



Bellevue Botanical Garden Greenway

Design Study Report | December 23, 2010

Acknowledgements

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Figure 1 - Bellevue Greenways & Urban Boulevards Map

Legend

- Study Area
- Greenways & Urban Boulevards
- Designated Intersections
- Downtown Bellevue



Main Street looking east



124th Avenue NE looking south

Introduction

The Bellevue Botanical Garden Greenway Design Study is the first of a series of boulevard or greenway concept plans which will provide the city with the tools to develop a network of civic streets and greenways connecting unique neighborhoods, public services and ecosystems as part of a larger framework implementing the vision of Bellevue as a city in a park. *Figure 1* illustrates the initial extent and organization of the proposed system and the diverse areas of the city which are connected within the network. The Bellevue Botanical Garden Greenway is unique in its context of significant public lands, treasured parks and cultural facilities of Wilburton Hill Park and the Bellevue Botanical Garden.

Project Context

This report outlines a concept plan for transforming the streets in the study area into a greenway. The process of developing these concepts included analyzing, exploring and identifying a number of opportunities for portions of SE 1st Street, Main Street and 124th Avenue NE based on the project goals and functional requirements previously identified for these streets. At the core of this plan is the objective of bringing the best qualities of the Bellevue Botanical Garden and Wilburton Hill Park into the corridor to welcome visitors to a unique city district and their respective entrances.

How To Use This Report

This is the first concept study for the Bellevue Greenways and Urban Boulevards Program. It describes a conceptual framework for enhancing streets within the study area. This is the first step in identifying opportunities for future improvements and redevelopments. The concept study forms the basis for future implementation and phasing that will build on the design concepts and site conditions presented in this report as funding becomes available. This report specifically addresses design ideas, strategies and opportunities in the defined study area. The study also includes examples that can be applied and customized along other greenways in Bellevue. It is a prototype for subsequent design studies for other greenways within the city.

Project Goals

Bellevue’s Comprehensive Plan calls for a boulevard and greenway system, distinctive from other streets in the city that will reinforce the image of Bellevue as a “city in a park.” Both within the right-of-way and on private development, features such as gateways, street trees, landscaping, median plantings,

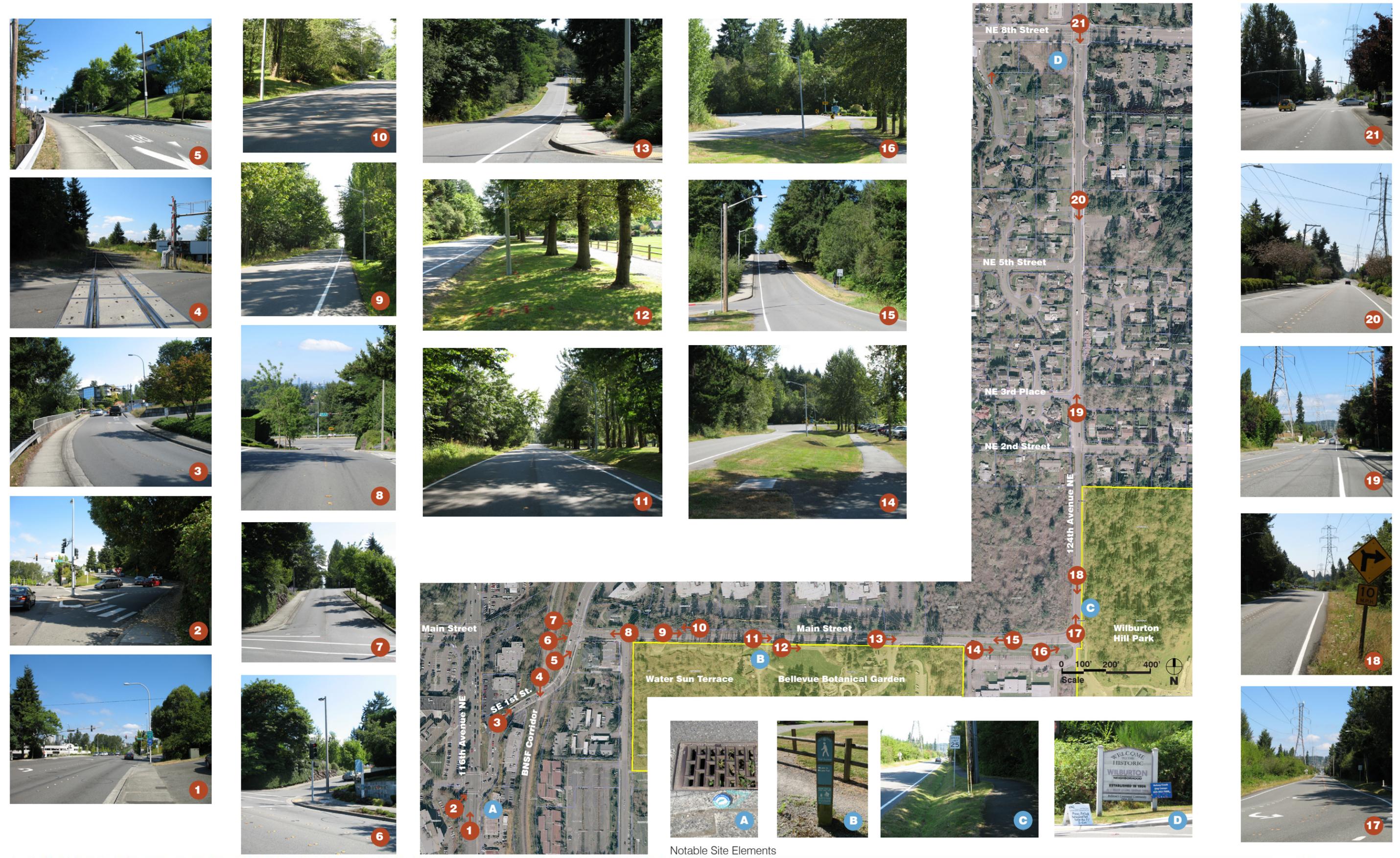
special lighting, separated and wider sidewalks, crosswalks, seating, special signs, street names, decorative paving patterns, and public art should be used to accomplish a cohesive civic system. Greenways will be part of a city-wide network of streetscape enhancements that will help improve neighborhood livability and character by creating attractive and memorable gateways and streetscapes for use by all modes. Though each greenway concept plan will be unique, a city-wide master plan will be the consistent framework.

General Greenways and Urban Boulevards Goals:

- Reflect Bellevue’s Northwest character as a “city in a park” through exceptional landscape and community design.
- Use industry-wide best practices to the greatest extent possible.
- Capitalize on other city-wide projects and public/private partnerships.
- Celebrate special places and features by incorporating art and wayfinding.
- Create no adverse impact on roadway efficiency.
- Enhance neighborhood livability by increasing corridor plantings, tree canopies, and pedestrian & bike facilities.
- Use common design elements for cost-effectiveness and overall consistency while being flexible to express neighborhood and district character.
- Demonstrate environmental stewardship and long-term fiscal responsibility.
- Mitigate the impacts of urbanization and improve the urban watershed through natural drainage practices.

Bellevue Botanical Garden Greenway Goals:

- Present a positive first impression as a “welcome mat” to the Garden.
- Be a seamless transition drawing visitors to the Garden.
- Encourage places that can be enjoyed by visitors without fear of conflicts with automobiles.
- Demonstrate maintenance and horticultural techniques that conserve materials, such as water and energy resources.
- Exemplify the Cascadia Experience of the Garden by exploring and promoting aesthetic styles that are appropriate to Bellevue’s climate and environment.
- Provide a meaningful arrival experience to a world renowned garden.
- Increase visibility of entry to the Garden and corridor.
- Look for opportunities to extend the gateway beyond the right-of-way into Bellevue School District property, Parks property, and required buffers along Main Street.



2 Figure 2 - Study Area and Site Images

Methodology & Process

This study is the first of a series, and sets a framework for the studies to follow. The study is structured to provide an understanding of the existing physical, ecological, programmatic, and cultural attributes of the corridor and identify opportunities and constraints. This information is the basis for comprehensive corridor concept development which builds on the inherent characteristics and qualities of the circumstance. The methodology reflects an approach that places values on the ecological functions of each place and the history of city building which is the underpinning of future actions and aspirations. The approach presumes the maximum function of each corridor and proposes an integration of systems reflecting the application of emerging best practices.

As part of this approach, the study area was analyzed using a number of site visits, review of photographs and City base maps, as well as review of specific information about adjacent projects that are currently under development, such as the Bellevue Botanical Garden Visitor Center and the Water Sun Terrace. City policy documents such as the *2009 Pedestrian and Bicycle Transportation Plan*, *Land Use Code*, *Transportation Development Code*, *Transportation Design Manual*, *Storm and Surface Water Code and Engineering Standards*, and the *Bellevue Comprehensive Plan* were reviewed for program elements and activities that need to be included in the greenway concept plan. Plans were developed to graphically communicate this information to City representatives and the public during community open houses and internal meetings. Comments on the analysis and concept recommendations were received and incorporated into the report over the course of the study.

Concepts were developed using these sources and integrated into the proposed concept plans and this report. Concept plans set the framework for action. They are intended to set general design guidance and set a decision making approach and methodology which can be used as conditions and opportunities change. It is important to note that the applied methodology is the antithesis of an approach which overlays an artificial framework and ignores the history or ecological function of a place. Cities are developed incrementally over time and each action and investment is part of the whole. This methodology is based on a real understanding of the place as opposed the fabrication of a reality defined by artificial objects such as signs and gateways.

Observations

In general, the study area has a strong character of mature vegetation, slopes and views. This is largely due to the adjacent park areas, wide buffers zones and irregular rights-of-way where slopes occur. These contribute to the presence of wooded areas or parklands with lines and groups of trees. This is only slightly lacking in what is considered the Entry Zone that includes 116th Avenue NE, SE 1st Street and the undeveloped section of the Main Street right-of-way that runs between them.

SE 1st Street is a sloping street that rises from 116th Avenue NE to meet Main Street. The elevation gain is approximately 100 feet. This results in the experience of a narrow street corridor that is closely bordered by steep side-slopes and road bends. The steep side-slopes are on the south and east sides of the street. This street is bisected by the BNSF corridor that is now decommissioned and is planned to include a regional trail. The railway itself has wooded steep side-slopes. From the uphill end of SE 1st Street there are views toward downtown, the commercial area along 116th Avenue NE and in both directions along the alignment of the old railway. The public right-of-way has an irregular width due to the curving alignment of the street and the bisecting railway.

The majority of Main Street has mature tree canopies that reach over the street. The exceptions to this are at the western end where the street is wider with younger trees and at the east end where there are more open spaces along the south side of the road. Along the north side of Main Street there are wooded areas that occupy either a 40 foot wide buffer that screens adjacent office buildings or vacant land that has not been developed. The right-of-way is 60 feet wide throughout this portion of Main Street.

The 124th Avenue NE right-of-way is 40 feet wide for most of the length within the study area. This is narrower than Main Street. The exception is at the intersection with NE 2nd Street where it widens to 60 feet as it continues north. With an undeveloped Bellevue School District (BSD) property on the west side and Wilburton Hill Park on the east side, this section of street exhibits a wooded character.

What is a Greenway?

