



SOMA ECODISTRICT ROADMAP

SEPTEMBER 2012

 portland
sustainability
institute

SOMA ECODISTRICT VISION STATEMENT

To create a sustainable neighborhood for future generations, by working together with our community to define, create, and own a vibrant district with a variety of buildings and parks connected by green streets and public transit that will attract businesses, residents, and visitors to our neighborhood and create a vital and diverse place for people.

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About the EcoDistrict Roadmap

SoMa EcoDistrict is one of the region's most vibrant urban neighborhoods, with unparalleled transit access, a dynamic urban research university, esteemed green spaces, and a diverse mix of business, retail, and residential uses. A well-connected, highly educated urban community, it is a place where students, educators, residents, workers, and business owners choose to live, work, and play. SoMa EcoDistrict was formed to help Portland State University (PSU) and its surrounding neighbors create a new model of urban sustainability.

The SoMa EcoDistrict Roadmap includes an assessment of baseline conditions, adopted performance goals, and recommended strategies to support the district's aspirations. The roadmap is intended to guide the SoMa EcoDistrict Steering Committee on meeting ambitious goals in the following performance areas: **EQUITABLE DEVELOPMENT, HEALTH + WELLBEING, COMMUNITY IDENTITY, ACCESS + MOBILITY, ENERGY, WATER, HABITAT + ECOSYSTEM FUNCTION, and MATERIALS MANAGEMENT.** The roadmap proposes a set of investment and partnership strategies to achieving these goals. The roadmap was completed by the Portland Sustainability Institute (PoSI) in partnership with Portland State University. The Bullitt Foundation and PSU Institute for Sustainable Solutions funded the work on behalf of the SoMa EcoDistrict.

PoSI EcoDistrict Goals*

- **EQUITABLE DEVELOPMENT**
Promote equity and opportunity and ensure fair distribution of benefits and burdens of investment and development
- **HEALTH+WELLBEING**
Promote human health and community wellbeing
- **COMMUNITY IDENTITY**
Create cohesive neighborhood identity through the built environment and a culture of community
- **ACCESS + MOBILITY**
Provide access to clean and affordable transportation options
- **ENERGY**
Achieve net zero energy usage annually
- **WATER**
Meet both human and natural needs through reliable and affordable water management
- **HABITAT + ECOSYSTEM FUNCTION**
Achieve healthy urban ecosystems that protect and regenerate habitat and ecosystem function
- **MATERIALS MANAGEMENT**
Zero waste and optimized materials management

* Recommended visionary goals in EcoDistricts Framework. Strategies to achieve goals outlined in Goals, Strategies + Performance section

EXECUTIVE SUMMARY

The SoMa EcoDistrict

WHAT IS AN ECODISTRICT?

EcoDistricts are neighborhoods or districts where neighbors, community institutions and businesses join with city leaders and utility providers to meet ambitious sustainability goals and co-develop innovative district-scale projects. In partnership with the City of Portland, PoSI launched EcoDistricts in 2009, creating an implementation framework, toolkits, a local pilot program, and capacity-building initiative to accelerate widespread deployment.

SOMA OVERVIEW

The area around Portland State University (PSU) was selected as an EcoDistrict pilot in 2009. An accompanying analysis identified key EcoDistrict opportunities to be considered as part of the University Framework Plan and Climate Action Plan with sustainability goals related to economic development, mobility, open space, preservation, energy and water conservation, and material use and goal to achieve carbon neutrality by 2040.

In early 2011, PSU initiated one-on-one discussions with area property owners to gauge interest in working collectively as a district to address sustainability.

The group then convened informally to discuss the benefits of working as a district and to understand the challenges

SOMA STEERING COMMITTEE MEMBERS

- AAA
- Church of Saint Michael
- City Center Parking
- Cushman & Wakefield
- Harsch Investment Properties
- Harrison Tower Apartments
- Melvin Mark Companies
- Naito Development LLC
- Oregon Pacific Management Corporation
- Portland State University
- Regence Blue Cross Blue Shield of Oregon
- Russell Development Company
- Schlesinger Companies
- St. Mary's Academy

around funding, boundaries, and management of an EcoDistrict. After a few months, the group formalized a steering committee, ratified a working boundary, and created a name (South of Market EcoDistrict, or SoMa), vision statement, and immediate priorities. Commitments were documented in a Memorandum of Understanding signed in June 2011.

In addition, the steering committee agreed to develop a roadmap that would assess the district and thoughtfully prioritize projects that meet the EcoDistrict performance areas.

ASSESSMENT + ROADMAP

PoSI built upon this early work and, in partnership with PSU faculty, secured a grant from the Bullitt Foundation and PSU Institute for Sustainable Solutions, which allowed them to lead an EcoDistrict Assessment to build on this early steering committee work and to create consensus on the right project priorities for SoMa.

The work included developing and issuing a survey and collecting building performance data from all property owners participating in the SoMa EcoDistrict. The approach is organized by the eight EcoDistrict performance areas of: Equitable Development, Health + Wellbeing, Community Identity, Access + Mobility, Energy, Water, Habitat + Ecosystem Function, and Materials Management. Workshops with the SoMa Working Group refined these results into the five focus areas recommended in this roadmap:

- Destination Gathering Spaces
- Connectivity
- Green Infrastructure
- District Utilities
- Existing Building Retrofits

GOVERNANCE + FUNDING

EcoDistrict success requires sophisticated coordination and investment across SoMa. Clarity in the areas of governance (relationships between district stakeholders and the City) and funding (for SoMa staff and projects) is essential to implementation of these recommended projects.

Why EcoDistricts Matter

- **For Municipalities**
Supports a neighborhood sustainability assessment and investment strategy to help meet broader sustainability policy and economic development goals
- **For Utilities**
Creates a model for integrated infrastructure planning to guide development of more effective infrastructure investments over time and to emphasize resiliency and efficiency
- **For Developers and Property Owners**
Creates a mechanism to reduce development and operating costs by linking individual building investments to neighborhood infrastructure while making investments more attractive to tenants and visitors
- **For Businesses**
Provides a platform to deliver district-scale infrastructure and building products and services to market
- **For Residents + Neighbors**
Provides a tangible way to get involved in improving and enhancing the neighborhood's economic vitality and sustainability and establishes a new form of local organization

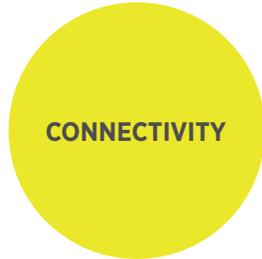
EXECUTIVE SUMMARY

Recommended Strategies: Five Focus Areas

The following recommended strategies were identified in partnership with the SoMa Working Group based on data collected through this assessment. Detailed recommendations and actions are outlined in the Implementation section.



As one of Portland's densest neighborhoods, the SoMa EcoDistrict should expand its retail mix and the quality of gathering spaces to enhance overall vibrancy. This strategy means a focus on 1) improving the quality and attraction of existing public spaces, such as the Halprin and Park Blocks and 2) creating new "third places," such as restaurants, coffee shops and plazas that encourage more retail and mixed-use investments in the district. This strategy supports EcoDistrict Performance Goals in the areas of Health + Well Being, Access + Mobility and Community Identity.



A well-connected neighborhood from a transit perspective, SoMa lacks internal connections across the east and west ends of the district. Coordinated pedestrian and bicycle investments will improve the connectivity between the major employment centers east of 4th Ave and the PSU campus. Additional green linkages between the Park and Halprin Blocks, including the Montgomery Green Street, will enhance bicycle and pedestrian safety and create a stronger sense of identify and continuity throughout the district. This strategy supports EcoDistrict Performance Goals in the areas of Health + Wellbeing, Community Identity and Access + Mobility.



In order to effectively manage district stormwater and enhance the district's biodiversity, SoMa should create a comprehensive green infrastructure strategy. The district has many assets to build from including the Halprin and North Park Blocks and proposed Montgomery Green Street. This strategy includes: 1) developing a comprehensive integrated infrastructure strategy to inform future investments and measure environmental and community impacts and 2) accelerating the completion of Montgomery Green Street. This strategy supports EcoDistrict Performance Goals in the areas of Health + Well Being, Access + Mobility, Community Identity, Water and Habitat + Ecosystem Function.



PSU has an existing district energy system that was recently upgraded and expanded. While these improvements will increase the system's overall efficiency the extent and effectiveness of the system can be improved by adding cogeneration capacity and expanding the system to other residential and commercial buildings in the district. This strategy involves a district energy investment plan to improve existing service and plan for future growth especially along 4th Ave and at University Place. A district system supports PSU and City energy efficiency and greenhouse gas (GHG) emission targets and supports EcoDistrict Performance Goals in the areas of Energy and potentially Water.



The SoMa EcoDistrict is home to 7.3 million SF of existing buildings, many of which are in need of upgrades and present an opportunity to reduce overall energy costs and greenhouse gas emissions. The large number of similar commercial buildings allow aggregate investment grade audits and performance contracts through a single energy service company. The program should include demand management to target changes in occupant behavior as well as building operations management. This strategy supports EcoDistrict Performance Goals in the areas of Energy, Water, Waste Management and Health + Well Being.

DISTRICT GOVERNANCE

PoSI recommends that the SoMa Steering Committee work with PSU, the City, and local stakeholders to develop a robust governance and organizational structure to guide EcoDistrict implementation over time. This should include the formation of a sustainability management association (SMA) with the explicit responsibility for implementing sustainability related strategies and projects that help the EcoDistrict meet the eight EcoDistrict performance areas. An SMA is essential for success of the five focus areas in this roadmap.

FUNDING

To support EcoDistrict implementation and SMA formation, the SoMa EcoDistrict should explore the following funding mechanisms:

- **Business Improvement District:** Expanding the Downtown BID to include SoMa EcoDistrict to provide additional revenue for EcoDistrict staff and projects.
- **Resource Consumption Surcharges:** Explore a resource consumption surcharge to support energy, water, and waste efficiency projects.

- **Parking Benefit District:** Increase the hourly cost of on-street parking to fund transportation and green infrastructure improvements.
- **Energy Local Improvement District (LID):** Consider a LID to fund energy improvements and district energy in SoMa.
- **System Development Charges (SDC) Redirection:** Explore "performance based SDCs" to support project investments that exceed current code requirements.
- **Education Urban Renewal Area (URA) Funding** Identify funding to support EcoDistrict projects through the new URA.



SOMA ECODISTRICT

Background + Overview

Background: The SoMa Story

The South of Market (SoMa) EcoDistrict, centered around the Portland State University (PSU) campus, is located on the southern end of Portland's central city core. It is a dense urban environment, with several high-rise residential structures and mid-rise academic buildings in the five- to eight-floor range. While it is considered a mixed-use neighborhood, retail options are limited for an urban university of its size. The current EcoDistrict boundary consists of approximately 50% PSU-owned properties, making the university a leader and catalyst stakeholder within the district but one unable to act alone.

Several city and other institutional agencies have offices within this district as well as a number of businesses, particularly to the north and east of the university core. The City of Portland also owns a significant portion of open space, including the South Park Blocks, which forms an important contiguous green-space network on the west side of the district.

The Portland Sustainability Institute (PoSI) began work with the SoMa EcoDistrict in 2009 as part of the Portland State University Framework Plan. An accompanying analysis identified key EcoDistrict opportunities to be considered as part of the University Framework Plan and Climate Action Plan with sustainability goals related to economic development, mobility, open space, preservation, energy and water conservation, and material use and goal to achieve carbon neutrality by 2040.

As a result of this work, PSU began leadership discussions with the intent that the EcoDistrict initially be a property owner-to-property owner driven discussion. In early 2011, PSU held one-on-one conversations with area property owners in the SoMa District to gauge interest in working collectively as a district to address sustainability.

With a resounding response rate, the group then convened to discuss the benefits of working as a district and to understand the challenges around funding, boundaries and management of an EcoDistrict. After a few months, the group formalized a steering committee, ratified a working boundary, and created

a name (South of Market EcoDistrict, or SoMa), vision statement, and immediate priorities. Commitments were documented in a Memorandum of Understanding signed in June 2011.

SOMA VISION STATEMENT

To create a sustainable neighborhood for future generations, by working together with our community to define, create, and own a vibrant district with a variety of buildings and parks connected by green streets and public transit that will attract businesses, residents, and visitors to our neighborhood and create a vital and diverse place for people.

In essence this vision statement translates to three fundamental characteristics of the SoMa EcoDistrict:

- High performance
- Vibrant and vital
- Hub of activity and innovation

INITIAL GOALS

The following immediate goals accompanied the formation of the SoMa Steering Committee in the summer of 2011:

- Create a strong governing board
- Encourage high level of participation from SoMa EcoDistrict stakeholders
- Maintain a strong commitment to investigate new ideas in sustainability
- Prioritize projects based on principals of economic, environmental, and social equity
- Identify equitable funding sources managed by SoMa EcoDistrict Board
- Balance PSU growth east of 4th Ave with commercial/residential uses

PRELIMINARY BRAINSTORMED PROJECTS

The SoMa Steering Committee identified the following initial project opportunities:

Retail Strategy Create more destinations to attract and keep people in the neighborhood

Montgomery Green Street Expand the first blocks of the green street to connect to the Willamette River

At a glance numbers

Buildings & Land

- **92 acres total area**
- **About 90 Blocks**
more than 50% PSU-owned
- **9 Park Blocks**
city-owned
- **10 LEED Certified Buildings**

Approximately 9 Million Total Building SF

- **3.6 M SF housing**
- **2.3 M office**
- **200K retail**
- **3.0M PSU-owned**
office and academic

People

- **4,000 residents**
non-students
- **10,000 daytime dwellers**
excludes students
- **29,703 PSU students**
23,000 undergraduates

Halprin Blocks revitalization Improve the quality and vibrancy of these spaces and increase awareness to attract more visitors

“Basket of Services” for new tenants Provide a suite of services for all EcoDistrict participants that could include shared district resources like green Tenant Improvement Guidelines or sample building management policies

Parking Benefits District Develop new policy framework

to increase parking meter rates and local transportation improvements

Bike sharing Provide a network of bike sharing stations in the district and connect to Portland's new city-wide program

District utilities/PSU Expand and improve PSU's district energy system, including the potential for private building owners to hook into the system

City and PSU Context

PLANS

The following plans and policies were reviewed to provide to provide context for the steering committee's goals and help identify EcoDistrict project priorities:

- Portland Plan
- City of Portland Climate Action Plan
- Portland Economic Development Strategy
- Portland State University Framework Plan
- Portland State University Climate Action Plan

PROJECT PRIORITIES

The following projects are identified in capital improvement and investment plans by the City and PSU and informed SoMa's focus areas.

Education Urban Renewal Area (URA)

- **Expand campus district energy system** Build out PSU's existing system to improve efficiency and serve adjacent property owners
- **Stormwater, wastewater management** Support district stormwater management through an emphasis on green streets; target Montgomery Green Street
- **PSU building retrofits** Upgrade campus buildings to meet higher energy and water performance standards
- **Increase startup accelerator space** Support small start-up businesses to foster the university as a center for innovation
- **Target industry recruitment** Attract key cluster industry companies to locate in the district

Transportation Projects

- **Montgomery Green Street** Build out the plan for a connected green street to the Willamette River
- **Enhance 4th Ave with bike lane** Improve bike safety and access with a new bike lane on 4th Ave
- **Improve/enhance facilities on Harrison** Create a more

coordinated and clear multi-modal environment on Harrison

PSU Climate Action Plan

- **Combined heat and power plant** Expand existing PSU system to include combined heat and power
- **Composting for catering and dining** Develop a campus composting program that targets food waste from PSU facilities

Work to Date

PoSI built upon this early work and, in partnership with PSU faculty, secured a grant from the Bullitt Foundation and Institute for Sustainable Solutions, which allowed them to lead an EcoDistrict Assessment that would build upon early steering committee work and to create consensus around the right project priorities for SoMa.

