LIGHT RAIL PERMITTING
ADVISORY COMMITTEE MEETING

Date: May 2, 2014

To: Light Rail Permitting Advisory Committee

From: Matthews Jackson (425-452-2729, mjackson@bellevuewa.gov)
Carol Helland (425-452-2724, chelland@bellevuewa.gov)
Liaisons to the Advisory Committee
Development Services Department

Subject: May 7th, 2014 Advisory Committee Meeting

Enclosed you will find an agenda packet for your eleventh Advisory Committee meeting next Wednesday, May 7th. We will begin at 3:00 p.m. in Room 1E-113 at Bellevue City Hall. The meeting will be chaired by Doug Mathews and Marcelle Lynde.

This packet includes:

1. Agenda
2. May 2nd and May 16th Meeting Minutes
3. South Bellevue Advisory Document
4. Downtown Segment ST Presentation
5. East Link Critical Areas Report and Mitigation Plan

We will have hard copies of all electronic packet materials for you on May 7th. Materials will also be posted on the City's project web site at http://www.bellevuewa.gov/light-rail-permitting-cac.htm.

Please let us know if you have any questions prior to our meeting. We look forward to seeing you next week.

LIGHT RAIL PERMITTING
ADVISORY COMMITTEE MEETING

Wednesday, May 7, 2014
3:00 p.m. – 5:00 pm • Room 1E-108
Bellevue City Hall • 450 110th Ave NE

AGENDA

3:00 p.m.	**1. Call to Order, Approval of Agenda, Approval of April 2nd and April 16 Meeting Minutes** *Committee Co-Chairs Mathews and Lynde*
3:10 p.m.	**2. Public Comment** *Limit to 3 minutes per person*
3:20 p.m.	**3. ST Citizens Accessibility Advisory Committee Presentation (CAAC)** *Michael Miller, Sound Transit*
3:40 p.m.	**4. Finalize South Bellevue Segment Advisory Document** *Committee Co-Chairs Mathews and Lynde*
4:00 p.m.	**5. Continued Discussion of Downtown Segment** *Committee Co-Chairs Mathews and Lynde*
4:20 p.m.	**6. CAC Review of the Bel Red Design and Mitigation Permit (Permit #13-135564 LD)** *Matthews Jackson and Carol Helland*
4:50 p.m.	**7. Public Comment** *Limit to 3 minutes per person*
5:00 p.m.	**8. Adjourn**

Project web site located at: http://www.bellevuewa.gov/light-rail-permitting-cac.htm . For additional information, please contact the Light Rail Permitting Liaisons: Matthews Jackson (425-452-2729, mjackson@bellevuewa.gov) or Carol Helland (425-452-2724, chelland@bellevuewa.gov). Meeting room is wheelchair accessible. American Sign Language (ASL) interpretation available upon request. Please call at least 48 hours in advance. Assistance for the hearing impaired: dial 711 (TR).

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CITY OF BELLEVUE
LIGHT RAIL PERMITTING
ADVISORY COMMITTEE
MEETING MINUTES

April 2, 2014 Bellevue City Hall
3:00 p.m. Room 1E-113

MEMBERS PRESENT:	Marcelle Lynde, Doug Mathews, Susan Rakow Anderson, Ming-Fang Chang, Siona van Dijk, Joel Glass, Wendy Jones, Don Miles
MEMBERS ABSENT:	Erin Derrington
OTHERS PRESENT:	Matthews Jackson, Department of Development Services, Kate March, Department of Transportation; Paul Cornish, John Walser, Deborah Ashland, Sound Transit
RECORDING SECRETARY:	Gerry Lindsay

1. CALL TO ORDER, APPROVAL OF AGENDA, APPROVAL OF MINUTES

The meeting was called to order at 3:02 p.m. by Co-Chair Lynde who presided.

The agenda was approved by consensus.

A. Minutes of March 5, 2014

Ms. Jones referred to the second page of the minutes and noted that in the testimony from Mr. Rosselle and noted that the reference to 124th Avenue SE should read 112th Avenue SE.

A motion to approve the minutes as amended was made by Mr. Miles. The motion was seconded Mr. Glass and it carried unanimously.

B. March 19, 2014

Ms. Anderson referred to the last two paragraphs on page 4 and suggested the comments should be attributed to Ms. van Dijk instead of her.

The minutes were approved by consensus.

C. March 25, 2014 Downtown Segment Open House

The minutes were approved by consensus.

2. PUBLIC COMMENT

Mr. Dick Lohman said the Lake Bellevue land use committee, of which he is a member, includes representatives from the residential condominiums, the office condominiums and various businesses around the lake. He said there is in excess of $50 million in private investment around the lake, so accordingly the property owners have a big stake in how the hospital station and light rail line turns out. He noted that the committee brought to the attention of Sound Transit a list of items in August 2013, and all of those issues are still on the table. The lack of parking around the station is a huge concern to the businesses that operate the office buildings because their business parking lots extend almost all the way out to where the station is going to be. Sound control and landscaping are also very important and the Lake Bellevue property owners would like to see a 30-foot row of trees along the western boundary line, together with a sound wall; a rendering of what that will look like should be produced by Sound Transit. The property owners are very concerned about noise from bells and whistles, especially those who live in the condominiums. There are also concerns about degradation of the wetland around the lake during and after construction. The whole area is underlined with several feet of peat and vibrations from the preliminary work along the tracks have been felt. The buildings that are on piles should still be standing once construction is finished.

Mr. Howard Katz, 7 Lake Bellevue Drive, spoke representing Lake Bellevue property owners as well as the Bellevue Network on Aging. He said a meeting will be scheduled with Sound Transit to talk over the issues Mr. Lohman highlighted. It is concerning that the issues were raised quite a long time ago yet at the 60 percent design phase the issues have still not been addressed. Many light rail stations in the East have flashing lights to announce arriving trains because so many are hard of hearing. There should be such lights at all of the light rail stations in Bellevue, but particularly at the hospital station. He said he was told, however, that Sound Transit has already made the decision not to install warning lights. The station itself should in reality be located at the hospital, not a quarter mile away.

Mr. Steve O'Donnell, spoke as president of the Somerset Community Association. He noted that approximately one-third of the Somerset area residents are senior citizens. In the 60s and 70s the area was heavily populated with Boeing engineers and their families. With regard to the hospital station, he said it should be easy to use, very accessible and safe for the elderly and those with physical handicaps. That includes the pedestrian pathway that will connect the station with the hospital and the medical facilities in the area. It is dismaying to know there will be no moving sidewalk, no clear side screens or canopy for weather protection and security. For many reasons, many who visit the hospital are not able to drive themselves, thus access to the train and the pedestrian pathway to the hospital needs to be easy to use as well as safe and secure, and there should be a moving sidewalk. Plans are under way to extend NE 6th Street and buses will no longer drop passengers off where the hospital station will be located. The station should be moved about 30 feet to the north because when traveling eastbound on NE 8th Street and wanting to go back to the hospital, it is necessary to make a U-turn, and the

traffic backs up all the way to the railroad tracks or 116th Avenue NE, primarily because of westbound NE 8th Street traffic and traffic that is coming south on 120th Avenue NE and merging with NE 8th Street traffic, which backs up behind the buses stopping where the station will be. What is needed is a bump-out for the buses to keep the traffic flowing and to give passengers more time to get on and off the buses. With the extension of NE 6th Street people may be getting off the buses on that street instead. The committee should take a look at how people will get up to the hospital from NE 6th Street. He added that residents of Somerset can hear the bells on trains operating in Renton when conditions are right; using them at the hospital station or near residential areas should be reconsidered.

Mr. Patrick Bannon, president of the Bellevue Downtown Association, thanked the committee for the work it is doing. He said light rail will prove to be a significant community asset once implemented. Recently the BDA and the Bellevue Chamber of Commerce hosted a joint briefing with representatives from Sound Transit and the City of Bellevue where the focus was on the downtown station design. Significant progress has been made since the 30 percent design stage resulting from addressing community concerns. The remaining overarching concern is rider comfort. Sound Transit has stated that the design does not have 100 percent canopy coverage on the platform in order to skirt fire code regulations. What is needed is a design solution that will provide maximum weather protection without triggering the fire and life safety suppression system requirements. That challenge should be solved as the plan advances.

3. CAC REVIEWS PUBLIC FEEDBACK ON DOWNTOWN BELLEVUE SEGMENT (MAIN STREET TO 120TH AVENUE NE, INCLUDING BELLEVUE TRANSIT CENTER STATION AND HOSPITAL STATION)

Planning Manager Matthews Jackson reported that about 120 people attended the open house. There was good energy and a lot of questions were asked and comments were made. There were several comments made with regard to bicycle access and safety, particularly in regard to the downtown station. There were no specific questions about bicycle storage. Comments about pedestrian access and the need for bus pullouts to accommodate rider drop-offs were made regarding both stations. There were questions asked and comments made about construction impacts, and several comments were made about safety on the platforms for those who are hearing or visually impaired or who have mobility issues. With regard to station naming, there was general consensus in favor of keeping the Bellevue Transit Center name, but there were broad opinions expressed about the name for the hospital station

Paul Cornish with Sound Transit said the attendance at the open house exceeded the expectations of everyone. He noted that several people commented on issues being addressed by the city's station area planning effort. Comments specific to the design of the downtown station and the way it will look from 112th Avenue NE were made, and many felt the design improvements made since the 30 percent stage are good.

Ms. Anderson said for the most part the comments she heard from the public were

positive, though concerns were voiced about pedestrian access to stations, particularly the walkway connecting the hospital station to the hospitals. Even though the walkway will be ADA accessible, it will be a long walkway without any weather protection.

Co-Chair Mathews said he heard the same concern voiced about the walkway. He agreed with those who highlighted the need to have a visual cue along with an audible cue for approaching trains.

Co-Chair Lynde said she heard from several members of the public concerns about the hospital station walkway. She said she would like to see more thought put into the design of the walkway to accommodate resting places and weather protection.

Co-Chair Lynde also noted that several years ago there was discussion about creating a circulator bus system in downtown Bellevue and she asked if that project is still under consideration. Mr. Jackson said the topic comes up frequently. The city is currently updating the Downtown Transportation Plan and part of that work included a study analyzing how the pending transportation and transit improvements will work together, so it cannot be said that the circulator idea is dead. There are, however, no plans on the books to create such a system. Co-Chair Lynde said one solution would be for Sound Transit to partner with the hospitals to operate a shuttle between the station and the hospitals.

Mr. Miles agreed that Sound Transit should provide a means for getting people directly to the hospital compound.

Co-Chair Lynde said she heard comments at the open house about naming the hospital station the Lake Bellevue/Hospital station. She said she also heard comments about the need to have clear and safe bike lanes connecting to all of the light rail stations in the city.

Mr. Chang said he heard mostly positive comments about the design of the downtown station. One concern voiced had to do with increased pedestrian traffic between the transit center and the station that could be improved by constructing an underpass.

Mr. Glass said most of the comments he heard were focused on access. The response for the most part has been that the station area planning process will address those issues. He suggested it would be useful for the committee to be educated with regard to the station area planning process. Mr. Jackson agreed that would be a good idea. He added that both he and East Link Public Outreach Coordinator Kate March are serving on the station area planning team. That effort is just getting under way, but there will be coordination between the work of the committee and that work.

Ms. van Dijk said she also heard the comments voiced about pedestrian access between the hospital and the hospital station, and heard comments about accessing NE 8th Street by vehicle from the station. Many believe traffic will back up on NE 8th Street as transit riders are dropped off. The fact that there will be no drop-off pullout at the downtown

station will not stop people from dropping off riders, and that will also back up traffic. She agreed there should be a shuttle to take people back and forth between the hospital and the hospital station, even if it is only a system using golf cart-type vehicles. She added that she heard a lot of positive comments regarding the design of the downtown station.

Ms. Jones said she also heard the comments already highlighted but also heard comments about the lack of parking around the two stations. There will be some who will need to park their cars and take the train and that should be acknowledged by planning for it. She said she also heard comments made about the lack of restroom facilities, particularly at the downtown station. While providing restroom facilities is not Sound Transit policy, there should be facilities provided at the downtown station at least.

Mr. Miles said he recently visited transit systems in Buenos Aires and Rio de Janeiro and found that neither uses audio signals and both use lights. They also incorporate restroom facilities at the stations. The systems are heavily used.

Answering a question asked by Co-Chair Lynde, Mr. Walser, architect with Sound Transit, said the trains do not have horns but do have electronic bells that are activated when the train operator approaches a station platform. The electronic bell is rung three times unless something occurring on the platform triggers the need to ring the bell more than three times. He said his office is across the street from the King Street station and adjacent from the International District light rail station. The heavy rail trains that serve the King Street station use the old-fashioned clanging bells that are quite loud, and they also have horns. The electronic simulation of a bell used by the light rail trains is quite different.

Deborah Ashland with Sound Transit invited the committee members to ride the light rail in Seattle to hear what the bell sounds like. Mr. Walser said the East Main Station will utilize bells where pedestrians will cross the tracks to approach the platform, and bells will also be used at the 130th Station where there will be an at-grade crossing of the street. Train announcements and safety messages are broadcast from speakers at the stations.

Mr. Miles said the main station in Rio de Janeiro has a light strip in the platform about a foot away from where passengers load the trains. Ms. Ashland said the Washington Metro system uses flashing lights, but Sound Transit does not use any up-lights at all. A citizens' accessibility advisory committee has weighed in on a number of issues, including the use of flashing lights. People with vision impairments can have difficulty in getting their eyes to adjust quickly and flashing lights can be problematic.

Co-Chair Lynde noted that warning lights embedded in the platform floors would not have to be overly bright. All that is needed is something that can get the attention of riders, particularly at the hospital station. Ms. Ashland said Sound Transit would not want to use a light warning system at one station only; if used at all, such a system would need to be incorporated into all the stations. Co-Chair Lynde said even a single flashing

light at either end of the platform would be sufficient. Some creative design solution to providing a visual acknowledgment should be ferreted out. Ms. Ashland said Sound Transit has been working with a number of groups, including Lighthouse for the Blind and a deaf/blind working group, and their recommendations have been incorporated into the station designs. She said she would share with them the comments made by the committee to consider additional accommodations.

Ms. Anderson said she heard at the open house a concern voiced about the Lake Bellevue wetlands and the challenging drainage design that will be required for the hospital station. Mr. Walser said Sound Transit has been working closely with the City of Bellevue. The environmental folks have been researching all the issues and the approach to be taken will be that no work done to relocate Sturtevant Creek will affect the level of the lake. The intent is to maintain the existing conditions except that the invasive species that have caused problems in the past will be cleaned out.

Ms. Jones asked how the platforms will be cleared in case of emergency, adding that she was particularly interested in knowing how people in wheelchairs would get off the platforms if the elevators were not working. Mr. Walser said no station has only a single elevator, so if one is down for maintenance the other will always be available. In an emergency scenario involving a power outage that prevents either elevator from working, those in wheelchairs will be assisted in getting to areas of refuge where they can await rescue assistance. Ms. Ashland added that the stations will also be fitted out with emergency power sources to run the lighting systems, the elevators, the public address system, and the emergency evacuation system. The areas of refuge also have emergency telephones and they are signed where required by code.

Mr. Jackson commented that the Tukwila light rail station has restrooms and asked what criteria is used by Sound Transit to evaluate whether or not including restroom facilities is appropriate. Ms. Ashland said the main issue is maintenance and where there are shared agreements with jurisdictions or adjacent developments restroom facilities can be included. Board direction coupled with a local agreement would be needed to include facilities at any of the Bellevue stations.

4. CAC PROVIDES SOUND TRANSIT WITH ADVISORY DOCUMENT FOR SOUTH BELLEVUE SEGMENT (I-90 TO SE 4TH STREET, INCLUDING SOUTH BELLEVUE STATION)

Mr. Jackson said the committee at its next meeting would provide formal feedback to Sound Transit to advise their permit application.

Mr. Cornish called attention to the committee's desire to see a plan for bird management and safety at the South Bellevue Station and said he has passed along the request to Sound Transit's environmental folks. He said he had not yet received a response from them.

Co-Chair Mathews clarified that in addition to the committee having a concern about

birds flying into glass, there is also a health concern associated with having birds nesting on the station. Ms. Ashland said the design criteria requirements do take that into account with an eye on preventing birds from nesting at the stations.

Mr. Cornish sought clarification from the committee regarding the historic references to truck farming of strawberries and blueberries. He pointed out that the comments made by the Eastside Heritage representative indicated that truck farming historically occurred in the midlakes area but not around Mercer Slough. Mr. Jackson agreed but noted that the representative asked the committee to keep in mind the historical context throughout the alignment, not just where the stations will be sited.

Ms. Jones clarified that the comments made by the Eastside Heritage representative with regard to historic references were in relation to artistic touches in the station designs. Mr. Walser said one example of how Sound Transit has honored historical references can be found at the south end of the Mt. Baker Station, where the historic Cheasty Boulevard was restored as part of the project, there is a display at the plaza level with panels recounting the Olmstead Boulevard system. A similar display is anticipated for the Hospital station honoring the history of the railroad depot and the truck farming connection. The South Bellevue station could include panels with a Mercer Slough Park orientation.

Ms. Anderson said she would like to see both artistic touches and the more traditional display panels heralding the history of the South Bellevue area and the Mercer Slough. Co-Chair Lynde concurred, suggesting that the history depicted should reflect both the natural and built environments. Ms. van Dijk said her preference would be to focus on the natural history of the area.

Mr. Walser said he assumed that the intent of the first bullet under the landscape development section had to do with the color pallet and the textures used for the garage and the station. He said as the process of identifying potential art locations and artists progresses, there will be a push for art that will take on the theme of the Mercer Slough and the park. The design team has also put together recommendations relative to sustainability options that go beyond the sustainability features Sound Transit tries to incorporate into all of its facilities. The list includes rainwater harvesting and creating a large underground cistern to capture water to be used for watering the landscape.

There was agreement among the committee members that the references to a park concept included both landscaping that is green and park-like and the idea of using sustainability elements to make the facility green. The station is in a unique setting by virtue of being located in the middle of a wetland in the middle of a park.

Mr. Walser said the intent of the landscape architect relative to the areas under the guideway is to create rain garden planter areas that are recessed about 18 inches below the top of the curb. During a heavy rainfall the planters would actually fill with water. The plant materials will be designed to tolerate both supersaturated and dry conditions. Runnels will be installed under the plaza with a grating so people can see and hear the

water flowing into the rain gardens. Ms. Jones suggested it would be appropriate to include signage explaining the rain garden concept.

Co-Chair Mathews observed that the airport station has informational panels that give the history of the area. Something similar could be incorporated at the South Bellevue station. Mr. Walser said there is some opportunity for that near the bus platform and the entry lobby. Additionally, the station will include the creation of a new stairway leading into the park and connecting with the trails. The anticipation is that a fair number of people will use the facility to connect with the park; some will choose to drive and park, but others will come by rail and the latter will have access to the displays, signage and orientation.

Mr. Glass said the rain garden will be a nice element but alone it will not green up the station in the way the public has called for. Other design solutions need to be identified for the guideway and the main wall of the garage to make them fit better with the context. The use of more natural materials certainly would help along with a green wall and a green roof.

Ms. Anderson said if it were up to her she would put trees in front of every column and solidly along Bellevue Way. Ms. Ashland pointed out that the plan does call for planting trees along Bellevue Way and in other areas of the site. Mr. Walser said there is a requirement for a 25-foot clearance between street lights and street trees, though there is also a code requirement for a landscape buffer. For safety and security purposes, the trees must be limbed to seven feet, and shrubs can be no higher than 36 inches.

Mr. Jackson pointed out that the work of making sure the proposal complies with the Land Use Code has not begun. He assured the committee that the city's rather strenuous landscape requirements will be applied to the station application.

Co-Chair Lynde suggested the opportunity exists to treat the guideway artistically, possibly in a way that will suggest a flowing river or waiving grasses. A treatment of that kind would certainly green up the visual image of the guideway. Ms. Ashland allowed that the guideway will be a far more prominent feature from Bellevue Way than the parking garage.

Mr. Glass concurred. He said it is evident that the guideway will be imposing and it will not be possible to camouflage it with landscaping. Anything that can be done to soften the guideway should be done.

Mr. Cornish referred to the fifth bullet of paragraph 2 in the section dealing with the design guidelines and the notion of having the South Bellevue station serve as a grand entry into Bellevue. He asked how that idea meshes with the idea of greening up the station and making it fit better with the context.

Mr. Miles suggested that creating a grand entry statement and then hiding it would not make sense.

Co-Chair Lynde said the gateway should define Bellevue as a city in a park. A Disneyland-type grand entry certainly would not be appropriate. Ms. Anderson agreed and said the grand entrance should be a park-like setting rather than a lot of concrete.

Mr. Walser reminded the committee that the guideway will be 30 or 40 feet in the air. Dealing with the ground plane and making it attractive with landscaping will draw the eye of anyone driving or walking along Bellevue Way. Co-Chair Lynde agreed but said that will still not make the guideway go away. The guideway itself could be the piece that connects everything together if artistically addressed. The guideway represents as big an opportunity for artistic treatment as the big wall at the downtown station.

Answering a question asked by Mr. Jackson, Mr. Glass suggested the information in the context-setting document could do a better job of stressing the use of natural materials such as stone and brick to help fit the station into the context of the park.

Ms. Jones agreed and said she would prefer to see surfaces that can be more natural or reflective of that which can be found in nature. That can be done by using texture, color, or natural materials. At the same time, no one area or feature should be focused on at the exclusion of the others. Mr. Walser said he will direct the design team to take the broader view and make every effort to come up with something that will achieve integration with the park and the green concepts.

Ms. van Dijk observed that the committee discussed building height and registered some concerns. Mr. Glass said he had concerns about height but did not know how tall the structure would be or what the code allows. Mr. Jackson said the committee's discussion focused on height in the context of including a green roof. The Land Use Code does allow for the structure to be taller than the underlying zoning otherwise permits provided specific criteria are met. The committee did not, however, specifically direct the addition of comments about making the building shorter or allowing it to be taller.

Mr. Jackson said he would revise the document as directed and formally transmit it to Sound Transit.

5. CAC INTRODUCTION TO THE BEL-RED DESIGN AND MITIGATION PERMIT (PERMIT @13-135564 LD)

Mr. Jackson said he would have the Bel-Red design and mitigation permit documents ready for the next committee meeting. He said he would include in the next packet a roadmap for how to navigate the document, which includes the responses from Sound Transit to the decision criteria for a permit, their responses to the context-setting information in the Land Use Code, and a set of project-level drawings.

6. PUBLIC COMMENT

Ms. Betsy Blackstock said she has been involved with Sound Transit for at least a

decade. She said she shared with Paula Thomas, vice chair of the Sound Transit board, a concern that the board was not listening to the public Ms. Thomas responded that the board was in fact listening but was not doing what the public wanted. That profound statement has been repeated around Bellevue for the last decade. She praised the committee for their role they are playing and for actually listening to the public and trying to incorporate what the public wants. A checklist should be created that includes everything discussed by the committee, and for each item there should be an associated statement explaining why each can or cannot be done.

