PATTERNS
Introduction

The idea of patterns in architecture and urban planning is borrowed from Christopher Alexander’s *A Pattern Language*. Alexander intended that his patterns act as templates and as starting points for adaptation to local conditions in a larger process of creating great places, rather than as definitive solutions. In an article in *Trim Tab*, Jason McLennan expanded on Alexander’s patterns by producing a series of child-centered patterns in a community context. This pattern work grew out of an LCC pilot project with Simon Frazier University. The following patterns build on this background to provide tools for helping people achieve the Imperatives of the Living Community Challenge.

The ILFI’s experience over eight years of Living Building Challenge projects suggests that the best solutions are synergistic. Accordingly, the patterns were developed to be synergistic, so they have the potential to achieve multiple goals through a single pattern. The Blue-Green Streets Pattern, for example, may simultaneously meet needs for open space, rainwater management, CO2 sequestration, food production, and transportation. The case studies following this section demonstrate another level of synergy when the combination of two or more patterns creates a solution that is far greater than the sum of its parts.

How to Use the Patterns

Alexander intended his patterns to function as a language, where meaning develops and expands through use by a growing community of practitioners in designing buildings, towns and regions. So, too, these Living Community Patterns are meant to acquire meaning through use. The following patterns are meant to be a generative tool for planners, designers, and well-versed community members as they embrace the challenge of creating sustainable neighborhoods, cities, and regions.

The project team found through case studies that the patterns were used most effectively when the design team selected a few patterns that were most relevant to project goals. This requires that the project designers and planners know something about the project and the goals of stakeholders prior to the project. A neighborhood planner hoping to use the patterns to help a community development corporation find more open space in its district, for example, would be well served by pre-selecting those patterns relating to open space.

While these initial twelve patterns represent the starting point of core concepts and strategies, perhaps hundreds more will be developed over time in the growing community of practitioners. Each time the research team discussed the patterns, suggestions for additional patterns arose.

The Case Studies section illustrates how the project team used the patterns in a design session.
The Living Community Patterns are meant as action strategies to achieve the Imperatives of the Living Community Challenge. This diagram illustrates how patterns may simultaneously achieve multiple Imperatives under several Petal areas.

**PETALS**

The Petals of the Living Community Challenge represent seven performance areas: Place, Water, Energy, Health, Materials, Equity, and Beauty—that together produce the system conditions of a restorative future.

**IMPERATIVES**

From the Petals, the Imperatives define the specific performance metrics of success.

**PATTERNS**

Patterns are strategies, concepts, and templates to create projects that culminate in Living Communities.

**PROJECTS**

The Petals, Imperatives, and Patterns can be used to design projects that create Living Buildings and Living Communities.
PATTERN OVERVIEW TABLE

Pattern 01: Urban Rewilding
Integrate wild nature into communities through architecture, urban design, and planning.

Pattern 02: Human-Scale Communities
Human scale is the primary criteria for design decisions in a community.

Pattern 03: Streets for People
Make streets primarily for small-scale human mobility and other human needs.

Pattern 04: Blue-Green Streets
Transform some streets into a new place of biophilia, recreation, and natural systems.

Pattern 05: Street-to-Table
Integrate growing food into the everyday life of the street and community.

Pattern 06: Grower/Maker Spaces
Provide flexible communal places for collaborative small-scale creation and storage.

Pattern 07: Roof as Resource
Use rooftops as resources for rainwater collection, open space, agriculture, habitat, and solar panels.

Pattern 08: Mobility in the Middle
Improve mobility through streets and neighborhoods designed to accept smaller vehicles.

Pattern 09: The Second Act
When buildings undergo significant retrofits, they should be rebuilt as Living Buildings.

Pattern 10: Place-Based Memory
Use development projects and community initiatives to design the history of the community into the place.

Pattern 11: Show & Tell
Showcase small, leading-edge demonstration projects to build momentum and catalyze more projects.