The work included developing and issuing a survey and collecting building performance data from all property owners participating in the SoMa EcoDistrict. Related workshops with the SoMa Working Group refined these results into the focus area recommendations and project priorities outlined in this report.

ECODISTRICT PERFORMANCE AREAS

The report looked at opportunities in eight EcoDistrict performance areas essential to neighborhood sustainability:

- Equitable Development
- Health + Well Being
- Community Identity
- Access + Mobility
- Energy
- Water
- Habitat + Ecosystem Function
- Materials Management

For more information on performance areas, visit PoSI's website at pdxinstitute.org.

The aspirational goal and performance baseline for each performance areas provides the context for recommended strategies.

DATA COLLECTION

The approach to data collection was two-fold:

- (1) PoSI gathered building performance data from property owners of the major buildings in the SoMa EcoDistrict; and
- (2) PSU faculty and students issued a survey to gather perspectives and input from those living in, working in, studying in, and visiting the district.

The survey data intend to provide a high-level perspective of perceptions about the SoMa District. The survey results provided nuanced information about community perceptions, priorities, and sustainability interests for SoMa and shed light on the projects and investments that resonate most with the EcoDistrict users.

Note: Detailed information about survey respondents and demographic information can be found in Appendix C.

EcoDistrict Map



SoMa Steering Committee ratified this EcoDistrict boundary in June 2011.

IMPLEMENTATION



DESTINATION
GATHERING SPACES

CONNECTIVITY

GREEN
INFRASTRUCTURE

DISTRICT UTILITIES

EXISTING BUILDING
RETROFITS

In each of these following recommended strategies, the SoMa Working Group is committed to identifying both a long-term strategy for meeting the ambitious EcoDistricts performance goals and a short-term visible and high impact project. Across all five areas, the priority is to create destination gathering spaces. For SoMa, this means an integrated approach to local parks, plazas, community amenities, independently-owned retail, and basic services. Together these features create a vibrant and thriving neighborhood. It is important to note that destination gathering spaces, connectivity and green infrastructure should be implemented in an integrated way, as should district utilities and existing building retrofits.

IMPLEMENTATION

Destination Gathering Spaces

A public space may be a gathering spot, part of a neighborhood, district, or other area within the public realm that helps promote social interaction and a sense of community. Sometimes referred to as “third places,” these spaces should accommodate multiple users and be accessible by multiple modes of transport like walking, biking, and public transit. Activating these spaces has the added benefit of protecting and enhancing the natural features of a place; reflecting the community’s local character; providing a sense of comfort, and safety; fostering social interaction and creating a sense of community.

timeline

Now

Hire retail consultant for analysis and strategy

1 year

Create “pop up” plaza and develop SoMa brand

2-5 year

4th Ave streetscape improvements

STRATEGY OPPORTUNITY IN SOMA

Fundamentally for SoMa, this strategy is about vibrancy and mixed uses through an improved retail and service environment. It has two major components: First, improving the quality and attraction of existing public spaces, such as the Halprin and Park Blocks. Second, creating new “third places,” such as restaurants, coffee shops and seating areas that encourage more mixed-use activities in the district. An improved retail environment supports other EcoDistrict performance goals around Access + Mobility and Community Identity because of increased local services and less demand to travel outside the neighborhood.

KEY PROJECTS

Foster a retail corridor along 5th and 6th Aves that will improve the quality and diversity of retail and services in the SoMa EcoDistrict while improving neighborhood identity and cohesion. Initial analysis from a retail consultant show 5th and 6th Aves to be most promising. Consider a “pop up” approach as an interim strategy.

Attract locally owned retailers. A major priority identified in the survey, a local retail recruitment strategy and a related buy local campaign, would create a cohesive retail environment. This strategy should include landlord tenanting guidelines, a green lease, and potential subsidy to ensure that all new leases support the EcoDistrict performance goals.

Develop a coordinated district brand that values and celebrates the unique character of SoMa. Highlight elements that make each area distinct and contribute to neighborhood personality and values.

Create a plaza environment near the 4th Ave food carts that includes chairs, tables, and a covered structure to encourage diners to stay outside and create opportunities for interaction.

Improve access and awareness of Halprin blocks. Continue the ‘adopt a block’ program started by Russell Development and create reasons (food carts, live music, etc.) to draw visitors to the parks.

Hold an annual street festival where a major thoroughfare is

closed to traffic and pedestrians take over the streets to promote community interaction and civic vitality.

Create a “pop up” park by installing tables and chairs near the food carts and Halprin blocks to encourage visitors to linger and use the area as a destination rather than just as a pass through.

EXAMPLE BEST PRACTICES

- **Off the Grid, San Francisco** offthegridsf.com
- **San Francisco Sunday Healthways** sundaystreetsf.com
- **Silver Lake neighborhood** losangeleswalks.org

PERFORMANCE IMPACT

Overall this strategy would increase the number of visitors coming to, and staying in, the SoMa EcoDistrict. More pedestrian traffic would increase appeal for retail tenants. This strategy supports the following performance areas:

- Equitable Development
- Health + Wellbeing
- Community Identity
- Access + Mobility

IMPLEMENTATION PARTNERS

- SoMa property owners
- Local brokers
- Retail consultant
- Portland Parks + Recreation
- Portland Development Commission

next steps

- **Develop a brand** such as “SoMa EcoDistrict: Go Anywhere.”
- **Develop a retail investment strategy.**
- **Develop a coordinated urban design strategy and implementation plan to identify destination gathering spaces.**
- **Track new building development to help foster new spaces that meet SoMa goals.**
- **Develop community events** (e.g., a live music series).

IMPLEMENTATION

Connectivity

In order to facilitate and to encourage active transportation across the district, a strong urban design framework focused on the built environment—streets, sidewalks, parks, and open space—is critical. Such an urban design framework creates connections between key public places in a neighborhood and is essential to diverse activity and attracting mixed use developments. Pedestrian and bicycle connections create a more human-scale environment and encourages active transportation and ease of access between local services.

timeline

Now

Temporarily paint paths on streets within the district to create new routes that encourage pedestrians to visit new destinations

1-2 years

Complete a green urban design plan for SoMa

STRATEGY OPPORTUNITY IN SOMA

The major focus for SoMa is to create better connections between the east and west ends of the district. Coordinated pedestrian and bicycle corridors would improve the linkages between destinations like the Park Blocks and the Halprin Blocks, and create a sense of continuity throughout the district.

Corridors would provide protected areas for both cyclists and pedestrians and create a continuous loop within the district that connects to the broader city active transportation network. They improve safety, encourage alternative modes of transit, and draw visitors to neighborhood attractions.

KEY PROJECTS

Develop a continuous walkable pedestrian path throughout the district. This could connect the park and reinforce the green infrastructure strategy. Target key intersections including 4th/Harrison and 4th/Mill that currently present barriers to pedestrian access.

Develop clear connection to the Willamette River by improving connectivity and pedestrian access along Market. Montgomery Green Street improvements could also create a pedestrian path across Naito and to the waterfront.

Improve transportation and streetscape infrastructure along 4th Avenue, including bicycle facilities, curb bulb-outs, signalized pedestrian crossings, green street features, and marked crosswalks. SoMa could lead short term, immediate and low-cost solutions such as striping streets and sidewalks as a form of interim urban intervention.

Improved bike infrastructure throughout the district that creates continuous bike circulation.

Urban intervention projects include temporary painted paths to capture interests and encourage people to walk a little farther than usual or a brightly colored guerilla chair strategy where chairs are strategically placed near favorite locations to draw people past their perceived boundary and provide more destinations.

EXAMPLE BEST PRACTICES

- Mint Street Pedestrian Plaza in San Francisco
mintplazasf.org

ECONOMICS

Portland-based economist Joe Cortright calculates a “green dividend,” describing the cost savings accrued to Portlanders who drive less, which are then reinvested in the local economies for leisure activities such as dining and shopping.

PERFORMANCE IMPACT

A 2004 U.S. Environmental Protection Agency study found that increased street connectivity, a pedestrian-friendly environment and shorter route options positively impact transportation performance (per-capita vehicle travel, congestion delays, accidents, and pollution emissions).

A study prepared by Kulash, Anglin, and Marks indicated that well-connected traditional neighborhood networks reduced Vehicle Miles Traveled by 57%.

This strategy supports the following performance areas:

- Equitable Development
- Health + Wellbeing
- Community Identity
- Access+Mobility

IMPLEMENTATION PARTNERS

- SoMa Steering Committee
- Portland Bureau of Transportation

next steps

- **Develop a coordinated urban design strategy that improves east-west and north-south connectivity.**
- **Build on existing PSU Framework Plan and make explicit links to the area east of 4th Avenue.**
- **Implement quick place-based interventions with high visibility that draw people across the district.**

IMPLEMENTATION

Green Infrastructure

Green infrastructure describes the vegetated features such as green streets, bioswales, ecoroofs and green walls that provide ecosystem services like stormwater management, attraction of native wildlife and reduced urban heat effect. Through the use of nature-based stormwater facilities and landscaping, green infrastructure not only recreates lost hydrologic function but also enhances district placemaking goals. Green stormwater is typically managed through underground pipes, or “grey” infrastructure. District stormwater management systems focus on the hydrological cycle and on intercepting, infiltrating, detaining, and evapotranspiring as much rainfall as possible to avoid surface runoff into pipes and streams.

timeline

1 year

Inventory existing trees in the district and launch tree planting campaign

2 year

Develop SoMa green infrastructure Master Plan

3-5 years

Implement SoMa green infrastructure master plan recommendations

STRATEGY OPPORTUNITY IN SOMA

For SoMa this strategy is about maintaining the quality of existing, as well as developing new green infrastructure. The strategy reinforces a commitment to improve connectivity and create gathering spaces. Many of the stormwater management and green features in such an infrastructure strategy have the added benefit of creating more inviting pedestrian environments, such as green streets and bioswales, which provide shade and more protected walking or biking environments.

One challenge associated with green infrastructure is maintenance. PSU provides a resource and could potentially develop ongoing curricular integration into courses where students monitor and maintain the performance of bioswales, green roofs, and vegetated walls.

KEY PROJECTS

Develop, preserve and connect green spaces in the district and improve the connections between them.

Complete the plan for Montgomery Green Street connecting existing bioswales to the river.

Increase the overall tree canopy by planting more trees.

Develop stormwater management features such as green streets and ecoroofs.

EXAMPLE BEST PRACTICES

- **Grey to Green** portlandonline.com/bes
- **Community Green Stormwater Infrastructure Programs** phillywatersheds.org/what_were_doing/

ECONOMICS

Based on a Wharton School study at the University of Philadelphia, tree planting along a street in front of a property and green roofs increase the property's value by up to 9%, saving an average of \$4.26/SF on stormwater mitigation costs. Compared to urban areas that may incorporate little to no green infrastructure, projects that include green roofs

and other green infrastructure (i.e., parks and street trees) becomes more valuable.

PERFORMANCE IMPACT

Green infrastructure manages stormwater, reduces urban heat effect, and brings nature to cities. A Philadelphia green infrastructure proposal would turn one third of the city's entire impervious asphalt surface, or 4,000 acres, into green spaces that infiltrate stormwater. The proposal links to the Green Works Philadelphia plan, which calls for 300,000 new city trees by 2015. This strategy supports the following performance areas:

- Health + Wellbeing
- Community Identity
- Habitat + Ecosystem Function
- Water

IMPLEMENTATION PARTNERS

- SoMa property owners
- PSU staff, faculty and student groups
- Neighborhood Associations

next steps

- Integrate green infrastructure into urban design plan.
- Develop district tree strategy that includes inventory of existing trees and planting plan for new trees.
- Create a neighborhood tree committee to support this work.
- Share best practices and maintenance programs between SoMa stakeholders such as PSU's Integrated Pest Management plan and Take Back the Tap.

IMPLEMENTATION

District Utilities

District energy systems provide an energy-efficient and cost-effective option for heating and cooling many buildings, in a given locale, from a central plant. They use a network of underground pipes to pump steam, hot water, and/or chilled water to multiple buildings in an area, such as a downtown district, college or hospital campus, airport, or military base. Providing localized heating and cooling requires less fuel and avoids the need to install separate water systems in each building. District energy systems can use a variety of conventional fuels such as coal, oil, and natural gas—whichever fuel is most competitive at the time. And because of a district energy system's size, the district energy plant can also transition into use of renewable fuels, such as various forms of biomass including wood and food processing waste, geothermal heat, and combined heat and power.

timeline

3-5 years

Include non-PSU buildings in utility expansion strategy

5-10 years

Develop second district energy node at University Place

10+ years

Expand system to serve non-PSU properties

STRATEGY OPPORTUNITY IN SOMA

The district utility strategy for SoMa involves expansion of PSU's existing district energy system to serve more PSU buildings and other property owners in the district. The university is currently expanding the system beyond its current service area and plans to add another node at University Place when redeveloped occurs. An additional node could also be added in the commercial area east of 4th Avenue and connect to PSU's existing system. District utilities are a major priority in the PSU and City of Portland's Climate Action Plans.

In 2010, early in the EcoDistrict formation process, PoSI identified an opportunity for district utilities, particularly energy and water systems, in the SoMa EcoDistrict. PoSI commissioned Compass Resource Management to examine the technical and business viability of expanding PSU's district energy system in a report titled, "Portland Pilot EcoDistricts Neighborhood Infrastructure: Doing More with Less."¹ The recommendation from the screening is that the expansion and fuel switching of PSU's district energy is both economically viable and would help PSU meet its energy efficiency and greenhouse gas reduction goals as called out in the Climate Action Plan. Should PSU expand its system beyond campus boundaries to serve non-PSU buildings, it may consider working with a private, third-party district energy provider. Expansion of the system's distribution system could be coordinated with other infrastructure improvements such as green infrastructure to minimize construction costs.

EXAMPLE BEST PRACTICES

- **Seattle Steam's District Energy System** seattlesteam.com
- **Cornell Cogeneration System** energyandsustainability.fs.cornell.edu/util/districtenergy.cfm

ECONOMICS

District systems eliminate the capital costs of individual boilers in buildings and reduce operating and maintenance staff costs by centralizing maintenance and operating personnel. Recent estimates predict a \$1 million cost to extend dis-

trict energy pipes across a public right of way street in SoMa. The density and potential revenue may attract a private utility company to purchase PSU's system and manage it as a small utility.

PERFORMANCE IMPACT

District energy is a highly efficient system with the ability to capture and reuse waste heat and energy before it leaves the plant; has potential for renewable fuel; and reduces carbon and greenhouse gas emissions (Seattle Steam reduces customers' carbon footprint by 50 percent).