Ms. Michael J. Link spoke as president of the sub-Lake Bellevue basin and the alliance of the Spring District with the Lake Bellevue Neighborhood Association, the land use chair for the Lake Bellevue neighborhood that includes Group Health and Whole Foods, a board member of the Lake Bellevue Homeowners Association, and vice president of the Lake Bellevue Water Quality Association. He said his focus has been on the vision for the Lake Bellevue area as it ties into the light rail station, which should be called the Lake Bellevue station. He said a great amount of money has been spent in a partnership with the Spring District on water quality measures for the Lake Bellevue sub-basin. Sturtevant Creek is planned to become a feature of the station and as such it should be emphasized. Water quality and measurement systems are set to be installed for the lake in the next few months. He offered to email to the committee details regarding the vision for the area. He said he has been involved with the work to design the station from the beginning and has been concerned that things keep appearing on the design sketches around which there has been no discussion at all. Many of the things that have appeared will affect the Lake Bellevue neighborhood itself, the Lake Bellevue condominium development, or traffic in the area.

7. ADJOURN

Co-Chair Lynde adjourned the meeting at 5:00 p.m.

CITY OF BELLEVUE
LIGHT RAIL PERMITTING
ADVISORY COMMITTEE
MEETING MINUTES

April 16, 2014 Bellevue City Hall
3:00 p.m. Room 1E-113

MEMBERS PRESENT:	Marcelle Lynde, Susan Rakow Anderson, Ming-Fang Chang, Siona van Dijk, Joel Glass, Wendy Jones, Don Miles
MEMBERS ABSENT:	Erin Derrington, Doug Mathews
OTHERS PRESENT:	Matthews Jackson, Carol Helland, Department of Development Services, Kate March, Department of Transportation; Paul Cornish, John Walser, Deborah Ashland, Chad Biddle, Sound Transit
RECORDING SECRETARY:	Gerry Lindsay

1. CALL TO ORDER, APPROVAL OF AGENDA, APPROVAL OF MINUTES

Co-Chair Lynde called the meeting to order at 3:02 p.m.

Mr. Glass asked to add to the agenda a discussion of the trackway segments. Co-Chair Lynde agreed to add it following the Bel-Red design and mitigation permit agenda item.

The amended agenda was approved by consensus.

It was noted the minutes of the March 19, 2014, meeting would be available for approval at the next Committee meeting.

2. PUBLIC COMMENT

Mr. Howard Katz, 7 Lake Bellevue Drive, spoke representing the Bellevue Network on Aging. He introduced Lea Foss as someone who has photophobia and who is familiar with lights at stations having worked in Washington, D.C.

Lea Foss, 10001 NE 1st Street, Apt. 413, explained that photophobia involves sensitivity to light. It can run the full range between light being a mere bother to one's eyes up to and including flashing lights causing blindness. If flashing lights were to be installed at the hospital station to announce the arrival of a train, persons with the more severe form of photophobia could be blinded. She said she has photophobia and has lived and worked in Washington, D.C., where flashing lights are used as part of the metro system, and has had no problems with them. She said her severe sensitivity to light stems from having severe migraines ten to eighteen days per month. She said she cannot be around

fluorescent lights. The pot lights used in Washington, D.C., have never caused a problem. What can be done is to use certain colors on the light lenses, and to use certain kinds of lights, to keep them from causing problems for those with photophobia or who are visually impaired.

Paul Cornish with Sound Transit said he has been talking with Mr. Katz about the issue. He explained that Sound Transit has an appointed citizens accessibility advisory committee to provide system wide comments. He said members of the Committee are welcome to attend one of the accessibility advisory committee meetings. Additionally, the head of the group is willing to address the Committee, or provide a write-up to the Committee on the accessibility program.

Ms. Anderson asked Mr. Katz what his specific concerns were regarding lights at the hospital station. He responded by saying 17 percent of the population of the United States is either hard of hearing or deaf, as opposed to three-tenths of one percent who are blind, some consideration should be given them in the design of the hospital station. The station is intended to be in use for many years and because of its proximity to the hospital will be used by an older population. As Bellevue residents continue to age, the percentage of those with hearing issues will only increase. The metro system in Washington, D.C., recognizes that fact and that is why they incorporate lights as a way to improve safety. According to the director of safety for that system, no one has complained about the lights blinding them. The system utilizes vibrating tiles to let the blind know when a train is arriving. Sound Transit would do well to have lights installed at all of its stations as a safety mechanism.

Ms. Betsy Blackstock spoke representing the Surrey Downs neighborhood. She commented that following the last Committee meeting she received a call from a Committee member asking more specifically how the Surrey Downs neighborhood feels about an overpass into the park. She said she was not able at that time to give much information but subsequently has looked further into some of the Surrey Downs efforts. In the past year the neighborhood has participated in three surveys, two regarding the park and one regarding the light rail. The overpass is completely inconsistent with the information received in the two park surveys. The intensity of the Surrey Downs Park is being diminished from a community park to a neighborhood park and any activity that brought extra activity into the park was not supported by the neighborhood on the surveys. The survey done regarding light rail did not support any overpass. Recently the Parks and Community Services Board unanimously agreed on the Surrey Downs Park master park plan update which was extensively negotiated between the city and the neighborhood; that document does not include an overpass. She reminded the Committee that Surrey Downs almost unanimously voted that the light rail line should be in a trench under SE 4th Street, which would allow access to the neighborhood via SE 4th Street. Rather than spending money on an overpass, money should be spent to put the line in a trench.

3. STATION AREA PLANNING UPDATE

Senior Planner Mike Katterman explained that the station area planning program is designed to integrate each of the future six light rail stations in the city into their respective surrounding areas. He said the program is currently working with the Enatai Neighborhood Association and other stakeholders in that area and presently is drafting a plan that will include various strategies to address the issues raised by the folks in that area.

Mr. Katterman said the focus will turn next to the East Main station and the area to be studied will extend from roughly Main Street to SE 16th Street. A citizen advisory committee will be appointed to address that station specifically because of the potential for land use changes on the east side of 112th Avenue NE. No land use changes will be made in South Bellevue.

The downtown station area planning work is being addressed as part of the Downtown Livability Initiative, an effort that has been going on for a little over a year. The work of that CAC extends well beyond the station area itself, but their work related to transportation and access to the station will inform the process.

The hospital/Wilburton station area planning effort will involve roughly the area from NE 12th Street south to East Main on the east side of I-405. The area has had the least amount of focus to date in terms of station area planning, but it also has the most issues to address, including land use, transportation, access and environmental issues. There have been some preliminary discussions with area stakeholders. A CAC will be appointed and the study will kick off in early 2015.

Mr. Katterman reiterated that the East Link permitting CAC has responsibility over everything Sound Transit will own, build and operate, whereas the station area planning CACs will have as their focus the areas outside of that. Every attempt to avoid overlaps will be made, but in most instances where overlapping does occur the issues will be deferred to the permit process.

The Committee was informed that seven years ago the city undertook a process aimed at uncovering light rail best practices. The process kicked off with an open house where the public was asked to identify their concerns. Their responses were grouped into seven or eight categories, and the best practices committee added community involvement. In the intervening years many of the issues have been addressed through the planning process with Sound Transit, but there are still some issues that will be dealt with through the station area planning effort. Though each station will have its own set of issues, the big ones identified so far are access to the neighborhood, access to the station, aesthetics and identity, cut-through traffic, redevelopment potential, safety and security, and spillover parking.

With regard to station access, Mr. Katterman said the focus is on what is called a ten-minute walkshed, which equates to roughly a quarter to half a mile. Most studies indicate most people will walk a quarter mile to a bus stop and about a half mile to a light rail station, though time is more of a factor than actual distance. Of course much depends on

what they are walking on and through, such as hills, areas without sidewalks, and areas that feel isolated or unsafe. With regard to the South Bellevue station, there are really only two ways to get to the station from Bellevue Way, namely SE 30th Street and 112th Avenue NE. The station area planning process will look at ways to expand the walk area to other parts of the neighborhood. Bicycle routes will also be reviewed. Studies seem to indicate that a rider will travel up to three miles to access a light rail station, though hardcore cyclists will ride much farther. The connections will be reviewed to make sure they are clearly marked and safe. Transit connections are also important to the success of light rail systems, so the city will work with Sound Transit and King County Metro to assure good feeder services to the stations.

People access light rail by car as well. The South Bellevue station includes a park and ride lot so that issue is covered. Other neighborhoods will be impacted by what is called hide and ride, or people driving close to a station, parking their car where they should not, and walking to the station. Most studies have found that hide and ride participants are actually from the neighborhood but just outside the walkshed. Enatai is concerned about hide and ride parking given that overflow parking is already occurring at the park and ride. The park and ride capacity will triple, but there are still questions about where people will park once the new park and ride gets filled up. The most effective method for addressing parking in neighborhoods is the Residential Parking Zone program. Essentially a residential permit system, during certain hours only residents with the proper permit sticker can park on a given street. Enforcement is required to make the program effective. Parking in neighborhoods may also prove to be an issue during construction so steps will be taken to make sure it is addressed.

There are two park and ride lots as part of the system in Bellevue that will be associated with the light rail system. The South Bellevue park and ride will have about 1500 parking spaces and will serve a regional function, while the 130th Avenue NE station will have about 300 parking spaces and will serve a more local function. The other stations will not have park and ride functions for a variety of reasons.

With regard to cut-through traffic, Mr. Katterman said the South Bellevue and East Main stations are anticipated to be the most problematic for the neighborhoods. Where drivers perceive that they can save time by cutting through a neighborhood or going around congestion spots, they are prone to doing so, even though the reality is they do not always safe time. Methods for addressing cut-through traffic include traffic calming measures. There are also safety concerns associated with cut-through traffic, particularly where the focus will be on encouraging pedestrians and bike riders.

Peak hour congestion in the Enatai area feeds into their concerns regarding neighborhood access, while in Surrey Downs neighborhood access will be complicated by having fewer overall access points. The station area planning effort will take those concerns into account.

Ms. Anderson commented that traffic exiting the South Bellevue park and ride in the evening and joining the congested Bellevue Way traffic will impact the flow in that area.

In fact, the flow on Bellevue Way will affect the ability of drivers to get out of the park and ride. Mr. Katterman said that is a good example of where the station area planning efforts and the light rail permitting efforts overlap and complement each other. The design of ingress and egress to that park and ride lot, along with the improvements to Bellevue Way that are part of the mitigation Sound Transit will be responsible for, fall into the purview of the Committee. Sound Transit will be constructing an HOV lane on Bellevue Way between the park and ride and I-90, and the city has looked at the possibility of building an HOV lane from the park and ride north to the Y at 112th Avenue SE. While the project is currently in the city's Transportation Facilities Plan, it is not funded. The analysis done a couple of years ago showed that an HOV lane on Bellevue Way would help to reduce the amount of cut-through traffic in the local neighborhood and would help the flow on Bellevue Way.

Answering a question asked by Mr. Miles about the 130th Avenue NE station, Mr. Katterman allowed that traffic in that area is heavy already and the station area planning will consider that factor. He pointed out, however, that a number of transportation projects are planned for the area. The long-term plan for the area is to essentially put a street grid system in place to benefit what is currently only a partial grid.

Mr. Glass noted that Sound Transit is talking about redoing the sidewalk along the north side of the hospital station parking lot, and there is the possibility of a rail-to-trail path following the railroad right-of-way. A number of questions have been raised regarding how to get people over, under or across NE 8th Street at the intersection with 116th Avenue NE. He asked if the station area planning will include that issue. Mr. Katterman said the topic has been identified for the station area planning effort. The crossing of NE 8th Street will be one of the biggest challenges in terms of pedestrian access for the area. The pedestrian environment for the area currently is not at all good: sidewalks are not continuous, are lacking completely in some areas, and there are no clear ways to get from one destination to another. The effort will look at where redevelopment is proposed to occur to make sure it is integrated in terms of an overall pedestrian and bicycle network. The regional trail will be the spine of the network. The current assumption is that crossing NE 8th Street will occur via some sort of overpass.

John Walser, architect with Sound Transit, explained that the project scope includes adding a new sidewalk connection along the north edge of Whole Foods. During the predesign and scoping work for the project, there were discussions with the city about the future plans regarding the rail-to-trail network, and Sound Transit received clear direction from the transportation department against an at-grade pedestrian crossing in front of the station. If the rail-to-trail system comes to fruition, the intent is that the crossing of NE 8th Street will occur above grade. That means room must be left for either future rail or trail in the railroad right-of-way, and that the height of the hospital station will accommodate a future pedestrian overpass.

Mr. Katterman clarified that Sound Transit owns the old Burlington Northern/Sante Fe right-of-way, and King County has an easement for the trail. NE 8th Street, of course, is owned by the city. All three entities would be involved in planning for any kind of

overpass.

With regard to the 300 parking stalls associated with the 130th Avenue NE station, Mr. Walser said they may go away given the existing desires to turn the property into a transit-oriented development as soon as possible. When that happens consideration will be given to how to replace the lost parking stalls, either within the development in a garage or on property nearby.

Mr. Glass said one of his biggest concerns relative to the downtown station involves access from the existing bus transit center. He asked if the Downtown Livability Initiative CAC has specifically talked about that access. Mr. Katterman said that has been a big point of discussion and has been looked at by both the Downtown Transportation Plan update and the Downtown Livability Initiative CAC. The focus is on making sure the connection between the bus transit center and the light rail transit center will be very strong. One of the options on the table is to create a scramble allowing pedestrians to walk in all directions.

4. CAC PROVIDES ORAL FEEDBACK TO SOUND TRANSIT ON DOWNTOWN BELLEVUE SEGMENT

Co-Chair Lynde raised the issue of lighting at the station to accommodate the hearing impaired and said it was her understanding Sound Transit believes it is not necessary. She said she has been talking with people in her community and just about everyone believes it would be shortsighted not to have some kind of a lighting system. Mr. Cornish said Sound Transit accommodates access for riders with various needs, and the system accessibility advisory committee has much to say about how that is done. He reiterated that the Committee would benefit from hearing directly from the head of the system accessibility advisory committee. Co-Chair Lynde agreed that it would be helpful but said she would like to see the issue of lighting uncoupled from the issue of meeting the needs of those with disabilities. Lighting should be a general safety issue.

Ms. Jones asked, if there were to be lighting, if it would be contained within the footprint of the station and not impacting adjacent properties. Co-Chair Lynde said at the metro stations in Washington D.C. there are lights embedded in the platform on the ground. No light escapes the station.

Mr. Walser said it was his understanding the Committee was interested in including lights so people who are not paying attention will know when a train is coming. He asked if the concern is based on the thinking that people will not know to stand behind the two-foot warning barrier that will be at the edge of the platform. He explained that the Sound Transit system platforms differ from the Washington D.C. system platforms in that they are designed for four-car trains. Four-car trains are needed when passing through Seattle where the ridership accessing the trains is in most cases four times or more greater than the projected ridership for the downtown Bellevue station. The Bellevue platforms will not be packed wall-to-wall with people and the station designs take that into account. Where systems in the East allow about eight square feet per person, the Bellevue stations

will have 15 square feet per person at full capacity, though the ridership projections suggest that not even half of the station platforms will be filled by waiting riders. Additionally, there will be audio announcements and video signs directing riders to stand behind the yellow tiles where they will be safe. Additionally, there will be very good sight distances making it possible for riders to see trains coming. Co-Chair Lynde said persons involved in a conversation or otherwise distracted would benefit from having warning lights in addition to the audio and other visual warnings.

Ms. van Dijk pointed out that Sound Transit is not charting new territory with the East Link segment. They have already constructed and are operating stations in Seattle and if there has not been problems associated with a lack of warning lights, there likely will not be any problems in Bellevue either.

Mr. Walser said Sound Transit takes pains to address safety issues in the same way for all of its stations to avoid confusing riders. Accordingly, adding lights for the Bellevue stations will trigger the need to add lights at all other stations in the system. He agreed, however, to take the Committee's recommendation into consideration.

Mr. Glass asked why the tiles for the downtown station were intended to be similar but not exactly the same color as those used for City Hall. Mr. Walser said the architects felt the station should have its own identity with its own appearance, but also felt there should be an acknowledgement that the station will be sharing the same block with City Hall. They chose to pick up on the City Hall materials relative to scale and scoring patterns, but concluded the color of the materials for the station should be different.

Mr. Glass observed that there is also talk of redeveloping the plaza with the end result of having the entire area being fully cohesive. He suggested having the station colors match would help to reinforce that notion. Mr. Walser allowed that the city's plaza redesign came in after the architects working on the downtown station had reached the 60 percent design stage. The team has not had a chance to assimilate that information as yet, but the intent is to maintain a somewhat different character for the station.

Mr. Glass asked how tall the canopy is and what the glass materials are. Mr. Walser said the terracotta walls associated with the station elevator and exit stairs will be roughly 14 feet tall, so the underside of the folded plate glass canopy will be in the 16-to 18-foot height range. Mr. Glass suggested that incorporating multiple heights into the canopy rather than simply an undulating pattern could reinforce the notion of trees. Ms. Walser said the intent is to create a large canopy area that does not have gaps through which wind and rain can drift in.

Ms. van Dijk said the canopy as drawn reminds her of Denver International Airport where the canopy resembles mountain peaks. She said it is beautiful being under it, but it does tend to attract birds that cannot seem to find their way back out. Mr. Walser said all potential bird resting and roosting areas will incorporate bird wire or other deterrents, though he admitted that such elements are not 100 percent effective.

Mr. Glass asked about the proposal not to cover the entire platform area in order to avoid having to install fire sprinklers, and asked what the risk of fire is anyway and whether they should in fact be installed. Mr. Walser said the materials Sound Transit uses for stations are all rated Type II construction, which means they are noncombustible. On the platform there will be steel columns and beams, metal panels and glass panels. The trash and recycling containers will be located outside the canopied areas, including on the platform where there is no canopy. Part of that ties back to Homeland Security concerns about people potentially leaving a bomb in a trashcan. Because the platform is outdoors, any sprinklers installed would have to involve a dry standpipe system to prevent freezing in the winter. Beyond the expense of installing a sprinkler system, there are also costs associated with maintaining them. The gaps in the canopy will in fact provide people a place to stand in full sun on sunny days. The ridership projections are such that only a 50 percent canopy coverage will be sufficient to provide weather protection for everyone on the platform.

Answering a question asked by Mr. Glass, Mr. Walser said the building on the old Coco's site will house equipment to control the switches for the crossover tracks on the elevated guideway. In the initial design work for the station, consideration was given to incorporating the switching equipment into the station itself. The conclusion reached was that the cost to turn some of the retained fill into an elevated structure would be significantly more than constructing a separate signals building. In general, for signals buildings and traction power substations there is a strong preference for having them pre-manufactured in a factory and delivered to the site by a single contractor. The practice allows for excellent quality control. The signal building for the downtown station will be located as close to under the guideway as possible. Sound Transit is working hand-in-hand with the city on the plans for the future extension of NE 6th Street across I-405 with a pedestrian/bicycle facility for which the city wants to create a large landing area at the intersection with 112th Avenue NE, and that is dictating to some degree where the signal building can be located.

Mr. Glass asked if the tunnel through which the trains will pass will be dark. Mr. Walser said the tunnel will be lighted and the riders will be able to see the concrete wall surfaces. The lighting will be the minimum necessary to illuminated the emergency exit walkways along the side of the tunnel. Artwork could potentially be placed in the tunnel along the lines of what is in the Beacon Hill tunnel in Seattle.

Mr. Glass asked what artwork if any will be installed in the new University Link extension tunnel. Deborah Ashland with Sound Transit said the tunnel will include a lot of infrastructure in the form of conduit and light fixtures along with OCS lines. There is no art in the tunnel that runs from Westlake to the University of Washington or through the Maple Leaf portal, and no decisions have been made with regard to including art in the Bellevue tunnel. Arts Specialist Mary Pat Byrne with the city of Bellevue has been working with Barbara Luecke with START on selecting artists, and the tunnel is not something that has risen to the top.

Mr. Cornish explained that given the speed of the train and the length of the Bellevue

tunnel, the trip through will last just over a minute and a half.

Mr. Glass stressed the need to improve access between the bus transit center and the light rail station. He suggested that a large number of riders will need to use both forms of transit to get to and from their destinations. While a scramble intersection might work, he said his preference would be for a tunnel or overpass.

Ms. Anderson said she was not sure an overpass would be a good thing. It would require effort for the pedestrians to walk up it and then back down again. What will be most important will be protection from the elements. Mr. Walser said the Council has allocated additional funds for some additional canopy coverage at the intersection corners, and the issue is being addressed by the Downtown Livability Initiative CAC. The canopies would provide some protection for pedestrians waiting for the scramble signal to cross the street. The canopies, however, are not a Sound Transit issue.

Ms. van Dijk said it appears the closest bike lane to the downtown station comes in at the lower level, while the bike racks and the cages are on the upper level. She asked how easy it would be for cyclists to come in from the lower level. Mr. Walser pointed out that bike racks and lockers will be provided at the lower end as well, though the bike storage room will be located on the upper level.

Ms. Jones observed that the canopy gaps are 20 feet wide and that there are two of them on each side of the platform. Mr. Walser said the gaps are the result of Bellevue code. They must be 20 feet or larger, and the maximum length a canopy can be is 200 feet. Ms. Ashland said the gaps are required in order to avoid being required to install fire sprinklers. As drawn, the canopies max out the 200 feet allowed.

Ms. Anderson commented that the canopy coverage as planned is more than adequate.

Mr. Chang suggested the area connecting the light rail station to the transit center would be perfect for an underground mall.

Focusing on the hospital station, Ms. van Dijk noted that the issue of covering or otherwise making more pedestrian friendly the walkway leading from the station to 116th Avenue NE has been highlighted more than once. Co-Chair Lynde said she had heard consensus from the Committee members about the importance of doing that.

Ms. Jones asked if the gap in the canopy for the hospital station stems from the same city code requirements. Mr. Walser allowed that it does, but he added that the amount of canopy coverage there far exceeds what will be required by the projected ridership. Ms. Jones observed that the stairways and elevators come up under the canopies on either end of the platform and suggested it would make more sense to have them come up where there is the most canopy coverage and to create the gap more in the middle of the platform. Ms. Walser said to some degree the design results from what is happening on the ground plane. Ms. Ashland clarified that the four-car train will take up the entire platform so riders will be able to access the cars from either end of the platform, making

it possible for riders to avoid getting wet.

Mr. Glass urged caution in creating the landscaping plan to avoid creating visual barriers for vehicles coming down NE 8th Street.

Ms. van Dijk asked if the hospital station will be the only place the rail-to-trail concept connects with the light rail system once the trail becomes a reality. Mr. Walser said the hospital station will provide the closest and more direct connection to the trail. The 120th Avenue NE station will be about a block away from the trail. However, the NE 15th Street design will include a connection to the trail and the Spring District station.