Greenways are a form of public way which support a balanced use by all modes of travel and historically address objectives of civic pride and identity. They provide connections to public facilities and services and establish important definable corridors in a city which become increasingly important as the city matures. Greenways typically have park like attributes and provide additional important functions such as habitat, hydrology, ecological and aesthetic functions.

Each greenway is part of a larger system of streets that exhibit quality public realm improvements, indicating a sense of generous civic investment that creates rich and rewarding public spaces. They provide a feeling of pedestrian comfort and safety, expressed in scale, proportion of the walkways and paths, or with the types and detail of materials used. Greenways are an expression of civic values. They can be a destination, not just a route to a place; an enjoyable experience for drivers, bicyclist and pedestrians alike.

The characteristics that are specifically addressed in the Bellevue Greenway and Urban Boulevard program are:

- Part of a city-wide network of Urban Boulevards.
- Reflects Bellevue's Northwest character as a "city in a park" through exceptional landscape and community design.
- Uses industry-wide best practices to the greatest extent possible.
- Capitalizes on public/private partnership for development and maintenance.
- Celebrates special places and features by incorporating furnishings, art and wayfinding signage.
- Maintains present traffic efficiency.
- Increases corridor plantings, tree canopies, and pedestrian and bike facilities.
- Well vegetated with mature plants, a diversity of color and texture and ecological function.
- Northwest / Cascadia character to the plant palette and design.
- Uses common design elements for overall consistency and cost-effectiveness while being flexible to express neighborhood and district character.



A street with greenway qualities



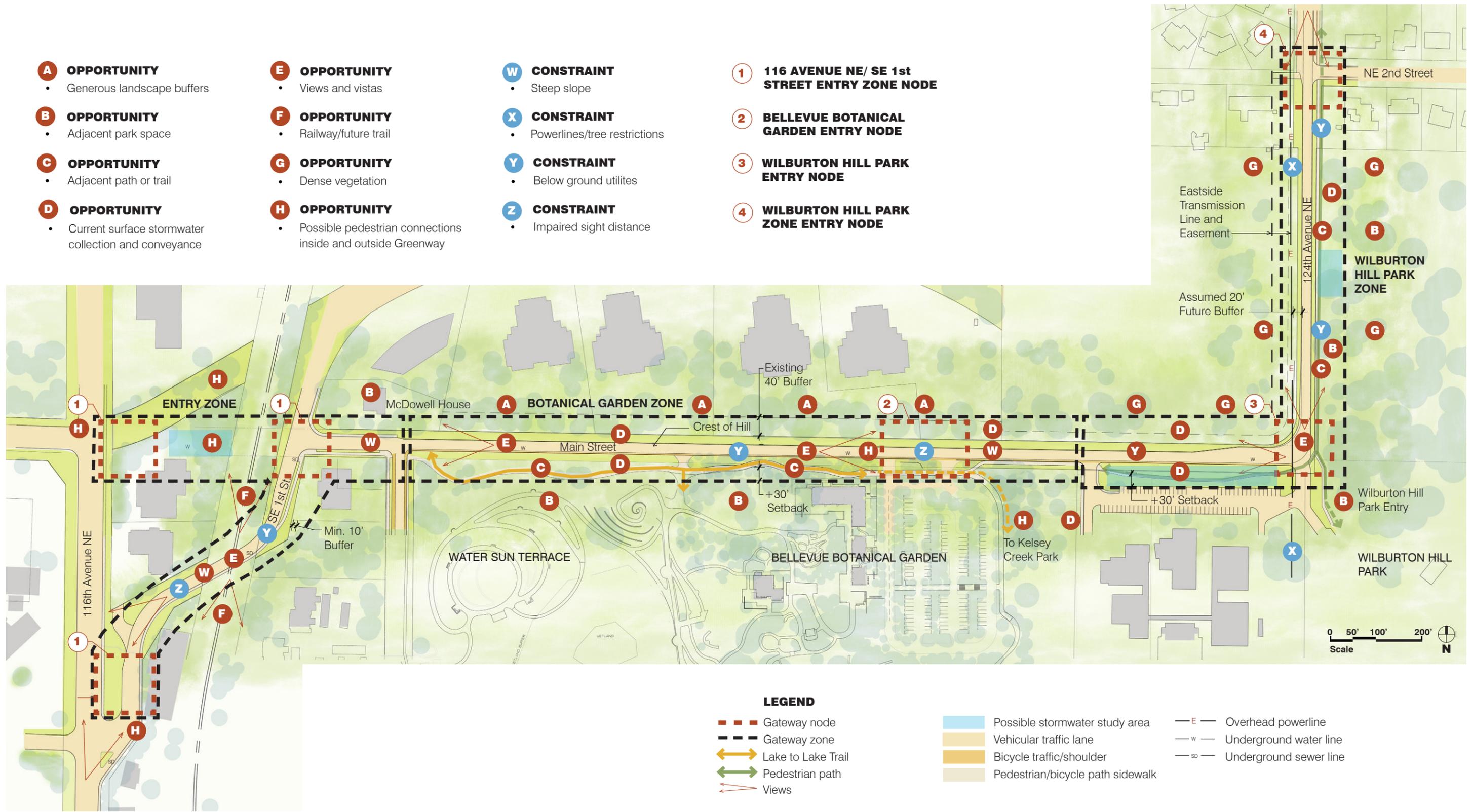
Shared pedestrian and bicycle path separate from street

- A OPPORTUNITY**
 - Generous landscape buffers
- B OPPORTUNITY**
 - Adjacent park space
- C OPPORTUNITY**
 - Adjacent path or trail
- D OPPORTUNITY**
 - Current surface stormwater collection and conveyance

- E OPPORTUNITY**
 - Views and vistas
- F OPPORTUNITY**
 - Railway/future trail
- G OPPORTUNITY**
 - Dense vegetation
- H OPPORTUNITY**
 - Possible pedestrian connections inside and outside Greenway

- W CONSTRAINT**
 - Steep slope
- X CONSTRAINT**
 - Powerlines/tree restrictions
- Y CONSTRAINT**
 - Below ground utilities
- Z CONSTRAINT**
 - Impaired sight distance

- 1 116 AVENUE NE/ SE 1st STREET ENTRY ZONE NODE**
- 2 BELLEVUE BOTANICAL GARDEN ENTRY NODE**
- 3 WILBURTON HILL PARK ENTRY NODE**
- 4 WILBURTON HILL PARK ZONE ENTRY NODE**



4 Figure 3 - Opportunities and Constraints Plan

Opportunities & Constraints

Identification and use of opportunities and constraints is a fundamental approach for this study. It is important to build on the beneficial characteristics of the site in order to enhance these streets in a manner that is imbedded in the context of the area and the specifics of the site. *Figure 3* summarizes the primary opportunities and constraints within the study area.

The land uses adjacent to the study area streets contain a number of remarkable opportunities. The mature landscape buffer located on the north side of Main Street and the Bellevue Botanical Garden on the south side provide opportunities for expanding the already abundant park-like character and also provide space for public uses such as pathways. For example, the Lake to Lake trail on the south side of Main Street, provides a route that both leads to the park facilities as well as other public places within the city. There is also the opportunity to enhance the trail itself. A similar opportunity to provide public pathways is present along 124th Avenue NE where Wilburton Hill Park and an undeveloped Bellevue School District property flank the street.

Two unique conditions also contribute opportunities in the study area. The BNSF corridor provides an excellent opportunity for coordinated pedestrian and bicycle connections in the west end of the study area, as well as bringing visitors to the greenway from areas outside the study area. Secondly, the undeveloped section of the Main Street right-of-way can provide a new pedestrian and bicycle connection between Main Street and 116th Avenue NE.

The topography of the study area also provides potential opportunities. Since the study area is characterized by elevation changes and bends in the street, a number of viewpoints are present. Vistas within the greenway, along the alignment of the streets and the rail corridor provide the visitor with the possibility of framed views. There are also views that extend beyond the greenway, such as the view of downtown from Main Street. Another aspect of the topography is the presence of surface stormwater facilities. These provide the opportunities for demonstrating natural drainage practices in a number of locations. They can also correspond to the pedestrian nodes to allow for public education.

There are a few constraints that bear consideration with the study area. As with the opportunities, the constraints can inform the nature of future greenway enhancements without limiting possible improvements. Although certain constraints like the transmission line easement or underground utilities need to be considered, there are options for incorporating public amenities like pathways and rain gardens that do not impair the utility functions. Other constraints like the steep slope conditions and limit sight distances must be respected and incorporated into the design solutions. In some cases they can be transformed into opportunities. For example, the steep slopes can provide the opportunity for different types of stormwater facilities that display the water in dramatic ways while still being functional by way of aerating the water and demonstrating stormwater as an asset. In these ways constraints can be turned into opportunities for enhancements to the greenway.

Community Feedback

As part of the process of developing concepts for the study area, a number of public outreach events were scheduled for presenting information to the community and receiving feedback on the ideas presented. Community feedback expressed at the open house events included: concerns about traffic speed and volume; a high degree of rainwater run-off during storm events; an interest in how the Greenway plans can benefit from the proximity to the Botanical Garden; support of pedestrian connections between the office buildings on the north side of Main Street; support for connecting pedestrians to 116th Avenue NE using the undeveloped right-of-way of Main Street; and an interest in interpretive opportunities if rain gardens are included as stormwater management devices.

Overall the feedback has been positive with the public having a keen interest in seeing improvements to the study area as demonstrated in the following plans. Public outreach will continue to have an important role as future work evolves from this study. Events and other opportunities for comment will be planned as part of a public involvement process to define the next steps for the Bellevue Botanical Garden Greenway.

City Policy & Standards

A number of city policy documents were reviewed during the process of developing this concept plan. The policy documents provided a background understanding of the study area land use, including: easements and landscape buffers; the functional requirements for pedestrian, bicycle and vehicle improvements; and general transportation and utility development standards. These documents included: *2009 Pedestrian and Bicycle Transportation Plan, Land Use Code, Transportation Design Manual, Transportation Development Code, Storm and Surface Water Utility Code and Standards, Park and Open Space Systems Plan*, and the *Bellevue Comprehensive Plan*. For example, policy directives in the *2009 Pedestrian and Bicycle Transportation Plan* outline both the intent and preliminary size and routing of pedestrian and bicycle paths within the study area.

Input related to other city standards such as transportation and utilities were incorporated into the following proposals at a conceptual level. Further design study and implementation projects will need to incorporate these standards or specifically gain approval for deviations as part of the development process. Examples include, technical and engineering standards related to crosswalks, intersections and private property entry drives will need closer examination and design effort to develop implementation documents that meet city standards.

The concept plan incorporates these criteria with some modifications necessary to reconcile competing ideas. Where deviations from standard practices are proposed an explanation is given within the descriptions that follow the concept plan.



