner. It served as a real life test for the small business lifestyle.

While Angela had significant experience as a pastry chef, this was her first experience as a business owner and operator. She was able to discover what she knew and what she didn't. When the pop-up concluded, she enrolled in D:Hive's Build Class, a business and project planning class designed for aspiring and established entrepreneurs. Equipped with education in the classroom and in the real world, Coffee and (____)'s significantly improved its latest pop-up in a different neighborhood to the point where Angela is making the business permanent.

BENEFITS

Many people that were inspired by her new venture donated equipment and time to help with the space. This created a true sense of community ownership in the business. Contributors would bring in their friends and family to brag about "the coffee shop they helped create." This not only increased sales, but created stronger customer relationships. Coffee and (____) excelled at using social media to connect with customers. Because the coffee shop was only temporary in West Village, many people came out to enjoy it while it lasted— "people love things that are fleeting," says Angela. She eventually established a name for herself as well as relationships that contributed to the continuation of the coffee shop. She landed countless catering jobs, some of which are long standing as a result of her experience in West Village.

LESSONS LEARNED

Those who are interested in going from pop-up to permanent, must understand the importance of developing a space that will remain up-to-code and can sustain a business longer than three months. More due diligence is needed to assess the condition of the space – both regulatory and physically – early in the process. This includes understanding and executing on construction needs, architecture plans, zoning and building code issues and securing financing. When a space is temporary, the permitting process is less extensive than when permanent. If the pop-up use is consistent with the previous use, and the building is up to date on inspections, generally speaking a Temporary Use Certificate is all that is needed. Permanent businesses need a Certificate of Occupancy, which indicates that a building meets all city codes, including building, plumbing, electrical and mechanical systems. Other issues pertaining to zoning and permitting may also come into play when a different use is proposed.

2. CASE STUDIES AND BEST PRACTICES | WEST VILLAGE | POP-UP RETAIL



ABOUT

PRAMU, an acronym for Pataphysical Research and Metachanic Union, was a pop-up clothing store in the fall of 2012 ran by tech entrepreneurs, Dylan Box and Edmund Zagorin. The shop took on a retro, futuristic explorer's club theme, combined with the 1903 World's Fair. The pop-up lasted about 90 days on Agnes Street, next door to fellow pop-up Coffee and (____), and evolved into an arts venue that combined retail with events.

HOW IT HAPPENED

Edmund Zagorin saw the West Village RFP online and applied with his business partner, Dylan Box. They thought they were applying for December holiday retail pop-up, but were asked to open for an extended stay during the fall and had only two weeks to prepare for the launch.

PRAMU didn't exist in any form before the West Village initiative. Edmund and Dylan thought this would be an enjoyable experience for them both, so the pop-up clothing store developed once the opportunity arose. For them, it was about trying something they have never done before: working in retail and running their own shop. Dylan was coming from a background in design and architecture, while Edmund was experienced in film and producing. The pop-up was considered short-term, having no expectation of becoming permanent. Alongside unique items made by PRAMU, the shop also sold apparel and products from several Detroit designers. The pop-up grew organically, to include events programming to helpengage a broader audience, experiment and bring more people to the space.

CHALLENGES

In the span of two weeks, PRAMU had to obtain furniture, clothing racks, insurance, and build-out the space. The entrepreneurs were both freelancing at the time and dropped everything, working 12-hours a day to make this happen. Getting insurance was an unforeseen issue. They found that most insurance companies only offer year-long policies, so working with an insurance company to get a three-month policy for a small scale project was one of their initial problems. Waiting for tasks that were out of their hands was worrisome, such as inspections, city approval, and some renovation.

Though they expected the hectic rush leading up to the opening, additional time was needed to get people to come out to the store, as West Village wasn't a retail destination at the time. The shop was dependant on walk-ins, having the bulk of their customers coming from Coffee and (___) from Tashmoo Biergarten's events. Like many start-up retail businesses, it was hard for them to stand alone as a new
shop. It was important for them to be placed next to other businesses and to be located in an area that was highly trafficked.

BENEFITS

The West Village project was extremely collaborative, offering direct connections to building owners and other resources that allowed them to focus on products and other obligations that contributed to the success of the shop. Flaco Shalom, a local Detroit artist, helped with the space and coordinated various pop-up art events in the shop. This not only helped with the look and vibe of the space, but also brought in a new pool of customers. The owners of PRAMU had many friends who were skilled in the same areas that they were, so their work was showcased during the pop-up term as well.

Social media platforms, such as Facebook and Twitter, were a key tool used to request furniture donations. They also used Craigslist to help develop the space the way they envisioned. Fred's Unique Antiques on 8 Mile Rd in Warren, MI, allowed PRAMU to rent furniture at a cheap rate, permitting them to keep a fraction of the profits if the furniture sold. REVOLVE Detroit helped to spread the word and bring in additional furniture that was needed, such as mannequins, clothing racks, and display cabinets.

LESSONS LEARNED

Dylan and Edmund experienced the behind-the-scenes management that occurs in retail shops. They learned the importance of location and how shops like theirs are dependent on the businesses surrounding it. If PRAMU were to go forward with their shop after the pop-up term, they would have chosen a different location and done more promoting and coordination with different events.

The pop-up format gave them the ability to prototype their business model. Rushing to start a business causes high risk, though it is a way to test the success of a concept at a cheaper rate. Working with different networks of people created new working relationships between PRAMU and other people involved in West Village long after the pop-up term.



ABOUT

Flaco Shalom is a native Detroit artist who runs the Untitled Bottega, a community arts space and open gallery. The Bottega is the first of many performance and installation spaces by Flaco that make up the Untitled Campus centered around 314 E. Baltimore in Detroit. The goal of the campus is to create a community that is based on giving new and upcoming local artists a place to learn, build, and exhibit their craft.

Prior to opening the Untitled Bottega, Flaco was introduced to the West Village project through Dylan Box from PRAMU. Pop-ups only filled some of the empty storefronts, so Flaco was commissioned to activate windows with art installations. From there, his role expanded to bring arts programming to the retail experience.

HOW IT HAPPENED

Flaco was recruited to be a creative curator during the West Village pop-ups in the fall of 2012. His first installation, "Smiling Faces," was a series of murals to reflect a warm community and bring life to the long empty storefront windows. He recognized the need to help boost traffic and interest to support PRAMU and Coffee and (__). He helped PRAMU program events that helped with the success and vibe of the retail space. It started with "Church of Hustle", his concept that spawned a new art gallery inside the pop-up shop which would give way to spontaneous opportunities for events and new artists to showcase their craft. This unplanned experience created authentic opportunities to engage a new audience and bring more people to West Village.

CHALLENGES

Working on a time-sensitive project with people you have never worked with before can be trying. People reacted differently under stress and had their own routine way of doing things, especially artists. The challenge of bringing together different audiences and skill sets ended up creating opportunities for experimentation and new ways to test previously untested models.

BENEFITS

For artists, the pop-up format is quite similar to that of a gallery opening. It is about temporarily showcasing your work and creating an atmosphere that is applicable to your audience. West Village acted as an opportunity to interact, network, and grow a community through the arts. Because of opportunities like this where artists have the chance to work with different people and organizations; in the future, other groups and organizations are more open to working with them as well and see the value of art in creating authentic experiences and intrigue.

LESSONS LEARNED

Knowing your market is always a lesson. There are always opportunities to test new ideas in different places through the arts to understand how people react and what they value. It is also important to promote intelligently and diligently in order to optimize the opportunities of arts programming for community engagement and business marketing.

DACHA PERFORMANCE INSTALLATION SPACE | LIVERNOIS AVE | DETROIT, MI Marilyn Trent



HOW TO USE THIS SECTION OF THE GUIDEBOOK

We know how entrepreneurs like their information: simple and to the point. You have enough on your plate as it is. This section provides checklists, sample documents, permits and resources based on our experience and research. These are resources aimed to facilitate action. We've cut through the red tape and countless hours of trial and error to distill information down to what we believe are essential. With that said, every situation is different and we can't account for everything. These resources should in no way replace your own research nor are they an excuse not to do your own homework. One thing however remains constant - you get out what you put in. We wish you best on your endeavor and encourage you to be Revolutionary.

This guidebook provides the following:

A pop-up checklist that covers the basics to getting started, legalities and formalities, construction and deconstruction and marketing and promotion.

A building assessment guide that we use to determine the "retail readiness" of a space. If you find yourself in the midst of a building renovation, in addition to starting a business, be sure to engage design-build professionals.

Permits including temporary use permits and temporary food permits that may be necessary to make your pop-up a reality.

Sample forms that REVOLVE uses. This includes license agreements (our version of a lease) that was based on Pittsburgh's Project Pop-Up. REVOLVE also uses additional forms and contracts (not included) for participants chosen to participate directly with our program.

Resource guide which includes partial lists of insurance agencies, Detroit businesses where we've procured furniture and equipment, and the "Biz Grid" – an infographic designed to help Detroit entrepreneurs navigate the landscape of organizations providing business assistance within the city.

REVOLVE POP-UP CHECKLIST

This checklist covers several requirements to execute a pop-up business. While it is a long to-do list, it is by no means exhaustive. It is oriented towards pop-up businesses locating within a vacant storefront and doesn't cover things such as co-locating with an existing business, art installations, or events programming. This list was developed to help aide in the development of pop-up stores but shouldn't replace your own planning. It's also subject to change. Other great resources exist, like **Storefront's Ultimate Guide to Opening a Pop-Up Shop**. The lists cover four topics: Part 1) Get Ready for Business provides the basics. Part 2) Legalities and Formalities details important tasks for permitting, insurance and business start-up. Part 3) Construction and Deconstruction provides considerations for designing and building the space. Part 4) Marketing and Promotion explores some of the basics for getting the word out.

GETTING READY FOR BUSINESS

	TASK	NOTES	
0	Develop a business plan for pop-up and permanent business.	Not required, but highly recommended. Pop-up can provide an opportunity to test and refine facets of a permanent business with less risk and cost. Determine your goals for the pop-up. Ask yourself: How do short-term actions and achievements for my pop-up advance my long-term business aspirations?	
0	Develop a plan to execute the pop-up.	Your business plan is one thing, but developing a plan for executing your pop-up is more detailed and action oriented. What is your budget? What is your schedule? This to-do list is a great start for figuring out your plan.	
0	Identify neighborhood(s) and space(s).	Identify the location and space that best flts your business model. Check out REVOLVE spaces here .	
0	Reach out to locals.	Inquire about opportunities to collaborate with community organizations and get insider information from local businesses.	
0	Price products and set financial goals.	Determine sales targets, costs, profit, unit margins, etc. This is your chance to test financial viability of your business and/or product.	
0	Develop point-of-sales system.	Determine how to collect and process credit card and cash sales.	
0	Determine hours of operation, opening and closing dates.	This is vital to the success of your pop-up. Keep consistent hours so that customers know when to come. Use openings to generate excitement and buzz. Use closing dates to drive traffic to the shop before the pop-up is gone.	
0	Determine staffing needs.	Can you do it all by yourself or will you need help? This is a chance to also determine staffing needs for a full-time business.	
0	Determine merchandising and service strategy.	How will you display your products? What is the experience you want your customers to have and remember? How does design help elevate sales.	
0	Gather as much data as you can on your business.	Prove yourself and investors what the economic opportunity is. This can help secure loans, determine if the location is right and what you can afford for rent.	
0	Develop strategy for post-pop-up.	If you're planning on going permanent and the pop-up is proving to be successful, be sure to start lease negotiations with the building owner ASAP. You could lose out to another potential full-time tenant after you market the space and demonstrate a viable economic opportunity.	

LEGALITIES AND FORMALITIES

This section of the checklist covers some important required tasks. Tasks, such as registering your business with the state will help you get closer to becoming a permanent business, while obtaining insurance can get you closer to operating full-time. Other permitting tasks are specific to the City of Detroit. It's highly recommended that you work with the City's Building, Safety, Engineering and Environmental Department to not only determine requirements to open a pop-up, but to identify needs to transition your temporary use to a permanent one at your location of choice.

	TASK	COST	PROCESS TIME	NOTES
0	Register your business and file articles of incorporation.	\$50	10 days or less	See if your business name is available here . Fill articles of incorporation here .
0	Apply for FEIN.	No fee	Immediate	Apply here.
0	Register to pay sales taxes.	No fee	4 weeks or less	Register here . If you make retail sales at only one or two events in Michigan per year, complete form here.
0	Obtain general liability insurance.	Varies	Varies	See partial list of insurance options here.
0	Work with BSE&ED to determine the "existing use" and "compliance" of the space and all permitting needs.	No fee	Varies	Visit or contact the BSE&ED. An in-person visit is recommended. If the pop-up use is the same as the previous use AND the property is current on inspections, you're good to occupy the space. If the pop-up use is the same as the previous use BUT not current on inspections, inspections are required. Coordinate with the property owner to schedule and pay for the inspections. If the pop-up use is DIFFERENT than the existing use, complete a temporary use permit. If you're considering going permanent, use this opportunity to identify requirements to transition your pop-up to permanent.
0	Complete a temporary use permit (if needed, see step above).	\$150 and up	Minimum 3-5 days processing	See form here . In addition to completing the form you will need 1) a license agreement/lease showing property owner permission to use property and 2) three copies of a floor plan for the space drawn to scale and printed on minimum of 11x17. Architecture stamp is not required. Permits can be walked through on Tuesdays and Thursdays at BSE&ED.
0	Complete building inspection (if needed, see two steps prior).	\$208	Varies	See above. If you're also proposing alterations to the space (structural, plumbing, electrical and/or mechanical) building and/or trade permits may be required.
0	Submit temporary food permit (food users only).	\$125 - \$250	Submit 2 weeks from opening	Obtain permit here . Permits are good for 14 days. In-person submission reccomened. Money orders only. \$125 non-profit, \$250 for profit.
0	Complete lease or license agreement.	No fee	Submit 2 weeks from opening	See sample license agreement that REVOLVE uses as a substitute to a lease.
0	Complete REVOLVE license agreement (if REVOLVE participant)	No fee	Submit 2 weeks from opening	See license agreement . This is a requirement as a REVOLVE participant. REVOLVE DETROIT PAGE 28

POP-UP CONSTRUCTION AND DECONSTRUCTION

Opening a pop-up can sometimes feel like opening a permanent store on an abbreviated timeline. During the planning process, it is important to understand what construction tasks are necessary for you to achieve your short-term goals while advancing your long-term vision. A strong understanding of your goals, budget and schedule are essential to determining how much you should invest in a space.

	TASK	NOTES	
0	Assess condition of space and determine construction and design needs.	See simple property assessment form here . It is highly recommended that you engage a design-build professional to determine design and construction needs for your pop-up. Determine build-out needs that are required for your pop-up and those can wait until you go permanent. Develop a budget, schedule and a plan for construction. If any substantial changes or additions are required you may need a building and/or trade permit(s). Be sure to get improvements approved by the building owner.	
0	Develop a floor plan (if necessary) and design scheme.	Floor plans, drawn to scale, are required for temporary use permits. Google SketchUp is a free and useful tool for developing floor plans. Use the floor plan to layout and design your shop – seating, merchandising, service, paint colors, shelving etc.	
0	Recruit contractors and/or volunteers for construction.	Some improvements – electrical or plumbing for example – will likely require qualified contractor. Identify and execute on those needs early on and find good professionals you can trust. Identify other improvements that volunteers can help with. Nothing helps local word of mouth marketing more than involving your customers in constructing your pop-up shop. Your customers will feel a sense of ownership and will bring their family, friends and neighbors to show off the store they helped create.	
0	Clean and complete improvements to the space.	Cleaning and a fresh coat of paint can go a long way. Be sure to get improvements approved by the building owner.	
0	Collect furniture, shelving, and lighting as needed.	Ask local residents, friends, families, and others to donate items you need. Ask REVOLVE what you need and we'll try to point you towards someone who has it. See list of resources for rentals and purchases.	
0	Obtain and install all equipment for pop-up.	See above. If you're a food user and will have dishes, you'll need a three-compartment sink. If you have hot or cold food, you'll need equipment to maintain temperatures.	
0	Recruit volunteers for deconstruction.	Start planning 2 weeks in advance. Rent or borrow a truck if needed. This is the responsibility of the tenant and an often overlooked aspect of the pop-up process.	

MARKETING AND PROMOTION

Strong marketing and promotion are essential to a successful pop-up. This is your opportunity to garner some invaluable attention to a new business or concept. You'll need to cover all the basics - location, hours, opening and closing date – while also determining the story you want to tell. If you have a strong understanding of what you want to achieve during your pop-up, marketing and promotion is one way to help influence those outcomes. Remember too that it's not all about you. Teaming up with local neighborhood leaders and existing businesses, can help market the destination as well. Find opportunities to co-promote and leverage new networks where ever possible.

	TASK	NOTES	
0	Develop a press release.	If selected as a REVOLVE participant, REVOLVE will help market your pop-up. REVOLVE will help promote any pop-up by listing events on RevolveDetroit.com and social media pages (Facebook, Twitter, Instagram).	
0	Build social media presence.	Build your following on Facebook, Twitter, and Instagram. Be sure to create a Facebook event and invite the world. Cross promotion with other businesses, events, and entrepreneurs boosts visibility. Click here.	
0	Engage local residents in construction of your pop-up to support word-of-mouth marketing.	Nothing helps local word-of-mouth marketing more than involving your customers in constructing your pop-up shop. Your customers will feel a sense of ownership and will bring their family, friends, and neighbors to show off the store they helped create.	
0	Work with CDC's for local outreach.	Community Development Corporations often have emails or contact information for hundreds of neighboring residents. Work with CDC leadership to craft messages and advertisements for your pop-up. This is a win-win for both of you.	
0	Submit press releases to local media outlets.	Submit your press release to local publications like Model D and Curbed Detroit two weeks prior. Larger publications like the Detroit News, Free Press or television programs need a press advisory a week before and one-on-one outreach to get coverage before or during your event. You may consider giving one press outlet the "exclusive."	
0	Grand opening party event and promotion.	Print and distribute flyers, make Facebook events, and send out electronic invites. This is your biggest opportunity to announce to the world that you're opening.	
0	Plan interim events and collaborations.	New and interesting events will keep people coming out. Collaborating with other businesses or artists is a great way to reach new audiences and create new marketing opportunities.	
0	Closing celebration and promotion.	Because you're a temporary business, it's important to let customers know that your product is only available for a certain time and if they don't visit they'll miss out. Instill a sense of urgency into potential customers and make sure you celebrate your success on your last day(s). You deserve it.	

3. ENTREPRENEUR RESOURCES | PROPERTY ASSESSMENT

REVOLVE DETROIT PROPERTY ASSESSMENT

This form is designed for building owners interested in participating in the REVOLVE Detroit Program. The form presents the basic benefits and obligations for REVOLVE participation and also collects basic information about property ownership, the condition of the space, and the parameters for supporting new uses. This form can also be used by prospective entrepreneurs and artists that are considering activating or leasing a space. It's a great starting point to support owner/user collaboration and coordination.

REVOLVE is a collaborative program of the Detroit Economic Growth Corporation (DEGC) that partners with local leaders, building owners, entrepreneurs, and artists to activate vacant storefronts with transformational businesses and art installations. The goal of the program is to foster the evolution and vibrancy of Detroit's neighborhood business districts. This form assesses a property owner's willingness and gualifications to participate in the REVOLVE Detroit Program.

REVOLVE DETROIT PROGRAM PARTICIPATION

The following section asks questions about your willingness to participate and contribute to the REVOLVE Detroit Program.

What REVOLVE can do for you:

- Recruit temporary "pop-up" businesses and art to activate the space (little to no owner cost).
- Market the space and neighborhood to prospective tenants (free).
- Recruit full-time tenants, that pay full rent (free). •
- Potentially provide matching grants or other financial tools to support build-out (if applicable). •

What you can do to participate in REVOLVE:

- Provide free or reduced rent to temporary "pop-up" businesses and art (tenants or REVOLVE typically pay all operating expenses).
- Specify the amount of time pop-up users can occupy the space.
- Complete a Memorandum of Understanding and License Agreement. •

Pop-Up Basics:

Are you willing to let a pop-up business or art installation temporarily occupy the space? Will you provide rent for free or at a reduced rate? What do you wat to charge? _ Note: Both are required to qualify for consideration of free marketing and recruitment as well as matching grants to support build-out if available.

How long could a pop-up user expect to stay?

- One weekend, plus prep time (Event pop-up)
- Two weeks (Short-term pop-up)
- One month (or more)
- O Until I get the full-time tenant I'm looking for

When will the space be available? _____ How long will the space be available? _____

YES NO

OO

 $\cap \cap$

Note: In the event that a full-time tenant is secured, the landlord must provide the pop-up tenant with 30 days notice to vacate the space.

3. ENTREPRENEUR RESOURCES | PROPERTY ASSESSMENT

Utilities

Who will pay for utilities?

Lanlord Tenant

- Electricity
- O O Gas
- O Water and sewer
- O Garbage Disposal

Insurance and Compliance

What are your insurance requirements?

YES NO Are you willing to add a pop-up tenant as an additional insured on your insurance policy?

PROPERTY ASSESSMENT

Contact Information	Your role: (choose all that apply)		
	Duilding Owner		
Name:	- Broperty Monager		
Phone:	- Broker		
Email:	Other		
Quick Assessment of Building Condition a	and Needs		
Previous Use:	Desired future use:		
General description of the space: (your se	elling points)		

What is the general condition of the building?

- Great (it's move-in ready)
- Good (minimal repairs and \$)
- Fair (It needs some work and \$\$)
- O Poor (it needs serious work and \$\$\$\$)
- YES NO
- ○ Is there working electricity?
- O O Are there working bathrooms?
- ○ Is there Certificate of Occupancy?
- O All bills up to date?
- $\bigcirc \bigcirc$ Is there working heat/AC?

Please list improvements needed to get the space move-in ready. If you know the cost of improvements please include this here. If you have a budget for improvements please also include this here.

Are there any impediments to leasing the space beyond its condition that we should be aware of?

3. ENTREPRENEUR RESOURCES | BUILDING ASSESSMENT

BUILDING ASSESSMENT

The following section asks detailed questions about the building's condition. This helps us understand what improvements are necessary in order to get the space "retail ready." Please answer the questions to the best of your ability.

Flooring Vood Cement/Concrete Carpet Vood Something else	 Condition Estimated Cost: Great (it's move-in ready) Good (minimal repairs and \$) Fair (It needs some work and \$\$) Poor (it needs serious work and \$\$\$) 		
Bathrooms How many bathrooms? Do they work? Are they ADA complient?		 Condition Estimated Cost: Great (it's move-in ready) Good (minimal repairs and \$) Fair (It needs some work and \$\$) Poor (it needs serious work and \$\$\$) 	
Electricity Is there electricity? Are the outlets grounded? How many work?	YES NO	 Condition Estimated Cost: Great (it's move-in ready) Good (minimal repairs and \$) Fair (It needs some work and \$\$) Poor (it needs serious work and \$\$\$) 	
Heating and AC Is there heat? Is there AC?	YES NO O O O O	 Condition Estimated Cost: Great (it's move-in ready) Good (minimal repairs and \$) Fair (It needs some work and \$\$) Poor (it needs serious work and \$\$\$\$) 	

Can we make modifications to the space? If so, please describe what's allowed:

What modifications are you willing to make to the space? These are the financial responsibility of the landlord.

POP-UP RESOURCES

SMALL BUSINESS SERVICES

Detroit BizGrid

The BizGrid is a physical infographic designed to help Detroit entrepreneurs navigate the landscape of organizations providing business assistance within the city. The BizGrid features 54 organizations offering services ranging from business planning and strategy to real estate assistance, funding, co-working space, and beyond. Its crisp, simple design enables an entrepreneur to find names and contact information for assistance organizations based on the entrepreneur's business stage and needs. The BizGrid was created by a committee of the Detroit Business Support Network consisting of **Bizdom**, **D:hive**, the **Detroit Economic Growth Corporation,InsYght**, & **TechTown** with the support of the **New Economy Initiative** of Southeast Michigan. The committee drew on its members' day-to-day interface with entrepreneurs and invited input from business owners who represent the BizGrid's target user base. We thought we'd share this resource rather than re-creating the wheel.



D2D Business Database

Refined other small businesses in Detroit. The database introduces Michigan companies to opportunities that help them grow and expand.

PERMITS

The following provides two permits that are commonly used to support temporary uses in the City of Detroit. Temporary Use permits may be required by the City of Detroit's Building, Safety, Engineering and Environmental Department (BSE&ED) to activate a space. Temporary Food permits may be required by Detroit's Institute of Population Health (IPH). Both permits are unique to Detroit. Other municipalities will have their own regulations and permitting requirements. See the REVOLVE Checklist for more information to understand if the forms are required and how to complete them. We've also included contact information for BSE&ED and IPH officials to contact with further questions.

Helen Broughton 313.628.2459 broughtonh@detroitmi.gov

Mignon Lott 313.522.0673 mignonlott@gmail.com

Temporary Use Permit Temporary Food Permit

3. ENTREPRENEUR RESOURCES | SAMPLE AGREEMENTS + INSURANCE CONTACTS

SAMPLE AGREEMENTS

The following are three "license agreements" which REVOLVE uses to help define roles and responsibilities between pop-up participants. These documents are based on Pittsburgh's Project Pop-Up program. We're grateful that the good folks in Pittsburgh shared these with us, so we're sharing them with you. Please note that when these documents are used outside of the REVOLVE program, users will be responsible for changing these documents to meet individual needs. Independent legal counsel may be required.

The "Building Owner and Participant License Agreement" can serve as a substitute for a lease for REVOLVE pop-ups. "DEGC and Building Owner License Agreement" serves as an agreement between the DEGC (the managers of the REVOLVE Program) and building owners. This form can be used when REVOLVE essentially master leases a space to allow for a series of pop-up programming. The "DEGC and Tenant License Agreement" can be used to simply solidify responsibilities for participating in the REVOLVE program, or can be used when REVOLVE essentially sub-leases to one or more pop-up tenants in a space.

Building Owner and Participant License Agreement DEGC and Building Owner License Agreement DEGC and Tenant License Agreement

Note: These are references that we have collected. Use them as a starting point. We do not endorse the organizations and we do not endorse the views they express or the products/services they offer.

INSURANCE CONTACTS

ACT Insurance Program

http://www.actinspro.com \$39 - \$265

Fractured Atlas

http://www.fracturedatlas.org/site/liability/PublicArt \$425-525

Johnsonese http://www.johnsonese.com/creative_businesses

K&K Insurance Group

http://www.kandkinsurance.com/EventsAttractions/Pages/Special-Events.aspx

Popupspace http://www.popupspace.com/index.jsp?nav=insurance \$120

Veracity Insurance http://www.veracityinsurance.com/products/insurance/special-events-liability-insurance/

Detroit Insurance Agency http://www.aemourad.com/SmallBusiness/DIA.aspx

Van Wyk Risk & Financial Management

www.vanwykcorp.com Matt Capel Main: 616.942.5070 Direct: 616.726.1068 mattc@vanwykcorp.com

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3. ENTREPRENEUR RESOURCES | FURNITRE AND EQUIPMENT

FURNITURE AND EQUIPMENT

Architectural Salvage Warehouse of Detroit

4885 15th St Detroit, MI 48208 313.896.8333 http://www.aswdetroit.org/

Detroit Antique Mall

828 W Fisher Fwy Detroit, MI 48201 313.963.5252

Detroit Display

1332 Broadway St Detroit, MI 48226 Contact: Paul Balog 313.575.2004

Detroit Store Fixture Co

7545 W. Eight Mile Rd. Detroit, MI 48221 313.341.3255 http://detroitstorefixture.com/

Display Group

1700 W Fort St Detroit, MI 48216 313.965.3344 http://www.displaygroup.com/pages/home

Eastern Market Antiques

2530 Market St. Detroit, MI 48207 313.259.0600 http://www.easternmarketantiques.com/

Franklin Furniture

5062 Loraine Street Detroit, MI 48208 Contact: Jim 313.393.2500

Fred's Unique Furniture and Antiques

http://fredsuniquefurniture.smugmug.com/

Warren Location 14901 E 8 Mile Rd Warren, MI 48089 586.776.7100

Livernois Location 20201 Livernois Detroit, MI 48221 313.345.0884

Modern Stool Manufacturing Co (new and used furniture)

4885 15th St Detroit, MI 48208 313.896.8333 http://www.aswdetroit.org/

People's Restaurant Equipment Company

2209 Gratiot Ave Detroit, MI 48207 313.567.1944 http://www.peoplesrestaurantequipco.com/



REVOLVEDETROIT.COM

THE COLLABORATIVE ECONOMY HONEYCOMB DIAGRAM

This diagram was built by Jeremiah Owyang, and is licensed under Creative Commons.

Collaborative Economy Honeycomb Version 1.0

The Collaborative Economy enables people to efficiently get what they need from each other. Similarly, in nature, honeycombs are resilient structures that efficiently enable many individuals to access, share, and grow resources among a common group.

In this visual representation, this economy is organized into discrete families, sub-classes, and example companies. To access the full directory of 9000+ companies visit the Mesh Index, at meshing.it/companies managed by Mesh Labs.

By Jeremiah Owyang @Jowyang



With input from:

Neal Gorenflo (@gorenlo), Lisa Gansky (@instigating). Shervin Pishervar (@sherpa), Mike Walsh (@mwalsh), Brian Solis (@briansolis), Alexandra Samuel (@awsamuel), and Vision Critical (@visioncritical).

Design by Vladimir Mirkovic www.transartdesign.com May 2014. Creative Commons license: Attribution-NonCommercial. NEW ECONOMY OF SHARING

A presentation from Ann Daigle on the sharing economy

New Economy of Sharing "Building individual & community value via sharing of responsibilities & resources."

CNU 21 Salt Lake City

New Orleans Opportunity Shares

- Restaurant & Food Product Incubators
- Culinary Medicine "Teaching Kitchen"
- Food Industry Training Restaurants
- Community Urban Farms & Markets
- Social Service Innovators
- Small Business Office Shares
- Entrepreneurial Talent Incubators

Common Traits

- Locally Generated to Empower Individuals Through Sharing of Broad-Based Resources
- Strong Public/Private Partnerships
- Professional-Based Educational Services
- Strategic Consulting & Business Planning
- Experiential Learning
- Meaningful Networking
- Idea-Generating Thought Leadership



Edible Enterprises

- Provides culinary entrepreneurs with all the tools necessary to develop & successfully market Louisiana specialty food products
- Currently serves 42 Startups & has graduated 100's
- Nonprofit collaboration between government, economic development agencies, corporate grants & Goodwill
- Recommend tenants have \$2,000 startup
- Tenants pay hourly rental for shared commercial restaurant facilities & equipment
- Assistance with industry specific business resources, product development, sales & marketing





BUILDING HOPE CHANGING LIVES



Café Reconcile

- Food service job incubator
- Trains disadvantaged teenagers in all aspects of the restaurant industry, giving them opportunity and hope
- Requires parallel classes in life and social skills
- Partners with local chefs and hospitality industry professionals, who hire "graduates"
- Imbedded in low-income neighborhood in corner, 3story mixed-use building, hires only local teens.
- Café open daily & upper floors dedicated to classrooms and special events.
- A successful model that has been replicated nationally.



Feed your soul!

Please ask your server about today's Chef Special.





Hollygrove Farms & Market

- CSA (Community Supported Agriculture)
- Collective of local farmers: backyard growers, community gardens, urban micro-farms
- Shared central market, experimental farm & demonstration site
- Promotes environmentally sustainable growers
- Education Programs: composting, cistern irrigation, recycling, chicken coops, sustainable gardening
- Collaborative marketing & sales outlets



Refresh Project

- Collaboration of Education (Tulane Culinary Medicine), Corporation (Whole Foods), Local Business (Grow Local - local farmer network), Collaboration (Broad Community Connection – government & Main Street Program) & Nonprofit (Liberty Kitchens - hospitality industry incubator)
- Goals: to provide fresh food & nutritional resources to the underserved community & grow the local economy
- Redevelopment of abandoned big box store in low income neighborhood as "center"
- Will grow to house numerous tenants & incubate opportunity (including a local land bank)





- An interactive Teaching Kitchen providing cooking skills for health improvement.
- Offers instruction on the principles of healthy food preparation and meal planning, breaking down the perceived barriers of cost, time and flavor through hands-on cooking classes, community discussions and outreach programs.
- Educates community members and current and future physicians about fundamental culinary skills and nutrition knowledge in order to enhance the patient-physician dialogue about the importance of dietary and lifestyle change.

Tulane Teaching Kitchen

RX for Health: Good Nutrition & Healthy Lifestyles. Community organizations collaborating for a healthier New Orleans.





A FORCE FOR SOCIAL INNOVATION


The Propeller Incubator

- Co-working office for socially minded businesses & entrepreneurs
- Multiple open space & private office options
- Houses 40 organizations with room to grow
- Funded through grants & memberships
- Multi-level collaboration
- "Creative Financing Starts Locally"



"Pitch NOLA"

- "Start Up" weekend 54 hour event where developers, designers, marketers, product managers & startups come together to share ideas, form teams, build products & launch startups
- Culminates in presentation to entrepreneurial leaders & venture capitalists
- Winners "give back" to community by leading future events



Identifies, Supports & Retains Entrepreneurial Talent in... New Orleans: a place for big ideas, grand dreams, and the passion to build, grow and execute.









The Entrepreneurial Ecosystem:

- Over 3,000 entrepreneurs
- Engage over 2,400 professionals
- Allocate 72,295 consultant hours
- Over \$3.45 Mil in seed capital
- Portfolio of over \$100Mil in annual revenue
- Created over 2,000 jobs

"Trust Your Crazy Ideas"

Annual IDEAinstitute

Competitive: "The good entrepreneur knows you may have to pitch your idea 100 times before one person funds you." Collaborative Network: Over 500 individuals and 20 universities



DRAFT NOTES TOWARDS A NEW ECONOMY OF SHARING Draft notes for Ann Diagle's *New Economy of Sharing* (on page 811).

Draft Notes toward a New Economy of Sharing

Ann Daigle

1. One of the most elegant regenerative trends in cities is the recovering of lost community built around work. It not only empowers individuals, but brings great economic and social value to communities.

2. The more Shares there are, and the more they are connected, the stronger the LOCAL ECONOMY can become because resources are locally generated and retained. A number of grass-roots opportunity sharings are happening in NOLA. Not surprising, many are centered around the food industry – and include nutrition planning to farm to table enterprises. Also prominent are centers fostering entrepreneurship.

3. While Shares might have different levels of organization and diverse missions they all generate economic change by empowering people through reducing individual risk and softening entry into markets. Shares offer access to multiple resources relevant to the endeavor. Partnerships form the foundation for programs to maximize practical and financial resources. Education is key to more organized efforts and often includes access to high schools, community colleges and universities as well as professionals. Spaces offer consulting services that are targeted to the individual and the specific idea or product. Learning happens through doing via successful strategies. Networks that might take years to grow are established by the Share for participant access. Information and resources are cutting edge and market-proven.

4. We have six local food product and restaurant incubators in the New Orleans region, that range from a successful incubator in a local high school to Edible Enterprises, which is one of the most organized, best supported and largest facilities that is already enlarging.

5. It has 12,000 sf of space, conference rooms and offices, internet, a refrigeration room and now three commercial kitchens with various sizes of equipment to accommodate large scale canning, jarring and cooking operations. A large packaging / processing room with loading dock for shipping and receiving ensures they can do everything in one place.

6. Most of EE clients are older men and women. Many are small Mom & Pops wanting to do something with their grandma's favorite recipe; Others (predominantly younger users) are looking to get established and grow into large operations. Those that are full time into the company tend to "graduate" or move into their own restaurant or food prep space after 2-3 years. Others have other careers and want to work part time on their food product as additional income. The incubator thus provides a permanent solution for small scale operations as well as transitional space.

7. Another type of share is the food service industry incubator that trains workers through experience in a restaurant. Café Reconcile is located in a mixed-use corner building, engrained in a socially and economically disadvantaged neighborhood. It teaches all the skills needed for the important New Orleans hospitality industry - from life skills which many don't have, to

restaurant waitressing, cooking and management. The first floor restaurant is open to the public daily, and upper floors are available for special events and parties.

8. Participants are expected to attend regular educational classes held in classrooms on the upper floor for things like vocabulary and communication skills, job application and resume writing, and life skills that teach proper manners, grooming and time management.

9. Work sharing takes the form of a co-op in the growing agricultural and urban farming industry.

10. Hollygrove CSA brings together all levels of local and regional food producers and connects them with their market, as well as a support network of institutions including nonprofits and universities.

11.

12. Rx for Health: good nutrition! Tulane Medical School has teamed with local chefs and restaurants in NOLA to promote Culinary Education, Workforce development, Research, Capacity Building & Community Engagement that focuses on healthcare through healthy cooking & eating.

The Center for Culinary Medicine has renovated part of the old warehouse into a Teaching Kitchen where future doctors and the public will learn about healthy lifestyles. The idea is to expand interest in healthy eating and incubate new restaurants and other opportunities to support the movement.

13. The Refresh Project is a broad-based collaboration that focuses on nutritional health and wellness as a road to community prosperity and citizen well being. Partners in education, healthcare, business, government and the nonprofit world came together to redevelop an abandoned grocery store in a blighted neighborhood. The current building houses the Broad St Main Street Association, the Tulane Teaching Kitchen (headed by a professional chef and group of Tulane Med School pediatric residents), a jobs-generating nonprofit that focuses on the restaurant industry, and a local land bank that concentrates on the redelopment of abandoned

14. Addresses health issues such as obesity, diabetes, heart disease, high blood pressure through the perspective of nutrition and eating habits. Teaches Medical Students who in turn teach the public.

15. Social entrepreneurship in New Orleans. Mission- to solve pressing social & environmental challenges by incubating creative solutions of social innovators. 10 month Venture Accelerator helps early stage ventures <u>–</u> for profits, nonprofits and hybrids <u>–</u> become operational, reach financial sustainability & meet social impact targets

16.

17. Focus on issues like access to healthy food, criminal justice, the environment & more. (Justice & Accountability Center of LA) Co-working desks are \$150/month and permanent desks

are \$250/month. Primarily young group is being joined increasingly by older, sometimes retired individuals wanting to make a difference in the community.

18. Great for building networks and getting ideas off the ground.

19. Founded in 2000 by 5 entrepreneurs talking regularly at a local bar about how to change the Brain Drain vacuum into a Brain Gain, Idea Village's mission is to grow & retain business in New Orleans. It initially raised money for one business plan competition and has grown into a year-round, multi-faceted program that has national networks and funding sources . Idea Village is a nonprofit organization with a mission to "identify, support & retain entrepreneurs." It provides resources for an annual "Entrepreneurial Season" that connects a collaborative network of local and national partners to bring together local startups through broad based network of innovative educational and consulting services. Corporations, universities, and government sall contribute. Forbes named NOLA the "Biggest Brain Magnet of 2011"

20. The annual IDEA institute attracts young bright people from all over the world who become enamored by New Orleans and the open system. Many stay even if not selected. Major Business schools including Northwestern, Harvard, Yale Management, DePaul, Cornell, Duke, Berkeley share their expertise, and their teams compete in the process. In order to participate a Team must have a Dedicated team leader(s), 6 MBA students, 1 Professor, and a Commitment to be in New Orleans one week for immersion. They need a \$1,500 participant fee to cover all costs while in New Orleans including hotel, food, local transportation, and cultural activities. Airfare is not included.

LEAN BUSINESS OF PLACE -BASED ENTERPRISE

A general white paper on hyper-local businesses, by Ann Daigle.

The Lean Business of Place-Based Enterprise

Ann B. Daigle

Executive Summary

Within every community are two economies: one is locally generated or "place-based" and sustains assets at home. The other operates remotely, extracts local value and sends it elsewhere. Regeneration of a community depends on retaining and growing small, locally owned enterprises that build financial, social, built and cultural capital simultaneously. Big businesses dominate global markets, command entrenched financial and banking powers and are incentivized by often misguided government policy. However, emerging startups can disrupt the status quo and compete prosperously if they connect with their customer base and build capacity through local networks. The challenge is to "make small possible" by working at the association, neighborhood and city levels to monitor, manage and replicate emerging local business successes. Bottom-up vigilance can influence top-down policy and change the economic dynamics of a region while it strengthens its cultural, social and built landscape.

Statement of Need

Place-based enterprises grow out of the economic, social and diverse market needs of the communities they serve. They enhance the character of those communities and brand them to outsiders. Place-based enterprises include offices, factories, restaurants, workshops and studios. They sell finished and raw resources from the region's forests, farms and fields, and services based on the local economy's demographics, level of well-being and unique culture.

Small local enterprises dominate the business landscape. Nationally, firms with less than 20 workers make up 97.9 percent of all businesses and almost 90% of those are employers. The top wage-producing industries in the U.S. are primarily local - professional and technical services, restaurants and construction-related business. Disruptive start-ups drive the economy, as local enterprise represents personal empowerment, independence and innovation for owners and employees. These are the types of businesses the Project for Lean Urbanism intends to enable and encourage.

Small local enterprises are local value creators. According to a study by Civic Economics (http://www.civiceconomics.com/featured-projects/the-civic-economics-of-retail/), "locally generated business" returns from 52 percent to 79 percent of its revenue to the local economy compared to just 14 percent for national chains. By spending more money and purchasing goods and services near home, local enterprises sustain a financial network that makes a significant difference in the local economy.

Other studies, including those by the Institute for Local Self-Reliance (ILSR) (http://www.ilsr.org/key-studies-walmart-and-bigbox-retail/) confirm that places with strong local businesses have more jobs overall, more positive income growth and have fewer workforce residents on public assistance. Employees enjoy higher per capita incomes. Locally owned businesses are positively associated with a community's level of social and civic well-being thanks to familiar, frequent communication that engenders relationships of trust, loyalty and shared commitment to people and place. They donate to local causes and tend to "self-police" their respective industries.

As Entrepeneur.com (http://www.entrepreneur.com/article/233403) notes, however, disrupting existing large industries is hard. Incumbent market leaders are entrenched. They stifle competition, put in place exclusive partnership deals and campaign heavily against competition. They use outside money to establish government lobbying groups that influence legislation and policy that inhibits entrants and preserves the status quo.

Top-down public policy gained through large-scale competitive opposition is the primary reason for corporate dominance and for unfair practices that undermine place-based enterprise. State and federal tax codes are riddled with loopholes for large corporations that do not benefit small businesses. Federal programs favor the large and connected and make progress daunting for small locals. State governments put resources into attracting and incentivizing outside business rather than supporting and growing existing assets within their boundaries. Local governments favor the "silver bullets" of big projects and national big box retailers, who falsely claim through well-funded marketing campaigns that they bring more jobs and prosperity to communities. In reality the opposite is true.

While altering federal, state or even citywide policy may not be in the purview of the Project for Lean Urbanism, counteracting corporate dominance at levels that make sense is important because its negative effects are specifically local. Within one to five years of opening, big box exploitation successfully squashes all but the strongest local competition - reducing job numbers, job diversity and tax revenue, and resulting in abandoned buildings and lowered property values.

Despite laws protecting the public's right to know, deals made to bring in large projects and providers remain vague if not secret to the general public. Information collected by the New York Times (http://www.nytimes.com/2012/12/02/us/how-local-taxpayers-bankroll-corporations.html) show their cost to state and local coffers results in a net loss to taxpayers, leading to all sorts of negative consequences including higher poverty rates. According to one study, the average American pays \$6,000 through taxes that directly and negatively impacts local enterprises.