Answering a question asked by Mr. Glass, Mr. Walser said there will be similarities between the guideways in Bellevue and those used elsewhere in the light rail system. The Bellevue guideways will, however, include enhancement treatments that will be unique to Bellevue. Ms. Ashland offered to bring to a future meeting slides showing the designs for the Bellevue guideway columns.

Mr. Glass said he would like to see the lidded area adjacent to the Winters House expanded. As drafted it is only large enough to accommodate the driveway to the parking lot. If expanded, it would help to preserve the park-like feel of the Winters House. Along 112th Avenue SE, some articulation should be provided in the sound wall for visual interest.

Mr. Miles said he would prefer to see the wall done much as the wall along NE 8th Street, which becomes a part of the landscape.

Mr. Jackson encouraged the Committee members to take a drive along 140th Avenue SE to see the sound wall and is associated landscaping.

5. CAC INTRODUCTION TO THE BEL-RED DESIGN AND MITIGATION PERMIT (Permit #13-135564 LD)

Mr. Jackson called attention to the packet of materials regarding the Bel-Red design and mitigation permit. He said the intent is to tackle the materials in segments based on the decision criteria for approving design and mitigation permits. He noted that the materials provided to the Committee members included all of the plan drawings submitted with the application, but pointed out that the critical areas report would be available for the next Committee meeting.

With regard to the 130th Avenue NE station, Ms. Ashland said the work is moving forward toward towards the 90 percent mark. She shared with the Committee images of the site plan showing the future NE 16th Street, the city of Bellevue project which may or may not be installed by the time the station is completed. The site plan indicated the parking area to the north of the station area.

Ms. Ashland shared with the Committee imagery for the entry canopies utilizing the

generally accepted precast panels to evoke their organic nature. She also showed drawings that acknowledged the idea of acknowledging the organic forms and shapes of Goff Creek and playing up the idea of the stratification of the earth and how they might be translated into architectural elements. Local rocks could be used in the layering idea. She noted that the architects are also playing with the idea of light. She said if the concrete panels are used, it would be fairly simple to put holes in them and accentuate the idea of light behind the wall.

Sound Transit architect Chad Biddle, manager for the 130th Avenue NE station, reminded the Committee that the precast panels would not have flat planes, rather they would have sculptural relief creating shadows and interest.

Ms. Ashland said the idea could be translated to other areas as well, including the railing and in the plaza. She said color for the wall is yet to be worked out along with the lighting scheme.

Ms. van Dijk voiced her support for having light come through the wall panels and for the organic patterns and layers, but stressed the need to go for the abstract to avoid having the station look like a gravel pit.

Mr. Glass said he also liked the patterns and said it would be fun to incorporate a lot of different colors with different aggregates.

6. PUBLIC COMMENT

Mr. Howard Katz voiced concern about access to the hospital from the hospital station. He said the station will not have high ridership, and most will be wanting to get to the hospital. The pathway needs to be made as safe as possible for those who will walk it. Homeless persons are known to live along the tracks behind Whole Foods. The city should work with Sound Transit to make sure the pathway will be safe. Additionally, for those who are not able to walk, some means of getting people from the station to the hospital needs to be identified.

7. ADJOURN

Co-Chair Lynde adjourned the meeting at 5:18 p.m.

LIGHT RAIL PERMITTING
CITIZEN ADVISORY COMMITTEE

ADVISORY DOCUMENT
SOUTH BELLEVUE SEGMENT PRE-DEVELOPMENT REVIEW
APRIL 2, 2014

Introduction

The Light Rail Permitting Citizen Advisory Committee (CAC) was appointed by the Bellevue City Council consistent with the terms of the Light Rail Overlay regulations contained in the city's Land Use Code (LUC). Land Use Code section 20.25M.035.A describes the CAC purpose to:

1. Dedicate the time necessary to represent community, neighborhood and citywide interests in the permit review process; and
2. **Ensure that issues of importance are surfaced early in the permit review process while there is still time to address design issues while minimizing cost implications*;** and
3. Consider the communities and land uses through which the RLRT System or Facility passes, and set "the context" for the regional transit authority to respond to as facility design progresses; and
4. **Help guide RLRT System and Facility design to ensure that neighborhood objectives are considered and design is context sensitive by engaging in on-going dialogue with the regional transit authority and the City, and by monitoring follow-through*;** and
5. **Provide a venue for receipt of public comment on the proposed RLRT Facilities and their consistency with the policy and regulatory guidance of paragraph 20.25M.035.E below and Sections 20.25M.040 and 20.25M.050 of this Part; and**
6. **Build the public's sense of ownership in the project***; and
7. Ensure CAC participation is streamlined and effectively integrated into the permit review process to avoid delays in project delivery.

* Identifies the focus of this Advisory Document

Pre-Development Review

This phase of review is intended to provide feedback regarding effectiveness at incorporating contextual direction into the early phases of design. The CAC is expected to provide advice regarding complementary building materials, integration of public art, preferred station furnishings from available options, universal design measures to enhance usability by all people, quality design, materials, landscape development, and tree retention. The CAC is to provide

further input and guidance, based on the input and guidance provided in the context setting phase, on compliance (or lack of compliance) with the policy and regulations and whether information is sufficient to evaluate such compliance.

CAC Work Product

The work of the CAC at each review stage will culminate in a CAC Advisory Document that describes the phase of review and CAC feedback. The work product required following the Pre-Development Phase of CAC review is intended to provide Sound Transit with early guidance and advice that is integrated into future Design and Mitigation Permit submittals.

At the February 5th, 2014 CAC meeting Sound Transit presented its pre-development review stage package for the South Bellevue Segment. The CAC continued to discuss the South Bellevue Segment at the February 19th, 2014 and March 5th, 2014 meetings.

The following represents the CAC advisory comments regarding LUC 20.25M.040, 20.25M.050, and context setting sensitivity.

20.25M.040 RLRT system and facilities development standards

1. Building Height – No concerns expressed by the CAC. More project specific information will be included during the Design and Mitigation Permit review stage.
2. Setbacks – No concerns expressed by the CAC. More project specific information will be included during the Design and Mitigation Permit review stage.
3. Landscape Development
    - The CAC would like to see a design of the South Bellevue Station and Garage that more visually relates to a park concept.
    - The CAC has a strong desire to see the use of a living wall designed into the South Bellevue Station Garage.
    - The CAC would like Sound Transit to evaluate a living roof or roof deck planters as an additional way to relate the parking garage to the natural environment of Mercer Slough Nature Park.
    - The CAC would like to see green wall screening as an approach to soften some of the hard edges of the South Bellevue Station Garage. This would not necessary be a living wall but a landscape feature that achieves the same goal.
4. Fencing – No concerns were expressed by the CAC. More project specific information will be included during the Design and Mitigation Permit review stage.

5. Light and Glare

   - The CAC would like to see light standards on the deck of the South Bellevue Station Garage that are as low as feasible to avoid light pollution into the neighborhoods in the vicinity.

6. Mechanical Equipment - No concerns were expressed by the CAC. More project specific information will be included during the Design and Mitigation Permit review stage.

7. Recycling and Solid Waste - No concerns were expressed by the CAC. More project specific information will be included during the Design and Mitigation Permit review stage.

8. Critical Areas

   - The CAC would like to see a plan for bird management and safety at the South Bellevue Station.

   - The CAC wants to ensure that facility lighting does not have a negative impact on the wildlife that live in and visit the adjacent nature park.

9. Use of City Right of Way - No concerns were expressed by the CAC. More project specific information will be included during the Design and Mitigation Permit review stage.

<u>20.25M.050 Design guidelines</u>

1. Design Intent - In addition to complying with all applicable provisions of the Southwest Bellevue Subarea Plan, the design intent for the Regional Light Rail Train system and facility segment that passes through this subarea is to contribute to the major City gateway feature that already helps define Bellevue Way and the 112th Corridor. The Regional Light Rail Train system or facility design should reflect the tree-lined boulevard that is envisioned for the subarea, and where there are space constraints within the transportation cross-section, design features such as living walls and concrete surface treatments should be employed to achieve corridor continuity. The presence of the South Bellevue park and ride and station when viewed from the neighborhood above and Bellevue Way to the west, as well as from park trails to the east, should be softened through tree retention where possible and enhanced landscaping and “greening features” such as living walls and trellises.

2. Context and Design Considerations - The CAC was tasked with evaluating the existing context setting characteristics included in the Land Use Code in order to verify that the design of the station and alignment is consistent with the vision for the Southwest Bellevue. The Land Use Code states that the character of this area is defined by:

- The expansive Mercer Slough Nature Park;

- Historic references to truck farming of strawberries and blueberries;

- Retained and enhanced tree and landscaped areas that complement and screen transportation uses from residential and commercial development; and

- Unique, low density residential character that conveys the feeling of a small town within a larger City.

The CAC advised that the following additional context and design considerations should be considered when evaluating the East Link project in the Southwest Bellevue Subarea for context sensitivity during future CAC and permit review phases. The following items pertain to the South Bellevue Segment:

- The alignment transition from the I-90 right-of-way to the South Bellevue Station should be reflected as a "Grand Entry" into Bellevue. This gateway area defines Bellevue as the "City in a Park." The gateway serves a number of functions, and should appropriately greet the different users that pass through it, including transit riders, vehicles, residents, bicyclists from the I-90 trail, fish (specifically salmon), and wildlife.

- The South Bellevue Park & Ride garage should incorporate green/living walls and trellis structures on the roof level in addition to interesting concrete surface treatments to break down mass and scale, and to help blend the garage into the Mercer Slough Nature Park when viewed from the neighborhoods to the west and the park to the east.

3. Additional General Design Guidelines

    - The CAC would like to see less hard edges in the design of the South Bellevue Station. One suggestion would be to incorporate more organic shapes into the design to soften hard lines.

    - The CAC would like Sound Transit to evaluate the possibility of using an artistic design for the mesh screening at the South Bellevue Station Garage.

    - The CAC would like to see Sound Transit evaluate the feasibility of using the sound wall on the guideway as an opportunity for artistic treatment that could tell more of the story of the area.

    - The CAC would like Sound Transit to provide more technical information relative to noise mitigation in its' Design and Mitigation Permit submittal.

- The CAC suggest that the sound panels on the guideway offer an opportunity for color if not art on the west facing portions. Treating the west facing walls of the guideway and possibly the columns with color would help the South Bellevue Station blend into the background.

- The CAC would like to Sound Transit to expand its' color palette for those features where standard Sound Transit color options are limited.

Next Steps

The advice contained in this Advisory Document should be forwarded to Sound Transit for use in refining its design of elements and features of the East Link light rail system features in support of its Design and Mitigation Permit submittal.