Opportunity for pedestrian connections to, and across future trail



Opportunity for existing stormwater swales on sides of Main Street



Opportunity to expand and enhance stormwater collection area



Opportunity for power line easement use for public pathways

1 PEDESTRIAN/BICYCLE PATHS

- Combine pedestrian and bicycle path within available park or buffer area
- Weave path through existing vegetation
- Connect to roadway crossings and future path connections
- Improve the Lake to Lake Trail connections inside and outside the Greenway

2 PATH INTERSECTIONS

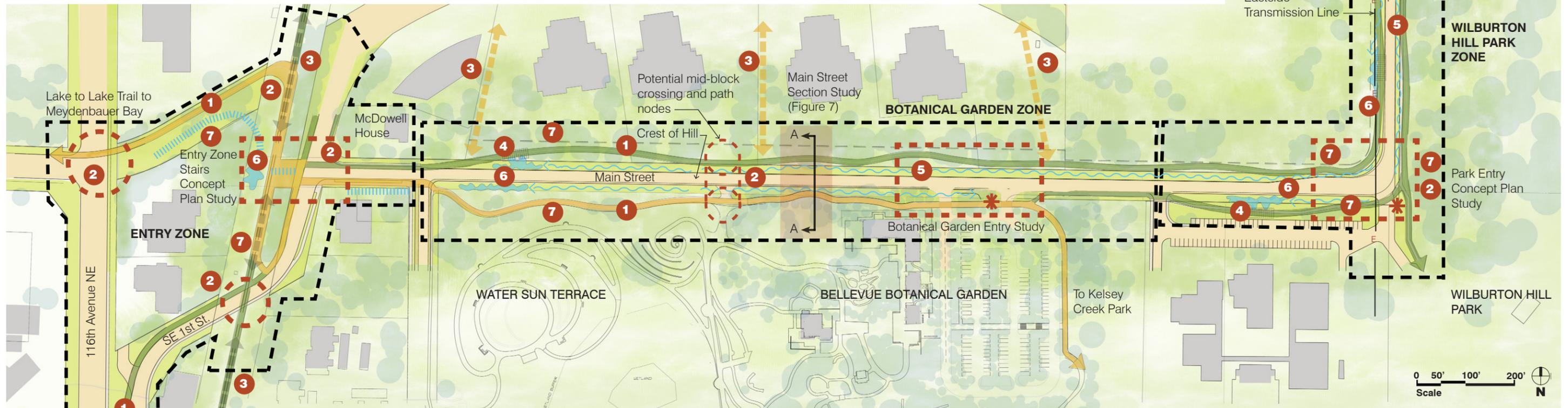
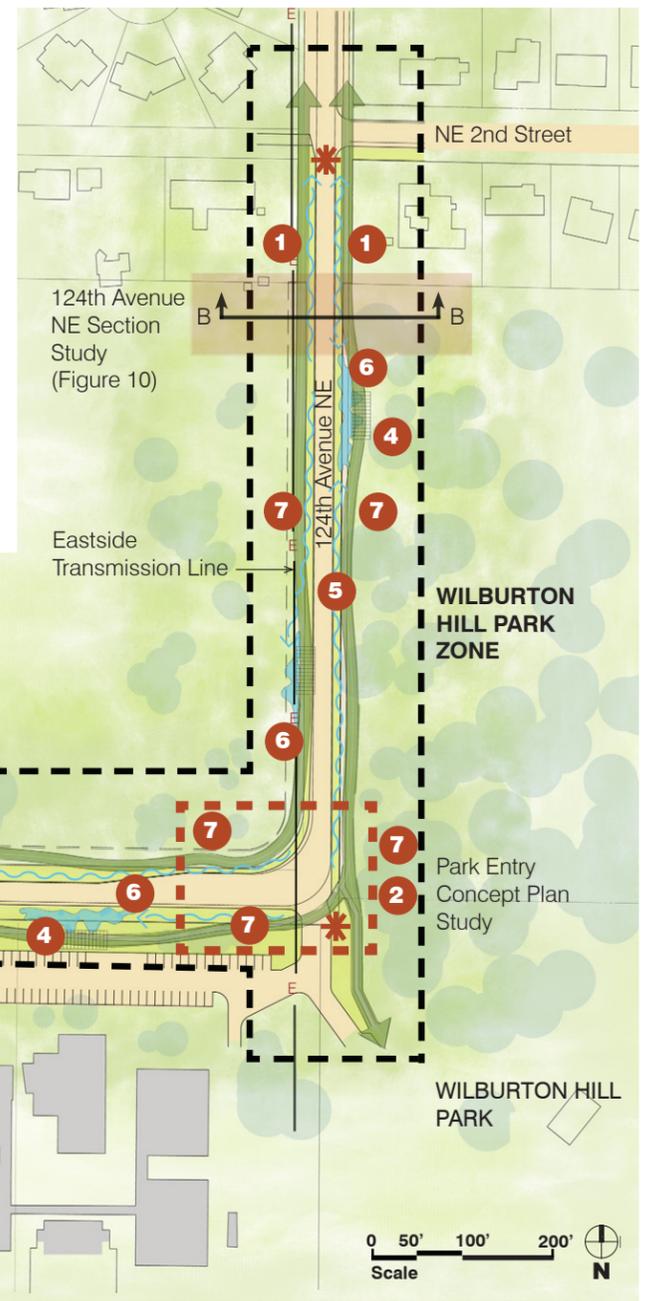
- Provide signage, pavement markings and wider space for intersections of paths
- Possible plaza or open activity space
- Enhanced crosswalks between road intersections

3 FUTURE PATH CONNECTIONS

- Provide access to paths and park area from adjacent neighborhoods
- Plan for midblock pedestrian and bicycle connections between existing commercial properties

4 BOARDWALK AREAS

- Special surface treatment that indicates a location to stop and visit
- Enhances interaction with rain garden and swale areas



5 STORMWATER SWALE

- Enhance stormwater swales with diverse plant palette
- Maintain roadway without curbs to collect stormwater along road length
- Infiltrate stormwater or improve water quality along swale

6 RAIN GARDEN

- Collect stormwater runoff from swales
- Provide attractive garden with connection to pedestrian/bicycle paths
- Provide boardwalk area node as a widened section of the path

7 ENHANCED PLANTING

- Expand the botanical garden concept into the street
- Incorporate planting in stormwater swales and rain gardens into the overall plant palette
- Benefit of mature existing trees and other vegetation

*** ENTRY FOCUS AREAS**

- Celebrate entry with signage, lighting and possibly artwork
- Increase visibility and legibility of park entrances
- Provide clear sightlines for paths into the Greenway

WATER INTEGRATION

- Celebrate and integrate rainwater
- Clean with swales
- Activate water movement on slopes
- Demonstrate drainage basins with rain gardens
- Integrate natural drainage Best Practices

6 Figure 4 - Concept Plan

Concept Plan

A concept plan sets a framework for future work, coordination and decision making. It is intended to be used by city officials and staff for planning purposes, for development of future work plans and budgets, and to facilitate discussions with the community, stakeholders, and general public in support of cooperation and implementation. It is intended to be used by organizations, stakeholders and community members as active participants in the planning and development of a city. As such, it touches on the full breadth of issues involved in the function and life of a corridor. The next steps needed to facilitate development of this concept plan, as well as guide the overall process of developing the greenway, are addressed at the end of this report.

The conceptual approach places a high value on the idea of generous civic spaces and experiences for all members of the larger city and the immediate neighborhood. The objective is the development of a cohesive greenway experience which is knitted with its place. As part of the comprehensive greenway concept are clear plans and sectional diagrams identifying program and functional areas, context and character and detail studies of typical conditions which set guidelines for major corridor zones. Significant nodes and connections are identified with recommended actions. The identification of design elements and materials which establish aspects of continuity and which support the generous civic role of the greenway are included.

Concept recommendations build on the numerous opportunities within the study area. These either address or are tempered by the constraints. In some cases the constraints are incorporated into design, turning challenges into opportunities. Coupled with the functional requirements of the roadways and new requirements set forth in city policy documents, these are embedded in the recommendation as illustrated in the following plans, sections and supporting images.

Entry Zone

This westerly zone is the entry to both the Botanical Garden, Wilburton Hill Park and the associated neighborhood. As neighborhood, city and regional attractions, these public open spaces attract visitors from within the neighborhood, the city and the region as a whole. Within this Entry Zone, the bicycle and pedestrian connections are developed or reinforced using the intersecting developed and undeveloped street rights-of-way and the future trail route. The dramatic slope conditions allow for views out of the site. The slopes provide an opportunity for display of different stormwater treatment techniques possible with the interception of stormwater being routed through the zone. In order to bring the area together as a whole, the connective fabric of the zone is augmented with more tree planting along the major routes and the roadways are enhanced with a stronger edge of green to bring it closer to the same quality as Main Street and 124th Avenue NE.

The Entry Zone must be seen as a system where the individual components mesh together to form a well vegetated, welcoming zone that exhibits the qualities of Botanical Garden and Park. This zone not only marks the entry to the greenway but also functions as a block long entry node along 116th Avenue NE.

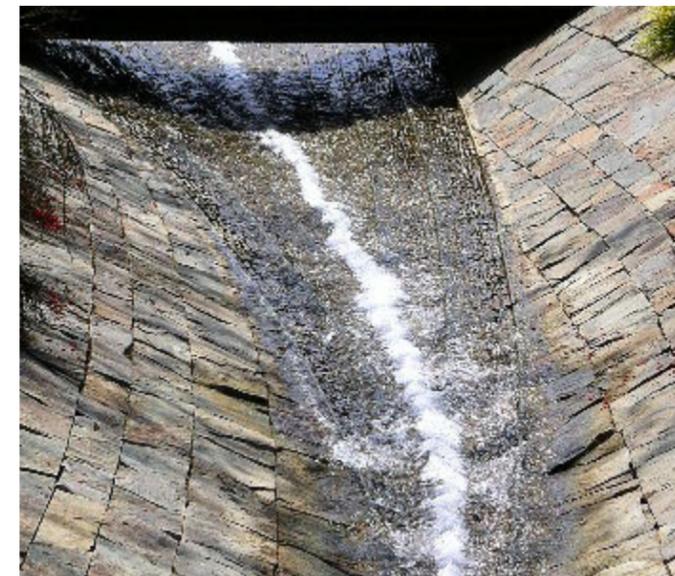


Shared bicycle and pedestrian paths

Botanical Garden Zone

The Main Street, or Botanical Garden Zone, represents the approach to both the Botanical Garden and Wilburton Hill Park. It holds a segment of the Lake to Lake Trail which is the primary east-west non-motorized link between Lake Washington to Lake Sammamish. Providing for better pedestrian and bicycle connections is a primary element in this zone. The ability to move pedestrians and cyclists along both sides of Main Street and across Main Street is important. This not only serves pedestrians but helps reduce vehicular speeds. The people using these walkways and trails are visiting the parks and passing through as part of the trail system. The park space on the south side of Main Street and the buffer on the north side provide the opportunity for bringing the pedestrians and bicyclists into a more forested condition that is separate from the vehicular traffic. The present above ground stormwater swales are enhanced to provide better treatment for the street runoff in the form of runnels that convey and aerate the water, coupled with rain gardens that can capture sediments, and in some cases, infiltrate the water.

The existing mature canopy, the depth of park like vegetation on north and south sides of the street, and the existing trail system provide a largely developed greenway framework with a strong identity. Recommended actions augment the existing by providing greater function and identity.