The consolidated banking industry is a key threat to small local enterprise and in the past few years has had a disastrous effect. Big banks control 43 percent of all banking assets, but account for only 16 percent of small business loans. Lending to large businesses is up 36 percent, but small business loans have fallen 14 percent. Micro business loans under \$100,000 - critical to small locals - have fallen 33 percent.

Federal Loan guarantees traditionally provided through the U.S. Small Business Administration have begun favoring the largest of "small businesses," and disappeared for the smallest loans. The average loan size has more than doubled to \$360,000, while micro-loans less than \$250,000 have been cut by two thirds.

In a 2014 Independent Business Survey by the ISLR (http://www.ilsr.org/rule/financing-localbusinesses/), 42 percent of business owners that needed a loan were unable to obtain one. Businesses with fewer than 20 employees and women-owned startups were disproportionately affected. Minority owned businesses (African American and Latino) were even less likely to be approved despite sharing similar business and credit profiles as those of their counterparts.

Undercapitalization is one of the top three reasons small businesses fail. It also is the key reason small business startup has declined over the past 20 years and why, according to the Brookings Institute, for the first time small business openings in our history have not kept pace with closings.

(http://www.brookings.edu/research/papers/2014/05/22-decline-business-dynamism-is-for-real-litan-hathaway),

One consequence of the inability to capitalize is that home-based enterprise has been on the rise. It now accounts for over 52 percent of all business, and employee hiring is down. "Non-employer business" (sole proprietors who have no employees) now comprise up to 79 percent of all businesses in America. This is concerning because the benefits of employer firms is much more economically important to communities.

While self-employment in baby boomers is up, self-employment among younger age groups has been dropping twice as fast as in the general population. In 2010, for example, a study showed self-employment was two percent for those 25 and younger and 23 percent for those 65 and older.

Independent businesses rate unfair tax policy and competition from large internet companies who pay no sales tax and as their biggest challenges. These are followed by supplier pricing that favors big competitors, high costs for insurance (particularly health insurance,) and escalating commercial rents and energy costs. Excessive government red tape is not a top issue for small locals in America, although it rates high in European countries.

Recommendation

While the scale is tipped towards the large, remote and formulaic, there are advantages to being small, local and incremental. Although many issues are out of small business control, there is something every local group can do to sway relevant outcomes. The Project for Lean Urbanism can create tools to help sustain and grow these so that more local enterprise can be created and generate jobs. The role of networking and organizing - strength in numbers - is key.

Small businesses do not have top-heavy management hierarchies and can respond more quickly to change. They have more flexibility to alter a business plan that is not working. The internet has revolutionized small enterprise, creating opportunities to serve niche markets powerfully and nimbly. The Project for Lean Urbanism should consider developing models for web education and suggest management strategies for sharing web networks at the building and block levels.

The places where businesses locate tend to themselves follow the four general phases of the business cycle - Prosperity (expansion), Recession (slow down), Depression (decline) and Recovery (revival). Locating a specific product or service where it is most needed at the time it is needed creates advantages. Small businesses are usually more mobile and can take advantage of trends that are place-specific. They can benefit by locating in smaller towns or in neighborhoods experiencing change, where their presence means something to local residents. Appropriate strategies that help local enterprises weather each phase within a community are also useful and advantageous to the community as a whole.

Taking stock at the association and neighborhood level using tools that measure performance can result in positive "bubble up" effects. Business associations should track the economic capture of local enterprises versus nationals. They should keep excellent records of relevant business permits, income generation and employment figures. This will provide ammunition when dealing with top-down policy and help business districts understand where there are unmet needs, where improvement is needed, what businesses they need to attract and support, and where to target their marketing and advertising dollars.

Citizens, associations and neighborhood groups can influence their local elected officials to adopt localist policies by contesting subsidies to corporations and large developments whenever they are proposed. Locals should create collaborations with regional organizations that share their goals and foster relationships with national organizations and conservancies that specifically address local/small versus big/formulaic. They can sway opinion by taking advantage of the wealth of information they have collected through case studies and surveys.

Local disrupters should be eager to work with governments to proactively develop reasonable rules and oversight. This is especially true for new, emerging businesses that do not fit conventional standards for permitting. Local business should seek out sympathetic institutions and similar businesses, and through coalitions educate local regulators about their business models, practices and inherent issues, and offer to collaborate on oversight.

Locals and neighborhood groups should support policies that help residents afford the rising costs of living. These may range from programs that offer shared space for daily needs like laundry and day-care, to farmers markets that support local backyard growers. It may include short-term stay opportunities that help locals market the livability of their place, and longer-term room rentals that encourage safe living arrangements. Regulations proposed that are clearly drafted to protect existing players from competition should be discouraged, such as prohibiting new services like car shares or pedicabs that protect established taxi services.

City councils and planning commissions should be encouraged to consider other variables aside from zoning and land use, including economic development and environmental issues to identify and monitor probable detriments of large-scale projects on wages, household incomes, net job creation and impacts on existing local businesses. Policies and codes should favor pedestrians and transit over cars, encourage multi-story mixed-use buildings and human-scaled development that supports compact markets. Independent businesses are disadvantaged in cities where zoning separates uses and discourages diversity so rules that undermine traditional commercial districts in favor of auto-oriented sprawl should be altered.

To address banking and lending, regional banks and credit unions should be encouraged since they are the primary lenders to small enterprises. Despite the upward trend to increase their holdings they are still losing ground to bank consolidation. State Partnership Banks, such as the publicly owned Bank of North Dakota, use state government deposits to supplement the lending capacity of local banks and provide a secondary market for mortgages. The result is that North Dakota has four times as many local banks per capita as the U.S. average and much more local-business lending. At the local level, there is opportunity to establish new programs such as "local economy investment pools" that allow cities, counties, and institutions to invest a portion of their funds in local enterprises and infrastructure.

Venture Capital is often touted as a key resource for local startups and takes advantage of successful locals who desire to give back to their business communities. However, it often encourages enterprises to grow too quickly so investors can make fast exits. Slow and steady growth, which is safer and more prosperous in the long term, is a key part of a good business plan. Likewise crowdfunding and other unconventional financing sources are inspiring and should be included in the mix, although they are alone inadequate for the need.

To ignore the relevance and needs of place-based enterprise is to ignore the largest sector of America's economy.

GOOD QUOTES:

"Overall, American families are paying an annual \$6,000 subsidy to corporations that have doubled their profits and cut their taxes in half in ten years while cutting 2.9 million jobs in the U.S. and adding almost as many jobs overseas."

~ Paul Buchheit, Common Dreams, reported by the New York Times

"Opportunities are universal—ideas are non-rival, and economic development is the art of setting the table so that general improvements in the economy (so called value creation) can be taken advantage of locally (value capture)... The ability to use or deploy a good idea productively and locally is what we should be focused on when discussing "Lean." "

~ Scott Bernstein, Center for Neighborhood Technology

PLACEMAKING BOND FUND PROPOSAL AND LEGISLATION

A proposal by Christopher (Kip) Bergstrom for a placemaking pilot using a placemaking bond fund. This includes draft legislation. See *Placemaking Bond Funds* (on page 69).

Agency Legislative Proposal - 2015 Session

Document Name (e.g. OPM1015Budget.doc; OTG1015Policy.doc):

010715 DECD Placemaking Pilot

(If submitting an electronically, please label with date, agency, and title of proposal – 092611_SDE_TechRevisions)

State Agency: Department of Economic & Community Development

Liaison: Rob Michalik Phone: 860-270-8186 E-mail: rob.michalik@ct.gov

Lead agency division requesting this proposal: DECD Offices of Culture and Tourism

Agency Analyst/Drafter of Proposal: Kip Bergstrom, Deputy Commissioner

Title of Proposal Placemaking Pilot Bond Fund

Statutory Reference

Proposal Summary

Create a pool of \$3 million in bond funds for a set of pilot projects to determine how to foster the development of more compelling and walkable places in our city, town and village historic centers that become magnets for mobile talent, including a mix of Millennials, downsizing Boomers, immigrants, and Makers. The purpose of the pilot would be to learn how DECD's existing brownfields, TOD, historic preservation, art and innovation programs can be best combined in the same place at the same time to increase their collective impact. In cooperation with participating municipalities and neighborhood and private partners, the pilot projects could include experiments with new building types and innovative models for building re-use, and new financing models and new zoning approaches that that enable development by smaller players. The pilot projects will be focused on applying the key principles of the *Project for Lean Urbanism*, which aims "to make small possible"...i.e., incremental development by small cap developers and self-builders, and creation of housing and commercial space that is affordable by design rather than by subsidy, but which at the same time yields much higher property taxes per acre than conventional development.

Please attach a copy of fully drafted bill (required for review)

PROPOSAL BACKGROUND

• Reason for Proposal

Please consider the following, if applicable:

- (1) Have there been changes in federal/state/local laws and regulations that make this legislation necessary?
- (2) Has this proposal or something similar been implemented in other states? If yes, what is the outcome(s)?
- (3) Have certain constituencies called for this action?
- (4) What would happen if this was not enacted in law this session?

One of the key constraints on the growth of the CT economy is access to talent. It is particularly critical that CT be able to attract and retain the following types of mobile talent:

- There are 76 million Millennials nationally, more than Boomers. Millennials plus Boomers represent over half the U.S. population. Millennials are now in their late twenties and thirties, the time of most intense mobility for most people. Downsizing Boomers are another significant mobile cohort, and are also a source of talent as more and more of them defer retirement. GenXers are busy raising families and therefore tend to be less mobile and less of an opportunity for increasing CT's talent pool by revitalizing our city and town center neighborhoods.
- According to recent research, 56% of Millennials and Boomers prefer to live in compact, walkable, distinctive places. CT's small cities and towns have good "bones" on which to build such places. DECD has many tools in its TOD, brownfield, art, historic preservation and innovation programs to help localities transform themselves into magnets for this mobile talent, but the programs are not coordinated and therefore lack the synergy and impact that greater integration would create. The purpose of the pilot is to create a template for better integration of existing programs free of the constraints of the multiplicity of statutory criteria for each of the individual programs.

 Origin of Proposal 	X_ New Proposal	Resubmission
If this is a resubmission, please share:		
(1) What was the reason this pro	oosal did not pass, or if applicable	e, was not included in the Administration's package?
(2) Have there been negotiations,	/discussions during or after the pa	revious legislative session to improve this proposal?
(3) Who were the major stakehol	ders/advocates/legislators involv	ed in the previous work on this legislation?
(4) What was the last action take	n during the past legislative sessi	ion?
DDODOGAL IMDACT		
PROPOSAL IMPACI		
Agencies Affected (place)	list for each affected agency)	IONE

0 1	6 H		
Agency Name: Agency Contact (name, title, phone): Date Contacted:			
Approve of Proposal YES	NOTalks Ongoing		
Summary of Affected Agency's Comments			
NA			
Will there need to be further negotiation? YES	NO		

• Fiscal Impact (please include the proposal section that causes the fiscal impact and the anticipated impact)

Municipal (please include any municipal mandate that can be found within legislation)

Will have positive impact on the participating localities as the funds will be spent in support of local projects.

State

\$3 million of bond funds

Federal

None

Additional notes on fiscal impact

• Policy and Programmatic Impacts (Please specify the proposal section associated with the impact)

This pilot will identify opportunities to leverage and cross-rough existing TOD, brownfields, art, historic preservation, and innovation programs of DECD to increase their collective impact on making CT cities and towns magnets for talent. Those policy changes would be achieved through legislation developed at the conclusion of the pilot.

INSERT FULLY DRAFTED BILL HERE

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Placemaking Pilot Program. (a) The Department of Economic and Community Development shall establish and implement a pilot program intended to identify more effective ways to leverage state funds in the development of more compelling and walkable places in our city, town and village historic centers that could become magnets for mobile talent. The goal of the program would be to learn how brownfields, TOD, historic preservation, art and innovation programs can be best combined in the same place at the same time to increase their collective impact.

(b) The Commissioner of the Department of Economic and Community Development, under this program, may award grants to municipalities, economic development agencies, non-profit organizations, and developers for purposes including, but not limited to, experiments with new building types and/or innovative models for building re-use, and new financing models and new zoning approaches that that enable development by smaller players.

(c) For the purposes described in subsection (b) of this section, the State Bond Commission shall have the power, from time to time to authorize the issuance of bonds of the state in one or more series and in principal amounts not exceeding in the aggregate three million dollars.

(d) Upon the conclusion of the pilot program, the Department of Economic and Community Development shall report in accordance with the provisions of section 11-4a to the joint standing committee of the General Assembly having cognizance of matters relating to commerce on the effectiveness of the place-making pilot program.

APPROACH FOR A PLACEMAKING BOND FUND

These are notes about how the placemaking bond fund might work, and the kinds of programs it might support. (Courtesy Christopher (Kip) Bergstrom.)

Notes of August 18, 2014 of Task Team 2

Succeeding Economically Without Losing Our Soul

Staff briefed the group on existing DECD tools for real estate development/redevelopment, including:

- Historic Tax Credits: DECD administers two state historic tax credits for structures on the State Register of Historic Places, and also administers the federal historic tax credit for strucutres on the National Register of Historic Places. The programs provide credits against state and federal taxes for a portion of the cost of renovation of historic structures. Renovation work must conform to the Secretary of the interior's Standards for Historic Preservation.
- Historic Restoration Fund: DECD provides 1:1 matching grants for restoration by municipalities and non-profits of structures on the State or National Register of Historic Places. The grants are on a reimbursement basis once the work is complete. Renovation work must conform to the Secretary of the interior's Standards for Historic Preservation.
- Making Places (the Mill Project): Operated through a grant by DECD to the CT Trust for Historic Preservation, the Making Place projects consists of a statewide inventory of historic mill complexes and their villages (3,100 structures have been identified to date), and a grant program for the pre-development costs of turning these complexes to productive reuse.
- *re-wire* Project: A pilot project funded by DECD through the CT Trust for Historic Preservation that is supporting planning work to identify an outside-the-box concept for redevelopment of the historic core of the Gilbert and Bennett Wire Mill in the Georgetown section of Redding.
- TOD Pre-Development and Acquisition Fund: A public/private partnership between DECD and the Local Investment Services Corporation to provide funds for property acquisition and predevelopment costs for sites adjacent to transit nodes. Focus is on housing development, as that is the priority of LISC, the primary funder.
- Brownfield Municipal Grants: DECD provides grants to muni
- Targeted Brownfield Development Loan Program

In addition, DECD Brownfields, SHPO and DEEP are working on a joint grant program to provide funds for environmental assessment and redevelopment planning for mill buildings, to be announced publically in September 2014.

Discussion:

These programs, and others for the "soft" stuff, should be packaged as a "Placemaking Tool Kit" on paper and online.

What does it mean to "lose our soul"? Soul means:

- Authenticity
- Diversity of people and uses
- One-of-a-kind "place-based" business vs national chains
- Start-ups, not just established businesses
- Makers- our artisan's and artist's hand-made products available in our places
- Both the old and the young
- Enabling the artist pioneers to stay and not be priced out (see attached one-pager on Collinwood neighborhood of Cleveland, OH
- Working farms (in a rural context)

How many of the 3,100 mill-related structures identified in the Making Places inventory can be repurposed?

Examples of soulful redevelopment:

- Tel Aviv (need specific project)
- New Jersey mill (need specific project)
- West Berlin vs East Berlin
- Collinswood project in Cleveland, OH (see attached one-pager)

Is there an inverse relationship between money and soul?

Is it money, or is it regulation?

Organic, bottom-up processes, vs. top-down, large-scale, silver bullet processes. Scale is an enemy of soul. Need to embrace Incrementalism, by breaking big parcels into smaller ones to enable small cap developers and self-builders to play.

The story of North Adams pre and post Mass MOCA. Before Mass MOCA, North Adams was a mill town in decline, but still had vestiges of economic security for a fairly broad range of people. Post Mass MOCA, there is nothing to North Adams but Mass MOCA, no jobs, no economic security. An essential; element of the "soul of a place" is the economic security of a place. People will cobble together resources if they have security and can't be displaced. Look at NYC Garment District coop model: 1) limited asset appreciation; 2) created a community. Maybe we should create a Coop Development Bank. Great idea, can be married to our Artist/Ownership program.

Also, look at Brooklyn North model. And the Art Space model (a problem with it is that it relies too much on LITC).

The problem of commodification, where neighborhoods go from slum to vibrant, mixed use neighborhood to generic chic neighborhood. If neighborhood development were a nuclear reaction, we know how to ignite it, but not how to keep it from self-destructing. How to arrest the ignoble march to McMansions?

The problem of "fostering"...maybe it's better to think in terms of "securing" rather than "fostering"?

Recreate the "illegal loft"? First came the lofts, then the Loft Law, which legalized the illegal. This should be prioritized to coincide with the Making Places inventory and married to the Incrementalism approach. I honestly believe that Connecticut's embrace of Artist/Ownership can be one of our single greatest, talent attraction strategies.

Is it losing your soul, or is it losing your identity? What's your community? What community are you in? Can we be facilitators of community? **"The ongoing and open-ended question of what intentional community and self-determination may mean in the 21st century is the central focus of our research and outreach effort."** Or at least, facilitate ease of entry and exit? **Not sure exactly what this point means...**

The poor and disenfranchised...how do we use these resources for these populations? E.g., Roseanne Haggerty's project at the Swift building in the North End of Hartford.

The bedrock condition of poverty is economic isolation. One way to overcome it is to enable entrepreneurs of various types (artists, makers, etc.) to access the best retail space in the city, rather than expecting the market to come to them. This has been a focus of the CreateHereNow storefronts program, which has helped neighborhood, low income entrepreneurs to access the exposure of downtown storefronts.

ARTICLES OF INCORPORATION FOR AN MPOA

These articles of incorporation are for a Master Property Owners Association — an umbrella organization to make certain decisions and collect fees across the boundaries of homeowner or commercial associations.

1

[PROJECT NAME]

Articles of Incorporation

of

[Project Name] Master Property Owners Association, Inc.

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ARTICLE I <u>NAME</u>

The name of the corporation is [Project Name] Master Property Owners Association, Inc., hereinafter called the "Master POA".

ARTICLE II <u>PURPOSES</u>

The Master POA does not contemplate monetary gain or profit to the Members thereof. and the specific purposes for which it is formed are to provide for the management, maintenance and care of certain real estate within the development known or to be known as "[Project Name], a Master Planned Community" located in _____ County, ___ , in the [Project Name] Master Community Agreement made by _____ (the "Master Developer"), recorded or to be recorded in the Land Records of the (as the same may be amended or supplemented from time to time, the "Master Community Agreement"), and to provide a means whereby the Members, acting together, may provide for the management, maintenance, care and operation of the common areas of the Associations and of the Master Commons and for this purpose to: (a) enforce the Master Community Agreement and exercise all of the powers and privileges and perform all of the duties and obligations of the Master POA thereunder; (b) fix, levy, collect and enforce payment by any lawful means of all charges or Assessments pursuant to the Master Community Agreement and the Bylaws of the Master POA; (c) pay all expenses of the Master POA; (d) subject to the Master Community Agreement and the Bylaws, acquire, own, hold, improve, build upon, operate, maintain, convey, sell, lease, transfer, dedicate for public use or otherwise dispose of real or personal property in connection with the affairs of the Master POA; and (e) have and exercise any and all powers, rights and privileges which a corporation organized under the Nonprofit Corporation Act may by law now or hereafter have or exercise. No part of the net earnings of the Master POA shall inure (other than by providing management, maintenance and care of the Master Commons and the common areas of the Associations and other than by a rebate of excess membership dues, fees and Assessments) to the benefit of any private individual.

ARTICLE III DEFINITIONS

Except as expressly defined herein, all capitalized terms used herein shall have the respective meanings set forth in the Master Community Agreement.

ARTICLE IV MEMBERSHIP

Every incorporated homeowners, business owners, or property owners association ("Associations") within [Project Name], shall be a Member of the Master POA. Membership of an Association shall not be separated from ownership of the Association's common area. Upon the closing of the sale of all of an Association's common areas, the membership appurtenant to those common areas of the selling Association shall cease and the purchasing Association or owner shall become a Member of the Master POA. The Master Developer shall be a member until it no longer owns any real property in [Project Name].

ARTICLE V VOTING RIGHTS

Section 5.1 <u>Votes.</u> Each Member, other than the Master Developer, shall be entitled to cast one (1) vote under the Master Community Agreement. The Master Developer, or its designated entities, shall be entitled to cast _____(__) votes under the Master Community Agreement. Where ownership of a Parcel is in more than one person or is held by an entity, voting shall be conducted in accordance with the Bylaws.

Section 5.2 <u>Suspension of Voting Rights.</u> The Board of Directors of the Master POA (the "Board") may suspend the voting rights of any Member subject to assessment under the Master Community Agreement during the period when any Assessment shall remain delinquent, but upon payment of such Assessment, the voting rights of such Member shall automatically be restored.

ARTICLE VI BOARD OF DIRECTORS

Section 6.1 <u>Number and Classes of Directors.</u> The number of directors shall initially be five and shall be Class "B" Directors appointed by the Master Developer. There shall initially be two classes of directors. When the Master Developer no longer owns any real property in [Project Name], the Members shall have the right to elect Class "A" directors to replace the Class B directors. The Master Developer may, at its sole option, accelerate the point in time where the Members elect Class A Directors. The Class B Directors need not be owners of Parcels within [Project Name].

Section 6.2 <u>Master Developer's Right to Appoint and Remove Directors</u>. The Master Developer shall have the right to appoint or remove any and all Class B Directors.

Section 6.3 <u>Removal of Class A Directors.</u> At any regular or special Duly Called Meeting of the Master POA where the meeting notice states that the purpose, or one of the purposes, of the meeting is removal of one or more Class A Directors, such Class A Director(s) may be removed, with or without cause, by a majority of the votes entitled to be cast by the Members.

Section 6.4 <u>Vacancies</u>. When there are no longer any Class B Directors on the Board, vacancies in the Board occurring for any reason other than the removal of a director by vote of the Members shall be filled by a vote of the majority of the remaining directors, even though less than a quorum, at any meeting of the Board. The Master Developer shall fill all vacancies of Class B Directors. Each person elected or appointed to fill a vacancy as described in this section shall serve the unexpired portion of the term of the director being replaced.

Section 6.5 <u>Disqualification for Contracts with Master Developer</u>. As long as the requirements of Section ______ of the Code of ______ are met, no director shall be required to disqualify himself or herself upon any vote upon any management contract or other contract or lease or matter between the Master Developer (or any individual, partnership, corporation or other entity having an affiliation with the Master Developer) and the Master POA.

Section 6.6 <u>Term of Office</u>. Class A Directors, other than those elected to fill the unexpired portion of the term of a director being replaced as provided for in Section 6.4, shall serve until the first annual meeting following their election. Directors may be reelected for subsequent terms. Class B Directors shall serve until the time identified in the transition provision of Section 6.1 of these Articles of Incorporation or until removed by the Master Developer.

ARTICLE VII LIMIT ON LIABILITY AND INDEMNIFICATION

Section 7.1 <u>Limit on Liability</u>. In every instance in which the ______ Nonprofit Corporation Act, as it exists on the date hereof or may hereafter be amended from time to time, permits the limitation or elimination of liability of directors or officers of a corporation, the directors and officers of this Master POA shall not be liable to the Master POA or its Members.

Section 7.2 <u>Mandatory Indemnification</u>. The Master POA shall indemnify any individual who is, was or is threatened to be made a party to a civil, criminal, administrative, investigative or other proceeding (including a proceeding by or in the right of the Master POA or by or behalf of its Members) because such individual is or was a director or officer of the Master POA, or of any other legal entity controlled by the Master POA, against all liabilities and reasonable expenses incurred by him or her on account of the proceeding, except such liabilities and expenses as are incurred because of his or her willful misconduct or knowing violation of the criminal law. Unless a determination has been made that indemnification is not permissible, the Master POA shall make advances and reimbursement for expenses incurred by any of the persons named above upon receipt of an undertaking from him or her to repay the same if it is ultimately determined that such individual is not entitled to indemnification. The Master POA is authorized to contract in advance to indemnify any of the persons named above to the extent it is required to indemnify them pursuant to this Section.

Section 7.3 <u>Miscellaneous</u>. The rights of each person entitled to indemnification under this Article shall inure to the benefit of such person's heirs, executors and administrators. Indemnification pursuant to this Article shall not be exclusive of any other rights of indemnification to which any person may be entitled, including indemnification pursuant to a valid contract, indemnification by legal entities other than the Master POA and indemnification under policies of insurance purchased and maintained by the Master POA or others. However, no person shall be entitled to indemnification by the Master POA to the extent he or she is indemnified by another, including an insurer.

ARTICLE VIII DISSOLUTION

If and when the Master POA is dissolved, all of the assets of the Master POA shall be transferred to another nonprofit owners' association or governmental agency having a similar purpose.

ARTICLE IX AMENDMENT

When the Master Developer no long owns any real property in [Project Name] and subject to the Master Community Agreement, these Articles may be amended with the approval of two-thirds (2/3) of the Members. During the period when the Master Developer may appoint Class B Directors, the Master Developer may amend these Articles without approval of the membership.

ARTICLE X REGISTERED OFFICE AND AGENT

The name of the registered agent is ______ who is a resident of ______, and whose business office is the same as the registered office. The post office and street address of the registered office is ______.

Dated _____, ____

, Incorporator

Address of Incorporator:

PROVISION FOR SUBASSOCIATIONS IN OWNER DOCUMENTS

A provision to be added to ownership documents, so that associations of various scales can be formed.

From the XXX Master Community Documents:

In the Bylaws of the Master POA:

Section 3.16 Committees and Subassociations.

The Board, as it deems necessary, shall have the authority to create committees and subassociations to address specific issues and needs of the Master POA or **XXX**.

In the Master Declaration:

Zone. "Zones" are smaller areas within **XXX** of distinct building type or character. Owners of property within a Zone may be assessed for maintenance of property primarily serving that Zone.

Zone Expenses

Zones are intended to provide a flexible means for providing additional maintenance or capital improvements to a portion of XXX that has special needs. Zone boundaries may be designated at the time of the addition of the property by Supplemental Declaration or at any later time by the Board. Some expenses apply only to a certain Zone within **XXX**:

- <u>Capital Improvements</u>. Any Zone may, by [Vote required to assess Owners for capital improvements] vote of the Owners within that Zone and approval of the Board, vote to assess all Owners within the Zone for capital improvements to Neighborhood Commons that will primarily benefit that Zone.
- <u>Additional Services</u>. Any Zone may, by majority vote of the Owners within that Zone and approval of the Board, vote to assess all Owners within the Zone for maintenance or services in addition to those normally provided by the Neighborhood Association. For front-yard landscape maintenance, the Board may define a Zone by Residential Parcel type and may approve landscape service for that Zone, which shall be effective unless a majority of the Owners within that Zone object in writing to the landscape service.

If the assessment is approved, it will be assessed to and allocated among all Owners within that Zone or designated group as Individual Residential Parcel Assessments.

Zones may be combined for such assessments. If more than one Zone is to vote, the Board shall determine whether approval and assessment is to be by Zone or by the combined group of Zones. If a group smaller than a Zone wishes to be assessed for capital improvements or services, all of those being assessed must agree to the assessment.

DISPUTE RESOLUTION FRAMEWORK

A framework that can be included in association documents in order to provide a method for resolving disputes.

Chancellors

Chancellors are not officers of the Board. However, Chancellors play an important role in the life of the Residential Neighborhood. The Chancellors may mediate disputes among Members or their tenants related to the requirements of the Neighborhood Declaration, the Design Code, or any rules giving the Board, Members and residential and commercial tenants a forum to work out differences and find solutions. Depending on the circumstances, the Chancellors may act individually or as a panel. If disputes cannot be resolved by mediation, the Chancellors may make recommendations to the Board. The Board determines the number of Chancellors and may decide to make the Chancellor a paid professional position, in which case, the Board will select a mediator, attorney or other professional for each available Chancellor position. Chancellors are to be paid professional positions. However, if there are insufficient numbers of candidates for chancellor, the Board may select the remaining Chancellors.

Role of the Chancellors

When problems with covenant enforcement arise, the Board or any resident or Member may file a request with the Board for a Chancellor to hear the issue. The Board may authorize, in advance, categories or types of issues that may be heard by the Chancellor without first coming to the Board. The Board has the authority to approve or deny the use of a Chancellor to mediate agreement. If requested by the Board or the Chancellor to which the case is assigned, and if there is more than one Chancellor, the case will be heard by more than one Chancellor, sitting as a panel. The Chancellor, or panel of Chancellors, will notify the resident who is believed to be in violation, as well as the owner of the Parcel, if different, and set a convenient date for a mediation session.

Mediation Session. The object of the mediation session is to hear the various viewpoints and to attempt to reach an agreement that is acceptable to all parties. Sessions must be conducted with tact, dignity and respect. The Chancellor or panel has the discretion to decide if the complaining party should participate in the mediation session.

Agreement. The Chancellor, or panel of Chancellors, is to evaluate whether the resident has caused an unreasonable disturbance or other violation, and, if so, to help reach a resolution within the general principles set out in this Chapter. If the parties reach agreement, the agreement is to be summarized in writing and signed by the parties. The Chancellor's office is to keep a copy of the agreement. The Chancellor or panel has the right to consider whether the same problem has arisen in the past and whether the Member or resident has complied with previous agreements in evaluating the current agreement. If agreement is not reached, or if the parties do not comply with the agreement, the Chancellor or panel may make a report and recommendation to the Board for further action.

Enforcement

Each Member and the Members' family members, guests and tenants are required to abide by the covenants contained in this Book, which are covenants running with the land, and any rules and regulations adopted by the Neighborhood Association. Each Member is responsible for assuring such compliance, and any violation by family members, guests or tenants may be considered to be a violation by the Member. If the Chancellor cannot resolve a violation, the Board is empowered to take necessary legal steps to enforce the covenants contained in this Book.

If the Chancellor determines that the problem is not satisfactorily resolved, the Board will notify the Member of the date of the Board meeting at which the matter will be discussed. After hearing the report from the Chancellor and giving opportunity for the resident (and Member, if different) to be heard, the Board may take any of the following actions . . .

FAQ

Q. If I don't like the Chancellor's decision, is there a right of appeal?

The Chancellor(s) operate primarily as mediators. If they are unable to facilitate the reaching of an agreement between the residents, Member or Members in question, they may make a recommendation to the Board. The affected residents and Members have the opportunity for a hearing before the Board. The decision of the Board is final, subject to any subsequent court action.
VIRGINIA STATEMENT OF OWNER RIGHTS

A declaration of the rights of owners in the Virginia Acts of Assembly.

VIRGINIA ACTS OF ASSEMBLY -- 2015 SESSION

CHAPTER 286

An Act to amend the Code of Virginia by adding in Article 2 of Chapter 4.2 of Title 55 a section numbered 55-79.72:3 and by adding in Article 1 of Chapter 26 of Title 55 a section numbered 55-509.3:1, relating to the Condominium and Property Owners' Association Acts; statement of unit and lot owner rights.

Approved March 17, 2015

[S 1008]

Be it enacted by the General Assembly of Virginia:

1. That the Code of Virginia is amended by adding in Article 2 of Chapter 4.2 of Title 55 a section numbered 55-79.72:3 and by adding in Article 1 of Chapter 26 of Title 55 a section numbered 55-509.3:1 as follows:

§ 55-79.72:3. Statement of unit owner rights.

Every unit owner who is a member in good standing of a unit owners' association shall have the following rights:

1. The right of access to all books and records kept by or on behalf of the unit owners' association according to and subject to the provisions of § 55-79.74:1, including records of all financial transactions;

2. The right to cast a vote on any matter requiring a vote by the unit owners' association membership in proportion to the unit owner's ownership interest, except to the extent that the condominium instruments provide otherwise;

3. The right to have notice of any meeting of the executive organ, to make a record of such meetings by audio or visual means, and to participate in such meeting in accordance with the provisions of \S 55-79.75;

4. The right to have (i) notice of any proceeding conducted by the executive organ or other tribunal specified in the condominium instruments against the unit owner to enforce any rule or regulation of the unit owners' association and (ii) the opportunity to be heard and represented by counsel at the proceeding, as provided in § 55-79.80:2, and the right of due process in the conduct of that hearing; and

5. The right to serve on the executive organ if duly elected and a member in good standing of the unit owners' association, except to the extent that the condominium instruments provide otherwise.

The rights enumerated in this section shall be enforceable by any such unit owner pursuant to the provisions of § 55-79.53.

§ 55-509.3:1. Statement of lot owner rights.

Every lot owner who is a member in good standing of a property owners' association shall have the following rights:

1. The right of access to all books and records kept by or on behalf of the association according to and subject to the provisions of § 55-510, including records of all financial transactions;

2. The right to cast a vote on any matter requiring a vote by the association's membership in proportion to the lot owner's ownership interest, except to the extent that the declaration provides otherwise;

3. The right to have notice of any meeting of the board of directors, to make a record of such meetings by audio or visual means, and to participate in such meeting in accordance with the provisions of subsection F of § 55-510 and § 55-510.1;

4. The right to have (i) notice of any proceeding conducted by the board of directors or other tribunal specified in the declaration against the lot owner to enforce any rule or regulation of the association and (ii) the opportunity to be heard and represented by counsel at the proceeding, as provided in § 55-513, and the right of due process in the conduct of that hearing; and

5. The right to serve on the board of directors if duly elected and a member in good standing of the association, except to the extent the declaration provides otherwise.

The rights enumerated in this section shall be enforceable by any such lot owner pursuant to the provisions of § 55-515.

AARP MODEL BILL OF RIGHTS FOR HOMEOWNERS

A bill of rights for homeowners, suggested as a model for legislation by the AARP.

HOA Owner Bill of Rights

(Andrew Kochera, AARP Public Policy Institute (July 2006))

Bill of Rights for Homeowners

- I. *The Right to Security against Foreclosure* An association shall not foreclose against a homeowner except for significant unpaid assessments, and any such foreclosure shall require judicial review to ensure fairness.
- II. The Right to Resolve Disputes without Litigation Homeowners and associations will have available alternative dispute resolution (ADR), although both parties preserve the right to litigate.
- III. *The Right to Fairness in Litigation* Where there is litigation between an association and a homeowner, and the homeowner prevails, the association shall pay attorney fees to a reasonable level.
- IV. The Right to Be Told of All Rules and Charges Homeowners shall be told—before buying—of the association's broad powers, and the association may not exercise any power not clearly disclosed to the homeowner if the power unreasonably interferes with homeownership.

V. The Right to Stability in Rules and Charges Homeowners shall have rights to vote to create, amend, or terminate deed restrictions and other important documents. Where an association's directors have power to change operating rules, the homeowners shall have notice and an opportunity, by majority vote, to override new rules and charges.

VI. The Right to Individual Autonomy

Homeowners shall not surrender any essential rights of individual autonomy because they live in a common-interest community. Homeowners shall have the right to peaceful advocacy during elections and other votes as well as use of common areas.

- VII. The Right to Oversight of Associations and Directors Homeowners shall have reasonable access to records and meetings, as well as specified abilities to call special meetings, to obtain oversight of elections and other votes, and to recall directors.
- VIII. *The Right to Vote and Run for Office* Homeowners shall have well-defined voting rights, including secret ballots, and no director shall have a conflict of interest.
 - IX. *The Right to Reasonable Associations and Directors* Associations, their directors and other agents, shall act reasonably in exercising their power over homeowners.

X. The Right to an Ombudsperson for Homeowners

Homeowners shall have fair interpretation of their rights through the state Office of Ombudsperson for Homeowners. The ombudsperson will enable state oversight where needed, and increases available information for all concerned. FREE SPEECH RIGHTS IN CICS

An article discussing free speech in Common Interest Communities

(UN)COMMON INTEREST COMMUNITIES: SEARCHING FOR A WORKABLE EXTENSION OF FREE SPEECH RIGHTS TO CICS

Mark J. Pesce*

"No sign of any kind except a small nameplate on a lamppost or affixed to the front of a house shall be displayed to the public view on any lot... No sign of any type may be displayed from the window of any home."¹

I. INTRODUCTION

Governing documents of condominiums, cooperatives, and homeowners associations ("HOAs")² around the United States are replete with restrictive covenants like the one above. These common interest communities ("CICs") are created to provide owners or tenants with quiet, manicured, and aesthetically pleasing environments;³ hence the frequent imposition of outright bans on

¹ First Amended and Restated Declaration of Covenants and Restrictions, FALMOUTH AIRPARK, available at http://falmouthairpark.net/wp-content/uploads/2013/12/ Covenants.doc (last visited May 14, 2015).

² Each of these kinds of developments is included under the umbrella term "common interest communities," but exhibit markedly different characteristics. For a survey of the differences, see Paula A. Franzese & Steven Siegel, *The* Twin Rivers *Case: Of Homeowners Associations, Free Speech Rights and Privatized Mini-Governments*, 5 RUTGERS J.L. & PUB. POL'Y 729, 730 n.3 (2008). In general though, "[c]ommon-interest communities are those in which the property is burdened by servitudes requiring property owners to contribute to maintenance of commonly held property or to pay dues or assessments to an owners association that provides services or facilities to the community." RESTATEMENT (THIRD) OF PROP.: SERVITUDES ch. 6, intro. note (2000).

A Florida state appellate court cogently described this purpose, remarking that: [I]nherent in the condominium concept is the principle that to promote the health, happiness, and peace of mind of the majority of the unit owners since they are living in such close proximity and using facilities in common, each unit owner must give up a certain degree of freedom of choice which he might otherwise enjoy in separate, privately owned property. Condominium unit owners comprise a little democratic sub

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things such as pets,⁴ satellite dishes,⁵ and political signs and activity.⁶

For better or worse, the number of Americans living in CICs has grown tremendously in the last few decades, and CICs now occupy a significant percentage of home ownership in the United States.⁷ For many, the increase in prevalence of CICs has created attendant confusion with the extent to which communities can restrict individual rights.⁸ In response, courts and legislatures have slowly given more free speech rights to residents of CICs.⁹ For others though, this recent trend towards individual rights has come at the expense of the collective interest.¹⁰ This inescapable clash between expressional

Hidden Harbour Estates, Inc. v. Norman, 309 So. 2d 180, 181–82 (Fla. Dist. Ct. App. 1975); see also Gerald Korngold, Resolving the Flaws of Residential Servitudes and Owners Associations: For Reformation not Termination, 1990 WIS. L. REV. 513, 513 (1990) ("Residential developers often impose servitude schemes on tract and high-rise developments to increase the desirability of the housing units."); 2012 Public Policies of Community Associations Institute, Aesthetics as an Economic Issue, at 9, http://www.caionline.org/govt/policies/Documents/public%20policies-

April%202012%20update.pdf (last visited Oct. 15, 2014) ("When aesthetics of any one development look clean, well maintained, properly proportioned and part of an overall design or compatible color scheme, owner expectations are met and property values are sustained and improved.").

⁴ Mark S. Dennison, Enforcement of Restrictive Covenant or Lease Provision Limiting the Keeping of Animals or Pets on Residential Property, 93 AM. JUR. TRIALS 193 (2004).

⁵ Alois Valerian Gross, Annotation, Radio or Television Aerials, Antennas, Towers, or Satellite Dishes or Discs as Within Terms of Covenant Restricting Use, Erection, or Maintenance of Such Structures Upon Residential Property, 76 A.L.R.4th 498 (1989).

⁶ Monique C.M. Leahy, Annotation, *Homeowners' Association Defense: Free Speech*, 93 AM. JUR. TRIALS 293, at § 7 (2004).

⁷ Statistical Review 2013, FOUND. FOR CMTY. ASS'N RES., at 3, http://www.cairf.org/research/factbook/2013_statistical_review.pdf (last visited Sept. 15, 2014) (noting that CICs now represent a staggering twenty-four percent of U.S. homes); see also National Statistics on U.S. Community Associations, CMTY. ASS'N INST., http://www.caionline.org/info/research/Pages/default.aspx (last visited Mar. 10, 2015) (illustrating that CICs now house almost sixty-six million Americans).

⁸ See, e.g., Edward R. Hannaman, State and Municipal Perspectives - Homeowners Associations, presented to Rutgers University Center for Government Services Conference, at 3 (Mar. 19, 2002) ("It is obvious from the complaints [to DCA] that that [home]owners did not realize the extent association rules could govern their lives."); Susan F. French, The Constitution of A Private Residential Government Should Include A Bill of Rights, 27 WAKE FOREST L. REV. 345, 349 (1992) ("Dreams of homeownership can turn sour for people whose building or landscaping plans are not approved and for people who learn too late that they will not be permitted to put up political signs, for sale signs, or holiday decorations.").

⁹ See infra Part IV.

¹⁰ 2012 Public Policies of Community Associations Institute, supra note 3, at 9 (noting that attempts to interfere with "community-crafted aesthetic controls" undermines the "lifestyle expectations of the collective ownership").

society of necessity more restrictive as it pertains to use of condominium property than may be existent outside the condominium organization.

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versus property and contractual rights¹¹ has led to a host of suggested and implemented solutions,¹² but no more clarity in this realm.¹³ Such an inconsistency of treatment thwarts the goals of predictability and deterrence from litigation,¹⁴ and it is clear that there is a need for a workable method of extending more free speech rights to CICs.¹⁵

Although this area of the law has seen a significant number of illuminating publications,¹⁶ this Comment adds to the discussion in two ways. First, although a variety of proposals have been offered for extending free speech rights to CICs over the past two decades,¹⁷

RESTATEMENT (THIRD) OF PROP.: SERVITUDES ch. 6, intro. note (2000).

¹² See infra Part IV.

¹³ See, e.g., Peter Applebome, My House, My Rules. Or So One Might Think, N.Y. TIMES, July 29, 2007, at A25 ("This is not an entirely new world, but it's still a vexing one, where the rules are still being sorted out....").

¹⁴ See Golden Gateway Ctr. v. Golden Gateway Tenants Ass'n, 29 P.3d 797, 808 (Cal. 2001) (quoting Todd F. Simon, *Independent but Inadequate: State Constitutions and Protection of Freedom of Expression*, 33 U. KAN. L. REV. 305, 318 (1985)) ("The notion that free expression can, and potentially does, mean something slightly different in each state even when provisions read identically is not fully supportable.").

¹⁵ See infra Part III (discussing why CICs should not be "speech free" zones).

¹⁶ See, e.g., Lisa J. Chadderdon, No Political Speech Allowed: Common Interest Developments, Homeowners Associations, and Restrictions on Free Speech, 21 J. LAND USE & ENVTL. L. 233 (2006); Paula A. Franzese, Privatization and Its Discontents: Common Interest Communities and the Rise of Government for "The Nice", 37 URB, LAW. 335 (2005); Franzese & Siegel, supra note 2; Aaron R. Gott, Ticky Tacky Little Governments? A More Faithful Approach to Community Associations Under the State Action Doctrine, 40 FLA. ST. U. L. REV. 201 (2012); David J. Kennedy, Residential Associations As State Actors: Regulating the Impact of Gated Communities on Nonmembers, 105 YALE L.J. 761 (1995); Evelyn C. Lombardo, A Better Twin Rivers: A Revised Approach to State Action by Common-Interest Communities, 57 CATH. U. L. Rev. 1151 (2008); Adrienne Iwamoto Suarez, Covenants, Conditions, and Restrictions... On Free Speech? First Amendment Rights in Common-Interest Communities, 40 REAL PROP. PROB. & TR. J. 739 (2006).

