

# Streetscape Design Toolkit

ST. HELENS - RIVERFRONT CONNECTOR PLAN

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KITTELSON & ASSOCIATES, INC.  
TRANSPORTATION ENGINEERING/PLANNING



**PROJECT MANAGEMENT TEAM (PMT)**

Jacob Graichen, City of St. Helens  
Matt Hastie, Angelo Planning Group  
Matt Bell, Kittelson & Associates  
Mike Faha, GreenWorks  
Andrew Holder, GreenWorks

**PROJECT ADVISORY COMMITTEE (COOLPPL)**

Scott Jensen, Port of St. Helens - Planner  
Nichole Perry, Resident  
Lonny Welter, Columbia County - Transportation Planner  
Julie Stenberg, Resident  
Sue Nelson, City of Public Works - Engineering Director  
Neal Sheppard, City of Public Works - Operations Director  
John Walsh, City of St. Helens - Administrator  
Rick Scholl, City of St. Helens - Mayor  
Ginny Carlson, City of St. Helens - Councilor  
Jacob Graichen, City of St. Helens - Planner  
Jenny Dimsho, City of St. Helens - Associate Planner

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## About This Report

A successful streetscape is a place that helps foster strong, livable communities, is physically comfortable and safe, bolsters economic growth and stability, and helps improve our environment. It is accessible to everyone, it can facilitate chance meetings, and it promotes activities that bring people together. It should accommodate different modes of transportation and ease traffic congestion. It should reflect the spirit and identity of a community.

This document is intended to be used as a project resource to spark creative ideas for developing planning, design, and implementation standards to facilitate the orderly redevelopment of the St. Helens project area as a well-connected, inviting, safe and sustainable multi-modal facility.

The document provides the user with a Streetscape Design Toolkit, which is broken into five sections: Traffic Calming Features, Pedestrian Amenities, Bicycle Facilities, Civic Identity and Wayfinding, and Green Street Strategies. Each of these sections provide descriptions and photos of physical elements that, when used together, can make a great street.

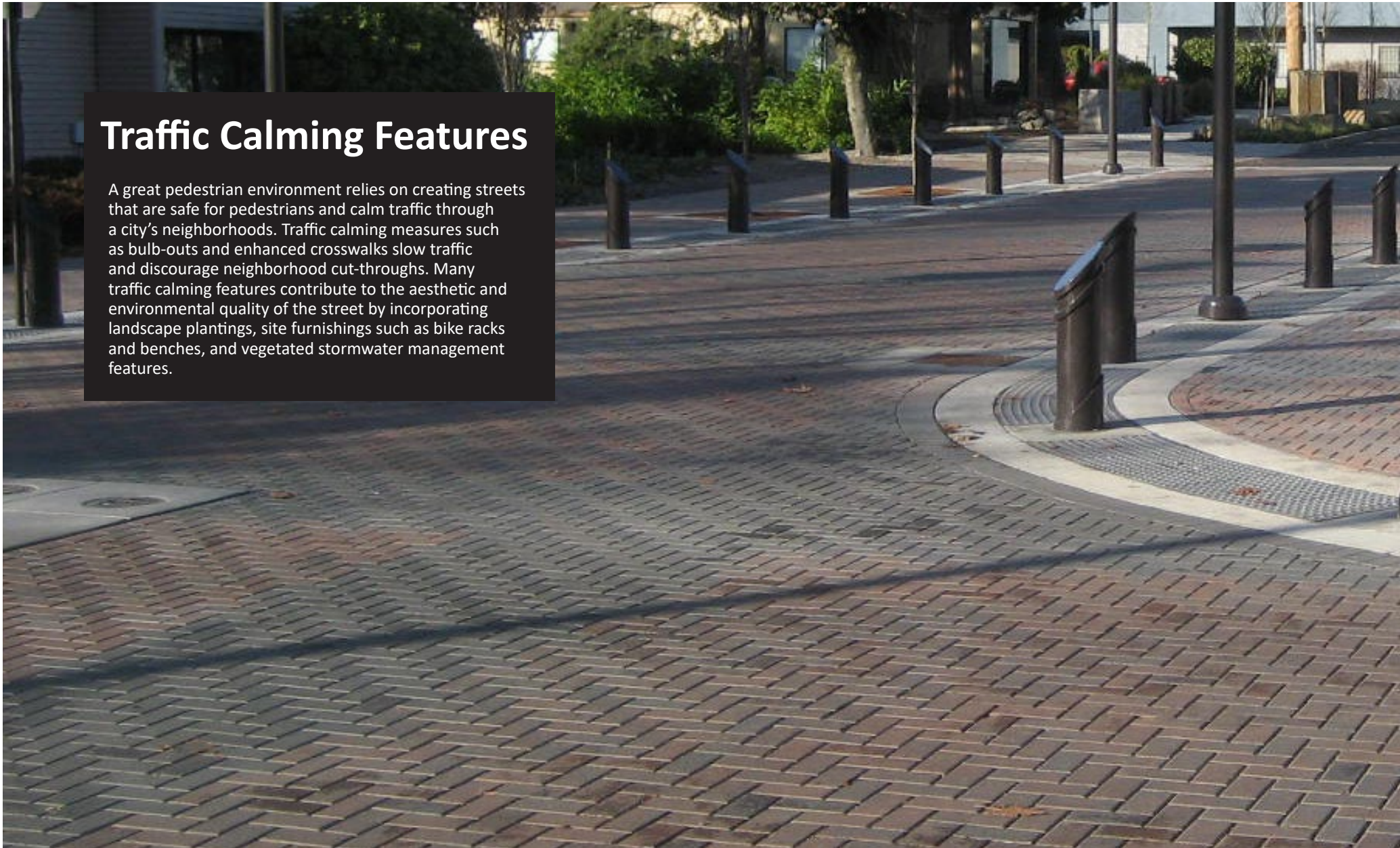
# Streetscape Design Toolkit

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## Traffic Calming Features

A great pedestrian environment relies on creating streets that are safe for pedestrians and calm traffic through a city's neighborhoods. Traffic calming measures such as bulb-outs and enhanced crosswalks slow traffic and discourage neighborhood cut-throughs. Many traffic calming features contribute to the aesthetic and environmental quality of the street by incorporating landscape plantings, site furnishings such as bike racks and benches, and vegetated stormwater management features.