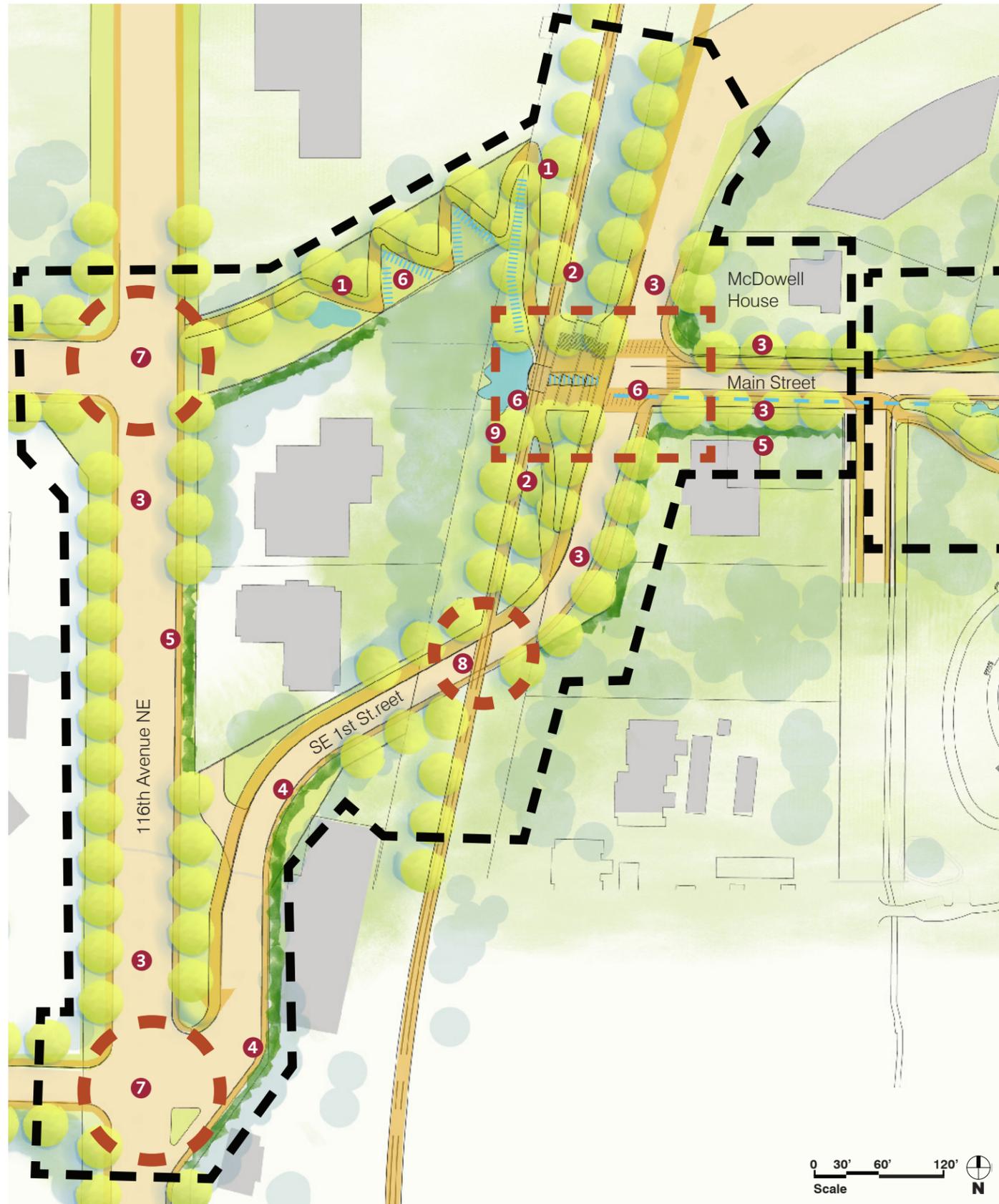
Stormwater features that displays activity and provides conveyance

Wilburton Hill Park Zone

The 124th Avenue NE, or Wilburton Hill Park Zone, leads directly to the entrance of Wilburton Hill Park and extends north into the adjoining residential neighborhood. It has similar positive contributing factors as Main Street which can be enhanced to provide a more welcoming experience for the visitor. Mature trees and understory are on either side of the street. The Seattle City Light transmission line easement offers the potential for a more generous landscape and path system, increasing the sense of the right-of-way width and function. The pedestrian and bicycle paths can move through this zone, separated from the roadway by street trees and natural drainage areas. Important links into this zone include connections to Kelsey Creek Park to the southeast of Wilburton Hill park. There are opportunities within this zone for pedestrian nodes that complement rain gardens and stormwater swales. The intersection has some opportunities and challenges for pedestrian crossings and vehicle movement at the entry to Wilburton Hill Park.



Planting exhibits the attractive qualities of rain garden



Legend

- 1 Create pedestrian connection in undeveloped Main Street Right-of-Way
- 2 Connect with future trail in railway Right-of-Way
- 3 Expand use of street trees to define roadway corridors of entry zone
- 4 Provide green walls, green slopes and hedges where trees can't be provided
- 5 Use existing walls that are covered with vines and existing hedges that screen adjacent land uses
- 6 Provide a variety of stormwater treatment and display along pedestrian routes
- 7 Key pedestrian bicycle and vehicle arrival intersection
- 8 Intersection between future trail and SE 1st Street
- 9 See Figure 6: Entry Zone Stairs Concept Plan



Private entry drive at intersection of 116th Avenue NE and Main Street



Green wall and mature canopy along east side of 116th Avenue NE



Existing BNSF crossing on SE 1st Street



SE 1st Street looking toward BNSF corridor (future trail)

Entry Zone

The Entry Zone is an area bounded by 116th Avenue NE, SE 1st Street and the undeveloped portion of Main Street that lies between them. It is characterized by a large elevation change, rising approximately 100 feet from west to east. The BNSF corridor bisects the zone from north to south as well. A park property, McDowell House is located at the eastern end of this zone.

The concept for improving this zone is to apply a series of systems that interweave and support one another creating a strong, distinctive entry node. These systems include the circulation of pedestrians and bicycles, the movement of stormwater and the enhancement of the vegetative character.

At present, the pedestrian and bicyclists travelling to the Botanical Garden and Wilburton Hill Park from the west pass through the Entry Zone via SE 1st Street. This plan identifies an expanded pedestrian and bicycle path system that connects Main Street on the west side of 116th Avenue NE with Main Street on the east side of SE 1st Street. This is an important connection as it will tie the Lake to Lake Trail directly with the portion of the trail that leads to downtown and Meydenbauer Bay. It also provides connections to a future trail system that would run along the rail corridor and to the Mercer Slough area by travelling down SE 1st Street to 116th Avenue NE and onward to the south.

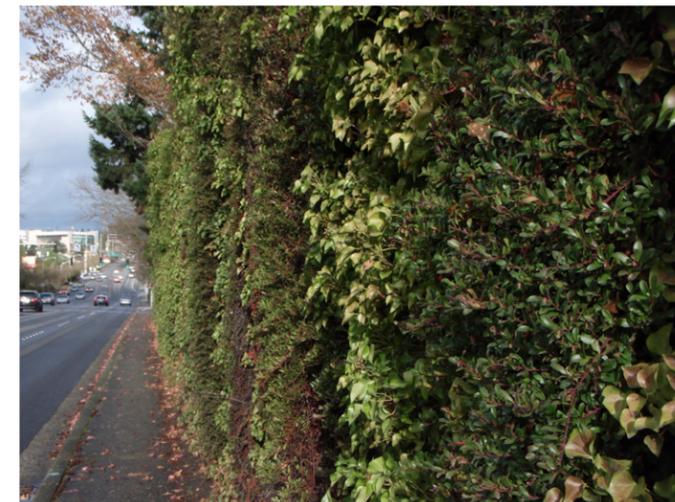
As an example of this circulation system, *Figure 6* illustrates a combined pedestrian and bicycle circulation route that integrates a public staircase with stormwater features on the slope between the greenway and the rail corridor. It is an excellent opportunity to experience views of the area, educate the public with stormwater demonstration elements, and incorporate art as an amenity for this important entry node. Where this path system continues toward the Botanical Garden Zone, it passes McDowell House which is another pedestrian node that contributes public facilities and green open space to the study area.

The rail corridor in its location at the major western node of the study area offers an extraordinary opportunity in creating a greenway entry which addresses multiple modes and is geographically expansive, allowing for a larger more cohesive entry identity for both the corridor and the adjoining north south major street. With the plans for reuse as a major trail system, it offers a unique way in which to extend the Bellevue Botanical Garden Greenway experience and to provide a larger public access to the important public park and botanical garden which define the greenway. It should be noted that rail corridors are increasingly seen as having significant value as a network which means that public policy requires that the corridors be retained for potential future use as rail line and currently there is some consideration of reactivating this corridor for freight use. This study recommends proceeding with the development of the trail node concept strategy.

Certain issues will need further study to determine specific criteria and solutions. A possible pedestrian crossing at SE 1st Street will be required if a regional trail is built along the rail corridor. Although the rail is currently inactive, a future pedestrian and bicycle trail would potentially reactivate the current rail crossing. This would require detailed studies to understand issues related to traffic, pedestrian and bicycle safety and community concerns.



Example of water patterns and character



Vegetation on an existing site wall along 116th Avenue SE



Example of water runoff

RAIL CORRIDOR:

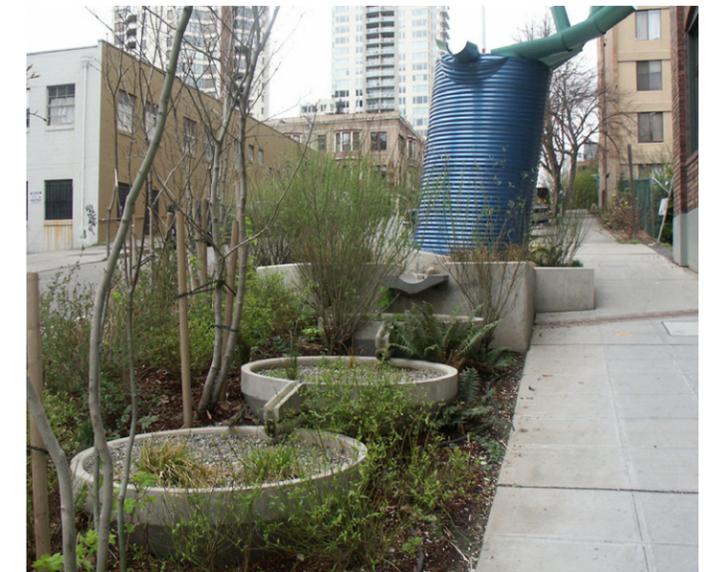
The inactive rail corridor that intersects SE 1st Street is expected to be developed into a regional trail system. As such, it provides an opportunity for a pedestrian link between Main Street and the undeveloped portion of the Main Street right-of-way east of 116th Avenue NE. It is possible that the rail corridor may be reactivated for freight rail in the future.