This strategy supports the following performance areas:

- Energy
- Water

IMPLEMENTATION PARTNERS

- PSU to lead
- Adjacent property owners
- Portland Development Commission
- Bureau of Planning and Sustainability

next steps

- Expand and upgrade PSU's existing system.
- Target new production node at University Place.
- Conduct further study to expand district energy beyond PSU facilities.
- Consider hot water distribution technology for future extensions (as opposed to steam) and leverage new development in extension of the system and use of alternative fuels and energy sources.
- Communicate investment returns and related benefits to non-PSU building owners in the district.
- Track new buildings in concept and design phases to encourage district utility connection.

¹ This report is available at <http://www.pdxinstitute.org/index.php/resources/publications>



IMPLEMENTATION

Existing Building Retrofits

There are two forms of energy retrofit—conventional and deep—that can be applied to commercial buildings. Conventional energy retrofits focus on isolated system upgrades with a quick payback (less than three years), such as lighting systems, HVAC systems, building envelopes, and retro commissioning. Deep energy retrofits achieve much greater energy efficiency by taking a whole-building approach to address many systems at once. They also combine measures such as energy-efficiency equipment, air sealing, moisture management, controlled ventilation, insulation and solar control so that energy savings are achieved alongside optimal building performance. This strategy may link to a LEED for Existing Buildings: Operations + Maintenance program, an industry framework that many property owners, including PSU, are relying on for sustainability improvements in their buildings.

timeline

1 year
Identify buildings in district in need of energy upgrades

1-2 years
Complete audit of buildings

2-3 years
Initiate retrofits

STRATEGY OPPORTUNITY IN SOMA

A comprehensive building retrofit program would increase the value of existing building stock and conserve energy, water, and waste. The number of commercial buildings in the district provides an opportunity to aggregate retrofits where building managers collectively engage in an audit and retrofit, producing an economy of scale that saves time and money.

The economy of scale would come from all property owners in the district working with one consultant or organization to benchmark all buildings in the district and make recommendations for retrofit improvements. PSU students, or students from Oregon Institute of Technology could conduct the building audit. PSU Institute for Sustainable Solutions may provide some funding based on a clear connection to curricular support for students.

In addition, by identifying a critical mass of buildings that are ripe for retrofits, SoMa may attract the interests of a private energy services company that would fund the retrofits. EcoDistricts are very attractive to private capital because a company could target a portfolio of buildings and work with one organized entity as opposed to negotiating contracts for each individual building. A coordinated retrofit strategy would also support future connections to the district utilities.

The retrofit program may include a demand management component where building owners institute energy, water, and waste reduction incentives to change the behavior of residents and workers in their buildings.

EXAMPLE BEST PRACTICES

- **Seattle 2030 District** 2030district.org/seattle
- **Living City Block** livingcityblock.org
- **LA PACE** energyupgradeca.org/lapace
- **Envision Charlotte** envisioncharlotte.org

ECONOMICS

District-wide reduction goals for energy use, water use, and CO2 emissions translate directly to using less power, water and fuel. According to the dashboard installed in participating buildings in the Seattle 2030 District, in the last two

1. Source: Reinventing Fire graph "US Building's Floor Space and Energy Intensity," 85.

2. Source: Reinventing Fire, Case study, 102.

years since the program began, and even without any major retrofits yet complete, energy costs are down 5.6%, water down 2.2%. The Seattle 2030 District is also developing a model for use by other districts that makes the business case for deep energy retrofits.

Buying energy efficiency saves far more money than it costs. Spending an extra half trillion dollars on energy efficiency in U.S buildings over the next 40 years can save \$1.9 trillion in present value.¹

PERFORMANCE IMPACT

Based on industry standards and Seattle 2030 targets, the district could potentially achieve an aggregate energy reduction of 50% below the national average by 2030.

Building retrofits, like improved temperature control and day lighting, create more comfortable working spaces that may boost worker productivity. Energy efficient lighting, indoor air quality, acoustic and thermal strategies are proven to increase productivity by 3-5%—thereby theoretically repaying the initial investment costs quickly.²

This strategy supports the following performance areas:

- Energy
- Water
- Materials Management

IMPLEMENTATION PARTNERS

- Property owners
- City of Portland
- Student auditors
- Potential private Energy Services Company (ESCO)

next steps

- Track and prioritize high-consumption buildings.
- Develop a program to share best practices and track benefits and pay-back.
- Develop district monitoring or dashboard technology that links SoMa buildings into one database that shows collective district performance and compares individual buildings to one another.

Supporting Strategies

Implementation of these five focus areas, as well as achievement of performance goals, requires a well-coordinated and well-funded EcoDistrict. The following implementation tools will enable successful development of these proposed EcoDistrict projects. Clarity and further refinement of the tools will build on the last year of SoMa EcoDistrict work to formalize the role of the EcoDistrict and bring clarity around roles and responsibility for project development.

ENGAGEMENT

With new clarity on focus areas, and a resounding interest and enthusiasm for the EcoDistrict, the SoMa Steering Committee should develop a public engagement strategy to ensure that decisions are supported by the broader community. This will provide long-term health and function of the SoMa Steering Committee as a collaborative neighborhood player. The significant student and community energy should be harnessed and used to support implementation. Initial steps could include a communications plan, public meetings or on-line presence that provides ways for interested district stakeholders to get involved.

GOVERNANCE

DISTRICT GOVERNANCE

The current structure of the SoMa Steering Committee includes a chair, secretary, and working group. In order to implement the projects priorities and general operating goals set by the steering committee, a more robust organization is necessary. The next step in district governance is formalizing the structure into a legalized entity with the capacity to take on broad sustainability management. PoSI calls this new model a Sustainability Management Association (SMA), building on the successful model of Transportation Management Associations. Formation of a 501(c)3 organization would provide a tax-exempt status and provide ability to hire staff, engage in contracts, and manage financial resources. Given the absence of an existing strong organization representing the stakeholders on the SoMa Steering Committee, a new 501(c)3 would provide a stronger and more united voice for the district.

CITY OF PORTLAND RELATIONSHIP

An immediate priority for all Portland EcoDistricts is clarity around ongoing City of Portland support for EcoDistricts. Essentially this conversation is about roles and responsibilities and negotiating what the EcoDistricts will do in exchange for city support and investment. For SoMa, this strategy should include the following components:

Designation

SoMa should work in partnership with the other four EcoDistricts and the City to develop official policy designation for EcoDistricts that includes codifying EcoDistricts as a neighborhood-based implementation strategy for Climate Action Plan, Economic Development Strategy, and Portland Plan and developing key performance metrics.

Performance Based Contract

Individual negotiated commitments should include a performance-based contract between the City and SoMa EcoDistrict. Clarify related incentives that accrue to EcoDistricts such as expedited permitting, reductions in system development charges (SDC) and reinvestment of SDC funds back into district-specific projects.

City Role in EcoDistricts

It should be clarified which bureau in the City takes responsibility for leading and managing the City's EcoDistrict program going forward. This role would include convening other bureaus with a stake in EcoDistricts and providing a suite of support across all five EcoDistricts including acting as a voice for the EcoDistricts and providing technical assistance and project development support.

FUNDING

Perhaps the most critical mechanism to support these SoMa EcoDistrict strategies is stable funding for the newly formed EcoDistrict organization. Lack of resources for local staffing capacity and funding for project development poses a significant barrier to the development and implementation of the SoMa EcoDistrict. The funding needs are two-fold: 1) predevelopment finance—the district-scale funding mechanisms that fund staff, feasibility and organizational development; and 2) project finance—the capital dollars to fund major infrastructure and development. The following mechanisms

provide a menu of funding opportunities for SoMa:

BUSINESS IMPROVEMENT DISTRICT

The primary opportunity within the district is to form a Business Improvement District (BID). BIDs are well suited to fund the operations of an EcoDistrict, especially in central city neighborhoods or neighborhood business districts. BID tariffs, self-assessed on commercial property owners, can be set with rates sufficient to generate initial funding to cover district organizing, assessment, and monitoring expenses. BIDs represent a private sector funding commitment that can be used to leverage additional public funding (local, state, federal) for EcoDistrict activities, and that can be used to leverage City support.

RESOURCE CONSUMPTION SURCHARGES

Collect percentage of utility fees based on high performance and reduced infrastructure impacts. These collected fees could support additional feasibility analysis, strategy development, and potentially the deployment of small projects/programs for each area of focus. These surcharges produce predictable revenue streams that can be used by the district to fund additional feasibility studies and small-scale programs and projects for each functional area. This includes strategies that are inside the purview/mission of the collecting utility. For example, consider piloting water or waste surcharges in the district as additional complimentary revenue streams to complete water and waste management projects.

PARKING BENEFIT DISTRICT

A Parking Benefit District (PBD) is a program through which the City returns all, or a portion, of the parking revenue generated through meters, or non-resident passes, in an area to an entity representing the district for extra maintenance, security, beautification projects, etc. In late 2010 PoSI proposed to work closely with PSU and Portland Bureau of Transportation (PBoT) to establish Portland's first downtown PBD by raising on-street parking rates by \$0.40 per hour in the SoMa EcoDistrict. The program's main goals are 1) to create market-based prices where spaces are still highly utilized, yet lead to decreases in congestion and cruising for parking, and 2) to raise revenue for sustainable mobility and right of way improvements within the district. The additional

revenue would be managed by the newly established SoMa EcoDistrict governing body and will fund a range of transportation and right-of-way “greening” projects within the EcoDistrict. Using meter counts provided by PSU and PBoT, PoSI estimates (and PSU confirms) that raising meter rates in the PSU EcoDistrict would raise approximately an additional \$350,000 per year for sustainable mobility and right-of-way improvements in the district.

LOCAL IMPROVEMENT DISTRICT

In scenarios where significant public infrastructure is required (e.g., district utilities), a Local Improvement District (LID) is a good strategy to help reduce project costs by leveraging LID funding to pay for the public infrastructure, like piping between buildings in the public right-of-way. LID funding is limited to public infrastructure. SoMa should consider creating a LID to support public right-of-way infrastructure needed for district energy and district-wide stormwater improvements

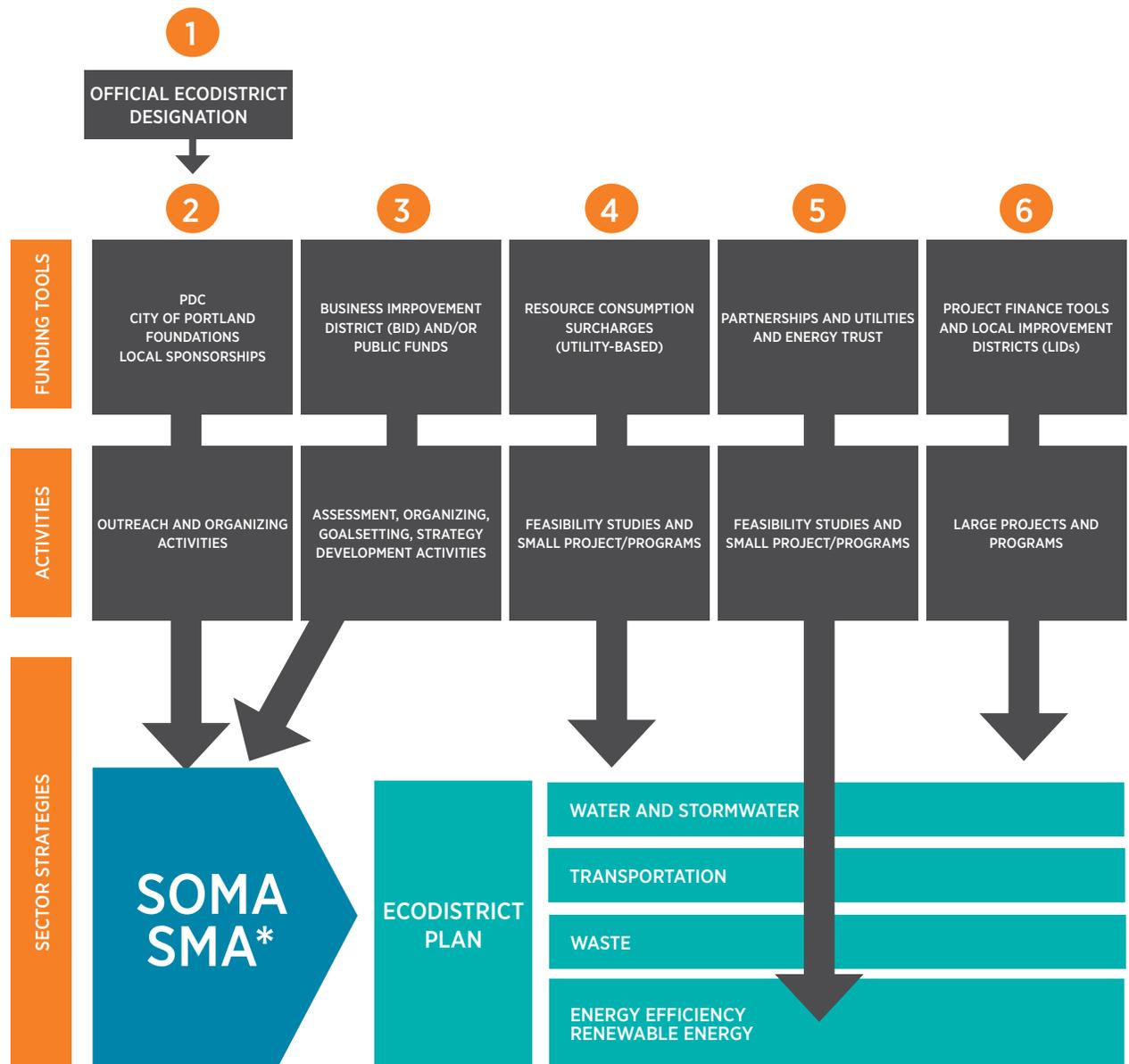
SYSTEM DEVELOPMENT CHARGES REDIRECTION

As a longer-term strategy, SoMa may consider working with the City to develop a policy that enables redirecting a portion of SDC’s collected within their district back into projects within the district. The City determines the list of priority projects to be funded by SDCs through a planning process that sets a 10-year plan and list of priority projects. The next plan is due to be developed in 2013-2014. SoMa could lead efforts to amend City SDC policies to enable a redirection of SDCs back into District projects.

LEVERAGE URA FUNDING

Two EcoDistrict projects are currently earmarked in the budget for the Education URA—district utilities and Montgomery Green Street. Beyond this, SoMa could work with the Portland Development Commission to creatively leverage URA funding to help the SoMa EcoDistrict build an asset base that can support self-sustaining operations in the future.

EcoDistrict Funding Strategies Recommendations



* Sustainability Management Association

A vertical strip of a skyscraper's glass facade, showing a grid of windows, is positioned in the center of the image. The background is a bright blue sky with scattered white clouds. The text is overlaid on the right side of the image, set against a dark background.

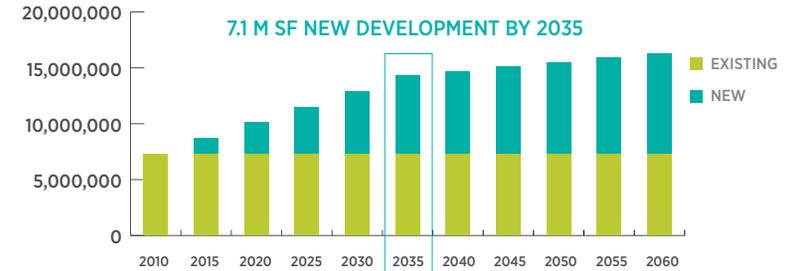
**GOALS,
STRATEGIES,
+ PERFORMANCE**

Development Assumptions



Projected growth in PSU Framework Plan, which anticipates 4.2 million SF, or 3.3% per year, of new development by 2035. The Education Urban Renewal Area relies on the same projection, as does the EcoDistrict Roadmap.