Pattern 12: Footprint Analysis
Establish a baseline carrying capacity for a neighborhood by assessing its potential resource capture.
Description:

COMMUNITIES SHOULD INTEGRATE NATURE, INCLUDING WILD NATURE, INTO THEIR BUILT ENVIRONMENTS THROUGH A NEW SYNTHESIS OF RESTORATION ECOLOGY, ARCHITECTURE, AND URBAN PLANNING AND DESIGN. People need frequent contact with nature for individual and community health and well-being. Historically, urban development designed nature out of the city for reasons of culture, convenience and cost. Fortunately, remedies abound, and they often cost less than the engineered solutions designed to replace the lost ecosystem services of natural systems. Long forgotten, underground streams can be daylighted and re-created. The ocean and bay shores can be restored to their original wild states, bringing with them native fish and aquatic habitat. Native plant species and soils should be used in planting strips, medians, parks and plazas, so that the city’s indigenous ecology is re-created, in turn promoting native biota and insects. Wild corridors should be re-created through the city, allowing wild reptiles, mammals, and birds to reclaim habitat and have a presence. Wilderness in the city also allows all people to experience nature, not just those who have the means to leave the city to travel to distant wild places.
Pattern 01
Urban Rewilding

Project Scales:

Site: Apiaries, Native gardens
District: Wild corridors, Habitat gardens
City: Restored watercourses, Wild parks

Green Hairstreak Corridor, San Francisco, California
This corridor connects three populations of Green Hairstreak butterflies by providing street plantings and parks along their migratory routes. This species would vanish without this intervention.

SF Urban Forest Master Plan, San Francisco, California
The City is creating a plan to create an expanded, healthy, and thriving urban forest. It focuses on street trees as the backbone of the urban forest and provides policies and strategies to manage the city’s tree population.

Pollinator Pathway, Seattle, Washington
The Pollinator Pathway is a visionary plan to strengthen and reconnect fragmented green spaces, working across existing infrastructure to provide a new national network of connected landscapes, designed to ecological standards.

High Line, New York, New York
The High Line is a linear open space system that re-introduces native vegetation into a dense Manhattan neighborhood by reusing an abandoned rail line.

Pattern Connections:
Blue-Green Streets, Street-to-Table, Place-Based Memory
PATTERN 02
HUMAN-SCALE COMMUNITIES

Description:

THE HUMAN SCALE MUST BE THE PRIMARY CRITERIA FOR DESIGN DECISIONS AT ALL LEVELS OF THE CITY, INCLUDING BUILDINGS, BLOCKS, THE TRANSPORTATION NETWORK, AND OPEN SPACES.

Cities are human habitat. Most cities, however, are not designed to a human scale. Everywhere, streets are designed mainly for cars, rather than biking or walking, buildings designed as iconography rather than interaction, and public spaces designed for grandeur rather than intimacy and functionality. Cities that are not overtly designed for the human scale feel dangerous, gigantic, and disorienting, as if we are visitors in an alien land.

Streets, buildings, and open spaces should benefit people and recognize that walking and bicycling—human-scale transportation—is a very significant element of mobility within a city. Buildings must be designed to relate to the human scale along the exterior, with windows, doorways, balconies, etc. Parks should avoid vast expanses of blank open space in favor of benches, trees, fountains, food vendors, or wilderness. The city itself should also start to form itself based on human-scaled transportation by defining neighborhood boundaries with walkable areas from commercial centers that meet 100% of daily need.

Image Source: Edward Yourdon
PATTERN 02
HUMAN-SCALE COMMUNITIES

Project Scales:

Site: People-scaled buildings
District: People-scaled streets, People-scaled parks
City: 20-minute neighborhoods, Transit network

Examples:

Embarcadero, San Francisco, California
A neighborhood torn apart by a freeway took the opportunity to reknit itself into the city by providing human-scale infrastructure when the freeway was damaged by an earthquake.

Squares, Savannah, Georgia
The often-touted squares of Savannah, Georgia provides open space in the form of neighborhood squares. These squares were planned to be within easy walking distance for most residents.