STORMWATER:

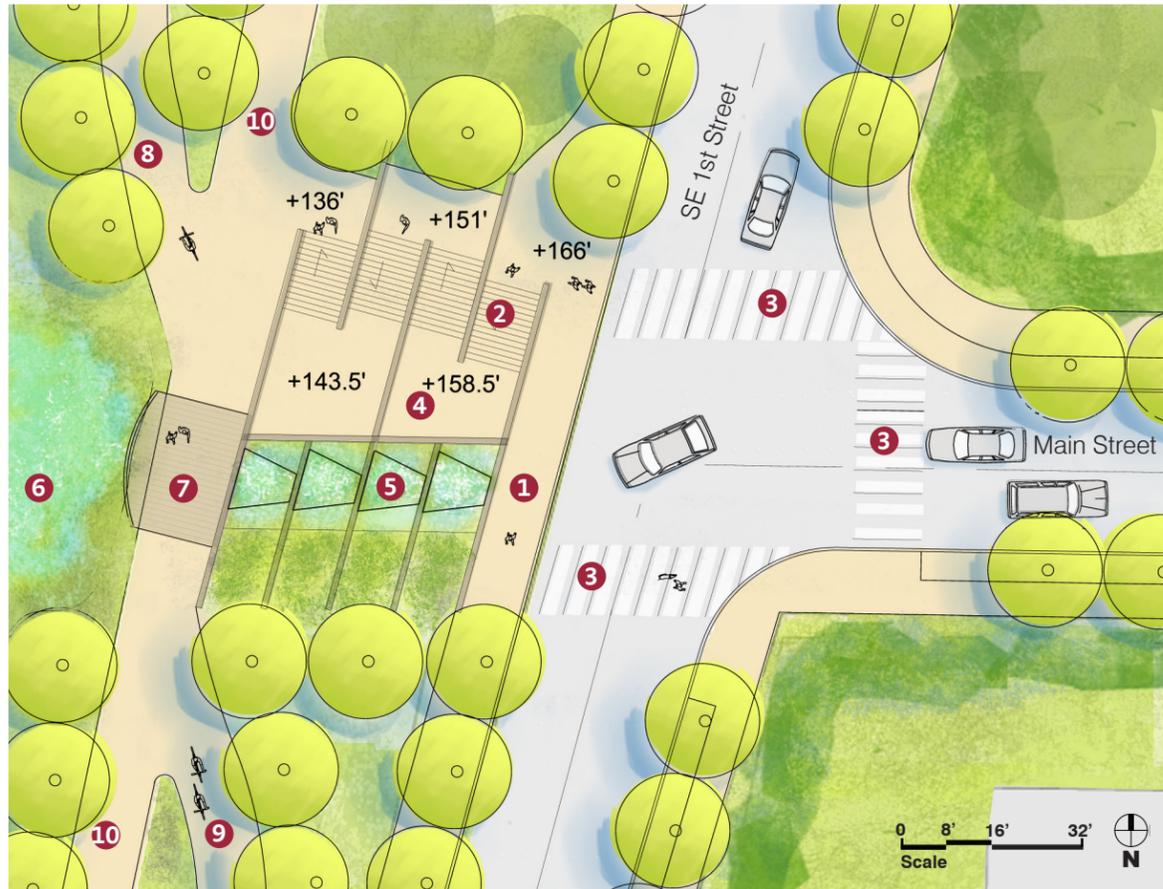
There are multiple opportunities to creatively display and treat stormwater runoff within the study area. Where sloping conditions exist, stormwater can be displayed in a dynamic channel or set of steps. Where conditions are flat the stormwater can be routed to rain gardens. Both options treat the stormwater via aeration and sediment collection while providing a visual amenity.



Example of trail (Burke Gilman trail in Kenmore)



Rain water feature, Vine Street, Seattle



Legend

- 1 Sidewalk with overlook view
- 2 Stairs with bicycle channel in staircase
- 3 Crosswalks
- 4 Stair landing with views of stormwater feature
- 5 Cascading stormwater feature
- 6 Rain garden for stormwater treatment and detention
- 7 Boardwalk surfacing at rain garden node
- 8 Bicycle/pedestrian path to 116th Avenue NE
- 9 Bicycle/pedestrian path to SE 1st Street
- 10 Future regional trail within rail corridor

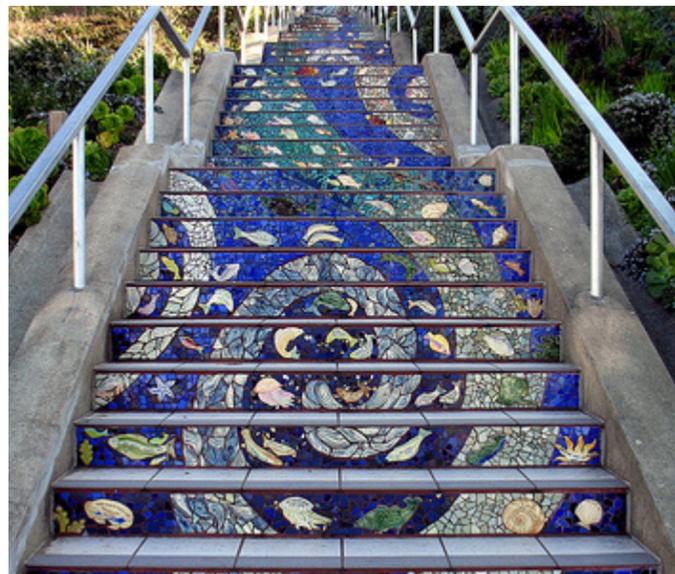
Figure 6 - Entry Zone Stairs Concept Plan



Dynamic display of stormwater slope



Stormwater visual display and aeration



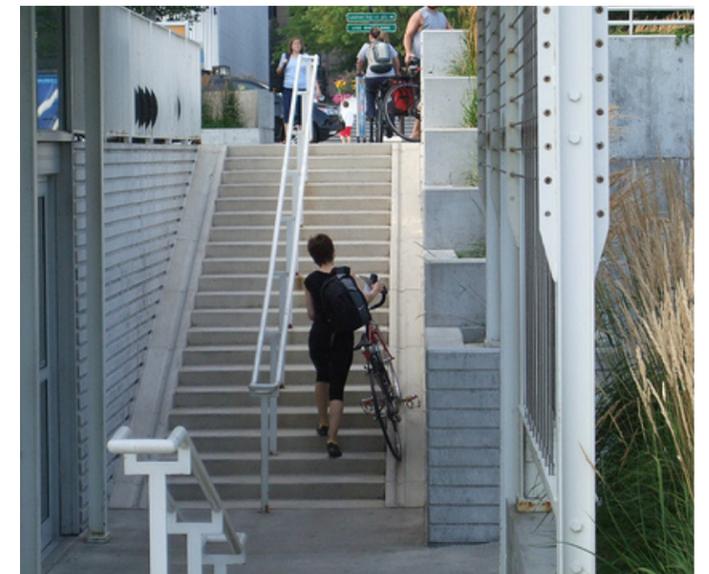
Art integrated into public staircase



Public staircase with generous civic proportions



Opportunity to incorporate art into walls



Example of a bicycle channel that is part of a public stair

Stormwater can be an asset in the Entry Zone due to the notable elevation difference from the Botanical Garden portion of Main Street to 116th Avenue NE. Where a large pedestrian stair is shown between SE 1st Street and the rail corridor, stormwater can be intercepted and routed over a series of cascades to create an appealing and functional treatment for the water runoff. By routing water in this manner it is aerated, while also providing a visual amenity with opportunities for public education about stormwater and progressive natural drainage practices. At the foot of this cascade, the water can be further treated in rain gardens to help filter the runoff as it follows a course alongside the pedestrian path that leads down the hill.

The planting strategy increases the number of trees, hedges and possibly green walls along the roadways and pedestrian corridors to extend the characteristics of the garden and park into this zone. There are large wooded areas that contribute to the vegetation within this zone. These areas can be augmented by adding more street trees to SE 1st Street and the rail corridor to expand the overall tree canopy, thereby increasing the sense of passing through a park-like setting similar Main Street and 124th Avenue NE. Where street trees cannot be added due to constraining sidewalk width or steep slopes adjacent to the street, hedges, terraced walls and other planting can enhance the quantity of vegetation and the quality of the visitor's experience. Including improvements within the current 10 foot wide landscape buffer area along SE 1st Street is one example

of utilizing possible public/private partnerships to achieve the goals of this greenway.

At a finer scale, the planting palette can also express the details of the Botanical Garden and Wilburton Hill Park. Use of Northwest native plants to form attractive planting areas around the pedestrian paths and nodes will extend the characteristics of the Botanical Garden into this entry zone



Simple and bold furnishings in specific zones of the greenway



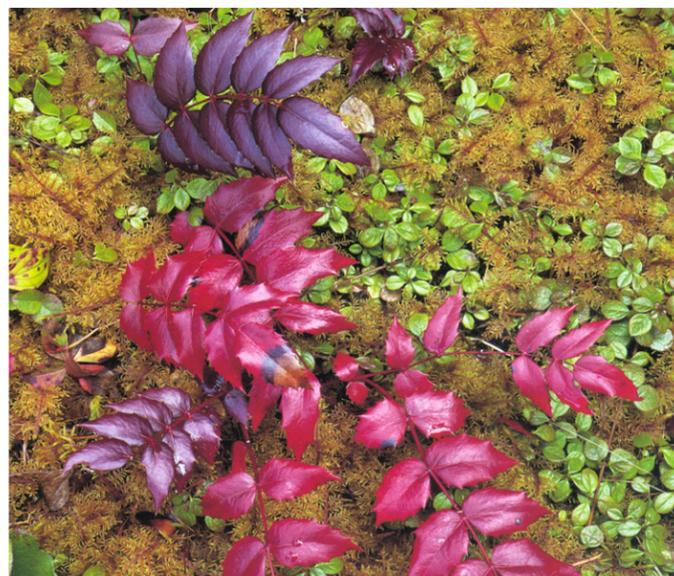
Attractive and bold details where stormwater crosses paths



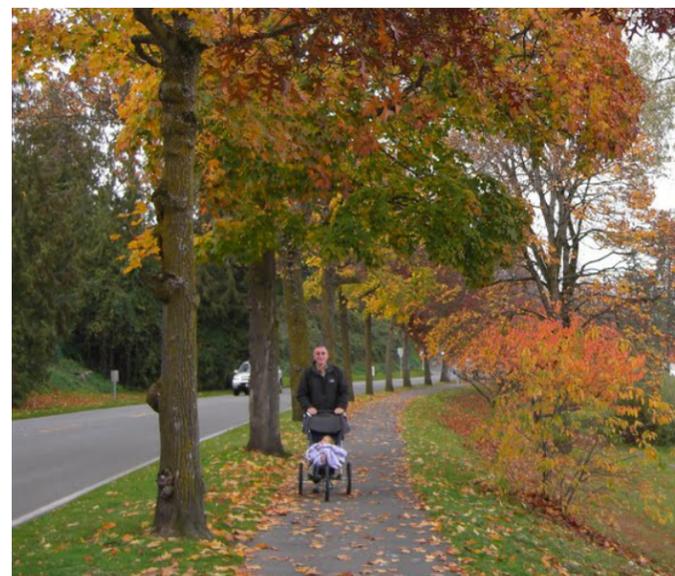
Site furnishings can be unique at special nodes