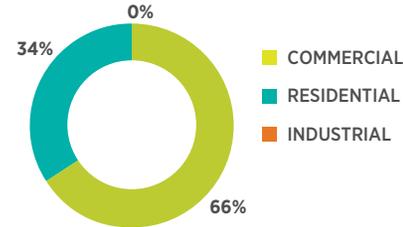
DEVELOPMENT ASSUMPTION
2X INCREASE BY 2035



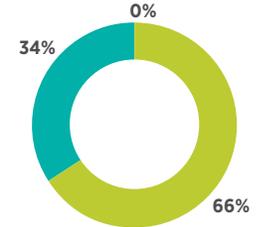
According to Metro Regional Land Information System (RLIS) GIS data, the SoMa EcoDistrict is approximately 173-acres and contains 7.3M SF of existing development. Existing development (2010) is primarily split between residential (34%) and commercial (66%) uses. The PSU Urban Framework Plan and PDC Education URA estimate approximately 7.1M SF of new development over the next 25 years. Total development is expected to reach 14.4M SF by 2035. As the district develops, the split of development between residential and commercial is expected to remain the same. These development assumptions were utilized to estimate baseline energy, water, and waste performance for the EcoDistrict over time. This provides us a snapshot of the district as it grows and the most significant areas of impact to address.

Note: The team collected data from 91% of buildings in the SoMa boundary. 69% are PSU buildings and 22% are participating SoMA buildings.

BUILDING AREA BY LAND USE (2010)
(7.3 M SF)



BUILDING AREA BY LAND USE (2035)
(14.4M SF)



Equitable Development

ECODISTRICT VISION + SOMA GOAL

Promote equity and opportunity and ensure fair distribution of benefits and burdens of investment and development

CITY GOAL

The benefits of growth and change are equitably shared across communities

(Portland Plan p. 18)

POTENTIAL ECODISTRICT STRATEGIES

STRATEGY	BUILDINGS + INFRASTRUCTURE (HARDWARE)	COMMUNITY ACTIONS + PROGRAMS (SOFTWARE)
access	affordable housing multi-modal transit options information centers (library, schools, etc) 20-minute neighborhoods access to parks and open space	green business start-up loans EcoDistrict jobs center enhance local job demand through project agreements community benefit agreements
represent		sustainability management association

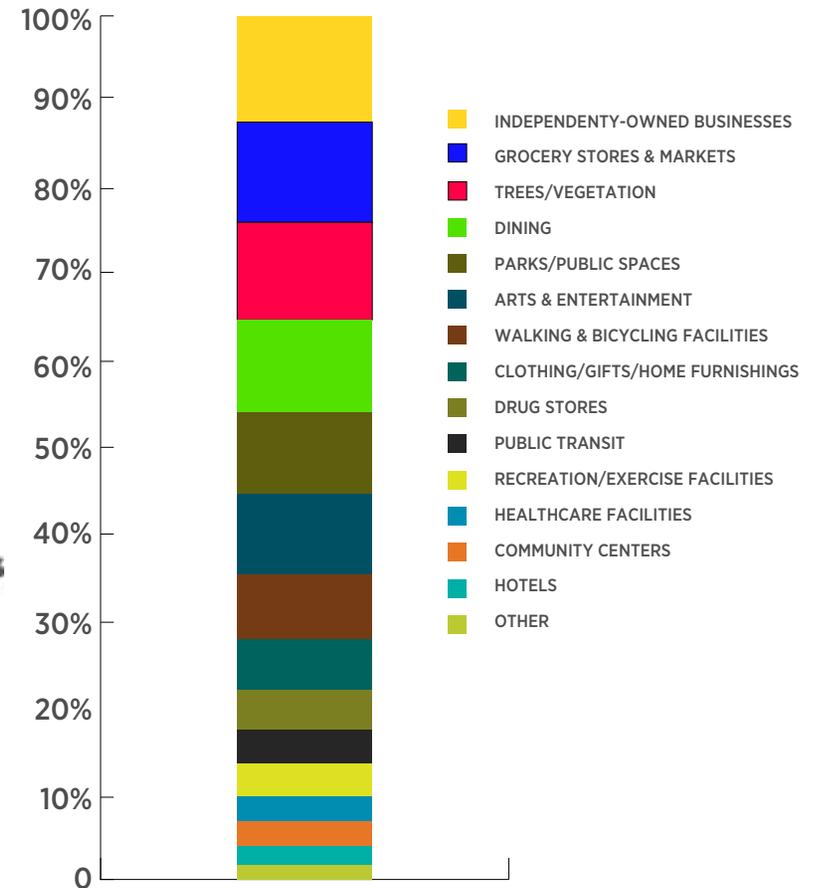
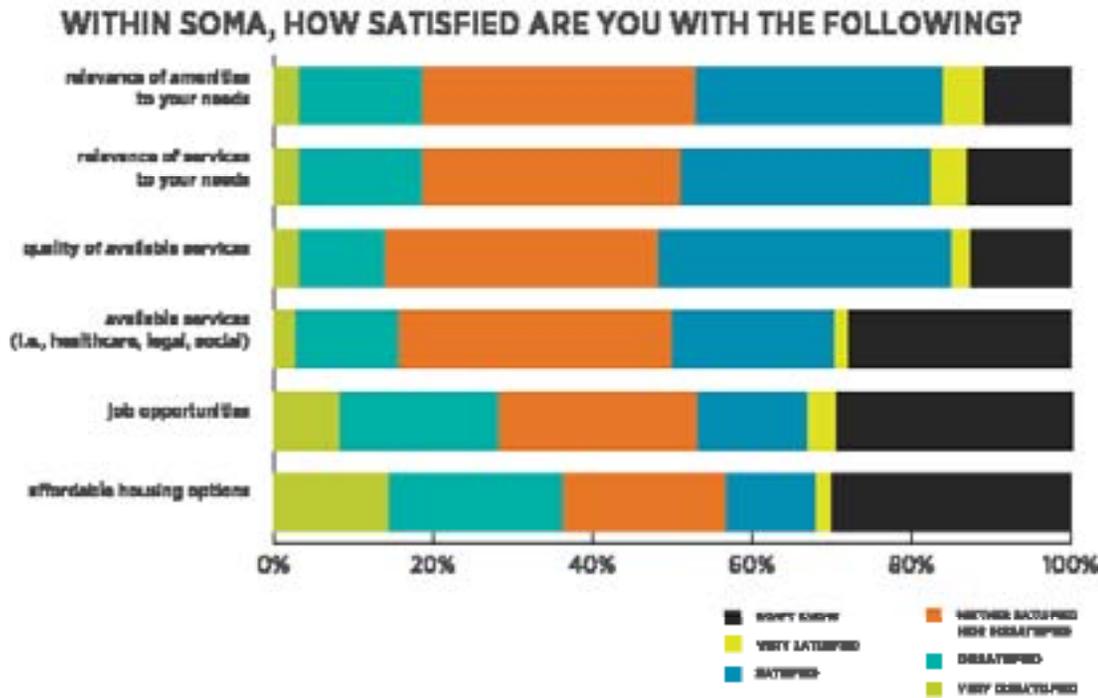
RECOMMENDED SOMA STRATEGIES: FIVE FOCUS AREAS

The following focus areas support the equitable development goals:



Equitable Development

HOW MUCH MORE WOULD YOU LIKE TO SEE THE QUANTITY OF SERVICES CHANGE IN SOMA?



SUMMARY FINDINGS Survey indicates general satisfaction with current services, with a desire for affordable housing, more local job opportunities, and locally owned retail establishments and a grocery store.

Note: Survey data intends to convey high-level perceptions of the district. Detailed survey respondent data available in Appendix C.

Health + Wellbeing

ECODISTRICT VISION + SOMA GOAL

Promote human health and community wellbeing

CITY GOAL

All Portlanders have access to a high-quality education, living wage jobs, safe neighborhoods, basic services, a healthy natural environment, efficient public transit, parks and greenspaces, decent housing and healthy food.

(Portland Plan p. 18)

POTENTIAL ECODISTRICT STRATEGIES

STRATEGY	BUILDINGS + INFRASTRUCTURE (HARDWARE)	COMMUNITY ACTIONS + PROGRAMS (SOFTWARE)
access	parks and open space healthy food sources	job opportunities training and learning opportunities
feel	safe streets and pedestrian zones	air quality improvement challenge trash clean ups

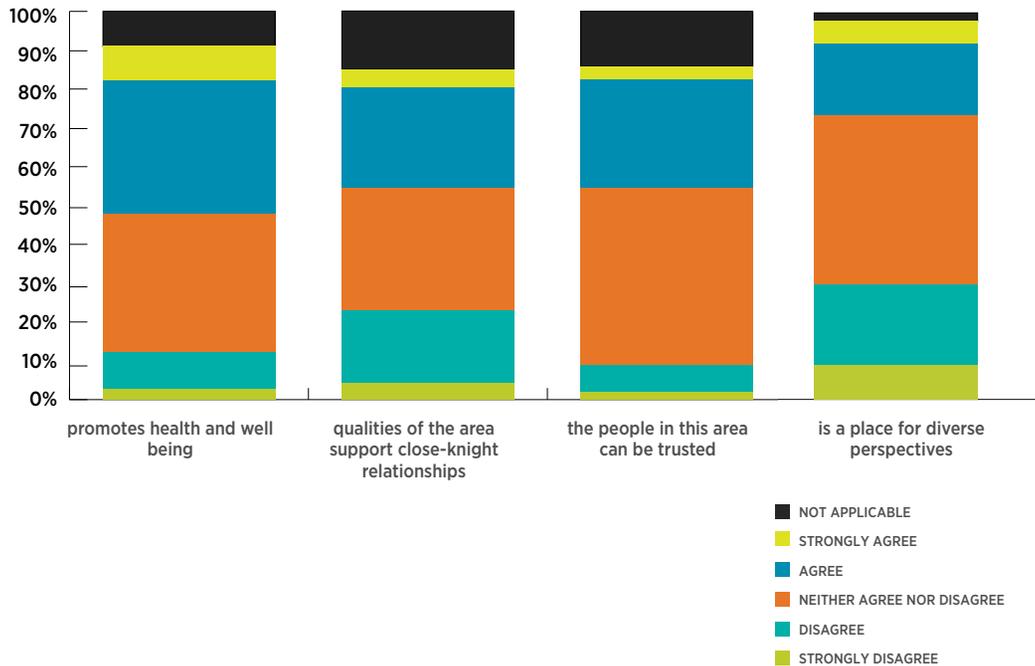
RECOMMENDED SOMA STRATEGIES: FIVE FOCUS AREAS

The following focus areas support the health + wellbeing goals:

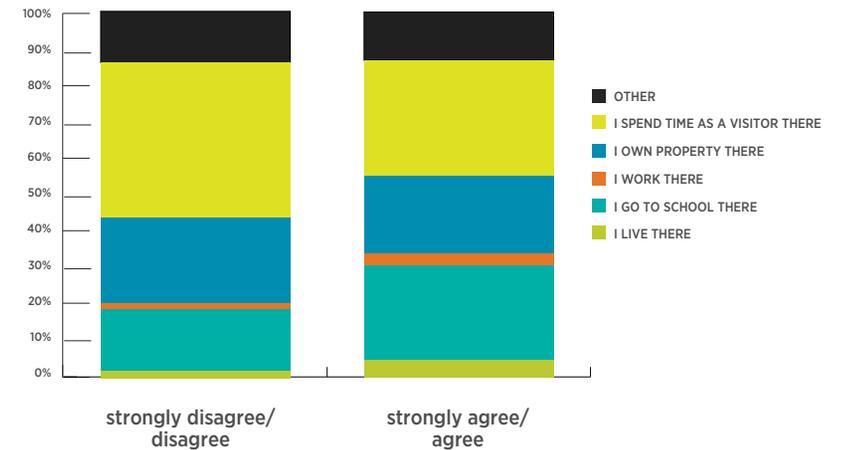


Health + Wellbeing

TO WHAT EXTENT DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS ABOUT SOMA?



TO WHAT EXTENT DO YOU AGREE OR DISAGREE THAT SOMA IS HEALTH FRIENDLY?



SUMMARY FINDINGS

Survey indicates that SoMa has a reasonable sense of community and is considered a 'health-friendly' place.

Note: Survey data intends to convey high-level perceptions of the district. Detailed survey respondent data available in Appendix C.

Community Identity

ECODISTRICT VISION + SOMA GOAL
 Create cohesive neighborhood identity through the built environment and a culture of community

CITY GOAL
 Protect and enhance defining places and features of neighborhood centers
 (Portland Plan Policy H-7)

POTENTIAL ECODISTRICT STRATEGIES

STRATEGY	BUILDINGS + INFRASTRUCTURE (HARDWARE)	COMMUNITY ACTIONS + PROGRAMS (SOFTWARE)
identify	signature landmark, park or building district brand improvements foster local businesses and products green infrastructure	district brand campaign district safety campaign create “third places”
interact	parks and open space pedestrian encounter zone urban agriculture create “third places”	public events regular community connections
lead		community events neighborhood governance collaborative decision making strong neighborhood networks

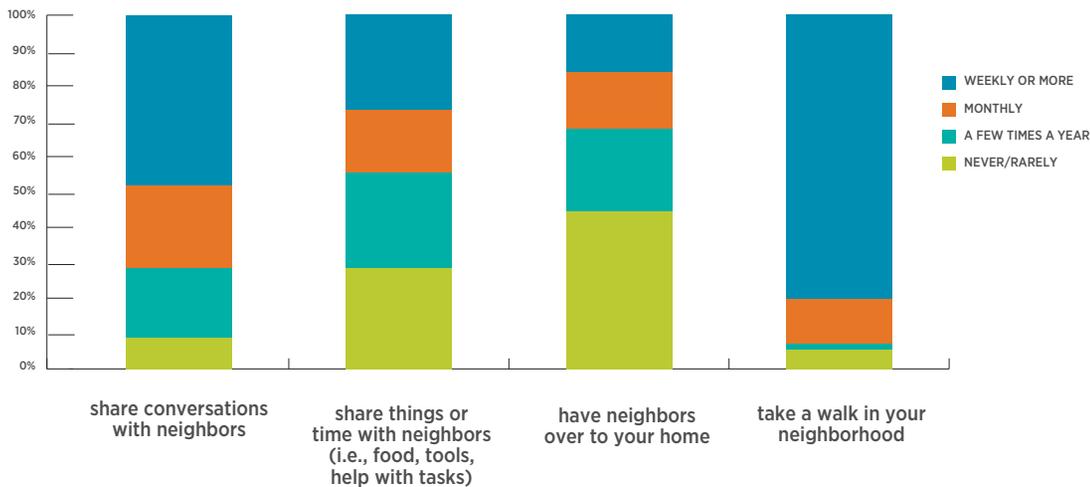
RECOMMENDED SOMA STRATEGIES: FIVE FOCUS AREAS

The following focus areas support the community identity goals:

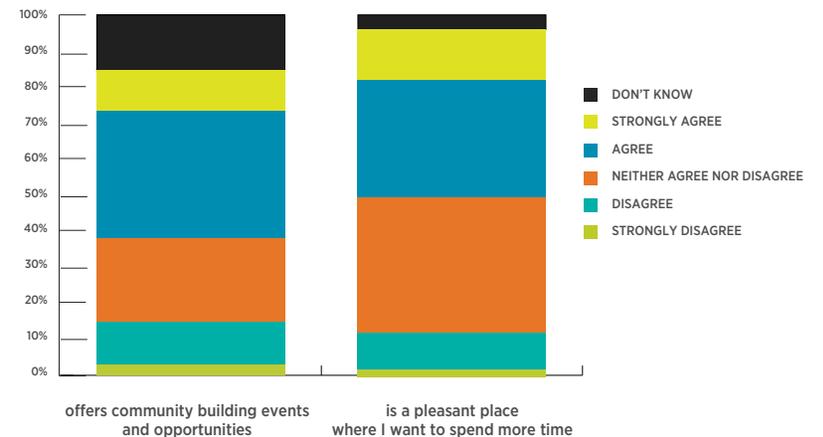


Community Identity

TO WHAT EXTENT DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS ABOUT SOMA?