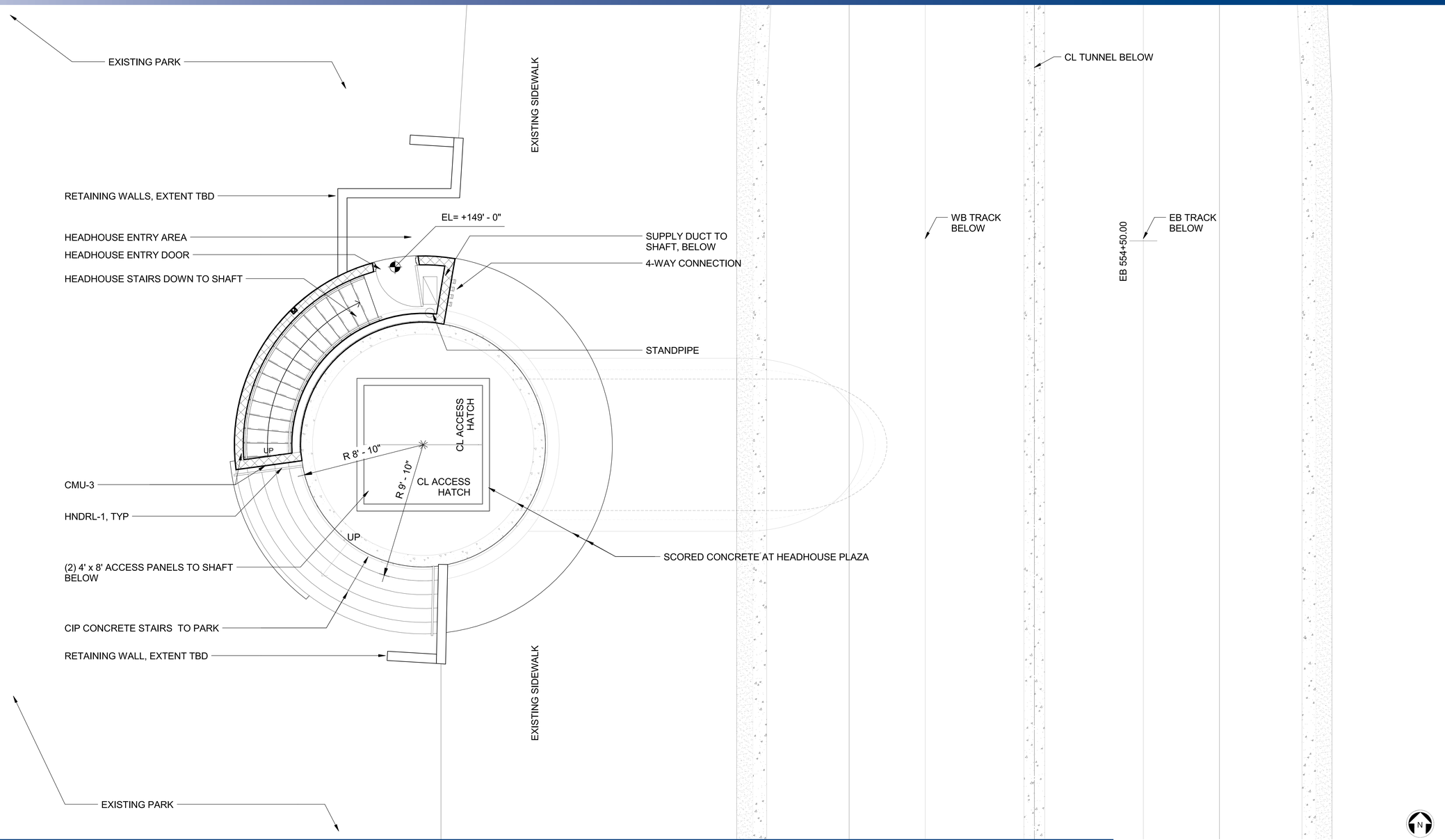
Mid-Tunnel Access Shaft Headhouse

Neighborhood Context Plan

Mid-Tunnel Access Shaft Headhouse

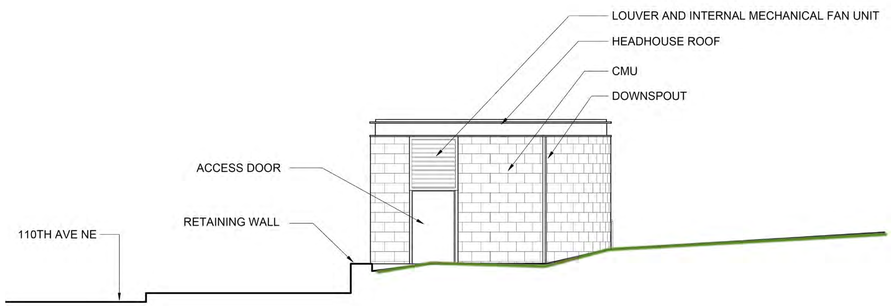
View From NE 2nd Place

Mid-Tunnel Access Shaft Headhouse

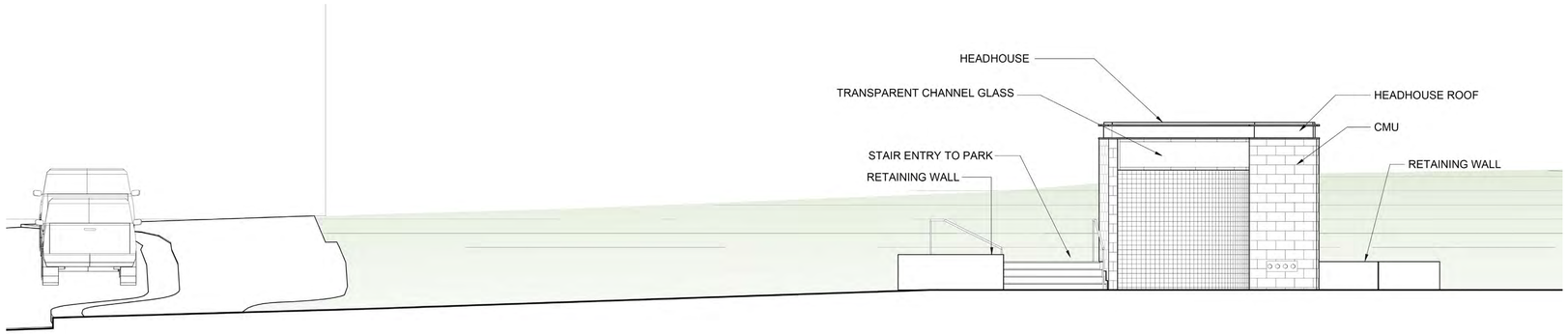


Plan

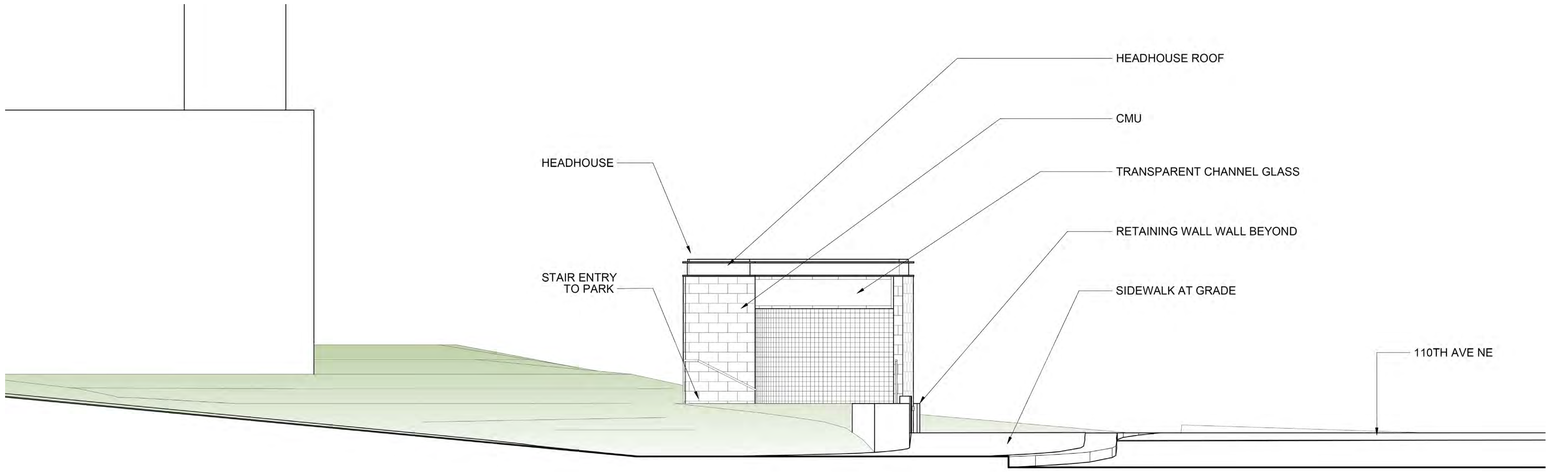
Mid-Tunnel Access Shaft Headhouse



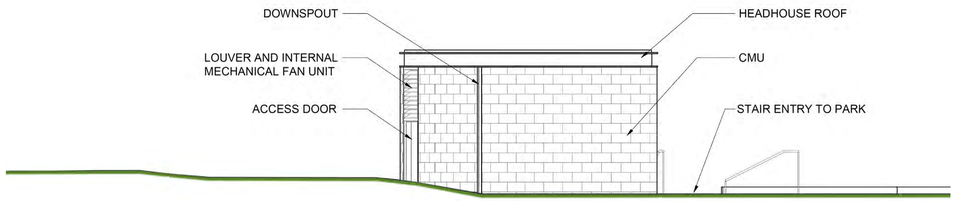
NORTH ELEVATION



EAST ELEVATION



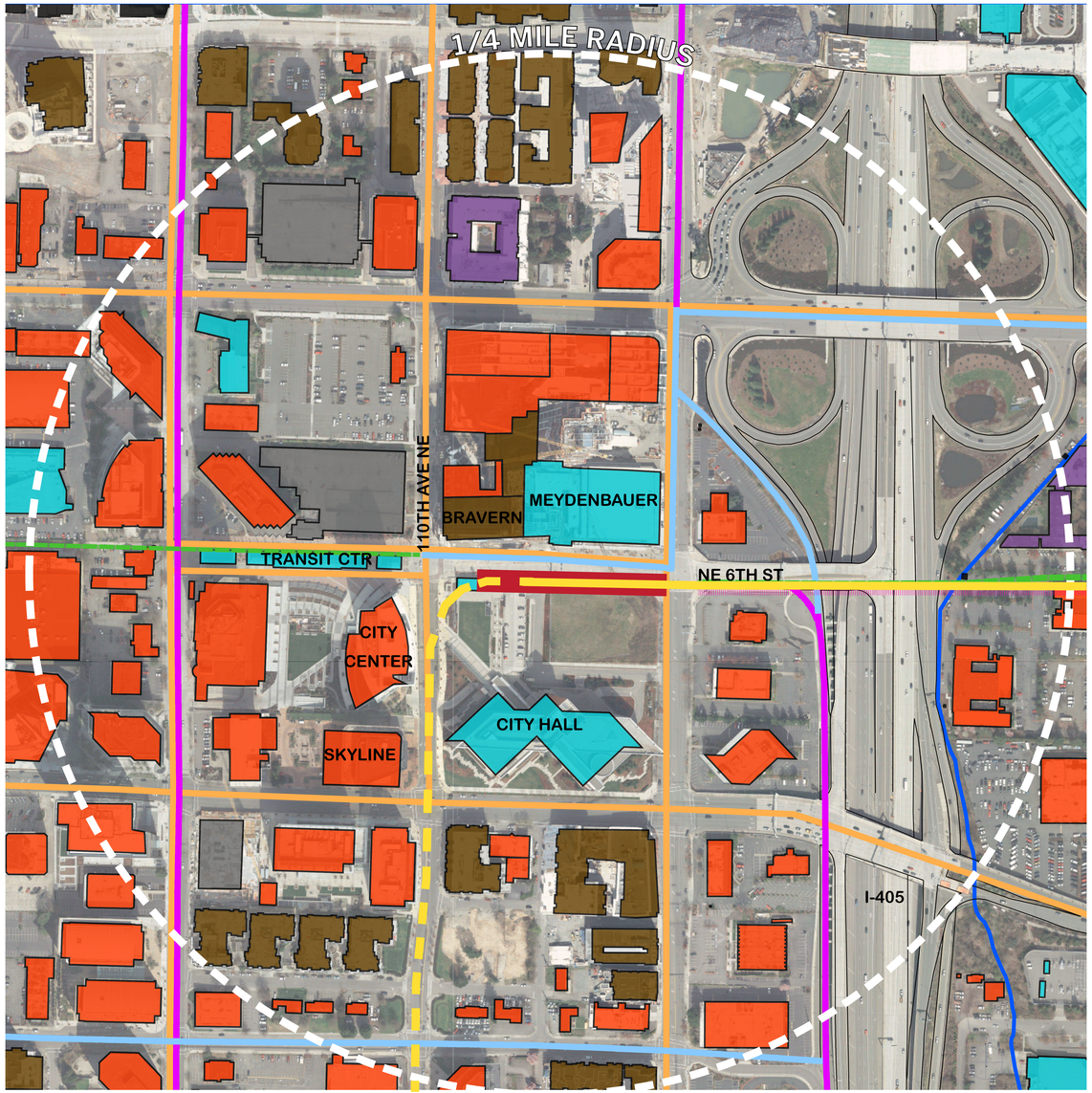
SOUTH ELEVATION



WEST ELEVATION

Elevations

Bellevue Transit Center



LEGEND

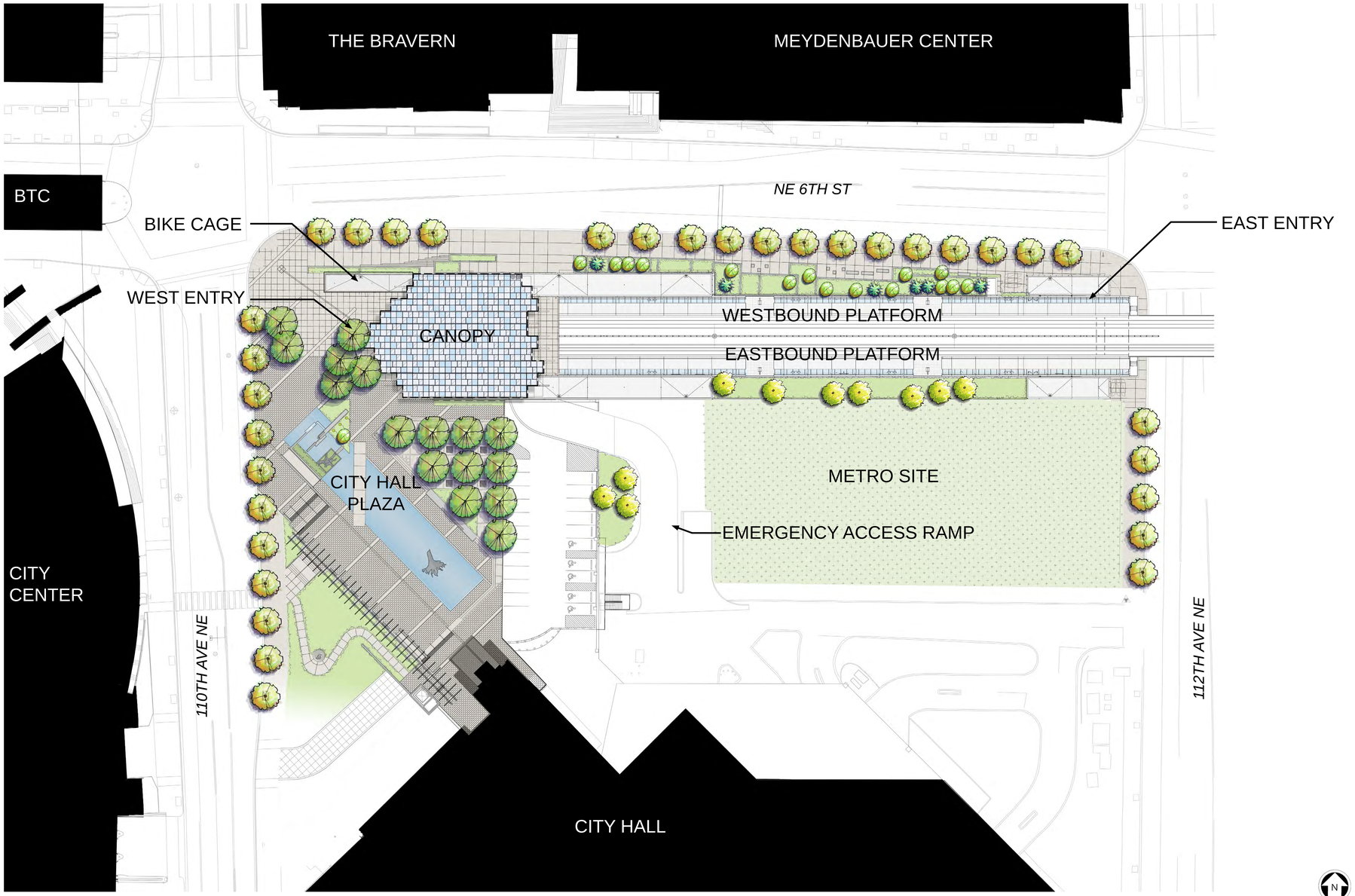
- BUS ROUTE
- BICYCLE ROUTE
- BICYCLE LANE
- OFF STREET PATH
- LIGHT RAIL TRACKS
- STATION
- PATRON CATCHMENT AREA