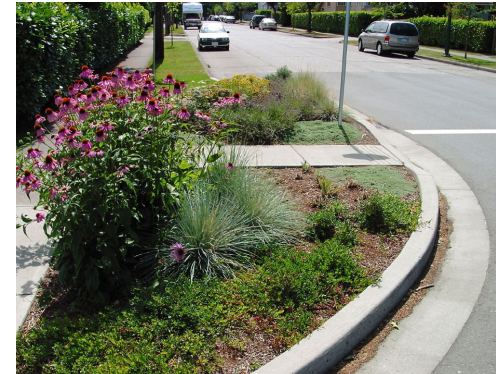
## Curb Extensions (Bulb-Outs)

Curb extensions (also known as bulb-outs) extend the sidewalk into the parking lane to narrow the roadway and provide additional pedestrian space at critical locations. They improve pedestrian safety by increasing pedestrian visibility, slowing vehicular traffic, and shortening crossing distance.

Curb extensions can be located at street corners, or mid-block, and can be lengthened along the roadway to increase usable public space for community gathering and socializing. They can also accommodate transit shelters, benches, landscaping, and other pedestrian furnishings and amenities.

Other additional benefits of curb extensions include a reduction in illegally parked cars at corners and crosswalks, an increased ability to provide two curb ramps per corner, and potential for tightening corner curb radii that slow turning vehicles.

Many potential locations for curb extensions exist throughout the project area, primarily at block corners. Strategic planning could determine feasible mid-block curb extension locations. Curb extensions are only appropriate on streets with on-street parking.



*Neighborhood planter in curb extension*



*Bulb-out with stormwater facility and crosswalk*



*Landscaping and signage in bulb-out*



*Seating area located in curb extension*



# Mid-Block Crossings

Streets with long block faces and widely-spaced intersections sometimes limit crossing opportunities for pedestrians. Mid-block crossings can provide convenient crossing opportunities for pedestrians when other crossing opportunities are distant, or where a destination creates a high crossing demand.

Mid-block crossings should be highly visible, and employ markings or materials with high contrast that clearly delineate the edge of the pedestrian zone. Signage and/or signalization, flashing beacons, or other special treatments like special paving materials or raised crossings help increase visibility of crossings.

Site specific analysis and planning would determine feasible locations for mid-block crossings throughout the project area, and should consider whether it could contribute to traffic congestion or delay issues.



Change of materials in crosswalk area



Creative use of paint at crossing



Striping and material change to indicate crossing



Bollards, stone markers and the use of brick makes a mid-block crossing in Lake Oswego, OR more noticeable

## Crosswalk Enhancements

Special paving materials, articulated scoring patterns, integral concrete colors, bollards, lighting, and landscape plantings can significantly enhance the pedestrian experience along a streetscape. These enhancements visually break the monotony of asphalt streets, extend the pedestrian realm, and highlight key civic and commercial areas.

Enhancements should use textures, patterns, and colors to articulate the crossings, but should be slip-resistant, and avoid creating an uncomfortable surface for those using wheelchairs or other mobility devices. Pedestrian crossings should be designed and constructed with paving materials that contrast in color and texture to clearly designate pedestrian paths of travel.



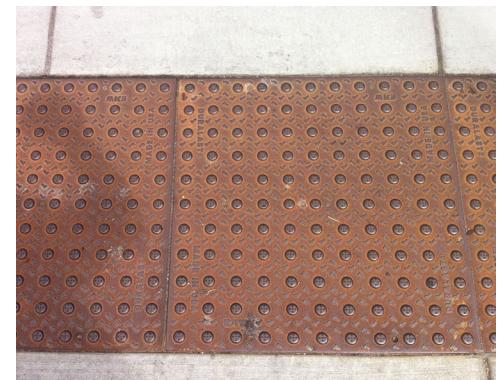
*Brick, striping, signage and planters to indicate crossing*



*Crosswalk enhanced with creative use of color*



*Brick and paving bands suggest a change of conditions*



*Detectable warning*

## Intersection Treatments

Like crosswalk enhancements, intersection treatments can highlight key civic and commercial locations. They can include special paving materials, color, and patterns, and can be combined with crosswalk enhancements.

Since they are typically more costly to build than standard roadway treatments, intersection treatments could be considered at key locations important to a city grid pattern, along commercial corridors at key intersections, at mid-block crosswalks, or at key civic locations such as civic buildings or entrances to open spaces.



*Decorative intersection in Seattle, WA*



*Change of materials at intersection in Washougal, WA*



*Intersection treatment in Eugene, OR*



*Change of color and materials mark this intersection*

## Roundabouts

Roundabouts can improve safety, reduce congestion, encourage a steady flow and calm traffic, relative to stop-controlled intersections. Roundabouts consist of a center island that vehicles drive clockwise around at a slow speed until they reach their desired exit. The raised center island is an ideal location for landscaping, art or a gateway monument.

Because of their design, roundabouts significantly reduce the speed at which traffic travels, decrease the need to install signaled four-way intersections and decrease the likelihood of head-on collisions. Roundabouts can be designed to accommodate trucks with trailers and other large vehicles.

Pedestrians benefit from roundabouts due to the shorter crossing distances, reduced waiting times to cross, and the need to cross only one direction of traffic at a time. Bicycle users and pedestrians both benefit from increased yielding rates, and all users benefit from reduced frequency and severity of crashes.



*Sculptural art in roundabout*



*Art and landscaping featured in a roundabout located in Bend, OR*



*Landscaping in roundabout*



*Rural roundabout in Oregon City, OR*



Marked crosswalk

## Marked Crosswalks

Marked crosswalks are painted roadway markings that indicate the location of a crosswalk to motorists. Marked crosswalks can be accompanied by signs, curb extensions and/or median refuge islands, and may occur at intersections or at mid-block locations. Research has shown that marked crosswalks in certain situations do not improve pedestrian safety and can even make it worse. Recent research indicates that on multi-lane roadways (more than two lanes), marked crosswalks should not be installed without accompanying treatments, such as Rectangular Rapid Flash Beacons (RRFBs) or Pedestrian Hybrid beacons.



Crossing with Rectangular Rapid Flashing Beacon

## Rectangular Rapid Flashing Beacon (RRFB)

RRFBs are user-actuated amber lights that have an irregular flash pattern similar to emergency flashers on police vehicles. These supplemental warning lights are used at unsignalized intersections or mid-block crosswalks to improve safety for pedestrians using a crosswalk. RRFBs could be used at any unsignalized intersection or mid-block crossing that warrants require a higher level of crosswalk protection.



Crossing with Pedestrian Hybrid Beacon

## Pedestrian Hybrid Beacon

A Pedestrian Hybrid Beacon (sometimes called a HAWK signal) is a user-actuated signal that is unlit when not in use. It begins with a yellow light alerting drivers to slow, and then displays a solid red light requiring drivers to remain stopped while pedestrians cross the street. The beacon then shifts to flashing red lights to signal that motorists may proceed, after stopping, and after pedestrians have completed their crossing. A Pedestrian Hybrid Beacon can be used at mid-block crossings or, in some cases, at unsignalized intersections (the MUTCD suggests that the beacons be located at least 100-feet from an intersection). Pedestrian Hybrid Beacons could be used at any unsignalized intersection or mid-block crossing where warrants require a higher level of crosswalk protection.