Subtle details in lower flow conditions



Pacific Northwest plant palette



Planting color and texture variety



Incorporate public art into the greenway



Rain garden edge that shows water level in a refined manner

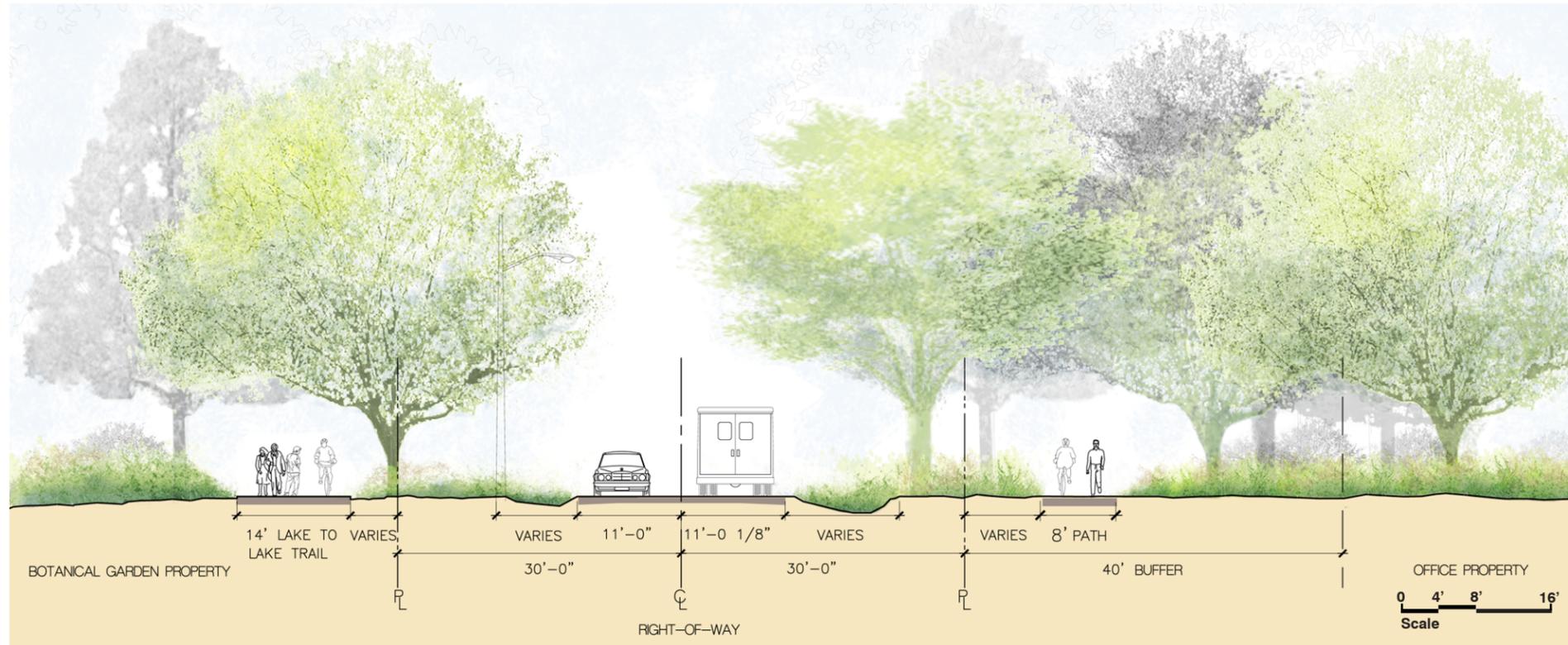
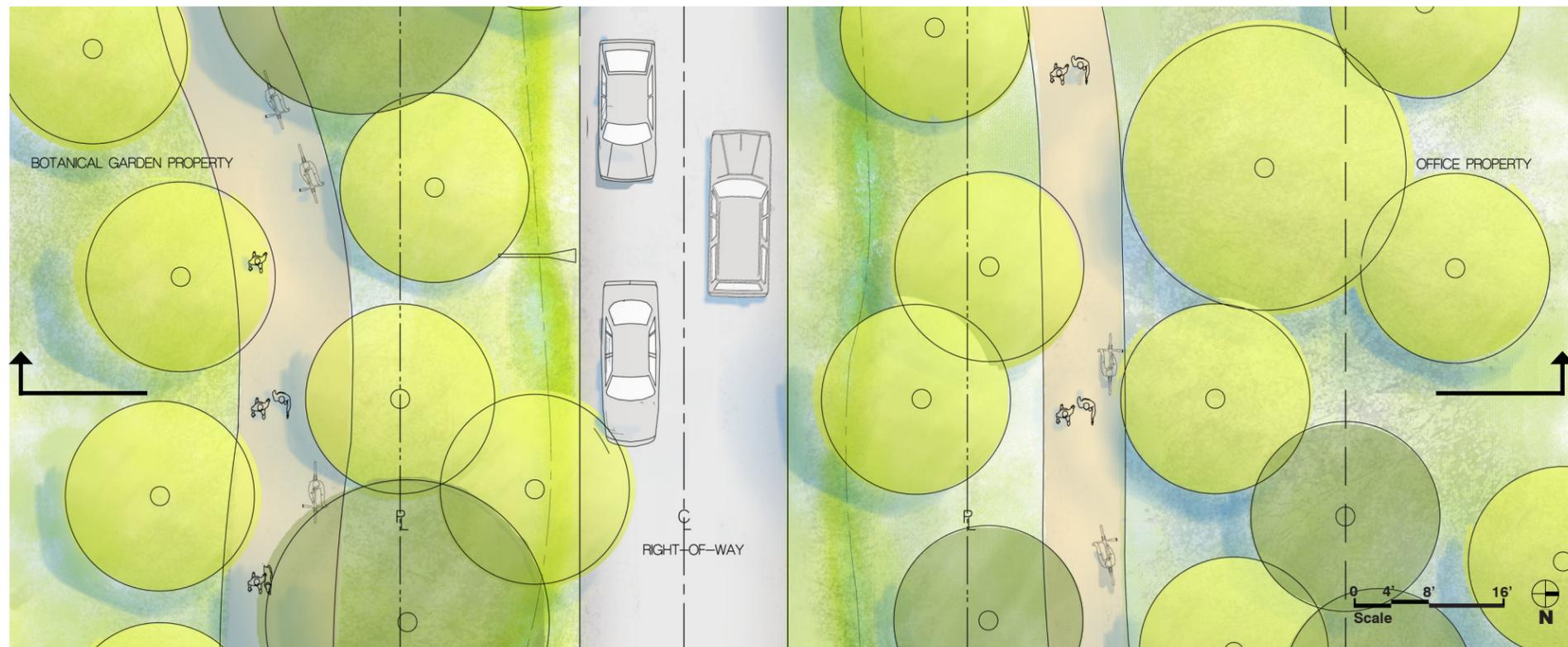


Figure 7 - Main Street Concept Section (Looking West)



12 Figure 8 - Main Street Concept Plan



Example of runoff flowing into rain garden



Planting that exhibits the quality of the Botanical Garden



Shared bicycle and pedestrian path

Botanical Garden Zone

The concept design for the Botanical Garden Zone enhances pedestrian circulation while extending the garden character into the street. The pedestrian and bicycle routes are separated from the vehicle lanes, travelling through either the park or a landscape buffer. Since the traffic lanes retain the current pavement width, this allows for expanded surface stormwater facilities along both sides of Main Street. The stormwater facilities are a series of swales, runnels and rain gardens which perform the dual purpose of water treatment and public education about natural drainage practices. The planting strategy follows the same principle established for the Entry Zone: use of Northwest native plants; focus on quality and composition commensurate to the Botanical Garden and augmentation of the tree lining of the corridor.

A primary tool for defining the functional of the Zone is the *2009 Pedestrian & Bicycle Transportation Plan*. It calls for a 5 foot bike lane and a 6 foot sidewalk on the north side of the street. This concept study deviates slightly from this prescribed direction by incorporating the pedestrian and bicycle movements into one path. It is shown in the landscape buffer on the north side of the street in a similar, yet smaller, way as the Lake to Lake Trail to the south. Although this is a goal of the greenway program, this location is an opportunity for developing a public/private partnership. If this is not feasible, the path can still be located within the right-of-way. One essential aspect to this path is the desire to route this path among the existing mature trees in order to retain these significant contributors to the park-like character of Main

Street. This would result in a slightly curved alignment to the path that would be as straight as possible while maintaining a safe distance from any trees. The surface of the path should be pervious as promoted in various city documents and there are options for achieving the functionality of both pedestrian and a bicycle path. Crosswalks are noted at the crest of the hill and the entry to the Botanical Garden.

Another deviation from city standard practice is to maintain the traffic lanes without curbs. This allows for the collection of rain run-off in stormwater swales, runnels and rain gardens on either side of the street. The goal in some cases is still to convey the water, not specifically to treat it in a rain garden. The stormwater features on the sloping portions of Main Street can express the movement and dynamic qualities of water, creating a visually appeal display. At the entrance to the Botanical Garden, there are rain gardens that provide an opportunity for public education about natural drainage practices. The stormwater facilities will need to be coordinated with the alignment of underground utilities, analyzed for infiltration and flow characteristics at proposed locations, and developed according to requirements for maintenance.