CITY OF BELLEVUE - 2009 PEDESTRIAN & BICYCLE TRANSPORTATION PLAN

- COMMERCIAL
- CIVIC / INSTITUTIONAL
- MULTI-FAMILY RESIDENTIAL
- HOTEL
- PARKING STRUCTURE

Neighborhood Context Plan

Bellevue Transit Center



Site Plan

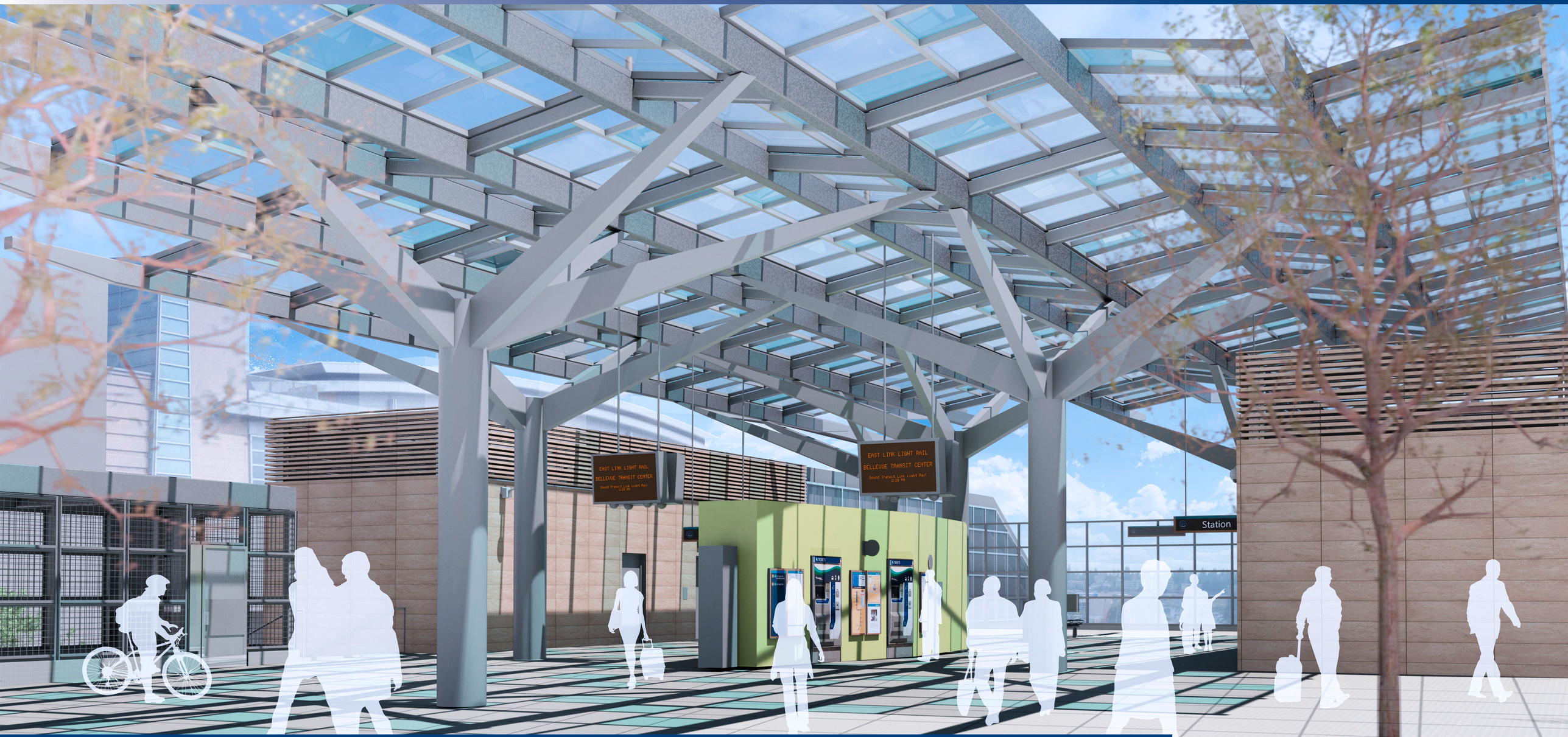
Bellevue Transit Center

SOUNDTRANSIT
RIDE THE WAVE

Aerial View From BTC

Bellevue Transit Center

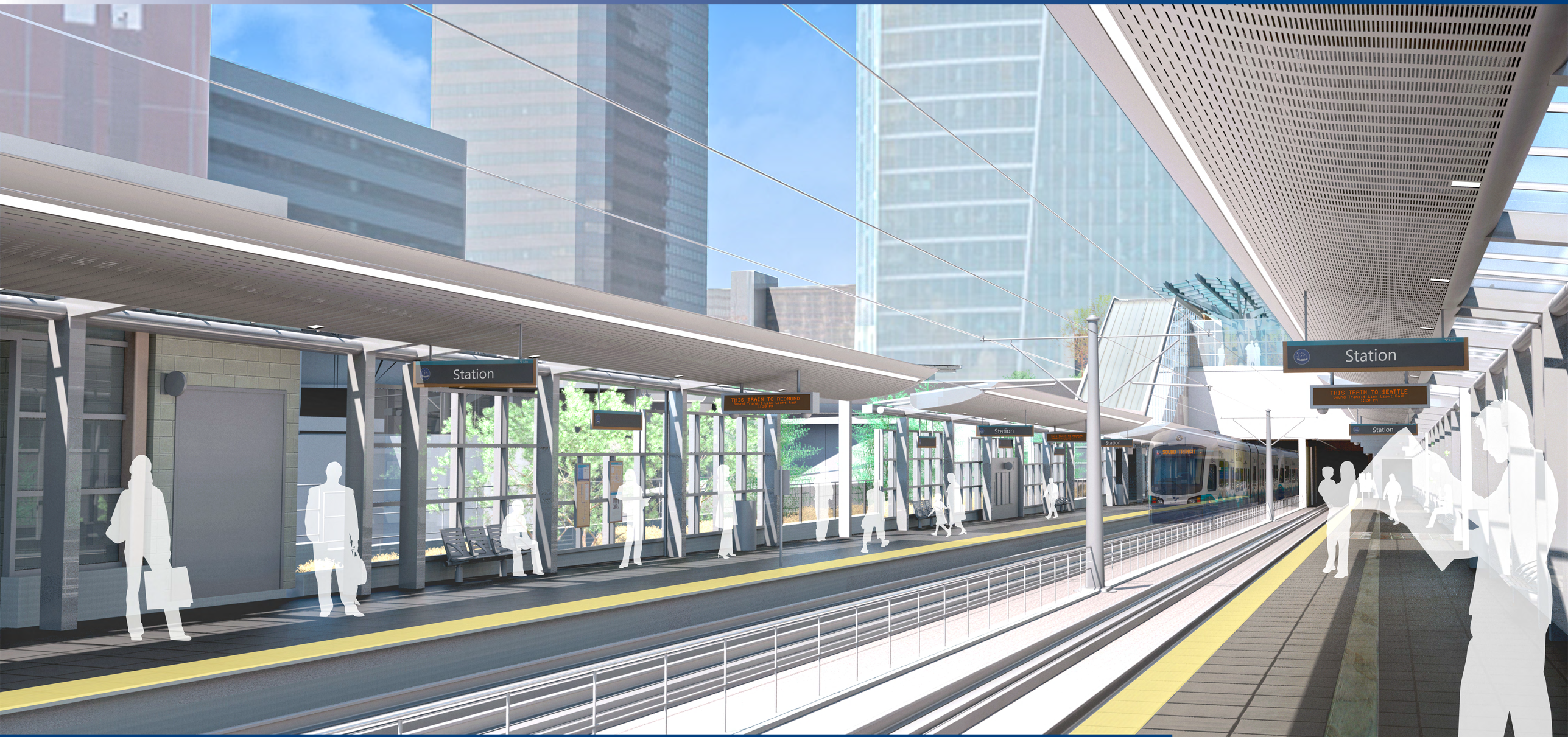
SOUNDTRANSIT
RIDE THE WAVE



West Entry View

Bellevue Transit Center

SOUNDTRANSIT
RIDE THE WAVE



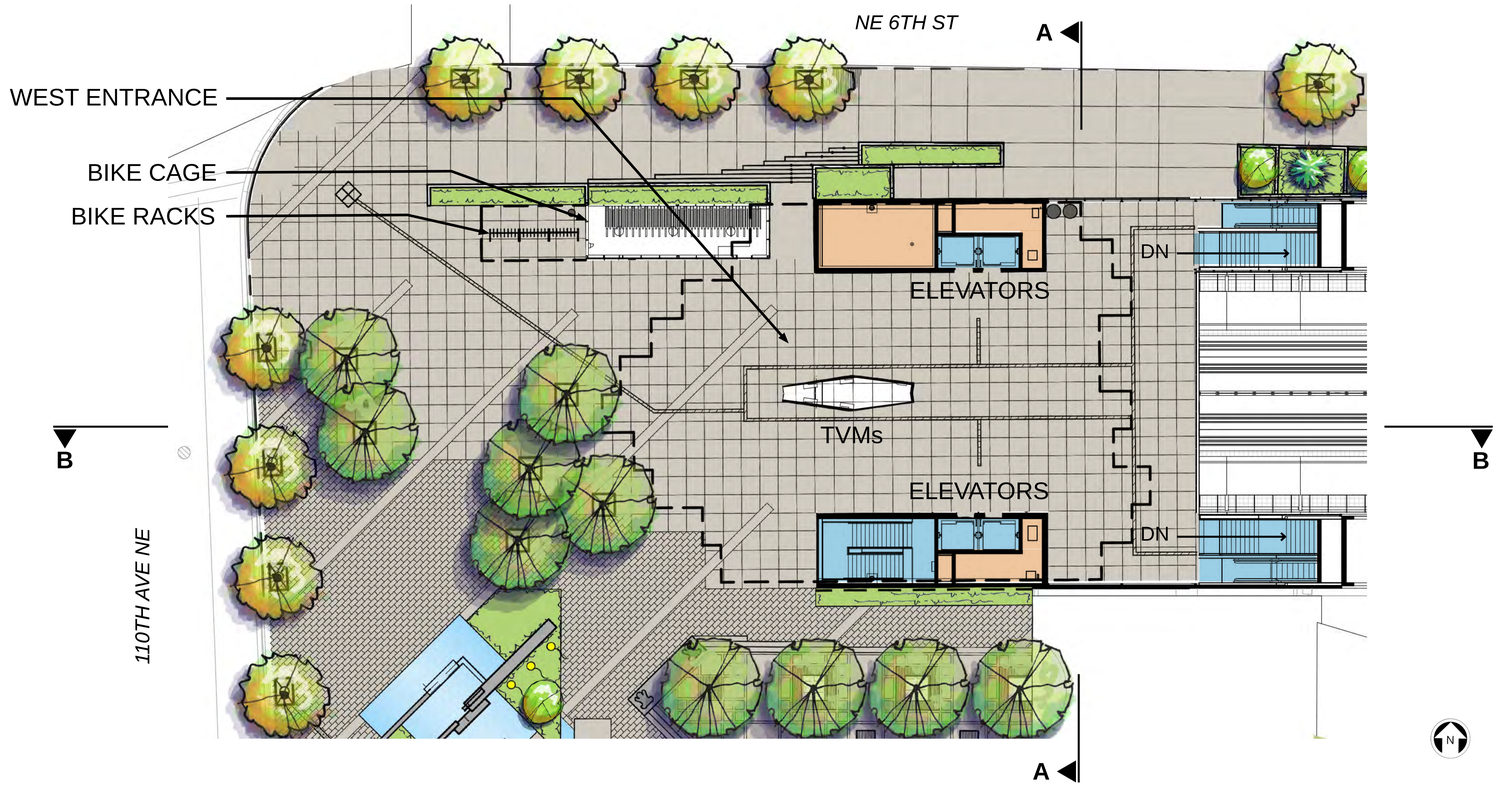
Platform View

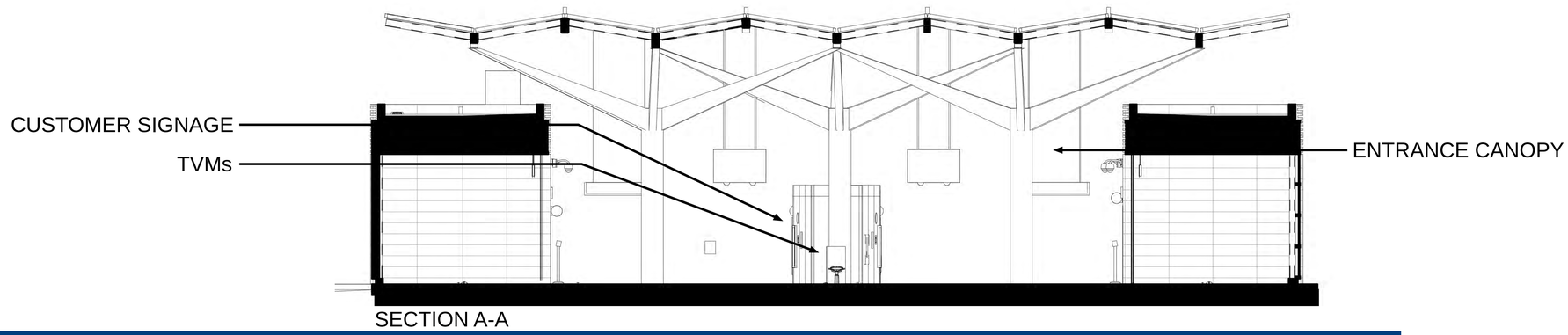
Bellevue Transit Center

SOUNDTRANSIT
RIDE THE WAVE

East Entry View

Bellevue Transit Center

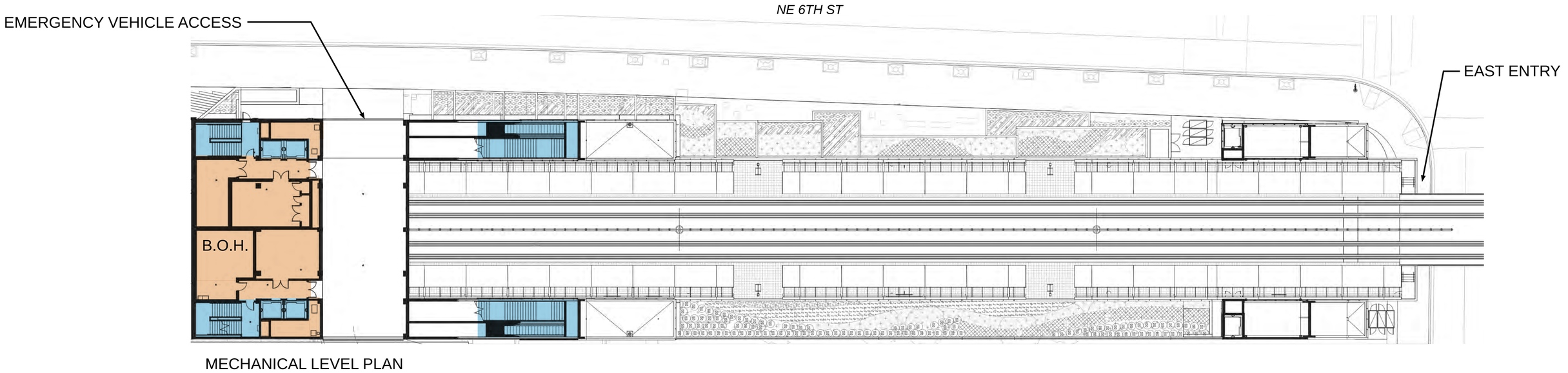




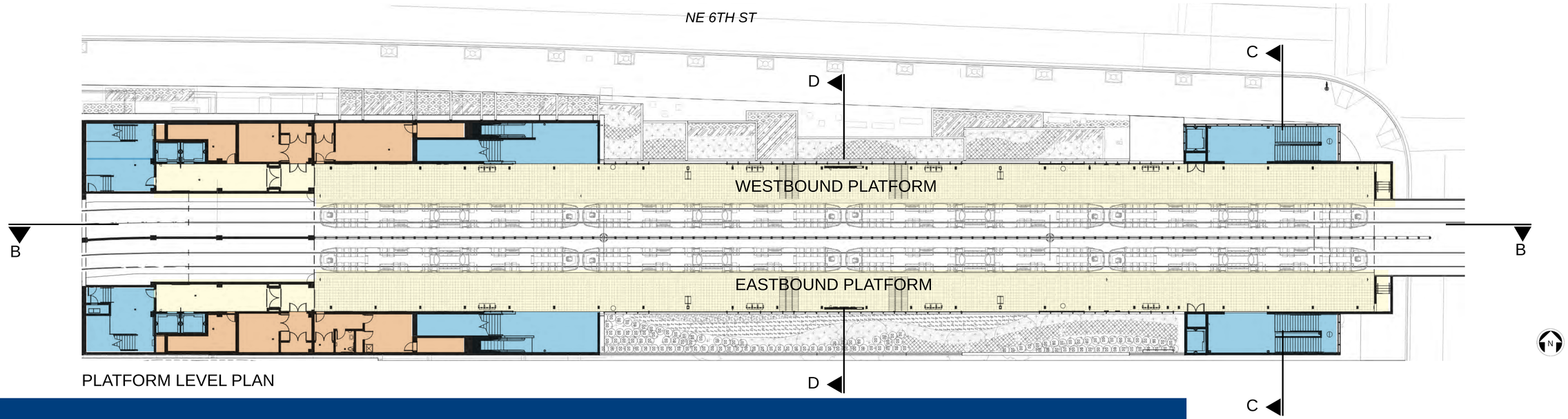
West Entrance Plan & Section

Bellevue Transit Center

SOUNDTRANSIT
RIDE THE WAVE



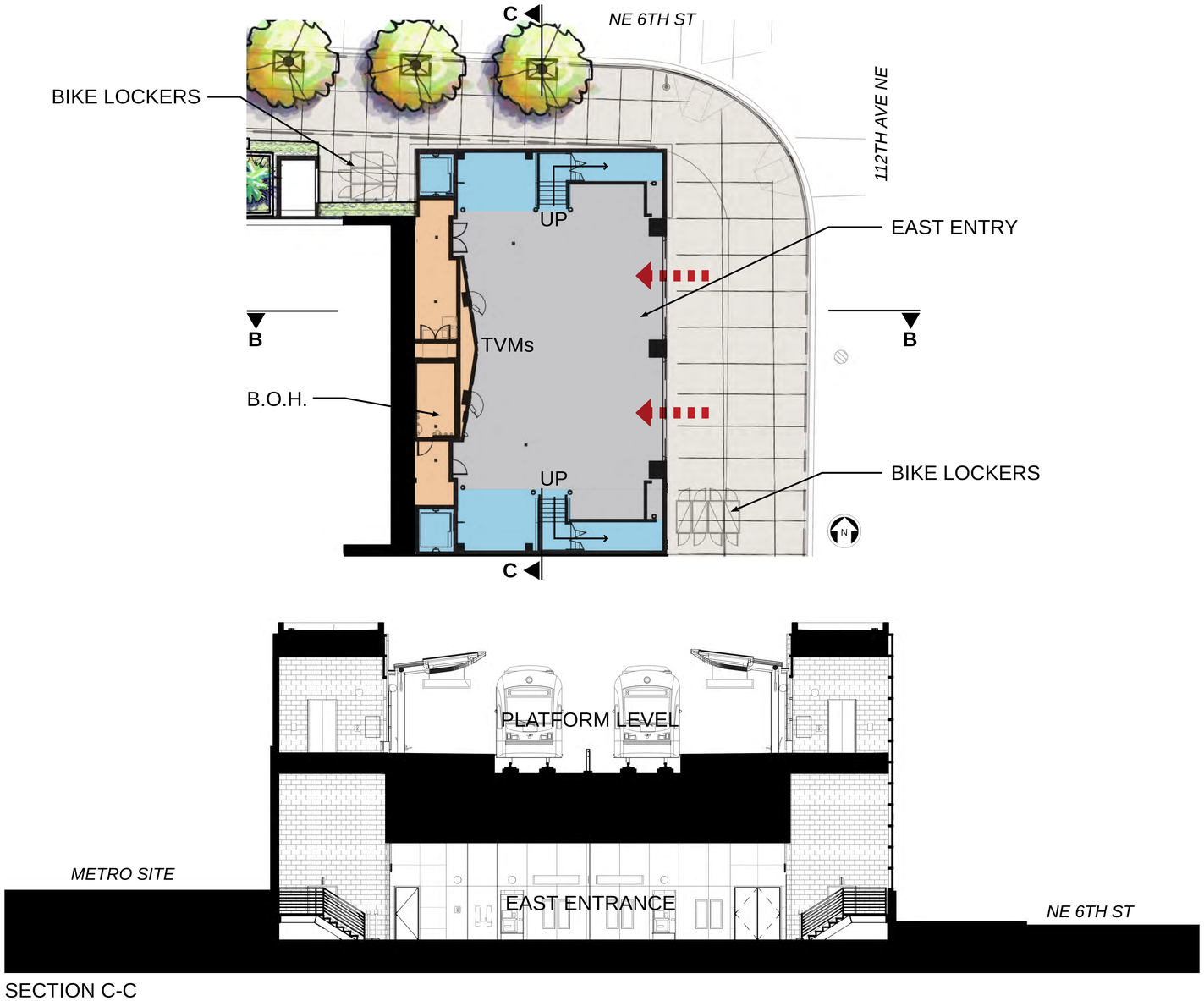
MECHANICAL LEVEL PLAN



PLATFORM LEVEL PLAN

Mezzanine & Platform Level Plans

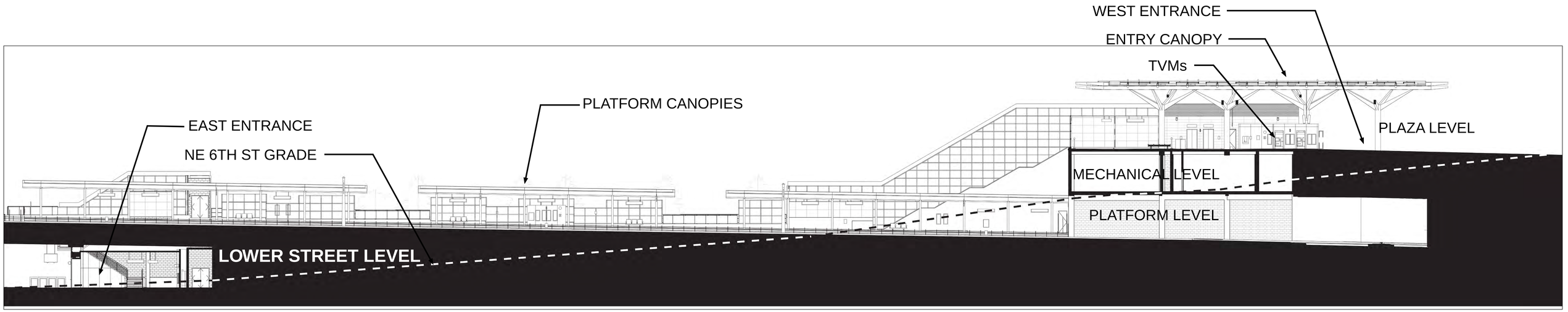
Bellevue Transit Center



SECTION C-C

Lower Street Level Plan

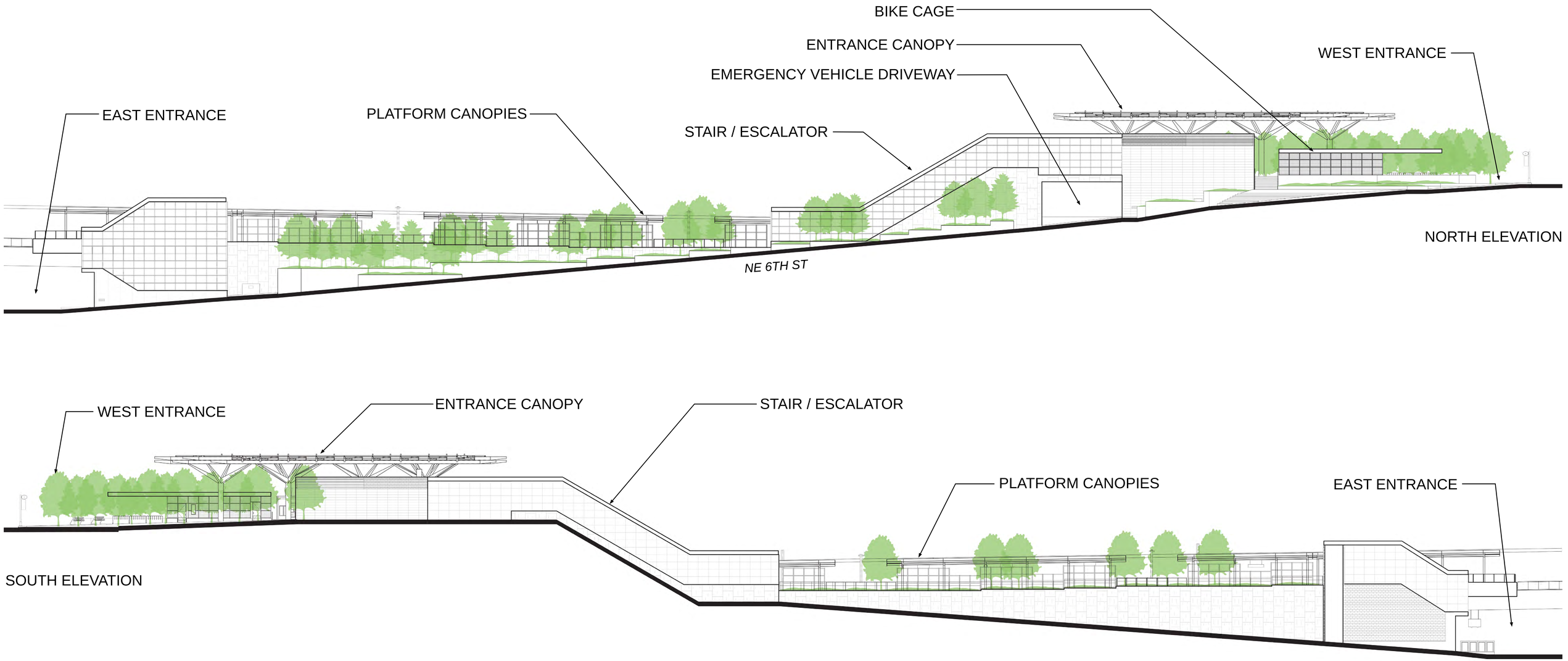
Bellevue Transit Center



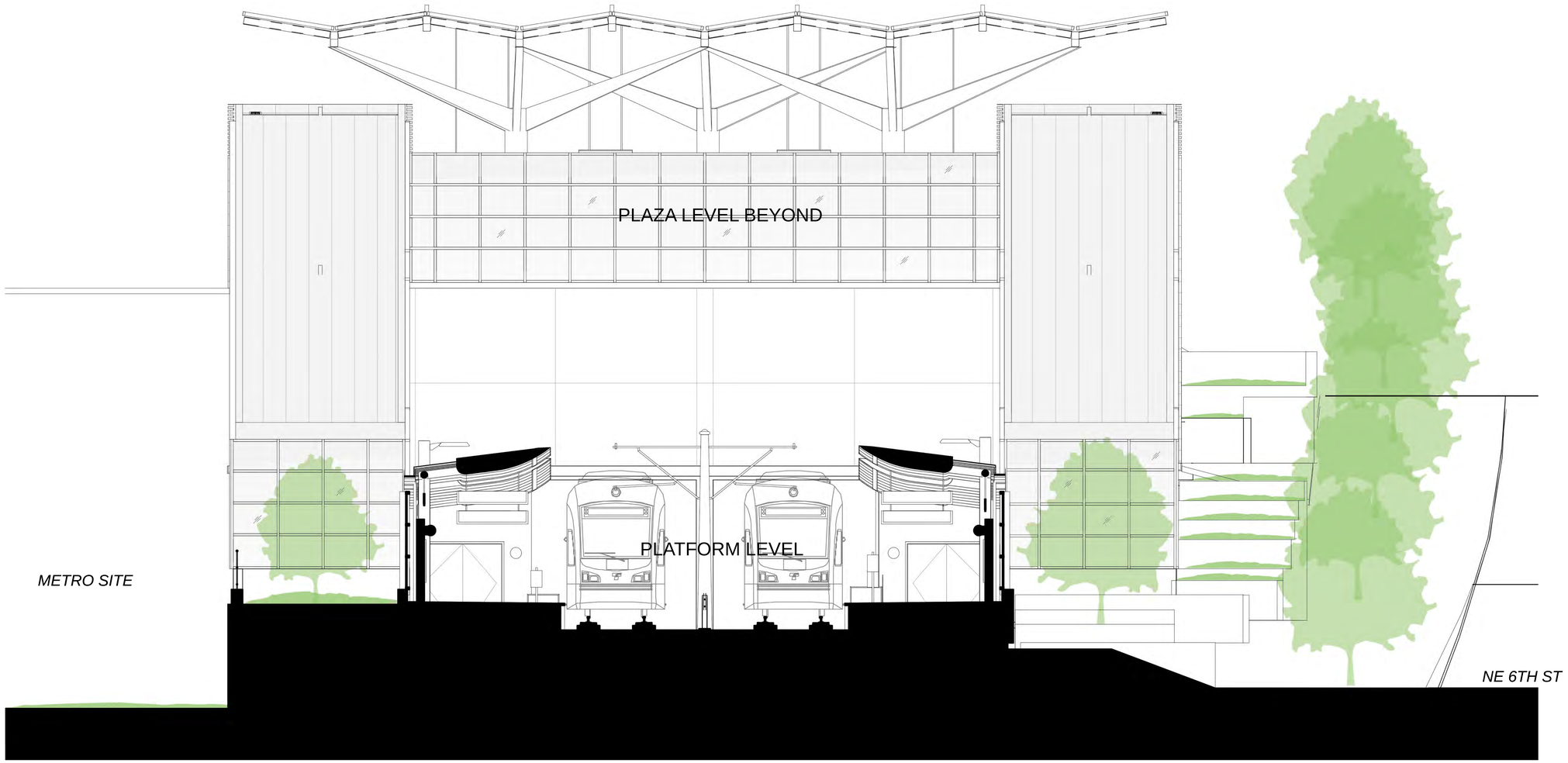
SECTION B-B

Longitudinal Section

Bellevue Transit Center

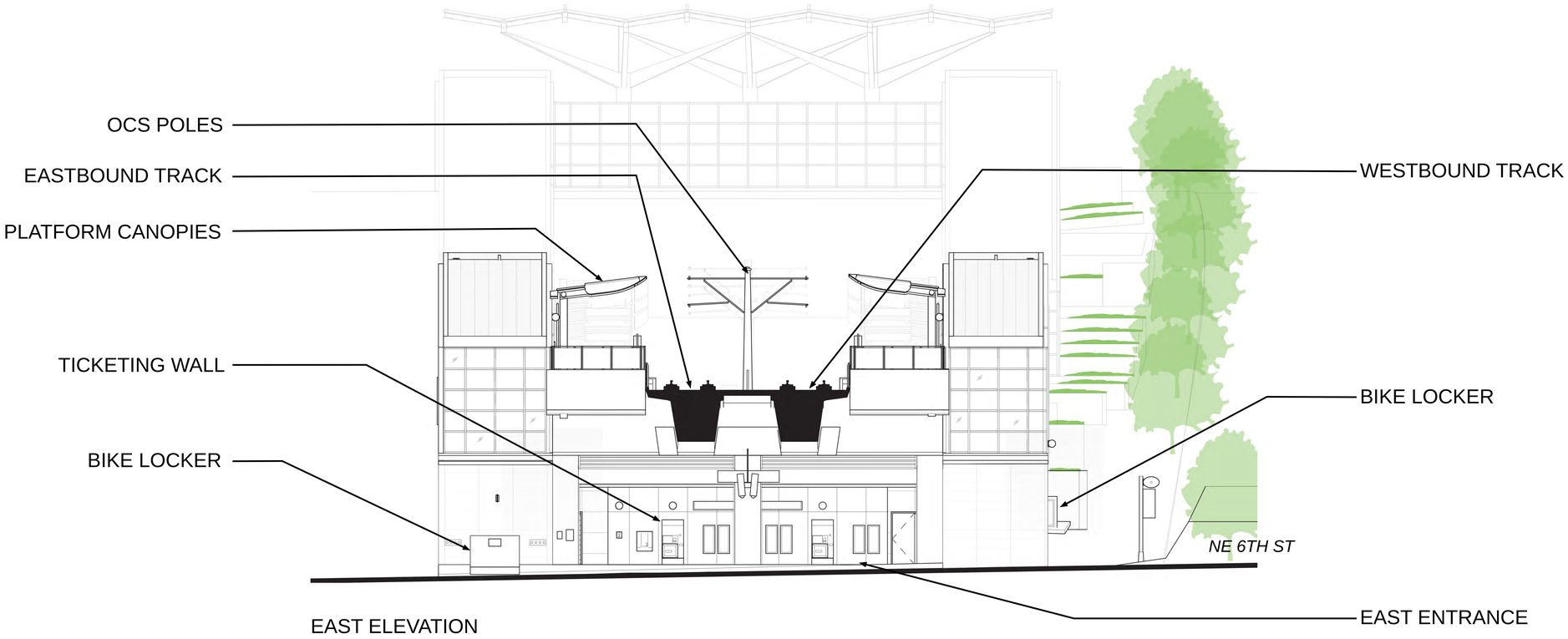


North & South Elevations



SECTION D-D

Cross Section

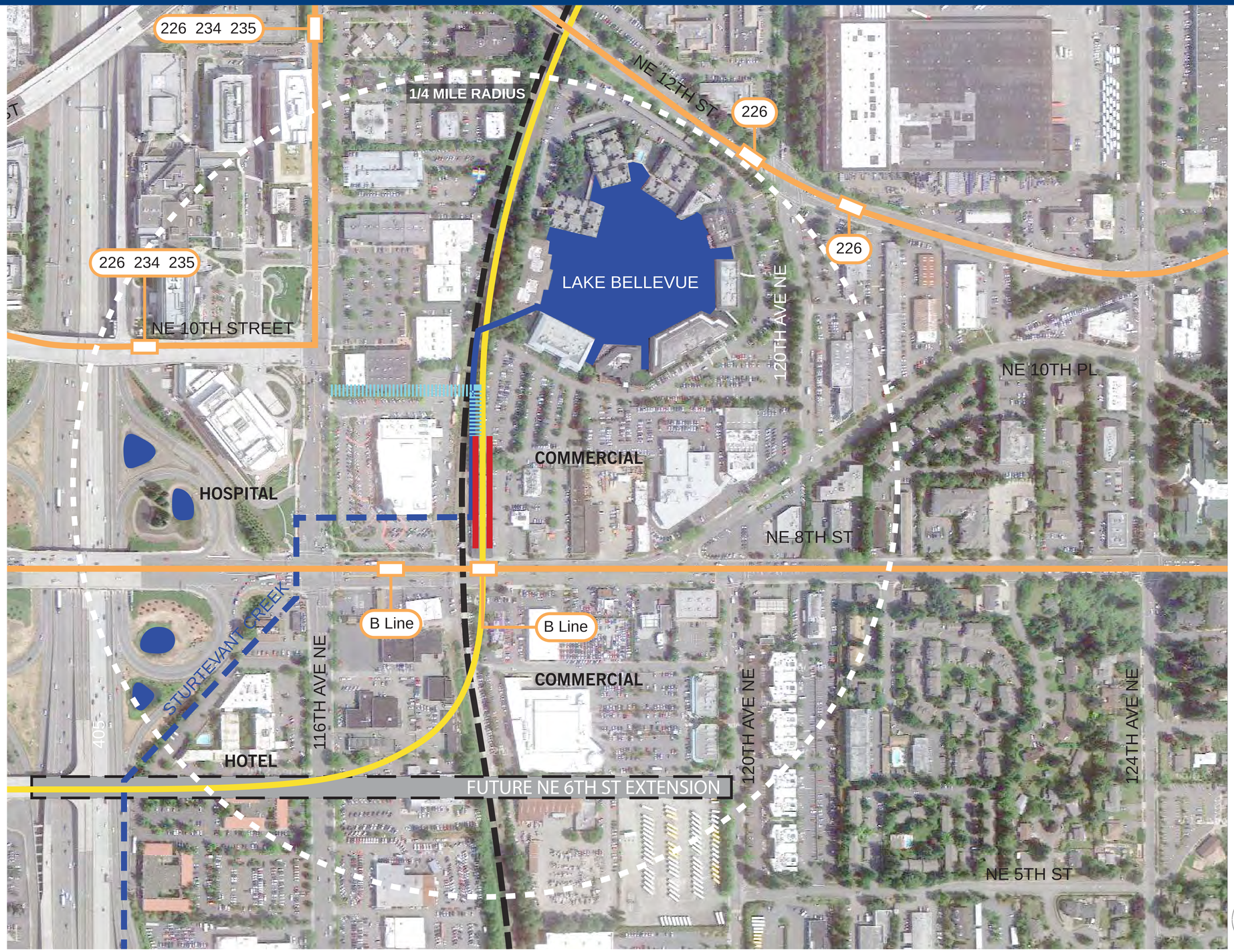


EAST ELEVATION

East Elevation

HOSPITAL STATION: NEIGHBORHOOD CONTEXT PLAN

EAST LINK EXTENSION



LEGEND

- EXISTING BUS ROUTE
- EXISTING BUS STOP
- LIGHT RAIL TRACK
- STATION
- PEDESTRIAN CIRCULATION
- FUTURE NE 6TH ST EXTENSION
- SURFACE WATERWAYS
- POTENTIAL ELEVATED TRAIL OR COMMUTER RAIL