## Other Traffic Controls

### Traffic Signals

Traffic signals allow opposing streams of traffic to proceed in an alternating pattern. National and state guidance indicates when it is appropriate to install traffic signals at intersections. When used, traffic signals can effectively manage high traffic volumes and provide dedicated times in which pedestrians and bicyclists can cross roadways. Because they continuously draw from a power source and must be periodically re-timed, signals typically have higher maintenance costs than other types of intersection control. Signals can improve safety at intersections where signal warrants are met, however, they may result in an increase in rear-end crashes compared to other solutions. Signals have a significant range in costs depending on the number of approaches, how many through and turn lanes each approach has, and, if it is in an urban or rural area. The cost of a new traffic signal ranges from approximately \$450,000 in rural areas to \$850,000 in urban areas.



Intersection with traffic signal

## Pedestrian Amenities

Streetscape enhancements like special sidewalk paving, street furnishings, pedestrian-scale lighting, and awnings or building overhangs are important features for pedestrians to feel welcome and that the street is a comfortable place to be. Building overhangs and awnings additionally provide protection from the elements during the wet season. These kinds of amenities add functionality and vitality to the pedestrian realm, and provide visual interest. A vibrant pedestrian realm can increase public safety, enhance the value of adjacent real estate, and sustain the health of local businesses. These kinds of streetscape features can be installed by the City, neighborhood or local business associations, or by individual property owners.





## Sidewalk Paving Materials: Concrete

Concrete sidewalks continue to be the default sidewalk surfacing employed in most right-of-way development projects throughout the United States. Compared to asphalt, concrete is comparable in cost, is more durable and attractive than asphalt, can be formed and scored in virtually any pattern, and is more reflective and, therefore, does not contribute as much to urban heat islands.

Additionally, concrete paving can be articulated with different textured finishes (stamped, lightly broomed, floated, exposed aggregate, etc.), which also add a degree of slip-resistance. Integral color concrete is another method for highlighting special pavement areas.

Concrete sidewalks are appropriate throughout the entire project area, though specially articulated concrete is most appropriate along downtown, commercial, and other special or small streets.



*Integral color concrete bands*



*Scored concrete paving*



*Concrete and aggregate paving*



*Decorative concrete paving*



## Sidewalk Paving Materials: Unit Pavers

Special paving treatments can significantly enhance the aesthetics of public spaces in a city, give circulation areas a strong sense of place, and establish a hierarchy of public spaces.

Unit pavers can be selected from a range of options, and include natural stone pavers, concrete unit pavers, asphalt pavers, and clay brick pavers. All of these pavers are typically available in a number of different shapes, colors, and textures. Regardless of the material, unit pavers are typically installed in either sand-set or mortar-set applications.

Permeable concrete unit pavers can provide both functional and aesthetic appeal in that they can help manage and treat stormwater runoff. These pavers often have wider joints and thus a more variable surface and should be avoided along primary public circulation routes.

Unit pavers could be employed in a variety of configurations and at a number of different locations in sidewalks and crosswalks throughout the project area.



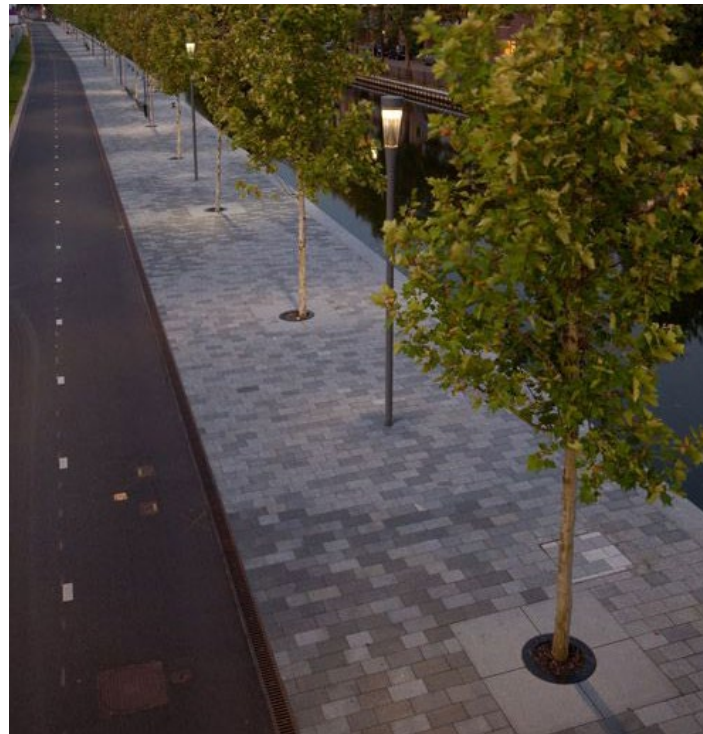
*Concrete unit pavers and cobblestones*



*Brick unit pavers*



*Natural stone unit pavers*



*Clay brick pavers*



*Concrete and stone unit pavers*

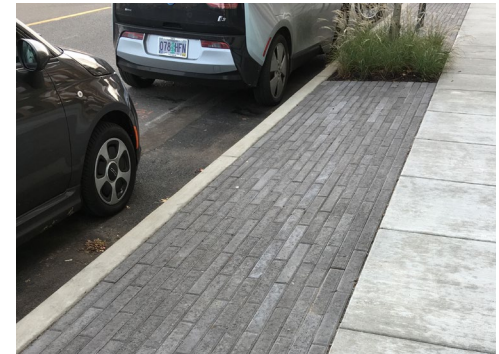
## Sidewalk Paving Materials: Combinations

Utilizing special paving treatments like unit pavers or stamped/colored concrete, with standard concrete is another effective tool in improving the sidewalk aesthetics and creating sense of place in public areas while minimizing costs. The combinations can be employed to create a pattern that helps to break up the scale of larger streets to a more pedestrian-scaled experience. The pattern can be informed by other repetitious streetscape elements such as street trees and seating areas, or can help to reinforce a “theme” established in certain downtown districts.

Paving surfaces that integrate unit pavers into the design and layout must address potential ADA-related issues regarding slip or trip hazards, potential for vibratory effects on those in wheelchairs, and clarity of the paving surface for those with visual impairment.