¹⁷ The major suggestions have been to: (1) treat CIC boards as "state actors" and thus apply state constitutional free speech-protections to CICs, *see infra* Part IV.A; (2) rely on legislative action to protect free expression, *see infra* Part IV.B; (3) push homeowners to pass a residents' bill of rights, *see infra* Part IV.C; (4) apply a constitutional test that analyzes the reasonableness of restrictive covenants (the New Jersey approach), *see infra* Part IV.D; and (5) strike down covenants that are found to be against public policy (the Restatement approach), *see infra* Part V.

¹¹ The Restatement acknowledges the tension between the two competing interests, saying that

The law of residential common-interest communities reflects these tensions between protecting freedom of contract, protecting private and public interests in security of the home both as a personal base and as a financial asset, and protecting the public interest in the ongoing financial stability of common-interest communities. It also reflects the tensions between protecting the democratic process at work in commoninterest communities and protecting the interests of individual community members from imposition by those who control the association.

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further analysis of each of these theories is needed in light of some important recent developments around the United States.¹⁸ Second, few if any commentators have scrutinized the practical implications of each of the major proposals to extend free speech to CICs, as most have been largely theoretical. In reality, the application of some of these theories could make, and in some instances already have made,¹⁹ the treatment of free speech in CICs even more confusing and inconsistent. Therefore, the merits and disadvantages of each theory must be analyzed to determine which actually presents the best opportunity to extend reasonable free speech rights to CICs around the country.²⁰

In Part II, this Comment describes how the "state action" requirement has insulated CICs from constitutional scrutiny. In Part III, this Comment explains why CICs should not create "speech free" zones, but should instead reasonably embrace the uncommon interests of its residents. Part IV presents the prevailing theories for application of free speech principles to CICs, analyzes their efficacy, and explains why each is not an ideal solution to the problem. In Part V, this Comment argues that state courts should adopt the policy of judicial non-enforcement of servitudes that violate public policy, in line with the Restatement (Third) of Servitudes. In Part VI, this Comment suggests that no matter which solution courts adopt around the country, boards should proactively amend their governing documents to better reflect reasonable restrictions on expressional freedoms.

II. STATE ACTION: WHY THE FIRST AMENDMENT TO THE U.S.

²⁰ See infra Part IV (describing and assessing the viability of each of the major proposed theories).

¹⁸ There are several important recent developments. First, one state has further developed its unique adoption of a major theory. *See infra* Part IV.D (discussing New Jersey's extension and clarification of its unique constitutional test in *Dublirer v. 2000 Linwood Ave. Owners, Inc.*, 220 N.J. 71 (2014)). In addition, another state has extended free speech rights into a more conservative region of the country, utilizing a constitutional test never before used outside of the state that created it. *See infra* note 169 and accompanying text (discussing a Missouri state court's adoption of New Jersey's constitutional test in *Lamprecht v. Tiara at the Abbey Homeowners Association*, No. 12-JE CC0027, 2013 WL 6144144 (Mo. Cir. Oct. 3, 2013)). And finally, two other states have recently revived a major theory and applied it to CICs for the first time. *See infra* note 42 (discussing *Shelley v. Kraemer's* application in *Bd. of Managers of Old Colony Vill. Condo. v. Prev.*, 80 Mass. App. Ct. 728, 732 (2011); *review denied*, 964 N.E.2d 985 (Mass. 2012) and *Lamprecht*, 2013 WL 6144144).

¹⁹ See, e.g., Franzese & Siegel, *supra* note 2, at 742 ("The *Twin Rivers* decision is not a model of clarity."); *Golden Gateway Ctr.*, 29 P.3d at 801 (citation omitted) ("*Robins* was less than clear 'as to the scope of the free speech rights it was recognizing.").

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CONSTITUTION DOES NOT APPLY TO CICS

Over the last few decades, and with increasing frequency, residents have challenged the regulations in their communities.²¹ These residents have argued, inter alia, that their constitutional rights of free speech and association are infringed under the United States Constitution and state constitutions. Until recently, these suits have been relatively fruitless, with residents having little success in subjecting CICs to First Amendment protections. This failure can be largely attributed to the "state action" requirement under the federal and state constitutions, which establishes that violations of constitutional rights are redressable only if committed by governmental entities.²²

A. U.S. Constitution

The First Amendment states that "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances."²³ Flowing naturally from this language is that the Constitution prohibits only government interference with constitutional rights, not actions by *private* entities.²⁴

There has only been one instance in which the U.S. Supreme Court has addressed residential restrictions on political expression under the First Amendment. In *City of Ladue v. Gilleo*,²⁵ the Supreme

²³ U.S. CONST. amend. I.

²⁴ Despite this logical conclusion, the state action doctrine has remained in flux since its inception, and is still considered a "conceptual disaster area." Charles L. Black, Jr., Foreword: *State Action, Equal Protection, and California's Proposition 14*, 81 HARV. L. REV. 69, 95 (1967); *see also State Action and the Public/Private Distinction*, 123 HARV. L. REV. 1248, 1250 (2010) ("In the years following [the *Civil Rights Cases*], the Court transformed the state action doctrine into one of the most complex and discordant doctrines in American jurisprudence.").

²⁵ 512 U.S. 43 (1994).

²¹ For example, in New Jersey alone there has been a clear uptick in the number of cases the New Jersey Supreme Court has addressed on this issue in recent years. *See* State v. Schmid, 84 N.J. 535 (1980); N.J. Coal. Against War in the Middle East v. J.M.B. Realty Corp., 138 N.J. 326 (1994); Comm. for a Better Twin Rivers v. Twin Rivers Homeowners' Ass'n, 192 N.J. 344, 367 (2007); Mazdabrook Commons Homeowners' Ass'n v. Khan, 210 N.J. 482, (2012); *Dublirer*, 220 N.J. 71 (2014).

²² The genesis of the state action doctrine was in the *Civil Rights Cases*, where the Supreme Court held that "until some State law has been passed, or some State action through its officers or agents has been taken, . . . no legislation of the United States under said amendment, nor any proceeding under such legislation, can be called into activity, for the prohibitions of the amendment are against State laws and acts done under State authority." Civil Rights Cases, 109 U.S. 3, 13 (1883).

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Court analyzed sign restrictions imposed by a municipality in a Missouri town.²⁶ After a resident posted a sign protesting the war, the resident was notified that these signs were prohibited in the city.²⁷ After denying the resident a variance, the city passed an ordinance with a blanket prohibition on signs.²⁸ The Supreme Court ruled that while a "time, place and manner" restriction was permissible, a ban on an entire unique medium of expression was an overreach of the state's police power, and therefore unconstitutional under the First Amendment.²⁹

Despite *City of Ladue*'s promising ruling, it is of limited applicability in the context of private community associations. In *City of Ladue*, the state action requirement was clearly met, because the sign restrictions had been created and enforced by a municipality.³⁰ To the contrary, because the boards of CICs are not government entities, their actions are insulated from the restrictions imposed by the First Amendment, and thus are not subject to the same constitutional protections as the Supreme Court extended in *City of Ladue*.³¹

There have been several other important Supreme Court cases that have hinted at possible alternate methods of enforcement of First Amendment rights against private entities. The seminal case is *Marsh v. Alabama*,³² which held that the actions of a private company town were constrained by constitutional protections because the town functioned as a governmental entity.³³ Initially, the Court extended this holding, applying the same reasoning to other private entities like shopping centers;³⁴ but this holding has since been rolled back,³⁵ and

³⁰ The Court explained that although municipalities could regulate signs under their police power, these forms of expression were still protected under the Free Speech Clause, and thus the municipality's powers were not unlimited. *Id.* at 48.

³¹ But see infra Part IV.A (discussing the argument, advanced by several scholars, that HOAs should be treated as state actors because modern CICs perform many of the functions of local governments).

³² 326 U.S. 501 (1946).

 33 Id. at 508 ("[T]he town of Chickasaw does not function differently from any other town.").

³⁴ Amalgamated Food Emp. Union Local 590 v. Logan Valley Plaza, Inc., 391 U.S. 308, 315, 318 (1968), *abrogated by* Hudgens v. NLRB, 424 U.S. 507 (1976) (finding that "[t]he shopping center [at issue was] clearly the functional equivalent of the business district of Chickasaw involved in *Marsh*").

³⁵ See Hudgens, 424 U.S. at 507 (holding that property does not "lose its private character merely because the public is generally invited to use it for designated purposes," and that "[t]he essentially private character of a store and its privately

 $^{^{26}}$ Id. at 43.

 $^{^{27}}$ Id. at 45.

²⁸ *Id.* at 46.

²⁹ *Id.* at 56.

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the Court's now long-standing position has been that the First Amendment does not apply to private actors.³⁶ In the words of the Supreme Court: "It is, of course, a commonplace that the constitutional guarantee of free speech is a guarantee only against abridgment by government, federal or state. . . This elementary proposition is little more than a truism."³⁷ Therefore, individuals generally may not seek recourse for First Amendment violations by private entities, including homeowners associations, by claiming that they are "quasi-governmental" entities like the company town in *Marsh.*³⁸

Another method frequently cited as a possible means of applying state action to traditionally private actors is through the doctrine espoused by the Supreme Court in *Shelley v. Kraemer.*³⁹ In *Shelley*, the Court noted that "the action of state courts and of judicial officers in their official capacities is to be regarded as action of the State within the meaning of the Fourteenth Amendment."⁴⁰ Some scholars believed that this holding would and should be extended to other fundamental rights like free speech,⁴¹ but courts have generally limited

³⁶ See PruneYard Shopping Ctr. v. Robins, 447 U.S. 74, 80–81 (1980); *Hudgens*, 424 U.S. at 513. Constitutional scholar Frank Askin has succinctly described the Court's change in heart and current state action doctrine:

[B]ecause of decisions of the United States Supreme Court that postdate the Earl Warren era, plaintiffs in these cases can claim no rights under the First Amendment of the U.S. Constitution. With the change in the make-up of the Court following the election of Richard Nixon as president in 1968, earlier decisions generally labeled as public-function cases were overruled either overtly or *sub silentio*, and private property recovered its legal sanctity when it came into conflict with fundamental individual rights.

Frank Askin, Twin Rivers: Why the Appellate Division Gol it Right, N.J. LAWYER, Oct. 2006, at 9.

³⁷ Hudgens, 424 U.S. at 513.

³⁸ See, e.g., Kalian at Poconos, LLC v. Saw Creek Estates Community Ass'n, Inc., 275 F. Supp. 2d 578, 589 n.14, 590 (M.D. Penn 2003) (holding that the association's public functions do not "deem the Association a state actor" and that "the holdings of *Marsh* and subsequent cases are [] limited"); Midlake on Big Boulder Lake, Condo. Ass'n v. Cappuccio, 449 Pa. Super. 124, 128 (1996) (holding that a private organization "cannot abridge the rights of the First Amendment of the Constitution"); Snowdon v. Preferred RV Resort Owners Ass'n, 379 F. App'x 636, 637 (9th Cir. 2010) (holding that the association had not assumed the attributes and functions of a municipality).

³⁹ 334 U.S. 1 (1948).

⁴⁰ *Id.* at 14.

⁴¹ See generally RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 cmt. d (2000) (describing the varying readings of *Shelley* by scholars and courts: (1) there is state action if the state takes any action to enforce even privately made covenants; (2) *Shelley*

owned abutting property does not change by virtue of being large or clustered with other stores in a modern shopping center"); Lloyd Corp. v. Tanner, 407 U.S. 551, 569 (1972).

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this holding to racially restrictive covenants.⁴²

Thus, applying the First Amendment to private entities has not been fruitful, despite numerous initially promising avenues. As a result, those seeking recourse for the actions of private entities have increasingly relied instead on the free speech protections offered by state constitutions.

B. State Constitutions

As an initial matter, state courts are generally the ultimate arbiters of their state's own laws and constitution.⁴³ Therefore, even though the federal government requires state action under the U.S. Constitution, states are free to impose their own requirements for seeking the protections of state constitutions.⁴⁴ Moreover, state courts usually have more latitude in analyzing the state action requirement, as most state constitutions do not contain express language referencing state action.⁴⁵

is limited to racial covenants; (3) an intermediate position that holds that *Shelley* prohibits enforcement of covenants denying fundamental rights, which is one many state courts adopt).

⁴² See Golden Gateway Ctr. v. Golden Gateway Tenants Ass'n., 29 P.3d 797, 810 (Cal. 2001) (citing Cole, Federal and State "State Action": The Undercritical Embrace of a Hypercriticized Doctrine, 24 GA. L. REV. 327, 353 (1990)) ("Although the United States Supreme Court has held that judicial effectuation of a racially restrictive covenant constitutes state action . . . it has largely limited this holding to the facts of those cases."). But see Lamprecht v. Tiara at the Abbey Homeowners Association, No. 12-JE CC0027, 2013 WL 6144144 (Mo. Cir. Oct. 3, 2013) (holding that judicial enforcement of a private covenant restricting free speech through political signage violated the Missouri constitution pursuant to Shelley); Bd. of Managers of Old Colony Vill. Condo. v. Preu, 80 Mass. App. Ct. 728, 732 (2011), review denied, 461 Mass. 1110 (2012) (holding that state action arose from a civil lawsuit over a covenant, where costs were allocated under a state statute); see also generally RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 cmt. d (2000).

⁴³ See, e.g., Mullaney v. Wilbur, 421 U.S. 684, 691 (1975) ("This Court . . . repeatedly has held that state courts are the ultimate expositors of state law."); Federated Publications, Inc. v. Kurtz, 94 Wash. 2d 51, 57 (1980).

⁴⁴ The right for a state to recognize broad free speech rights on some private property under its *own* constitution was affirmed by the U.S. Supreme Court in the seminal *Pruneyard Shopping Center v. Robins*, 447 U.S. 74 (1980) decision ("Pruneyard"). After *Pruneyard*, only a handful of states took the Supreme Court up on its offer, including the California Supreme Court on remand ("Robins"). *See* Jon Golinger, *Shopping in the Marketplace of Ideas: Why Fashion Valley Mall Means Target and Trader Joe's Are the New Town Squares*, 39 GOLDEN GATE U. L. REV. 261, 268–69 (2009) ("In the wake of *Pruneyard*, high courts in five other states - Colorado, Massachusetts, New Jersey, Oregon and Washington - eventually followed California's lead in interpreting their state constitutions to protect at least some free-speech activities in privately owned shopping centers.").

⁴⁵ Compare CALIF. CONST. art. I, § 2, pt. a ("Every person may freely speak, write and publish his or her sentiments on all subjects, being responsible for the abuse of

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Despite that, state courts have nonetheless almost always found state action requirements in their own constitutions.⁴⁶ This language, from the Washington Supreme Court, is indicative of the treatment of missing state action language in state constitutions:

It is a 2-foot leap across a 10-foot ditch... to seize upon the absence of a reference to the State as the actor limited by the state free speech provision and conclude therefrom that the framers of our state constitution intended to create a bold new right that conflicts with the fundamental premise on which the entire constitution is based. To do so would not be to "interpret" our constitution, but to deny its very nature.⁴⁷

Therefore, although states sometimes discuss and adjust the boundaries of state action under their state constitutions,⁴⁸ virtually all have declined to impose substantial state constitutional obligations on

⁴⁶ See Comm. For A Better Twin Rivers v. Twin Rivers Homeowners' Ass'n, 192 N.J. 344, 363 (2007) ("[T]he vast majority of other jurisdictions that have interpreted a state constitutional provision with language similar to our constitution's free speech provision require 'state action' as a precondition to imposing constitutional obligations on private property owners."). Although this has been the case for decades, there is a recent, albeit limited, trend towards finding state action by private entities under state constitutions. See infra Part IV.

⁴⁷ Southcenter Joint Venture v. Nat'l Democratic Policy Comm., 113 Wash. 2d 413, 424 (1989). Indeed, some state courts have brutally criticized the reasoning of state courts that have circumvented the state action doctrine to extend free speech rights to residents of CICs, including California in *Robins. See, e.g.*, SHAD Alliance v. Smith Haven Mall, 66 N.Y.2d 496, 501 (1985) (citation omitted) ("[In *Robins*] [t]here is not much analysis and only tangential discussion, if it can be called that, of the State action question. It is evident that the result in *Robins* was dictated by 'the accident of a change of personalities in the Judges of [the] court,' which this court has correctly condemned as 'a shallow basis for jurisprudential evolution.'"); Jacobs v. Major, 139 Wis. 2d 492, 514, 520 (1987) ("It is significant that the majority did not analyze the constitutional sections, but rather summarily stated the protections granted by those sections. It appears to be more a decision of desire rather than analytical conviction.... Our constitution defines and limits the powers of state government; it is not a license for the judiciary to convert what the judiciary perceives to be desirable social policies into constitutional law.").

⁴⁸ See, e.g., Sharrock, 45 N.Y.2d at 160 ("[T]he absence of any express State action language [in the New York constitution] simply provides a basis to apply a more flexible State involvement requirement than is currently being imposed by the Supreme Court with respect to the Federal provision.").

this right. A law may not restrain or abridge liberty of speech or press."), with U.S. CONST. amend. I ("Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances."); see also, e.g., Sharrock v. Dell Buick-Cadillac, Inc., 45 N.Y.2d 152, 160 (1978) ("Conspicuously absent from the State Constitution is any language requiring State action before an individual may find refuge in its protections.").

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private property owners.49

As a result, both the federal and most state constitutions do not provide any protection to individuals seeking to engage in speech within the CICs they call their home. This leaves protection of those liberty interests to private law, where individuals are left with the ability to either select residences that permit their desired free speech or push for greater protections within their existing communities. This reality raises the question: do residents in private communities need additional free speech protections?

III. WHY CICS SHOULD NOT BE "SPEECH FREE" ZONES

Covenants, conditions, and restrictions ("CC&R") serve a legitimate purpose. Developers generally put CC&Rs into place before selling any units in an attempt to provide uniform, aesthetically pleasing environments for people to live and socialize.⁵⁰ CC&Rs enforce this relative uniformity, ensuring that no singular unit owner's tastes or practices trump the values of the community.⁵¹ While some commentators decry the abuses of associations and board members,⁵² many insiders instead paint a vivid picture of demanding, erratic, and difficult owners⁵³ who force boards to be more authoritative in an effort

_id=30#PA1 (last visited Oct. 16, 2014) ("BHEA is a 'planned community' of 229 lots for the benefit of all members to ensure consistency, uniformity, aesthetically pleasing conditions and environment....").

⁵² See infra notes 63–67.

⁵³ These types of actions are exhibited in *Preu*, where the owner engaged in a variety of confrontational, and even dangerous, activities that required board intervention (including placing bags with feces in common areas, obstructing common areas, and interfering with fire doors). Bd. of Managers of Old Colony Vill. Condo. v. Preu, 80 Mass. App. Ct. 728, 730 (2011). The court noted that "[t]here was evidence at trial of a history of erratic and disruptive behavior by Preu at the condominium, and of a growing strain in relations between Preu on the one hand and the board and condominium manager on the other." *Id.*

⁴⁹ The major notable exception to this is New Jersey, which does not require state action as a prerequisite for extending the protections of the state constitution. *See infra* Part IV.D.

⁵⁰ See supra note 3.

⁵¹ See Evan J. Rosenthal, Letting the Sunshine In: Protecting Residential Access to Solar Energy in Common Interest Developments, 40 FLA. ST. U. L. REV. 995, 997 (2013) ("CC&Rs are aesthetic in nature, designed to ensure uniformity in appearance and protect property values."); see also Declaration of Aspen Heights Protective Covenants, Conditions, and Restrictions, VALDE FINE HOMES LLC, http://www.valdehomes.com/pdf/ valde_ccrs.pdf (last visited May 16, 2015) ("In considering whether to approve applications, the Committee shall consider and give great weight to protection of views of other Owners and considerations of aesthetics and uniformity of appearance in Aspen Heights."); Welcome New Residents, BENEDICT HILL ESTATES HOMEOWNERS ASS'N, http://benedicthillsestates.org/benedicthillsestates/page.html?pf=yes&page

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to rein them in.⁵⁴ Arguably, if we begin to erode the power of CC&Rs, we may stand to lose some of the *common* in common interest communities.

In addition, there are legitimate arguments made by HOAs that residents in these communities have waived some of their rights by voluntarily living in communities subject to CC&Rs.⁵⁵ The freedom to contract is a right that runs deep in the United States,⁵⁶ and courts are extremely reluctant to intercede when private parties willingly enter into agreements with certain rights and restrictions.⁵⁷ As owners accept the provisions included in their CC&Rs when they move into the community, some argue that they should be contractually barred from challenging them.⁵⁸ These and other factors militate in favor of robust CC&Rs.

On the other hand, there are compelling reasons to extend more free speech rights to common interest communities. With the increasing prevalence of CICs,⁵⁹ some scholars argue that there is little opportunity for prospective homeowners to actually seek out homes that are not burdened by association regulations.⁶⁰ Moreover, many

⁵⁵ See, e.g., Kennedy, supra note 16, at 779–80 (citation omitted) ("At the root of the presumption of legitimacy accorded an association's CC&Rs is consent. Residents who complain about any provision of the association's CC&Rs or bylaws must counter the argument that they read these restrictions, considered them, and signed anyway. In contrast to one's membership in the broader society, it is asserted, one's membership in an association may be regarded as 'wholly voluntary.'"); Mazdabrook Commons Homeowners' Ass'n v. Khan, 210 N.J. 482, 511–12 (2012) (Wefing, J., dissenting) (arguing that owners should be bound if they have "agreed freely" to live in a community with restrictions on free speech and "there is no showing of overreaching or coercion"). But see Kennedy, supra note 16, at 793 n.106 (discussing several problems with this position).

⁵⁶ W. Coast Hotel Co. v. Parrish, 300 U.S. 379, 406 (1937) ("[F]reedom of contract [is] the general rule and restraint the exception; and that the power to abridge that freedom [can] only be justified by the existence of exceptional circumstances.").

⁵⁷ See, e.g., Almers v. South Carolina Nat. Bank of Charleston, 265 S.C. 48, 60 (1975); Taminco NV v. Gulf Power Co., 322 F. App'x 732, 734 (11th Cir. 2009).

⁵⁸ See Mark Cantora, Increasing Freedom by Restricting Speech: Why the First Amendment Does Not and Should Not Apply in Common Interest Communities, 39 REAL EST. L.J. 409, 424 (2011) ("[P]eople living in common interest communities voluntarily expand some set of preferred benefits by contracting some set of less-favored rights. This happens every day outside of the CIC context in a democratic society, and is the very essence of democratic freedom."); Grant J. Levine, This Is My Castle: On Balance, the Freedom of Contract Outweighs Classifying the Acts of Homeowners' Associations As State Action, 36 NOVA L. REV. 555 (2012); Kennedy, supra note 55, at 779–80.

⁵⁹ See supra note 7.

See Gott, supra note 16, at 220 ("[T]he growing proportion of properties

⁵⁴ Id. Indeed, difficult behavior by residents is allegedly common practice in many CICs. See Robert J. Galvin, Residential Condominiums—Drafting Management and Operational Provisions, CONDI MA-CLE 4-1 (2013) ("This sort of behavior will be familiar to those with experience in representing condominium associations.").

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residents in CICs are arguably not given sufficient notice that their free speech rights will be severely restricted merely by moving into a certain community.⁶¹ And even for those who *are* aware of burdensome restrictions in their communities, most are nonetheless unable to bargain for different terms.⁶²

Additionally, HOA boards have been known to abuse their power, subjecting the residents of their communities to restrictions that seem intrinsically unreasonable.⁵³ There are countless horror stories in this

⁶¹ Of course, recordation of CC&Rs usually gives constructive notice to owners and binds them. Paula A. Franzese, *Building Community in Common Interest Communities: The Promise of the Restatement (Third) of Servitudes*, 38 REAL PROP. PROB. & TR. J. 17, 38–39 (2003). There is good reason to believe, however, that residents do not actually read every sentence of the CC&Rs, and even if they do, that they do not understand the significance and breadth of every restriction. See id.; see also supra note 8 and accompanying text. Professor Winokur has suggested that:

[m]ost prospective owners do not intelligently review the restrictions to which they subject themselves upon acceptance of a deed to land burdened by servitudes. The documentation typically makes long, boring reading for laypersons, who rarely retain counsel to review the documentation involved in home purchases. Even those who read the restrictions in advance may miscalculate their own future attitudes toward servitude restrictions, perhaps inaccurately expecting that friendly relations with neighbors will eliminate hostile disagreements between residents. Such optimistic expectations are often disappointed.

James L. Winokur, The Mixed Blessings of Promissory Servitudes: Toward Optimizing Economic Utility, Individual Liberty, and Personal Identity, 1989 WIS. L. REV. 1, 59 (1989).

⁶² Franzese, supra note 61, at 31 (citing Evan McKenzie, *Reinventing Common Interest Developments: Reflections on a Policy Role for the Judiciary*, 31 J. MARSHALL, L. REV. 397, 398 (1998)) ("Typically, purchasers do not have the freedom or bargaining power to barter over terms contained in the declaration, described as 'a 200-page adhesion contract, which is merely a stack of non-negotiable, standardized boilerplate provisions.").

⁶³ See, e.g., Franzese & Siegel, supra note 2, at 761–65 (quoting Hannaman, supra note 8, at 2) (discussing the "undemocratic" conditions of CICs and severe abuses of power articulated in the Hannaman report, as well as other horror stories); Aldo Svaldi, Horror Stories Prompt Industry Group to Ask Colorado to Regulate HOA Managers, DENVER POST (Feb. 13, 2012, 1:00 AM), http://www.denverpost.com/ci_19951732 (presenting the story of an elderly couple on the verge of losing their home over fines that started with a misplaced trash can); Paul Bannister, Homeowner Horror Stories: Associations are Heaven or Hell, BANKRATE, http://www.bankrate.com/ finance/realestate/homeowner-horror-stories-associations-are-heaven-or-hell.aspx (last visited Feb. 7, 2015) (profiling numerous HOA horror stories, many which result in liens and/or foreclosure for the homeowner). In fact, there is even an extensive comment feed on the popular social news site Reddit, where users post their own HOA horror stories. See What are Your Home-Owners Association (HOA) Horror Stories?, REDDIT, http://www.reddit.com/r/AskReddit/comments/17v1fx/

what_are_your_homeowners_association_hoa_horror/ (last visited Feb. 7, 2015).

encumbered with covenants that provide for community association governance has made it increasingly difficult for a prospective home buyer to avoid."); Franzese, *supra* note 2, at 755 (same); Askin, *supra* note 35, at 15 (discussing that in *Twin Rivers*, many people purchasing encumbered homes were merely looking for affordable housing, not the restrictions present in CC&Rs).

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vein, ranging from an HOA's decision to ban all recreation in common areas⁶⁴ to an elderly woman who was fined every time she walked her dog through the lobby, even though she could not physically carry the dog as required by the CC&Rs.⁶⁵ In fact, so many associations banned residents from flying the American flag outside of their homes that Congress actually passed a statute to protect this right.⁶⁶ But even federal law has not stopped HOAs from engaging in this practice, even when the flag is so small that it fits in a flower pot.⁶⁷

In sum, although CC&Rs undoubtedly serve the legitimate purpose of ensuring comfortable uniformity within a community, many HOAs take this command too far. By often enacting outright bans on virtually all kinds of free expression,⁶⁸ HOAs are effectively attempting to turn CICs into "speech free" zones. This intolerance is repugnant to the American tradition of vibrant discourse,⁶⁹ especially

The Freedom to Display the American Flag Act of 2005 reads: A condominium association, cooperative association, or residential real estate management association may not adopt or enforce any policy, or enter into any agreement, that would restrict or prevent a member of the association from displaying the flag of the United States on residential property within the association with respect to which such member has a separate ownership interest or a right to exclusive possession or use.

Pub. L. No. 109–243, 120 Stat. 572 (2006). There are also state analogs to this law. See, e.g., Fla. Stat. Ann. § 720.304 (2010) (guaranteeing the right of CIC residents to fly a flag "regardless of any covenants, restrictions, bylaws, rules, or requirements of the association"). In reality, the fact that legislatures around the country, including Congress, have independently concluded that homeowners associations often pass overburdensome regulations is reason enough to conclude that more free speech rights should be extended to CICs.

⁶⁷ Florida Man May Lose Home Over Display of American Flag, AOL (June 24, 2014, 2:28 PM), http://www.aol.com/article/2014/06/24/florida-man-may-lose-home-over-display-of-american-flag/20919158/ (describing a situation where a Florida veteran was fined \$100 for every day that he kept a miniature American flag in his flower pot).

⁶⁸ See, e.g., Dublirer v. 2000 Linwood Ave. Owners, Inc., 220 N.J. 71 (2014) (where the Board left a small bulletin board as the only means of expression within the community).

⁶⁹ Setha M. Low, *The Edge and the Center: Gated Communities and the Discourse of Urban Fear*, AM. ANTHROPOLOGIST 45 (2001) ("This retreat to secured enclaves with walls, gates, and guards materially and symbolically contradicts American ethos and values, threatens public access to open space, and creates yet another barrier to social interaction, building of social networks, as well as increased tolerance of diverse cultural/racial/social groups."). Indeed, the Supreme Court has always stressed the

⁶⁴ Anna Bakalis, *Stonegate Villas Owners Say New Rules Unneighborly*, VENTURA CNTY. STAR (July 12, 2008), http://www.vcstar.com/news/2008/jul/12/stonegate-villasowners-say-new-rules-i-feel-im/ (causing some residents to remark: "Sometimes it feels like jail here").

⁶⁵ Debora Vrana, *The Runaway Power of Homeowners Associations*, MSN REAL ESTATE (July 30, 2006), *available at* http://www.ccfj.net/HOArunawaypower.html.

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when it is increasingly difficult for individuals to find residences that are unburdened by these types of restrictions.⁷⁰ Therefore, it is vital for the preservation of free speech to identify methods to extend greater expressional rights to CICs.

IV. METHODS PROMULGATED TO EXTEND FREE SPEECH PROTECTIONS TO CICS

Many different theories have been proposed to extend free speech rights to CICs. The most popular of these suggestions have been to: (1) treat CICs as state actors, and thus subject them to constitutional obligations;⁷¹ (2) encourage legislatures to pass statutory protections for expressional rights in CICs;⁷² (3) push communities themselves to adopt CIC bills of rights to protect their own speech;⁷³ or (4) persuade courts around the country to follow the New Jersey Supreme Court's lead in finding that unreasonable restrictions are offensive to their state constitutions.⁷⁴ While none of these theories has yet been widely adopted, each provides an opportunity to analyze and weigh the competing interests in an attempt to fashion the best possible solution.

A. Treat CICs as State Actors, thus Subjecting Them to First Amendment Obligations

Experts worry that those looking for new homes are increasingly unable to find properties without accompanying restrictions on free speech.⁷⁵ Therefore, one of the most popular proposed solutions argues that CICs have become the *de facto* governmental entity in

Thornhill v. State of Alabama, 310 U.S. 88, 95 (1940).

- ⁷¹ See infra Part IV.A.
- ⁷² See infra Part IV.B.
- ⁷³ See infra Part IV.C.

⁷⁵ See supra note 60 and accompanying text.

vital role of free speech and public discourse, remarking:

The safeguarding of [free speech] rights to the ends that men may speak as they think on matters vital to them and that falsehoods may be exposed through the processes of education and discussion is essential to free government. Those who won our independence had confidence in the power of free and fearless reasoning and communication of ideas to discover and spread political and economic truth.... Abridgment of freedom of speech and of the press, however, impairs those opportunities for public education that are essential to effective exercise of the power of correcting error through the processes of popular government.

⁷⁰ See supra note 60 and accompanying text.

⁷⁴ See infra Part IV.D.

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substantial portions of the country, and should be treated as such.⁷⁶ Under this line of reasoning, if CICs fulfill many of the functions of municipalities, their actions should qualify as state action, opening them up to constitutional obligations.⁷⁷

There is no arguing with the fact that CICs provide services traditionally delivered by municipalities. In fact, even the Community Association Institute, which represents the interests of community associations, describes the phenomena as such:

Newly created community associations are increasingly required to provide their members with what have historically been considered "municipal" services. Association members must then typically pay the same local taxes as other neighboring homeowners even though trash collection, road and sidewalks maintenance and repair, street lighting, disposal of sewage, storm, flood and erosion control systems, shade and ornamental tree maintenance, security patrols for crime, disorder and public safety and other forms of public services are not made available to them.⁷⁸

Because these are traditional municipal services, some scholars argue that associations effectively operate as "quasi-governmental" entities, entitling residents to the same protections that are afforded to those living under normal government oversight.⁷⁹ In practice, though, this

⁷⁸ 2012 Public Policies of Community Associations Institute, Local Taxation and Public Services for Community Associations, supra note 3, at 54.

⁷⁹ See, e.g., Kennedy, supra note 16, at 763 ("Since the ability to wield such power is largely associated with the state, only by recognizing the quasi-governmental nature of these associations and their actions can the unique conflicts they engender be adequately addressed."). A particularly cogent recitation of this analysis is provided by Franzese and Siegel, who note:

Presently, homeowners associations: (1) are assuming many functions and services traditionally provided by municipalities; (2) are often performing those functions and services with the use of taxpayer funds; (3) are often the product of conscious and deliberate municipal landuse policy; (4) represent the standard template for new community development in many parts of this State; and (5) own networks of streets and open space that, if owned by a municipality, would have served as ... traditional public forums for speech and assembly. In the face of these

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⁷⁶ There is also a separate but related argument that extensive regulation and protection provided by state laws qualify associations as state actors. Nevertheless, this idea has not caught on and is unlikely to succeed as a rationale for a state action designation on its own. *See, e.g.*, Yan Sui v. 2176 Pac. Homeowners Ass'n, SACV 11-1340 JAK AJW, 2012 WL 6632758, at *11 (C.D. Cal. Aug. 30, 2012) ("[T]he fact that state law governs the formation and operation of the HOA does not make the HOA a state actor.").

⁷⁷ Although this argument is an extension of the *Marsh* principle, *see supra* notes 32–38 and accompanying text, it has since taken on a life of its own.

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notion may be untenable, a sentiment that is borne out in the lack of support it has received by courts throughout the United States.⁸⁰

The initial resistance to this theory was that functions performed by associations do not supplant those essential services traditionally provided by municipalities,⁸¹ or that such claims were greatly exaggerated.⁸² Others argued forcefully that although associations perform some functions of government, such an attribute does not necessarily qualify them as governmental entities.⁸³ Although these arguments are still discussed by commentators and courts,⁸⁴ there seems to be a more fundamental disagreement with such a solution.

The modern hesitation to implement this solution appears to be that it works too broad and monumental of a change to American jurisprudence by eviscerating the state action doctrine.⁸⁵ A holding

Franzese & Siegel, supra note 2, at 765–66.

⁸⁰ See, e.g., supra notes 46–47 and accompanying text; see also infra notes 81 & 83.

⁵¹ See, e.g., Midlake on Big Boulder Lake, Condo. Ass'n v. Cappuccio, 449 Pa. Super. 124, 128 (1996) ("While there is sewer service, private streets, and private maintenance, Midlake provides no facilities for community public use that are typically found in a municipality, such as schools, libraries, and other public functions."); Brock v. Watergate Mobile Home Park Ass'n, Inc., 502 So. 2d 1380, 1382 (Fla. Dist. Ct. App. 1987) ("[T]he services provided by a homeowners association, unlike those provided in a company town, are merely a supplement to, rather than a replacement for, those provided by local government."); Ross v. Hatfield, 640 F. Supp. 708, 711 (D. Kan. 1986) (finding that the community was not "sufficiently similar to the company-owned town in *Marsh*" because it did not have its own police or firemen, its own schools, independent trash collection, or public spaces serving the business needs of its residents, nor did the Board of Managers have the powers and rights of a town's governing body).

⁸² Gott, *supra* note 16, at 207 ("Some [scholars] engage in a disingenuous inquiry into the services an association provides.").

⁸³ One court, citing Judge Richard Posner, used an analogy to explain why associations should not be considered government actors:

There are two problems with this line of reasoning. First, it 'confuse[s] an entity and its attributes.' Dogs breathe, eat, sleep, run, and play, but they are not humans, who also do all of those things. And it is not as though the attributes [cited] are those which have been described by the Supreme Court as possibly *exclusive* state functions.... Demonstrating that condominiums do certain things that state governments also do doesn't show that condominiums are acting as the state or in the state's place.

Goldberg v. 400 E. Ohio Condo. Ass'n, 12 F. Supp. 2d 820, 823 (N.D. Ill. 1998) (citing RICHARD A. POSNER, OVERCOMING LAW 211 (1995)).

⁸⁴ See, e.g., Comm. for a Better Twin Rivers v. Twin Rivers Homeowners' Ass'n, 383 N.J. Super. 22, 43 (App. Div. 2006), *rev'd*, 192 N.J. 344 (2007).

⁸⁵ The state action doctrine is a bastion of American jurisprudence. Indeed, courts have said that "the fundamental nature of a constitution is to govern the

realities, it is simply untenable to continue a laissez-fare regime that presupposes that homeowners associations are wholly private organizations.

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that any private entity which performs quasi-governmental functions could be held as a state actor would be unduly broad, likely capturing many community associations that may not function as quasigovernments,⁸⁶ as well as corporations,⁸⁷ unions,⁸⁸ and even sports leagues.⁸⁹ Any test articulated to help determine what would vault an entity into "state actor" distinction would undoubtedly be imprecise, wholly subjective, and unpredictable.⁹⁰ Such a test would do little to resolve the hodgepodge of seemingly contradictory judicial opinions on this issue around the country,⁹¹ nor adequately apprise boards and owners of their rights before litigation hashed them out.

As the line between HOAs and local governments becomes even further blurred, especially as jurisdictions pass legislation mandating private associations for all new development,⁹² the calls for treating HOAs as state actors will only get stronger.⁹³ But because the state

⁸⁷ Goldberg, 12 F. Supp. 2d at 823 (noting that "[t]he National Basketball Association makes rules, conducts hearings, issues decisions, and imposes fines, but it seems unlikely that the privately run sports league is a government actor," and discussing how such reasoning could apply to unions and corporations as well).

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⁹⁰ For example, some have simply pegged it as a "fact-bound determination, requiring a variety of linkages between the actor and state authority." Kennedy, *supra* note 16, at 783. Such a test would subject every significant private entity to lawsuits to determine whether they are to be treated as state actors under this framework.

⁹¹ *Id.* ("State courts have reached wildly different conclusions when faced with [this determination].").

⁹² See Sharon Kolbet, Signs of the Times: How the Recent Texas Legislation Regarding Homeowners' Associations Deprives Homeowners of Their Fundamental Free Speech Rights, 15 TEX. WESLEYAN L. REV. 85, 108 (2008) (citing Dallas, Tex., Development Code, Ordinance 22477 ch. 51, § 2(j) (1995)); Chadderdon, supra note 16, at 237.

⁹³ Indeed, little by little, some courts have used language that seems to support such a position. *See, e.g.*, Damon v. Ocean Hills Journalism Club, 85 Cal. App. 4th 468, 479 (2000) (citations omitted) ("For many Californians, the homeowners association functions as a second municipal government"); Silk v. Feldman, 208 Cal. App. 4th 547, 553 (2012) (citing *Damon*, 85 Cal. App. 4th at 475) ("Courts have recognized a homeowners association functions as a quasi-governmental entity, paralleling the powers and duties of a municipal government."); Comm. for a Better Twin Rivers v. Twin Rivers Homeowners' Ass'n, 383 N.J. Super. 22 (App. Div. 2006), *rev'd*, 192 N.J.

relationship between the people and their government, not to control the rights of the people vis-a-vis each other." Golden Gateway Ctr. v. Golden Gateway Tenants Ass'n, 29 P.3d 797, 808 (Cal. 2001) (citation omitted). By chipping away the state action doctrine, the interactions between private entities would effectively be controlled by the government, reducing choice and eroding the separation of powers. For this reason, it is unlikely to ever be significantly curtailed. See supra Part 0.

⁸⁶ Ronald Perl, former president of the Community Associations Institute, inquired compellingly: "Does that apply to your brownstone condo in Hoboken?'... 'Is your four-unit building a mini-municipality?'" Laura Mansnerus, *Chalk One Up for Homeowners*, N.Y. TIMES (Mar. 12, 2006), http://www.nytimes.com/2006/03/12/ nyregion/nyregionspecial2/12njHOME.html?pagewanted=all&_r=0.

⁸⁸ Id. ⁸⁹ Id.

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action impediment is such a large one, and because most states have already dug in their heels against such a proposition,⁹⁴ this proposal is likely more of an academic exercise than a realistic solution.

B. Legislative Extension of Free Speech Rights to CICs

Some state legislatures have recognized the shortfalls of suggested judicial remedies to this problem, and have taken it upon themselves to protect free speech rights through legislation.⁹⁵ California's experience is instructive.

Early on, the California judiciary led the way in extending constitutional protections to private settings, holding that free speech rights applied to private shopping centers.⁹⁶ As time wore on, with heavy criticism of its rationales⁹⁷ and a more conservative bench, the California Supreme Court sharply limited its extension of free speech rights,⁹⁸ and appellate courts followed suit.⁹⁹ With that, California's

support. ⁹¹ See supra notes 47, 81, & 83 (surveying various courts that have rejected attempts to ascribe state action to private actors).

For example, Illinois has passed a statute, 765 ILCS 605/18.4(h), providing that: [N]o rule or regulation may impair any rights guaranteed by the First Amendment to the Constitution of the United States or Section 4 of Article I of the Illinois Constitution including, but not limited to, the free exercise of religion, nor may any rules or regulations conflict with the provisions of this Act or the condominium instruments. No rule or regulation shall prohibit any reasonable accommodation for religious practices, including the attachment of religiously mandated objects to the front-door area of a condominium unit.

Many other states have passed legislation protecting free speech in CICs. See, e.g., Suarez, supra note 16, at 759 n.116; Chadderdon, supra note 16, at 262–63 (discussing the legislative enactments of Arizona, Maryland, Florida, California, and Texas).

⁹⁶ Robins v. Pruneyard Shopping Center, 23 Cal. 3d 899 (1979); *see supra* note 44 and accompanying text.

¹⁷ See supra note 47 and accompanying text.

⁹⁸ See Golden Gateway Ctr. v. Golden Gateway Tenants Ass'n, 29 P.3d 797 (Cal. 2001) (holding that California's free speech right does not apply to private apartment complexes).

Golinger, supra note 44, at 269 (noting that appellate courts further narrowed

^{344 (2007) (&}quot;The manner and extent to which functions undertaken by community associations have supplanted the role that only towns or villages once played in our polity mirrors the manner and extent to which regional shopping centers have become the functional equivalents of downtown business districts."); Cohen v. Kite Hill Cmty. Assn., 142 Cal. App. 3d 642, 651 (Cal. Ct. App. 1983) (citation omitted) (citing a law review article which noted "the increasingly 'quasi-governmental' nature of the responsibilities of ... associations" and that "one clearly sees the association as a quasi-government entity paralleling in almost every case the powers, duties, and responsibilities of a municipal government"). It remains to be seen whether more courts will adopt this reasoning, but it is unlikely that a solution requiring such a substantial shift in this country's jurisprudence will ever command considerable support.