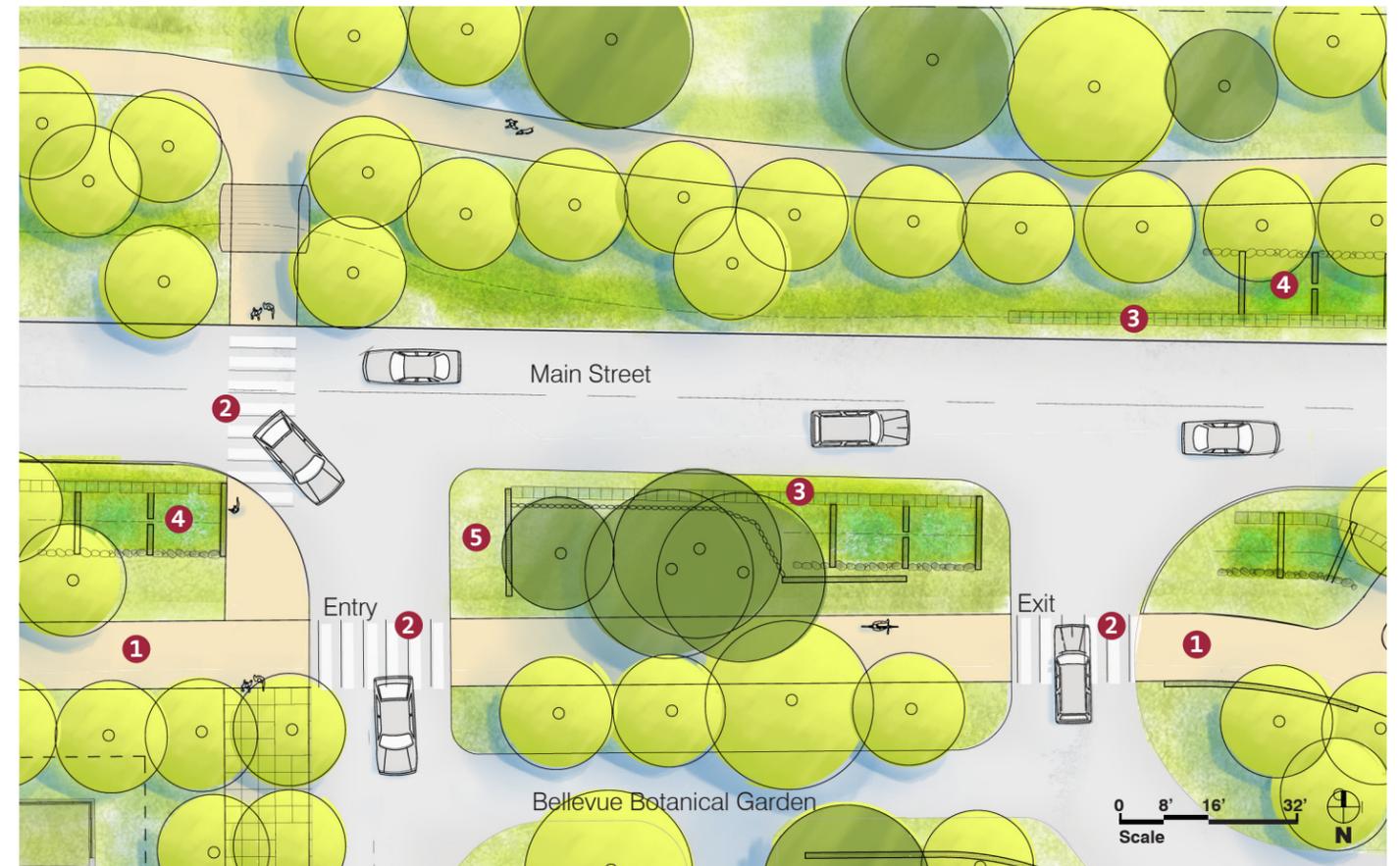


Figure 9 - Botanical Garden Entry Concept Plan

Legend

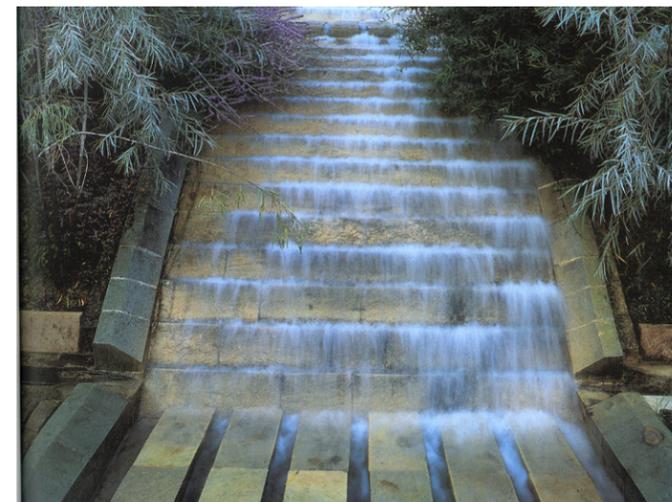
- ① Lake to Lake Trail
- ② Enhanced crosswalks
- ③ Stormwater runnel to convey run-off
- ④ Rain garden to treat and detain run-off
- ⑤ Botanical Garden entry signage

BUFFERS:

It is assumed that the intersection of 124th Avenue NE and Main Street, owned by the Bellevue School District, will be developed into a school related facility. A minimum 20 foot wide buffer can be expected as part of this type of development, similar to the buffer currently located along the north side of Main Street that effectively screens the office buildings from the street.

PRIVATE PROPERTY PATHS:

The use of private property for public walks and trails will require an easement or some other recorded agreement between the City and the property owner. Issues to consider include installation costs, public access, liability, maintenance and associated utilities like lighting.



Stormwater can travel down runnel 'steps' on slopes



Stormwater in a runnel on a shallow slope

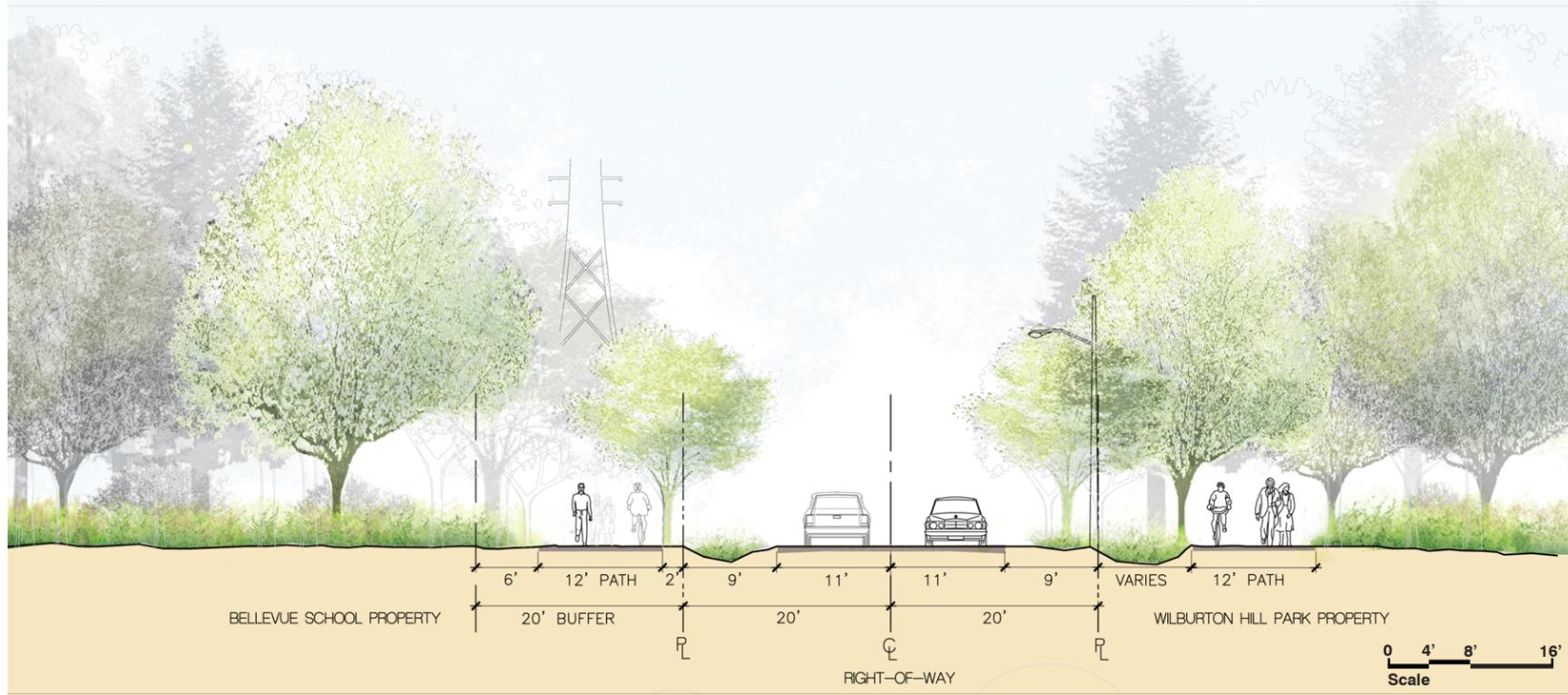


Figure 10 - 124th Avenue NE Concept Section (Looking North)



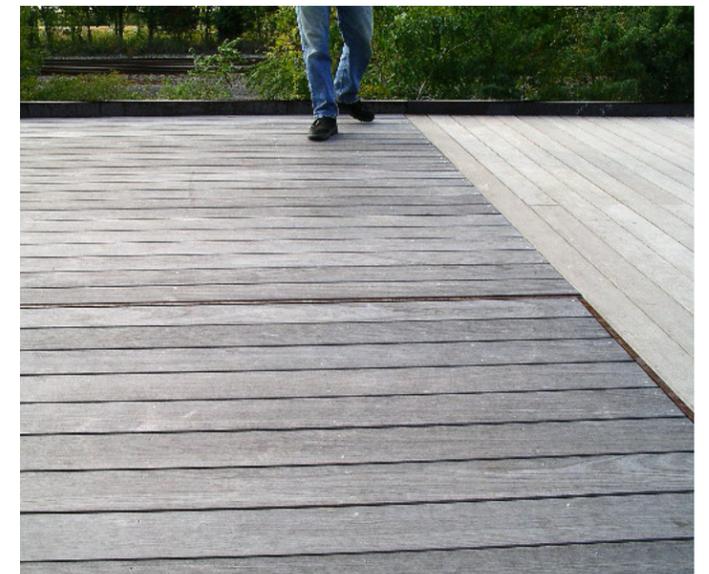
14 Figure 11 - 124th Avenue NE Concept Plan



Existing swale on 124th Avenue NE



Example of a shared pedestrian and bicycle trail (Burke Gilman Trail)



Example of non-treated boardwalk surfacing at rain garden

Wilburton Hill Park Zone

The concept design for the Wilburton Hill Park Zone focuses on creating a welcoming, well vegetated entry sequence to Wilburton Hill Park and the Botanical Garden beyond. The pedestrian and bicycle routes are separated from the vehicle lanes on both sides of the street. The traffic lanes retain the current pavement width in order to keep vehicles at appropriate speeds. There are medium size street trees proposed along both sides of 124th Avenue NE. The species and size will be in accordance with height requirements related to the Seattle City Light easement on the west side of the street while still forming a umbrageous canopy over 124th Avenue NE.

A similar public/private partnership opportunity has been identified for locating the pedestrian/bicycle path within an assumed future landscape buffer on the west side of the street. This is similar to the concept employed in the Botanical Garden Zone. This will provide adequate width for a functional and generous public path that accommodates both pedestrians and bicyclist in a safe and comfortable manner.

Deviations from standard city practices such as traffic lanes without curbs, pathways in private property, and combining separate prescribed bike lanes and sidewalks into one wide path, are proposed in a way similar to the Botanical Garden Zone. Other deviations include proposing trees closer than 10 feet from a non-curbed road edge and possibly sharing of rain garden facilities that straddle the property line between the

street and Wilburton Hill Park. The position of trees closer to the pavement edge reinforces the park character while possibly aiding in traffic calming by perceptually narrowing the street corridor. The rain garden proposed for the east side of the street can be part of a pedestrian node that educates the public on natural drainage from both the hillside and the street.

The intersection of 124th Avenue NE and Main Street is an important corner of the greenway. It is focal to both the street and the entry to Wilburton Hill Park. With pathways proposed on both sides of the street, further study will be needed to gain support for modifications to the intersection that provide safe pedestrian and bicycle crossings. A vital part of this exercise may be the improvement of the park signage and added opportunities within the right-of-way for natural drainage facilities if the extent of traffic pavement is modified.