SOUNDTRANSIT
RIDE THE WAVE

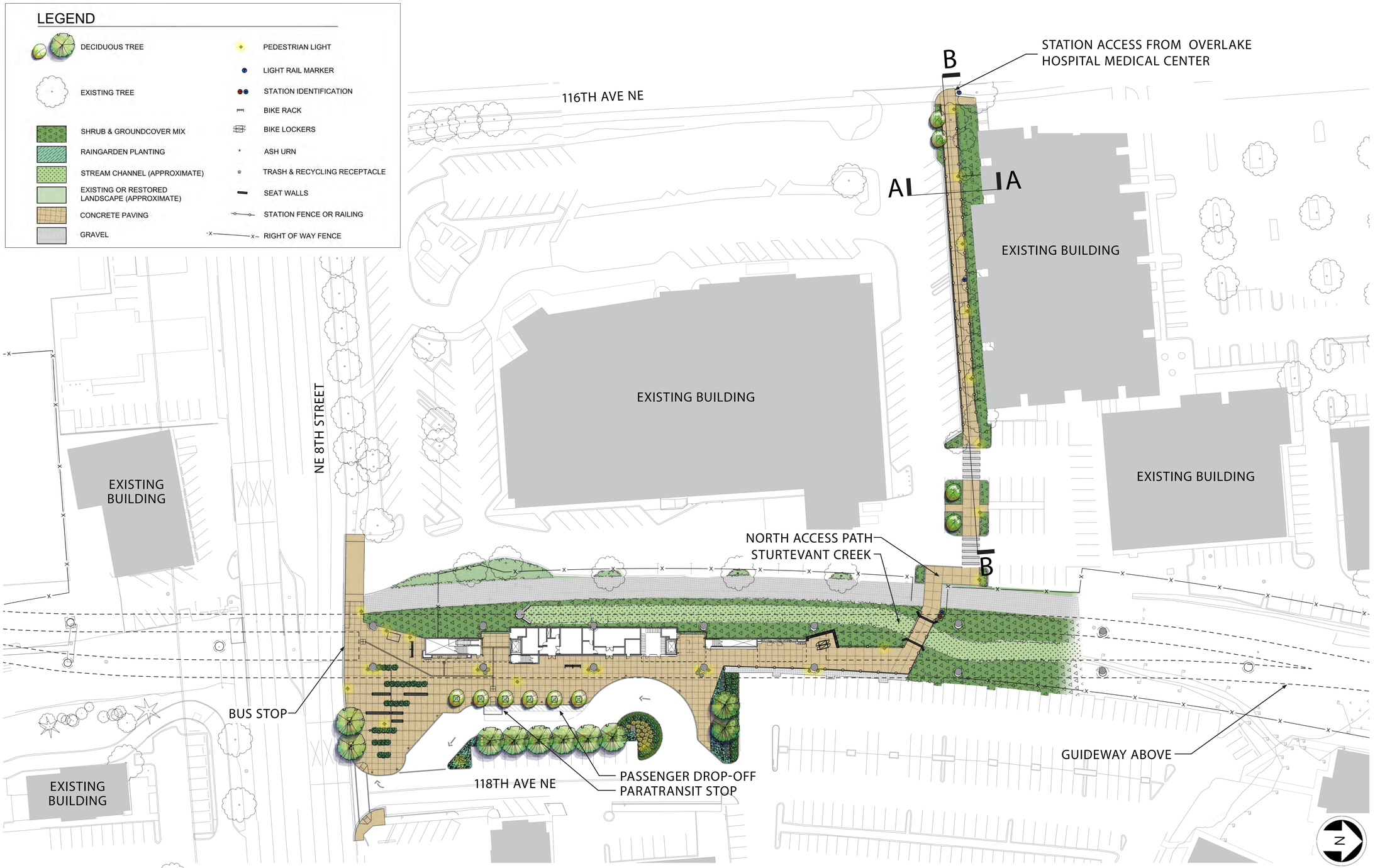
HOSPITAL STATION: STATION VIEW LOOKING NORTHWEST

EAST LINK EXTENSION

SOUNDTRANSIT
RIDE THE WAVE

HOSPITAL STATION: SITE PLAN

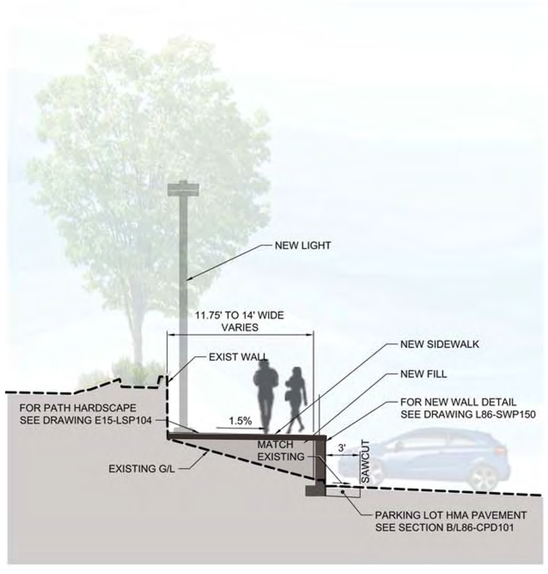
EAST LINK EXTENSION



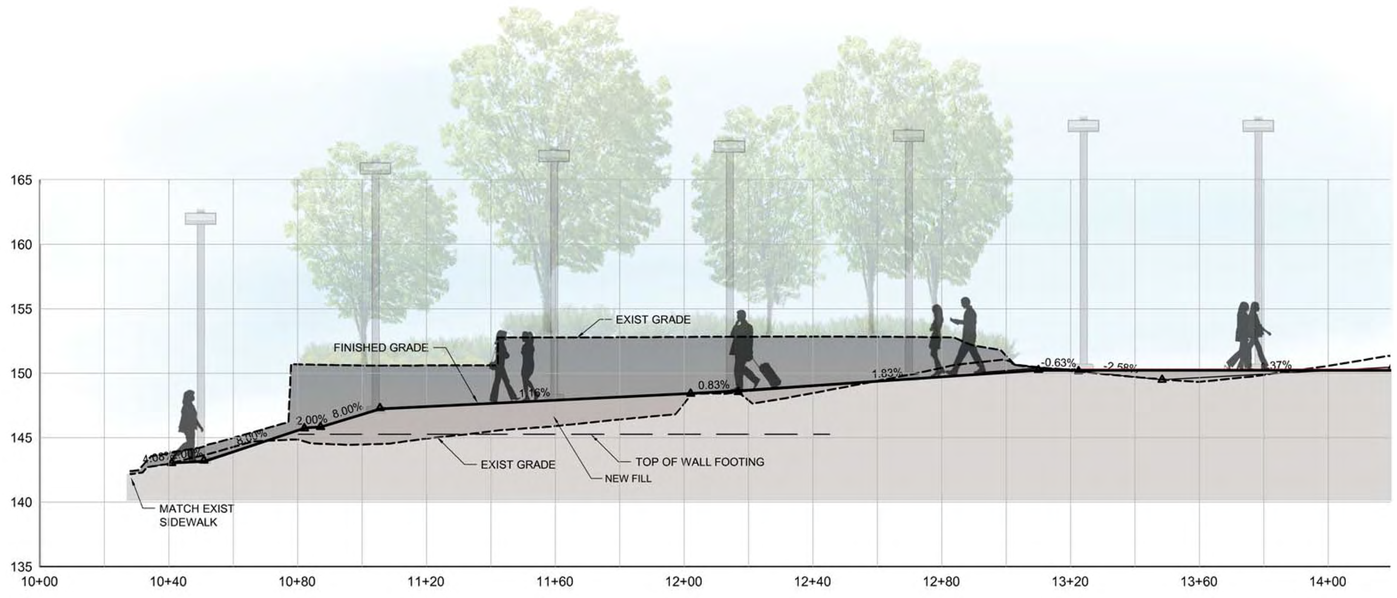
SOUNDTRANSIT
RIDE THE WAVE

HOSPITAL STATION: SITE SECTIONS

EAST LINK EXTENSION



SITE SECTION AA

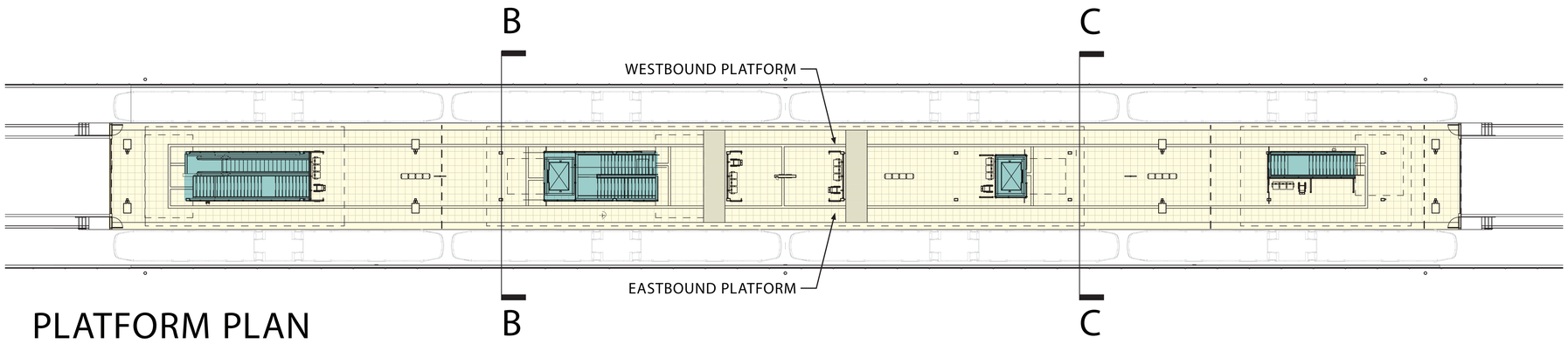


SITE SECTION BB

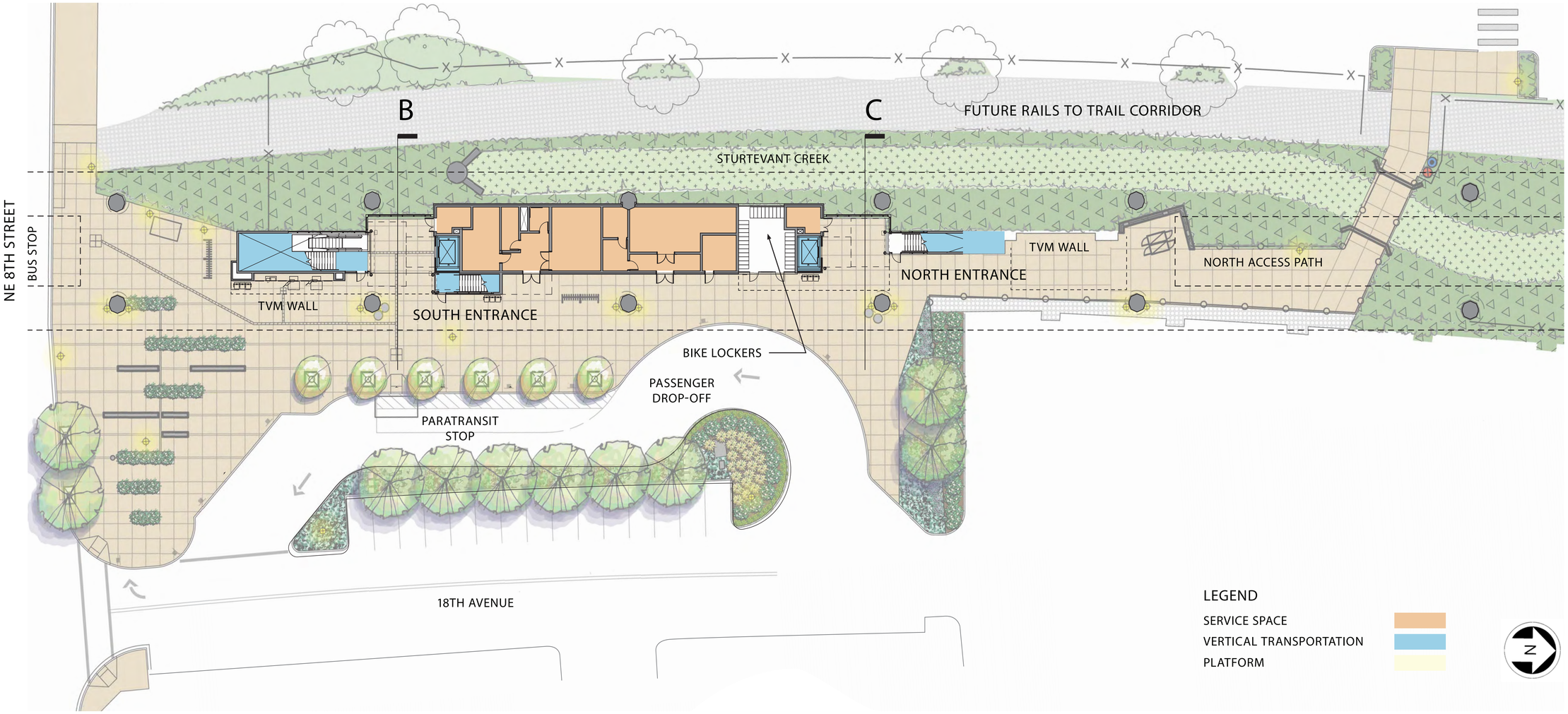
SOUNDTRANSIT
RIDE THE WAVE

HOSPITAL STATION: GRADE LEVEL AND PLATFORM PLANS

EAST LINK EXTENSION



PLATFORM PLAN



GRADE LEVEL PLAN

SOUNDTRANSIT
RIDE THE WAVE

HOSPITAL STATION: NORTH ENTRANCE

EAST LINK EXTENSION

SOUNDTRANSIT
RIDE THE WAVE

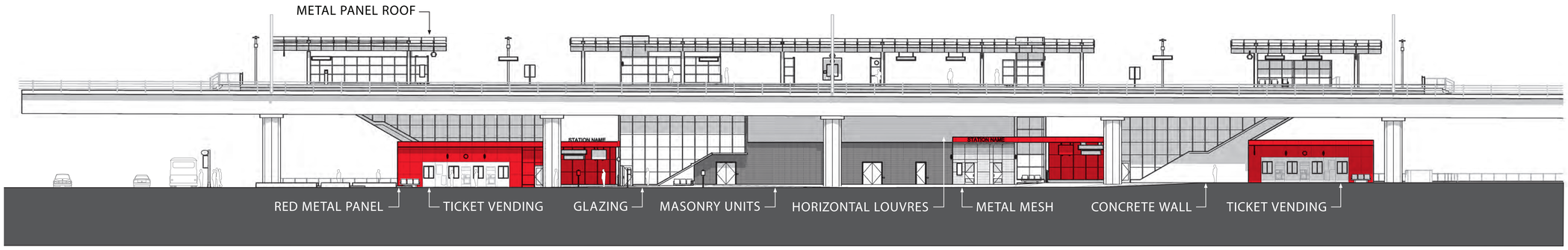
HOSPITAL STATION: PLATFORM VIEW LOOKING SOUTH

EAST LINK EXTENSION

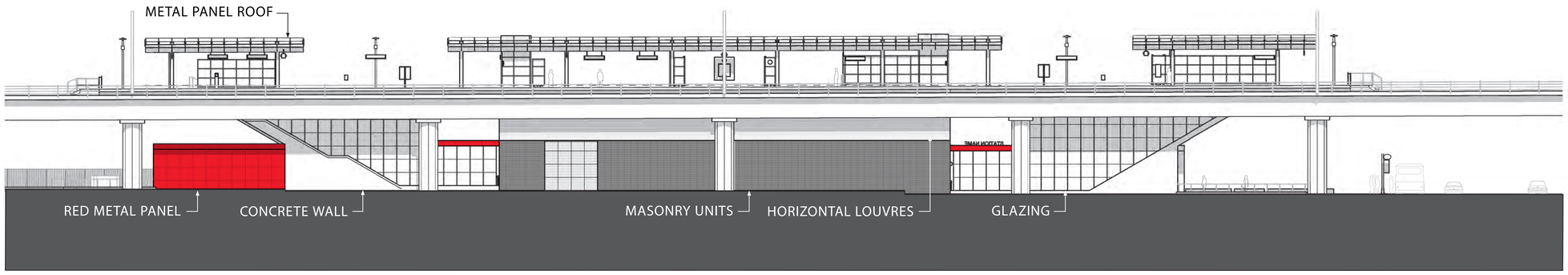
SOUNDTRANSIT
RIDE THE WAVE

HOSPITAL STATION: EAST & WEST ELEVATIONS

EAST LINK EXTENSION



EAST ELEVATION

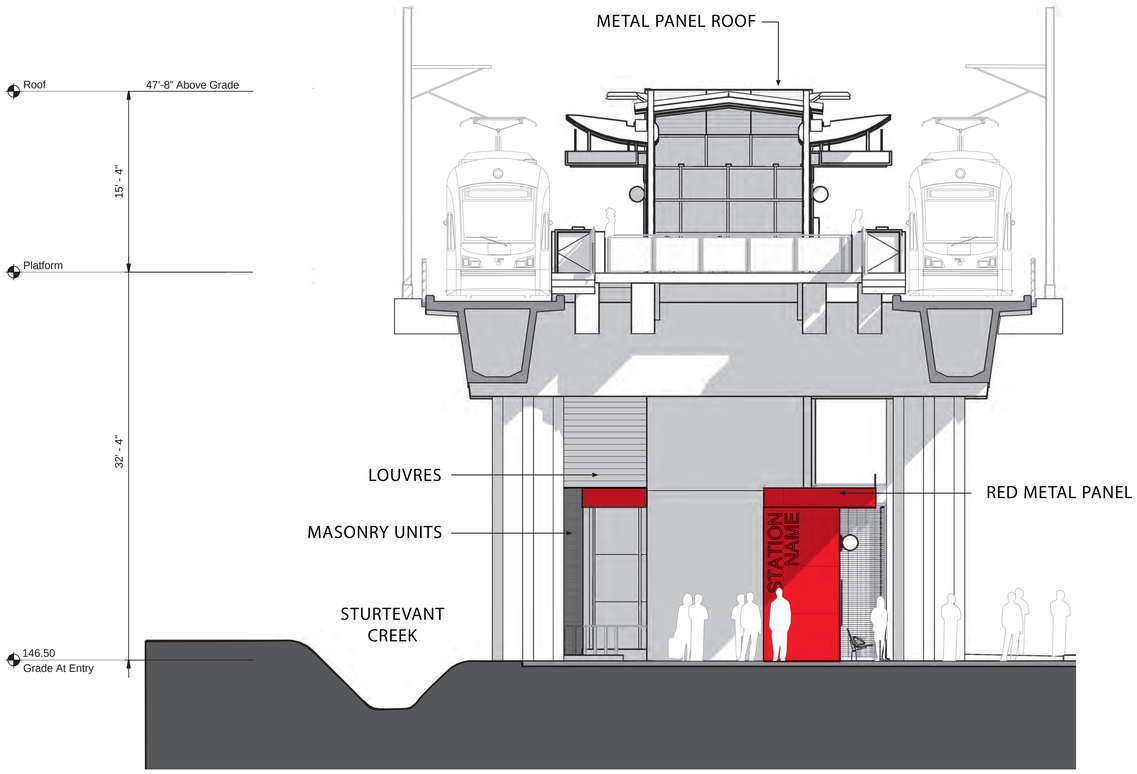


WEST ELEVATION

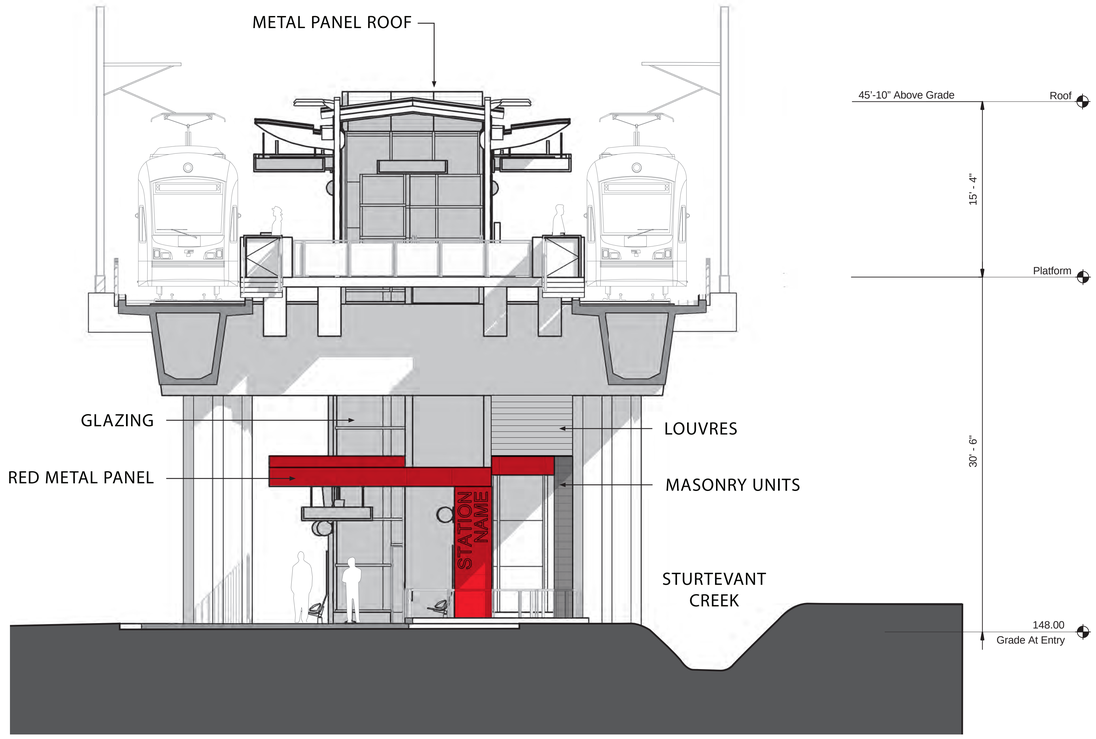
SOUNDTRANSIT
RIDE THE WAVE

HOSPITAL STATION: NORTH & SOUTH ELEVATIONS

EAST LINK EXTENSION



SOUTH ELEVATION

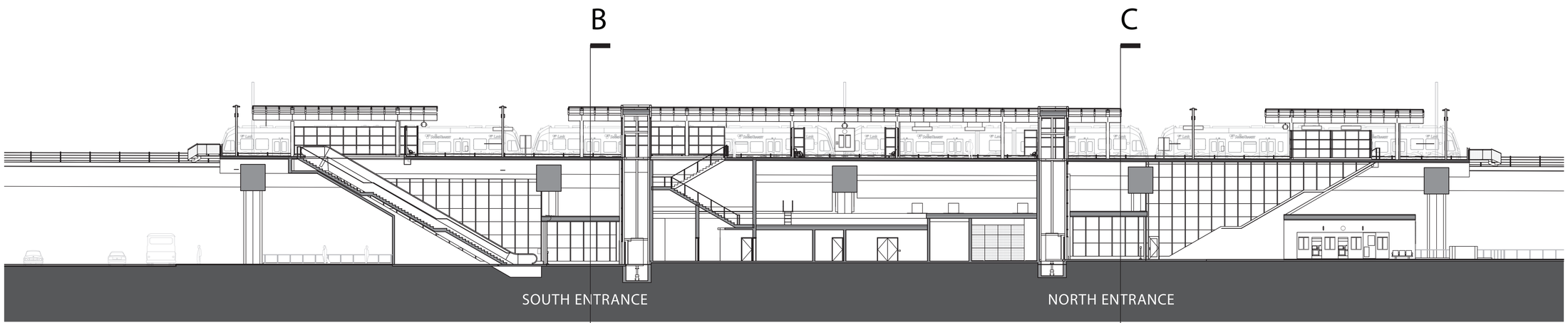


NORTH ELEVATION

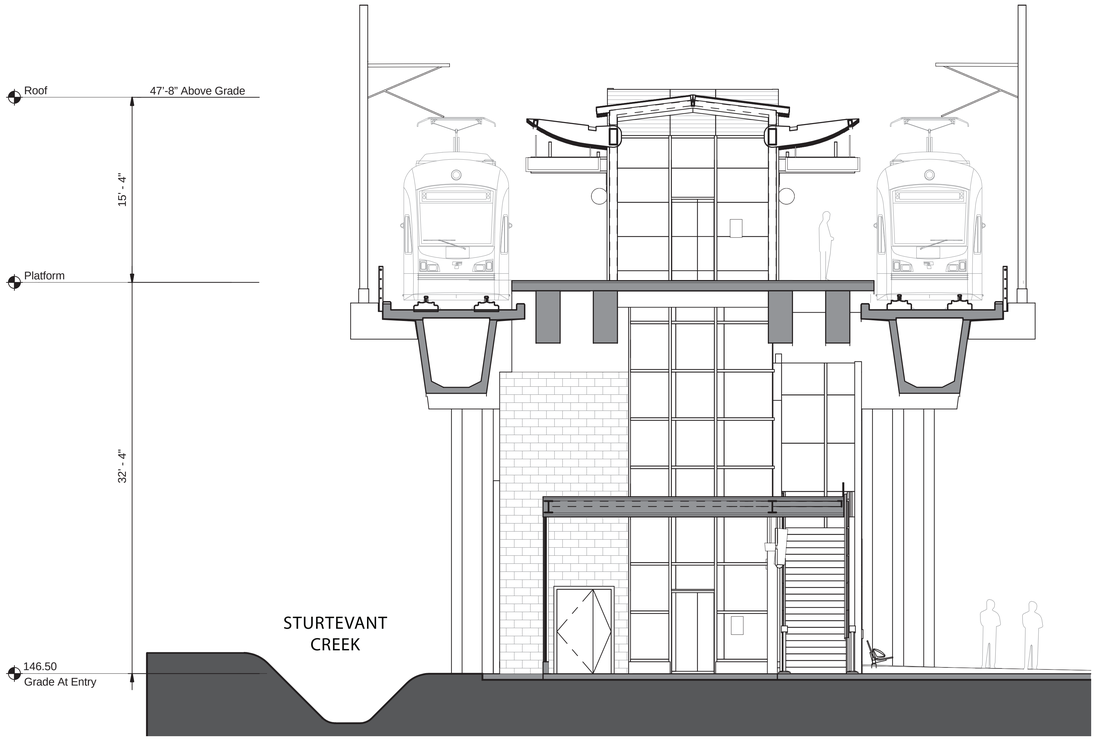
SOUNDTRANSIT
RIDE THE WAVE

HOSPITAL STATION: CROSS SECTIONS

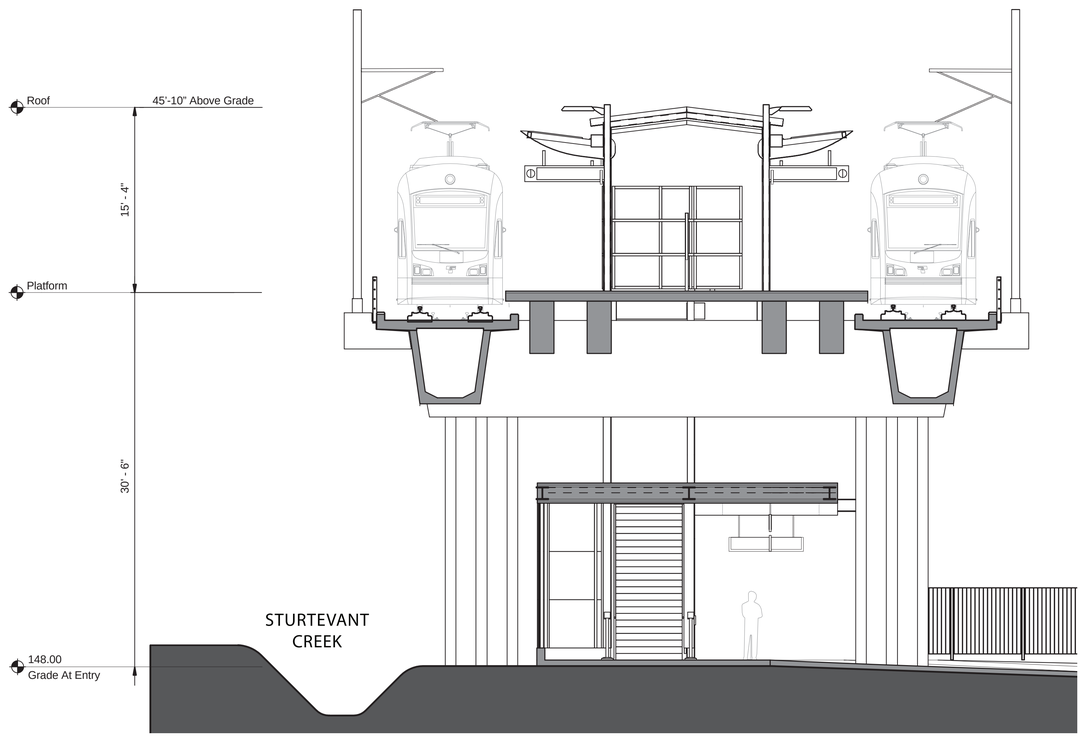
EAST LINK EXTENSION



SECTION AA



SECTION BB - SOUTH ENTRANCE

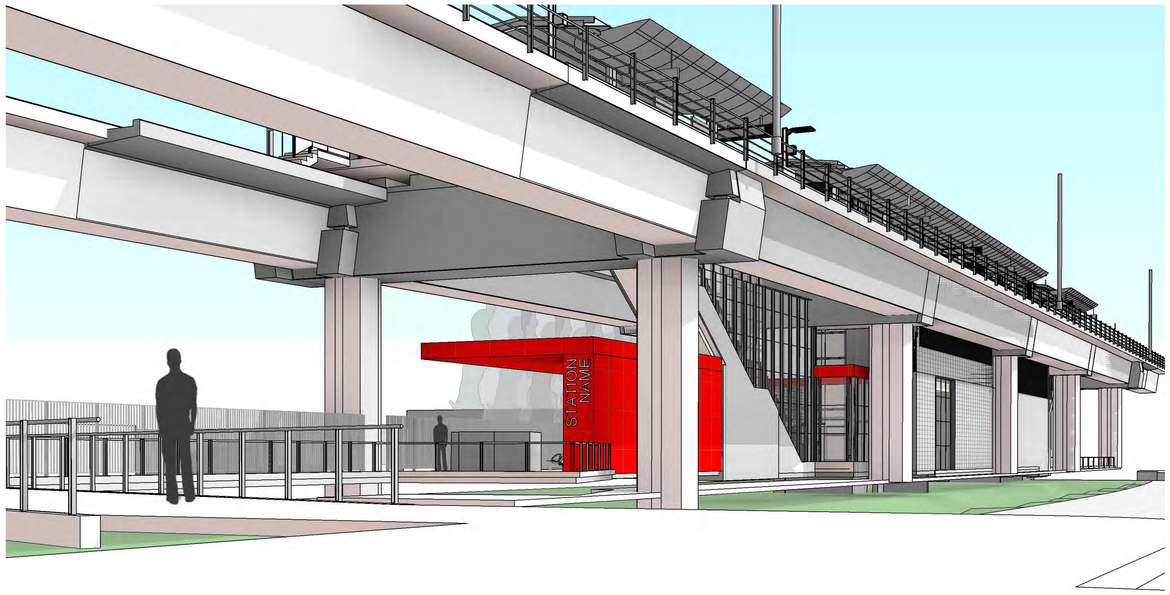


SECTION CC - NORTH ENTRANCE

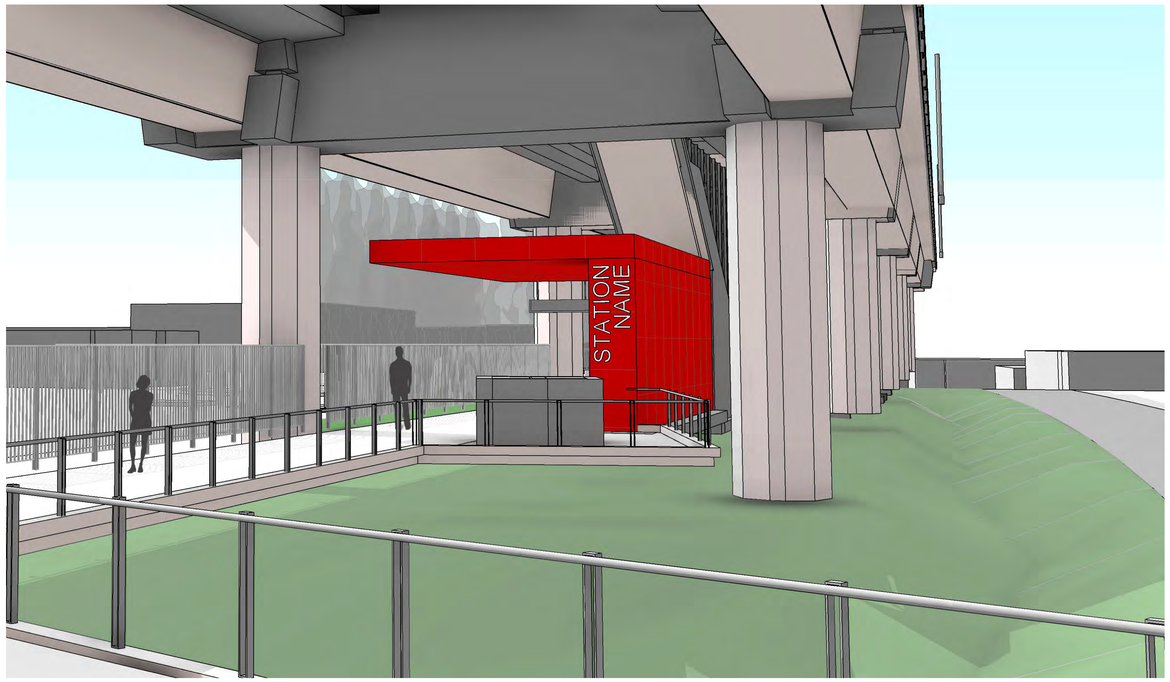
SOUNDTRANSIT
RIDE THE WAVE

HOSPITAL STATION: APPROACH TO NORTH ENTRANCE

EAST LINK EXTENSION

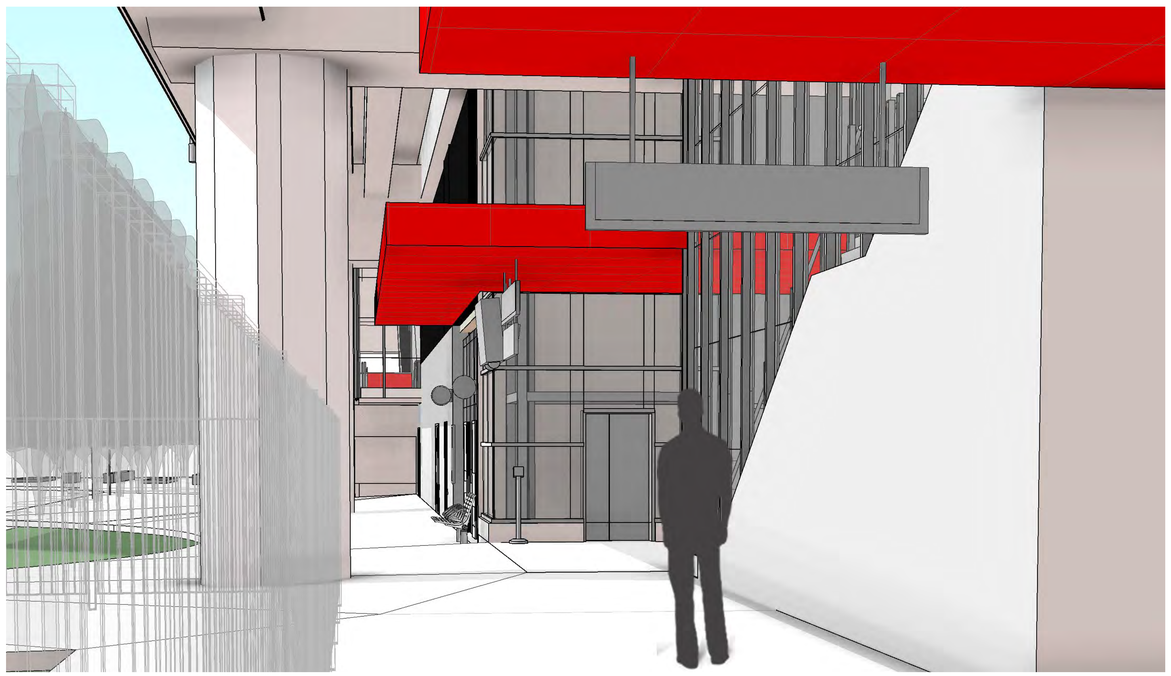


APPROACHING STATION FROM NORTH ACCESS PATH AT EDGE OF WHOLE FOODS PARKING LOT



APPROACHING STATION FROM NORTH ACCESS PATH ON BRIDGE CROSSING STRUTEVANT CREEK

APPROACHING STATION FROM NORTH ACCESS PATH AT TICKET VENDING MACHINES



APPROACHING STATION FROM NORTH ACCESS PATH ENTERING NORTH STATION ENTRANCE

SOUNDTRANSIT
RIDE THE WAVE

HOSPITAL STATION MATERIALS: PLANTING & HARDSCAPE

EAST LINK EXTENSION

TREES

Ginkgo Tree
Ginkgo biloba

Tree proposed for Hospital Station street frontage and parking island, providing fall color.

Venus Dogwood
Cornus kousa x nuttallii 'Venus'

Tree proposed for eastern entrance to the Hospital Station along the vehicular drop-off zone.

SHRUBS & GROUNDCOVERS

Western Sword Fern
Polystichum munitum

Fern proposed as an accent plant withing planting mix proposed for sloped planting behind southwestern retaining wall.

Stella de Oro Daylily
Hemerocallis 'Stella de Oro'

Flowering perennial proposed as accent for the Hospital Station parking island.

Kelseyi Dogwood
Cornus sericea 'Kelseyi'

Deciduous shrub proposed for drainage areas.

Kinnikinnick
Arctostaphylos uva-ursi

Evergreen groundcover proposed throughout the Hospital Station eastern planting areas.

Salal
Gaultheria shallon

Evergreen shrub proposed within planting mix proposed for sloped planting behind southwestern retaining wall.

Evergreen Huckleberry
Vaccinium ovatum

Evergreen shrub proposed within planting mix proposed for sloped planting behind southwestern retaining wall.

Dagger-Leaf Rush
Juncus ensifolius

Rush proposed for drainage areas.

SOUNDTRANSIT
RIDE THE WAVE

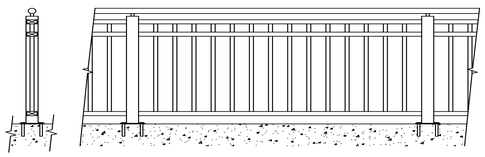
HOSPITAL STATION MATERIALS: PLANTING & HARDSCAPE

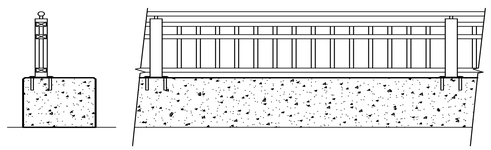
EAST LINK EXTENSION

GUARDRAILS & RAILINGS

Fabricated Metal Guards on Wall to match Statiion accessories

Guard with graspable railing positioned on top of low wall to protect and buffer pedestrians from parking lot adjacent to trail.





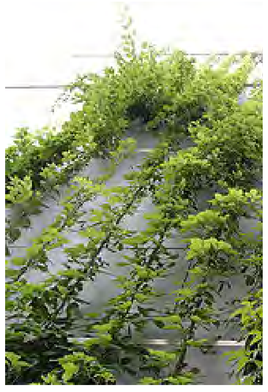
WALL SCREENING

Virgina Creeper
Parthenocissus quinquefolia

Colorful and vigorous deciduous vine apt to grow over and up walls.

Mesh Wall Screen

Coated metal mesh panels support twining vines desirable to cover walls.



Cabled Wall Screen

Cabled assembly in patterns determined by user, used to support twining vines desirable to cover walls.

SOUNDTRANSIT
RIDE THE WAVE

East Link | South Bellevue to Overlake Transit Center

Contract No. RTA/AE 0143-11

East Link Light Rail Extension
Critical Areas Report
and
Mitigation Plan

January 13, 2014

Prepared for:

SOUNDTRANSIT

Prepared by:

FINAL DESIGN PARTNERS.

ANCHOR QEA

EXECUTIVE SUMMARY

PROJECT NAME: East Link Light Rail Extension – South Bellevue to Overlake Transit Center

LOCATION: The Project alignment is 7.13 miles long, beginning at the juncture of Interstate 90 (I-90) and the eastern shoreline of Lake Washington in Bellevue, Washington (47.58 N latitude [lat]/ -122.20 W longitude [long]) and ending at the Overlake Transit Center in Redmond, Washington (47.65 N lat/ -122.13 W long) (Figure 1-1).

APPLICANT: The Central Puget Sound Regional Transit Authority (Sound Transit)

PROPOSED PROJECT:

The goal of the East Link Light Rail Extension Project (Project) is to expand the Sound Transit East Link light rail system from Seattle to Mercer Island, Bellevue, and Redmond to provide a reliable and efficient alternate mode of transportation throughout the region. The elements of the Project that are located within the City of Bellevue include approximately 6 miles of new light rail track, six rail stations, two parking facilities, and other supporting facilities and infrastructure associated with the Project. Approximately 1 additional mile of track and a rail station are located in the City of Redmond; however, these improvements will not impact critical areas and are therefore not addressed in this report.