Block Size, Portland, Oregon
The blocks of Downtown Portland average 200’ x 200.’ This block size is well scaled to people in that it keeps building sizes humane and provides frequent intersections.

Pattern Connections:
Streets for People, Mobility in the Middle
**PATTERN 03**

**STREETS FOR PEOPLE**

Description:

THE STREET NETWORK SHOULD BE DESIGNED PRIMARILY FOR SMALL-SCALE HUMAN MOBILITY AND OTHER HUMAN NEEDS, RATHER THAN FOR CARS. Today in San Francisco, the primary purpose of streets is to move cars, goods, buses, and trains. A disproportionate percentage of street right-of-way is designated for single-occupancy and large vehicles, even though that is not how most trips within the city are made, or how the street right-of-way can be optimally used. All streets do not need to carry all vehicles—the street network should identify key routes for large vehicles, emergency access, and through traffic, but then the majority of street miles should be designated for human-scaled mobility and other Living Community functions, such as linear open space, rainwater and energy harvest and storage, wild places, pedestrian paths and food growing.
PATTERN 03
STREETS FOR PEOPLE

Project Scales:

Site: Mid-block connections, Street-facing buildings
District: Path networks, Street hierarchy
City: Transportation hierarchy network

Examples:

**Mews Street, Philadelphia, Pennsylvania**
Old City Philadelphia features a number of shared and people-only streets designed by Edmund Bacon and William Penn. These small, people-focused streets create a secondary transportation network.

**Cady’s Alley, Washington, D.C.**
Cady’s Alley is a shared vehicular and pedestrian street that has retail frontages with residential above. This intimate street has become a sought-after destination due to its scale and charm.

**River Walk, Denver, Colorado**
Denver has an emerging trail system that seamlessly blends residential mews streets with the urban fabric. These trails are used recreationally and to commute between various parts of the city.

**3 Rivers Heritage Trail, Pittsburgh, Pennsylvania**
This multi-use trail system provides 24 miles of trails in the city and connects neighborhoods and business districts. This trail system also extends 250 miles to Washington, DC providing intra-city mobility.

Pattern Connections:
Blue-Green Streets, Street-to-Table, Mobility in the Middle
SOME STREETS CAN BE REBUILT AS NEW, MULTI-FUNCTIONAL PLACES OF WATER COLLECTION AND STORAGE, BIOPHILIA, RECREATION, WASTEWATER TREATMENT, AND OTHER ECOSYSTEM SERVICES. The Blue-Green Street integrates stormwater flows, natural streams, wetlands and later-stage greywater treatment by transforming the old street paradigm into a new place of biophilia, recreation, natural cooling, systems learning and wild habitat. The result is a linear park that could include bike paths, jogging trails, continuous wetlands for capturing, treating, or storing stormwater, or that connects a network of eco-machines treating later stages of wastewater. With the provision of water, a lush, wild landscape of large shrubs and tree groves is possible, providing a cooling microclimate on hot days. A Blue-Green Street can be integrated into many street types, from boulevards to neighborhood streets, and from alleyways to bike paths. The result is places that are much more people-centric and biophilic.
PATTERN 04
BLUE-GREEN STREETS

Project Scales:
Site: Rain garden, Water feature, Bioswale
District: Blue-Green streets, Blue-Green parks
City: Blue-Green infrastructure network

Examples:

Cheonggyecheon Creek, Seoul, South Korea
The Cheonggyecheon Creek project is a daylighted waterway that had been covered for decades by an elevated highway. It both restores a natural waterway and provides a unique place for education and recreation.

South Lake Union, Seattle, Washington
Valley Street features rain gardens that are with vegetation year round and fill up with the street’s water in rain events. This system integrates with the City’s stormwater plan by reducing the demand on the overtaxed CSO system.