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judicial experiment came to a screeching halt.¹⁰⁰

Recognizing the importance of certain free speech rights within CICs, and aware that attempted judicial remedies were untenable, the California legislature was forced to act on its own. In 2011, the legislature passed a statute specifically protecting free speech in CICs, with California Civil Code § 1940.4 guaranteeing the rights of residents to display political signs without ramifications from association boards.¹⁰¹ There are some reasonable limitations on this right, but the legislation nonetheless codifies rights for residents that the California Supreme Court was ultimately unable or unwilling to extend.

California's experience offers a model for other state legislatures to safeguard the rights of those living in CICs, without disturbing the state action doctrine. Although some have suggested this as a viable solution,¹⁰² there are undeniable problems with such a course of action. For one, there are questions regarding the ability of legislatures to micromanage private entities and subvert the state action doctrine through legislation. As "freedom of contract [is] the general rule and restraint the exception,"¹⁰³ some have suggested that a retroactive

ⁿ CAL. CIV. CODE § 1940.4 reads:

(a) Except as provided in subdivision (c), a landlord shall not prohibit a tenant from posting or displaying political signs relating to any of the following:

(1) An election or legislative vote, including an election of a candidate to public office.

(2) The initiative, referendum, or recall process.

(3) Issues that are before a public commission, public board, or elected local body for a vote.

(b) Political signs may be posted or displayed in the window or on the door of the premises leased by the tenant in a multifamily dwelling, or from the yard, window, door, balcony, or outside wall of the premises leased by a tenant of a single-family dwelling.

(c) A landlord may prohibit a tenant from posting or displaying political signs in the following circumstances:

(1) The political sign is more than six square feet in size.

(2) The posting or displaying would violate a local, state, or federal law.

¹⁰² See, e.g., Suarez, supra note 16, at 762.

¹⁰³ W. Coast Hotel Co. v. Parrish, 300 U.S. 379, 406 (1937); see also In re Brooklyn Bridge Sw. Urban Renewal Project (Project No. N.Y. R-67) Manhattan, New York, 46 Misc. 2d 558, 561 (Sup. Ct. 1965), aff'd, 24 A.D.2d 710 (1965) (citation omitted) ("While there is no absolute right of freedom of contract, the exercise of legislative authority to abridge it can be justified only where the enforcement of such a contract would conflict with dominant public interests. Otherwise a statutory restraint on the

the doctrine, holding that stand-alone stores like Target and Trader Joe's were not subject to the same free speech restrictions).

¹⁰⁰ The California Supreme Court now holds that "the actions of a private property owner constitute state action for purposes of California's free speech clause only if the property is freely and openly accessible to the public." *Golden Gateway Ctr.*, 29 P.3d at 810; *see also* Cal. Prac. Guide Landlord-Tenant Ch. 4-D (2014).

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application of a statute that strips associations of previously held rights might be struck down via the Contracts Clause.¹⁰⁴

More fundamentally, the political will to pass legislation addressing each free speech issue may be lacking. And even if there was the political will, passing legislation is often reactive, not proactive, and would provide an extremely slow solution to this problem. Moreover, state legislatures likely vary widely in how they view the role of government in controlling private entities, and inconsistent protections offered in different parts of the country would do little to help the current situation. Therefore, although legislative enactments would do much to avoid the difficult state action question, it is unlikely that they would have the speed, uniformity, or predictability necessary to provide an adequate remedy.

C. CIC Bill of Rights

Similar to a reliance on legislative action to protect free speech in CICs, some scholars have suggested that residents themselves should take the initiative to protect free speech in their communities.¹⁰⁵ A Residents' Bill of Rights¹⁰⁶ would ostensibly "provide meaningful oversight of homeowners associations without unduly restricting the power of governing boards to carry out their duties and obligations."¹⁰⁷ This position is theoretically supported by advocates for community associations and boards, who argue that homeowners should shoulder the burden of setting aside the rights they wish to have in their communities.¹⁰⁸ Homeowners control the boards, and are therefore

¹⁰⁷ Franzese & Siegel, *supra* note 2, at 768 (discussing legislative enactments that would function similarly to a homeowner's "Bill of Rights").

¹⁰⁸ Chadderdon, *supra* note 16, at 260 ("HOA members do have the ability to change the covenants of the HOA through a vote of the members. Thus, there appears to be a political remedy built into the HOA structure: if enough homeowners want to make a change, they can vote to make that change."); *see also infra* Part 0 (suggesting that residents and boards should collaboratively change their CC&Rs to reflect reasonable allowances of free expression).

freedom of the parties to contract is violative of the Fourteenth Amendment").

¹⁰⁴ See Ronald Perl and Brian Edlin, The Constitutional Conundrum; The Application of State and Federal Constitutions to Planned Communities and Condominiums, COLL. OF CMTY. ASS'N LAWYERS, §1.05 (Jan. 24–26, 2013).

¹⁰⁵ See, e.g., Suarez, *supra* note 16, at 758.

¹⁰⁶ For potential wording of such a Homeowner's Bill of Rights, see French, *supra* note 8, at 351 ("Speech: The rights of residents to display political signs and symbols of the kinds normally displayed in or outside of residences located in single-family residential neighborhoods in their individually owned property shall not be abridged, except that the association may adopt reasonable time, place, and manner restrictions for the purpose of minimizing damage and disturbance to other owners and residents."); *see also* Paul Boudreaux, *Homes, Rights, and Private Communities*, 20 U. FLA. J.L. & PUB. POL'Y 479, 515–34 (2009).

able to amend the associations' governing documents as they collectively see fit.

In reality, though, residents cannot be relied upon to protect free speech rights in their own communities. As an initial matter, CC&Rs are almost always set before the sale of any homes, and usually exist for good reasons.¹⁰⁹ In CICs, although select residents may be upset that their expression is limited, many more are thankful that there are restrictions to insulate the community from potentially disruptive speech.¹¹⁰ More fundamentally, even if the will exists,¹¹¹ boards exercise significant control over the legislative process within associations and can greatly hinder any attempt to amend the CC&Rs to add such a bill of rights.¹¹² As the desire to extend free speech methods in CICs will often be a minority position, it is unlikely that it will ever command the majority necessary to pass a Bill of Rights.

Therefore, while it may certainly help the situation for residents and boards to seek out internal solutions to free speech problems,¹¹³ a "Bill of Rights" cannot be relied on as the only, or even primary, method of safeguarding free speech rights in CICs.

D. Applying a Constitutional Analysis: The New Jersey Approach

The New Jersey Supreme Court has taken the matter into its own hands,¹¹⁴ devising a unique test under its state constitution that extends free speech rights without deeming CICs state actors.¹¹⁵ After the U.S. Supreme Court held in *Pruneyard*¹¹⁶ that states could find greater free

¹¹⁶ Robins v. Pruneyard Shopping Center, 447 U.S. 74 (1980); see also supra note 44.

¹⁰⁹ See supra note 3 and accompanying text.

¹¹⁰ See supra notes 53–54 and accompanying text.

¹¹¹ In addition to homeowners who actively support restrictions, apathy is also a major impediment to marshaling the will to amend the governing documents. Because many communities count non-votes as "no" votes, an indifferent owner is just as damaging as an owner who actually votes "no" on an amendment.

¹¹² Chadderdon, *supra* note 16, at 260 ("[T]he notion that homeowners can makes changes to CC&Rs once becoming home-owning members of HOAs is largely illusory.").

¹¹³ See infra Part 0 (arguing that while a more significant solution is necessary, boards and residents would do well to preemptively modernize their CC&Rs to protect reasonable amounts of free expression).

¹¹⁴ The only other court that has utilized the New Jersey approach was a Missouri state court in *Lamprecht v. Tiara at the Abbey Homeowners Ass'n*, 2013 No. 12-JE CC0027, WL 6144144 (Mo. Cir. Oct. 3, 2013). *See infra* note 169 and accompanying text.

¹¹⁵ See generally Dublirer v. 2000 Linwood Ave. Owners, Inc., 220 N.J. 71, 73 (2014).

speech protections under their own constitutions than the U.S. Constitution, and thus could extend free speech protections to certain kinds of private property,¹¹⁷New Jersey was one of the first states to take that leap.¹¹⁸

In its first post-*Pruneyard* foray into the issue of free speech in a traditionally private sphere, the New Jersey Supreme Court determined in *State v. Schmid*¹¹⁹ that there are certain instances where the public nature of private property begets some constitutional protections.¹²⁰ The court recognized that "as private property becomes, on a sliding scale, committed either more or less to public use and enjoyment, there is . . . a counterbalancing between expressional and property rights."¹²¹ In order to effectuate this understanding, the court developed a new test to determine the extent to which expression on privately-owned property can reasonably be restricted:

This standard must take into account (1) the nature, purposes, and primary use of such private property, generally, its 'normal' use, (2) the extent and nature of the public's invitation to use that property, and (3) the purpose of the expressional activity undertaken upon such property in relation to both the private and public use of the property. This is a multi-faceted test which must be applied to ascertain whether in a given case owners of private property may be required to permit, subject to suitable restrictions, the reasonable exercise by individuals of the constitutional freedoms of speech and assembly.¹²²

Utilizing this test, the court held that Schmid was entitled to enter the campus of Princeton University and distribute political materials, despite a lack of permission from the University.¹²³ This important holding opened the door slightly for those whose free speech was limited in other traditionally private spheres, and set the stage for New

¹¹⁷ In *Pruneyard*, the Supreme Court had held that California could extend free speech guarantees to private shopping centers under its own state Constitution. 447 U.S. at 79–80.

¹¹⁸ See supra note 44.

¹¹⁹ 84 N.J. 535 (1980).

¹²⁰ *Id.* at 567.

¹²¹ Id. at 561 (citing Marsh v. Alabama, 326 U.S. 501, 506 (1946)).

¹²² *Id.* at 563.

¹²³ Id. at 567–68 ("[I]n the absence of a reasonable regulatory scheme, Princeton University did in fact violate defendant's State constitutional rights of expression in evicting him and securing his arrest \ldots .").

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Jersey's unique development of this constitutional framework.

More than a decade later, the New Jersey Supreme Court extended the ruling of Schmid, holding in New Jersey Coalition Against War in the Middle East v. J.M.B. Realty Corporation¹²⁴ that regional private shopping malls had to permit leafleting on societal issues.¹²⁵ In Coalition, the court added a new balancing test pitting expressional rights versus private property rights,¹²⁶ which stood for the proposition that the more private property is utilized for public purposes, the more expressional rights may be enjoyed upon it.¹²⁷ The court noted that the owners of the shopping mall had "intentionally transformed their property into a public square or market, a public gathering place, a downtown business district, a community,"¹²⁸ which meant that "[t]he sliding scale [could not] slide any farther in the direction of public use and diminished private property interests."¹²⁹ On the private property interest side of the balancing test, the court observed that the plaintiff's type of free speech was "substantial in [New Jersey's] constitutional scheme"130 and that leafleting could be done without seriously infringing on the rights of other guests.¹³¹ After considering these interests, the court determined that the Schmid factors, as well as the general balancing, tilted in favor of allowing leafleting.¹³²

In its third major return to the question of free speech rights in private settings, the New Jersey Supreme Court reiterated in *Committee for a Better Twin Rivers v. Twin Rivers Homeowners Association*¹³³ that a lack of state action is not an impediment to invoking free speech protections in the New Jersey constitution.¹³⁴ For the first time, this

¹²⁶ *Coalition*, 138 N.J. at 362–63.

¹³² Coalition, 138 N.J. at 365 ("We are totally satisfied that on balance plaintiff's expressional rights prevail over defendants' private property interests. We are further satisfied that the interference by defendants with plaintiff's rights constitutes unreasonably restrictive or oppressive conduct.").

¹³³ 192 N.J. 344 (2007).

¹³⁴ The court stated that "the rights of free speech and assembly under our constitution are not only secure from interference by governmental or public bodies, but under certain circumstances from the interference by the owner of private

¹²⁴ 138 N.J. 326 (1994).

¹²⁵ Cf. Robins v. Pruneyard Shopping Ctr., 23 Cal.3d 899 (1979) (expanding free speech protections to shopping malls in California).

¹²⁷ Id. at 363 (quoting Marsh v. Alabama, 326 U.S. 501, 506 (1946)) ("The more an owner, for his advantage, opens up his property for use by the public in general, the more do his rights become circumscribed by the statutory and constitutional rights of those who use it.").

¹²⁸ Id.

¹²⁹ Id.

¹³⁰ Id.

 $^{^{131}}$ Id.

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precedent was applied to the actions of a private residential entity;135 specifically, a policy restricting the size, number, and placement of signs within the community.¹³⁶ Applying the *Schmid/Coalition* test, the court determined that the restrictions were not unreasonable and thus not unconstitutional, as they were merely time, place, and manner restrictions and residents had reasonable alternative opportunities to express themselves.¹³⁷ Although the court ultimately found for the association.¹³⁸ and the opinion was somewhat "ambiguous and confusing,"¹³⁰ the *Twin Rivers* decision nonetheless appeared to open the door even more for the eventual extension of free speech rights into CICs.¹⁴⁰

Just five years later, in *Mazdabrook Commons Homeowners Assn. v. Khan*,¹⁴¹ the New Jersey Supreme Court delivered a resounding victory for free speech in CICs, becoming the first state to strike down signage restrictions of a private CIC as violative of the state constitution. The court again repeated that "[i]n New Jersey, an individual's affirmative right to speak freely 'is protected not only from abridgement by government, but also from unreasonably restrictive and oppressive conduct by private entities' in certain situations."¹⁴² Yet the court noted that the facts of *Mazdabrook*, where a resident posted a political sign endorsing his own candidacy and was fined pursuant to the association's blanket sign restriction, required a different interpretation of the *Schmid/Coalition* test than the one conducted in

¹³⁵ Franzese & Siegel, *supra* note 2, at 733.

¹³⁶ *Twin Rivers*, 192 N.J. at 351 (The covenant held that "residents [could] post a sign in any window of their residence and outside in the flower beds so long as the sign was no more than three feet from the residence... The policy also forb[ade] the posting of signs on utility poles and natural features within the community.").

- ¹³⁷ *Id.* at 368.
- ¹³⁸ Id.
- ¹³⁹ Franzese & Siegel, *supra* note 2, at 743.
- ^a Franzese and Siegel stressed the subtle importance of the *Twin Rivers* decision: Although at first glance the *Twin Rivers* decision does not appear to constitute a bold proclamation of new doctrine, a more careful analysis of the Court's opinion reveals that the Court did indeed announce the framework of a new constitutional approach to CICs. That framework, although largely undefined in its details, provides a conceptual basis for a robust constitutional right of free speech and assembly applicable to CIC residents.

Id. at 733.

¹⁴¹ Mazdabrook Commons Homeowners' Ass'n v. Khan, 210 N.J. 482 (2012).
¹⁴² Id. at 493 (citations omitted).

property as well." *Id.* at 364. The court also left no doubt about its departure from the state action doctrine, saying: "Simply stated, we have not followed the approach of other jurisdictions to require some state action before the free speech and assembly clauses under our constitution may be invoked." *Id.*

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Twin Rivers.¹⁴³ Because the owner was not an outsider and actually owned the property on which the speech was expressed, a test that pitted expressional rights versus private property rights was an inadequate means to assess the tradeoff.¹⁴⁴ Therefore, the court focused on the third *Schmid* factor and engaged in a more general balancing of Khan's expressional rights versus the negative impact this speech had on the Association's property and common areas.¹⁴⁵ After observing that Khan held a legitimate right to free speech on his own residential property and that his speech had minimal interference with Association property,¹⁴⁶ the court concluded that his rights outweighed the aesthetic interests of the Association, and that the outright ban on signs was unconstitutional.¹⁴⁷

Despite *Mazdabrook*'s win for free speech, the test for evaluating free speech rights in CICs had become significantly muddled,¹⁴⁸ and lower courts appeared unsure of how to apply the test to differing factual circumstances.¹⁴⁹ Seeking to clarify this standard, the New Jersey Supreme Court recently decided *Dublirer v. 2000 Linwood Ave. Owners, Inc.*,¹⁵⁰ in which it unanimously articulated a new test for analyzing restrictions on speech within CICs. In *Dublirer*, a community's "House Rule"¹⁵¹ banned solicitation and distribution of

¹⁴⁵ *Id.* at 501.

Id. at 501–03.

¹⁴⁷ Mazdabrook, 210 N.J. at 503.

¹⁴⁸ Franzese & Siegel, *supra* note 2, at 747 (noting that the court had left "undefined the scope and application of this constitutional remedy," and remarking that there could be "many years of appellate litigation before the precise contours of this remedy are fully delineated").

¹⁴⁹ See, e.g., Dublirer v. 2000 Linwood Ave. Owners, Inc., No. A-4800-08T3, 2011 WL 3586139 (App. Div. 2011), aff'd, 220 NJ. 71 (2014) (where the Appellate Division purported to apply the Schmid test but failed to address how each prong of the test is to be assessed and valued, and neglected to discuss how the test changed based on the type of property and nature of the restriction).

¹⁵⁰ 220 N.J. 71 (2014).

¹⁵¹ Because the building in question was a private cooperative apartment building (often referred to as a "co-op"), which features residents who purchase shares of the building and hold leasehold interests in their units, the House Rule was enforced by a Board of Directors and not a Homeowners Association. Although this difference may implicate different concerns, *see* Oral Argument, Dublirer v. 2000 Linwood Ave. Owners, Inc., 220 N.J. 71 (2014) (No. A-125-11), available

¹⁴³ *Id.* at 498–99.

¹⁴⁴ *Id.* The court explained that because Khan owned the property, "the first two *Schmid* factors [did] not favor near-absolute limits on placing a political sign inside [his] own home." *Id.* at 499.

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literature in common areas of the property without board approval.¹⁵² A resident in the building ran for the Board of Directors and sought to distribute campaign literature on the premises, but the Board denied his request.¹⁵³ The resident filed suit challenging the "House Rule," the trial judge found for the Board, and the plaintiff appealed.¹⁵⁴

The Appellate Division applied the well-known *Schmid* threefactor test, and found that although the community was private and there was no public invitation to the property,¹⁵⁵ the restriction nonetheless failed the test because it was unreasonable.¹⁵⁶ The court noted that the policy was especially unreasonable because it did not allow for any alternative means of expression¹⁵⁷ and seemed to discriminate based on content.¹⁵⁸ But because of the "ambiguous and confusing"¹⁵⁹ nature of the New Jersey Supreme Court's previous discussions of free speech in CICs, many issues remained unaddressed in the decision: (1) specific Supreme Court language appeared to contradict the Appellate Division's holding;¹⁶⁰ (2) it was unclear how a covenant could fail the *Schmid* test when two of the three factors militated in its favor;¹⁶¹ and (3) no court had addressed whether the

There shall be no solicitation or distribution of any written materials anywhere upon the premises without authorization of the Board of Directors. Without prior consent of the Board of Directors, no sign or notice shall be placed upon the bulletin board, [in] the mail room, in the halls, lobby, elevators or on the doorways. A bulletin board for residents['] use is provided [near] the rear door.

Dublirer, 220 N.J. at 251-52.

- ¹⁵³ *Id.* at 252.
- ¹⁵⁴ Dublirer, 2011 WL 3586139, at *1.
- ¹⁵⁵ *Id.* at *4.

¹⁵⁶ *Id.* at *6.

¹⁵⁷ *Id.* at *5.

¹⁵⁸ Id. at *6. It is important to note here that the Board of Directors did not evenlyapply the rule. For one, there was evidence that that Board itself engaged in the exact type of speech it prohibited the residents to engage in, namely in distributing newsletters that attacked the Board's critics. Id. at *2. In addition, the Board permitted local police and firefighters to solicit donations by knocking on doors. Id. These facts tend to indicate that the Board discriminated based on content, and although the Appellate Division did not explicitly hold this, it undoubtedly influenced the perception of the reasonableness of the rule. Id. at *6; Dublirer v. 2000 Linwood Ave. Owners, Inc., 220 N.J. 71, 88–89 (2014).

¹⁵⁹ Franzese & Siegel, *supra* note 2, at 743.

¹⁶⁰ See infra note 167.

¹⁶¹ The Appellate Division neglected to discuss the nature of the interaction between the different prongs of the *Schmid* test. Do all prongs need to be satisfied for

at http://165.230.71.5/query.php?var=A-125-11 (where various questions were asked about the distinctions between different communities), the New Jersey Supreme Court has not officially weighed in on this issue.

The rule in question provided:

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analysis changed based on the identity of the speaker and type of community.¹⁶²

Recognizing these deficiencies, the New Jersey Supreme Court issued somewhat of a *mea culpa* in *Dublirer*, admitting that

the Schmid/Coalition test [is] not a perfect fit for private residential communities. The first prong of the Schmid test, for example, is largely subsumed by the issue itself. In the case of restrictions imposed by the board of a private common-interest community of dwellings, the primary nature and use of the property, by definition, is private. The second prong—the extent of the public's invitation to use the property—is even less relevant because residents do not need an invitation to use property in their own community.¹⁸³

Thus, in an attempt to "clarify the standard,"¹⁶⁴ the court declared that the *Schmid* test should no longer be applied when the speaker is an owner, not a visitor.¹⁶⁵ In those situations, "courts should [instead] focus on 'the purpose of the expressional activity undertaken' in relation to the property's use... and should also consider the 'general balancing of expressional rights and private property rights."¹⁶⁶ Thus, in its clearest decision since *Schmid*, the New Jersey Supreme Court finally stated what the test really was all along: a balancing test between free expression and property rights.¹⁶⁷ Applying this new test to the

¹⁶³ *Dublirer*, 220 N.J. at 84–85.

¹⁶¹ Id. at 85. See also Frank Askin, N.J. Supreme Court Decision Clarifies Rules for Condo Associations, Other Properties, THE STAR-LEDGER (Dec. 11, 2014), http://www.nj.com/opinion/index.ssf/2014/12/nj_supreme_court_decision_clarifi es_rules_for_condo_associations_other_properties_opinion.html (suggesting that "the Court took the occasion to clarify the law and end the confusion caused by the Twin Rivers opinion").

¹⁶⁵ *Dublirer*, 220 N.J. at 84–85.

¹⁶⁶ Id. at 85 (quoting State v. Schmid, 84 N.J. 535, 563 (1980); N.J. Coal. Against War in the Middle East v. J.M.B. Realty Corp., 138 N.J. 326, 362 (1994)).

¹⁶⁷ Although it shored up some of the problems with the previous test, *Dublirer* arguably raised as many questions as it answered. For one, express New Jersey Supreme Court language seems to directly contradict the holding in this case. In two different decisions, the New Jersey Supreme Court has explicitly said:

The list of 'horribles' suggested by defendants as the inevitable consequence of our holding for other forms of private property should be dealt with now, rather than in some future litigation. No highway strip mall, no football stadium, no theater, no single huge suburban store, no stand-alone use, and no small to medium shopping center sufficiently satisfies the standard of *Schmid* to warrant the constitutional

a defendant to prevail? Must all prongs be satisfied for a plaintiff to win? The court decided that the first two prongs weighed in favor of the association, but found that the third factor, which weighed in favor of the resident, trumped the first two and necessitated a finding for the plaintiff. *Dublirer*, 2011 WL 3586139, at *4–5.

¹⁶² See supra note 151.

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facts, the court held that the "House Rule" was unconstitutional because Dublirer's important interest in promoting his candidacy and communicating his views about community to governance "outweigh[ed] the minor interference that neighbors w[ould] face from a leaflet under their door."¹⁶⁸

With this line of cases, New Jersey is unquestionably at the forefront of adopting a more flexible approach to extending free speech rights to CICs.¹⁶⁹ And this constitutional framework is likely a better solution than any of the aforementioned theories, such as treating CICs as state actors,¹⁷⁰ relying on legislative action,¹⁷¹ or pushing residents to protect their own interests.¹⁷² It is reasonable, faster than legislative action, and more reliable than depending on residents to fix the problem themselves. Yet the ongoing saga from *Schmid* to *Dublirer* underscores the difficulty other states will likely encounter if they choose to adopt New Jersey's approach to free

¹⁶⁸ *Dublirer*, 220 N.J. at 89.

169 As it stands, only one other court has followed the reasoning of the New Jersey Supreme Court and extended state constitutional protections to private CICs. The first and only extra-state extension of New Jersey's constitutional approach was by a Missouri state court in Lamprecht v. Tiara at the Abbey Homeowners Ass'n, 2013 No. 12-JE CC0027, WL 6144144 (Mo. Cir. Oct. 3, 2013), which involved facts "nearly identical" to Mazdabrook. Id. at *3. In Tiara at the Abbey, a covenant mandated that "no sign of any kind shall be displayed to the public view" but made exceptions for "for sale" signs and signs placed by the builder or remodeler to advertise the property. Id. at *1. In its analysis of the constitutionality of the covenant, the court engaged in an almost identical analysis as the New Jersey Supreme Court, complete with a discussion of the expansiveness of the Missouri state constitution, the fundamental importance of political speech, an analysis of the Schmid factors, and the Coalition balancing test. Id. at *2-4. Based on these considerations, the court determined, similarly to Mazdabrook, that a restriction on political signage is an unreasonable restriction and unconstitutional under Article I, § 8 of Missouri's constitution. Id.

- ¹⁷⁰ See supra Part IV.A.
- ¹⁷¹ See supra Part IV.B.
- ¹⁷² See supra Part IV.C.

extension of free speech to those premises, and we so hold.

Coalition, 138 N.J. at 373; Comm. for a Better Twin Rivers v. Twin Rivers Homeowners' Ass'n, 192 N.J. 344, 361 (2007). The court never addressed this language in *Dublirer*. Second, it is still unclear whether slight factual differences fundamentally change the constitutional inquiry. For example, what if the building is a small, two-family building as opposed to a large condominium complex? Is there a difference between an HOA and a co-op? How does the inquiry change for requests by residents to express themselves through community newsletters or community websites? Is there less protection when the speech involved is political, as opposed to "political-like" in *Dublirer*? Third, the court has suggested that knowing and intelligent waiver might not be possible for free speech rights in the CIC context, Mazdabrook Commons Homeowners' Ass'n v. Khan, 210 N.J. 482, 505–06 (2012), but it has not further explained this proposition, and it is still unclear whether waiver no longer applies. These and many more questions abound, and will seemingly require the court to return to this issue very soon.

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speech in CICs. Therefore, as discussed in more detail in Part B, although the New Jersey test is noble for the results it commands, its complexity and unpredictability make it difficult to apply even in New Jersey, much less the rest of the country.

V. STRIKING COVENANTS AS UNREASONABLE AGAINST PUBLIC POLICY: WHY THE RESTATEMENT TEST PROVIDES THE MOST WORKABLE SOLUTION

This Comment argues that the position taken by the Restatement (Third) of Property ("Restatement") is the most viable method of extending free speech to CICs. The Restatement suggests that courts should find a servitude "invalid if it is illegal, unconstitutional, or violates public policy."¹⁷³ In this way, by allowing courts to strike free speech restrictions that contravene public policy, the Restatement provides a contract and property-based means of ensuring that residents in CICs are given reasonable freedom of expression. This attempts to shift the discussion from somewhat distracting constitutional arguments to more substantive and thoughtful ones like "whether the arrangement poses such risks to the social good that judicial modification or nullification is warranted."¹⁷⁴

And since judicial non-enforcement of covenants as unreasonable against public policy is a "long-standing axiom of contract law,"¹⁷⁵ the Restatement's suggestion is not so much a novel suggestion as it is the modern application of a time-tested approach. In this way, the Restatement test provides a method of guaranteeing free expression in CICs that is simple, reliable, and replicable around the country.

A. Overview of the Restatement Test

The Restatement test closely resembles the test the New Jersey Supreme Court recently articulated in *Dublirer*,¹⁷⁶ in that it requires a balancing between the benefit derived from a covenant versus the harm of leaving the restriction in place.¹⁷⁷ The Restatement begins by commanding that a servitude:

is valid unless it is illegal or unconstitutional or violates public policy. Servitudes that are invalid because they violate public policy include, but are not limited to:

(1) a servitude that is arbitrary, spiteful, or capricious;

'' Id.

^b Dublirer v. 2000 Linwood Ave. Owners, Inc., 220 N.J. 71, 84 (2014).

¹⁷⁷ RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 cmt. e (2000).

¹⁷³ RESTATEMENT (THIRD) OF PROP.: SERVITUDES ch. 3, intro. note (2000).

¹⁷⁵ In *re* Village Homes of Colorado, Inc., 405 B.R. 479, 483 (2009).

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(2) a servitude that unreasonably burdens a fundamental constitutional right;

(3) a servitude imposes an unreasonable restraint on alienation under \S 3.4 or \S 3.5;

(4) a servitude that imposes an unreasonable restraint on trade or competition under § 3.6; and

(5) a servitude that is unconscionable under § 3.7.¹⁷⁸

If the servitude does not fall clearly into one of these prohibitions, the Restatement requires courts to weigh the "interests in enforcing the servitude" against the "public interests that would be adversely affected by leaving the servitude in force."¹⁷⁹

As to the first element, which considers the interests served by the servitude, the Restatement test begins with the presumption that all covenants are valid.¹⁸⁰ This presumption recognizes that "policies favoring freedom of contract, freedom to dispose of one's property, and protection of legitimate-expectation interests nearly always weigh in favor of the validity of voluntarily created servitudes."¹⁸¹ To accommodate this assumption, the Restatement shifts the burden to the party claiming that a servitude should be struck down as a violation of public policy,¹⁸² and places strong reliance on waiver, though without mentioning it by name.¹⁸³ Courts may also look to the community benefits derived from the restriction, such as attempts to be free from offensive speech, freedom from litter, and freedom of privacy.¹⁸⁴

As to the second half of the balancing test, courts must then consider what societal interests would be adversely affected if the servitude were left in place.¹⁸⁵ This hinges on what constitutes "public

¹⁸⁴ See generally Brief for Community Associations Institute – New Jersey Chapter as Putative Amicus Curiae Supporting Petitioners at 20–25, Dublirer v. 2000 Linwood Ave. Owners, Inc., 220 N.J. 71 (2014) (No. A-125-11) (discussing, among other things, some of the bargained-for benefits of covenants restricting leafleting).

¹⁷⁸ *Id.* at § 3.1.

¹⁷⁹ RESTATEMENT (THIRD) OF PROP.: SERVITUDES ch. 3, intro. note (2000).

¹⁸⁰ Id. at § 3.1 cmt. i.

¹⁸¹ Id.

¹⁸² Id.

¹⁸³ *Id.* ("If the principal costs of a servitude fall on the parties who have accepted the burdened property in circumstances in which they should have understood the costs, courts should be reluctant to invalidate the servitude, no matter how costly it turns out to be to one of the parties").

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policy," a definition courts have grappled with for decades.¹⁸⁶ The general concept of public policy in the servitudes context is that:

An agreement is against public policy if it is injurious to the interest of the public, contravenes some established interest of society, violates some public statute, is against good morals, tends to interfere with the public welfare or safety, or, as it is sometimes put, if it is at war with the interests of society and is in conflict with public morals.¹⁸⁷

At first glance, this seems an impossible task; such an undefined standard would be wholly subjective, unpredictable, and unfair.¹⁸⁸ But the Restatement addresses this issue head-on; it readily acknowledges that the concept of public policy is "somewhat amorphous"¹⁸⁹ and undertakes to simplify this judicial method through a set of standards to evaluate public policy.¹⁹⁰

WILLIAM W. STORY, A TREATISE ON THE LAW OF CONTRACTS, § 675 (1874); see also Henningsen v. Bloomfield Motors, Inc., 32 NJ. 358, 403–404 (1960) (noting that "[p]ublic policy is a term not easily defined" because "[i]ts significance varies as the habits and needs of a people may vary").

¹⁸⁷ Odatalla v. Odatalla, 355 N.J. Super. 305, 314 (Ch. Div. 2002) (quoting Garlinger v. Garlinger, 129 N.J. Super. 37, 40 (Ch. Div. 1974)).

¹⁸⁸ Cf. supra Part D (criticizing the New Jersey approach as being similarly undefined and unpredictable).

¹⁸⁹ RESTATEMENT (THIRD) OF PROP.: SERVITUDES ch. 3, intro. note (2000).

Id. at § 3.1 cmt. i. This entire portion of the comment reads:

Resolving claims that a servitude violates public policy requires assessing the impact of the servitude, identifying the public interests that would be adversely affected by leaving the servitude in force, and weighing the predictable harm against the interests in enforcing the servitude. Only if the risks of social harm outweigh the benefits of enforcing the servitude is the servitude likely to be held invalid. The policies favoring freedom of contract, freedom to dispose of one's property, and protection of legitimate expectation interests nearly always weigh in favor of the validity of voluntarily created servitudes. A host of other policies, too numerous to catalog, may be adversely impacted by servitudes. Policies favoring privacy and liberty in choice of lifestyle, freedom of religion, freedom of speech and expression, access to the legal system, discouraging bad faith and unfair dealing, encouraging free competition, and socially productive uses of land have been implicated by servitudes. Other policies that become involved may include those protecting family relationships from coercive attempts to

⁵ William Story remarked more than a century ago that [p]ublic policy is in its nature so uncertain and fluctuating, varying with the habits and fashions of the day, with the growth of commerce and the usages of trade, that it is difficult to determine its limits with any degree of exactness. It has never been defined by the courts, but has been left loose and free of definition, in the same manner as fraud. This rule may, however, be safely laid down, that wherever any contract conflicts with the morals of the time, and contravenes any established interest of society, it is void, as being against public policy.

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The Restatement offers that sources of public policy can be "the product of judicial development, or they may be based on legislation, or on the provisions of state or federal constitutions."¹⁹¹ In considering the public policy interests espoused by state constitutions and legislative actions, the Restatement test is effectively a consolidation of multiple proposed solutions.¹⁹² For example, even if the state constitution could not be applied to private actions due to the state action doctrine, it could nonetheless provide a basis for judges to strike down restrictions as violative of public policy.¹⁹³ And even if legislatures are not able to proactively protect every method of free expression through legislation, its existing pronouncements could be used by judges in considering whether the legislature would prefer to protect the type of expression in question.¹⁹⁴ As a result, courts may look to these and other sources to determine whether striking down the covenant in question implicates interests such as "privacy and liberty in choice of lifestyle, freedom of religion, [and] freedom of speech and expression."¹⁹⁵ If the court finds that these interests outweigh the benefits of enforcing the servitude, then the court may void the servitude as offensive to public policy.¹⁹⁶

But the Restatement does not stop there. In order to give courts further guidance, the Restatement also puts forth various illustrations to describe types of covenants that would not survive the public policy

¹⁹² See supra Part B (discussing the suggestion that legislatures should take the lead on extending free speech rights); Part D (discussing New Jersey's approach of using the state constitution's expansive First Amendment to strike down restrictions on speech).

¹⁹³ See, e.g., Kolbet, *supra* note 92, at 107 ("In Texas, because the state Constitution provides broad free speech protection, a Texas court could rightly hold that a total ban on political signs violated public policy, and was therefore unenforceable.").

¹⁹⁴ See RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 cmt. f (2000) ("Courts may apply the policies manifested by legislation more broadly than the legislation provides, but they may not refuse to apply policies manifested by legislation in situations to which it clearly applies.").

¹⁹⁵ *Id.* § 3.1 cmt. i.

¹⁹⁶ Id.

disrupt them, and protecting weaker groups in society from servitudes that exclude them from opportunities enjoyed by more fortunate groups to acquire desirable property for housing or access to necessary services.

¹⁹¹ Id. at § 3.1 cmt. f; see also Allen v. Commercial Cas. Ins. Co., 131 N.J.L. 475, 477– 78 (N.J. 1944) (suggesting that "[t]he sources determinative of public policy are, among others, our federal and state constitutions, our public statutes, our judicial decisions, the applicable principles of the common law, the acknowledged prevailing concepts of the federal and state governments relating to and affecting the safety, health, morals, and general welfare of the people for whom government — with us is factually established").

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analysis.¹⁹⁷ These include covenants that unreasonably restrict criticism of the community association,¹⁹⁸ the posting of political signs,¹⁹⁹ display of an American flag,²⁰⁰ and door-to-door solicitation of signatures by an outside citizens group.²⁰¹ These illustrations give courts a useful framework for conducting the public policy balancing test and help to ensure that the test is conducted consistently by any court that applies it.

As with the other proposed theories, there are of course imperfections with the Restatement approach. As an initial matter, courts are extremely reluctant to interfere in the contractual relations of two private parties in the name of public policy.²⁰² This is bolstered by the fact that servitudes are now considered extremely valuable aspects of property.²⁰³ Thus, declaring them void as against public policy might decrease the expected value of residents' properties.

In addition, how are courts to weigh competing public policy considerations, when each is compelling? Certainly, as stated poignantly by the Texas Supreme Court, one very important public

¹⁹⁹ *Id.* § 3.1 illus. 7 (noting that "the harm to the public interest in citizen participation in political debate outweighs the value of validating the servitude" because "reasonable alternative means of exercising the right are not available").

²⁰⁰ RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 illus. 8 (2000) (explaining that flag restrictions would be void because "[d]isplay of the flag has strong expressive value, ready alternatives are not available, and the adverse impacts on other subdivision lot owners are not likely to be substantial"). *But see id.* at illus. 9 (explaining that a size restriction on a displayed American flag is not voidable because smaller flags provide adequate means of expression and large or numerous flags may hurt aesthetics).

²⁰¹ *Id.* at illus. 18 (explaining that if a covenant denied access to anyone not a resident or his invite, the "burden on the exercise of political speech rights of the Citizens group [would] outweigh[] the benefit to the residents of freedom from intrusion").

²⁰² See, e.g., Lawrence v. CDB Servs., Inc., 44 S.W.3d 544, 553 (Tex. 2001), superseded on other grounds by statute, Tex. Lab. Code § 406.033(e) ("Courts must exercise judicial restraint in deciding whether to hold arm's-length contracts void on public policy grounds."); RSN Properties, Inc. v. Eng'g Consulting Servs., Ltd., 301 Ga. App. 52, 53 (2009) (quoting Emory Univ. v. Porubiansky, 248 Ga. 391, 393 (1981)) ("[T]he courts must exercise extreme caution in declaring a contract void as against public policy and should do so only in cases free from doubt.").

²⁰³ Joseph William Singer, *The Rule of Reason in Property Law*, 46 U.C. DAVIS L. REV. 1369, 1416–17 (2013) ("The modern approach recognizes that servitudes are not merely encumbrances on property that should be narrowly construed but that they are valuable property rights in themselves, precisely because of the stability they provide to the owners of dominant estates. That is why most courts have repudiated the traditional notion that ambiguous covenants should be interpreted narrowly in favor of free use of land, adopting instead the modern idea that they should be interpreted to achieve the intent of the grantor."); *see also supra* note 3 and accompanying text.

¹⁹⁷ Id. at § 3.1 Illustrations.

¹⁹⁸ *Id.* § 3.1 illus. 5.

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policy is the right to contract itself:

[I]f there is one thing which more than another public policy requires it is that men of full age and competent understanding shall have the utmost liberty of contracting, and that their contracts when entered into freely and voluntarily shall be held sacred and shall be enforced by Courts of justice. Therefore, you have this paramount public policy to consider—that you are not lightly to interfere with this freedom of contract.²⁰⁴

This quote illustrates the undeniable tension throughout the country between public free speech interests and the freedom to contract.²⁰⁵ As a result, despite the Restatement's attempts to normalize its prescribed analysis, there is still sufficient wiggle room in the balancing test that might only further perpetuate the inconsistencies currently found in CICs throughout the country.

These imperfections raise the question: Why is the Restatement's balancing test any better than, say, New Jersey's balancing test?²⁰⁶

B. Why the Restatement Test is the Best Method of Extending Reasonable Free Speech Rights to CICs

Although the Restatement's prescribed test is by no means perfect, it nonetheless provides the best method of expanding free speech rights to CICs.

First, the Restatement provides a non-constitutional method of striking down unreasonable restrictions on speech, which should always be considered before a constitutional method of adjudication.²⁰⁷ In general, courts are hesitant to "reach a constitutional question unless its resolution is imperative to the disposition of litigation."²⁰⁸ This theme of constitutional avoidance was articulated years ago by

²⁰⁸ Mazdabrook Commons Homeowners' Ass'n v. Khan, 210 N.J. 482, 504 n.4 (2012) (quoting Randolph Town Ctr., L.P. v. Cnty. of Morris, 186 N.J. 78, 80 (2006)).

²⁰⁴ Fairfield Ins. Co. v. Stephens Martin Paving, LP, 246 S.W.3d 653, 664 (Tex. 2008) (quoting Wood Motor Co., Inc. v. Nebel, 150 Tex. 86, 93 (1951)).

²⁰⁵ See Baugh v. Novak, 340 S.W.3d 372, 382 (Tenn. 2011) (quoting Steven W. Feldman, *Tennessee Practice: Contract Law and Practice* § 7:3, at 732 (2006) ("The need for delicacy arises because exercising the authority 'to declare contracts as void as against public policy is in tension with freedom of contract and the need to bind parties to their voluntary agreements.")).

²⁰⁶ See generally Dublirer v. 2000 Linwood Ave. Owners, Inc., 220 N.J. 71 (2014).

²⁰⁷ See generally Ashwander v. Tennessee Valley Auth., 297 U.S. 288, 347 (1936) ("The Court will not pass upon a constitutional question although properly presented by the record, if there is also present some other ground upon which the case may be disposed of.... Thus, if a case can be decided on either of two grounds, one involving a constitutional question, the other a question of statutory construction or general law, the Court will decide only the latter.").

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Frank Askin, one of the foremost advocates for the extension of free speech rights in the country:

Because state courts always retain the common law power to strike down regulations they find unreasonable and against public policy, it is seldom necessary to fall back on constitutional principles when deciding disputes between the association and a member. Any rule that a court might find to be unconstitutional will probably be invalidated on common law principles—although it is true that several cases in Florida have referred to constitutional protections for free speech and family privacy to invalidate rules found to be unnecessarily restrictive of individual autonomy. However, the references to constitutional principles were unnecessary because those courts could have come to the exact same conclusions on common law grounds.²⁰⁹

Since this caution by Askin, New Jersey and other courts have nonetheless engaged in confusing, inconsistent, and unpredictable constitutional analyses.²¹⁰ Because voiding servitudes as violative of public policy is a separate and independent means of reaching the same result,²¹¹ courts should never even reach the constitutional analysis.

Second, the constitutional analysis is far more complicated than

²¹⁰ Interestingly enough, Frank Askin recently argued for the ACLU in the *Dublirer* case, where he asked the New Jersey Supreme Court to strike down a restriction on leafleting as unconstitutional. He does not appear to have made any mention of non-constitutional methods of adjudication.

²¹¹ For example, the Restatement's Illustration 5 poses almost the exact same factual situation as *Dublirer*. It reads:

The declaration of servitudes for Harmony Village includes a provision prohibiting owners and residents from criticizing actions taken by the board of directors or the architectural-control committee except at regularly scheduled meetings of the board. A resident unhappy about a board decision to construct a new tennis court distributed a flyer to residents criticizing the board decision. Exercising its power to enforce the servitudes by fines, the board imposed a \$1,000 fine on the resident. In the absence of other facts or circumstances, the conclusion would be justified that the prohibition on criticism of board actions is invalid because it unreasonably burdens freedom of speech.

RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 illus. 5 (2000); cf. Dublirer v. 2000 Linwood Ave. Owners, Inc., 220 N.J. 71 (2014) (where a co-op Board of Directors selectively enforced a prohibition on leafleting, such that criticized its opponents in a regular newsletter but prohibited its opponents from doing the same). Thus, in a jurisdiction that utilized the Restatement, the five-year litigation of *Dublirer* would likely have been completely unnecessary, either because the Board would have had constructive notice (through the Illustrations) that such a practice would be improper, or because this would have been an open-and-shut case in the trial court.

²⁰⁹ Frank Askin, Free Speech, Private Space, and the Constitution, 29 RUTGERS L.J. 947, 955–56 (1998).

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the Restatement's property-based test.²¹² For example, in *Mazdabrook*, the New Jersey Supreme Court devoted over ten pages of legal analysis to the constitutional issues presented by a sign restriction, despite tackling an extremely similar case only five years earlier.²¹³ The court also briefly engaged in the type of property-based analysis that the Restatement suggests,²¹⁴ but came to the same conclusion in only two paragraphs.²¹⁵ Therefore, not only does it appear that the court was not forced to engage the constitutional question at all, but it also seems that the court chose the more difficult method.

Third, the property-based analysis is replicable throughout the United States. Unlike New Jersey, which stands alone in bypassing the state action doctrine and applying its state constitution to private communities,²¹⁶ most states are simply unable to follow that line of reasoning without undoing decades of case law²¹⁷ and ignoring the

The court further stated:

'[R] estrictive covenants on real property that violate public policy are void as unenforceable.' Twin Rivers, 192 N.J. at 370 (citations omitted). When courts evaluate whether a covenant burdening land is enforceable, they must determine whether the covenant is reasonable. See Davidson Bros., Inc. v. D. Katz & Sons, Inc., 121 N.J. 196, (1990). Among other factors that inform that decision is '[w]hether the covenant interferes with the public interest.' Id. at 211.

This Court explained in *Twin Rivers* that 'restrictive covenants that unreasonably restrict speech—a right most substantial in our constitutional scheme—may be declared unenforceable as a matter of public policy.' *Twin Rivers*, 192 N.J. at 371. Because the restriction in question is unreasonable and violates the State's Constitution, the covenant that memorializes it is unenforceable.

Mazdabrook, 210 N.J. at 507 (parallel citations omitted). The court never stated why this simple property-based analysis was not sufficient to decide the case.

²¹⁶ New Jersey's constitutional guarantee of free expression has been described as "an affirmative right, broader than practically all others in the nation." Green Party v. Hartz Mountain Indus., Inc., 164 N.J. 127, 145 (2000). This alone makes it highly unlikely that other states can replicate the New Jersey's constitutional test.

²¹⁷ See, e.g., supra note 47 and accompanying text. Indeed, even states with almost identical free speech language in their constitutions as New Jersey's have declined to ignore the state action requirement. For example, Michigan's constitution is nearly the same as New Jersey's, but its courts have nonetheless held that "the federal and the Michigan constitutional provisions guaranteeing free speech do not extend to private conduct, but have been limited to protection against state action." Prysak v. R.L. Polk Co., 193 Mich. App. 1, 10 (1992).

²¹² See supra text accompanying note 139.

²¹³ Mazdabrook, 210 N.J. at 492–503. As if that was not enough complex, constitutional legal analysis on the issue, the court again returned to the issue just two years later. See Dublirer, 220 N.J. 71.

²¹⁴ Mazdabrook, 210 N.J. at 507 (holding that "[t]o the extent that Mazdabrook or the dissent relies on a restrictive covenants analysis, the Association's sign policy likewise fails").

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fundamental doctrine of *stare decisis*.²¹⁸ To the contrary, every state would be able to adopt the Restatement's approach.²¹⁹ The practice of voiding contracts as against public policy is a long-standing mainstay of jurisprudence²²⁰ and is well-established in courts around the country.²²¹ Thus, the Restatement shifts the discussion to *which* rights society believes should be protected, as opposed to complex constitutional discussions over how to extend *any* rights to otherwise private entities.

Fourth, the Restatement test is more predictable than a constitutional approach. Through its "Illustrations," the Restatement promulgates several types of expression that would not survive such a public policy analysis.²²² If each of these free speech rights is automatically protected in every state, a valuable uniformity of baseline free expression rights would be created in the United States. Moreover, because the Restatement's illustrations are proactive pronouncements, as opposed to limited constitutional court rulings that focus only on the case at hand,²²³ boards and residents would not be forced to guess what speech is permitted and could often act before courts were forced to intermediate.²²⁴

²¹⁹ RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 cmt. d (2000) ("Even though there may not be sufficient state action present to justify application of constitutional limitations to privately created servitudes, the servitude may be invalid as a matter of state or federal common law because it violates public policy.").

²²⁰ See supra note 175 and accompanying text.

²²¹ See supra Part V.A.

²²² See supra notes 198–201 (suggesting that associations could not prohibit criticism of the community association, the posting of political signs, display of the American flag, and door-to-door solicitation of signatures by an outside citizens group).

²³³ See, e.g., Franzese & Siegel, supra note 2, at 747 ("Suffice it to say that it may well require many years of appellate litigation before the precise contours of this remedy are fully delineated."); supra note 211 (arguing that if New Jersey had simply adopted the Restatement test instead of making piecemeal pronouncements on the constitutionality of certain free speech restrictions in CICs, the *Dublirer* case would never have had to be litigated).

²²⁴ In essence, because the New Jersey test does not give much in the way of guidance for *future* issues, as opposed to the Restatement, it leaves residents and boards with mere speculation as to the contours of free speech protections. *See also* Part 0 (suggesting that in the interim, Boards and residents should use the Restatement illustrations as guidelines to adopt their own reasonable free speech policies before

²¹⁸ The Supreme Court has clearly articulated the importance of an adherence to *stare decisis. See* Payne v. Tennessee, 501 U.S. 808, 827 (1991). Although the Supreme Court has also said that the reviewing court is not as constrained by the doctrine "when governing decisions are unworkable or are badly reasoned," *id.* at 828, the Court also notes that "[c]onsiderations in favor of *stare decisis* are at their acme in cases involving property and contract rights, where reliance interests are involved," *id.* (citations omitted). Therefore, states with a strong history of disallowing free speech in private environments may find it difficult to overcome the reliance on *stare decisis* with such a new and unique constitutional test.

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Yet at the same time, the property-based doctrine is necessarily flexible.²²⁵ In a country with different types of CICs in varying environments, it is beneficial to give courts the opportunity to make calculations for their own communities.²²⁶ The Restatement ensures that judicial determinations are not made on the most fundamental of expressional rights,²²⁷ but allows individual communities to determine themselves where to draw the outer membrane of free speech rights in CICs.²²⁸ These less fundamental free expression rights are likely more local in character, and the Restatement gives courts the flexibility to fashion their remedies as such.

Fifth, the Restatement test actually considers the important countervailing issues at stake on both sides of the issue. Although recent years have seen HOAs exceed reason with overburdensome free speech restrictions,²²⁹ there are undoubtedly good reasons why CC&Rs are adopted in the first place.²³⁰ By beginning with the presumption that all covenants are valid,²³¹ the Restatement does not make aesthetics the sacrificial lamb for unbridled free speech rights.²³² And in

they are challenged in court).

²²⁶ For example, a CIC in rural Arkansas is likely to be different in structure and interests than one from New York City, so it would be improper to subject them to the same exact requirements. Since the public policies in each location will be different, local communities can decide themselves what is reasonable. Of course, this could result in harsher treatment of minority positions (like mezuzahs in Arkansas or college football flags in New York City); but the most important rights are likely protected by the Restatement's illustrations, and as discussed below, the ability of the U.S. Supreme Court to intercede might provide an additional safeguard.

²²⁷ See RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 Illustrations (2000) (providing examples to inform the courts on what types of restrictive covenants should be struck down as violating public policy, effectively guaranteeing that those rights would be protected around the country and leaving only the less essential expressional rights to be determined by the courts).

²²⁸ See, e.g., Henningsen v. Bloomfield Motors, Inc., 32 N.J. 358, 403 (1960) ("Public policy is a term not easily defined. Its significance varies as the habits and needs of a people may vary. It is not static and the field of application is an ever increasing one. A contract, or a particular provision therein, valid in one era may be wholly opposed to the public policy of another.").

- ²³⁰ See supra note 3 and accompanying text.
- ²³¹ RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 cmt. i (2000).

 292 Id. at § 3.1 cmt. j ("Absent extraordinary circumstances, if a servitude serves some purpose that the purchasers might rationally have agreed to, and its meaning should have been apparent to the purchasers, a court should not invalidate it simply because the court believes that most people would not have agreed to it, or that it

⁹²⁵ See RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 3.1 cmt i (2000); *id.* at § 3.1 cmt. f ("Because policies change to meet changing conditions of society, it is not practicable to predict the policy assessments judges will make in the future."); STORY, *supra* note 186 (describing that the concept of public policy "has been left loose and free of definition" because it is, by nature, "uncertain and fluctuating").

²²⁹ See supra notes 63–66.

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recognizing that a knowing and intelligent waiver may factor into the analysis,²³³ the Restatement does not swing the pendulum towards residents quite as far as the New Jersey Supreme Court has.²³⁴ In this way, the Restatement test is presumably a much more palatable method for advocates of private contract rights and the maintenance of uniformity and aesthetics in CICs.²²⁵

For those state courts potentially willing to consider the extension of free speech rights into CICs, it seems clear that the Restatement provides a method of adjudication that is relatively simple, replicable around the country, and does not eviscerate the state action doctrine. Therefore, in looking for ways to extend free speech rights to CICs, courts should first turn to the prescriptions of the Restatement and a property-based analysis, as opposed to the constitutional one advanced by the New Jersey Supreme Court.

VI. WHAT CAN BE DONE IN THE INTERIM?: PROACTIVE ACTION BY HOA BOARDS TO AMEND THEIR GOVERNING DOCUMENTS

The major difficulty with the Restatement's prescribed test is that it is non-binding–a mere recommendation of what the law should be.²³⁶ Although Restatements have always been well-respected sources of

²³⁵ See Christopher J. Wahl, Keeping Heller Out of the Home: Homeowners Associations and the Right to Keep and Bear Arms, 15 U. PA. J. CONST. L. 1003, 1012–13 (2013) ("While [the Restatement test's] imprecision may lead one to fear that a court may have too much leeway, the fact that servitudes are protected with a presumption of validity works against the potential bias or prejudice of a court applying the flexible public policy test to a servitude.").

²³⁶ See, e.g., Lou v. Otis Elevator Co., 77 Mass. App. Ct. 571, 580–81 (2010) (citing Bongaards v. Millen, 440 Mass. 10, 29 (2003)) (noting that "while this court often considers the various Restatements of the Law as prestigious sources of potentially persuasive authority, we have never taken the position that this court should abdicate to the views of the American Law Institute as set forth in its various Restatements").

produces little benefit.").

²³³ Id. at § 3.1 cmt. i.

²³⁴ Indeed, the New Jersey Supreme Court has insinuated that residents may *never* waive their rights in a CIC. *See* Mazdabrook Commons Homeowners' Ass'n v. Khan, 210 N.J. 482, 506 (2012) ("It is unclear that the approach in this case can result in a *knowing* and *intelligent* waiver of fundamental constitutional rights."). Yet the dissents in the Appellate Division and Supreme Court in *Mazdabrook* starkly disagreed with the inapplicability of waiver. *See* Mazdabrook Commons Homeowners' Ass'n v. Khan, A-6106-08T3, 2010 WL 3517030 (App. Div. 2010) (Miniman, J, concurring in part and dissenting in part), *aff'd*, 210 N.J. 482 (2012) ("The restriction on signs and the right to sue to enforce it are included in the bundle of rights, restrictions, encumbrances, and easements contained in the deed to defendant's unit. Thus, defendant and all other unit owners expressly agreed that they would not violate the prohibition on signs and each owner was empowered to enforce that restriction."); *Mazdabrook*, 210 N.J. at 511 (Wefing, J., dissenting) ("[I]ndividuals are equally entitled to seek shelter from political debate and division.").

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legal authority,²³⁷ courts around the country will have to buy into the Restatement's reasoning and apply its test faithfully. While this Comment argues that courts around the country should adopt the Restatement test and extend reasonable free speech rights to residents of CICs, it is unlikely that this will happen overnight. In the meantime, it would behoove both HOAs and residents to proactively amend the governing documents of their communities to reflect a reasonable allowance of free expression within CICs. Although boards are often hesitant to extend more rights to residents, and residents feel powerless to make changes themselves, working together to offer reasonable free speech rights in CICs makes sense for several reasons.

First, the tide is changing. HOAs may resist the extension of free speech into CICs, but the eventual protection of basic expressional rights in these communities is likely inevitable.²³⁸ Given the force of the Third Restatement,²³⁹ powerful and revolutionary court decisions,²⁴⁰ and compelling scholarly suggestions,²⁴¹ it is only a matter of time before free speech protections are imposed on CICs. In order to have a hand in fashioning the remedies themselves, boards must act before they are forced by courts, legislatures, and/or residents.²⁴²

Second, in some states, boards are putting themselves in difficult situations by refusing to, or merely neglecting to, amend their

- ²³⁹ See supra Part 0.
- ²⁴⁰ See supra Part D.
- ²⁴¹ See supra note 16; Part 0.

²⁴² For example, following the New Jersey Supreme Court's decision in *Dublirer*, a law firm that represents community associations released a client alert that stated bluntly: "[The decision] provides a clear message to common interest ownership community governing boards that they must allow adequate means for community residents to be able to inexpensively communicate with each other and with the board and should not try to prevent debate over association political issues or criticism of the board." Jonathan H. Katz, *Client Alert: N.J. Supreme Court Issues Important Decision Expanding Community Association Residents' Free Speech Rights*, CONDOLAWNJ (Dec. 8, 2014, 1:11 AM), http://www.condo.hillwallackblog.com/ client-alert-n-j-supremecourt-issues-important-decision-expanding-community-association-residents-freespeech-rights/.

²³⁷ See id.; Secondary Sources: ALRs, Encyclopedias, Law Reviews, Restatements, and Treatises, HARV. L. SCH. LIBR., http://guides.library.harvard.edu/content.php? pid=103327&sid=1036651 (last visited May 20, 2015) ("Restatements are highly regarded distillations of common law.").

⁵²³⁸ See, e.g., Askin, supra note 209, at 956 (suggesting that "[it] is inevitable in a society as deeply committed to freedom of expression and communication as ours that more and more courts are going to" follow New Jersey's lead in extending free speech rights to CICs). In fact, even New Jersey's complex constitutional analysis was recently adopted elsewhere in the country. See supra note 169 (describing Lamprecht v. Tiara at the Abbey Homeowners Ass'n, No. 12 JE-CC00227, 2013 WL 6144144 (Mo. Cir. Oct. 3, 2013), where a Missouri state court appeared to adopt the New Jersey test in full).

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governing documents. For one, associations that maintain unreasonable blanket restrictions on certain types of free expression may then find it difficult to police any types of expression, even offensive ones.²⁴³ And from a practical standpoint, HOAs that choose not to amend their documents also run the risk of incurring substantial litigation costs when their CC&Rs are eventually challenged. The extension of free speech rights into private entities, and increasingly CICs, is a fast-growing area of litigation, and there is no sign of it abating.²⁴⁴ To insulate themselves from the specter of costly litigation, HOAs would be wise to be proactive and adopt reasonable guidelines for speech within their communities.

Therefore, boards and residents should preemptively adopt reasonable free speech protections in their governing documents. Guidance should be drawn from the Restatement's "Illustrations,"²⁴⁵ suggestions from the New Jersey Supreme Court,²⁴⁶ and federal²⁴⁷ and local²⁴⁸ legislative actions. But there are several other animating principles that boards and residents should consider when amending and applying their CC&Rs. First, associations should ensure that if a method of free expression is entirely or mostly prohibited, there are reasonable alternative means of expression available to residents.²⁴⁹ In addition, boards should be sure to avoid uneven application of rules; engaging in the same type of expression that residents are prohibited from may raise an inference that the board is unreasonably

²⁴³ In other words, boards may find it difficult to enforce *any* restrictions on speech if they adopt only blanket restrictions, and not reasonable time, place, and manner restrictions. For example, if a resident in CIC puts neon signs saying "Obama sucks" in each one of his windows, what recourse does an HOA have if their entire sign restriction is declared invalid, but they have adopted no other time, place, and manner restrictions to prevent this seemingly distasteful display?

See supra note 21 and accompanying text.

²⁴⁵ RESTATEMENT (THIRD) OF PROP. SERVITUDES § 3.1 Illustrations (2000).

²⁴⁶ See, e.g., Dublirer v. 2000 Linwood Ave. Owners, Inc., 220 N.J. 71, 87–88 (2014) (providing some examples of "reasonable time, place, and manner restrictions" that would "serve the community's interest" but "without unreasonably interfering with free speech rights").

²⁴⁷ See, e.g., supra note 66 (describing, among other things, a law passed by Congress prohibiting bans on flying American flags).

²⁴⁸ Many states have passed legislation seeking to protect certain kinds of political speech. HOAs should ensure that their CC&Rs reflect these local legislative pronouncements. *See infra* Part B; *see also, e.g.*, TEX. PROP. CODE ANN. § 202.009 (prohibiting associations from banning political signs within 90 days preceding and 10 days following the election).

²⁴⁹ See, e.g., Comm. For A Better Twin Rivers v. Twin Rivers Homeowners' Ass'n, 192 N.J. 344, 358–59 (2007) (quoting State v. Schmid, 84 N.J. 535, 563 (1980)) (noting the importance of "whether there exist convenient and feasible alternative means to individuals to engage in substantially the same expressional activity").

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discriminating based on content.²⁵⁰ And finally, boards should be particularly careful when attempting to regulate political speech.²⁵¹

With the Restatement as a guide, boards' involvement in fashioning reasonable time, place, and manner restrictions would create a beneficial two-way street, where boards and homeowners could reach a compromise. Only then can this contentious system²⁵² become a collaborative one, where boards and homeowners work together to safeguard the best interests of the community and its residents.

VII. CONCLUSION

We live in a country that embraces diversity and celebrates it, yet too often, CICs seek to create homogenous zones free from various modes of expression.²⁵³ Although time, place, and manner restrictions are unquestionably necessary to avoid offensive forms of speech, more stringent restrictions are antithetical to the embracing aspect of community life in the United States.²⁵⁴

In order to scale back these confining servitudes, there must be widespread implementation of the options above, but especially court adoption of the Restatement position. Only then will we be able to effect the profound change we want to see in CICs. Then, finally, we will ensure the protection of one of the most important interests in our CICs, which sits at the base of American democracy: the freedom of expression.

²⁵⁰ See, e.g., Dublirer, 220 N.J. at 88 (citation omitted) ("Nothing in our case law permits a group in power to attack its opponents yet bar them from responding in the same way. 'As a general rule, laws that by their terms distinguish favored speech from disfavored speech on the basis of the ideas or views expressed are content-based.'").

²⁵¹ See RESTATEMENT (THIRD) OF PROP. SERVITUDES § 3.1 illus. 7 (2000) (suggesting that "application of [a] covenant to prohibit political yard signs is invalid because the harm to the public interest in citizen participation in political debate outweighs the value of validating the servitude"); *Dublirer*, 220 NJ. at 71 (suggesting that political speech is "entitled to the highest level of protection in our society").

²⁵² See supra notes 53–54 & 63–65 and accompanying text.

²⁵³ See generally supra Part 0.

²⁵¹ See Low, supra note 69 (expressing that our "retreat to secured enclaves ... materially and symbolically contradicts American ethos and values"); Kennedy, supra note 16, at 763 ("Residential associations cause harms to nonmembers by developing exclusive communities, by gating formerly public streets and neighborhoods, and by increasing the fiscal burdens of cities and states.").

A GUIDE TO COMMUNITY CAPITAL

This is BALLE's basic guide to community capital, including financing, debt, and the circulation of money within a local economy.

a guide to Community Capital



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The Need for Community Capital

Business owners and social entrepreneurs in many communities struggle to access the funds they need to launch or expand their businesses and initiatives. At the same time, most of our financial investments go to unfamiliar, opaque investments in far way places and have impacts from which we are disconnected. It doesn't have to be this way. Innovators across North America are creating ways of re-directing financial resources to businesses and organizations that are serving the communities in which they are located by providing needed goods and services, creating high-quality jobs, restoring the environment and enabling prosperity for all through the development of local living economies.

What is Community Capital?

Our Definition

Community capital harnesses the financial wealth that exists within a region to support local, community-serving businesses and organizations, and keeps this wealth re-circulating for the benefit of the whole community.

The Longer Version

BALLE aims to build communities that are healthy, sustainable and equitable – backed by local economies that are strong and resilient. This means using regional resources to meet our needs, and reconnecting eaters with farmers, investors with entrepreneurs, and business owners with the communities and natural places on which they depend.

The dominant financial system is not working. Global capital markets are draining, not building up, the health of our communities. The current system is based on perpetual growth, concentration of power and wealth, and externalized costs; without acknowledging the risks associated with global threats like climate change, natural resource depletion, and inequality.

To restore our communities, we must re-shape the ways in which financial capital flows through our local economies – tapping into the wealth that we have, directing regional resources towards community-serving businesses and organizations that create real, long-term value and re-circulating this wealth for the benefit of the whole community. We focus on financial capital in this guide, but recognize that there are many kinds of wealth in communities, and financial capital is just one of many resources that we must harness to build and support sustainable local and regional economies.¹

¹ There are many resources on non-financial capital in our communities. One popular resource is: "The Sharing Solution: How to Save Money, Simplify Your Life & Build Community", by Janelle Orsi and Emily Doskow: www.sharingsolution.com.



Community capital can take many forms. We're interested in the continuum of capital needed for thriving local economies – what we call "integrated capital" which includes gifts, grants, loans, equity, credit enhancement, pre-sales, and other forms of exchanging value to support local businesses and organizations. Examples include:

- A local dairy farmer who receives financing for expansion through the pre-sales of cheese and yogurt
- Lending circles where community members lend each other money to build credit and grow
 businesses
- A community foundation that supports the ability of a local bank to provide loans to local businesses that wouldn't otherwise qualify by providing a loan loss reserve fund
- Customer purchases of ownership stakes in their favorite local restaurant or farm
- Individual investors or investment funds that re-direct their portfolios to build a regional food distribution system through grants, loans, and equity investments
- A community development financial institution (CDFI) that uses Community Reinvestment Act (CRA) funds to make loans to start-up entrepreneurs in an under-served region
- Member equity shares in a grass-fed cattle producers' cooperative used to fund collective processing and distribution activities

In some cases, community capital initiatives may be designed to complement traditional capital sources by filling in critical financing gaps. In other cases, community capital may be used to reduce or eliminate our reliance on a financial system characterized by opaque and impersonal transactions, by offering tools that enable transparent investments based on long-term relationships and a shared vision of the economic and social transformation we want to see.

We don't have to reinvent the wheel again and again – instead, we can share and evolve ideas together and scale those that are most promising. More information and resources will be added regularly to our website: https://bealocalist.org.

What's in this Guide?

There is a tremendous amount of innovation occurring around community capital right now. This guide is designed to provide an introduction to the ideas and language of community capital, and to pique your interest in learning more by providing descriptions of existing tools with brief examples from communities across North America. This guide provides a high-level primer and a map for readers to connect to a range of resources to learn more. It is divided into four parts:

- Sources of Financial Capital Overview of capital sources and potential partners that may exist in your community.
- Tools for Deploying Capital –The tools that entrepreneurs and innovators are using to tap into community capital.

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- Investment Offerings and Community Capital Platforms Options for structuring investments, with a review of some of the existing innovative platforms and mechanisms.
- Glossary of Financial Terms Simple definitions for financial terms.

Sources of Capital

There are many sources of financial capital available within a region, and these will vary significantly by country, state/province and locality. We describe several sources of capital in this section, but local experts and financial organizations can likely direct you to many more.²

Individuals

Individuals in your region are an important source of capital and support for local businesses and organizations. Individuals can make donations, provide loans, purchase ownership stakes in businesses become cooperative owner-members, pre-buy goods and services, and contribute in other ways. Right now, most people have their assets in the traditional global financial system, and have very little knowledge about the positive or negative impacts of their investments or the options for re-investing their money locally – these savings and investments are a huge and largely untapped source of capital for re-building our communities.

In most countries there are laws that restrict individuals from making some types of investments (created in response to scandals where people of modest means lost much of their wealth in bad investments). For some types of investments only accredited investors can participate. Accredited investors include individuals with a certain level of financial wealth; e.g. over \$1 million in assets or significant annual income.³ Individuals below this threshold are called unaccredited investors. Just one percent of Americans are accredited investors, and many local investment opportunities are limited to these few individuals.

Donor-Advised Funds

Donor-advised funds allow donors (usually wealthy individuals or businesses) to establish an account with a "charitable sponsor" (often a community foundation or other philanthropic entity) by making irrevocable, tax-deductible contributions to the charitable sponsor. Donors then recommend grants from those funds to give to charitable activities (although the charitable sponsor has ultimate decision-making authority).

² For an example of an excellent statewide resource that outlines sources of capital, financing tools and potential partners, see the Access to Capital guide of the California Financial Opportunities Roundtable: http://www.rurdev.usda.gov/Reports/CA-CalFOR.pdf ³ For the U.S. definition of accredited investor see: http://www.sec.gov/answers/accred.htm



More information on donor-advised funds:

- National Philanthropic Fund's Annual Donor-Advised Fund Report: http://www.nptrust.org/
- Tides Canada's overview on creating a donor-advised fund: http://tidescanada.org/create-adonor-advised-fund/

Foundations

Philanthropic organizations are a common source of grant funding. Community foundations are philanthropic institutions that serve a geographically defined region. Other foundations may also have a regional focus for part of their portfolios. In additional to offering grants, which do not require repayment, many foundations are exploring ways to invest their capital in other ways, including as loans or equity in mission-aligned businesses and organizations. These investments are called program-related investments (PRIs) when they primarily serve a charitable purpose and are treated similar to grants for tax purposes, and mission-related investments (MRIs) when they are expected to have a return and must meet investment standards that apply to the foundation's other income-generating investments.

More information on PRIs and MRIs:

- Mission Investors Exchange PRI Report, "Strategies to Maximize Your Philanthropic Capital: A Guide to Program Related Investments": http://is.gd/yybSqJ
- Philanthropy Journal article, "Unscrambling MRIs and PRIs: http://is.gd/hirH28

Banks

Banks take in capital from investors and account holders (depositors) and loan funds out to businesses, organizations and individuals. Banks are subject to federal and state lending guidelines that have become more restrictive in the U.S. since the 2008 recession. Banks are more likely to lend to businesses and organizations with long track records of success and/or valuable assets (these assets are often referred to as "collateral", which the bank could take if the borrower is unable to repay the loan). Many small businesses have a difficult time securing traditional bank financing, particularly those businesses without collateral. There are global, national, and regional/local banks – and while all are potential sources of capital, we've found that small and mid-sized banks, which typically have a local or regional lending focus, tend to be more interested in taking the time to understand and lend to local businesses and organizations. While these small and mid-sized banks hold just 22 percent of U.S. bank assets, they make 54 percent of small business loans.

More information local and mission-driven banks:

• The Institute for Self-Reliance's article, "Why Small Banks Make More Small Business Loans": http://www.ilsr.org/banks-and-small-business-lending/

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- One Pacific Coast Bank: http://www.onepacificcoastbank.com/
- Triodos Bank: http://www.triodos.com/en/about-triodos-bank/

In the U.S. the **Community Reinvestment Act** (CRA) requires banks and other financial institutions to direct capital towards activities they might not otherwise prioritize in low- and moderate-income communities, including: housing and revitalization and economic development by providing financing to low-to-moderate income households, small businesses or farms.⁴ Monies to satisfy banks' CRA requirements may be available in the form of tax credit investments in economic development projects, grant capital and/or loans at lower than market-rate through the banks themselves or through intermediaries that they designate (these designees are typically Community Development Financial Institutions, described below).

More information on loan, grant and equity capital that may be available from banks to satisfy their Community Reinvestment Act requirements:

• Federal Reserve Bank of San Francisco's "CRA Investment Handbook": http://www.frbsf.org/community-development/files/CRAHandbook.pdf

Credit Unions

Credit unions are member-owned cooperative financial institutions. They have many of the same offerings as banks, such as checking accounts and loans. However, credit unions are owned and controlled by their members (who are also their depositors and borrowers). They often offer lower rates and fees, more broadly accessible products and tend to be more responsive to local community needs. Many are not-for-profit and, in addition to their primary mission of serving their members, pursue broader goals such as community development and environmental sustainability.

There are a range of innovative credit unions across North America. A couple examples:

- Vancity (Vancouver City Savings Credit Union) in Vancouver, BC: https://www.vancity.com/
- Alternatives Federal Credit Union in Ithaca, NY: www.alternatives.org/

Community Development Financial Institutions (CDFIs)

Community development financial institutions (CDFIs) are financial institutions in the U.S. that fill in gaps left by traditional lenders, offering services and products in neighborhoods or to customers that other financial institutions have typically been unable or unwilling to serve. Some of what CDFIs offer can include: lending to non-profit housing developers, mortgage financing for low-income and first-time homebuyers, flexible loan underwriting for small businesses and community facilities, and investments in start-up or expanding businesses (often coupled with technical assistance). The CDFI designation can be given to a range of for-profit and not-for-profit financial institutions such as regulated community development banks and credit unions, and non-regulated entities such as non-profit loan funds or community development corporations.

⁴ CRA requires financial institutions to lend to low- and moderate-income households and small businesses & communities ("the lending test") and to make community development investments—typically equity or grants—in these communities ("the investment test"), among other requirements.



More information on CDFIs:

- Opportunity Finance Network, a national network of CDFIs: http://opportunityfinance.net
- The CDFI Coalition's website: www.cdfi.org
- The Reinvestment Fund, an innovative Philadelphia, PA-based CDFI⁵: www.trfund.com

Angel Investors and Venture Capital

Angel Investors and Venture Capital firms invest in early stage companies that they typically anticipate will grow quickly and have the potential to yield a large financial return through the sale of the company. These early stage companies often involve significant risk of failure, but those that are successful return large financial profits to these early investors.

Venture capitalists are professional investors who invest others' money, often funds from wealthy individuals or institutional investors (investors that pool money from multiple investors such as pension funds), and usually are actively involved in driving business decisions in these ventures by helping to build the management team, sitting on the board, etc. Many venture capital models align poorly with our vision for community capital because investors may look only at the financial bottom-line and expect fast rates of growth, often forcing business owners to take a myopic and short-term approach to rapidly scale and increase profits, sacrificing other core elements of their missions like community benefit, living wages for their employees, and environmental steward-ship. In addition, these investors typically look for "rapid exits" from their investments, often by forcing the sale of a successful business after just a few years, which threatens local ownership.

Angel investors are wealthy individuals investing their own money in start-up companies. Some operate solo while others organize themselves to find deals together, such as through Investors Circle, which coordinates mission-driven angel investors.

There are a range of mission-driven VCs and angel investors. A few examples:

- Investors Circle, a non-profit network of angel investors.
- CalCEF, a family of California non-profits that includes a venture fund targeting the acceleration of clean energy technology development and deployment.

Government

Federal, state/provincial, and local governments often provide support to local businesses and organizations through grants, loans, loan guarantees and by other means. Governments are also able to issue tax-exempt bonds (discussed below) for a range of activities. The options vary by location, and many funds are made available as competitive grants with defined criteria.

⁵A BALLE "Accelerating Community Capital" Webinar on The Reinvestment Fund is available here: https://bealocalist.org/july-2011-community-capital-webinar-recording



In the U.S., some federal agencies that offer funding include the U.S. Department of Agriculture (USDA) and the Small Business Administration (SBA).

You can learn more about the options available in your community by starting conversations with local financial institutions, economic development organizations, and staff at state and local government agencies.

Community Capital Tools

Enabling regional capital sources to meet local needs and opportunities often necessitates a creative spin on traditional capital-raising strategies. This creativity is required to both meet the unique needs of local investors and entrepreneurs, and to comply with government financial regulations. Before we explore the range of community capital tools, we review the investment tools that are deployed in the "traditional" financial system.

There are three primary types of traditional capital investment tools: 1) grants, 2) equity, and 3) debt. Each of these tools comes in a variety of forms, has different financial risks and returns, and may be appropriate for different investors, innovators, and entrepreneurs – and at different stages of a company or project's life. In many cases, a blend of all three of these investment classes can be harnessed to fund a project in a way that meets the unique needs of investors, businesses, and the community. We also describe several adaptations of these tools as hybrid investments, which share characteristics of grants, equity and/or debt.

Grants = A gift (usually with some strings)

Grants (aka gifts or donations) are sources of capital that usually fund a defined set of work or activities and do not have to be repaid. Grants fund important community initiatives and can help lower the cost of starting and running a project. Grant monies come from a range of entities including individuals, governments, and philanthropic organizations such as community foundations. The volume of grant monies available is limited and grants are often highly competitive. More information on grants is available from the Foundation Center: http://foundationcenter.org/

Equity = A stake in the ownership

Equity investments are purchases of an ownership share in a project or business. Unlike debt, which must be paid back (often with interest), equity investments have no repayment timeline. Instead, they entitle investors to partial (or full) ownership of a venture. In some cases, equity investments are set up to pay all or a portion of profits to investors in the form of dividends (usually cash payments). In other cases, equity investors simply benefit over time from the increase in a company's financial value (realized when the company is sold or the investor sells her shares), or from the business's delivery of a range of non-financial benefits.



The most common form of equity investment is common stock. Each "share" of common stock entitles its holder to a portion of the ownership of a company, and a dividend payment (if applicable), and typically includes a vote in decision making at "shareholder meetings". For many entrepreneurs and innovators, seeking equity investments from values-aligned stakeholders in their local community is preferable to the impersonal world of venture capital.

Another form of equity is member equity in certain types of cooperatives. Cooperatives are organizations through which members are also the owners and organizational decision makers. For more information on cooperatives, visit: http://www.ncba.coop/

Debt = Borrowing money (often with interest)

Debt investments entail the lending of money to a project or business. Unlike equity, debt must be paid back (often with interest) and typically has a pre-specified payment schedule and interest rate. A debt investor is not given any ownership in the business or project, has no voting rights, and is not entitled to dividends. Debt is "more secure" than equity – in the event that a company or project fails, the remaining funds or assets (if any) go to debt investors before equity investors / owners get a penny.

Secured vs. Unsecured Debt

The underlying "security" of debt (i.e. a lender's ability to recover their capital from a borrower in the event the borrower is unwilling or unable to pay) can be set up in many ways to meet the needs of lenders and borrowers, but loans are broadly characterized as "secured" or "unsecured". Secured debt is a loan for which a borrower pledges a specific asset or assets as collateral (often specific property) against the loan. To the extent the borrower is unable or unwilling to repay the loan the lender can take possession of those assets. An unsecured loan, on the other hand, has no assets pledged against it. Because unsecured loans are considered riskier than secured loans, they often have higher interest rates and shorter repayment lengths, or are available only to borrowers with good credit (i.e. a history of reliable debt repayment).

Bonds

All debt is a form of loan. Bonds are popular loan structures that enable lenders/investors to take a fractional share in a loan, which can help small investors to participate in larger financings and large investors to diversify their risk across many loans. Bonds can usually be sold to other investors with relatively low transaction costs (i.e. they are liquid = easy to buy and sell). These characteristics typically result in more attractive (to the borrower) rates and terms, but must be balanced against the higher costs of issuing bonds relative to standard loans.



Debt Credit Enhancement

Credit enhancements reduce investor risk and can allow borrowers to get better loan terms or qualify for a loan when they wouldn't otherwise. Philanthropic or government capital is often deployed as "credit enhancement" to improve the terms of or expand access to debt. Common credit enhancements include:

- Loan Loss Reserves (LLRs). LLRs are a pool of monies that, in the event of loan nonpayment (default), lenders may use to recover all or a portion of that loss. LLRs typically sit in a bank account until they are needed. They are commonly used to support pools of small loans and the "protection" offered to investors is usually capped at a percentage of an overall loan pool, i.e. for 10% LLR, lenders can collect up to 10% of the amount they invested should they experience substantial losses.⁶ Slow Money Northwest raised grant monies from local stakeholders for a 20% LLR to support the Farmer Reserve Fund, a microloan program offered through North Coast Credit Union for beginning farmers and food businesses.⁷
- LoanGuarantees. Loanguarantees are similar to LLRs a third party "guarantees" loan repayment to the lender in the case that the borrower fails to make payment. They typically cover 100% of a loan or loan pool and are not typically "capped" at a maximum payout amount (though they can be).
- Subordinated Debt. Rather than sit in a bank account like an LLR, subordinated debt is actually used to fund a portion of loans or loan pools with "senior" debt investors. In the event that there are loan defaults, senior debt investors recover 100% of their investment before the subordinated debt investors recover any of their investment. One benefit of subordinated capital is that because it funds part of a loan or loan pool, it typically earns interest. This interest rate can be set such that it partially or fully offsets anticipated customer default rates and makes the credit enhancement "evergreen," i.e. customer principal and interest payments fully offset losses expected due to customer defaults. This is fundamentally different from LLRs, where monies sit in an escrow account earning de minim us interest and are typically depleted as loan defaults occur.
- Debt Service Reserves (DSRs). Debt service reserves provide credit enhancement by protecting lenders from short-term fluctuations in a borrower's ability to make debt repayments. Short-term cash flow constraints are common among small businesses, particularly in industries like agriculture, where most revenues come in a single season but loan payments are due year-round. DSRs can allow farmers to make seasonal debt repayments that align with their revenue streams

⁶ For example, a 10% LLR of \$100,000 could support a \$1,000,000 loan pool. Lenders could use the LLR to cover losses and if the loan pool lost more than \$100,000, the additional losses would be borne by the lender.

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⁷A BALLE "Accelerating Community Capital" Webinar on the Farmer Reserve Fund is available here: https://bealocalist.org/february-2013-community-capital-webinar-recording



Hybrid & Non-Traditional Investments

There are also several hybrid and non-traditional investment vehicles that share characteristics of both traditional debt and equity:

- **Convertible Debt.** With traditional debt, a lender receives its loan principal back by the end of a loan period. With convertible debt, a lender typically has the option of receiving either its loan principal or a pre-negotiated number of ownership shares in a company. If the company's value has increased substantially since the loan was made, the lender will typically opt for equity. There is room for flexibility around what an investor might opt to receive in lieu of cash at the end of a loan's term.
- Preferred Stock. With traditional stock, a shareholder receives an ownership stake in a company that entitles them both to vote on company matters and to receive financial benefits in the form of stock value increases and/or dividend payments. Preferred stock, on the other hand, more closely resembles debt holders are typically not entitled to vote on company matters and are often entitled to a fixed dividend, not a share of company profits.⁸ Preferred stock is typically "senior" to common stock (i.e. it collects before common stock in the event of the company going out of business), but is "subordinated" to debt
- Pre-Sales. Pre-sales involve the "forward sale" of goods or services and are neither debt nor equity. By pre-selling products, a business can raise up-front capital without giving up ownership rights or owing money to lenders (they just "owe" products or services). For example, Credibles enables local food businesses to raise money through customer pre-payments that entitle the buyers to purchase products from the business.⁹ Whether a pre-sale is treated as a "security", which can trigger financial regulatory compliance, depends on a state's securities laws and whether pre-sales are used to fund an existing or new business.¹⁰ Claire's Restaurant and Bar, in Hardwick, VT, used "community-supported restaurant subscriptions" to raise \$50,000 that helped launch the restaurant.¹¹
- **Royalty Financing.**¹² Equity financing requires businesses to give up a portion of company ownership, and some companies lack sufficient assets or credit history to gain access to attractive debt or don't want to be saddled with an obligation to repay debt. Royalty financing is a hybrid through which investors earn a pre-arranged percentage of a business's revenues

http://bealocalist.org/march-2013-community-capital-webinar-recording

https://bealocalist.org/March-2012-Community-Capital-Webinar-Recording

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⁸ Preferred stock is a very flexible instrument – its terms (e.g. dividend rate, redemption policies) and the rights of preferred shareholders (e.g. voting rights), can be defined by businesses to meet their goals and needs.

⁹A BALLE "Accelerating Community Capital" Webinar on Credibles is available here:

¹⁰ Broadly construed, a security is a financial instrument that represents some type of financial value and implies some type of risk or opportunity for financial gain to the holder of the financial instrument. Because new businesses are generally considered riskier than existing businesses, using pre-sales to fund an existing business poses less risk that a pre-sale would be treated as a security.

¹¹A BALLE "Accelerating Community Capital" Webinar on Claire's Restaurant and Bar is available here:

¹² For more details on royalty financing, visit "Comparing Royalty Financing to Debt and Equity Financing" by Marco Vangelisti from Slow Money Northern California, http://slowmoneynocal.org/comparing-royalty-financing-to-debt-and-equity-financing.

until their initial investment and a pre-negotiated premium is earned, or for a specified period of time (often 3-5 years). By necessity, this financing tool is most appropriate for businesses that are approaching profitability or are already profitable. Royalty financing relieves entrepreneurs of the implicit pressure to grow rapidly towards an "exit" that early equity investors often create, avoids diluting the ownership of a company and, compared to debt, may work well for businesses with highly seasonal revenue streams.

5 Tools for Local Investing

By Michael H. Shuman

If you've been told that it's impossible to invest your life savings in anything but Wall Street, here's some practical advice to prove the financial "experts" wrong:

- 1. Move Your Money Move all your day-to-day financial activities, including your checking, loans, credit cards, and mortgage, to a local bank or credit union. These are the institutions that recycle their capital locally.
- 2. Stretch Your Co-op Because memberships in a cooperative are not deemed "securities," they can be more easily used as vehicles for local investments. Other coop investment tools, such as borrowing from members, are securities, but the costs of compliance are modest. Some coops, like Weaver Street Market in North Carolina, pay their members handsomely to borrow money for capital projects. The La Montanita Grocery Coop in New Mexico has created a revolving loan fund so that members' capital can support local farmers and food processors.
- 3. Sponsor Local Businesses Last year, web sites like Kickstarter and IndieGogo raised more than \$100 million for small businesses and projects. Even though all you get for your money is a t-shirt or token of appreciation, you know that thousands of small contributors like yourself are helping to get a big idea off the ground. It's important to scan these sites for businesses in your own community. A new generation of web sites, like Lucky Ant and Community Funded, specifically facilitate local sponsorships.
- 4. Create a Local Investment Fund Pools of capital are preferable to one-off investments because they diversify risk. There are thousands of local-investment pools around the country, most of them linked with local economic-development programs, but nearly all of them are only open to accredited investors. Important exceptions that allow unaccredited investor participation include MountainBizWorks in North Carolina, the New Hampshire Community Loan Fund, and ECDI in Columbus, Ohio. These funds demonstrate that it's possible to create non-profits that can take money from all kinds of local investors and then use the funds to grow local businesses.
- 5. Promote Program Related Investments By law, foundations must give away at least 5% of their assets each year. The other 95% is typically invested in distant stocks and bonds. Work with your local foundations to help them move that 95% (or even just 1%) into local business. If these businesses are "program related" and the investment does not succeed, the foundation can apply losses to fulfill its annual grant obligation.

More on these tools below, and elaborated in Local Dollars, Local Sense: How to Shift Your Money from Wall Street to Main Street and Achieve Real Prosperity (White River Junction, VT: Chelsea Green, 2012). The author may be reached by phone (202-669-1220), email (shuman@igc.org).