TO WHAT EXTENT DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS ABOUT SOMA?



SUMMARY FINDINGS

Survey indicates SoMa is generally considered a pleasant place with good accessibility and opportunity for community building.

Note: Survey data intends to convey high-level perceptions of the district. Detailed survey respondent data available in Appendix C.

EXISTING PERFORMANCE

Community Identity

The survey included spatial mapping to capture the perceptions of quality of place across the SoMa EcoDistrict. These “heat maps” highlight responses to four perceptions identified on the maps. The red represents the strongest concentration of responses (i.e., places the most people identified as an asset, in need of change, etc.) and blue represents the lowest.



“I’d like to see more retail and visitor friendly/ business vibe”
—SULLIVAN’S GULCH RESIDENT ON SOMA



“Perfect combination of culture, commerce and civil society”
—DOWNTOWN RESIDENT ON FARMER’S MARKET



“It would be nice for there to be lights at the crosswalks...it takes longer because people don’t stop for pedestrians”
—PSU STAFF ON PARK BLOCKS



“Lots of different types of food available at an affordable price, and super tasty”
—PSU STUDENT ON 4TH AVE FOOD CARTS

Note: Survey data intends to convey high-level perceptions of the district. Detailed survey respondent data available in Appendix C.

Habitat + Ecosystem Function

ECODISTRICT VISION + SOMA GOAL

Achieve healthy urban ecosystems that protect and regenerate habitat and ecosystem function

CITY GOAL

Expand the urban forest canopy to cover one-third of Portland, and at least 50 percent of total stream and river length in the city meet urban water temperature goals as an indicator of watershed health.

(Portland Climate Action Plan Obj. 13)

POTENTIAL ECODISTRICT STRATEGIES

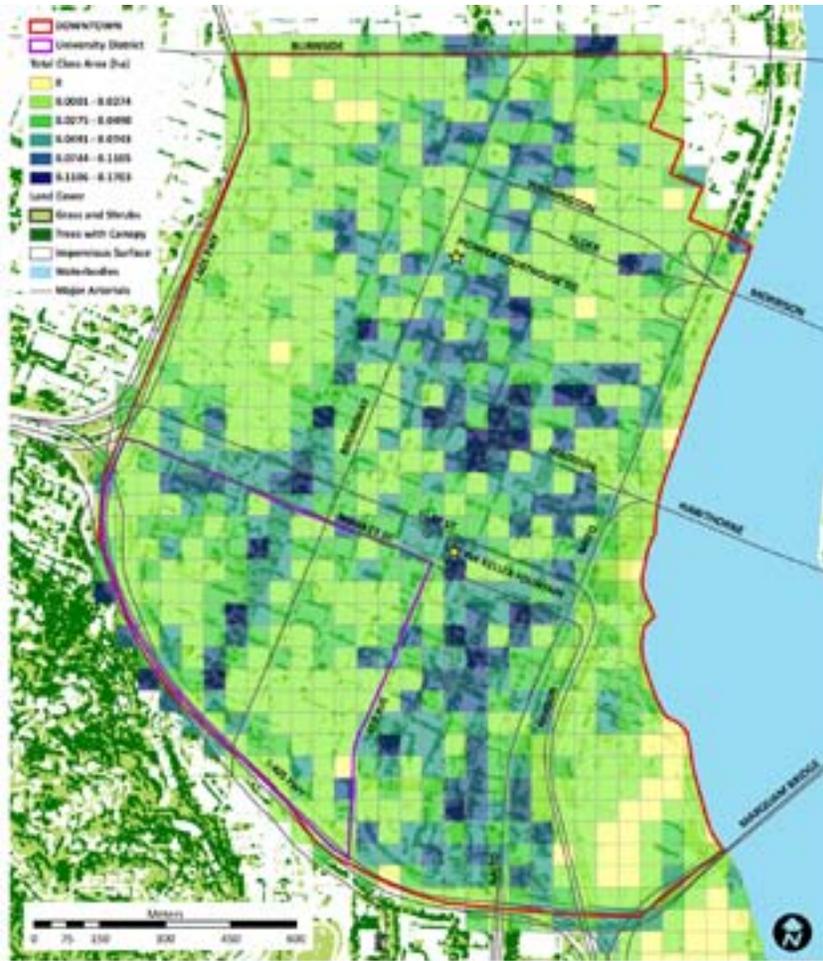
STRATEGY	BUILDINGS + INFRASTRUCTURE (HARDWARE)	COMMUNITY ACTIONS + PROGRAMS (SOFTWARE)
enhance	tree canopy/vegetation enhancement green infrastructure urban agriculture	tree planting challenge district performance monitor education campaign
connect	tree canopy/vegetation enhancement green infrastructure	tree planting challenge district performance monitor education campaign
restore	protect existing natural areas restore existing natural areas	district performance monitor education campaign

RECOMMENDED SOMA STRATEGIES: FIVE FOCUS AREAS

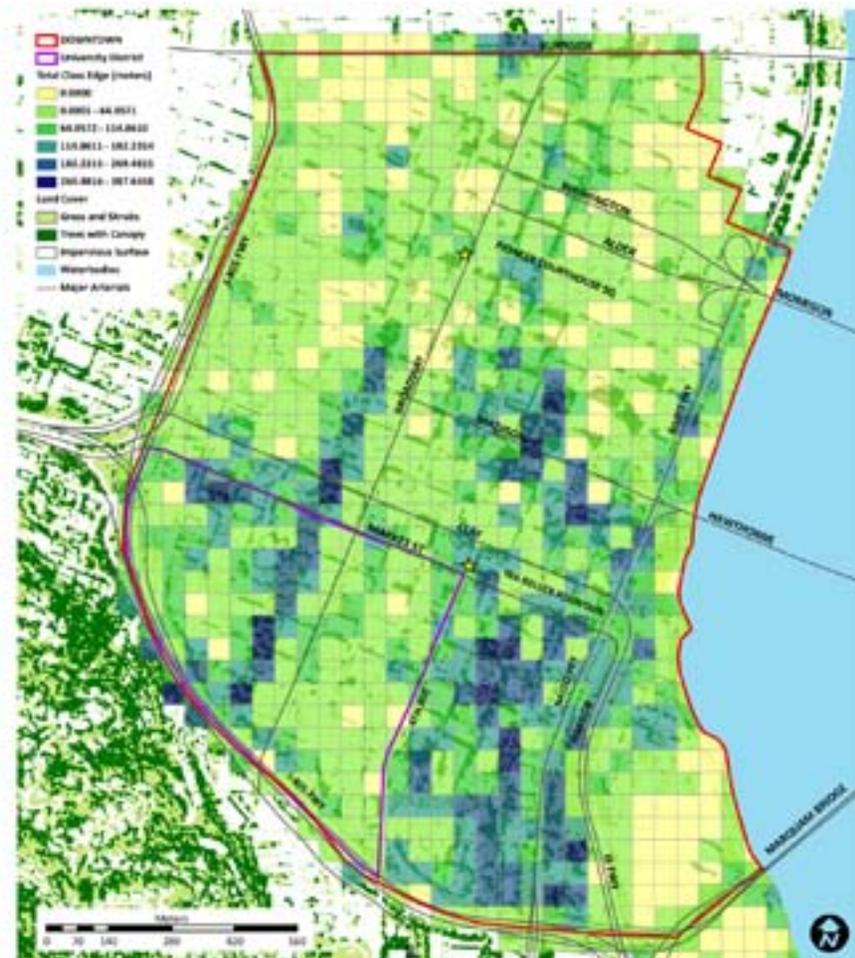
The following focus areas support the habitat + ecosystem function goals:



Habitat + Ecosystem Function



Demonstrates total canopy per 100 meter grid cells. (Darker cells have more canopy.)



Demonstrates fragmentation of vegetation in SoMa at 100 meter grid cells. (Darker cells have more fragmented vegetation).

SUMMARY FINDINGS

Data indicate that SoMa has a tree canopy of 27% that is highly clumped and linear.

Access + Mobility

ECODISTRICT VISION + SOMA GOAL

Provide access to clean and affordable transportation options

CITY GOAL

(1) Create vibrant neighborhoods where 90 percent of Portland residents and 80 percent of Multnomah County residents can easily walk or bicycle to meet all basic daily, non-work needs and have safe pedestrian or bicycle access to transit

(2) Reduce per capita daily vehicle-miles traveled (VMT) by 30 percent from 2008 levels

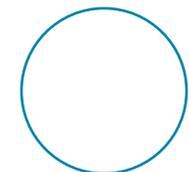
(Portland Climate Action Plan Obj. 5, 6)

POTENTIAL ECODISTRICT STRATEGIES

STRATEGY	BUILDINGS + INFRASTRUCTURE (HARDWARE)	COMMUNITY ACTIONS + PROGRAMS (SOFTWARE)
shift	bicycle facilities bicycle parking pedestrian facilities (side/cross walks) transit facilities (bus, lightrail, streetcar) 20-minute neighborhoods	bike challenge non-SOV district performance monitor education campaign
share	car share facilities bike share facilities pedestrian-oriented development	car share program bike share program district performance monitor education campaign
manage	transportation demand management (parking and zone pricing)	district performance monitor

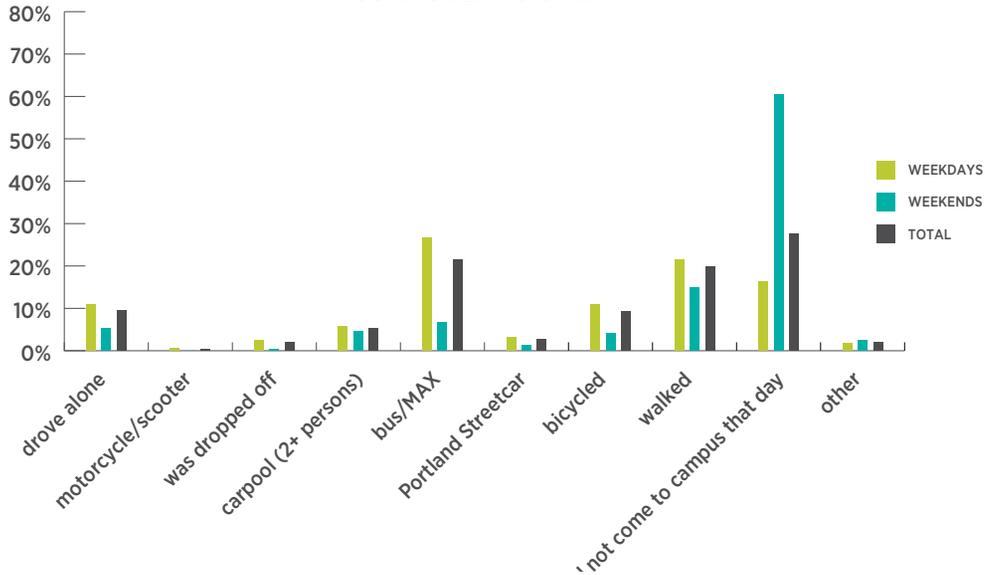
RECOMMENDED SOMA STRATEGIES: FIVE FOCUS AREAS

The following focus areas support the access + mobility goals:

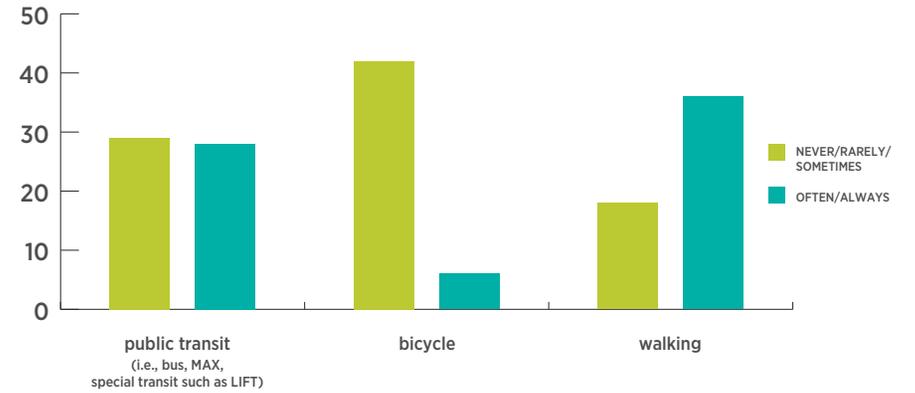


Access + Mobility

HOW DID YOU TRAVEL TO PSU LAST WEEK ?
PSU STUDENTS ONLY



HOW OFTEN DO YOU TRAVEL TO SOMA BY THE FOLLOWING MODE?



SUMMARY FINDINGS

SoMa is well-served by transit and considered quite accessible, but bike and pedestrian infrastructure could be improved.