*Brick and concrete paving*



*Concrete and unit pavers*



*Unit pavers and concrete paving in Pendleton, OR*



*Brick and concrete paving*

## Sidewalk Paving Materials: Artistic

Pavement with innovative and artistic patterns stamped or painted on the surface can highlight significant civic and/or cultural locations, create a varied and pleasant pedestrian experience, and be expressive of a city’s historical or cultural heritage or physical setting.



Stamped concrete paving



Painted asphalt



Stamped concrete paving



Stenciled concrete paving

## Pedestrian Lighting

Pedestrian lighting primarily functions to illuminate pedestrian areas such as sidewalks, are less than 18' tall, and typically supplements roadway lighting, which is oriented towards illuminating the roadway, intersections, and crosswalks.

There are a number of benefits associated with pedestrian lighting in the public right-of-way. It can be a key organizing streetscape element that defines a positive daytime and nighttime character of public urban spaces. Well-lit streetscapes can extend the hours that a business district is active, which can promote economic growth and stability. It can provide for better visibility and safety during nighttime hours, improving safety for vehicles and pedestrians. Additionally, it can encourage walking as part of an active lifestyle, and improve access to transit and other services.

The styles and designs of pedestrian light poles and fixtures are virtually limitless, and can help reinforce a neighborhood, district or civic identity.

Pedestrian lighting can be implemented to help bring the scale down to a pedestrian level in the project areas, encouraging pedestrians to engage with their environment, defining pedestrian routes, and increasing safety.



*Traditional light fixture in furnishing zone*



*Custom light fixture in Sisters, OR*



*Modern light fixture*

# Seating: Benches & Seatwalls

An abundance of pedestrian seating fixtures and seating areas along a streetscape creates a comfortable, usable, and active public realm where people can meet and socialize, rest, read, or people-watch. It is a fairly simple and straightforward element that can significantly help to create a sense of place, and encourages people to linger, which is a definitive characteristic of a successful streetscape.

Benches are typically “off the shelf” products purchased from manufacturers in multiple quantities, and are distributed evenly along a streetscape corridor outside of a path of travel, or clustered at a determined special location. They can be made out of wood, metal, precast concrete, or stone, or customized in a variety of ways as a functional art element, or to help reinforce a civic or neighborhood identity. Often times the style of bench in a downtown district belongs to a larger “family” of site furnishings, which include lighting, bike racks, bollards, and waste receptacles that, when used collectively, further unify a streetscape. In other areas, individual benches may be more unique and feature artistic seating created specifically by and for the community of St. Helens. Examples of custom benches can be found in St. Helens along Columbia Blvd. and St. Helens St.

Seatwalls are typically constructed with a concrete or concrete masonry unit (CMU) base, and can either have an articulated concrete surface, or be clad with other materials such as wood, stone, or precast concrete slabs. They can also be very expressive, and can be functional artistic elements in the landscape that help define pedestrian seating areas. Seating surfaces with dark colors or rough materials should be avoided.

Benches and seatwalls are appropriate along corridor segments, and should be located outside of the path of travel, at transit stops, and at special locations within the project area.



Modern seatwall and bench combination



Steel bench with back support and arms



Custom steel bench in St. Helens, OR



Wood bench with back support and arms

## Street Furnishings: Bicycle Racks

Bicycle racks are an essential functional element for those who travel by bike for protections against theft. Additionally, they are an effective aesthetic element that can help visually unify a streetscape. Ample bicycle parking encourages ridership and facilitates a healthy lifestyle. It is most effective when it is located close to destinations, is easy to find, not hidden from public view, and is accessible.

Bicycle racks should be located with ample area for bike parking (typically 2-feet wide by 6-feet deep) on each side of the rack. More space may be needed if the city desires to accommodate larger bicycles (e.g., “cargo bikes”). They should be located in areas that provide enough room for riders to dismount and manage their cargo, and do not conflict with pedestrian through zones. They are typically constructed of metal, and should be designed and detailed in a way that supports the bicycle, will not damage it with sharp corners, and will fit most U-bar style bike locks. Options for customizing the rack to reflect civic or neighborhood character are available on most bike rack designs.



*Bike rack with detail*



*Custom bike rack*

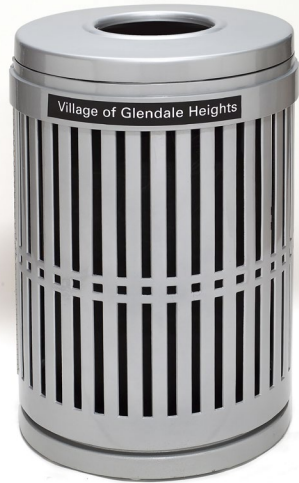


*Modern circular steel bike racks*



*Traditional U-shaped bike racks*

## Street Furnishings: Waste Receptacles



*Modern steel receptacle*

Trash and recycling receptacles in the pedestrian right-of-way are essential to maintaining a clean, healthy city. Their presence discourages littering, thereby improving the aesthetics of a streetscape. Though these elements are utilitarian, attention to their design and integration into the overall streetscape character, in addition to careful placement, can enhance the public realm and adds to a sense of place.

Waste receptacles should be considered as one of a “family” of streetscape furnishings, which may also include benches, bike racks, and street lights. They should be made from durable, high quality materials, and should be graffiti resistant as is feasible.

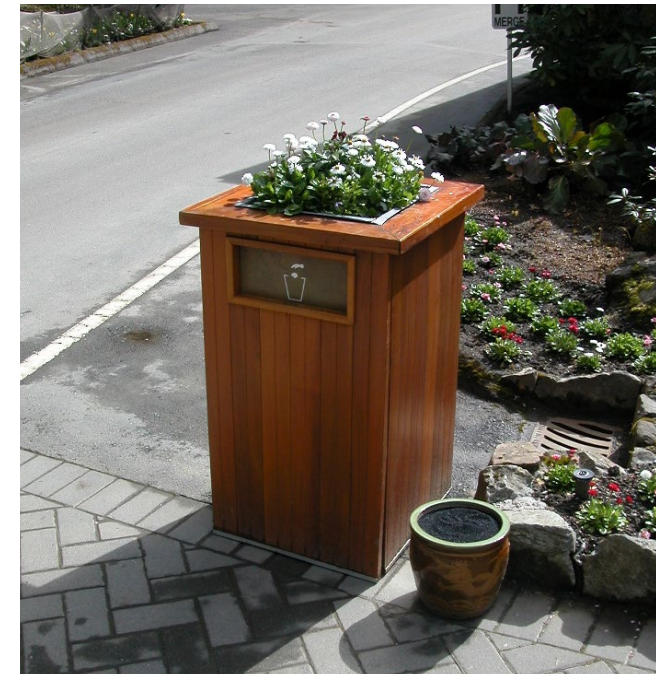
Waste receptacles are appropriate throughout the project area. They should be located close to intersections, out of the pedestrian through zone, as well as high activity areas and gathering areas. A maximum of one receptacle every 200 feet along a block face, and a maximum of 4 receptacles per intersection (one per corner) is recommended.