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Investment Offerings and Community Capital Platforms

Now that we've covered the types of capital tools that are on the table, this section highlights some of the ways in which these offerings can be structured and then describes existing innovative platforms for investing locally or accessing debt and equity capital.

Direct Public Offerings and Private Placements

While certain financial tools described in this guide are not considered "securities" some debt and all equity investments are defined as securities¹³. The offer and sale of securities in the U.S. is regulated by both Federal and State governments and typically requires formal securities registration. Small businesses often qualify for exemptions to Federal securities registrations, and the way in which – and to whom – debt and equity investment opportunities are advertised and sold impacts whether businesses are eligible for exemptions.

Direct Public Offerings (DPOs).¹⁴ A DPO is a tool used by businesses to sell debt or equity directly to the public. With a DPO, a company is free to advertise and offer securities directly to the public rather than using an investment bank or intermediary (whereas an initial public offering or IPO typically involves an investment bank or intermediary). By permitting public advertising, DPOs enable entrepreneurs to seek funding from a broad range of investors. But, there is a trade-off. DPOs generally necessitate Federal and State securities registrations that can be expensive and time-consuming. To reduce these costs, small businesses often use exemptions to Federal securities registration requirements – these exemptions restrict the amount of money businesses can raise through DPOs and the number, type, and location of investors from whom they can raise funds.¹⁵

In California, People's Community Market (PCM), is in the process of raising up to \$2 million of preferred stock through a DPO to fund a full-service grocery store, health resource center and community hub to help families attain healthier and more socially connected lives in the underserved community of West Oakland. Accredited and unaccredited California residents may invest in the preferred stock, which will pay 3% annual interest and a 1% annual store credit, and is redeemable after 7 years (or may be left outstanding). By raising money only from California residents, PCM avoided federal securities filings through a Federal securities law exemption and was only required to register its offering with the State of California.

Cutting Edge Capital provides more information on DPOs: (http://www.cuttingedgecapital.com/ what-is-a-direct-public-offering) and provides a listing of recent DPOs on their Cutting Edge X (https://www.cuttingedgex.com).

¹⁵ While exemptions to Federal securities registration requirements can reduce offering costs, businesses often must pay tens of thousands of dollars to meet the requirements of the Federal exemptions and comply with relevant State securities laws and exemptions.



¹³ A discussion of securities and why they matter is available from Cutting Edge Capital: http://www.cuttingedgecapital.com/what-is-a-securityand-why-does-it-matter/

¹⁴ A BALLE "Accelerating Community Capital Webinar" on Direct Public offerings is available here: http://bealocalist.org/august-2012-communitycapital-webinar-recording

Private Placements.¹⁵ Like DPOs, private placements can be completed for both debt and equity. However, private placements are non-public offerings – meaning that they may not be advertised by the business seeking to raise money. They also are largely offered to accredited investors. The same Federal and State securities registration requirements apply to private placements, but they often qualify for Federal exemptions that eliminate caps on the amount of capital raised before securities registrations are required, an exemption not available to DPOs. Sales of debt or equity to "friends and family" with whom one has a pre-existing relationship are typically exempted from most securities laws as well. Co-op Power used a private placement to raise over \$800,000 of equity capital to finance its Northeast Biodiesel plant. The private placement afforded them the flexibility to work with investors to structure an innovative agreement focused on long-term employee ownership and community benefit.

Community Capital Platforms & Mechanisms

Entities that pursue DPOs are free to advertise their stock or bond offerings widely. For others – those that complete private placements, or investors and borrowers seeking loans that don't have to be registered as securities – finding investors that share the same goals can be more challenging. This section describes a number of platforms and mechanisms that can be harnessed to bridge the gap between investors and opportunities for investment.

Investment Clubs. Investment club members pool their money to make debt, equity or other types of investments. This allows members to collectively make larger investments and/or to diversify their risk by investing in more businesses together with other members. Investment club members meet regularly to evaluate investment options and the group requires a majority vote of members before any investment decisions are approved. Generally, every member of an investment club must actively participate in these investment decisions in order for the club to avoid membership interests being treated as securities. The No Small Potatoes Investment Club in Maine makes micro-loans to local food businesses, offering 3 percent interest unsecured loans up to \$5,000 with terms up to 3 years.

²⁰ A BALLE "Accelerating Community Capital" Webinar on the No Small Potatoes Investment Club is available here: https://bealocalist.org/september-2011-community-capital-webinar-recording



¹⁶ For more information on Private Placements, visit Slow Money's Private Placement Primer, Financing The New or Growing Enterprise by John Friedman, available here: http://www.slowmoney.org/uploads/1/3/6/7/1367341/slow_money_private_placement_primer.pdf

¹⁷ Like direct public offerings, businesses taking advantage of Federal securities registration exemptions for private placements often must pay tens of thousands of dollars to meet the requirements of the Federal exemptions and comply with relevant State securities laws and exemptions. ¹⁸ A BALLE "Accelerating Community Capital" Webinar on Co-op Power is available here: http://bealocalist.org/january-2012-community-capitalwebinar-recording

¹⁹ Investment clubs with even a single unaccredited investor member can only invest in securities in which unaccredited investors are eligible to invest.

Local Investment Opportunities Networks (LIONs). Local Investment Opportunities Networks (LIONs). LIONs help members that want to invest money locally to become aware of investment opportunities. LIONs are not investment vehicles – instead, they are mechanisms for potential investors to get alerted to potential investment options. Once LION members have become aware of an opportunity, they make their own decisions about whether to invest in a business or initiative and take individual risk in making that investment. Entrepreneurs and business owners typically submit business plans to the LION, and LION members that have pre-existing relationships with the applicants²¹ receive these business plans. These members then contact the applicant directly if they are interested in making an investment. LIONs are effectively "match-making" organizations, and they can be used to facilitate both equity and debt investments.²² In Port Townsend, Washington, LION members have invested almost \$3 million since 2006 in 43 deals, of which about 80% were structured as loans.²³ More information about LIONs and other local investment options is available at the Local Investing Resource Center: http://www.local-investing.com/

Impact or Targeted Certificates of Deposit (CDs). A CD is similar to a savings account, but has a fixed term during which a customer may not withdraw deposited funds (or must pay a penalty). Financial institutions are then free to use these deposits, typically lending or otherwise investing these monies at higher rates of interest. Several financial institutions and their non-profit or business partners have developed "impact" or "targeted" CDs – in which CD investments are targeted to specific areas of customer interest (e.g. clean energy) or to specific businesses. These products allow customers to save, rather than spend, to support a business or cause that they believe in. In Massachusetts, Equal Exchange, a fair-trade worker-owned coffee cooperative, partnered with a local bank to create the "Equal Exchange CD". The CD is open to both accredited and unaccredited individuals. Equal Exchange can use up to 90% of the pooled monies invested in the CD (currently over \$1 million) as a line of credit (a line of credit is effectively a pre-authorized loan used as needed). While the CD is Federally-insured from theft, if Equal Exchange defaults on its loans, the bank is not obligated to repay investors.²⁴

Local Exchanges. Local exchanges enable the trading of private securities in a region. While there are still legal challenges to operating a local stock exchange, Mission Markets has just begun offering communities the opportunity to run their own portals to sell initial and secondary offerings of local business to local investors. They provide communities with most of the back-office, legal, and administrative services, so that one staff person can focus on recruiting companies and investors, and get paid through fees imposed on listed businesses. Unlike a typical Wall Street exchange, a community portal looks more like E-bay, where shares are listed for days or weeks at a set price until a buyer makes a purchase.

https://bealocalist.org/may-2013-community-capital-webinar-recording



²¹ Having a pre-existing relationship between the potential investor and the applicant is critical to qualifying for exemptions to Federal securities registration. Some LIONs host social events so that investors and entrepreneurs can develop relationships.

²² Unaccredited LION members may only invest in securities in which unaccredited investors are eligible to invest.

²³A BALLE "Accelerating Community Capital" Webinar on the Port Townsend LION is available here:

²⁴A BALLE "Accelerating Community Capital" Webinar on the Equal Exchange CD is available here:

http://bealocalist.org/november-2011-community-capital-webinar-recording

Crowdfunding. Crowdfunding typically involves raising many very small investments from a large group of investors/donors (often through an online platform help to reduce the transaction costs of raising these monies). The Jumpstart Our Business Startups (JOBS) Act, signed in 2012, may make it easier to raise non-grant capital from both accredited and non-accredited investors, but that law is currently undergoing what is expected to be a fairly long Federal rule making process. A few crowdfunding platforms do permit "at risk" equity or debt investments. For example, Mosaic, an Oakland, CA-based crowdfunding platform connecting investors to solar power projects has gone through full securities registration processes in CA and NY and offers "Solar Power Notes" to accredited and unaccredited investors with a minimum investment of \$25. The notes pay interest of 4-6% over 5 year terms. Kiva also offers debt investments to both accredited and unaccredited investors, but because lenders do not earn interest, loans on the platform are exempted from securities laws. More on crowdfunding below.

Which of the three types of crowdfunding are we talking about?

By Elizabeth Ü

People use the term "crowdfunding" to refer to any of several techniques to raise funds from supporters or future customers, so it can get a bit confusing. One of the most common forms of crowdfunding is the practice of using online crowdfunding platforms (such as Kickstarter, IndieGoGo, and StartSomeGood) to raise **gift** money from donors in exchange for small tokens of appreciation. A second form of crowdfunding involves a business collecting payments in advance (aka **presales**, see page 11 above) for products they intend to deliver later. In addition to raising gift money and preselling products, businesses can offer people in their communities financial returns to reward them for **investing** – provided that everyone abides by the appropriate laws. This is the third type of crowdfunding, and the most legally challenging.

What these models all have in common is that they are methods where an entrepreneur can solicit small investments from a large number of (usually non-wealthy) investors. The first example is not subject to securities laws, but there are some relevant laws related to "gifts/donations" to be aware of. For entrepreneurs who plan to pursue the latter two forms of crowdfunding investment, there are several basic securities laws that you'll need to understand.

In the next couple years there will likely be new online platforms that will make it easier for entrepreneurs to offer debt and/or equity investment opportunities to non-accredited investors. Businesses will likely take the new crowdfunding laws resulting from the JOBS Act of 2012 and turn them into legal, user-friendly, web-based fundraising tools. As of this writing, there are already several websites that help streamline the process of raising money from accredited investors; successful companies are usually tech-related, though some food manufacturers have raised funds on these platforms as well.

Adapted from **Raising Dough: the Complete Guide to Financing a Socially Responsible Food Business** (Chelsea Green Publishing 2013), which covers the three forms of crowdfunding, securities laws, and exemptions, plus many other methods for raising small business capital from individuals, foundations, financial institutions, and government agencies. © Elizabeth Ü



Partnership Lending. Partnership lending involves a partnership between a financial institution and a community organization (or other sponsor) in which the community organization provides loan capital, defines loan eligibility, terms, and requirements, and the financial institution manages loan origination and servicing. Partnership lending solves a challenge for each partner – community organizations often have clients and capacity to raise money but lack the ability to manage a loan fund while financial institutions have expertise at managing loans but little risk tolerance. In Ithaca, NY, Alternatives Credit Union (ACU) has pioneered partnership lending, working with local community organization partners to deliver capital to low-income individuals and businesses.²⁶

Lending Circles. Lending circles involve a "circle" of friends, family and/or colleagues that collectively act as microfinance lenders to one another. Financial institutions or other organizations often provide support such as closing and servicing loans, and reporting payments to credit bureaus to help participants build their credit history. For example, Mission Asset Fund (MAF), a non-profit in San Francisco, CA, sponsors lending circles in which it partners with community organizations that have strong relationships and standing within a community to help build credit for low-income individuals.²⁷

Peer-to-Peer Lending. There are several online platforms that allow individuals to make direct loans to each other. Examples are Lending Club and Prosper. Prosper has well over a million members, and has facilitated \$500 million in loans.

Individual Retirement Accounts (IRAs). IRAs are (often) tax-deferred investment accounts that individuals setup to save for retirement. In most cases, pre-tax income is put into these accounts, and this income can be withdrawn after retirement (and taxed then – often at a lower tax rate than one pays during working years). Many IRAs are employer-sponsored and have a limited number of investment funds into which an employee may allocate their contributions. These limited options prevent individuals from investing their retirement savings in their local community. However, two approaches have targeted tapping into this >\$1 trillion of wealth for local investment.

Including regional investment options among standard IRA offerings. The Reinvestment Fund (TRF), a CDFI based in Philadelphia, PA has successfully gotten IRA custodians to include its promissory notes (i.e. debt) in employee IRA investment options. TRF files securities registrations for these notes, and they are available to accredited and unaccredited individuals with IRAs through participating institutions. TRF lends monies raised through the notes to help fund projects that meet regional development needs. Rather than exposing unaccredited investors to the risk that projects default, TRF structures the notes as "general"

²⁵ A BALLE "Accelerating Community Capital" Webinar on Community Partnership Lending with Alternatives Federal Credit Union is available here: https://bealocalist.org/september-2012-community-capital-webinar-recording

²⁶ A BALLE "Accelerating Community Capital" Webinar on Mission Asset Fund is available here:

https://bealocalist.org/February-2012-Community-Capital-Webinar-Recording



obligations" (TRF pledges all of their assets to repaying the debt). In exchange for this low investment risk, TRF offers investors a low fixed return on the notes and marks up the interest when it re-lends to make up for potential loan defaults.

• Self-directed IRAS (SD IRAS). SD IRAS enable individuals to invest their savings in virtually all of the investments described above. Individuals place their IRA with a custodian, such as The Entrust Group, that allows the account holder to direct their investments.

Pooled Investment Notes. Several organizations offer pooled investment notes – funds raised from these notes are invested (often as debt) in a range of mission-aligned businesses and organizations. Examples include:

- RSF Social Finance Social Investment Fund. RSF Social Finance, a non-profit financial services organization, offers minimum \$1,000 investments in their Social Investment Fund to accredited and unaccredited investors currently at 1% interest. These investments support RSF's Social Enterprise Lending Program, which has made over \$250 million in mortgage loans, lines of credit, and inventory financing to non-profit and for-profit social and environmental organizations.
- Calvert Foundation Community Investment Notes. The Calvert Foundation has offered senior, fixed-interest general obligation bonds to accredited and unaccredited investors for 15 years. These notes are available online (through MicroPlace, a for-profit online brokerage offering retail investors a range of social investment opportunities), with a minimum investment of \$20. Over \$200 million has been raised to date, and the proceeds are lent to a range of non-profit organizations and for-profit social enterprises in the areas of affordable housing, microfinance, community development, and sustainable business.

OK, so what's next?

Innovators around the globe are changing the way capital flows through our economy –developing the tools, networks and infrastructure to replace a fundamentally broken financial system with a system grounded in meeting community needs using community resources. This guide has offered you the basics – but there are more resources for you within the BALLE network including thought leaders, webinars, and conferences to help you learn more. For those that are ready to take the next step – to get your money out of big banks that don't reflect your values, or to raise capital for your venture from local investors – the right financing tools and investment platforms will be a function of both the existing community capital infrastructure in your community and your goals for your business or investment. Check out the resources on our website: https://bealocalist.org/community-capital-toolkit-resources, listen to the BALLE community capital webinars: https://bealocalist.org/community-capital-webinar-series, or attend an upcoming event: https://bealocalist.org/balle-live-webinar-series. And, most importantly, now that you know what to look for, start reaching out to the financial institutions and networks in your own community, and join an existing effort or start your own initiative!



Glossary of Terms

- Accredited investors are individuals with a certain level of financial wealth; e.g. over \$1 million in assets or significant annual income. Individuals below this threshold are called unaccredited investors.
- Angel investors are wealthy individuals investing their own money in start-up companies.
- Bonds are popular loan structures that enable investors to take a fractional share in a loan
- Community Development Financial Institutions (CDFIs) are not-for-profit financial institutions in the U.S. that fill in the gaps left by traditional lenders, offering services and products in neighborhoods or to customers that others are unable or unwilling to serve.
- **Community Reinvestment Act (CRA)** a U.S. law requiring banks and other financial institutions to direct capital towards a number of activities they might not otherwise prioritize, including: housing and revitalization in low-moderate income communities, and economic development by providing financing to small businesses or farms.
- Convertible debt gives a lender the option of receiving either its loan principal or a prenegotiated number of ownership shares in a company.
- **Credit enhancements** reduce investor/ lender risk by protecting against losses, examples include loan loss reserves, loan guarantees, and subordinated debt.
- **Credit unions** are not-for-profit memberowned financial cooperatives.

- **Debt investments/Loans** entail the lending of money to a project or business, which must be paid back (often with interest).
- Debt Service Reserve Funds (DSRFs) protect lenders from short-term fluctuations in a borrower's ability to make debt repayments.
- **Direct Public Offerings (DPOs)** are a tool used by businesses to sell debt or equity directly to the public.
- **Dividends are payments** (usually a portion of profits) to the owners of a company.
- Donor-advised funds allow donors (usually wealthy individuals or businesses) to establish an account with a "charitable sponsor" (often a community foundation or other philanthropic entity) by making irrevocable, tax-deductible contributions to the charitable sponsor.
- Equity investments are purchases of an ownership share in a project or business.
- Loan guarantees enable a third party to cover up to 100% of a loan or loan pool losses to protect lenders from risk.
- Loan Loss Reserves (LLRs) are a pool of monies that, in the event of loan nonpayment (default), lenders may use to recover all or a portion of that loss.
- Mission-Related Investments (MRIs) are those made by foundations if they are related to the foundation's mission but are also expected to have a return, and must meet applicable prudent investor standards like the foundation's more conventional investments.

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- **Preferred stock,** unlike traditional stock, gives stockholders a fixed dividend (not a share of company profits) and does not entitle them to vote on company matters.
- Pre-sales involve the advanced sale of goods or services and are neither debt nor equity.
- **Private placements** are a tool used by businesses to sell debt or equity privately to those they already have a relationship with.
- **Program-Related Investments (PRIs)** are those made by foundations if they primarily serve a charitable purpose, and are treated similar to grants for tax purposes.
- Revolving Loan Funds (RLFs) are pools of money that, once capitalized (or funded), are self-replenishing. Loans are made to borrowers, and as loan principal and interest is repaid, it can then be re-lent to new businesses and projects.
- **Royalty financing** is a debt-equity hybrid where investors earn a pre-arranged percentage of a business's revenues until their initial investment and a pre-negotiated premium is earned, or for a specified period of time (often 3-5 years).

- Secured debt is a loan for which a borrower pledges a specific asset or assets as collateral (often specific property) against the loan. If the borrower is unable or unwilling to repay the loan, the lender can take possession of those assets.
- Securities are broadly defined as "investment contracts" - some debt and all equity investments are securities. The offer and sale of securities in the U.S. are regulated by both the Federal and State governments and typically require formal securities registration processes, though there are exemptions possible.
- **Subordinated debt** is used to fund a portion of loans or loan pools along with "senior" debt investors; in the event that there are loan defaults senior debt investors recover 100% of their investment before the subordinated debt investors recover any of their investment.
- Venture capitalists invest others' money (often funds from wealthy individuals or institutional investors) in early stage companies, and expect rapid growth and large returns.



PRINCIPLES FOR MANAGING NEIGHBORHOODS

An essay on the principles for managing lean neighborhoods. (Courtesy Bruce F. Donnelly.)

Principles for Managing Neighborhoods

Bruce F. Donnelly

The principles would support a structure for managing neighborhoods that would cover several separate issues:

- Governance & local rules (presumably including development under a PUD Master Plan),
- 2. Training, trade, & socialization (could be all together e.g. a street fair)
- 3. Maintenance, services, & capital improvements (there being a trade-off), and
- 4. Policing & other forms of enforcement.

Each of these issues has sub-issues. For instance, garbage collection would be a service.

For greenfields, the organization should follow these rules:

- Each organization should have a separate charter, but be chartered under a parent organization that takes care of the "back end." That allows the organizations to be smaller. For example, the big organization would have a legal fund. This is compatible with Dan Slone's limitations on HOAs.
- The charter (of the organization) would list certain capabilities under the four issues listed above. These would be periodically amended — mostly by crossing them off. For instance, garbage collection could be crossed off if the city picks up the slack.
- 3. The overriding principle for the capabilities are only offered if both of these are true:
 - a. The locality doesn't offer the capability at a minimum level (e.g., weekly garbage collection); and
 - b. the locality wouldn't be capable of providing the service if all the peer organizations within it were to fund it. (That is, if everyone in the organization and its peers paid the locality for garbage collection, could the locality afford it?)
- 4. The organization would be an interface for the locality, both in order to ease municipal administration, and to represent residents. The organization thus has an advocacy role.
- 5. Governance should include some combination of property owners, renters, businesses, and daytime workers according to the capability in question. (E.g. tenant residents and homeowners vote on residential garbage collection; property owners vote on building inspections.) However, to Dan's point this may also require separate organizations. For instance, a BID could include the owners of apartment buildings, but a residents' neighborhood organization could include the residents but not the building owners. (I laid this out last summer.)
- Likewise, the charter should specify non-interference between those spheres. That is, it should be against the charter for residents to vote out commercial use. This would have to be carefully organized by the parent organization.
- 7. The basic principles of subsidiarity apply. Note, though, that this may mean refraining from local control of some issues. For instance, a local organization should not treat a large municipal park as its plaything.
- 8. Last, but far from least, the parent organization should be chartered to "produce a public benefit or public benefits and to operate in a responsible and sustainable manner." (From Delaware) This makes it a public benefit corporation. That is, the organizations should do as they will, but they're responsible to the public as well as to the organization's members.

Bruce Donnelly has provided some thoughts on Benefit Corporations. They are expected to provide the following:

- 1. Local governance and respect for rights.
- Standards and ground rules, but does not supercharge busybodies. For example, it would provide basic standards for things like local control of fence heights, CPTED rules (e.g. blind spots), and so on. NOT requiring pastels. That would be against the best practices.
- Maintenance and amenities using economies of scale, but only for what the locality doesn't provide to a minimum standard. If that standard is met (e.g., weekly garbage pick-up) then it shifts from providing those amenities to advocacy for them. (E.g., drop private garbage collection & start demanding good service).
- 4. Interface for the locality holding meetings, requesting things, providing mailing lists, explaining city programs, etc.
- 5. Training for homeowners, renters, businesses, etc. Sort of a settlement house.

Provides, or at least smooths, certain services like cleanup days and so on. So even if you only have a dozen houses you can avail yourself of good services. EXTRACTS FROM A WORLD OF OPPORTUNITY

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A World of Opportunity

Immigrant entrepreneurs have emerged as key engines of growth for cities from New York to Los Angeles—and with a little planning and support, they could provide an even bigger economic boost in the future

A WORLD OF OPPORTUNITY

Immigrant entrepreneurs have emerged as key engines of growth for cities from New York to Los Angeles—and with a little planning and support, they could provide an even bigger economic boost in the future

AS THE STAKES OF ECONOMIC COMPETITION GROW EVER-HIGHER in America's cities, mayors have sought to kick-start local economies by embracing everything from artists and biotechnology companies to sports arenas. For many of the nation's urban centers, however, a more rewarding—if decidedly less glamorous—answer is hiding in plain sight: tapping their growing immigrant populations.

During the past decade, immigrants have been the entrepreneurial sparkplugs of cities from New York to Los Angeles—starting a greater share of new businesses than native-born residents, stimulating growth in sectors from food manufacturing to health care, creating loads of new jobs, and transforming once-sleepy neighborhoods into thriving commercial centers. And immigrant entrepreneurs are also becoming one of the most dependable parts of cities' economies: while elite sectors like finance (New York), entertainment (Los Angeles) and energy (Houston) fluctuate wildly through cycles of boom and bust, immigrants have been starting businesses and creating jobs during both good times and bad.

Two trends suggest that these entrepreneurs will become even more critical to the economies of cities in the years ahead: immigrant-led population growth and the ongoing trend of large companies in many industries moving to decentralize their operations out of cities and outsource work to cheaper locales. But despite this great and growing importance, immigrant entrepreneurs remain a shockingly overlooked and little-understood part of cities' economies, and they are largely disconnected from local economic development planning.

Although much of the recent national debate over immigration has focused on the impact of immigrants on America's labor market, this report concentrates squarely on immigrant entrepreneurs. The report documents the role that immigrant entrepreneurs are playing in cities' economies, the potential they hold for future economic growth and the obstacles they encounter as they try to start and expand businesses. The study predominantly looks at immigrant entrepreneurs in New York City, yet also considers in detail immigrant-owned businesses in Los Angeles, Houston and Boston. Based on 18 months of research, this work is built upon extensive data analysis, focus groups conducted with immigrant business owners and economic development experts, and roughly 200 interviews with business owners, immigration experts, ethnographers, local economic development officials, banking and microfinance specialists and government officials.

Immigrant entrepreneurs have made decisive contributions to the U.S. economy for more than a century. Their legacy of entrepreneurship runs the gamut from the hundreds of Chinese laundries opened in San Francisco in the mid-19th century to the swarm of Eastern European pushcart vendors that lined the streets of New York's Lower East Side early the following century. Although their place in the popular imagination is connected with small mom-and-pop businesses, first-generation immigrants founded many of the country's most enduring corporations: a short list includes Warner Brothers, Anheuser Busch, Goya Foods, Goldman Sachs, Paramount Pictures, Fortunoff, Max Factor and Sbarro.

Although immigrants to the U.S. during the past few decades largely come from different parts of the globe than those who entered during the country's first great waves of immigration, today's new Americans still tend to be far more entrepreneurial than nativeborn residents. In 2005, an average of 0.35 percent of the adult immigrant population (or 350 out of 100,000 adults) created a new business each month, compared to 0.28 percent for the native-born adult population (or 280 out of 100,000 adults), according to a recent study by the Ewing Marion Kauffman Foundation. Moreover, the percentage of immigrants starting businesses has generally been on the rise: between 2002 and 2005, the average annual rate of entrepreneurial activity among immigrants was 0.3825, up from 0.324 between 1997 and 2001.1

This trend isn't new. In every U.S. Census since 1880, immigrants have been more likely to be selfemployed than the native-born population.² What's different now is that the U.S. has been experiencing a prolonged burst of new immigration, at levels not seen since early in the 20th century. True to form, this phenomenal growth has been accompanied by a concomitant explosion in immigrant-run businesses.

Nationwide, the immigrant population grew by 57 percent in the 1990s, bringing the share of the U.S. population that is foreign-born to a higher level than

anytime since 1930.³ But the biggest impact has occurred in cities. Foreign-born individuals accounted for 97 percent of the overall population growth in Los Angeles between 1980 and 2000, 128 percent in New York City, 101 percent in Houston, and 357 percent in Boston.⁴

Nowhere is the impact of immigrants on urban economies more visible than in New York City. Over the past 10 to 15 years, immigrant entrepreneurs fueled much of the overall growth in new businesses across the city and triggered dramatic turnarounds in neighborhoods all over the five boroughs. The number of self-employed foreign-born individuals in the city increased by 53 percent during the 1990s, while the number of native-born self-employed people declined by 7 percent.5 Over the same period, neighborhoods where immigrants own the lion's share of businesses-including Jackson Heights, Sunset Park, Flushing, Sheepshead Bay, Brighton Beach and Elmhurst-created jobs at a significantly faster rate than the city as a whole. Several of these communities even added jobs in the two years after September 11th, a time when the city's overall economy was shedding massive numbers of jobs.

Immigrant-run businesses are also helping the city recapture tax revenue from suburban shoppers. That's because ethnic retail strips like 74th Street in Jackson Heights, St. Nicholas Avenue in Washington Heights, Liberty Avenue in Richmond Hill and Main Street in Flushing have become destination shopping districts throughout the region, routinely attracting second- and third-generation immigrants who live outside the city to eat at local restaurants and shop for everything from saris to plantains and mangoes.

"These entrepreneurs are the future of New York," says Eduardo Giraldo, owner of Abetex International Brokers, an insurance company in Jackson Heights, and president of the Hispanic Chamber of Commerce of Queens. "These people are taking risks, putting their savings on the line and growing businesses."

Foreign-born entrepreneurs are having a similar impact in Los Angeles. They provided an important boost to the economy in the early 1990s following the devastating riots and earthquake that rocked LA, and have since become an even more potent catalyst for growth. According to one estimate, immigrants are starting as many as 80 percent of all new

Who Is an Immigrant?

The Merriam-Webster dictionary defines an immigrant as an individual "who comes to a country to take up permanent residence." In this report, we use the word "immigrant" to refer to individuals who were born in another country and subsequently moved to the U.S. with the intention of living here permanently. Our definition includes people who relocated to the U.S. this year as well as those who moved here several decades ago. We also include those who were born in another country and came to the U.S. as children. However, our definition does not include children of immigrants who were born in this country. It also does not include individuals born in Puerto Rico or other commonwealths and territories of the U.S. \diamondsuit

businesses in LA. While this includes thousands of taco trucks, carnicerías and other microbusinesses, immigrant entrepreneurs in LA have founded nationally renowned firms such as El Pollo Loco, Panda Express, LuLu's Deserts and Forever 21. Incredibly, at least 22 of LA's 100 fastest growing companies in 2005 were started by first-generation immigrants.⁶ Los Angeles County has more Asian-owned firms and Hispanic-owned businesses than any county in the U.S.⁷ It also boasts 36 of the country's 500 largest Hispanic-owned businesses, according to *Hispanic Business.*⁸

In Houston, a telecommunications firm started by a Pakistani immigrant topped the 2006 Houston Small Business 100 list, a ranking of the city's most successful small businesses compiled by the *Houston Business Journal*. Additionally, a Houston-based energy company started by a Nigerian immigrant was recently named the second largest black-owned firm in the U.S. by *Black Enterprise* magazine.

In Boston, between 1997 and 2002, the number of Hispanic-owned firms increased by 97 percent and the number of Asian-owned firms grew by 41 percent.⁹

While large corporations still play a key role in the economies of all of these cities, small businesses are fueling much of the growth, thanks in large part to the explosion of immigrant-run firms. In LA, for instance, the number of firms with fewer than five employees increased by 67 percent between 1994 and 2004, even as the number of businesses with more than 500 employees decreased by 12 percent.¹⁰ In New York City, the number of firms with less than 10 employees increased by roughly 20,000 between 1990 and 2005, a 13 percent jump, but the number of companies with over 500 jobs declined slightly.¹¹ In Houston, 94 percent of the growth in businesses between 1995 and 2005 occurred among firms with fewer than 50 employees.¹²

Immigrant entrepreneurs are already making valuable contributions to the economies of cities, but there's little doubt that they could make an even larger contribution to economic growth in the future. "We haven't even tapped a little of the potential that's out there [in LA]," says Jose Legaspi, a Los Angeles-based real estate developer.

A large part of the reason why is that none of the cities studied for this report have incorporated immigrant entrepreneurs into their overall economic development strategies in any meaningful way. In most cases, immigrant-run businesses aren't even on the radar of local economic development officials. And when these cities have structured programs to support small businesses, too often these efforts have failed to reach immigrant entrepreneurs. Similarly, many local chambers of commerce and community-based economic development organizations that exist to support entrepreneurs and small firms haven't effectively connected with immigrant communities.

Many immigrant entrepreneurs could use the help. They often encounter stiff obstacles as they try to start and grow businesses—challenges that keep some from getting out of the starting gate, inhibit countless others from growing beyond the mom-and-pop stage and prompt a number of the most successful companies to expand elsewhere.

Cities like New York and Los Angeles often are difficult environments for any entrepreneur. But, as this report documents, many immigrants must contend with challenges that go above and beyond those faced by other business owners, from language and cultural barriers to difficulty accessing financing and a lack of understanding about local rules and regulations.

MAJOR FINDINGS

Immigrant entrepreneurs are having an increasingly powerful impact on the economies of cities such as New York, Los Angeles, Houston and Boston.

NEW YORK CITY

- In 2000, foreign-born individuals comprised 36 percent of New York City's population, yet they accounted for nearly half (49 percent) of all self-employed workers in the city.
- Immigrants drove all of the growth in the city's self-employed population between 1990 and 2000: the number of foreign-born individuals who were self-employed increased by 64,001 (a 53 percent jump) while the number of native-born people who were self-employed decreased by 15,657 (a 7 percent decline).
- Citywide, 9.27 percent of foreign-born workers are self-employed, compared to 7.71 percent of native-born workers. In Queens and the Bronx, self-employment rates for foreign-born individuals in the workforce are nearly twice those of nativeborn workers—9.98 percent to 5.74 percent in Queens, and 7.31 percent to 3.98 percent in the Bronx.
- Neighborhoods across the city in which many, if not most, businesses are immigrant-owned have seen an explosion of new enterprises over the past decade, far surpassing the number of firms created citywide. Between 1994 and 2004, the number of businesses citywide increased by 9.6 percent, while the number of firms grew by 54.6 percent in Flushing, 47.3 percent in Sunset Park, 33.7 percent in Sheepshead Bay-Brighton Beach, 17.8 percent in Washington Heights, 14.3 percent in Jackson Heights and 10.8 percent in Flatbush.
- ▶ Job growth in immigrant-dominated communities also far outpaced overall employment gains: between 1994 and 2004, overall employment in the city grew by 6.9 percent, but rose by 27.9 percent in Jackson Heights, 23.2 percent in Sunset Park, 13.3 percent in Sheepshead Bay-Brighton Beach, 12.1 percent in Flushing and 10.2 percent in Elmhurst.

LOS ANGELES

- First-generation immigrants created at least 22 of LA's 100 fastest growing companies in 2005.
- Immigrant entrepreneurs in LA have founded nationally renowned firms such as El Pollo Loco, Panda Express, LuLu's Deserts and Forever 21.
- Los Angeles County has more Asian-owned firms and Hispanicowned businesses than any county in the U.S.

HOUSTON

► Houston ranks third among all American cities in the number of Hispanic-owned businesses (41,753) and sixth in the number of Asian-owned firms (15,966). It is also home to 16 of the largest 500 Hispanic-owned firms in the country. A telecommunications firm started by a Pakistani immigrant topped the 2006 Houston Small Business 100 list. Meanwhile, a Houston-based energy company started by a Nigerian immigrant was recently named the second largest black-owned firm in the U.S.

BOSTON

- The number of Hispanic-owned firms in Boston increased by 97 percent between 1997 and 2002 while the number of Asianowned businesses grew by 41 percent.
- Immigrant entrepreneurs have provided a major boost in the resurgence of neighborhoods such as Fields Corner, East Boston, Allston Village and Jamaica Plain.

With immigrants continuing to fuel the population growth of these and other American cities, foreign-born entrepreneurs have the potential to be an even more dynamic engine of growth for cities in the years ahead.

- In every U.S. Census since 1880, immigrants have been more likely to be self-employed than the native-born population. What's different now is that the U.S. has been experiencing a prolonged burst of new immigration, at levels not seen since early in the 20th century.
- Between 1980 and 2000, foreign-born individuals accounted for 128 percent of the overall population growth in New York City, 97 percent in Los Angeles, 101 percent in Houston, and 357 percent in Boston.

Unlocking the potential of immigrant entrepreneurs will require more attention and support from policymakers, business advocacy organizations and community development organizations.

- Immigrants often encounter formidable challenges as they attempt to start and grow businesses, which keep some from getting out of the starting gate and inhibit others from growing beyond the mom-and-pop stage.
- Some of the obstacles they face are common to all entrepreneurs, but many others are much more daunting for immigrants—including language and cultural barriers, a lack of awareness about local regulations, limited financial literacy and, often, no credit history.
- Immigrant entrepreneurs remain largely disconnected from cities' local economic development planning.
- ► Too few of the established nonprofit organizations that support entrepreneurs and small business owners—from chambers of commerce to local development corporations—have managed to effectively connect with businesses in immigrant communities. ◆

CHART 1: FOREIGN-BORN VS. NATIVE-BORN IN NYC, GROWTH IN SELF-EMPLOYMENT 1990-2000

	Number of Self-Employed 1990	Number of Self-Employed 2000	Increase in Number of Self-Employed 1990-2000	Percent Increase
Foreign-Born	121,693	185,694	64,001	53%
Native-Born	210,184	194,527	(15,657)	(7%)

Source: Infoshare, Public-Use Microdata Sample, 1990 and 2000 U.S. Census



CHART 3: GROWTH IN SELF-EMPLOYMENT BY BOROUGH, FOREIGN-BORN VS. NATIVE-BORN 1990-2000

FOREIGN-BORN

	Number of Self-Employed 1990	Number of Self-Employed 2000	Change 1990–2000	Percent Change
Bronx	11,416	19,669	8,253	72.3%
Brooklyn	31,077	51,544	20,467	65.9%
Manhattan	29,555	37,183	7,628	25.8%
Queens	46,269	71,807	25,538	55.2%
Staten Island	3,376	5,494	2,118	62.7 %

NATIVE-BORN

	Number of Self-Employed 1990	Number of Self-Employed 2000	Change 1990–2000	Percent Change
Bronx	16,568	16,142	(426)	(2.6)%
Brooklyn	46,525	43,072	(3,453)	(7.4)%
Manhattan	98,160	90,599	(7,561)	(7.7)%
Queens	37,345	31,997	(5,348)	(14.3)%
Staten Island	11,586	12,717	1,131	9.8%

Source: Infoshare, Public-Use Microdata Sample, 1990 and 2000 U.S. Census

CHART 4: IMMIGRANT NEIGHBORHOODS OUTPACE REST OF NYC IN BUSINESS GROWTH

	Number of Businesses 1994	Number of Businesses 2004	Increase 1994-2004	Percent Increase 1994-2004
NYC	192,405	210,783	18,378	9.6%
Flushing*	2,364	3,654	1,290	54.6%
Sunset Park**	1,090	1,606	516	47.3%
Sheepshead Bay- Brighton Beach	1,421	1,900	479	33.7%
Elmhurst	1,040	1,301	261	25.1%
Washington Heights***	1,807	2,129	322	17.8%
Jackson Heights****	1,284	1,468	184	14.3%
Flatbush	888	984	96	10.8%

* Includes Flushing (11354) and Flushing-Murray Hill (11355). **Only includes zip code 11220. *** Includes zip codes 10032, 10033 and 10040. ****Only includes zip code 11372.

Source: NYS Labor Department

CHART 5: IMMIGRANT NEIGHBORHOODS OUTPACE REST OF NYC IN EMPLOYMENT GROWTH

	Number of Employees 1994	Number of Employees 2004	Change in Employment 1994-2004	Percent Change
NYC	3,322,300	3,550,300	228,000	6.9%
Jackson Heights*	5,240	6,700	1,460	27.9%
Sunset Park**	14,034	17,286	3,252	23.2%
Sheepshead Bay- Brighton Beach	10,220	11,580	1,360	13.3%
Flushing***	26,893	30,155	3,262	12.1%
Elmhurst	11,588	12,768	1,180	10.2%

* Only includes zip code 11372. **Only includes zip code 11220. *** Includes Flushing (11354) and Flushing-Murray Hill (11355).

Source: NYS Labor Department

CHART 6: IMMIGRANT NEIGHBORHOODS' JOB GAINS AFTER 9/11

	Number of Employees 1999	Number of Employees 2004	Change in Employment 1999-2004	Percent Change
NYC	3,620,700	3,550,300	(70,400)	(1.9%)
Flushing-Murray Hill*	12,272	14,255	1,983	16.2%
Elmhurst	11,527	12,768	1,241	10.8%
Sunset Park**	15,632	17,286	1,654	10.6%
Jackson Heights***	6,211	6,700	489	7.9%
Sheepshead Bay- Brighton Beach	11,468	11,580	112	1.0%

*Only includes Flushing-Murray Hill (11355). **Only includes zip code 11230. ***Only includes zip code 11372.

Source: NYS Labor Department



Source: Infoshare, Public-Use Microdata Sample, 2000 U.S. Census

Understanding Immigrant Entrepreneurship

There is no single explanation for the "entrepreneurial spirit" that's often ascribed to immigrants. Academics who have studied the subject suggest that one possible explanation is that individuals who immigrate to the U.S. are more likely to be risk-takers, an important trait for people starting their own businesses. After all, those who summon the will and resources to leave their homeland in favor of starting a new life from scratch aren't exactly playing it safe.

"It takes a lot of guts for people to have the courage to leave families, friends and culture," says Jerry Villacres, editor of *El Planeta*, Boston's largest Spanish-language weekly newspaper. "There is already an entrepreneurial gene in people who are willing to do that."

Another explanation is that many immigrants encounter endless frustrations and barriers working for other people or organizations in this country, and turn to entrepreneurship because it seems a more likely way to guarantee a fair shot at improving their circumstances. For instance, immigrants who were highly educated professionals in their home country often start businesses here after years working in low-paying jobs for which they are overqualified, due to language barriers, discrimination or other factors.

Others who arrive in this country with little education and limited skills sometimes go into business for themselves after growing tired of working in minimum-wage jobs and seeing scant opportunity for advancement. "If you're an immigrant, often you don't find the job of your dreams. The best thing you can do is start a business," says Liliana Henao, a native of Colombia who has launched several businesses in Queens.

Of course, some immigrants start businesses to supplement their families' income, or because they have no other viable options to earn a living. One recent study that focused on Latino immigrants in the New York City region noted that as recent downsizings and plant closings cut into the number of factory jobs in the area, many who previously might have pursued those positions instead started informal businesses.⁴¹

The sheer number of immigrants in cities like New York and Los Angeles also undoubtedly contributes to the high concentration of foreign-born entrepreneurs. After all, a large ethnic community provides a considerable market for small businesses that cater to that community—whether they are restaurants, law firms, manufacturers that make ethnic products or businesses that provide specialized wedding services. Additionally, many immigrants are emboldened to start a business after seeing so many of their compatriots succeed with businesses of their own. �

Why Some Immigrants Are More Entrepreneurial Than Others

As this report documents, immigrants as a group tend to be highly entrepreneurial—but immigrants are far from monolithic, and the impulse to launch a business varies greatly from one ethnic community to another. While new arrivals from every part of the globe have been starting businesses and contributing to the economic vibrancy of cities like New York and LA, data show that individuals from some countries have dramatically higher rates of self-employment than those from others.

In New York City, for instance, Syrian-born individuals in the workforce start businesses at an astonishingly high rate (27.92 percent). Those from Iran (23.63 percent), Greece (22.14), Afghanistan (19.79), Korea (19.27), Israel (18.42 percent), Lebanon (16.16 percent), Turkey (15.58 percent) and Brazil (15.54 percent) also start businesses at more than twice the rate of American-born New Yorkers (7.71 percent). At the other end of the spectrum, New York City residents who were born in Haiti (4.83 percent), Guyana (4.90 percent) and Jamaica (5.41 percent) have comparatively low rates of self-employment.⁴³ (See Chart 7, page 19)

One major reason for the wide variation in entrepreneurial appetite is that individuals who emigrate from some countries tend to arrive with financial assets, high levels of educational attainment and professional experience, while those who move here from other countries are more likely to be poor, uneducated and inexperienced in business matters. A study by researchers Pyong Gap Min and Mehdi Bozorgmehr, focusing on immigrants who came to the U.S. after the 1965 Immigration Act, notes that "the majority of Asian, Middle Eastern and African immigrants have professional and middle-class backgrounds, while the majority of Latino and Caribbean immigrants come from working-class and farming backgrounds."44

Cultural experiences also explain some of the differences in self-employment rates. For instance, scholars have found that some immigrant groups were particularly successful in starting businesses because they brought with them a tradition of using rotating credit associations to overcome financing obstacles. In contrast, other cultures frown upon taking loans and going into debt.