Energy

ECODISTRICT VISION

Achieve net zero energy usage annually

SOMA GOAL

Reduce energy consumption by 63% by 2035

CITY GOAL

(1) Produce 10 percent of the total energy used within Multnomah County from on-site renewable sources and clean district energy systems. (Portland Climate Action Plan Obj. 1)

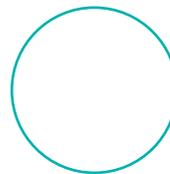
(2) Reduce the total energy use of all buildings built before 2010 by 25 percent. (Portland Climate Action Plan Obj. 3)

POTENTIAL ECODISTRICT STRATEGIES

STRATEGY	BUILDINGS + INFRASTRUCTURE (HARDWARE)	COMMUNITY ACTIONS + PROGRAMS (SOFTWARE)
reduce	new construction performance standard energy conservation retrofits (building) energy conservation retrofits smart grid	energy conservation challenge district performance monitor education campaign
produce	district energy district renewables property renewables	renewables challenge district performance monitor education campaign
offset		green energy offsets education campaign carbon credits

RECOMMENDED SOMA STRATEGIES: FIVE FOCUS AREAS

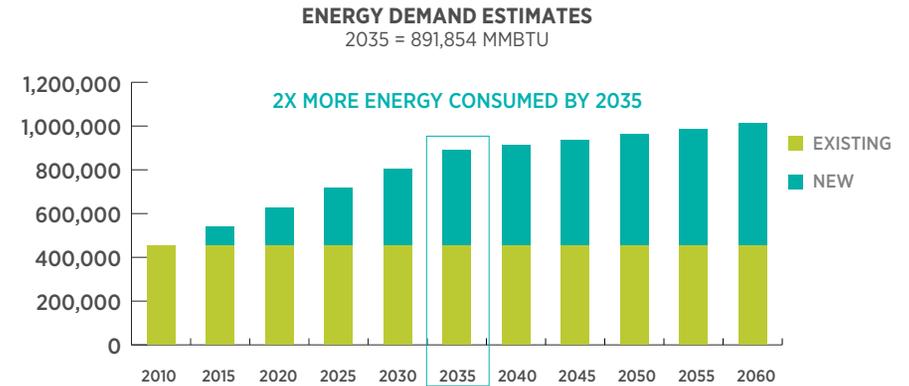
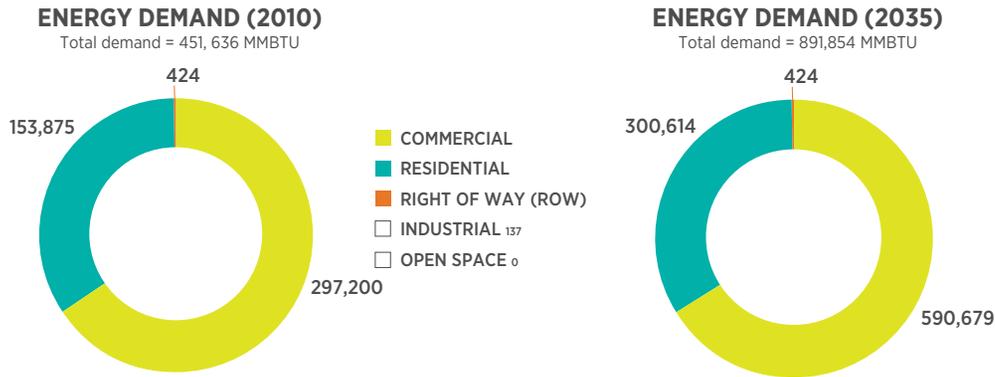
The following focus areas support the energy goals:



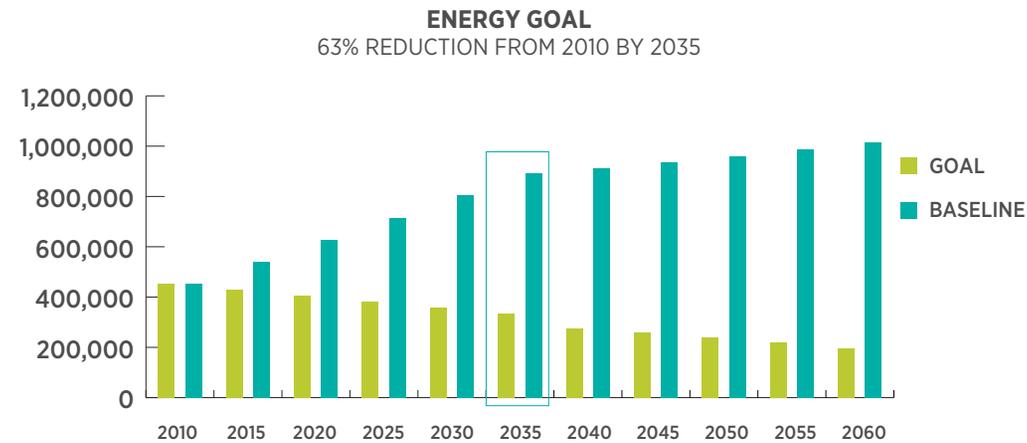
EXISTING PERFORMANCE

Energy

BASELINE + PROJECTED



GOAL



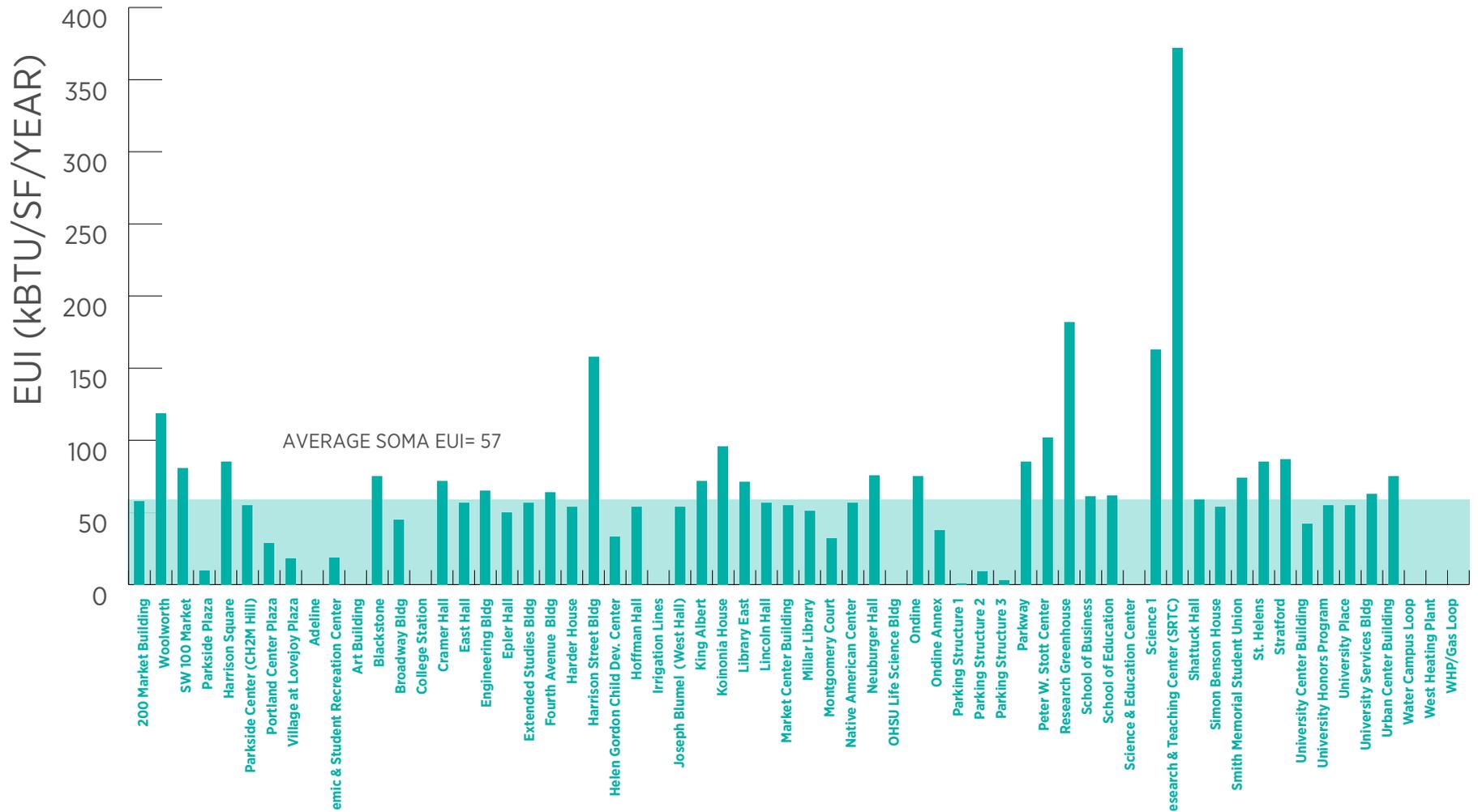
Annual building data was used to estimate building energy use intensity (EUI) including electricity and natural gas. Using EUI and development estimates (as defined on page 20), existing energy demand (2010) and future energy demand (2035) was estimated at approximately 451,636 MMBTUs/year and 891,854 MMBTUs/year respectively. Future energy demand is approximately two-times existing demand because future development was projected to be approximately double existing development. Moreover, existing and future energy demand distribution is the same because the mix of residential and commercial development was assumed to be the same.

SUMMARY FINDINGS

SoMa should focus on existing buildings; it performs similarly to other existing commercial districts in the city.

Energy

BUILDING ENERGY USE INTENSITY (EUI) COMPARISON (2010)

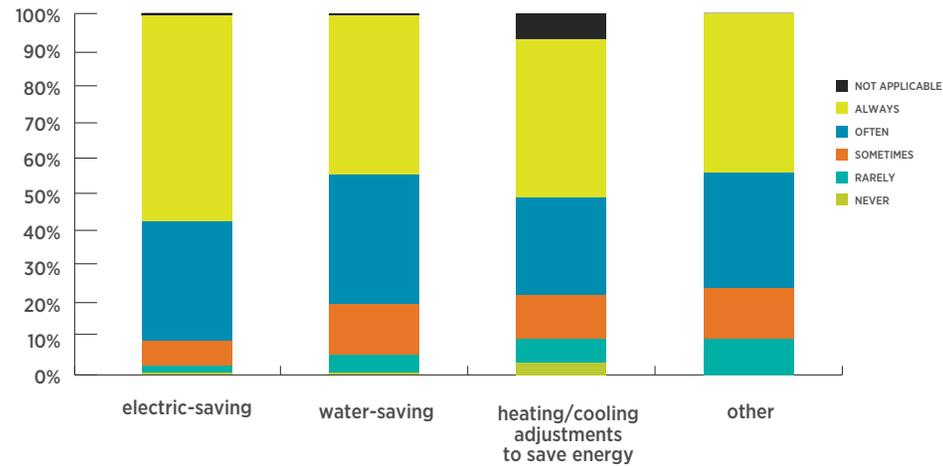


This graph shows a high-level comparison of energy use across buildings in SoMa. Of 62 buildings, 27 are above an average EUI of 57.

Note: Energy use intensity (EUI) considers electricity and natural gas consumption.

Energy

IN YOUR HOME, HOW OFTEN DO YOU ENGAGE IN THE FOLLOWING HABITS?



Electricity-saving habits include turning off lights and unplugging small appliances when not in use. **Water-saving habits** include washing only full loads of dishes and/or clothes, limiting shower time, and using faucet aerators.

For the items that you answered with never, rarely or sometimes, please check the top three reasons that apply to you.

Already doing as much as I can	31%
Options not available to me	28%
Other	20%
Inconvenient	19%
It's what I've always done	14%
Hard to remember	11%
Too busy	10%
Somebody close to me would object	10%
Don't think it's important	10%

For the items that you answered with often or always, please check the top three reasons that apply to you.

It's the right thing to do	76%
Helps the environment	74%
Saves money	74%
Makes me feel good about myself	19%
Somebody or some organization encouraged me	7%
Other	6%
People I care about are doing it	4%
Others approve when I do it	1%

Water

ECODISTRICT VISION

Meet both human and natural needs through reliable and affordable water management.

SOMA GOAL

Reduce water consumption by 51% by 2035

CITY GOAL

Meet all new water demand through reclaimed water and water conservation.

(Portland Watershed Management Plan p. 39)

POTENTIAL ECODISTRICT STRATEGIES

STRATEGY	BUILDINGS + INFRASTRUCTURE (HARDWARE)	COMMUNITY ACTIONS + PROGRAMS (SOFTWARE)
reduce	new construction performance standard water conservation retrofits (building) water conservation retrofits (right of way) stormwater retrofits (building) greenstreet retrofits (right of way)	water conservation challenge stormwater challenge district performance monitor education campaign
reuse	property rainwater harvesting district rainwater harvesting property wastewater reuse district wastewater reuse	water reuse challenge district performance monitor education campaign
reconnect	stormwater retrofits (building) greenstreet retrofits (right of way) district stormwater	stormwater challenge district performance monitor education campaign
offset		water credits education campaign

RECOMMENDED SOMA STRATEGIES: FIVE FOCUS AREAS

The following focus areas support the energy goals:



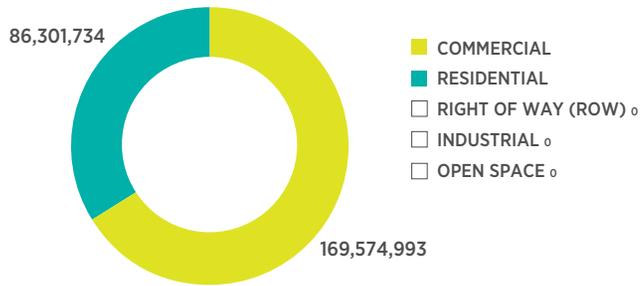
EXISTING PERFORMANCE

Water

BASELINE + PROJECTED

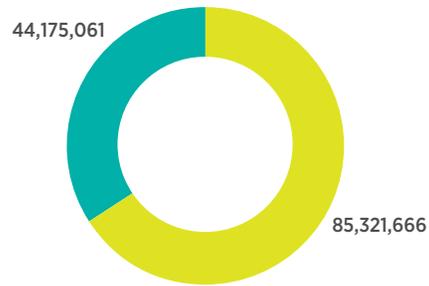
WATER DEMAND (2010)

Total demand = 255.9M

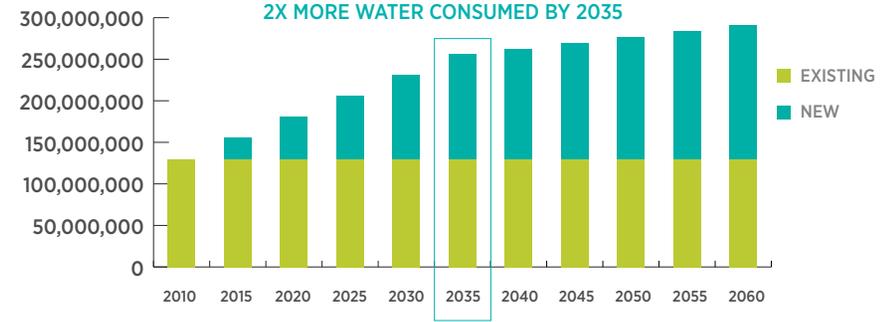


WATER DEMAND (2035)

Total demand = 129.5M

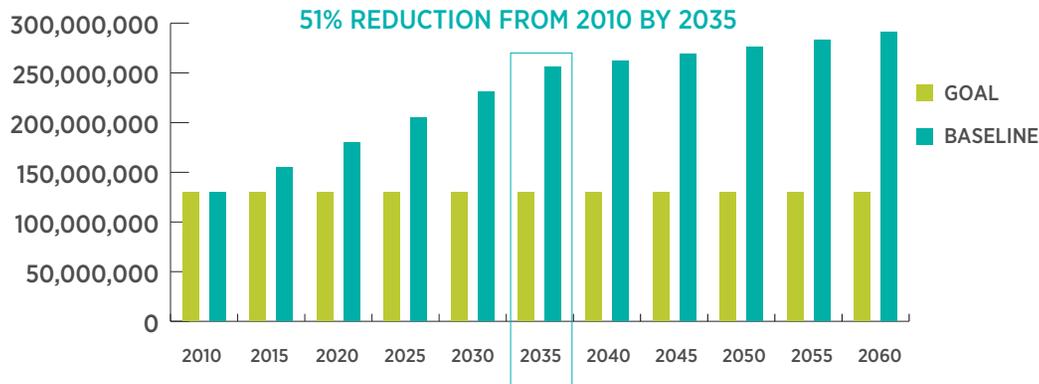


WATER DEMAND ESTIMATES



GOAL

WATER GOAL



Annual building data was used to estimate building water use intensity (WUI). Using WUI and development estimates (as defined on page 20), existing water demand (2010) and future water demand (2035) was estimated at approximately 129.5M gals/year and 255.9M gals/year respectively. As with energy, future water demand is approximately two-times existing demand because future development was projected to be approximately double existing development and existing and future water demand distribution is the same because the mix of residential and commercial development was assumed to be the same.