*Custom waste receptacle*



*Modern wood receptacle*



*Wood receptacle with planter*

## Street Furnishings: Drinking Fountains

Drinking fountains provide drinking water for pedestrians, offer hydration and nourishment, and encourage a healthy lifestyle. They are also an environmentally sound alternative to bottled water, which requires much more energy and materials to distribute.

Drinking fountains should be considered as one of a “family” of streetscape furnishings, which may also include waste receptacles, bike racks, and benches. They should be made from durable, high quality materials, and should be graffiti resistant as is feasible. They should also consider additional bowls that are accessible by those in wheelchairs, as well as optional dog bowls.

Drinking fountains are most appropriate along commercial streets with a pedestrian presence. They should be located within the furnishing zone, outside of the path of travel, and should be located with enough space around them to accommodate wheelchairs. Drinking fountains should also be provided in areas that host special events such as community festivals or activities during warmer months.



Combined drinking and bottle fill station



Artistic fountain



Multi-level fountain



Traditional fountain



# Street Furnishings: Bollards

A bollard is a short vertical post or similar element that is most often used to separate pedestrians from a vehicular environment. They can be used to add color and visual interest to streetscapes, and are most effective when used in multiples and lined up to discourage vehicles from encroaching on pedestrian spaces like sidewalks or plazas. They are most often used when the surface of the pedestrian zones are at the same elevation as the adjacent vehicular areas, without curb separation.



Traditional bollards



Wood bollards



Removable bollards



Modern bollards in planting area

## Street Furnishings: Tree Grates

Trees need air, soil, water, and space to grow. Unfortunately, soil conditions in most urban environments lack each of these critical elements trees need to thrive. Tree grates provide space for tree roots to grow while allowing pedestrian traffic over the tree planting area, which is particularly effective along narrow sidewalks where pedestrian space can be limited. They also help to suppress weed growth and trash accumulation in the tree planting areas. Tree grates come in a large array of shapes, sizes, and materials, but should all be ADA-compliant while allowing for air and moisture to enter the tree planting area.

Certain site characteristics such as shallow bedrock may limit the locations of where street trees could be located throughout the project area. Where street trees are feasible, tree grates should be considered.



*Decorative steel tree grate*



*Removable cobblestone tree ring*



*Planting and low barrier*



*Concrete tree grate*

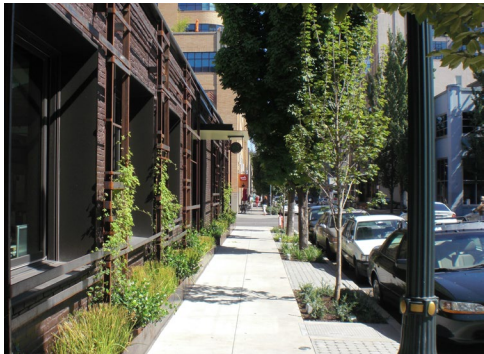
## Planting Areas

Planting areas along streetscape corridors is an effective, attractive way to enhance the pedestrian experience, improve adjacent property values, and indicate a sense of civic care for a neighborhood. Some planting areas can manage stormwater runoff, as described in the last section of this document.

Like street trees, planting areas can take many forms. They can exist at-grade, visually breaking up the paving area and providing focal points of interest, or they can be raised above the grade of the sidewalk in planters to elevate the green to the pedestrian's eye and help to create distinct spaces. They can be containerized, either in pots on or adjacent to sidewalks or elevated in planter baskets that hang off of other streetscape elements like light posts or wayfinding signs. Examples of container planting on the sidewalk can be found in St. Helens along Columbia Blvd. and St. Helens St. Plantings can also be located in roadway medians at busy highway intersections or crosswalks to help with traffic calming and pedestrian safety. As with installing street trees, certain site conditions may limit the ability to implement planting areas. Shallow basalt bedrock, vehicular sight lines, and narrow rights-of-way all have an impact on where and how planting areas might be located.



*Decorative planters*



*Foundation planting and street trees*



*Hanging planters*



*Russellville Commons planter in Portland, OR*

## Street Trees

Street trees are an integral component of a successful, vibrant, pedestrian friendly streetscape. Their social, economic, and environmental benefits are innumerable, and include softening hard urban edges, shading streets and buildings, enhancing neighborhood beauty, filtering the air, and absorbing carbon dioxide. Trees have also been proven to reduce crime, improve public health, reduce energy consumption, and improve adjacent real estate values.

Street trees come in many shapes, sizes, colors, and textures, and can be used in a variety of ways in groups and as individual specimens to reflect a city's natural setting, create focal points, establish visual rhythm, and provide needed shade in areas with excessive pavement.

Site characteristics can significantly impact the ability to accommodate street trees. Narrow rights-of-way and sidewalks can limit tree placement and form. Overhead utility lines and underground utility pipes present additional challenges to locating street trees. Additionally, areas of shallow basalt bedrock impacts the feasibility of installing new street trees without proper preparation and consideration. Shallow basalt is found in the St. Helens study area and should be assessed further to inform a successful street tree plan.

In the project areas an analysis of where basalt bedrock is most shallow could provide insight into feasible areas to plant. Additionally, "building up" planting areas in raised planters could provide additional opportunity to implement an effective street tree program. Special attention should be given to potential "nuisances" created by certain species such as excessive leaf litter, or berries or fruit that either stain concrete or other surfaces or attract unwelcome animals.

Some trees suitable for urban environments may have rooting systems that are shallower than most, making them potential candidates for planting in areas with shallow bedrock. Since shallow-rooting trees are more likely to heave and crack sidewalks than deeper-rooted trees, however, ample planting area must be given to allow root growth, increases in trunk diameter, and root crown flare.