EXISTING CONDITIONS:

The Project area within the City of Bellevue where construction will occur is located in a heavily populated area that includes residential communities, office complexes, and the downtown city center. Critical areas were identified within the Project area, in accordance with the City of Bellevue Land Use Code (LUC; LUC 20.25H.030). These include 21 wetlands, 11 streams, geologic hazard areas, special flood hazard areas, and habitats associated with species of local importance.

IMPACT ASSESSMENT AND PROPOSED MITIGATION:

Sincere efforts have been made to avoid and minimize potential impacts to critical areas within the Project area. These avoidance and minimization efforts have successfully eliminated any long-term impacts to geologic hazard areas, areas of special flood hazard, and species and habitats of local importance to the City of Bellevue; however, some impacts to wetlands and streams are anticipated. Tables ES-1 and ES-2 on the following page provide a summary of permanent and temporary impacts to wetlands, streams, and their buffers.

Mitigation for potential impacts to these critical areas is proposed within the City of Bellevue in areas within or adjacent to the Project area. Mitigation concepts follow Sound Transit's commitment to a "no net loss" of wetland area and function and provide a surplus of functions to help ensure the required mitigation ratios are met. Tables ES-3 and ES-4 provide summary information for the proposed mitigation for wetland and stream impacts.

Table ES-1 Project Wetland and Wetland Buffer Impact Summary

Site	Drainage Sub-basin	Permanent Impact (acres)	Permanent Vegetation Conversion (acres)	Temporary Impact (acres)	Permanent Buffer Impact (acres)	Temporary Buffer Impact (acres)
Mercer Slough West	Mercer Slough	0.23	0.36	0.16	1.84	2.86
Alcove Creek	Mercer Slough	0.00	0.00	0.01	0.03	0.09
Bellefield South	Mercer Slough	0.07	0.00	0.04	0.22	0.03
Bellefield North	Mercer Slough	0.02	0.00	0.01	0.21	0.10
8th Street	Mercer Slough	0.09	0.07	0.00	0.22	0.11
South Lake	Sturtevant Creek	0.00	0.09	0.00	0.01	0.24
Central Lake	Sturtevant Creek	0.00	0.03	0.00	0.07	0.07
North Lake	Sturtevant Creek	0.00	0.04	0.00	0.00	0.00
BNSF East	West Tributary	0.05	0.07	0.00	0.02	0.00
BNSF Northeast	West Tributary	0.00	0.00	0.00	0.06	0.00
Kelsey West Tributary Pond	West Tributary	0.01	0.01	0.00	0.13	0.34
SR 520 West	Valley Creek	0.01	0.26	0.00	0.02	0.57
Valley Creek	Valley Creek	0.00	0.03	0.00	0.00	0.33
SR 520 East	Valley Creek	0.00	0.00	0.00	0.00	0.16
Total Wetland Impacts:		**0.48**	**0.96**	**0.22**	**2.83**	**4.90**

Notes:

SR 520 = State Route 520

Table ES-2 Project Stream and Stream Buffer Impact Summary

Stream	Local Stream Rating	Permanent Impacts (sf)	Temporary Impacts (sf)	Permanent Buffer Impacts[1] (acres)	Temporary Buffer Impacts (acres)
Wye Creek	Type F	218	312	0.09	0.11
Mercer Slough West Branch	Type S	236	0	1.22	1.05
Alcove Creek	Type O	0	57	0.00	0.00
Sturtevant Creek	Type F	3,443	0	0.21	0.40
West Tributary to Kelsey Creek	Type N	0	472	0.00	0.00
Stream C	Type O	0	440	0.03	0.07
Goff Creek	Type F	0	0	0.01	0.00
Unnamed Tributary to Kelsey Creek	Type N	2,539	0	0.00	0.00
Total Stream Impacts:		**6,436**	**1,281**	**1.56**	**1.63**

Notes:

1 Areas only include stream buffer where there is no wetland buffer overlap. Overlapping buffer areas are counted as wetland buffers and included in Table ES-1.

sf = square feet

Table ES-3 Project Wetland, Stream, and Buffer Mitigation Site Summary

Mitigation Site	Drainage Sub-basin	Proposed Mitigation				
		Wetland Rehabilitation (acres)	Wetland Enhancement (acres)	Wetland Creation (acres)	Stream Restoration[1] (sf)	Wetland and Stream Buffer Creation / Enhancement (acres)
Sweyolocken	Mercer Slough	1.20	5.29	0.00	0	0.40
Sturtevant Creek	Sturtevant Creek	0.00	0.00	0.00	3,500	0.29
Mercer Slough Buffer Creation and Enhancement	Mercer Slough	0.00	0.00	0.00	494[2]	4.98
West Tributary	West Tributary	0.00	0.05	0.64	2,600	1.76
Total Mitigation Area:		**1.20**	**5.34**	**0.64**	**6,594**	**7.43**

Notes:
1 Refer to Section 3 for complete functional lift analysis of the proposed mitigation
2 Includes 454 sf of buffer enhancement to mitigate for overwater shading, and 40 sf of restoration of Wye Creek by daylighting to mitigate for other stream impacts.
sf = square feet

Table ES-4 Proposed Project Mitigation Summary as Compared to Regulatory Requirements

Required Mitigation[1]	Proposed Mitigation
5.16 Acres of Wetland Enhancement	5.34 Acres of Wetland Enhancement
1.20 Acres of Wetland Rehabilitation	1.20 Acres of Wetland Rehabilitation
0.55 Acre of Wetland Creation	0.64 Acre of Wetland Creation
6,436 Square Feet of Stream Restoration	6,594[2] Square Feet of Stream Restoration
4.39 Acres of Buffer Creation/Enhancement	7.43 Acres of Buffer Creation/Enhancement

Notes:
[1] Mitigation requirements are based on ratios established by Washington Department of Ecology, US Army Corps of Engineers Seattle District, and Environmental Protection Agency, Region 10 guidance (Ecology et al. 2006). Mitigation required for vegetation conversion in wetlands is included (see Table 3-1 in Section 3 of this report for further detail)
[2] This total includes 454 sf of buffer restoration to mitigate for impacts related to shading of streams by the guideway. See Section 3 for further detail.
sf = square feet
.