Greenways, Portland, Oregon
The City of Portland has implemented a series of greenways that provide habitat for people and manage stormwater. The neighborhoods around the greenways have become extremely desirable in part because of the natural asset.

Dockside Green, Victoria, British Columbia
Dockside Green is the First LEED ND project in Canada and has integrated rainwater and sewage treatment. Open spaces collect and infiltrate rainwater, and a membrane bioreactor disinfects grey/blackwater for irrigation and other uses.

Pattern Connections:
Urban Rewilding, Streets for People, Street-to-Table
Description:

FOOD GROWING SHOULD BE INTEGRATED INTO THE EVERYDAY LIFE OF THE STREET—urban food pathways, wild edibles, and grab-and-go street grazing. Planting strips and medians should be used to plant edible plants and fruit-bearing trees, or perhaps even a row crop or two, linking a larger urban agriculture system of productive front yards, vacant lots and community gardens. Our communities must become places to produce and to create food, rather than simply places to live, work, and consume. Street-grown food is also an important element of city wildness and biophilia. Streets, rooftops, front yards and community gardens can be part of a network of food production and distribution, expressing the larger context of a more deeply local and inclusive food footprint for the city. As streets become less focused on cars and their accompanying toxicity, they become places with good solar and people access—an ideal place for growing food and creating an ever-present symbol of the restoration of our relationship to food.
PATTERN 05
STREET-TO-TABLE

Project Scales:
Site: Front yard garden
District: Community garden, Edible parks/medians
City: Urban agriculture plan, Distributed food network

Examples:

**Beacon Food Forest, Seattle, Washington**
This neighborhood focused garden that is part private garden plots, part open-harvest food forest, and part gathering place. This project grew out of a neighborhood vision and is a resource for the community.

**Backyard Abundance, Iowa City, Iowa**
PICK ME! is a project intended to spur people to plant front-yard gardens that provide free food for their neighbors. These simple signs encourage passersby to partake of the harvest.

**Food is Free, Boston, Texas**
Food is Free is a community building and gardening movement that teaches people to build front-yard and community gardens. This educationally focused organization provides food security to at-risk populations.

**Grow Community, Bainbridge, Washington**
Grow Community homes are designed around p-patches, generous green spaces and native landscaping. This planned community is a model of integrating agriculture with development.

Pattern Connections:
Urban Rewilding, Blue-Green Streets, Grower/Maker Spaces, Roof as Resource
PATTERN 06
GROWER/MAKER SPACES

Description:

COMMUNITIES SHOULD HAVE FLEXIBLE COMMUNAL PLACES FOR COLLABORATIVE, SMALL-SCALE CREATION, FABRICATION AND STORAGE OF DURABLE GOODS AND FOOD. Locally produced food and products are core principles of the Living Community Challenge. A highly localized economy needs to have flexible community space that can incubate budding makers. These spaces should be flexible enough to change over time but specific enough to be useful for a wide variety of activities, from food storage and processing to basic production, such as wood shops, metal shops, art, sewing and fiber production spaces, tech shops, or small-scale fabrication shops. For these spaces to be of maximum utility, they should be targeted toward project and community needs. Grower/Maker spaces are a redefinition of the traditional community space and can be run by local government, nonprofits, or even as a for-profit model.
**PATTERN 06**
**GROWER/MAKER SPACES**

Project Scales:
- **Site:** Community room or space
- **District:** Topic-specific workshop(s)
- **City:** Network of Grower/Maker Spaces

Examples:
- **ADX, Portland, Oregon,**
  ADX is a hub for collaboration where individuals and organizations make and learn. Classes and memberships are open to the community and cover a range of skills, from welding to 3D printing.

- **AIR, Pittsburgh, Pennsylvania**
  Artists Image Resource (AIR) is an artist-run, nonprofit printmaking studio in Pittsburgh’s North Side that serves artists, educators, and the community.

- **The Gate, San Leandro, California**
  The Gate blends commerce and creativity by providing professional spaces for artists, technologists, and makers. It offers spaces of various sizes and degrees of finish as well as shared amenities and resources.