SUMMARY FINDINGS

Findings showed that water consumption patterns were typical for buildings of this type, and that there are opportunities for savings through retrofits.

Materials Management

ECODISTRICT VISION

Zero waste and optimized materials management

ECODISTRICT GOAL

93% of waste is diverted from landfills by 2035

CITY GOAL

(1) Reduce total solid waste generated by 25%. (2) Recover 90% of all waste generated.

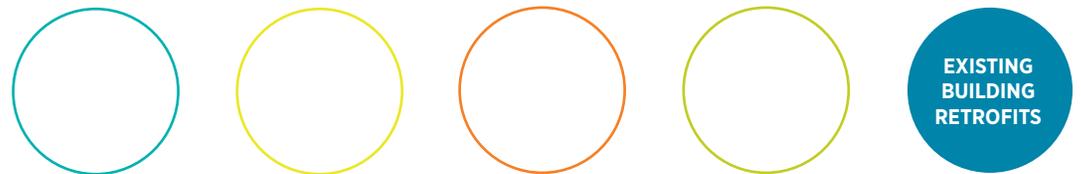
(Portland Climate Action Plan Obj. 10, 11)

POTENTIAL ECODISTRICT STRATEGIES

STRATEGY	BUILDINGS + INFRASTRUCTURE (HARDWARE)	COMMUNITY ACTIONS + PROGRAMS (SOFTWARE)
reduce		district performance monitor education campaign
reuse	materials exchange center	
recycle	waste to energy facility district recycling district composting	

RECOMMENDED SOMA STRATEGIES: FIVE FOCUS AREAS

The following focus areas support the materials management goals:



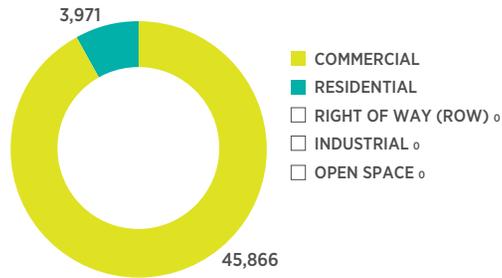
EXISTING PERFORMANCE

Materials Management

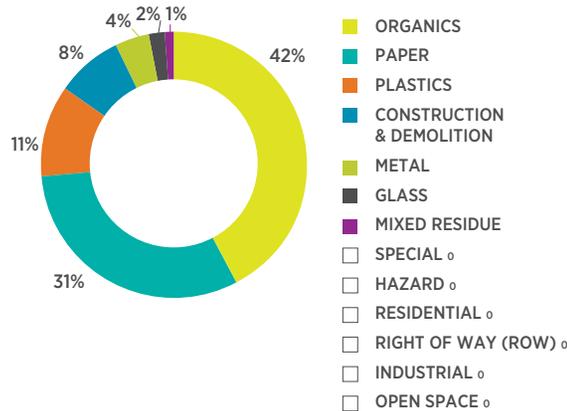
BASELINE + PROJECTED

WASTE GENERATION BY LAND USE (2010)

Total waste = 28,417 tons

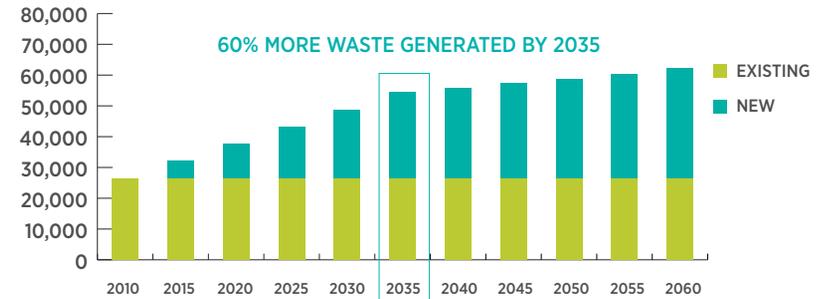


WASTE DISTRIBUTION BY TYPE (2010)



WASTE GENERATION

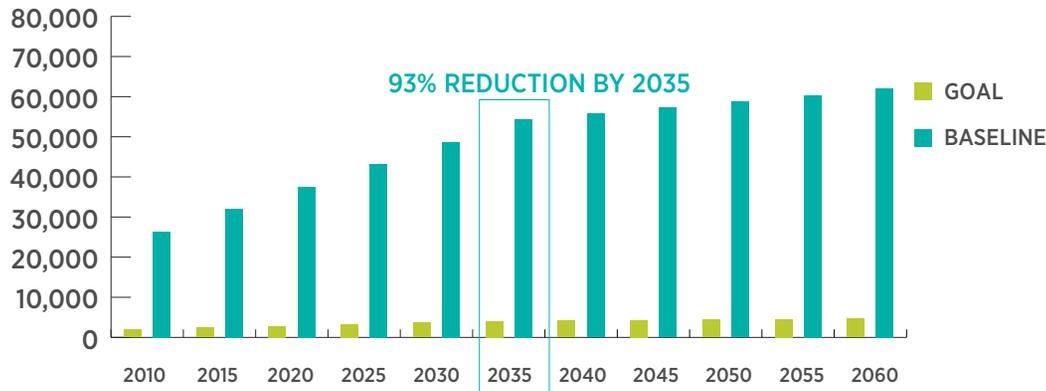
2035 = 54,344 tons



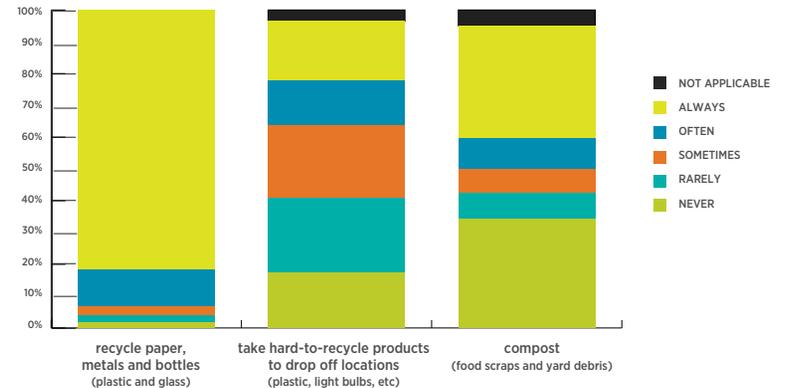
Based on PSU waste collection data, Metro waste generation assumptions and development estimates (as defined on page 20), existing waste generation (2010) and future waste generation (2035) was estimated at approximately 26,417 tons/year and 54,344 tons/year respectively. (Most data came from PSU).

GOAL

WASTE GOAL



IN YOUR HOME, HOW OFTEN DO YOU DO ANY OF THE FOLLOWING?



SUMMARY FINDINGS

Findings showed that a very high percentage of total waste stream is recycled, and that a high diversion rate goal is very attainable.

APPENDICES

APPENDIX A

SoMa Assessment Process Participants

PROJECT TEAM

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Naito Development

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The EcoDistrict Framework

EcoDistricts are neighborhoods or districts where neighbors, community institutions and businesses join with city leaders and utility providers to meet ambitious sustainability goals and co-develop innovative district-scale projects. The Portland Sustainability Institute (PoSI) launched EcoDistricts in 2009 as an initiative to help cities remove implementation barriers and create an enabling strategy to accelerate neighborhood-scale sustainability. Success requires a comprehensive approach that includes active community participation, assessment, new forms of capital and public policy support.

Since 2009, PoSI has created an implementation framework, toolkits, a local pilot program and capacity-building initiative to accelerate widespread deployment. EcoDistricts are achieved through well-scaled projects—projects small enough to innovate quickly and big enough to have a meaningful impact.

District-scale projects, such as district energy, green streets, smart grid, demand management and resource sharing, are well known. However, the widespread deployment of these strategies has been slow to develop due to a lack of comprehensive policy or implementation frameworks at the municipal level.

EcoDistricts are distinct from most green development strategies that focus on brownfield or greenfield development and are led primarily by master developers or public agencies. Instead, EcoDistricts focus on existing neighborhoods as well as traditional development through the powerful combination of public policy, catalytic investments from local municipalities and utilities, private development and the participation of neighbors who are motivated to improve the quality of life and environmental health of their communities. EcoDistricts help neighborhoods achieve ratings like LEED-

ND with a comprehensive set of tools and supporting strategies for community engagement, integrated performance assessment and project implementation.

EcoDistricts create a foundation for a range of strategies that can be applied at several different scales. Within an EcoDistrict, there will be catalytic projects at the site and block scale, as well as larger-scale infrastructure investments.

EcoDistricts bring together neighborhood stakeholders, property developers, utilities and municipalities to create neighborhood sustainability innovation with a range of outcomes, including improved environmental performance, local examples of emerging technologies, equitable distribution of investments, community participation, new patterns of behavior, economic development for local businesses and job creation.

Fundamentally, EcoDistricts are an effort to deploy high-impact, district-scale sustainable projects that drive experimentation and innovation. They are a replicable model for cities to accelerate neighborhood sustainability to achieve city-wide goals.

ECODISTRICT ASSESSMENT

PoSI developed the EcoDistrict Assessment to help guide community EcoDistrict development efforts. The assessment method identifies eight performance areas as well as goals, potential metrics and projects. To achieve the ambitious goals for each performance area, an EcoDistrict assessment is essential to determine the most effective project priorities for a unique district. An assessment enables districts to determine strategies of greatest impact and prioritize their most appropriate projects.

EcoDistrict Phases



EcoDistricts Performance Areas

EQUITABLE DEVELOPMENT

Promote equity and opportunity and ensure fair distribution of benefits and burdens of investment and development.

HEALTH + WELL BEING

Promote human health and community well being.

COMMUNITY IDENTITY

Create cohesive neighborhood identity through the built environment and a culture of community.

ACCESS + MOBILITY

Provide access to clean and affordable transportation options.

ENERGY

Achieve net zero energy usage annually.

WATER

Meet both human and natural needs through reliable and affordable water management.

HABITAT + ECOSYSTEM FUNCTION

Achieve healthy urban ecosystems that protect and regenerate habitat and ecosystem function.

MATERIALS MANAGEMENT

Zero waste and optimized materials management.

APPENDIX C

Additional Data + District Context

SoMa EcoDistrict
Energy Summary

Energy Demand

Development	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Existing Commercial	297,200	297,200	297,200	297,200	297,200	297,200	297,200	297,200	297,200	297,200	297,200
Existing Residential	153,875	153,875	153,875	153,875	153,875	153,875	153,875	153,875	153,875	153,875	153,875
Existing Industrial	0	0	0	0	0	0	0	0	0	0	0
Existing Open Space	137	137	137	137	137	137	137	137	137	137	137
Existing ROW	424	424	424	424	424	424	424	424	424	424	424
New Commercial	0	58,696	117,392	176,087	234,783	293,479	308,153	323,560	339,739	356,725	374,562
New Residential	0	29,348	58,696	88,044	117,392	146,739	154,076	161,780	169,869	178,363	187,281
New Industrial	0	0	0	0	0	0	0	0	0	0	0
New Open Space	0	0	0	0	0	0	0	0	0	0	0
New ROW	0	0	0	0	0	0	0	0	0	0	0
Total	451,636	539,680	627,723	715,767	803,811	891,854	913,865	936,977	961,244	986,724	1,013,479
COM	297,200	355,896	414,592	473,288	531,983	590,679	605,353	620,761	636,939	653,926	671,762
RES	153,875	183,222	212,570	241,918	271,266	300,614	307,951	315,655	323,744	332,237	341,156
IND	0										
Open Space	137										
ROW	424										
Existing	451,636	451,636	451,636	451,636	451,636	451,636	451,636	451,636	451,636	451,636	451,636
New	0	88,044	176,087	264,131	352,175	440,218	462,229	485,341	509,608	535,088	561,843

Carbon Emissions

Development	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Existing Commercial	45,764	45,764	45,764	45,764	45,764	45,764	45,764	45,764	45,764	45,764	45,764
Existing Residential	23,694	23,694	23,694	23,694	23,694	23,694	23,694	23,694	23,694	23,694	23,694
Existing Industrial	0	0	0	0	0	0	0	0	0	0	0
Existing Open Space	28	28	28	28	28	28	28	28	28	28	28
Existing ROW	87	87	87	87	87	87	87	87	87	87	87
New Commercial	0	9,038	18,076	27,114	36,152	45,191	47,450	49,823	52,314	54,929	57,676
New Residential	0	4,519	9,038	13,557	18,076	22,595	23,725	24,911	26,157	27,465	28,838
New Industrial	0	0	0	0	0	0	0	0	0	0	0
New Open Space	0	0	0	0	0	0	0	0	0	0	0
New ROW	0	0	0	0	0	0	0	0	0	0	0
Total	69,573	83,130	96,687	110,244	123,801	137,358	140,748	144,306	148,043	151,967	156,086
COM	45,764	54,802	63,840	72,878	81,916	90,954	93,214	95,586	98,077	100,693	103,439
RES	23,694	28,213	32,732	37,251	41,770	46,289	47,419	48,605	49,851	51,159	52,532
IND	0	0	0	0	0	0	0	0	0	0	0
Open Space	28	28	28	28	28	28	28	28	28	28	28
ROW	87	87	87	87	87	87	87	87	87	87	87
Existing	69,573	69,573	69,573	69,573	69,573	69,573	69,573	69,573	69,573	69,573	69,573
New	0	13,557	27,114	40,671	54,229	67,786	71,175	74,734	78,470	82,394	86,514

Energy Costs

Development	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Existing Commercial	\$5,579,343	\$5,579,343	\$5,579,343	\$5,579,343	\$5,579,343	\$5,579,343	\$5,579,343	\$5,579,343	\$5,579,343	\$5,579,343	\$5,579,343
Existing Residential	\$3,206,128	\$3,206,128	\$3,206,128	\$3,206,128	\$3,206,128	\$3,206,128	\$3,206,128	\$3,206,128	\$3,206,128	\$3,206,128	\$3,206,128
Existing Industrial	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Existing Open Space	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418
Existing ROW	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449
New Commercial	\$0	\$1,101,897	\$2,203,793	\$3,305,690	\$4,407,587	\$5,509,483	\$5,784,957	\$6,074,205	\$6,377,915	\$6,696,811	\$7,031,651
New Residential	\$0	\$611,492	\$1,222,984	\$1,834,476	\$2,445,967	\$3,057,460	\$3,210,333	\$3,370,850	\$3,539,392	\$3,716,362	\$3,902,180
New Industrial	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
New Open Space	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
New ROW	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$8,795,337	\$10,508,726	\$12,222,114	\$13,935,503	\$15,648,892	\$17,362,280	\$17,790,627	\$18,240,392	\$18,712,645	\$19,208,510	\$19,729,169
COM	\$5,579,343	\$6,681,240	\$7,783,136	\$8,885,033	\$9,986,930	\$11,088,826	\$11,364,300	\$11,653,548	\$11,957,258	\$12,276,154	\$12,610,995
RES	\$3,206,128	\$3,817,619	\$4,429,112	\$5,040,603	\$5,652,095	\$6,263,588	\$6,416,461	\$6,576,977	\$6,745,520	\$6,922,490	\$7,108,308
IND	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Open Space	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418	\$2,418
ROW	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449	\$7,449
Existing	\$8,795,337	\$8,795,337	\$8,795,337	\$8,795,337	\$8,795,337	\$8,795,337	\$8,795,337	\$8,795,337	\$8,795,337	\$8,795,337	\$8,795,337
New	\$0	\$1,713,389	\$3,426,777	\$5,140,166	\$6,853,554	\$8,566,943	\$8,995,290	\$9,445,055	\$9,917,307	\$10,413,173	\$10,933,831

Note:
Note: Note rate escalation assumed for electricity or natural gas.