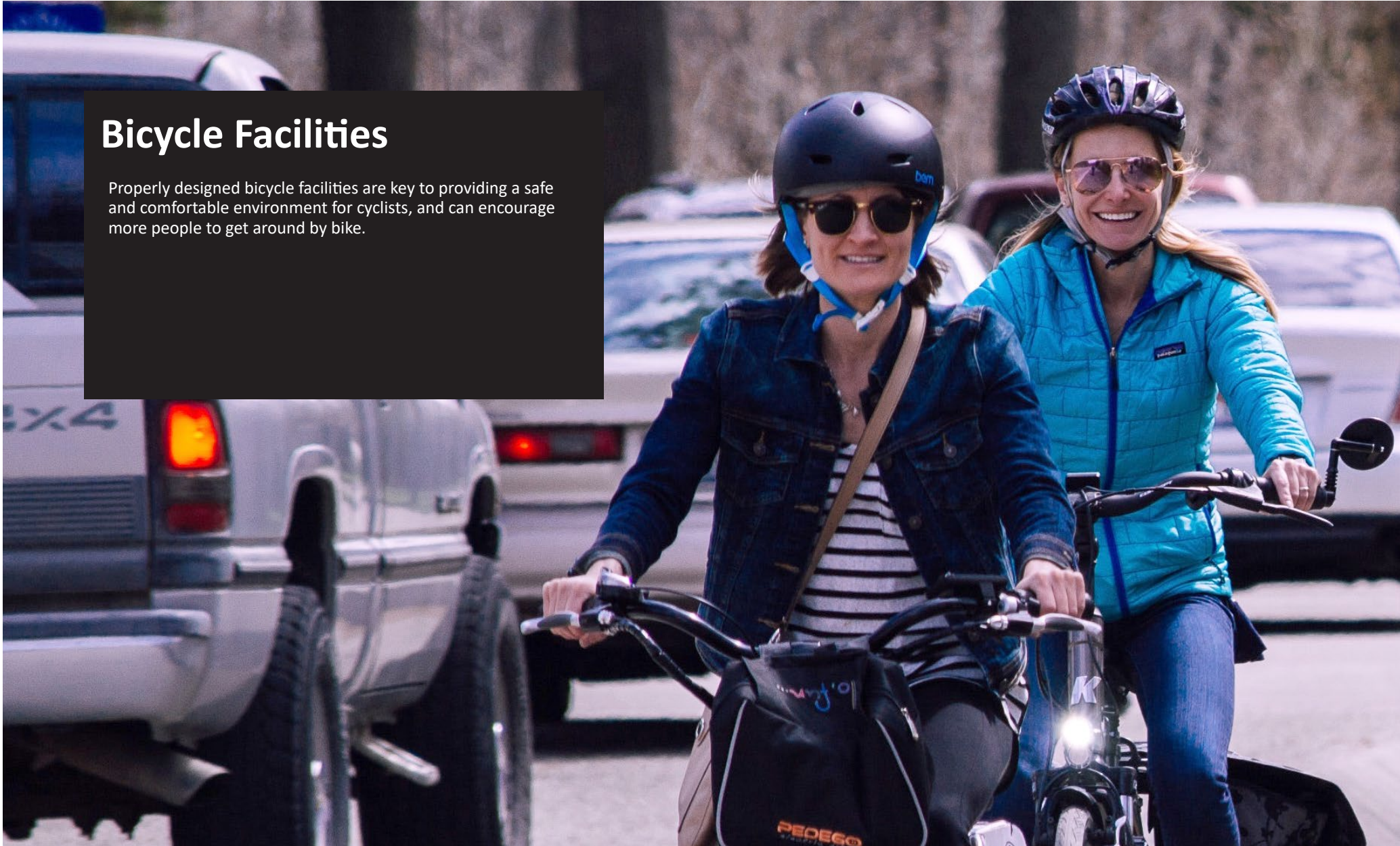


Common street trees and forms. From L to R: Red Maple, Magnolia, Ginkgo, Honey Locust and Japanese Zelkova



## Bicycle Facilities

Properly designed bicycle facilities are key to providing a safe and comfortable environment for cyclists, and can encourage more people to get around by bike.





## Shared-use Paths and Trails

Shared-use paths and trails are improved (i.e. paved) and unimproved (i.e. dirt and gravel) facilities that serve bicyclists and pedestrians. Shared-use paths and trails can be constructed adjacent to roadways where the topography, right-of-way, or other issues don't allow for the construction of sidewalks and bike facilities. A minimum width of 10 feet is recommended for low-pedestrian/bicycle-traffic contexts; 12 to 20 feet should be considered in areas with moderate to high levels of bicycle and pedestrian traffic. Shared-use paths and trails can be used to create longer-distance links within and between communities and provide regional connections. They play an integral role in recreation, commuting, and accessibility due to their appeal to users of all ages and skill levels.



*Shared-use path*

## Separated Bike Lanes

Separated bike lanes (often called “cycle tracks”) are bicycle lanes that are physically separated from motor vehicle traffic by a vertical element such as a planter, flexible post, parked car, or a mountable curb. One-way separated bike lanes are typically found on each side of the street, like conventional bike lanes, while two-way separated bike lanes are typically found on one side of the street.



*Separated bike lane*

## Buffered Bike Lanes

Buffered bike lanes are enhanced versions of conventional on-street bike lanes that include an additional striped buffer of typically 2-3 feet between the bicycle lane and the vehicle travel lane and/or between the bicycle lane and the vehicle parking lane. They are typically located along streets that require a higher level of separation to improve the comfort of bicycling.



*Buffered bike lane*



## On-Street Bike Lanes

On-street bike lanes are striped lanes on the roadway dedicated for the exclusive use of cyclists. Bike lanes are typically placed at the outer edge of pavement (but to the inside of right-turn lanes and/or on-street parking). Bicycle lanes can improve safety and security of cyclists and (if comprehensive) can provide direct connections between origins and destinations.



*On-street bike lane*



*Street with sharrows*

## Shared Lane Pavement Markings

Shared lane pavement markings (often called “sharrows”) are not themselves a bicycle facility, but a tool designed to accommodate bicyclists on roadways where bike lanes are desirable but infeasible to construct. Sharrows indicate a shared roadway space for cyclists and motorists and are typically centered in the roadway or approximately four feet from the edge of the travel lane and are recommended to be spaced approximately 50 to 250-feet apart dependent on the levels of traffic volume. Sharrows are suitable on roadways with relatively low travel speeds (<35 mph) and low ADT (<3,000 ADT); however, they may also be used to transition between discontinuous bicycle facilities.

## Civic Identity & Wayfinding

Cities thrive when they capitalize on their unique strengths. The manner in which these strengths are represented -- either through gateway monuments, public art, or wayfinding signs -- can strengthen civic identity which gives added value to a downtown area beyond the physical elements that make up that area. A successful civic identity and wayfinding system enhances the visitor's relationship to those downtown areas, resulting in frequent visitation, loyalty, and an ongoing interest in the vitality of that downtown.





## Gateway Monuments

Gateway monuments are elements that mark the entrance to a district or neighborhood. They are typically larger in scale, are highly visible, and can take many different forms. Typical gateway monuments range from arched gateway markers that span over the roadway, to sculptural or iconic elements, to expansive landscape areas that visitors pass through. They are typically more sculptural in form and function at a district or neighborhood scale.