Another factor that might help to explain why some immigrant communities start businesses at higher rates than others is that some countries from which immigrants hail have stronger or weaker traditions of entrepreneurship. "There's no role model [for entrepreneurs in our country]," says one New York-based urban affairs expert, speaking about her native country. "In our culture, money is dirty and business is not looked upon highly." *****

RECOMMENDATIONS

Immigrant entrepreneurs have been indispensable to New York City's economic growth in recent years—and, given that immigration is projected to continue driving the city's population growth and that local policymakers have barely begun to explore the possibilities for strengthening immigrant businesses, it's clear that they could provide an even bigger boost to prosperity in the decade ahead.

But for the city to take full advantage of this tremendous economic asset, public and private sector leaders will have to show a greater appreciation for the role that immigrant-run firms have come to play in the city's economy and provide more assistance to help immigrant entrepreneurs scale the multitude of unique obstacles they face in their efforts to start and grow businesses in the five boroughs. These recommendations offer an action plan for government, banks, foundations and nonprofit economic development organizations that will help New York City capitalize on this growing but often neglected part of the economy.

Government

Integrate immigrant entrepreneurs into New York City's overall economic development strategy. Mayor Bloomberg has demonstrated through his statements and some policy actions that he understands and appreciates how much immigrants contribute to New York City's cultural, civic and economic life. But his administration has only begun to incorporate immigrant entrepreneurs into its larger economic development framework. Going forward, the mayor and his top economic aides would be wise to embrace New York's growing population of immigrant entrepreneurs as a powerful engine for future growth, and to pursue policies that place them closer to the heart of the city's economic agenda. As Deputy Mayor Daniel Doctoroff and the heads of the Economic Development Corporation and Department of Small Business Services (SBS) strive to create a master plan for the city's economic development, they should carefully consider how best to support immigrant entrepreneurs and strengthen several of the city's major ethnic business districts.

Develop a new framework for providing business services to immigrant communities. As this report details, too few of the programs overseen by the Department of Small Business Services are reaching immigrant entrepreneurs. Considering the importance of these emerging businesses, the agency should conduct a comprehensive assessment of how it can better serve this growing part of the city's business community. The goal would be both to connect many more immigrant entrepreneurs with existing SBS programs and also create a new set of specially-tailored mechanisms for serving immigrant communities that take into account the limitations of traditional government-run programs and the different cultural norms and practices of those communities.

Partner with local organizations that have credibility in immigrant communities. Any plan to provide business services to immigrant entrepreneurs must start with the understanding that countless numbers of legal immigrants will never seek assistance from a government-run center-and that many won't set foot into a nonprofit organization they don't trust. Experience shows, however, that many immigrants are eager to work with organizations that are based in their own community, have staff that speak their language and take the time to provide the close and sustained assistance that is often necessary. SBS should identify groups that have credibility in immigrant communities, many of which aren't currently in the agency's orbit. Then, it should make these community-based organizations full-fledged partners in delivering business assistance services, much the way the agency now works closely with a handful of local development corporations to manage the city's Industrial Business Zones and conduct outreach to manufacturing firms. To make it work, SBS will have to provide adequate funding for groups to ramp up their services.

Push for well-established economic development organizations to collaborate with newer groups that have roots in immigrant communities. SBS should also facilitate partnerships between longstanding business intermediaries such as local development corporations and chambers of commerce—and recently founded nonprofits that are rooted in or have closer ties with immigrant communities. By marrying the expertise and resources of the more established groups with the cultural credibility and physical proximity of the newer nonprofits, the agency can quickly and dramatically strengthen the latter without a major expenditure of public resources or the need to build a new set of institutions.

Initiate a major new initiative to help local immigrantrun businesses export their products beyond the five boroughs. A major opportunity for economic growth lies with the scores of businesses throughout the five boroughs that manufacture unique ethnic products, import foreign goods for distribution or provide specialized services to immigrant communities. Many of these firms could easily expand their operations—and create new jobs—by exporting their goods and services to other parts of the country that have emerging immigrant populations but few ethnic businesses of their own. With minimal support, some of the city's small immigrant-run firms might become the next Goya or Golden Krust. The city's Economic Development Corporation should create a new initiative to actively target these businesses and provide resources to help them develop the expertise and capacity to export into new markets. As part of any such effort, EDC should support a citywide expansion of Brooklyn Goes Global, a well-regarded export-assistance program run by the Brooklyn Chamber of Commerce.

Create a marketing campaign to promote the city's major ethnic business districts as unique destinations for shoppers from throughout the region. Ethnic business districts like Washington Heights, Flushing and Jackson Heights already attract large numbers of shoppers from throughout the tri-state region. But with additional marketing, these business districts could bring in many more shoppers from throughout the area who are looking for products they can't find at Whole Foods or Wal-Mart and a shopping experience that simply isn't available today on the Upper West Side or in Scarsdale. The city's marketing czar, in collaboration with EDC and local business groups, should initiate a campaign to promote these unique city assets throughout the region.

Advocate against federal cuts to microenterprise programs. Mayor Bloomberg has admirably spoken out against immigration reform proposals in Congress that would hurt New York. Working with the city's newly empowered congressional delegation, he should also add his voice in protest against the Bush administration's repeated attempts to eliminate or drastically cut back federal funding for microenterprise programs—like the CDFI Fund and the SBA's Microloan program—that have been incredibly effective in helping immigrant entrepreneurs get access to seed capital and technical assistance. Indeed, the mayor should lobby Congress and the State Legislature to increase support for microfinance programs, most of which are woefully under-funded and receive only a fraction of the resources that go to assist larger businesses.

Make better use of the Mayor's Office of Immigrant Affairs. SBS and EDC should forge closer ties to the Mayor's Office of Immigrant Affairs, and work with the unit to conduct outreach efforts into immigrant neighborhoods.

Rein in overzealous regulatory enforcement efforts. Every city has a stake in enforcing regulations that protect citizens' safety and health and ensure a reasonably high quality of life. In recent years, however, many of New York's enforcement agencies have gone overboard in issuing tickets to small businesses around the five boroughs and the perception is that the city's motivation in doing so has been more a desire to collect revenue than to prevent egregious violations. The mayor and agency leaders need to recognize that this has seriously poisoned the business environment in the five boroughs, and they should send a strong message to curb excessive ticketing.

Banks

Support efforts to get more immigrants into the banking system. Too many immigrants never establish a checking or savings account, and fail to develop a credit history. Not doing so subsequently hurts those who wish to receive bank financing to start a business. Banks can help bring many more immigrants into the banking system by lowering or removing barriers to establish various accounts, opening more branches in immigrant communities, hiring lending officers who come from ethnic communities and speak a mix of languages, and offering products that immigrants want, like money transmission services.

Refer rejected business loan applicants to microlenders. All banks in New York should make it a standard practice to refer immigrants who are turned down for business loans to ACCION, NYANA, the BOC Network or other groups that make microloans. Currently, too few banks are making these referrals, even though doing so may help them get business from that entrepreneur down the road.

Help microfinance organizations with capacity-building efforts. As part of their community development efforts, banks could do much more to help microenterprise organizations build capacity for their lending. Specific actions should include everything from having bank officials serve on the groups' lending committees to giving them input on managing portfolios.

Foundations

Support microenterprise organizations as part of community development initiatives. Many philanthropic foundations provide financial support to microfinance organizations on an international level, but only a small number of them have embraced microenterprise activities as an effective tool for asset-building and community development in New York and other American cities. Foundations should take a new look at the impact of microenterprise groups in supporting the growth of immigrant and minority entrepreneurs, and the role they play in creating wealth and growing communities. Even a relatively small amount of support from foundations could make a real difference for these organizations, particularly if directed at bolstering and expanding the critical technical assistance services these groups offer.

LEAN BUILDER RESOURCES

Lean Builder resources (Courtesy of Stephen Mouzon.).

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TEAR-OUT PREVENTION WORKSHOP

This one is done as a walk-around with a builder's guild in a place where they've been working. They need to have at least 20-30 houses completed in order to be most effective. I carry a big whitepad around with me to draw as necessary. The idea is to both praise them for what they've done well, and also to point out things that should be torn out, and explain why. Sometimes this can get pretty graphic, like the workshop where a builder put in some incredibly flimsy punched metal for a foundation vent. I said "this will never hold up; imagine what happens when kids are playing ball or something," and with that, I kicked it and knocked it out. The builders there are still talking about that after all these years.

EAVE WORKSHOP

In this one-day workshop we build three eaves: one vernacular, one median, and one classical. The developer or neighborhood association constructs the three framing boxes beforehand, so we're just doing the rafters and trim. I need one master carpenter, for whom I work as assistant and also instructor. He's cutting and nailing all the time; I'm doing that part of the time and talking and drawing on a whitepad and easel the rest of the time. We've done more of these than any other workshop type. The really powerful thing about this workshop type and the ones to follow are that I'm not teaching in the normal demeaning "follow the drawings, stupid" way that's often used by architects. Instead, I'm giving them the principles of how to construct the eaves, then we go over to the stack of trim pieces the lumberyard delivered to see how we can put the eaves together following the principles with the materials we have on hand. So instead of being demeaning, this method is empowering because it gives them principles they can use in many conditions. It also helps create the "great variety in a narrow range" that is a hallmark of great places worldwide, and it does so with the natural randomness that is a natural part of using materials on hand. One of the places we did this workshop was at Norton Commons, where there was a particularly rough crew that I thought would be gone by 10 AM. When I say rough, I mean they looked like they were straight out of the deep woods, and had swastikas tattooed on their heads. But somewhere in the middle of the day, they got the idea that they could become craftsmen,

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where on every day that came before, they knew they were just wood-butchers, trading time for beer and grocery money. Several months later, Andrés visited and asked Town Architect Mike Watkins "what have you done here? This is the best quality of architecture we have ever gotten in a first-home community." Mike should have taken more credit, but instead he said "it all began with the builders' workshop that transformed the backwoods crew. Today, they compete with each other and with the other crews for who can do the best details."

DORMER WORKSHOP

This one-day workshop follows the same pattern as the Eave Workshop, in that the developer or neighborhood association builds the rough framing boxes beforehand, then we finish framing the rafters and trim the three dormers. This one sometimes runs long, so the crews need to know that they may need to stay late. As with the eaves, the finished dormers should be kept in a shop or warehouse somewhere so crews can refer to them later. Some of the things we build haven't been done correctly anywhere nearby in a hundred years or more. It's really empowering for guys to see it done right, like their great-grandfathers did, and realize that it's not rocket science. By keeping the elements we build, it helps them remember the right way until it becomes second nature to them.

PORCH WORKSHOP

This one-day workshop builds three 3' square, full-height porch corners. As with the others, they are the vernacular, median, and classical settings for that place.

Door & Window Workshop

This one-day workshop varies from the others, in that we trim out one full-size window installed in a 6' long section of wall at the most vernacular setting, then build a series of a dozen head-jamb connections on 32" square chunks of wall, from vernacular to classical for that place, then build four jamb-sill connections at the same settings.

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TRADITIONAL CONSTRUCTION PATTERNS WORKSHOP

This is the only classroom workshop in the series. Here, I step through all 108 patterns in *Traditional Construction Patterns*, which represent the most commonly screwed-up elements in traditional architecture. Normally, the developer or neighborhood association buys a book for each workshop participant to help them remember. As with the other workshops, the powerful thing is that the builders aren't just told what, but why.

TA-TV

<u>TA-TV</u> (Town Architect TV) is a video channel highlighting problems I run into regularly working as Town Architect in several New Urbanist places. It's done in a somewhat humorous way... at least as much humor as I can muster! There are 5 sub-channels: Walls & Massing, Doors & Windows, Porches & Balconies, Eaves & Roofs, and Attachments & Sitework. There will be a sixth one: Critiquing the Neighborhood, once I get the videos processed from Andrés walking around Seaside, Rosemary, and Alys. Right now, some of the categories are a bit thin, but eventually, I'd like to have a hundred or more. As you'll see, they're all really short and to the point.

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Smart Growth Schools Report Card, courtesy Nathan Norris.

WWW.SMARTGROWTHSCHOOLS.COM

RESTORATION PREFERENCE

Will old schools be restored rather than replaced so long as the cost is less than a new school? This is a separate question than whether the school building will be recycled for another use (i.e., adaptive reuse).

Costs to citizens include much more than the expenses that are directly paid by the school system such as construction costs. The real costs also include busing expenses, long-term energy costs, expected road expansions, water utilities, sewerage, fiber optics, fire and rescue services, environmental costs (such as water or air pollution), and items that are generally hard to quantify, but might be relevant to a particular new school such as whether it generates a loss of agricultural lands, whether it increases the amount of time that the community must spend in morning rush hour, whether the materials of the school improve the health of the students through increased light or decreased mold in the air, or whether it is likely to generate increased health and property losses as a result of increased teenager driving.

A	Cost Analysis and 100%. A published analysis is required of the "real costs" of building a new school versus restoring an existing school, and there is a rule that requires an existing school to be restored so long as it costs less than the total cost of a new school.
B	Cost Analysis and No Rule. A published analysis is required of the "real costs" of building a new school versus restoring an existing school, but there is no rule pertaining to whether a new school must be restored.
С	Cost Analysis and 85%. A published analysis is required of the "real costs" of building a new school versus restoring an existing school, and there is a rule that requires an existing school to be restored so long as it costs less than 85% of the total cost of a new school.
D	No Cost Analysis and No Rule. No policy on the restoring of schools.
F	70%. An existing school may be restored only if it costs less than 70% of the cost of building a new school.

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2

HOLISTIC PLANNING

Is school planning done in conjunction with land planning and transportation planning or are these segregated?

A	School, Land Use and Transportation Planning in Sync. School system planning is done in conjunc- tion and is consistent with land use planning and transportation planning.
B	School and Transportation Planning in Sync. School system planning is done in conjunction and is consistent with transportation planning.
С	School and Land Use Planning in Sync. School system planning is done in conjunction and is consistent with land use planning.
D	School Master Plan. School system has a master plan for how it will grow or contract.
F	No School Master Plan. No master plan exists for school system.

3

COMMUNITY BUY-IN

Is the school planning process designed in a way to secure meaningful community input prior to key decisions being made?

A	Multiple Scenarios, Full Impact Analysis, and Formal Input. Community given multiple school planning scenarios; given the economic/visual/environmental/social impact of those different scenarios; a meaningful formal process for the community to express their preference for one of the multiple planning scenarios.
B	Multiple Scenarios, Limited Impact Analysis, and Meetings. Community given multiple school planning scenarios; given the economic/visual impact of those different scenarios; meetings held to secure feedback from the community on school planning deci- sions.
С	Multiple Scenarios, No Impact Analysis, and Meetings. Community given multiple school planning scenarios; not given the economic/visual/environmental/social impact of those different scenarios; meetings held to secure feedback from the community on school planning decisions.
D	No Multiple Scenarios, No Impact Analysis, and Meetings. Community not given multiple school planning scenarios; not given the economic/visual/environmental/social impact of suggested school planning decisions; meetings held to secure feedback from the community on school planning decisions.
F	No Multiple Scenarios, No Impact Analysis, and No Meetings. Community not given multiple school planning scenarios; not given the economic/visual/environmental/social impact of suggested school planning decisions; no meaningful formal process for voicing a preference for school planning decisions.

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4

ELIMINATION OF DESIGN CONSTRAINTS

(2) programmatic design requirements such as

(1) minimum acreage requirements;

Do you have the flexibility to design the school efficiently for the site and the community----or are there one-size-fits-all rules governing design such as:

((a) parking/stacking requirements; (b) prohibition of multi-level schools; (c) minimum square footage requirements for classrooms; or (3) maximum costs per square foot?
A	No Acreage; No Design Program; No Max Costs. No minimum acreage requirements; no program- matic design requirements; no maximum construction cost per square foot.
B	No Acreage; Design Program; No Max Costs. No minimum acreage requirements; programmatic design requirements; no maximum construction cost per square foot.
С	No Acreage; Design Program; Max Costs. No minimum acreage requirements; programmatic design requirements; maximum construction cost per square foot.
D	Required Acreage; Design Program; No Max Costs. Mandated minimum acreage requirements; programmatic design requirements; no maximum construction cost per square foot.
F	Required Acreage; Design Program; Max Costs. Mandated minimum acreage requirements; programmatic design requirements; maximum construction cost per square foot.
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NEIGHBORHOOD SCHOOL

Is the school embedded into a walkable neighborhood so that most students can reach it safely without the necessity of a car or bus?

A	60%. 60% of students regularly walk or bike to school.
B	45%. 45% of students regularly walk or bike to school.
С	30%. 30% of students regularly walk or bike to school.
D	15%. 15% of students regularly walk or bike to school.
F	0%. No students regularly walk or bike to school.
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6

PROMINENT SITE

Is the school sited in a prominent location (e.g., terminated vista or on top of a hill) so that it communicates the importance the school has in the culture of the community?

A	Terminated Vista; Top of a Hill; Neighborhood Center. School terminates a vista, sits atop a hill, and is in a location that is in the heart of the neighborhood center (co-located with other important civic institutions or close to an important intersection).
B	Terminated Vista; Not Atop of a Hill; Neighborhood Center. School terminates a vista, does not sit atop a hill, and is in a location that is in the heart of the neighborhood center (co-located with other important civic institutions or close to an important intersection).
С	No Terminated Vista; Not Atop a Hill; Neighborhood Center. School does not terminate a vista; it does not sit atop a hill, but it is in the heart of the neighborhood center (co-located with other important civic institutions or close to an important intersection).
D	No Terminated Vista; Top of a Hill; Not Neighborhood Center. School does not terminate a vista; sits atop a hill, and it is not in the heart of the neighborhood center (co-located with other important civic institutions or close to an important intersection).
F	No Terminated Vista; Not Atop a Hill; Not Neighborhood Cen- ter. School does not terminate a vista, does not sit atop a hill, and is not in the heart of the neighborhood center (co-located with other important civic institutions or close to an important intersection).
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SHARED USE

Is the school sited or designed so that it can share uses with the community such as a gym (or YMCA), park, ballfields, community meeting space, daycare, library, performance theater, art studio, cafeteria/restaurant, community garden, health clinic, etc.?

A	Ballfields, Gym + 2 More Additional Shared Uses. Ballfields, gym, and two or more of the following shared with the community: community meeting space, daycare, library, performance theater, art studio, cafeteria/restaurant, community garden, or health clinic.
B	Ballfields, Gym, + 1 More Additional Shared Use. Ballfields, gym, and one of the following shared with the community: community meeting space, daycare, library, performance theater, art studio, cafeteria/restaurant, community garden, or health clinic.
С	Ballfields & Gym. Ballfields and the gym are shared with the community.
D	Ballfields. Ballfields are shared with the community.
F	No shared use.
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8

FLEXIBILITY

Is the school designed so that it can grow (independent additional wings, floors or structures) or contract in size and services (areas can be removed or adaptively reused if no longer used for school purposes) as the neighborhood grows or contracts so that it remains useful over a longer period of time?

A	Grow or Contract. School is designed so that it can easily grow or contract.
B	Grow, not Contract. School is designed so that it can easily grow, but not contract.
С	Contract, not Grow. School is designed so that it can contract, but it is not designed so that it can easily grow.
F	Neither Grow, nor Contract. School is not designed so that it can grow or contract.
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9

CONNECTED LEARNING ENVIRONMENT

Does the school connect itself to effective distance learning opportunities; is the school connected to the local community through interaction with local businesses or through a community service program?

A	Substantial Distance Learning, Substantial Interaction with Business Community, and Community Service Program. There is substantial distance learning, the school has substantial interaction with the local business community, and the school has a structured community service program.
B	Substantial Distance Learning, Some Interaction with Community through Business or Community Service Program. There is substantial distance learning, plus the school has some interaction with the local business community or the school has a structured community service program.
С	Substantial Distance Learning and No Interaction; or Some Distance Learning and Some Interaction. There is substantial distance learning and no interaction with the community through business or a community service program; OR there is some distance learning, and some interaction with the community through business or a community service program.
D	Some Distance Learning and No Interaction; or No Distance Learning and Some Interaction. There is some distance learning and no interaction with the community through business or a community service program; OR there is no distance learning and some interaction with the community through business or a community service program.
F	No Distance Learning and No Interaction with Community through Business or Community Service Program. There is no distance learning , there is no interaction with the local business community, and the school does not have a structured community service program.

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10

COMMUNITY PRIDE IN THE DESIGN

Is the school designed so that it generates community pride as measured by a Visual Preference Survey (VPS)?

A	7 to 10. Proposed school receives a positive 7 or higher on a VPS which is scaled from negative 10 to positive 10.
B	4 to 6. Proposed school receives a positive 4, 5 or 6 on a VPS which is scaled from negative 10 to positive 10.
С	1 to 3. Proposed school receives a positive 1, 2 or 3 on a VPS which is scaled from negative 10 to positive 10.
D	0. Proposed school receives a 0 on a VPS which is scaled from negative 10 to positive 10.
F	Negative. Proposed school receives a negative score on a VPS which is scaled from negative 10 to positive 10.

GREEN BUILDING CERTIFICATION

Does the construction or renovation of the school follow best practices regarding energy efficiency, water efficiency, indoor air quality, daylighting, light pollution and earth-friendly construction techniques as set out in the LEED for Schools program?

A	Platinum Certification. School building receives LEED for Schools Platinum certification.
B	Gold Certification. School building receives LEED for Schools Gold certification.
С	Silver Certification. School building receives LEED for Schools Silver certification.
D	Bronze Certification. School building receives LEED for Schools certification.
F	No Certification. School building does not receive LEED for Schools certification.
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${\sf LEANING} \ {\sf OF} \ {\sf C}{\sf ODES}$

Sandy Sorlien prepared a few slides for the Salt Lake City CNU with steps toward leaning your development codes.
How did we get from a model SmartCode that is only 50 pages to a 222 page adopted SmartCode for a small city, and how can we streamline?

- adding architectural controls & guidelines, including 36 pages of pattern book material • pattern book should be separate publication
- adding several other SmartCode modules if only advisory, put in appendix
- parsing nuances of every use (8 extra pages of definitions) persuade or be patient, someday cities will stop wanting this
- including lengthy administrative protocols persuade or be patient, someday cities will stop wanting this
- including the maps need the maps
- providing advice and teaching within the code text put in annotations or a separate guide
- adding the ever-popular "This Page Intentionally Left Blank."

Decisions for Protecting Local Character Form & Type vs Style & Materials

Should the code regulate style or materials at all? What about materials for fences and walls?

If so, how much, just the short SmartCode Architectural Module, or more? "Shall" or "should?"

What should be coded and what should just be in a separate pattern book or guidelines?

Is there a provision for design review in the code? Is there too much discretion, or not enough? Will guidelines become de facto requirements?

Architectural Standards SmartCode Module

PREPARED BY DUANY PLATER-ZYBERK & CO.

Architecture is the art of making places. Robert Campbell

SMARTCODE ANNOTATED

These annotations are advisory only. The SmartCode itself appears only on the right side of each spread.

5.14 ARCHITECTURAL STANDARDS

This optional Module contains basic Architectural Standards for Buildings, These provisions contribute to a visuallylarmonicous south afber, cassing the public's acceptance of mixed functions in adjacency, and in some instances, supporting the superior environmental performance of traditional building technique. More complete and more detailed Modules, in the form of more claborate standards or full pattern books, may be used instead. Such Modules are available from New Urbanist suppliers listed on the website www.smarkcodecentral.com.

Some municipalities may decide not to regulate architectural matters. However, many of these standards, besides their aesthetic effects, also have health and public safety purposes, such as crime prevention by increasing "eyes on the street," that may be cited as support for their implementation.

5.14.1c This assures a minimum of visual harmony, "Vertical" may be replaced by "horizontal" where modernist architecture is desired.

 $S_1A_1f_K \ge$ These provisions should be removed where modernis atributcurs is desired. Even odes that promote sloped roofs should allow flat roofs when permanently dedicated to roof gardens or green roofs. Such roof gardens, if they are to be used, should be easily accessible from a room on the roof. S_1A_1 (g) Other materials may be added to this list as the

community wishes. For example, eighty percent of the new housing in the Northeast has viryl siding. But its use is controversial. While it initially contributes to housing affordability, some viryl has not proved dirable. According the Wiryl Siding Institute, the latest premium products are more colorfast and durable than they have been in the past, with warranties against fading and yellowing. Still, the authors of this Manual recommend cementitious siding or wood if price allows.

This provision is for Facades only; calibrators should consider also regulating the side elevations.

SaverDorr Makuta Version 9.2

SMARTCODE MODULE

C.SanrCont Vennes 4.2

ARCHITECTURAL STANDARDS

5.14 ARCHITECTURAL STANDARDS

5.14.1 GENERAL TO ZONES T3, T4, T5, T6

- Building wall materials may be combined on each Facade only horizontally, with the heavier below the lighter.
 Streetscreens should be constructed of a material matching the adjacent building
- Facade. c. All openings, including porches, Galleries, Arcades and windows, with the excep-
- tion of Shopfronts, shall be square or vertical in proportion. d. Openings above the first Story shall not exceed 50% of the total building wall
- area, with each Facade being calculated independently. e. Doors and windows that operate as sliders are prohibited along Frontages.
- f. Pitched roofs, if provided, shall be symmetrically sloped no less than 5:12, except that roofs for porches and attached sheds may be no less than 2:12, The article field matrice and attached sheds may be no less than 2:12.
- g. The exterior finish material on all Facades shall be limited to brick, wood siding, cementitious siding and/or stucco.
 h. Flat roofs shall be enclosed by parapets a minimum of 42 inches high, or as
- required to conceal mechanical equipment to the satisfaction of the CRC. Balconies and porches shall be made of painted wood.
- Fences at the first Lot Layer shall be painted. Fences at other Layers may be of wood board or chain link.

Architectural Module - calibration for a small New England town before insertion into base code

5.14.1 GENERAL TO ZONES T3, T4, T5, T6

- a. Building wall materials may be combined on each Facade only horizontally, with the heavier below the lighter.
- b. Streetscreens should be constructed of a material matching the adjacent building Facade.
- c. All openings, including porches, Galleries, Arcades and windows, with the exception of Shopfronts, shall be square or vertical in proportion.
- d. Openings above the first Story shall not exceed 50% of the total building wall area, with each Facade being calculated independently.
- e. Doors and windows that operate as sliders are prohibited along Frontages.
- f. Pitched roofs, if provided, shall be symmetrically sloped no less than 5:12, except that roofs for porches and attached sheds may be no less than 2:12.
- g. The exterior finish material on all Facades shall be limited to brick, wood siding, cementitious siding and/or stucco.
- h. Flat roofs shall be enclosed by parapets a minimum of 42 inches high, or as required to conceal mechanical equipment to the satisfaction of the CRC.
- . Balconies and porches shall be made of painted wood.
- . Fences at the first Lot Layer shall be painted. Fences at other Layers may be of wood board or chain link.

- tion of Shopfronts, shall be square or vertical in proportion.
- d. Openings above the first Story shall not exceed 50% of the total building wall area, with each Facade being calculated independently.
- e. Sliding doors and windows are prohibited along Frontages.
- f. Gabled roofs, if provided, shall be symmetrically sloped no less than 5:12. Hipped roofs, if provided, shall be symmetrically sloped no less than 3:12. Roofs for porches and attached sheds shall be no less than 2:12.
- g. The exterior finish material on all Facades shall be limited to stone, brick, wood siding, cementitious siding, stucco and/or vinyl clapboard with the vinyl clapboard having wood trim for corner boards, window casings, door casings and all trim and ornamentation.
- h. Flat roofs shall be enclosed by parapets a minimum of 42 inches high, or as required to conceal mechanical equipment to the satisfaction of the CRC.
- i. Balconies and porches shall be made of painted wood or metal.
- j. Fences or walls at the first Lot Layer shall be brick, stone, or painted. Fences at other Layers may be of wood board, chain link, brick, stone, or painted metal.

Most of the buildings in Damariscotta are Colonial, Federal, Greek Revival, Colonial Revival, American Renaissance, or the loft buildings downtown on Main Street (T5). They have in common that they are simple Classical or Vernacular Classical buildings with shared visual principles, built of durable, naturally sustainable materials. The Damariscotta Architectural Code illustrates and describes these principles, such as simple, well-proportioned massing on the street, and refers to the examples in *Get Your House Right* to show how to correctly build in the tradition of Damariscotta.

(credit: John Massengale, Massengale & Co., LLC)

SMARTCODE MODULE

SHADING OF GLAZING

Municipality

Farr Associates Version 1.0

TABLE SU3: Shading of Glazing This table illustrates methods to achieve high levels of shading glazing within each Transect Zone.



ARCHITECTURAL PATTERNS : GULF COAST ARTS & CRAFTS

Gallery of Examples



Craftsman

www.mississippirenewal. com/documents/ Rep_PatternBook.pdf

Monday, September 16, 13

The model SmartCode addresses three scales of planning:

Article 2 • Regional Scale Plans Articles 3 & 4 • Community Scale Plans Article 5 • Lot & Building Scale Plans

The model Neighborhood Conservation Code (infill SmartCode) addresses two scales:

Chapters 2 & 3 • Community Scale Plans Chapter 4 • Lot & Building Scale Plans

The Pocket Code (Transect-based five-pager) addresses two scales:

Section I • Rules for Private Lots & Buildings Section 2 • Rules for Neighborhood / Downtown Planning

LEAN LEXICON

Sandy Sorlien prepared a few slides for the Dallas CNU to quickly teach Lean Urbanism's principles. They are suitable for Pecha Kucha.

Buron

an impediment to common-sense building, community planning, or business startup efforts. A buron may be a person, group, code, procedure, or entrenched habit. By the prolonging of planning, permitting, and building, a buron makes them more expensive. (syn: clog.) It may be unfixable in the short term and require a bypass/workaround.

Buronics

the general condition of multiple burons and the thinking that arises from them.

Regulatory Centipede

a cascade of often well-intended regulations and incentives that damage urban life and urban fabric, causing necrosis. Commonly found where regulation doesn't account for urban reality (e.g. brownfield cleanup cascading into parking lots capping contamination, cascading into last minute halts on development cascading into full cleanup, cascading into bankruptcy, lawsuits, liens, and chain link fences around derelict houses.)

Progress Trap

the condition human societies experience when, in pursuing progress through human ingenuity, they inadvertently introduce problems they don't have the resources or will to solve, for fear of short-term losses in status, stability or quality of life. This prevents further progress and sometimes leads to collapse.

Baroquery

the purely ornamental provision of regulation, because the regulations are too incomprehensible, self-contradictory, or voluminous to enforce. In other words, it is on the books, but unusable.

Kafka-ization

the accretion of regulations into hermetic or circular arrangements, so there's no entry or exit. Example: You need a "certificate of substantial completion" to subdivide lots, and you need utilities hooked up before you can get the certificate, but the water utility won't hook you up until the lots are subdivided.

Rent-Seeking

creating a condition under which you can benefit from its complexity or dysfunction. (See Suckerfish.)

Suckerfish

person who benefits from a more industrious person or entity, or exploits complex or dysfunctional conditions. (var: lamprey, parasite.)

Regulatory Capture

when groups or individuals with a high-stakes interest in the outcome of policy or regulatory decisions can focus their resources toward gaining the policy outcomes they prefer, while members of the public, each with only a tiny individual stake in the outcome, will ignore it altogether. This explains why some Public Works departments only allow Reinforced Concrete Pipe for drainage, or why we end up with 600 page stormwater regulations, or why fire sprinklers become mandatory. A subset of rent-seeking.

Barnacle

a growth that increases drag.

Drag

something that causes misdirection and unwanted slowing of progress, analogous to the hydraulic inefficiency that makes a ship lose its heading. A "high drag" regulatory environment increases costs.

Encrustation

aggregate of barnacles.

Lean Seam

the narrow scope of concern for Lean Urbanism, between and somewhat overlapping the concerns of Tactical Urbanism and the Congress for the New Urbanism.

Lean Urbanism

(1) urbanism that requires a minimum of resources to incubate and mature. (2) a movement comprised of builders, planners, architects, developers, engineers, writers, artists, civic activists, non-profits, government entities, business owners, students, etc., working for more sustainable, attainable housing and development in an era of limited resources. The Project for Lean Urbanism focuses on lowering the thresholds for the incremental urbanization of humane communities in a permanently contracted economy.

80% Solution

the deliberate solution of only 80% of a given problem, leaving time, budget, and room for improvement and course-correction. The term is derived from the Pareto Principle or "80-20 Rule." See also: **Under-Solution.**

Patch

a small-scale statute or policy to a dysfunctional system or code. Patches include amendments, rezonings, revisions, and local variations. A patch may be limited by time or place, and may be partial. (See Tactical Competence.)

Bypass

a process or system that avoids dealing with the buron or foible creating an impediment. (syn: Workaround)

Symbiote

a person or firm who creates more value than he, she, or it captures. (var: oxpecker.)

Idaho Stop

a relaxation of regulation permitting a bicyclist to roll (cautiously) through a stop sign as if it were a yellow yield sign, and to treat a red light like a stop sign is supposed to be treated, that is, come to a full stop and proceed with caution. The Idaho Stop provides a useful metaphor for some Lean protocols.

Subsidiarity

the assignment of decisionmaking to the lowest competent level. In the US some initiatives are best handled at the federal level, while others devolve appropriately to the state, municipality, neighborhood, block, or household. The concept, which originated in Catholicism, also implies a preference for private over public entities. (See Distributed Leadership.)

Distributed Leadership

a leader's assignment, and even abdication, of leadership to other leaders at subsidiary levels or satellite spheres of concern.

Umwelt

the idea that different animals in the same ecosystem pick up on different elements of their environment and thus live in different micro-realities based on the subset of the world they're able to detect. The Lean ethos stresses the importance of recognizing our own umwelt — our unawareness of the limits of our awareness.

Pink Code

a development or building code that lightens the red tape of conventional permitting. A "pink" module or overlay may be added to an existing code to incentivize its use and reduce the expense of building.

Pink Zone

area for development where the bureaucratic red tape is lightened up, or where a pink code would apply.

Pocket Code

a development or building code that is brief and compact in format. Pocket Codes may fold to fit into a shirt pocket. They address only the most essential elements of walkability and/or building safety.

Vernacular Mind

a species mind whose nature is coherent, sparse, direct, awake but not self-conscious, and, above all, concrete; it locates intelligence in the environment, and culture in tradition. Its antonym is abstraction.

Vernacular

a local tradition or collection of traditions generated by the Vernacular Mind.

Regulatory Harmony

when regulations are in sync with community goals and the desire of stakeholders to carry out those goals smoothly and expeditiously.

Low grade bad humor

a prerequisite to getting things done.

CODE CHECK SAMPLE

A sample document from Code Check

Code Check[®] Seventh Edition

By DOUGLAS HANSEN & REDWOOD KARDON

Illustrations & layout by Paddy Morrissey

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Code Check is a field inspection guide to important code requirements and common code violations in the construction of 1- & 2-family dwellings & townhouses. The primary reference is the 2012 edition of the International Residential Code® for One- and Two-Family Dwellings, published by the International Code Council (the IRC).

Codes are adopted at different times in different places around the country. New editions come out every three years, and some states make extensive modifications to the model codes prior to adoption. Since the code used in a particular area could vary, we include references to the two most commonly used codes for every item in the book. Significant code changes are highlighted in the text and summarized on the inside back cover. For users in areas still using the 2009 IRC, the "building" section of the book cites both the 2009 and 2012 references. To determine the codes in your area, contact your local building department and check our web site at www.codecheck.com.

For updates to this book, and other valuable news, articles, and information, visit www.codecheck.com.

CODES REFERENCED IN CODE CHECK			
Organization	Code		
ICC	2009 & 2012 IRC	International Residential Code	
IAPMO	2009 & 2012 UPC	Uniform Plumbing Code	
IAPMO	2009 & 2012 UMC Uniform Mechanical Code		
NFPA	2009 & 2011 NEC	National Electrical Code	
The code changes referenced on the inside back cover compare the most recent codes in this table to the earlier editions.			

ABBREVIATIONS

Materials

tubing

 $\mathbf{A} = \operatorname{amp}(s)$ (ex: a15A breaker) ABS = acrylonitrile-butadiene-styrene plastic pipe **ACH** = air changes per hour **AHJ** = authority having jurisdiction AMI = in accordance with manufacturer's instructions ASCE = American Society of Civil Engineers ASTM = American Society for Testing & conduit AWG = American Wire Gauge B (vent) = gas appliance vent, usually double-wall **BO** = building official Btu = British thermal unit **BWL** = braced wall line **BWP** = braced wall panel CATV = cable television cfm = cubic feet per minute **CPVC** = chlorinated polyvinyl chloride plastic pipe CSST = corrugated stainless-steel cu. = cubic (ex: 24 cu. ft.) Cu = copper **DFU** = drainage fixture unit(s) DW = dishwasher DWV = drain, waste & vent **e.g.** = for example (exempli gratia) EGC = equipment grounding conductor **EMT** = electrical metallic tubing ex: = example FAU = forced-air unit (central furnace) FLR = flood level rim **FMC** = flexible metal conduit ft. (after number) = foot, feet (ex: 5 ft.) location FVIR = flammable-vapor ignition-resistant w/ = with galv = galvanized **GB** = gypsum board **GEC** = grounding electrode conductor **GPM** = gallons per minute **hp** = horse power **Zi** = Zinc

ICF = insulating concrete forms IMC = intermediate metal conduit in. (after number) = inch(es) (ex: 24 in.) IS = IAPMO Installation Standard **kw** = kilowatt L&L = listed & labeled **lav** = lavatory (bathroom sink) Ib. = pound LFMC = liquidtight flexible metal conduit LFNC = liquidtight flexible nonmetallic LL = lot line dividing one lot from another or from a street manu = manufacturer **max** = maximum min = minimum mph = miles per hour **n/a** = not applicable $\mathbf{NM} =$ nonmetallic sheathed cable O.C. = on center **PEX** = cross-linked polyethylene plastic pipe (water pipe) psf = pounds per square foot **psi** = pounds per square inch **psig** = pounds per square inch gauge **PT** = Preservative-treated (wood) **PVC** = polyvinyl chloride plastic water pipe or electrical conduit **recep** = receptacle outlet (electrical) **RMC** = rigid metal conduit **SDC** = Seismic Design Category **SDC D** = SDC D₀, D₁, & D₂ **SE** = service entrance **sq.** = square (ex: 24 sq. in.) **UL** = Underwriter's Laboratories. Inc. W = electrical conductors rated for wet **w/o** = without WC = water closet (toilet) WH = water heater WSFU = water supply fixture unit(s)

MODEL CODE ORGANIZATIONS

- ICC = The International Code Council
- IAPMO = International Association of Plumbing and Mechanical Officials
- NFPA = National Fire Protection Association

The IRC is a prescriptive guide to residential construction. It is intended primarily for wood-frame conventional construction within prescribed height limits and areas of wind and seismic design. When a project has aspects that exceed the prescriptive limits of the IRC, those aspects require an engineered design. Many houses will require design for certain specific portions, while the majority of the construction can be built prescriptively using the IRC. Some projects might be in wind, snow, or seismic areas that require all of the structural aspects be built to the International Building Code (IBC), while the nonstructural aspects are built to the IRC.

The information in this document is believed to be accurate; however, it is provided for informational purposes only and is not intended as a substitute for the full text of the referenced codes. Publication by The Taunton Press, ICC, and the authors should not be considered by the user to be a substitute for the advice of a registered design professional. Contact the local building department to learn what codes apply in your area as well as any local amendments and procedures.

KEY TO USING CODE CHECK

Each item with a checkbox refers to a code rule, and is followed by code citations. In the building section, most sections have only one column of code citations and they reference the numbers from the 2009 & 2012 IRC. Two columns of references are used when the 2009 & 2012 IRC used different numberings. In the plumbing, mechanical, and electrical sections the left citation is from the 2012 IRC, and the right column is from the 2012 UPC, 2012 UMC, or 2011 NEC. Example from p.22:

Indoor Air as Sole Source

12 IRC 12 UMC

□ Min volume of space 50 cu.ft./1kBtu/hr. **T18**, **F55** [2407.5.1] {701.4.1} This line says that appliances deriving all their combustion air from indoors must have a space at least 50 cu. ft. for each 1,000 Btu of the appliance rating. The rule is found in section 2407.5.1 of the IRC and 701.4.1 of the UMC. It is also shown in Table 18 and Figure 55.

When the code line text ends in "EXC" an exception follows the main rule, as in this example from p.18

□ Valve ahead of union & ≤ 6 ft. of appliance F41,42 EXC [2420.5.1] {1211.5}

• 50 ft OK if accessible identified valve at manifold ___ [2420.5.3] {Ø} This line says that a gas shutoff valve is required within 6 ft. of each appliance, as shown in figures 41 & 42. The IRC has an exception that allows the valve to be 50 ft. from the appliance at an accessible labeled manifold. The UPC prohibits this practice, so the reference in that column is "Ø."

Code changes from the previous code edition are shown by placing the reference in a different color, and a superscript endnote to the table on p.31, as in this example from p.20

Pan not req'd under tankless WHs [2801.5]51 {n/a} The IRC does not intend to require a drain pan under a tankless water heater. The UPC does not have this rule, so it's reference is "n/a". This change is explained as change #51 on **p.31**.

Lumber dimensions, e.g. "2 x 4", are nominal dimensions unless including a fraction or otherwise stated.



Benjamin Franklin was chosen as the main character in our Code Check illustrations for a number of reasons. The "First American's" insatiable curiosity, scientific genius, and civic-mindedness drove him to study fire safety, safe exiting, public sanitation, improved heating methods, and of course, electricity. Franklin made major contributions to each of the four main disciplines of building inspection: Building, Plumbing, Mechanical, and Electrical.