APPENDIX C

Additional Data + District Context

SoMa EcoDistrict
Water Assessment

Water Demand

Development	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Existing Commercial	85,321,666	85,321,666	85,321,666	85,321,666	85,321,666	85,321,666	85,321,666	85,321,666	85,321,666	85,321,666	85,321,666
Existing Residential	44,175,061	44,175,061	44,175,061	44,175,061	44,175,061	44,175,061	44,175,061	44,175,061	44,175,061	44,175,061	44,175,061
Existing Industrial	0	0	0	0	0	0	0	0	0	0	0
Existing Open Space	0	0	0	0	0	0	0	0	0	0	0
Existing ROW	0	0	0	0	0	0	0	0	0	0	0
New Commercial	0	16,850,673	33,701,327	50,552,000	67,402,673	84,253,327	88,465,994	92,889,293	97,533,758	102,410,446	107,530,968
New Residential	0	8,425,327	16,850,673	25,276,000	33,701,327	42,126,673	44,233,006	46,444,657	48,766,889	51,205,234	53,765,496
New Industrial	0	0	0	0	0	0	0	0	0	0	0
New Open Space	0	0	0	0	0	0	0	0	0	0	0
New ROW	0	0	0	0	0	0	0	0	0	0	0
Total	129,496,727	154,772,727	180,048,727	205,324,727	230,600,727	255,876,727	262,195,727	268,830,677	275,797,374	283,112,406	290,793,190
COM	85,321,666	102,172,338	119,022,993	135,873,666	152,724,338	169,574,993	173,787,659	178,210,959	182,855,424	187,732,112	192,852,634
RES	44,175,061	52,600,388	61,025,734	69,451,061	77,876,388	86,301,734	88,408,067	90,619,718	92,941,950	95,380,295	97,940,557
IND	0										
Open Space	0										
ROW	0										
Development	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Existing	129,496,727	129,496,727	129,496,727	129,496,727	129,496,727	129,496,727	129,496,727	129,496,727	129,496,727	129,496,727	129,496,727
New	0	25,276,000	50,552,000	75,828,000	101,104,000	126,380,000	132,699,000	139,333,950	146,300,648	153,615,680	161,296,464

Carbon Emissions

Development	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Existing Commercial	0	0	0	0	0	0	0	0	0	0	0
Existing Residential	0	0	0	0	0	0	0	0	0	0	0
Existing Industrial	0	0	0	0	0	0	0	0	0	0	0
Existing Open Space	0	0	0	0	0	0	0	0	0	0	0
Existing ROW	0	0	0	0	0	0	0	0	0	0	0
New Commercial	0	0	0	0	0	0	0	0	0	0	0
New Residential	0	0	0	0	0	0	0	0	0	0	0
New Industrial	0	0	0	0	0	0	0	0	0	0	0
New Open Space	0	0	0	0	0	0	0	0	0	0	0
New ROW	0	0	0	0	0	0	0	0	0	0	0
Total	0										
Total Commercial	0										
Total Residential	0										
Total Industrial	0										
Total Open Space	0										
Total ROW	0										
Development	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Existing	0	0	0	0	0	0	0	0	0	0	0
New	0	0	0	0	0	0	0	0	0	0	0

Water Costs

Development	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Existing Commercial	\$2,633,027	\$2,633,027	\$2,633,027	\$2,633,027	\$2,633,027	\$2,633,027	\$2,633,027	\$2,633,027	\$2,633,027	\$2,633,027	\$2,633,027
Existing Residential	\$1,363,242	\$1,363,242	\$1,363,242	\$1,363,242	\$1,363,242	\$1,363,242	\$1,363,242	\$1,363,242	\$1,363,242	\$1,363,242	\$1,363,242
Existing Industrial	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Existing Open Space	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Existing ROW	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
New Commercial	\$0	\$520,012	\$1,040,023	\$1,560,035	\$2,080,046	\$2,600,058	\$2,730,061	\$2,866,564	\$3,009,892	\$3,160,386	\$3,318,406
New Residential	\$0	\$260,006	\$520,012	\$780,017	\$1,040,023	\$1,300,029	\$1,365,031	\$1,433,282	\$1,504,946	\$1,580,194	\$1,659,203
New Industrial	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
New Open Space	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
New ROW	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$3,996,269	\$4,776,286	\$5,556,304	\$6,336,321	\$7,116,338	\$7,896,356	\$8,091,360	\$8,296,115	\$8,511,107	\$8,736,849	\$8,973,878
Total Commercial	\$2,633,027	\$3,153,038	\$3,673,050	\$4,193,061	\$4,713,073	\$5,233,084	\$5,363,087	\$5,499,590	\$5,642,918	\$5,793,413	\$5,951,432
Total Residential	\$1,363,242	\$1,623,248	\$1,883,254	\$2,143,260	\$2,403,265	\$2,663,271	\$2,728,273	\$2,796,524	\$2,868,189	\$2,943,436	\$3,022,446
Total Industrial	\$0										
Total Open Space	\$0										
Total ROW	\$0										
Development	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Existing	\$3,996,269	\$3,996,269	\$3,996,269	\$3,996,269	\$3,996,269	\$3,996,269	\$3,996,269	\$3,996,269	\$3,996,269	\$3,996,269	\$3,996,269
New	\$0	\$780,017	\$1,560,035	\$2,340,052	\$3,120,069	\$3,900,087	\$4,095,091	\$4,299,846	\$4,514,838	\$4,740,580	\$4,977,609

Note:
No escalation assumed for water, sanitary and stormwater rates.

APPENDIX C

Additional Data + District Context

Development Assumptions

Land Use Type	Ownership	Area		2010		2015		2020		2025		2030		2035		2040		2045		2050		2055		2060	
		Acre	%	SF	%	SF	%	SF	%	SF	%	SF	%	SF	%	SF	%	SF	%	SF	%	SF	%	SF	%
Existing Development																									
Commercial	Private	63.0	36%	4,793,352	66%	4,793,352	66%	4,793,352	66%	4,793,352	66%	4,793,352	66%	4,793,352	66%	4,793,352	66%	4,793,352	66%	4,793,352	66%	4,793,352	66%	4,793,352	66%
Residential	Private	16.0	9%	2,481,745	34%	2,481,745	34%	2,481,745	34%	2,481,745	34%	2,481,745	34%	2,481,745	34%	2,481,745	34%	2,481,745	34%	2,481,745	34%	2,481,745	34%	2,481,745	34%
Industrial	Private	0.0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Open Space	Public	37.0	21%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Right of Way	Public	57.0	33%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Total		173.0	100%	7,275,097	100%	7,275,097	100%	7,275,097	100%	7,275,097	100%	7,275,097	100%	7,275,097	100%	7,275,097	100%	7,275,097	100%	7,275,097	100%	7,275,097	100%	7,275,097	100%
New Development																									
Commercial	Private	63.0	36%	0	0%	946,667	67%	1,893,333	67%	2,840,000	67%	3,786,667	67%	4,733,333	67%	4,970,000	67%	5,218,500	67%	5,479,425	67%	5,753,396	67%	6,041,066	67%
Residential	Private	16.0	9%	0	0%	473,333	33%	946,667	33%	1,420,000	33%	1,893,333	33%	2,366,667	33%	2,485,000	33%	2,609,250	33%	2,739,713	33%	2,876,699	33%	3,020,533	33%
Industrial	Private	0.0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Open Space	Public	37.0	21%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Right of Way	Public	57.0	33%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Total		173.0	100%	0	0%	1,420,000	100%	2,840,000	100%	4,260,000	100%	5,680,000	100%	7,100,000	100%	7,455,000	100%	7,827,750	100%	8,219,138	100%	8,630,094	100%	9,061,599	100%
Development Summary																									
Commercial	Private	63.0	36%	4,793,352	66%	5,740,019	66%	6,686,685	66%	7,633,352	66%	8,580,019	66%	9,526,685	66%	9,763,352	66%	10,011,852	66%	10,272,777	66%	10,546,748	66%	10,834,418	66%
Residential	Private	16.0	9%	2,481,745	34%	2,955,078	34%	3,428,412	34%	3,901,745	34%	4,375,078	34%	4,848,412	34%	4,966,745	34%	5,090,995	34%	5,221,458	34%	5,358,444	34%	5,502,278	34%
Industrial	Private	0.0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Open Space	Public	37.0	21%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Right of Way	Private	57.0	33%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Total		173.0	100%	7,275,097	100%	8,695,097	100%	10,115,097	100%	11,535,097	100%	12,955,097	100%	14,375,097	100%	14,730,097	100%	15,102,847	100%	15,494,235	100%	15,905,191	100%	16,336,696	100%

- Notes:
 1. Existing development assumptions based on Metro RLIS and PSU data.
 2. Future development assumptions based on PSU Framework Plan.

APPENDIX C

Additional Data + District Context

Table 1: Comparison of Canopy, Non-Canopy Vegetation, and Impervious Surface as a Percentage of Total Landscape between the four study areas (NoMa, SoMa, Downtown and Portland)

Area Name	Total Area (sqft)	Canopy % of landscape	Non-canopy veg % of landscape	Impervious surface % of landscape
SoMa	7,525,093	28.3%	5.3%	62.8%
NoMa	16,206,228	15.2%	5.3%	80.5%
Downtown	23,731,321	19.3%	5.3%	74.9%
Portland*	2,919,431,923	32.2%	23.9%	43.4%

*Portland statistics include whole city minus the Downtown area (i.e. SoMa and NoMa).

Data Source: LIDAR data (remote sensing), Metro, 2007

Table 2: Comparison of Population Size, Racial Composition, Income Levels and Household Status between 4 Comparison Study Areas (SoMa, NoMa, Downtown and Portland)

Population Group	Population	RACE (%)				INCOME (IN 2000 DOLLARS)		HOUSEHOLD STATUS
		White	Hispanic	Black Pop	Asian	Median household income	Per capita income	% Households renter occupied
SoMa residents	3,590	79	4	3	12	\$22,170	\$22,630	91
NoMa residents	6,360	78	6	8	5	\$14,380	\$13,280	96
Downtown residents	9,950	78	5	6	8	\$17,190	\$17,630	94
Portland* residents	452,821	78	6	7	6	\$39,850	\$28,480	51

*Portland statistics include whole city minus the Downtown area (i.e. SoMa and NoMa).

Data Source: U.S. Census 2000

Table 3: Comparison of Gender Composition, Age Composition and Educational Attainment between 4 comparison Study Areas (SoMa, NoMa, Downtown and Portland)

Population Group	Population	GENDER (%)		AGE GROUP (%)				HIGHEST LEVEL OF EDUCATION (%)				
		Male	Female	17 & under	18-44	45-60	61+	High School	Some College	Assoc. Degree	Bachelor's Degree	Graduate Degree +
SoMa residents	3,590	51	49	3	59	16	23	17	25	15	30	37
NoMa residents	6,360	68	32	3	55	25	16	19	27	5	16	6
Downtown residents	9,950	61	39	3	57	22	19	18	26	8	21	17
Portland* residents	452,821	50	50	17	50	19	14	10	25	6	24	12

*Portland statistics include whole city minus the Downtown area (i.e. SoMa and NoMa).

Data Source: U.S. Census 2000

Table 4: Comparison of Total Area, Multi-Family Residential, Single Family Residential, Commercial and Industrial Land Use patterns, as well as Road-to-Block Area ratio, between the 4 Study Areas (NoMa, SoMa, Downtown and Portland)

Area Name	Block Area (Foot Prints, Million SqFt)	MFR % (Building Footprint)	MFR FAR (Built-up Density)	SFR % (Building Footprint)	SFR FAR (Built-Up Density)	COM % (Building Footprint)	COM FAR (Built-up Density)	IND % (Building Footprint)	IND FAR (Built-up Density)	Road Area:Block Area
SoMa	7.5	8.9	3.7	0.6	0.6	36.3	1.8	0.0	N/A	0.33
NoMa	16.2	8.0	3.7	0.0	1.3	37.4	4.3	0.2	0.0	0.38
Downtown	23.7	8.5	3.7	0.2	0.7	37.0	3.5	0.2	0.0	0.36
Portland*	2,919.4	2.7	0.7	34.6	0.2	13.5	0.3	5.8	0.3	0.21

*Portland statistics include whole city minus the Downtown area (i.e. SoMa and NoMa).

Data Source: Regional Land Use Information System (RLIS), November 2011

Additional Data + District Context

Table 1: Demographic comparison of Survey respondents (survey data) vs. SoMa population (2000 Census)

* Gender composition percentages for survey respondents may not add up to 100% as response options included “other” or “prefer not to answer” in addition to “male” and “female”
 ** Age group percentages for the resident populations in SoMa, NoMa, Downtown and Portland are estimates based on composites of original age-group data from the 2000 Census. Because different age groupings were used to collect respondent data than for the Census, new age groups were created by adding one or more age group together, and splitting one age group in half (attributing half of its population to the adjacent younger age group and half to the adjacent older age group). This assumes a normal distribution for that age group category (i.e. there is as much likelihood that people in that age group fall into the younger half of the group as there is that they fall into the older half).
 *As per humans subject protocol, only those self-reporting as aged 18 and over were asked to take survey
 **Includes all of Portland except SoMa and NoMa (i.e. Downtown)

RESPONSE GROUP	# OF RESPONDENTS IN GROUP	% OF TOTAL RESPONDENTS IN THIS GROUP
Live in SoMa	66	18%
Go to school in SoMa	190	53%
Work in SoMa*	123	34%
Own property in SoMa	12	3%
Visit SoMa	124	34%
Other	23	6%
TOTAL	361**	

*Doesn't count student employees or research assistants

**Because respondents were able to select all groups they felt applied to them, the number of TOTAL RESPONDENTS will be less than the sum of the groups' respondent numbers. The average number of groups belonged to by respondents was approximately 1.4

	Pop. (2000 Census)	GENDER (%)*		AGE GROUP (%)**				HIGHEST LEVEL OF EDUCATION (%)					RACE (%)			
		M	F	17 & under	18-44	45-60	61+	H.S.	Some Coll.	Assoc. Degree	Bach. Degree	Grad Degree +	White	Hispanic	Black	Asian
All survey respondents	361	32	64	n/a [†]	73	18	10	2	23	7	38	26	76	6	1	4
Respondents living in SoMa	66	43	53	n/a [†]	77	14	10	2	38	9	26	21	81	6	0	2
SoMa population	3,590	51	49	3	59	16	23	17	25	15	30	37	79	4	3	12
NoMa population	6,360	68	32	3	55	25	16	19	27	5	16	6	78	6	8	5
Downtown population	9,950	61	39	3	57	22	19	18	26	8	21	17	78	5	6	8
Portland population ^{†*}	452,821	50	50	17	50	19	14	10	25	6	24	12	78	6	7	6