Gateway markers should be located at entry points to districts or neighborhoods or at transitions between one roadway or land use type to another. They should be highly visible and attract attention, and integrate culturally relevant elements that are appropriate for the area. The 2017 *City of St. Helens Branding & Wayfinding Master Plan* recognizes Colombia Boulevard at Milton Way (which is outside the project area) as a prime location for a gateway sign and should be referenced when considering other gateway monument locations and design.



*A previous gateway sign to St. Helens, OR*



*Existing gateway artwork in St. Helens, OR*



*Landscaped gateway in Pendleton, OR*



*Gateway structure in Atlanta, GA*

# Signage & Trailheads



Interpretive element

Streetscape signage can be an effective tool in unifying the character of a neighborhood or district. They can mark entry points or neighborhood edges, give directions to destinations, include maps and directories, and include relevant neighborhood information. Streetscape signage types include neighborhood orientation signs, directions signs, and interpretive signs, and can significantly enhance a visitor’s experience in a downtown area.

Neighborhood orientation signs have a distinctive design and offer neighborhood information including maps and directories that guide people to various neighborhood amenities such as historic buildings and sites, cultural institutions, shopping centers, recreation facilities, and public services such as parking and rest rooms.

Directional signs can include typical street signs and wayfinding signs, and help orient pedestrians to significant destinations. They should include local destination names and directional arrows or markers, and often have maps that clearly show the current location. Furthermore, they should maintain a simple, and coordinated design, be legible from a distance, and reflect the character of the surrounding neighborhood or district.

Interpretive signs provide information about nearby significant cultural, natural, historical, or architectural features or icons. They can be made of many different materials including metal, wood, stone, or acrylic, can be sculptural in form, be a traditional sign, or be installed flush with the paving surface. They should be unique and eye-catching, and capture the character and spirit of the area.

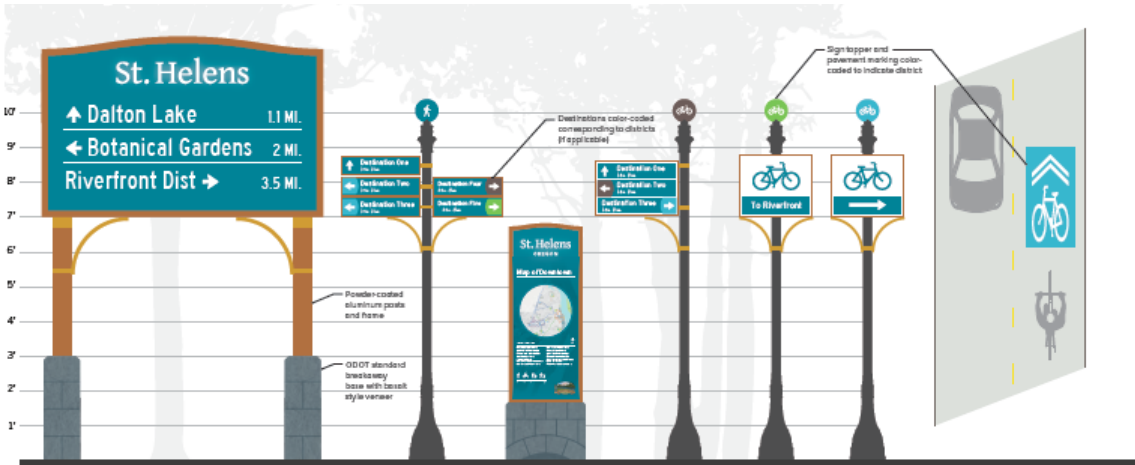


Trailhead signage

Signage elements are appropriate throughout the St. Helens project areas. They should be located at key intersections and at areas of interest such as McCormick Park and Nob Hill Nature Park. They should be easy to see from a traveling vehicle but also are intended to be viewed by pedestrians in close proximity. Wayfinding signs could also be used at strategic locations to direct people towards destinations both within and outside the connector planning area. The 2017 *City of St. Helens Branding & Wayfinding Master Plan* should be referenced when determining sign placement and design especially along 1st St. and at Plaza Square.



Existing entrance signs in St. Helens, OR



Signage designs from the 2017 City of St. Helens Branding & Wayfinding Master Plan

## Banners

Banners can enhance civic identity by adding festiveness and variety to commercial and arterial roadways. They can help distinguish specific neighborhoods, promote cultural awareness, or provide information on civic events.

Banners are typically hung on street lights or utility poles, but can also be mounted on freestanding poles. They should be made of durable, UV-resistant materials such as vinyl or acrylic fabric, though they can also be made out of metal if there is a desire for a customized or artistic appearance.

Banners currently exist in St. Helens, and could be further enhanced with additional locations and/or a coordinated design/layout. New banners should be made of a durable material that will not easily damage or wear to prevent frequent replacement.



Banners assist with wayfinding in San Francisco, CA



Existing banner in St. Helens, OR



Banner in Lake Oswego, OR

# Public Art

Public art can be a significant streetscape component by enhancing civic identity at multiple scales. At the larger scale, it can help to unify an entire district or neighborhood. At the pedestrian scale, it can add aesthetic interest and also functional benefits if incorporated into pedestrian furnishings such as seating or lighting.

Appropriate locations for public art exist in a number of locations and capacities in the project area. Depending on the proposed art piece, a suitable site should be vetted and analyzed for its feasibility. Public art could be located at key intersections, and be of a larger or smaller scale that is consistent with the scale of the space in which it is placed. In small areas the art can embody the spirit of each neighborhood. In larger areas or along streets art can be of a larger scale and used as an icon for the town.