- **Bike Kitchen, San Francisco, California**
  Bike Kitchen provides space and training for people to fix their bikes. It also provides educational programs that teach kids how to build and maintain bikes.

Pattern Connections:
- Street-to-Table, Show & Tell
PATTERN 07
ROOF AS RESOURCE

Description:

ROOFTOPS HAVE THE UNTAPPED POTENTIAL TO BE RESOURCES FOR RAINWATER COLLECTION, OPEN SPACE, AGRICULTURE, NATURAL HABITAT AND SOLAR PANELS. They can be designed to provide food and habitat for people and other animals, capture and store rainwater, and harvest electrons and thermal energy. Resource capture and open space need not compete for exclusive use of rooftop space. Thoughtful design can result in many of these functions occurring on and under roofs. Rooftops could be a critical component of city sustainability.

The project team’s preliminary analysis of two city neighborhoods offered a possible glimpse at a carbon-neutral future for San Francisco. Lower-density residential neighborhoods can produce more energy on their roofs than needed for the buildings. This suggests that the city could treat lower-density areas as an energy asset to balance, or at least partially meet, energy needs of other districts, such as downtown, that consume substantially more than their available land can produce. The city government or energy utility could implement a program to lease roof space for photovoltaic arrays that feed into the main grid, saving homeowners the expense of the upgrades and potentially generating all of the city’s energy within its boundaries.
PATTERN 07
ROOF AS RESOURCE

Project Scales:

Site: Solar panels, Rainwater capture, Green roofs
District: Solar/Thermal sharing, Open space networks
City: Solar/Rainwater leases, Citywide net-zero strategy

Examples:

Zero Cottage, San Francisco, California
David Baker’s compact, net-zero energy house makes efficient use of resources by utilizing the roof for rainwater collection, open space, and a solar array.

California Academy of Sciences, San Francisco
The California Academy of Sciences features a playful green roof that combines solar generation, plantings, and skylights.

Bullitt Center, Seattle, Washington
The Bullitt Center’s rooftop solar array does double duty as a rainwater collector. It provides more energy than the building uses and collects enough water to cover 100% of the building’s needs.

Pattern Connections:
Street-to-Table, The Second Act, Footprint Analysis
A NEW TYPE OF STREET AND ASSOCIATED STORAGE/INFRASTRUCTURE SHOULD BE CREATED THAT IS DESIGNED AROUND MICROVEHICLES, IMPROVING MOBILITY AND CREATING SPACE FOR OTHER LIVING COMMUNITY USES. There is a large gap between the bicycle and the car, yet many urban people or trips would be well served by something between the two. San Francisco is a physically large city, and sometimes travel distances and loads call for something more than walking or biking, but still less than a car. While these in-between vehicles are in the infancy of their evolution, they include electric-assist bicycles, cargo bikes, hybrid human/electric vehicles, neighborhood electric and tandem-seat four-wheeled vehicles. Streets and neighborhoods designed around these smaller vehicles can become human scale, while enhancing mobility and accessibility and freeing street right-of-way for other human uses.

The City could support the shift to Mobility in the Middle by providing infrastructure for small-scale car share charging stations that are integrated with neighborhood power sources. Also, the manufacturing scale of such vehicles is significantly smaller than that of cars, meaning local San Francisco manufacture may be an economic development opportunity that is integrated with the city’s environmental planning goals.
PATTERN 08
MOBILITY IN THE MIDDLE

Project Scales:

Site: EV charging station
District: Micro-EV car share docks
City: Micro-car share system integrated with transit network

Examples:

Autolib’, Paris, France
Autolib is a micro-car sharing service built on a bikeshare model. The vehicles are electric and docked at dispersed charging stations. Its small vehicles are extremely efficient, take up little space, and meet the needs of urban mobility.

Renault Twizy
This small production automobile is lightweight and provides seating for two. It demonstrates market feasibility for a lightweight, urban-focused vehicle.