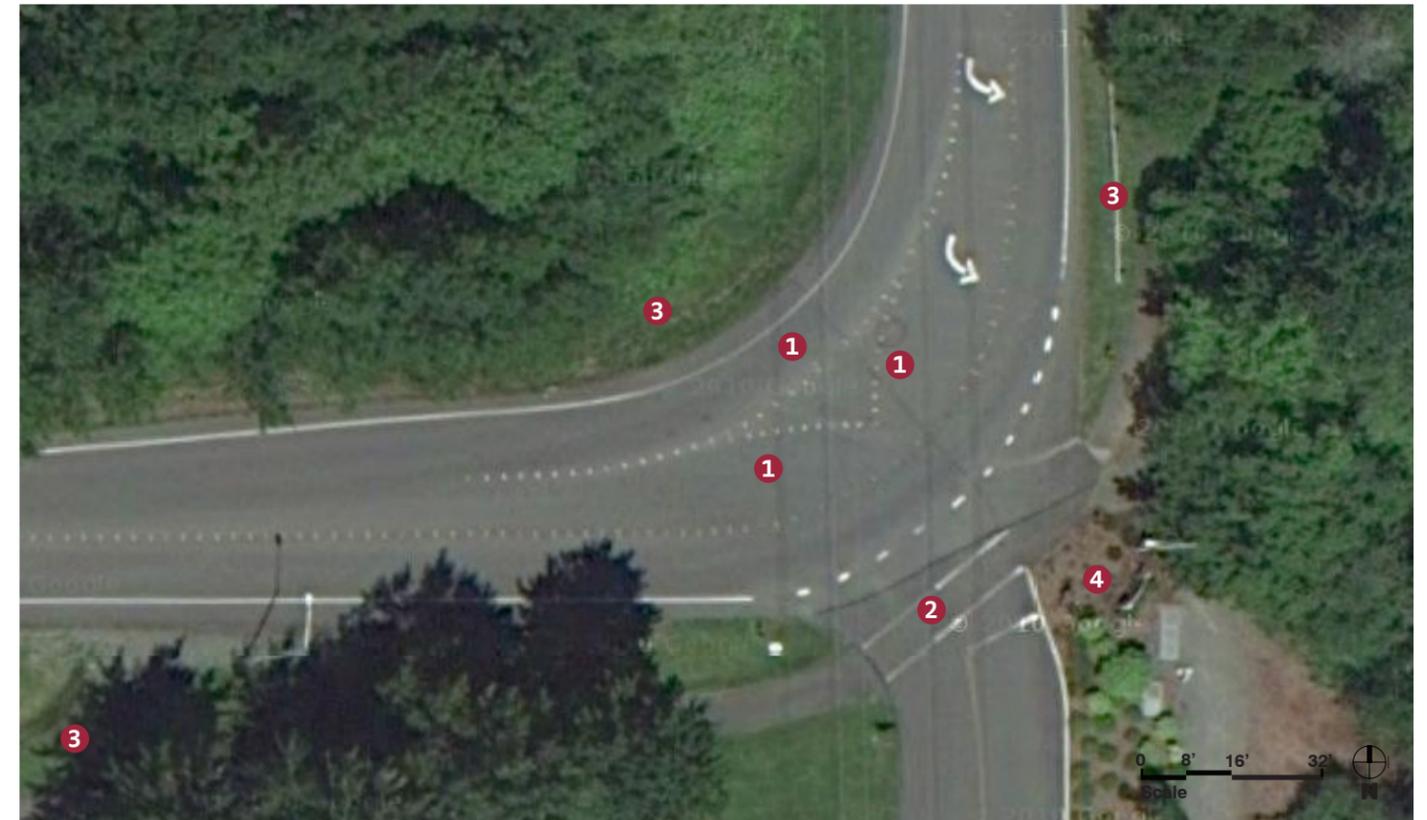


Figure 12 - Wilburton Hill Park Entry Existing Conditions Plan

Legend

- ① Existing turn lane and bypass lanes
- ② Existing crosswalk at entry
- ③ Existing run-off swale
- ④ Existing entry sign and landscape area

INTERSECTION OF MAIN STREET & 124TH AVENUE NE:

This intersection poses challenges for the safe crossings of pedestrians and bicyclists. Although it is beyond the scope of this design study to prescribe traffic revisions for this intersection and park entry, it should be noted as a issue for further study. Possible solutions that provide safe crossings of pedestrian and bicycles to the park without reducing the functional vehicle movements is required.

MULTIPLE AGENCY INVOLVEMENT:

The area underneath the overhead electrical transmission lines operated by Seattle City Light is regulated as an easement of the private property owned by the Bellevue School District. Locating pedestrian and bicycle paths in this area is challenged by necessary review and approval by these multiple agencies.



Larger weir and rain garden



Possible option for Wilburton Hill Park entry, for future study

Elements of Continuity

Elements of continuity are the physical objects and systems which establish a cohesive and uniform character for a greenway. They are elements which support the integration of functional, program, values and a civic aesthetic. Where specific situations require deviation, it is intended that the objectives guiding the conceptual study and the element of continuity be used to develop integrated strategies and solutions. With both natural and civic systems, these elements are intended to reflect the generosity associated with city values and the unique generous traditions for which botanical gardens are known. In all cases the materials, attention to detailing and construction should be timeless, simple and of a high standard.

Civic Systems

Pathways:

The surfaces for the pathways must be appropriate to the civic function and use level, such as asphalt or concrete, for paths used by pedestrians and bicyclists. Where possible, the paving material should be soft and pervious, such as gravel for pedestrian only areas. Pervious pavements such as pavers support stormwater management while still allowing for bicycle traffic. Special surfaces at pedestrian nodes will provide both interest and identity at places where pedestrians stop for orientation or activities, but in all cases, the detailing and decorative character should be simple, well crafted and timeless.

Lighting:

The lighting for the Greenway should be functional, efficient and subdued. It should provide the necessary levels of light for public safety near the street and along the public paths and in all cases avoid light pollution. It should also be of a quality and style that lets the planting and stormwater elements take visual prominence. The use of simple, contemporary fixtures that provide pools of light along paths and at pedestrian nodes will achieve this goal.

Furnishings:

Furnishings communicate to all users the civic function of the corridor and the importance of pedestrians. There should be adequate public furnishings to provide pedestrians and bicyclists opportunities to rest and enjoy the enhanced public spaces of the greenway throughout the corridor. Simple, high quality, timeless, greenway-standard furnishing can be

augmented by unique, artistic furnishings that contribute to the sense of public involvement in the stewardship of the Bellevue Botanical Garden Greenway. For example, the tradition of plant cutting and seed sharing among gardeners can be integrated into self maintained leaning rails, benches and signage.

Signage:

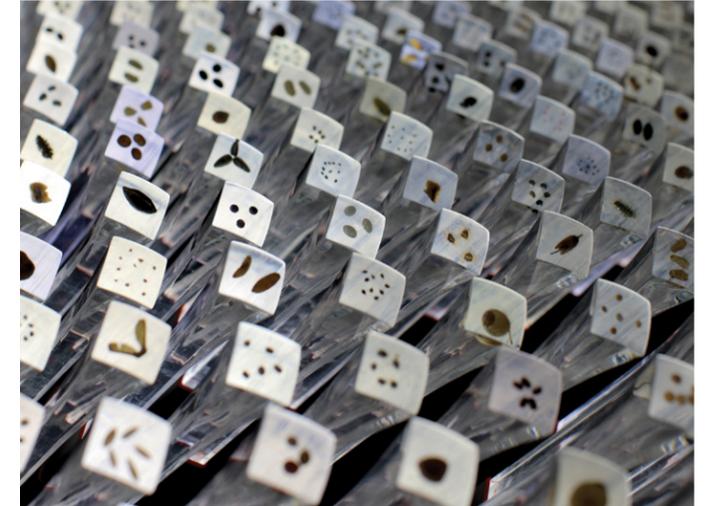
Signage provides identity and wayfinding for visitors to the greenway. It should be informative, timeless, attractive and expressive of the greenway. For vehicle arrivals, it must work with city-standards but also be indicative of the greenway program. For pedestrians and bicyclists, it can be scaled for closer interaction, providing information on destinations or routes, special elements like artwork and interpretation of demonstration projects like creative stormwater facilities and plant or seed sharing.

Artwork:

Artwork within the greenway can contribute to aesthetic appeal and an elevated sense of civic investment in these special streets. It can take many forms and it can be integrated with other elements such as those proposed for stormwater, pathways, signage and furnishings.



Functional and subdued lighting



Unique features that express the Botanical Garden



Furnishings can be unique at special locations



Art in the greenway can be seasonal or ephemeral



Special surfacing such as boardwalks at pedestrian nodes



Furnishings can be special, yet standardized for the greenway



Special details at greenway nodes

Elements of Continuity

Natural Systems

Vegetation/Planting:

The conceptual planting strategy integrates a mixture of Pacific Northwest native and adaptive species as well as water tolerant plants for stormwater functions for a consistent abundantly vegetated corridor reflecting the public character of the garden and park. One of the primary contributing factors within the study area is the strong presence of trees and urban forest that line the roadway. Trees crown the road in many areas and provides an essential greenway characteristic. The planting should represent the level of detail and care that expresses the park and garden. Since these plantings, including the stormwater facilities, will be used as demonstrations for the public and are a significant element of continuity they should represent the variety of available plants without being a piecemeal or disjointed composition.

Stormwater features:

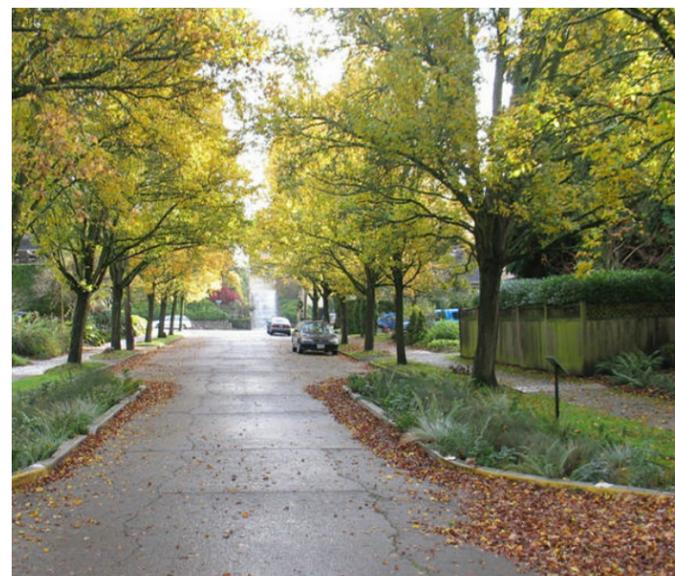
The stormwater features in the concept plan include surface conveyance such as swales and runnels as well as detention elements such as rain gardens and weirs. There are opportunities for larger, more expressive water features that can provide both a functional and aesthetic treatment for stormwater illustrating the city's progressive approach to managing rainwater. The use of attractive and durable materials and well crafted construction for these water features is important for expressing the idea of civic investment in civic infrastructure. Storm water features are an amenity for people using these public spaces of the greenway, connecting the user with the natural systems and patterns of the region.



Pacific Northwest plant palette within rain gardens



Quality of planting that expresses the Botanical Garden



Trees that form an umbrageous canopy over the street



A composed pattern for a rain garden as a visual amenity



Stormwater runnel with aesthetic appeal during a range of flows



An example of a stormwater art feature on Vine Street

Next Steps

During the process of developing the concept plans and report, a number of topics were identified for future study and discussion. In general the topics related to: deviation to current standards such as the roadside clear zone for some non-curbed streets; coordination of further concept approvals by city staff, community members and stakeholders; review of new ideas developed in the concept plans with those already presented in other city policy documents such as the *Comprehensive Plan* and the *Pedestrian and Bicycle Plan*; detail study of specific issues related to technical traffic conditions such as intersections and crosswalks; and initiating conversations with adjacent property owners and jurisdictions in order to develop partnerships for implementing ideas expressed in the design study. Further study of these issues, coupled with public involvement, will be an important next step for gaining positive support for the concepts demonstrated in this report and developing the greenway.