To find out more, visit: www.codecheck.com/cc/Ben.html

PLANNING

Plans, Permits & Inspections	09 & 12 IRC
Approved plans & permit card on site	[106.3.1]
Permits req'd for all work EXC	[105.1]
• 1-story accessory structures \leq 200 sq. ft., fences \leq 7 ft. ¹ high	۱,
retaining walls \leq 4 ft. from bottom of footing to top of wall,	
water tanks on grade \leq 5,000 gallons, sidewalks, driveways,	
painting, countertops, similar finish work, window awnings	
projecting \leq 54 in., decks \leq 200 sq. ft. & \leq 30 in. above grade	e &
not serving req'd exit door	[105.2] ¹
Inspection & approval prior to covering any work	[109.4]
Design	
Engineered design per IBC OK as alternative to IRC	[301.1.3]
Determine climatic and geographic design criteria	[301.2]
AHJ to determine wind speed from maps & topography	[T301.2]
Special design (e.g. ASCE-7 or ICC-600) where maps indicate	9
special wind regions or basic wind speed > 110 mph	[301.2.1.1] ²
AHJ to determine seismic design category from IRC maps	[301.2.2.1]
AHJ may allow alternate determination of SDC E if all shear wa	lls extend
from foundation to top story & no cantilevers or irregularity	_ [301.2.2.1.2]

BUILDING PLANNING BUILDING LOCATION

BUILDING LOCATION

Setbacks F1

	12 11.0
□ Verify setbacks – unrated walls min 5 ft. to LL EXC[T302.1]	{T302.1(1)}
 3 ft. if compliant automatic sprinkler system present [n/a] 	{T302.1(2)} ³
□ No openings in walls < 3 ft. to LL EXC[T302.1]	{T302.1}
Openings in walls perpendicular to LL OK [302.1X1]	{302.1X1}
 Facing dwellings & accessory structures on same lot [302.1X2] 	{302.1X2}
Accessory structures that are exempt from permits [302.1X3]	{302.1X3}
Foundation vents[302.1X5]	{302.1X5}
\Box Openings up to 25% of wall area OK > 3 ft. & \leq 5 ft. EXC_ [T302.1]	{T302.1}
 No limit > 3 ft. if automatic sprinkler system present [n/a] 	{T302.1(2)} ⁴
Projections (eaves) min. 5 ft. from LL EXC [T302.1]	{T302.1(1)}
2 ft. OK if 1-hr. protected on underside[T302.1]	{T302.1(1)}
• 3 ft. OK unrated if automatic sprinkler system present [n/a]	{T302.1(2)} ³

12 100

• 4 in. OK in detached garages 2 ft. from LL_____ [302.1X4] {302.1X4}



1

BUILDING

WALL FRAMING	
Stud Framing	09 & 12 IRC
Size, spacing, notching & boring per tables T4,F10	[602.3.1]
Studs must fully bear on min 2 in. nominal sole plate	[602.3.4]
Corners req 3 studs min EXC	[F602.3(2)]
 2 studs OK w/ cleats for attaching interior surfaces 	[F602.3(2)]
□ Single members headers allowed w/ spans per IRC T602.7.1	F11_[602.7.1] ⁸
Top Plates	
Bearing wall intersections & corners must overlap	[602.3.2]
End joints must offset 24 in. min (see T7 for nailing)	[602.3.2]
□ Joints need not be over studs	[602.3.2]
☐ Min 16 gauge 1 ¹ / ₂ in. strap w /min 8 10d nails each side over	
notches or holes > 50% of plate width F10 EXC	[602.6.1]
 Not req'd when structural panel sheathing covers notch 	[602.6.1]
Cripple Walls	
\Box Cripple wall < 14 in. sheathed or solidly blocked	[602.9]
\Box Studs \geq studs above them, walls > 4 ft. sized as additional stor	ry [602.9]
Wood Structural Panel Sheathing	
Panels req grade stamp from approved agency	[602.3]
Fasten direct to framing members in accordance w/ T7	[602.3]

TABLE 4	STUD SIZING, SPACING, NOTCHING & BORING [T602.3(5)] & [602.6]			
Stud Size		2×4	3×4	2×6
	Be	aring Walls (to 10fl	t. high)	
Supporting roof & co	eiling	24 in. O.C. ^A	24 in. O.C.	24 in. O.C.
Roof & ceiling + 1 fl	oor	16 in. O.C. ^A	24 in. O.C.	24 in. O.C.
Roof & ceiling + 2 floors		n/a	16 in. O.C.	16 in. O.C.
Notching F9		7∕8 in.	7/8 in.	1 ³ /8 in.
Boring F9		1³/≋ in.	1 ³ /8 in.	2∛16 in.
Boring 2 doubled consecutive		2 in.	2 in.	31/4 in.
Nonbearing Walls				
Notching F9		13/в in.	1 ³ /s in.	2∛16 in.
Boring F9		2 in.	2 in.	31/4 in.
A. Limited to roof spans ≤32 ft.				

FIG. 11 FIG. 10 **Notching & Boring Studs** Single Member 8-10d nails each Header side of notch 2× Bearing Nonbearing 60% 40% 2×4 Nonbearing 40% 25% Bearing 60% hole OK on bearing walls if the studs are doubled & the holes do not pass through more than 2 successive studs.

WALL BRACING FOR WOOD FRAME BUILDINGS

Locations	09 IRC	12 IRC
BWL is straight line in plan view	[202]	{602.10.1}
Exterior walls max offset from braced wall line 4 ft.	[602.10.1.4]	{602.10.1.2}
Max spacing of BWLs 25 ft. SDC D	[602.10.1.5]	{T602.10.1.3}
☐ Max length from end 10 ft. (12.5 combined in 09)	[602.10.1.4]	{602.10.2.2} ⁹
🗌 Max. 20 ft. between braced wall panel ends in same	e BWL[n/a]	{602.10.2.2} ¹⁰
Methods		
☐ All buildings req bracing by 1 of following methods:	[602.10]	{602.10}
Intermittent bracing methods	[602.10.2]	{602.10.4}
Continuous sheathing	[602.10.4&5]	{602.10.4.2}
 Simplified wall bracing method in SDC A, B & C 	[n/a]	{602.12} ¹¹
Intermittent braced wall panels min 48 in. length EX	C [602.10.3]	{602.10.5}
Alternate braced wall panels	[602.10.3.2]	{T602.10.5}
Portal frame w/ hold-downs	[602.10.3.3]	{T602.10.5}
Garage door openings in SDC A, B, or C	[602.10.3.4]	{T602.10.5}

EXTERIOR WINDOWS & DOORS

Performance & Labeling	09 IRC	12 IRC
□ Windows & doors installed & flashed AMI	[612.1]	{612.1}
□ Installation instructions req'd for each window & door _	[612.1]	{612.1}
Must be designed to resist wind loads	[612.5]	{612.2}
□ Anchor glass assemblies AMI for design pressure_	_[612.10.1]	{612.7.1}
\Box 3rd party performance testing & labeling req'd EXC _	[612.6]	{612.3}
Decorative glazed openings exempt	[612.6X]	{612.3X}
□ Garage doors to ASTM E 330 ANSI/DASMA 108 _	[612.7[[612.4]

SAFETY GLAZING

Sat	ety Glass Identification	09 & 12 IRC
	Iempered glass reqs permanent etched label EXC	[308.1]
_	Spandrel glass removable paper label OK	[308.1X2]
	Only 1 lite req's full label in multipane windows w/ lites \leq 1 sq.	ft.,
	others marked "CPSC 16 CFR 1201" or "ANSI Z97.1"	[308.1.1]
	Laminated glass does not req label	[308.1X1]
Ha	zardous Locations Requiring Safety Glass 09 IR	C 12 IRC
	Glass in swinging, bifold, or sliding doors EXC F22 _ [308.4-1] {308.4.1}
	• Decorative glazing or lites w/ < 3 in. least dimension [308.4-1)	(] {308.4.1X}
	Sidelites where glass is < 24 in. arc of door edge & any part of	f glass
	< 60 in. above floor or walking surface EXC F22 [308.4-2	2] {308.4.2}
	Decorative glazing[308.4-2X1] {308.4.2X1}
	• Where separated by wall or intervening barrier[308.4-2X2	2] {308.4.2X2}
	• Where door only accesses closet < 3 ft. deep[308.4-2X3	3] {308.4.2X3}
	Perpendicular to door & on latch side F22[308.4-2X4] {308.4.2X4}
	Adjacent to fixed panel of patio doors F22 [308.4-2X5]	5] {308.4.2X5}
	Windows w/ walk-through hazard EXC F22 [308.4-3	3] {308.4.3}
	Decorative glass[308.4-3X1] {308.4.3X1}
	• Protection from railing on side w/ walking surface [308.4-3X2	2] {308.4.3X2}
	All glazing in railings[308.4-4	l] {308.4.4}
	Wet areas (walls & enclosures facing walls of hot tubs, spas, w	/hirlpools,
	bathtubs, showers, & pools) where lower edge ofglass < 60 in	
	above standing or walking surface EXC[308.4-5&6	6] {308.4.5} ³³
	• Glazing > 60 in. horizontal from water's edge [308.4-5)	(] {308.4.5X} ³⁴
	Glazing \leq 3 ft. horizontally from stair or ramp EXC [308.4-7	7]{308.4.6X2} ³⁵
	Intervening rail 34-38 in. high & withstanding 50 psf	
	load w/o touching glass [308.4-7X1] {308.4.6X1}
	• Guard or handrail > 18 in. horizontal from glass _[308.4-7X2	2] {n/a} ³⁶
	• Solid wall 34 in. to 36 in. below glass [308.4-7X3	3] {n/a} ³⁶
	Glazing < 60 in. horizontal of bottom stair	
	landing & < 36 in. above landing EXC [308.4-8	B] {308.4.7} ³⁷
	Intervening guard min 18 in. from glass[308.4-8X1] {308.4.7X} ³⁸
	• Solid wall 34 in. to 36 in. below glass[308.4-8X2	2] {n/a} ³⁸

FIG. 22

Safety Glass



Safety glass when walk-through hazard exists: all four of (1) >9 sq. ft., (2) lower edge <18 in. above walking surface, (3) upper edge >36 in. above walk-ing surface & (4) within 36 in. horizontal of walking surface

ENERGY EFFICIENCY

Compliance

Compliance 09 IRC	C 12 IRC
□ Software can be approved to demonstate compliance [n/a] {1101.5} ³⁹
Compliance certificate posted on electrical panel[1101.9] {1101.16}
□ Additions & alterations same as new construction EXC _ [n/a] {1101.3}40
• Replacement fenestration, glass, up to 50% of luminaires, rero	ofing
if sheathing not exposed & energy use not increased [n/a] {1101.3X} ⁴⁰
Building Thermal Envelope	
Class I or II vapor retarder req'd interior of frame walls in	
zones 5,6,7,8 & Marine 4 EXC[601.3	[] {702.7}
 Class III (paint) OK w/ vented cladding or insulated 	
sheathing meeting specified R-values [601.3.1] {702.7.1}
U Walls, floors & ceilings insulated per climate zone [1102.1] {1102.1.1}
□ Insulate attic hatches & doors F44 [1102.2.3	[] {1102.2.4}
☐ Air leakage rate max 5 ACH in climate zones 1 &2,	
3 ACH in zones 3 - 8 (7 ACH all zones in 09 IRC) [1102.4.2.1]{1102.4.1.2}41
Systems	
HVAC systems sized per ACCA Manual S & J [1103.6	6] {1103.6}
Programmable thermostat req;d for central FAU heat [1103.1.1] {1103.1}
Attic ducts min R-8 insulation, others min R-6 [1103.2.1] {1103.2.1}
Duct leakage test mandatory [1103.2.2	[] {1103.2.2}
□ All recessed luminaires type IC airtight & gasketed trim[1102.4.5	5] {1102.4.4}
☐ Min 75% installed lamps high-efficacy (50% in 09) [1104.1] {1104.1} ⁴²

BUILDING GARAGES + FIREPLACES + INTERIORS + SAFETY GLASS + ENERGY

PIPING INSTALLATION & PROTE	CTION	
General	12 IRC	12 UPC
Max support intervals T11	[2605.1]	{312.9}
\Box Min 16 gage steel shield plate if < 1 ¹ / ₂ in. from edge	of framing	
(18 gage and 1 in. in UPC) F26	[2603.2.1]	{312.9}
Extend 2 in. above sole plate & below top plates	[2603.2.1]	{n/a}
☐ Freeze protection req'd for pipes outside building th	nermal	
envelope in areas subject to freezing	[2603.5]	{313.6}
Each pipe & fitting must bear manufacturer identification	ion & any	
markings req'd by applicable standards	[2609.1] ⁴⁵	{301.1.1}

TABLE 11	MAX. SUPPORT INTERVALS [T2605] {T313.1}		
Pipe or Tube	Horizontal	Vertical	
CPVC	\leq 1 in. – 3 ft. > 1 in. – 4 ft.	IRC: 10 ft. & midstory guides for	
PEX	\leq 1 in. 32 in. UPC > 1 in 4 ft. ⁴⁶	≤ 2 in. UPC: Base & each floor + midstory	
ABS & PVC ^A	4 ft.	guides	
Cost iron w/ no-	IRC: 5 ft. (10 ft. for 10 ft. pipes)		
hub fittings	UPC: If > 4 ft. – every joint, \leq 4 ft. lengths – every other joint.	UPC: Base & each floor & max. 15 ft.	
Cu Tubing	\leq 1 ¹ / ₂ in. – 6 ft.	IRC: 10 ft.	
Cullubility	$> 1^{1/2}$ in. – 10 ft.	UPC: Each floor & max. 10 ft.	
A. UPC: Provide for exp	pansion every 30 ft.		

Utility Trenches 12 IRC	12 UPC
Backfill in layers & tamped in place - no backhoe or grader	
until 12 in. of tamped earth in place F25[2604.3]	{314.4}
Contact utility re: sharing gas or electric in water trench_[utility]	{utility}
Water service min 12 in. deep (12 in. cover UPC) [2603.5]	{609.1}
□ Water service min 6 in. (12 in. UPC) below frost line_[2603.5]	{609.1}
Water in sewer trench if materials OK in house F25 [2905.4.2]	{609.2}
☐ If other sewer material, separate trench req'd (5 ft. away IRC) or	
install water pipe on shelf 12 in. above sewer F25 _ [2905.4.2]	{609.2}
Sewer depth per local BO & utility [2603.5.1]	{local}
Utility or other trench may not undermine footing [2604.4]	{314.1}
□ Pipes through foundation req sleeve or arch[2603.4]	{313.10.1}
FIG. 25 Common Trench Fill	l in layers first 12 in.



[2603.3] {312.2} □ Pipes through concrete wrapped or sheathed _

Gas underground beneath building req's conduit[2415.1	2] {1210.1.6}
Cu water tubing underground beneath building min Type L [n	/a] {604.2}

BUILDING FIRE PROTECTION

PLUMBING PIPING - GENERAL ◆ ROUGH INSPECTION

Protect pipe when < 1 ¹ / ₂ in. (1 in. UPC) from face of from face of	Min. extension 11∕2 in. past adge of hole
Underground Gas Pipes 12 IRC Min depth (min cover UPC) 12 in. EXC[2415.12]	12 UPC {1210.1.1}
• 8 in. OK for individual lines to lights, grills, etc. [2415.12.1]	{Ø}
18 in. cover unless external damage not likely [n/a]	{1210.1.1}
• Provide sleeve or bridge in conduit if < 12 in. cover [Ø]	{1210.1.1}

□ Plastic only OK underground outside building ____ [2415.17.1] {1210.1.7} Tracer wire min 18 AWG (UPC 14 AWG) adjacent to plastic pipe & brought above ground at riser_____ _ [2415.17.3] {1210.1.7.2} Buried metal factory wrapped EXC _ [2415.11.2] {1210.1.3}

• Field wrapping OK where stripped for threading [2415.11.2X] {1210.1.3}

ROUGH INSPECTION - TESTING

Required Pre-Concealment Piping Tests	12 IRC	12 UPC
Test all piping before cover or concealment	[2503.2]	{103.5.1}
DWV water test min. 10 ft. head for 15 minutes OR [2503.5.1]	{712.2}
Air test 5psig (10 in. mercury) for 15 minutes[2503.5.1]	{712.3}
□ Water pipe test 15 minutes w/ potable water at working	ng pressure	or
50 psig air for nonplastic pipe only	[2503.7]	{609.4}
☐ Gas test min 10 minutes @11/2× working pressure &		
min 3 psig	[2417.4.1]	{1214.3}

TABLE 12	DFUs, TRAPS & TRAP ARMS [T3004.1, 3105.1, & 3201.7] {T702.1 & 1002.2}							
Fixture	Min. Trap Size	DFUs	IRC Length to Vent	UPC Length to Vent				
Bathtub	1 ¹ /2 in.	2	6 ft.	3 ft. 6 in.				
Bidet	1 ¹ /4 in.	1	5 ft.	2 ft. 6 in.				
Clothes Washer	2 in.	3	8 ft.	5 ft.				
Floor Drain	2 in.	0^	8 ft.	5 ft.				
Kitchen Sink ^{B,C}	1 ¹ /2 in.	2	6 ft.	3 ft. 6 in.				
Laundry Tub ^c	1 ¹ /2 in.	2	6 ft.	3 ft. 6 in.				
Lavatory ^D	1 ¹ /4 in.	1	5 ft.	2 ft. 6 in.				
Shower ^E	2 in.	2	8 ft.	5 ft.				
Water Closet	3 in.	3	no limit	6 ft.				

A. If used as a receptor, use the DFUs of the fixture; the UPC counts all floor drains as 2 DFUs

B. With or without dishwasher or disposer.C. After the trap arm the UPC min. drain size is 2 in.

D. UPC 11/2 in. for sets of 2 or 3 lavatories E. IRC shower traps can be 11/2 in. for up to 5.7 gpm flow rates.

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PLUMBING

WATER SUPPLY	& DISTRIBUTIO	N (CONT.)	
Piping & Valves		12 IRC	12 UPC
Accessible fullway main s	shutoff req'd F33,34	[2903.9.1]	{606.2}
Accessible fullway shutof	f req'd at WH F33,34	[2903.9.2]	{606.2}
Brass adapter [or dielectr	ric fittings] between galv &	Cu[2905.17.1]	{316.2.1}
□ Water hammer arrestors r	req'd if quick-close valves_	[2903.5]	{609.10}
Individual shutoff req'd ead	ch fixture except tubs & sho	wers[2903.9.3]	{606.5}
Control valve can be at m	anifold if identified	[2903.8.5]	{606.5}
FIG. 33	FIG. 34		FIG. 35
Gate Valve	Rall Valvo	Globe	Valve



Protection of Potable Water Supply	12 IRC	12 UPC
□ No connections between private & public water supply	[2902.1]	{602.2}
Fixture outlet air gaps min 2X diameter of outlet	_[2902.3.1]	{603.3.1}
Backflow protection devices to recognized standards_	_ [T2902.3]	{603.2}

GAS PIPING

General	12 IRC	12 UPC
Locate gas meter in accessible & ventilated space	[utility]	{1208.6.1}
☐ Main shutoff req'd at each meter & building F36 [[2420.2&3]	{1210.11.2}
☐ Material: steel (galv or black), type K or L Cu, CSST [[2414.4&5]{	1208.5.2&3}
Cu only OK for low sulfur-content gas	[2414.5.2]	{1208.5.2.3}
Size pipe per tables T16-17	_[2413.3]	{1217.1}
Support pipe & smooth-wall tubing per T15	_[2424.1]	{1201.2.4]
Interior of pipe or tubing must be deburred	[2414.7]	{1208.5.5}
No gas pipe in duct, clothes chute, or gas vent	[2415.3]	{1210.2.3}
□ Outdoor piping min 31/2 in. above ground or roof	[2415.9]	{n/a}
No unions or bushings in concealed locations	[2415.5]	{1210.3}
Shutoff before each medium-pressure regulator	_[2420.4]	{1210.11}
Appliance Shutoffs & Connections	12 IRC	12 UPC
\Box Valve ahead of union & \leq 6 ft. of appliance F41,42 EXC	[2420.5.1]	{1211.5}
 50 ft OK if accessible identified valve at manifold _ 	[2420.5.3]	{Ø}
Max length connector 6 ft. [2]	2422.1.2.1]	{n/a}
Flex connectors not through walls, floors, ceilings [2]	2422.1.2.3]	{1211.4.4}
Connector not through appliance housing EXC [2	2422.1.2.3]	{n/a}
 Hard pipe, flex connectors protected against damage 	ge,	
& fireplace inserts w/ grommets AMI [24	22.1.2.3X]	{n/a}
Sediment trap close as practical to appliance EXC F41,	42 [2419.4]	{1211.8}
 Ranges, clothes dryers, fireplaces & gas lights 	[2419.4]	{1212.8}
Corrugated Stainless Steel Tubing (CSST)	12 IRC	12 UPC
Install AMI (includes training & qualification)	[2414.5.3]	{1208.5.3.4}
□ Sizing, support, protection, & connection AMI	[2414.5.3]	{1208.5.3.4}

Electrical Bonding	12 IRC	12 UPC
□ Gas pipe not OK as grounding electrode in earth	_[2410.1]	{1210.15.3}
Electrically bond above-ground metal gas pipes	_[2411.1]	{1210.15.1}
□ Appliance EGC sufficient to bond non-CSST gas pip	be[2411.1]	{1210.15.1}
□ Bond between electrical service & metal pipe betwee	en	
meter & first downstream CSST fitting F36	2411.1.1] ⁴⁹	{1210.15.2} ⁴⁹
CSST bonding jumper min 6 AWG Cu F36	[2411.1.1]	{1210.15.2}



TABLE 15	GAS	AS PIPING & TUBING SUPPORT [T2424.1] {T1210.2.4.1}									
Steel Pipe Nominal Size (in.)		Max. Support Spacing (ft.)	Smooth-Wall Tubing Nominal Size (in.)	Max. Support Spacing (ft.)							
1/2		6	1/2	4							
³ ⁄4 or 1		8	⁵ ⁄8 or ³ ⁄4	6							
≥1¼ (horizontal)		10	⅔ or 1 (horizontal)	8							
≥1¼ (vertica	al)	Every floor level	⁷ ∕8 or 1 (vertical)	Every floor level							

TABLE 16	SIZE PROCEDURES [2413.4.1&2] & {1216.1.1&2}						
1. Determine Btu	1. Determine Btu/cu. ft. gas from local supplier (usually 1100).						
2. Divide appl Btu	u by Btu/cu. ft. to obtain appliance demand.						
3a. Longest lengt	n method: Measure developed length to most remote outlet.						
4a. Longest lengt	n method: Use column from T17 for most remote fixture for all outlets.						
3b. Branch length	method: Measure developed length to each outlet.						
4b. Branch length	method: Select column from T17 for load on piping to each outlet.						
5. Select row for p	5. Select row for pipe size equaling or exceeding demand each section.						
TABLE 17	GAS PIPING [T2413.4(1)] & {T12-8}						
	Longth (in fact)						

		Length (in feet)										
Pipe	10	20	30	40	50	60	70	80	90	100	125	150
				De	emand	Capaci	ty (in c	u.ft./hr)			
1⁄2 in.	172	118	95	81	72	65	60	56	52	50	44	40
3⁄4 in.	360	247	199	170	151	137	126	117	110	104	92	83
1 in.	678	466	374	320	284	257	237	220	207	195	173	157
1 ¼ in.	1390	957	768	657	583	528	486	452	424	400	355	322
1 ½ in.	2090	1430	1150	985	873	791	728	677	635	600	532	482

MECHANICAL

WATER HEATERS	
General 12 IF	RC 12 UPC
Replacement of WH req's permit [105	.1] {502.1}
□ Installation & maintenance instructions to be left w/ WH_ [1307	.1] {507.24
□ Full-open valve req'd on cold water supply F33,34 [2903.9	.2] {606.2}
Unions req'd within 12 in. of tan} for service and removal [n	/a] {609.5}
Electric WH req's in-sight or lockable disconnect[T4101	.5] {NEC p.28 }
Location	
Fuel-fired WH prohibited in storage closets [2005.2 & 2406	.2] {local}
Fuel-fired WHs in bedroom, bathroom, req separation by weath	erstripped
self-close door & exterior combustion air EXC[2406	.2] {504.1}
• Direct-vent type [2005.2 & 2406	.2] {504.1}
Pan not reg'd under tankless W/Hs [2801 F	[5] [507.4]
Pan drain to approved location min $\frac{3}{4}$ in pipe F42 [2801.5	$(1)_{1}$ (507.4)
□ Ignition source \geq 18 in. above garage floor EXC F42 [2801]	.6] {507.13}
Flammable Vapor Ignition Resistant (FVIR) WH F42_[2801.6]	5X] {507.13}
Protection from vehicles req'd in garage F42 [1307.3	.1] {507.13.1}
UWH supported on ground req's 3 in. concrete base [n	/a] {507.3}
□ Outdoor enclosure req'd unless WH listed for outdoors_[2005	.1] {507.25}
Seismic restraint upper & lower 1/3rd of tank in SDC D & townh	ouses in
SDC C (all occupancies in SDC C & D in UPC) F42 [2801	.7] {507.2}
Access & Working Space	
Access & working space req'd (IRC min. 30 in. x 30 in.)_[2801	.3] {507.26}
☐ Min closet door size 24 in. wide [1305.1	.2] {local}
Attic: solid passage floor max 20 ft., min 24 in. wide [1305.1	.3] {508.4}
Attic equipment regis light & recep hear VVH [1305.1.3	.1] {508.4.4}
Tankless (On Demand) Water Heaters F42	
□ Size gas line to max Btu rating [2413.2]	{1215.2}
Type III vent typically reg/d [2005.1]	{507.24} {507.24}
Direct-vent water heater vent clearances [2427.8]	{509.8.2}
□ Not OK to vent in common w/ other appliances [2427.10.4]	{509.10.3.2}
FIG. 41	
Tankless	
Water Heater	
M	lost tankless
	VHs have a
be combined with other vents	rating.
	See T17 for
siz	ze of gas line
135	Gas shutoff
	ahead of
Temperature &	sediment
pressure-relief	uap
valve (TPRV) ————————————————————————————————————	

I

Cold water -

Hot water



2 IRC	12 UPC
2803.1]	{608.3}
2803.1]	{504.4&5}
)3.4&5]	{608.3}
03.6.1]	{608.5}
03.6.1]	{608.5}
UPC)	
03.6.1]	{608.5}
03.6.1]	{608.5}
03.6.1]	{507.5}
2407.3]	{509.11.4}
127.6.4]	{509.6.2.1}
2426.5]	{509.11.1}
[n/a]	{509.7.3}
427.7.2]	{509.7.1}
427.7.6]	{509.7.3.2}
27.10.7]	{509.10.5}
	2 IRC 2803.1] 2803.1] 2803.1] 03.6.1] 03.6.1] 03.6.1] 03.6.1] 03.6.1] 2407.3] 427.6.4] 2426.5] _ [n/a] 427.7.2] 427.7.6] 27.10.7]
VENTING

General (Gravity Gas) 12 IRC	12 UMC
□ Install vents AMI (most appliances ship w/ GAMA venting tables	
that include limits for size, length & offsets) [2427.6.1]	{802.1.1}
□ Induced-draft (Category I) can be "gravity vent" T19 [2427.6.1]	{802.1.1}
\Box Vent size \geq draft hood size & \leq 7× draft hood size _[2427.6.8.1]	{802.6.3.1}
□ One 60° offset OK, others max 45° EXC [2427.6.8.2]	{802.6.1}
Systems designed using vent sizing tables[2427.6.8.1]	{802.6.1}
Provide proper support AMI [2426.6]	{802.6.7}
□ Insulation shield to min 2 in. above attic insulation[2426.4]	{manu}
□ No solid fuel & gas in same chimney flue[2427.5.6.1]	{802.5.8}
\Box Vents < 1 ¹ / ₂ in. from face of framing req steel plate protection	
extending 4 in. beyond edge of framing member[2426.7]	{manu}

TABLE 19	APPLIANCE VENTING CATEGORIES			
Category	Condensation	Static Pressure	Ту	pical vent
I	No	Nonpositive		B Vent
II	Yes	Nonpostive	F	Per manu
III	No	Positive	Positive Stair	
IV	Yes	Positive	Plastic	
Connectors		1:	2 IRC	12 UMC
Connectors sh	ort & straight as pract	ical [242]	7.10.8]	{n/a}56
□ Basic max horizontal length 18 in. per in of diameter [2428.3.2] {803.2.1}				
□ Single-wall connector max length 75% of vertical vent [2427.10.8] {802.10.7.1}				
□ Type B connector max length 100% of vertical vent [2427.10.8] {802.10.7.2}				
☐ Max 2× diameter of vent collar or draft hood [2428.2.11] {803.1.14}				{803.1.14}
□ No single wall in attics or excessively cold areas _[2427.10.2.2] {802.10.1.2}				
No single-wall o	onnector through interi	ior wall[2427.	10.13]	{802.10.12}
□ Slope min 1/4. i	n./ft. toward appliance	e F56 [242]	7.10.7]	{802.10.6}
□ Connect to appliance vent collar w/ screws or AMI [2427.10.6] {802.10.5}				

Appliances with Common Venting

 \Box 2 draft-hood equipped appliances: common connector \geq largest

- connector + 50% of smaller flue collar outlet size [2427.10.3.4] {802.10.2.3}
- consistent w/ available headroom **F56** [2427.10.4] {802.10.3.1} Connectors $\leq 45^{\circ}$ of vertical OK at same level **F56** [2427.10.4.1] {802.10.3}



MECHANICAL COMBUSTION AIR ◆ VENTING

Single-Wall Vent 1	2 IRC	12 UMC
Not allowed in dwellings	[n/a]	{802.7.3}
□ Only for runs from appliance space directly to outside[24	427.7.4]	{802.7.3.1}
☐ May not originate in attic or pass through inside wall_[24	427.7.6]	{802.7.3.2}
☐ Min 6 in. clear to combustible for single-wall pipe[24	427.7.8]	{802.7.3.4}
B Vent Termination		
Must extend above roof [24]	27.6.3]	{802.6.2}
☐ Min 5 ft. vertical height above flue collar F44 [24	27.6.4]	{802.6.2.1}
☐ If vertical surface within 8 ft. vent must terminate min. 2ft.	. higher	
than any part of building within 10 ft. horizontal F57 [24	27.6.4]	{802.6.2}
Min height above roofs T20 [24]	27.6.3]	{802.6.2}
FIG. 57		
B Vent Termination		



TABLE 20 B VENT TERMINATION (F57) [F2427.6.3] {T802.6.2}				
Roof Slope	Min. Height (ft.)	Roof Slope	Mir	n. Height (ft.)
Flat to 6/12	1	> 11/12 to 12/12		4
> 6/12 to 7/12	1 1/4	> 12/12 to 14/12		5
> 7/12 to 8/12	1 1/2	>14/12 to 16/12		6
> 8/12 to 9/12	2	> 16/12 to 18/12		7
> 9/12 to 10/12	21/2	> 18/12 to 20/12		71/2
> 10/12 to 11/12	31⁄4	> 20/12 to 21/12		8
Forced Vents (Ca	tegory IV)	12	IRC	12 UMC
All mechanical d	raft systems L&L & in	stalled AMI [242]	7.3.3]	{802.3.4.1}
□ Forced draft system must be gas tight [2427.3.3] {80				{802.3.4.3}
Req'd plastic joint primers must be contrasting color [2427.1.1] {802.4.			{802.4.2}	
□ No natural & forc	ed-vent to common f	flue [242]	7.3.3]	{802.3.4.4}
Terminate min 4 ft. to side or below or 1 ft. above building				
openings & min 1ft. above ground level EXC [2427.8] {802.8.1&2}				
• Termination can be same as direct vent if AMI [2427.8] {802.8.1&2}				{802.8.1&2}
Collect & dispos	e of condensate from	n vent (p.24) [24	27.9]	{802.9}
Direct Vent Term	ination			
Clearances to building openings: 0-10 kBtu/hr min 6 in.,				
10-50 kBtu/hr m	in 9 in., $>$ 50 kBtu/hr	r min 12 in. F58 _ [24	27.8]	{802.8.3}
🗆 12 in. min cleara	nce to finished grour	nd level [24	27.8]	{802.8.3}
FIG. 58			- 4	1 and



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ELECTRICAL

PANELBOARDS (LOAD CENTERS)

General 12 IRC	11 NEC
□ Working space 30 in. wide x 3 ft. deep min F63 [3405.2]	{110.26A1&2}
□ Working space to floor & min 6 ft. 6 in. height F63 _ [3405.2]	{110.26A3}
□ No grounding of neutral after service EXC F65[3607.2]	{250.24A5}
 Existing separate structure w/ no parallel metal path _ [3607.3.2] 	{250.32BX}
□ No bonding subpanel neutral to enclosure F65 [3908.6]	{408.40}
Only 1 wire per breaker unless L&L for 2 [3406.10]	{110.14A}
Each neutral req's individual terminal [3706.4]	{408.41}
Overcurrent protection req'd per T24 [3705.5]	{240.4}
All terminals torqued per labeling [3403.3]	{110.3B}
Breaker brand and models L&L for panel [3403.3]	{110.3B}
Use of each circuit legibly identified w/ sufficient detail to	
distinguish use from all other circuits [3706.2]	{408.4}
Circuit description not dependent on temporary conditions,	
e.g., room color or occupant's name[3706.2]	{408.4}
□ Multiwire circuits req handle tie or single handle F65 _ [3701.5.1]	{210.4B}
Unused openings closed equivalent to original [3404.6]	{110.12A}
□ Max height of center of breaker handle 6 ft. 7 in[3705.7]	{240.24A}
□ No panels in clothes closet or bathroom[3705.7]	{240.24D&E}
□ Not to be located over steps of a stairway[3705.7]	{240.24F}
1/4 in. air space req'd behind surface-mounted metal panel	
in damp or wet location[3907.2]	{312.2}



GROUNDING & BONDING

Grounding Electrode System (GES) F66 12 IRC	11 NEC
□ Use metal underground water pipe if \geq 10 ft. in earth _[3608.1.1]	{250.52A1}
\Box Connect GEC to pipe not > 5 ft. inside building [3608.1.1.1]	{250.58C}
Bond around removable equipment (meters, etc.) [3608.1.1.2]	{250.53D1}
□ Water pipe cannot be only grounding electrode_[3608.1.1.2]	{250.53D2}
□ "Ufer" = 20 ft. #4 rebar or 4 AWG Cu wire in concrete footing,	
foundation, or pier in contact w/ earth EXC[3608.1.2]	{250.52A3}
 Ufer not req'd in existing buildings where steel not accessible 	
w/o removal of concrete [3608.1X]	{250.50X}
Ground rod min 8 ft. [3608.1.4]	{250.52A5}
Ground rod min 8 ft. deep & driven flush [3608.1.4.1]	{250.53G}
\Box If resistance > 25 ohms, 2nd rod req'd \ge 6 ft. from 1st [3608.4]	{250.53A2}
\Box Each structure w/ > 1 branch circuit req's GES[3607.3]	{250.32A}



ciamps	12 IRC	TINEC
Ground rod clamps L&L for direct burial	[3611.1]	{250.70}
□ Clamps accessible unless buried or encased	[3611.2]	{250.68A}
Grounding Electrode Conductor (GEC)		
GEC must connect to incoming service neutral	[3607.2]	{250.24A}
□ 8 AWG req's protection in raceway or cable armor_	[3610.2]	{250.64B}
□ 6 AWG following building contour OK w/o protection	[3610.2]	{250.64B}
Size GEC to T23 EXC [1]	[3603.1]	{250.66}
 6 AWG largest req'd size if dead-ends at rod [] 	[3603.1]	{250.66A}
		(

• 4 AWG largest req'd size if dead-ends at Ufer___ [T3603.1] {250.66B}

TABLE 23	GROUNDING ELECTRODE CONDUCTOR & EQUIPMENT GROUNDING CONDUCTOR SIZES				
GEC [T3603.1] & {T250.66}			EGC [T3 {T250	908.12] &).122}	
Cu Service Wire AWG Size	Al Service Wire AWG Size	Max Service Rating	Size of Cu GEC ^A	Breaker Rating	AWG Size of Cu EGC [₿]
≤ 2	≤ 1/0	125	8	15	14
1 or 1/0	2/0 or 3/0	150/175	6	20	12
2/0 or 3/0	4/0 or 250 kcmil	200/225	4	30-60	10
> 3/0 to 350 kcmil	> 250kcmil to 500 kcmil	250/300	2	70-100	8
> 350 kcmil to 600 kcmil	> 500 kcmil to 900 kcmil	400	1/0	110-200	6
A. See Code Check B. Al EGCs 1 size la	Electrical for AI GEC stringer than Cu.	sizes.			

Bonding

12 IRC 11 NEC

Bond all available electrodes (water piping, rod, Ufer)[3608.	1] {250.50}
Bond metal raceways enclosing GEC [3610.	3] {250.64E}
Bond service raceway fittings w/ bonding jumpers if knockou	uts
remain or reducing washers used[3609.4]	⁶⁵ {250.92B} ⁶⁵
Use bonding locknuts if no remaining concentrics [3609.	4] {250.92B}
□ Bond metal piping, hot, cold & gas [3609.6&	7]{250.104A&B}
\Box EGC of equipment may be used to bond gas [3609.	7] {250.104B}
Intersystem Bonding	
Provide accessible external terminal bar w/ min 3 terminals	
to bond phone & CATV F36 [3609.	3] {250.94}
Bar not to interfere w/ opening service enclosure _ [3609.	3] {250.94}
Equipment Bonding & Grounding	
	0] (050 100)

□ Wire EGCs sized per T23 [3908.12]] {250.122}
EGC must provide effective ground-fault current path[3908.4]] {250.4A5}
Earth is not an effective ground-fault current path [3908.5]] {250.4A5}
RMC, IMC, EMT, AC cable armor, electrically continuous	
raceways & surface metal raceways OK as EGC [3908.8]] {250.122A}
Remove paint from contact surfaces of ground bars [3908.17]] {250.12}

ELECTRICAL

APPLIANCES		
Required Disconnecting Means 12	IRC	11 NEC
□ Breaker alone OK if appliance \leq 300VA or ¹ /8 hp _ [T410])1.5]	{422.31A}
Accessible cord/plug OK for appliances listed for cords [T410])1.5]	{422.33A}
□ Unit switch that opens all hot conductors OK [T410)1.5]	{422.34}
□ In-sight or lockable breaker or switch F70 [T410)1.5]	{422.31B}
Breaker lockout hasp must remain in place F70 [T410])1.5]	{422.31B}

FIG. 70

Breaker Lockout Hasp

Hasp for locking breaker must remain with or without lock in place.



Kitchen	12 IRC	11 NEC
Range/oven > 8.75kw min 40A branch circuit		
(min 8 AWG Cu or 6 AWG AI wire)	[3702.9.1]	{210.19A3}
Disposer cord min 18 in. max 36 in	[T4101.3]	{422.16B1}
DW & compactor cords min 36 in. max 48 in.	[T4101.3]	{422.16B2}
DW & disposer not on same circuit	[3701.2]	{210.19A1}
Central Furnace		
Central furnace must be on individual circuit EXC	_[3703.1]	{422.12}
 Auxiliary equipment (ex: filter) OK on furnace circui 	t [3703.1]	{422.12X}
Disconnect within sight of furnace	[T4101.5]	{422.31B}
Cord & plug connection not OK	[4101.3]	{422.16A}
□ Lighting outlet switched at entry to equipment space	e [3903.4]	{210.70A3}
□ 120V recap req'd within 25 ft. & on same elevation	[3901.12]	{210.63}
Water Heaters & Space heating		
Circuit min 125% of nameplate rating	[3702.10]	{422.13}
In-sight or lockable breaker or switch req'd F70	[T4101.5]	{422.31B}
No electric baseboard heaters under recep outlets _	[3901.1]	{424.9}
Receps in baseboard heaters not on heater circuit _	[3901.1]	{424.9}
Paddle Fans		
\Box Not to be supported by standard electrical boxes	[3905.9]	{422.18}
\Box Boxes & box systems listed for fan support OK		
to 70lbs	[3905.8]	{314.27C}
\Box If listed for > 35 lbs, max weight must be marked	[3905.8]	{314.27C}
Fans over 70 lbs req independent support	[3905.8]	{314.27C}
□ Spare separately switched conductors to ceiling box	kes only	
OK if box listed for paddle fan support	[3905.8] ⁶⁹	{314.27C} ⁶⁹
Window/Wall Air Conditioners		
\Box Cord/plug disconnect OK if controls \leq 6 ft. of floor_	[n/a]	{440.63}
☐ Max cord length 120V = 10 ft., 240V = 6 ft	[n/a]	{440.64}
Cord/plug units req AFCI or LCDI (leakage current of	detection	
interrupter) in cord or plug cap	[n/a]	{440.65}
Central Air Conditioning		
Central AC wire & breaker/fuse size per nameplate	[3702.11]	{440.4B]
Disconnect in sight of condenser F71	[T4101.5]	{440.14}
Working space req'd in front of disconnect F63,71 _	_[3405.2]	{110.26A}



GFCI & AFCI PROTECTION

Required GFCI Protection	12 IRC	11 NEC	
☐ All bathroom receps	_ [3902.1]	{210.8A1}	
All garage & accessory building receps	[3902.2]	{210.8A2}	
All outdoor receps EXC	[3902.3]	{210.8A3}	
 Non-readily-accessible deicing circuit recep 	[3902.3X]	{210.8A3X}	
Receps in crawl spaces at or below grade	[3902.4]	{210.8A4}	
□ All unfinished basement receps EXC	[3902.5]	{210.8A5}	
 Recep supplying permanent fire or burglar alarm 	[3902.5X]	{210.8A5X}	
□ All receps serving kitchen countertops	[3902.6]	{210.8A6}	
□ Receps within 6 ft. of non-kitchen sinks	[3902.7]70	{210.8A7} ⁷⁰	
AFCI Protection			
Req'd for all branch circuits w/ outlets in family rooms, dining rooms,			
living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation			
rooms, closets, hallways, or similar rooms or areas	[3902.12]	{210.12A}	
Reg'd for extensions or modifications of existing circuits serving			
above locations (can be outlet type at 1st recep)_[3902.13] ⁷¹	{210.12B} ⁷¹	
□ "Outlet" = receptacle, lighting, or smoke alarm outle	t [3501]	{100}	
□ Must be UL listed "combination type"	[3902.12]	{210.12A}	
LIGHTING OUTLETS			
Required Locations	[2002.0]	(010 70 4 1)	

F

•			
□ All habitable rooms & bathrooms [3903.2]	{210.70A1}		
Switched recep OK in lieu of lighting outlet except in			
kitchens & bathrooms[3903.2X1]	{210.70A1X}		
□ Hallways, stairways & garages [3903.3]	{210.70A2}		
□ Outside each exterior door w/ grade-level access _ [3903.3]	{210.70A2}		
□ Not req'd at garage vehicle door [3903.3]	{210.70A2}		
Switching			
□ All switching in ungrounded (hot) conductors [4001.8]	{404.2A&B}		
\Box Req'd at each access to interior stairs if \geq 6 risers_ [3903.3]	{210.70A2}		
□ No dimmers controlling switched receps [4001.12]	{404.14E}		
□ Neutral req'd at switch box [4001.15] ⁷²	{404.2C} ⁷²		
Bath			
\Box No pendant, track, or suspended lights or paddle fans < 8 ft.			
above& 3 ft. to side of top of tub or shower threshold [4003.11]	{410.10D}		
\Box Luminaires < 8 ft. above footprint of tub/shower L&L for damp			
or wet locations if subject to shower spray [4003.11]	{410.10D}		
Recessed Lights			
□ Type IC OK in contact w/ insulation & combustibles [4004.8&9]	{410.116A2}		
□ Recessed light (non-IC rated) ¹ / ₂ in. from combustibles [4004.8]	{410.116A1}		
□ Recessed light (non-IC rated) 3 in. from insulation_ [4004.9]	{410.116B}		
Clothes Closet F72			
□ No open incandescent bulb fixtures [4003.12]	{410.16B}		
\Box Storage area = 12 in. or shelf width & to ceiling [4003.12]	{410.2}		

- age □ Enclosed surface incandescent: 12 in. clearance _ [4003.12] {410.16C} LED, fluorescent, or recessed incandescent: 6 in. [4003.12] {410.16C}
- FIG. 72 Surface fluorescent, Enclosed LED, or recessed incandescent incandescent **Closet Light Clearances** 6 in. 12 in. \rightarrow Surface wall 12 in. lights only OK over 24 in. door. Surface fluorescent 72 in. or LED Shaded areas are designated as storage. The storage area above the shelf is the shelf width or 12 in., whichever is greater.

PINK CODE ILLUSTRATIONS

Dhiru Thadani created a beautiful three-slide sequence explaining the leanness of the Pink Code.