Car2Go Electric, San Diego, California
San Diego has the United States’ only all-electric fleet of car share vehicles. These micro-EVs demonstrate feasibility in the US market.

Organic Transit
The ELF is a bike/car hybrid that uses solar panels and braking to power a small electric motor. It extends the comfort and range of human power while avoiding many of the drawbacks of a conventional automobile.

Pattern Connections:
Human-Scale Communities, Streets for People, Street-to-Table, Roof as Resource
Description:

WHEN BUILDINGS UNDERGO SIGNIFICANT RETROITS, FOR EXAMPLE, TO MEET EARTHQUAKE REQUIREMENTS OR UPDATE UTILITIES, THEY SHOULD BE REBUILT AS LIVING BUILDINGS. San Francisco’s built environment reflects a large historical investment of people, energy, and materials. This investment in the built environment requires repair and ultimately renewal, a key transformational opportunity for sustainability. The incremental cost between improving existing buildings or infrastructure to Living Building performance standards might be 10% above the standard renovation cost, whereas outright replacement could be as high as 100%, or the full project cost. For example, if siding, roofing, HVAC, and/or windows of a building are already being replaced, it is a small cost increase to get to net-zero thermal and air infiltration performance. However, if a building or infrastructure is in otherwise good condition, setting out to re-create it as a Living Building incurs the entire cost of the retrofit. The City should capitalize on the slow process of its rebuilding over time and rebuild to Living Building standards.
PATTERN 09
THE SECOND ACT

Project Scales:

Site: Rehabilitated building
District: Rehabilitation districts, Infrastructure restoration
City: Financing structure and plan for rehabilitation

Examples:

**Integral Engineering, San Jose, California**
This renovated 1960s concrete bank was transformed into a net-zero energy and water building for a new headquarters.

**DPR Construction Headquarters, Phoenix, Arizona**
DPR construction transformed an existing concrete block building into a net-zero energy building for their new Arizona headquarters.

**Exploratorium, San Francisco, California**
The Exploratorium is located on Pier 15. This deep rebuilding of a City icon includes a goal of net-zero energy performance.

**Hot Metal Bridge, Pittsburgh, Pennsylvania**
This bridge originally moved molten steel between steel mills. In 2007, it was repurposed to include bike and pedestrian connectivity.

Pattern Connections:

Blue-Green Streets, Street-to-Table, Place-Based Memory
PATTERN 10
PLACE-BASED MEMORY

Description:

A COMMUNITY’S MEMORY—ITS CULTURE, HISTORY, ART, MUSIC, STRUGGLES, TRIUMPHS, RELATIONSHIPS AND PATTERNS OF LIVING—SHOULD BE REPRESENTED THROUGH A VARIETY OF METHODS IN EACH DEVELOPMENT PROJECT AND IN INDEPENDENT COMMUNITY INITIATIVES. This pattern goes beyond what is typically considered historic preservation. Place-Based Memory envisions a creative dialogue whereby community members can shape projects to protect the cultural landscape and illuminate a community’s changing identity. New development must include place charrettes in the design process to tease out a community’s cultural and aesthetic value system as it relates to the natural and built environment. The findings are likely to include a wide array of values—not only key buildings or places, but signs, major or remnant infrastructure, parts of buildings, annual events, trees, plants, or learned memories. Areas of particular importance for Place-Based Memory include relationships to nature, family structure and building types, art and memory, home/work relationships, play, privacy and neighborliness, and inter-community connections. These should be nurtured and maintained into an ongoing tale of place, with signage, design echoes, oral history retained on the web, continuation of cultural events, and preservation of key physical elements of history.
**PATTERN 10**
**PLACE-BASED MEMORY**

Project Scales:

Site: Preserved building, building elements, or landscape
District: Character districts, Education, Festivals
City: Memory plan, Interrelated character districts

Examples:

**Temple De Hirsch Sinai Park, Seattle, Washington**
This park preserves a portion of the facade of the original 1908 temple as a gateway element to a community park, providing visual interest and historical reference.