Existing public art in St. Helens, OR



Alberta Street Mural in Portland, OR

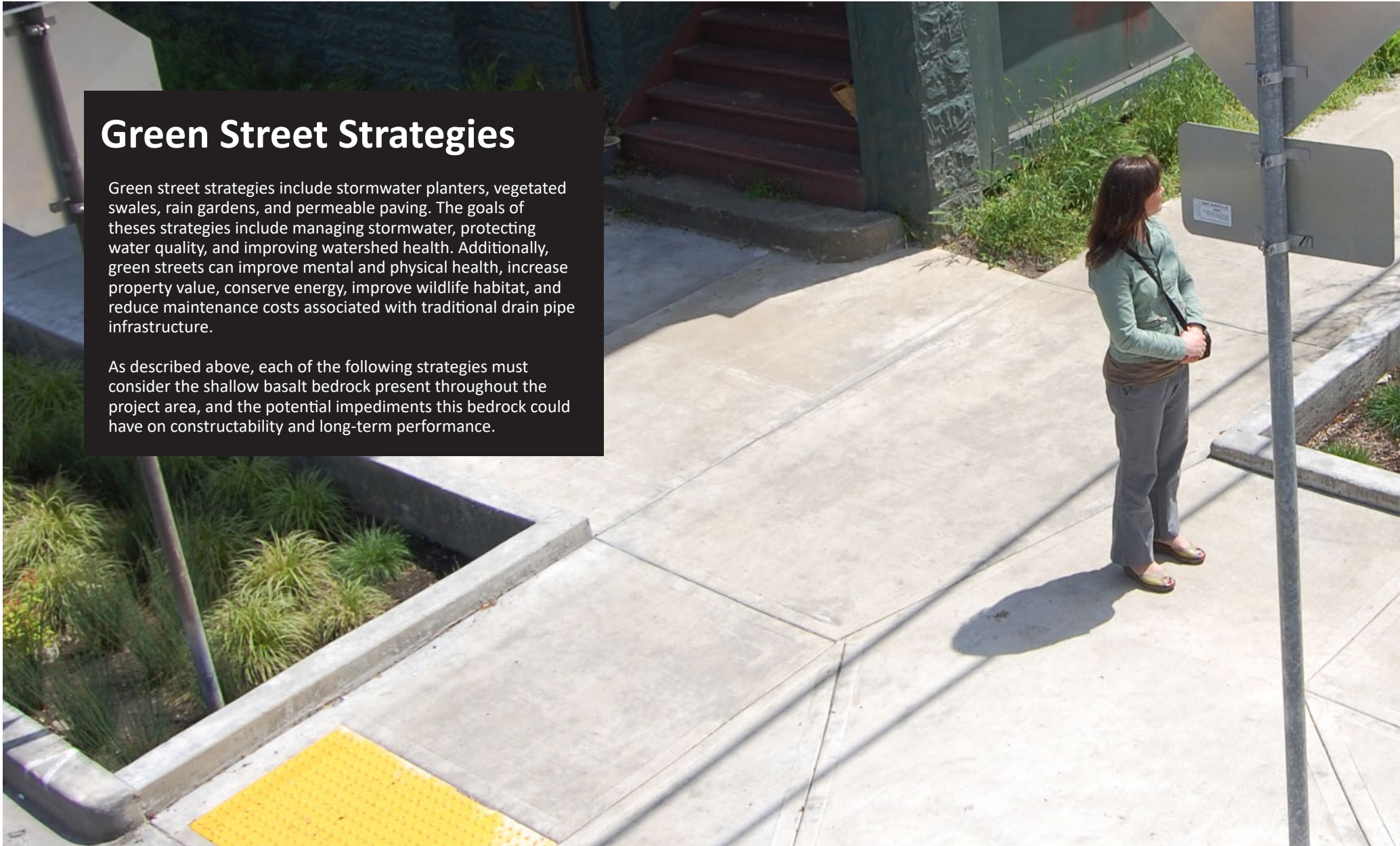


Windscape installation in Portland, OR enhances identity and place

## Green Street Strategies

Green street strategies include stormwater planters, vegetated swales, rain gardens, and permeable paving. The goals of these strategies include managing stormwater, protecting water quality, and improving watershed health. Additionally, green streets can improve mental and physical health, increase property value, conserve energy, improve wildlife habitat, and reduce maintenance costs associated with traditional drain pipe infrastructure.

As described above, each of the following strategies must consider the shallow basalt bedrock present throughout the project area, and the potential impediments this bedrock could have on constructability and long-term performance.







# Stormwater Planters

Stormwater planters typically have vertical walls, and can be located between the curb and sidewalk or in curb extensions. They can either be constructed with “open” bottoms to allow stormwater to infiltrate into native soil (“infiltration planters”), or be lined with an impervious bottom and constructed as a container to temporarily store stormwater to filter sediments and pollutants down through the planter (“flow through planters”). Site conditions will dictate which type of stormwater planter is appropriate.



Stormwater planter with railing in Lake Oswego, OR



Planters and hardscape along SW 12th Avenue in Portland, OR



NE Siskiyou Street planter in Portland, OR



Mature stormwater planter along Water Avenue

## Vegetated Swales & Conveyance Channels

Vegetated swales are gently sloping, linear depressions planted with dense vegetation that treat stormwater runoff from adjacent roadways, sidewalks, and other impermeable surfaces. They typically accept runoff and allow it to infiltrate, but like stormwater planters, where soils drain poorly, slopes are too steep, or space is confined, swales can be lined and convey runoff to another, different type of drainage facility. Due to their bermed, gently sloping sides, swales can look like typical landscaped areas.

Conveyance Channels move stormwater from one location to another allowing time for water to permeate into the ground without causing erosion or flooding. Conveyance Channels may be lined with vegetation or a permeable material such as river rock and can add to the aesthetic of the overall streetscape.



Large vegetated swale in north Portland, OR



Swale retaining rainwater after a storm event



Artful rainwater conveyance in Melbourne, Australia



Trees and planting in a stormwater swale enhance the pedestrian experience in Portland, OR

## Rain Gardens & Stormwater Basins

Where space permits, rain gardens and stormwater basins provide opportunities to treat stormwater in larger depressions, and can offer opportunities to incorporate other materials such as boulders or large cobbles, small pedestrian foot bridges, art or other interpretive elements to further enhance these facilities. These larger stormwater features typically capture larger volumes of stormwater runoff, and provide opportunities for education and public awareness about their significance.



*Rain garden along NE Sandy Boulevard in Portland, OR*



*The Warner Milne Rain Garden in Oregon City collects stormwater and runoff from adjacent surfaces*



*Mature swale plantings*



*Tiered rainwater basin*

# Permeable Pavement

Permeable (or “pervious”) pavement allows stormwater to infiltrate directly through the paving medium into a reservoir base of crushed rock and eventually into native soil below. Permeable pavement types include pervious asphalt, pervious concrete, and permeable concrete unit pavers. These pervious materials resemble conventional pavement materials, but contain more air space to allow stormwater to infiltrate through, and are typically thicker as a result to support the same loads.

Permeable pavement is ideal in low traffic areas such as parking areas, highway shoulders, roadway medians, emergency access roads, and patios. Pervious concrete is best used in sidewalks, however, permeable concrete unit pavers should be avoided since they do not meet ADA requirements. Permeable pavement should not be used within 4’ of bedrock or a water table’s high point, within 100’ of a well, near building foundations, on slopes that exceed 5%, or within close proximity to contaminant sources such as gas stations.



*Porous pavement*



*Permeable pavers*



*Crush rock paving*



*Permeable paving parking stalls at Graham Oaks Nature Park in Wilsonville, OR*