**1 World Center, New York, New York**
This fountain memorializes one of the Twin Towers and those who died there on its original site.

**Station Square, Pittsburgh, Pennsylvania**
This historic reuse preserves a railroad station and yard as a mixed-use entertainment district. Throughout the property, there are artifacts and interpretive signage that explain past use.

Pattern Connections:
Grower/Maker Spaces, Show & Tell
PATTERN 11
SHOW & TELL

Description:

AS PART OF PLANNING PROCESSES, SMALL, REAL PROJECTS MUST SPROUT UP AROUND THE COMMUNITY TO BUILD MOMENTUM AND PROGRESS, AND TO DEMONSTRATE THE VISION OF THE COMMUNITY. Typical planning processes are often long, and their engagement process can favor certain personality types. Broadening the nature of the planning process to include action and tangible change can help sustain vision and be more inclusive of a broader cross-section of the community. Community gardens, parkettes, bike barns, new bike lanes, solar kiosks and community clean-ups are all examples of small actions that create anticipation and a sense of reality within the planning process. At a larger scale, an initial Living Building—perhaps a public building or a net-zero energy home retrofit demonstration—can reframe the sense of possible for the community.
**PATTERN 11: SHOW & TELL**

**Project Scales:**

- **Site:** Solar kiosk, Apiary, Bike rack, Rain garden
- **District:** Grower/Maker Spaces, Blue-Green Street
- **City:** Show and Tell map, LBC City building

**Examples:**

- **zHome, Issaquah, Washington**
  zHome represents a rethinking of what is possible in development. Several world-class low-energy buildings followed it within the local area. It has been used as an educational resource for the green building community.

- **Tactical Urbanism**
  Tactical Urbanism is a movement that promotes inexpensive, temporary, small-scale improvements to neighborhoods. It is intended that these temporary actions spur permanent, positive change.

- **Guerrilla Grafters, San Francisco, California**
  This group grafts fruit bearing branches onto non-fruit-bearing, ornamental trees in order to provide fruit to urban residents. Part of the mission of this group is to start a conversation about urban food policy.

- **Street Painters, Portland, Oregon**
  The City of Portland allows the community to come together and paint the streets in order to slow traffic and create a community identity.

**Pattern Connections:**

Blue-Green Streets, Grower/Maker Space, Street-to-Table, The Second Act, Place-Based Memory
Description:

THE FOOTPRINT/HARVEST ANALYSIS ESTABLISHES A BASELINE CARRYING CAPACITY FOR A NEIGHBORHOOD BY ASSESSING RESOURCE NEEDS AND ITS POTENTIAL TO CAPTURE WATER AND ENERGY. A key premise of the Living Community Challenge is to design with the ends in mind. Another key premise is that a building, development or neighborhood should be self-sufficient. These two ideas provide the basis of the footprint/harvest analysis. The case studies in Noe Valley and Chinatown that follow this Patterns Chapter illustrate applications of the footprint analysis and describe its methodology.

Not only can the footprint analysis function as a tool to evaluate existing development, but it can also be used effectively in the planning process for new development. A project team can plan for building types, densities, etc., based on this model by starting with the assumption that the project’s target water and energy performance should not exceed the resources present on-site harvest capacity and then designing the building’s or community’s systems to meet that performance objective.
PATTERN 12
FOOTPRINT ANALYSIS

Project Scales:

Site: Tool to determine EUI and efficiency goals
District: Tool to determine max density
City: Tool to evaluate intra-district resource sharing

Examples:

Our Ecological Footprint
Mathis Wackernagel's classic book created the framework to evaluate and visualize the resource needs on a scale ranging from the household to the nation.

Ecological Footprint of Nations
The Ecological Footprint is a resource accounting tool that helps countries understand their ecological balance sheet and gives them the data necessary to manage their resources and secure their future.

Pattern Connections:

Roof-as-Resource, The Second Act