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Acronyms and Abbreviations

BA	Biological Assessment
BCC	Bellevue City Code
BFE	base flood elevation
BMP	best management practice
BNSF	Burlington Northern Santa Fe
CAO	Critical Areas Ordinance
CAR	Critical Areas Report and Mitigation Plan
cfs	cubic feet per second
City	City of Bellevue
Corps	U.S. Army Corps of Engineers
DCM	Design Criteria Manual
Delineation Report	*Sound Transit East Link Extension Project Wetland, Stream, and Jurisdictional Ditch Delineation Report*
DPS	distinct population segment
DTM	digital terrain model
EB	eastbound
Ecology	Department of Ecology
EFH	essential fish habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	evolutionary significant units
FAC	facultative
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
GPS	global positioning system
HGM	Hydrogeomorphic
I-90	Interstate 90
I-405	Interstate 405
LUC	Land Use Code
Magnuson Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act

NAVD88	North American Vertical Datum 1988
NGPA	Native Growth Protection Area
NGPE	Native Growth Protection Area Easement
NGVD88	National Geodetic Vertical Datum 1988
NMFS	National Marine Fisheries Service
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PAB	Palustrine aquatic bed
PEM	Palustrine emergent
PFO	Palustrine forested
PHS	Priority Habitats and Species
Project	East Link Light Rail Extension Project
PSS	Palustrine Scrub-Shrub
RCW	Revised Code of Washington
RLRT	Regional Light Rail Transit
ROD	Record of Decision
ROE	right-of-entry
ROW	right-of-way
SEPA	State Environmental Policy Act
sf	square feet
Sound Transit	Central Puget Sound Regional Transit Authority
SR 520	State Route 520
TPSS	transit power substation
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA 8	Water Resource Inventory Area 8
WSDOT	Washington Department of Transportation

1

1.0 Introduction

This Critical Areas Report and Mitigation Plan (CAR) describes existing conditions in support of project planning and permitting for the Central Puget Sound Regional Transit Authority (Sound Transit) East Link Light Rail Extension Project (Project). This report addresses potential impacts to critical areas as defined by the Bellevue City Code (BCC) and proposed mitigation within the City of Bellevue (City), and is intended to support Shoreline and Design and Mitigation Review permit reviews, as defined in the Light Rail Overlay District requirements (LUC 20.25M).

The purpose of this CAR is to describe the existing critical areas within the Project area, evaluate the potential impacts to critical areas, and provide a mitigation plan to address these impacts. Critical areas are defined in the BCC Critical Areas Ordinance (CAO), contained in Chapter 20.25H LUC of its Land Use Code (City of Bellevue 2013a). Per Chapter 20.25H.250 of the LUC, this CAR identifies and classifies critical areas and applicable critical area buffers present in the Project area. Coordination with the City identified the following five types of critical areas within the Project area: Streams (LUC 20.25H.075), Wetlands (LUC 20.25H.095), Geologic Hazard Areas (LUC 20.25H.120), Habitat Associated with Species of Local Importance (LUC 20.25H.150) and Areas of Special Flood Hazard (LUC 20.25H.175). The Project area also includes shorelines classified under the CAO (LUC 20.25E.017), however, the evaluation of potential impacts and associated mitigation related to shorelines is documented separately as part of the Shoreline Substantial Development Permit process with the City, with the exception of shoreline critical area buffers. Shoreline critical area buffers impacted by the Project overlap in all cases with stream and wetland critical area buffers; therefore, shoreline critical area buffer impacts and mitigation are covered by the critical area buffer discussion in this document.

This report is organized by first providing a description of the Project, the Project setting, and relevant regulatory context (Section 1). Next, a description of the existing critical areas within the Project area is presented, along with the potential impacts to critical areas from the Project (Section 2). Finally, measures to avoid and minimize impacts, and compensatory mitigation concepts for unavoidable impacts are presented (Section 3). The report is intended to satisfy the requirements of the Bellevue Land Use Code (LUC 20.25H.250) as well as demonstrate how the proposed mitigation will lead to equivalent or better protection of remaining critical area functions and values than would result from the application of the standard requirements.

1.1 Project Purpose and Goals

The purpose of the Project is to expand the Sound Transit East Link light rail system from Seattle to Mercer Island, Bellevue, and Redmond via Interstate 90 (I-90), and to provide a reliable and efficient alternative for moving people throughout the region. The Project would provide greater capacity and reliability, as well as improving travel time for people traveling between Seattle, Bellevue, and Redmond. To meet planned growth in the corridor, the cities of Bellevue, Seattle, and Redmond have made land use and planning decisions based upon increased employment and residential density, which

would be more fully realized with the long-term promise of a high-capacity transit connection across I-90. East Link provides this connection.

1.2 Project Description

The Project in its entirety extends the light rail system approximately 14 miles between Seattle and the east side of Lake Washington and includes ten stations serving Seattle, Mercer Island, South Bellevue, Downtown Bellevue, Bel-Red, and Overlake areas. The Project corridor is located in King County, Washington, the most densely populated county of the Puget Sound region. The Project has received concurrence from the Federal Transit Administration, and the Federal Transportation Department through completion of an Environmental Impact Statement (EIS) and subsequent Record of Decision (ROD). In addition, the State Environmental Policy Act (SEPA) review has been completed. The City has concurred with the Project alignment and major design elements through formal City Council action taken in April 2013.

1.2.1 Project Elements and Phasing

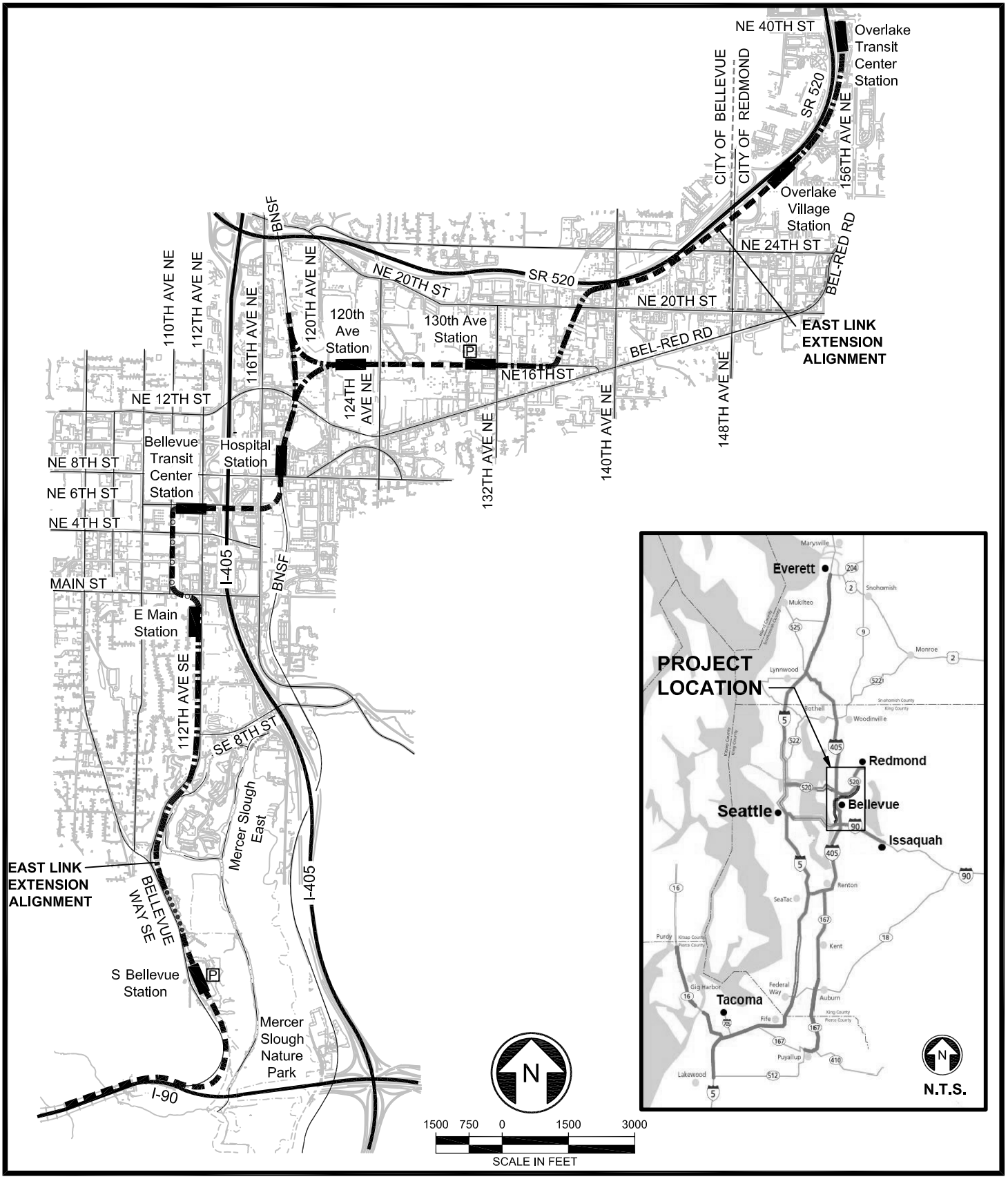
The Project features described in this report occur within the City between I-90 on the east side of Lake Washington in Bellevue and State Route 520 (SR 520) in Redmond (Figure 1-1), and represent approximately 6 miles of the overall East Link Project.

The Project corridor extends north from I-90, runs along the east side of Bellevue Way, then runs along the east side of 112th Avenue SE. The alignment then crosses to the west side of 112th Avenue SE at SE 15th Street and heads into Downtown Bellevue via a tunnel under 110th Avenue NE. From Downtown Bellevue, the Project alignment extends east along the south side of NE 6th Street, crosses over Interstate 405 (I-405), then turns north at the existing Burlington Northern Santa Fe (BNSF) rail corridor. The alignment follows the BNSF corridor north to NE 12th Street, then heads east following NE 16th Street right-of-way (ROW). The alignment then heads northeast within the 136th Place NE ROW, then turns east again within the SR 520 ROW. The Project remains in the SR 520 ROW until it reaches the Overlake Transit Center Station at NE 40th Street in Redmond.

The elements of the Project that are located within the City limits include approximately 6 miles of new light rail track, six stations, two parking facilities, and other facilities and infrastructure associated with the Project.

1.2.2 Construction Methods

The light rail alignment and stations vary in profile through the East Link corridor—at-grade, trenched, retained cut/fill, elevated, and a tunnel in the downtown core of the City (Figures 1-1, 1-2, and 1-3). Construction of the light rail line in the City would include civil construction and systems installation involving demolition work, clearing and grading, fill and excavation, utility extensions and/or relocations, tunneling, and retaining wall installation. Construction would occur over a 6-year period, with the majority of physical excavation and construction occurring within the first 4 years, after which construction would primarily involve station and tunnel finishing, and systems installation.



LEGEND

- ELEVATED GUIDEWAY
- TRENCHED GUIDEWAY
- RETAINED CUT-FILL/AT GRADE GUIDEWAY
- TUNNELED GUIDEWAY
- STATION
- P PARK-AND-RIDE

FINAL DESIGN PARTNERS.

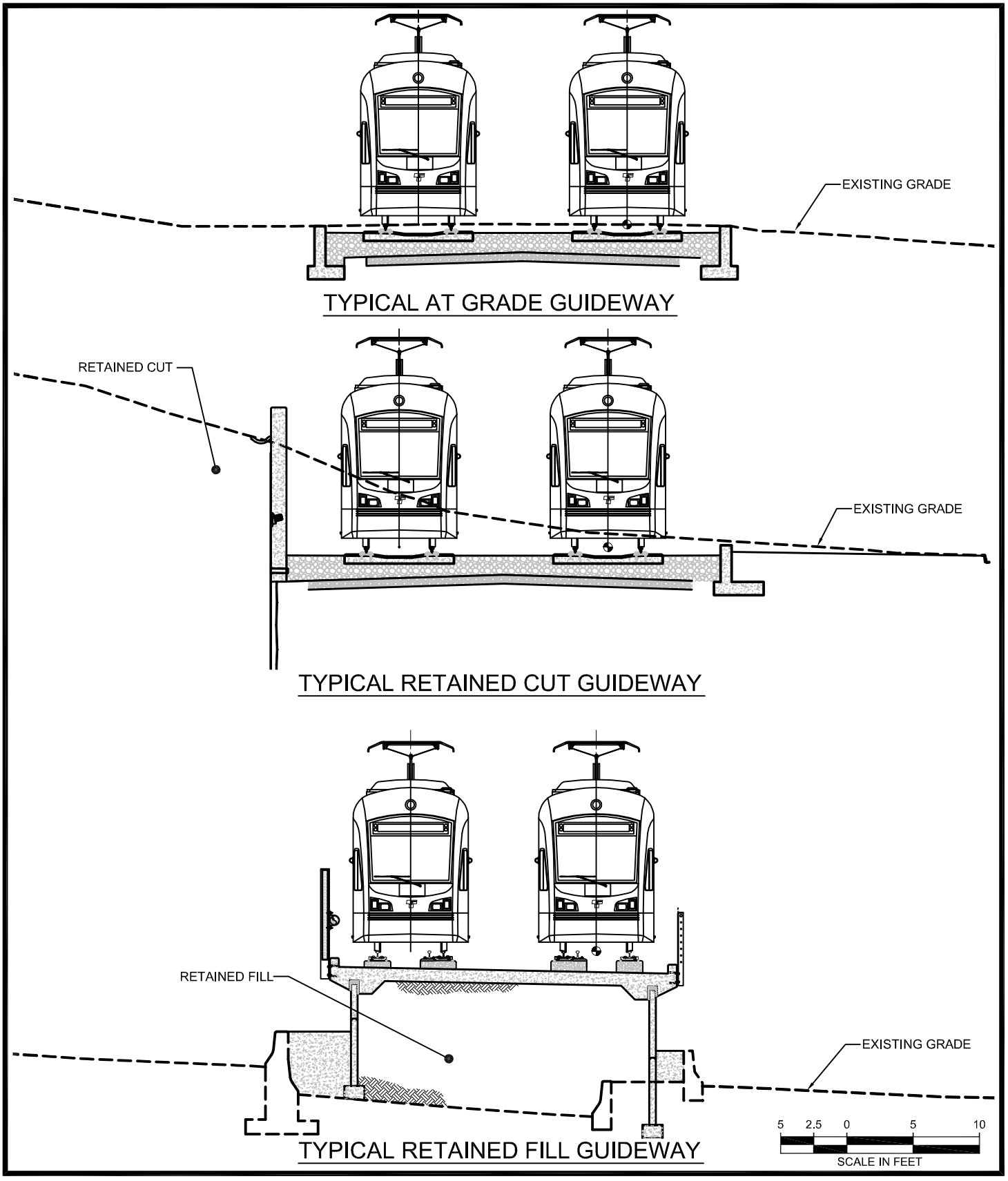
SOUNDTRANSIT

EAST LINK EXTENSION

SOUTH BELLEVUE TO OVERLAKE TRANSIT CENTER

FIGURE 1-1

VICINITY MAP AND PROJECT ALIGNMENT



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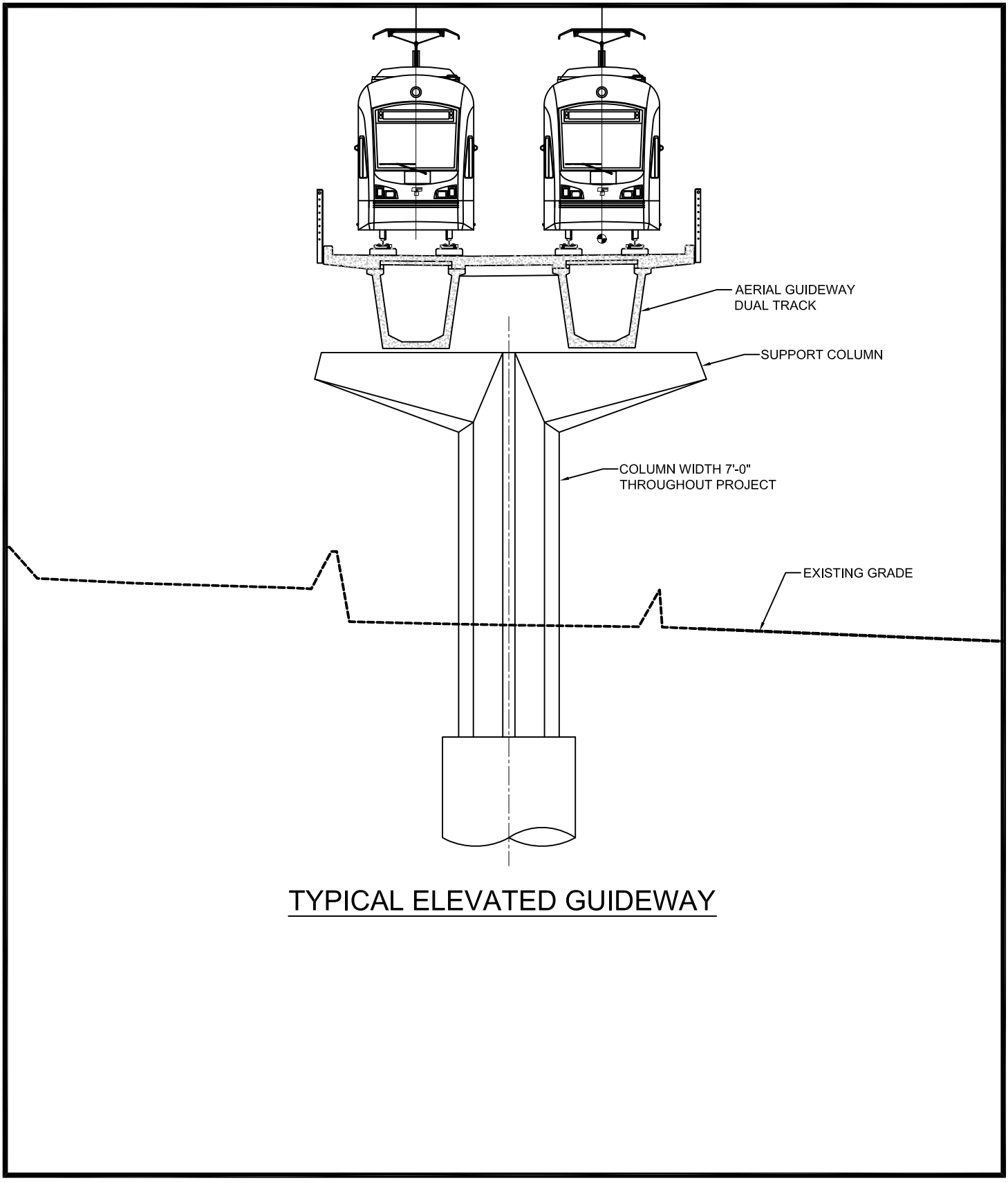
FINAL DESIGN PARTNERS.

SOUNDTRANSIT

EAST LINK EXTENSION

SOUTH BELLEVUE TO OVERLAKE TRANSIT CENTER

FIGURE 1-2
TYPICAL EAST LINK AT GRADE
GUIDEWAY DETAIL



TYPICAL ELEVATED GUIDEWAY

FINAL DESIGN PARTNERS.

SOUNDTRANSIT

EAST LINK EXTENSION

SOUTH BELLEVUE TO OVERLAKE TRANSIT CENTER

FIGURE 1-3
TYPICAL EAST LINK ELEVATED
GUIDEWAY DETAIL

1.3 Project Setting

The portion of the Project area addressed in this report is located within lowland areas adjacent to Lake Washington within the City limits (Figure 1-1). The Project area where construction will occur is largely within a densely populated area of the City that includes residential communities, office complexes, and the downtown city center. This area includes property under a variety of ownerships, including Washington State Department of Transportation (WSDOT) and City roads and rights-of-way, and parcels under City and private commercial or residential ownership. Also present in the Project area are streams, wetlands, and other critical areas, which are the subject of this report. Appendix A provides a series of maps of the Project area, including wetland and stream locations.

1.3.1 Review of Existing Information

As part of the analysis to identify natural resources and critical areas in the Project area, literature and information sources on topography, soils, hydrology, and plant communities and habitats were reviewed. The following sources of information were used to support field observations:

- Natural Resource Conservation Service (NRCS) Web Soil Survey (USDA 2013a)
- Hydric Soil List for Washington State (USDA 2013b)
- U.S. Fish and Wildlife Service (USFWS) Wetlands Mapper for National Wetlands Inventory (NWI) Map Information (USFWS 2013)
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species Maps (WDFW 2013a)
- WDFW SalmonScape Interactive mapper (WDFW 2013b)
- Bellevue City Code (BCC) (Bellevue 2013a)
- Bellevue Critical Areas Maps (Bellevue 2013b)
- East Link Light Rail Project Final Environmental Impact Statement and technical appendices (Sound Transit 2011)
- Google Earth aerial imagery (February to April 2013)

1.3.2 Topography

The topography in the Project area is typical of lowland areas east of Lake Washington. The majority of the Project area includes engineered slopes associated with existing roads and commercial and residential development. More distinct changes in elevation within the Project area are typically associated with critical area features, such as wetlands and streams, as these features are typically located in low lying areas and depressions compared to upland and developed areas.

1.3.3 Soils

The *NRCS Web Soil Survey* (USDA 2013a) identifies twelve soil series in the Project area:

- Alderwood gravelly sandy loam 0 to 6 percent slopes (AgB)

- Alderwood gravelly sandy loam 6 to 15 percent slopes (AgC)
- Alderwood gravelly sandy loam 15 to 30 percent slopes (AgD)
- Arents—Alderwood material 6 to 15 percent slopes (AmC)
- Bellingham silt loam (Bh)
- Everett-Alderwood gravelly sandy loam 6 to 15 percent slopes (EwC)
- Everett gravelly sandy loam 5 to 15 percent slopes (EvC)
- Norma sandy loam (No)
- Seattle muck (Sk)
- Snohomish silt loam (So)
- Tukwila muck (Tu)
- Urban land (Ur)

The primary constituent soil series within the Project area include Alderwood gravelly sandy loam, Arents - Alderwood material, Everett-Alderwood gravelly sandy loam, Everett gravelly sandy loam, and urban land. According to the *Hydric Soil List for Washington State* (USDA 2013b), Bellingham silt loam, Norma sandy loam, Seattle muck, Snohomish silt loam, and Tukwila muck soils series are classified as hydric soils, while Alderwood gravelly sandy loam, Arents - Alderwood material, Everett gravelly sandy loam, and Everett-Alderwood soil series are not classified as hydric soils. Upland soils in the Project area have been extensively disturbed by roadway construction and maintenance, development, and ditching.

1.3.4 Hydrology

The Project area contains nine drainage basins within the Cedar/Sammamish Watershed (Water Resource Inventory Area 8 [WRIA 8]) (Ecology 2013) (Figure 1-4). There are eight basins within the City limits, including the following in order from west to east along the Project alignment: Beaux Arts, Mercer Slough, Sturtevant Creek, West Tributary, Goff Creek, Kelsey Creek, Valley Creek, and Sears Creek (City of Bellevue 2013b). The first seven basins are located entirely within the City. The eighth basin, Sears Creek, is located within the city limits of both Bellevue and Redmond. A ninth basin within the Project area, Lake Sammamish, is located within the city limits of Redmond.

Hydrologic characteristics in the Project area are influenced by regional groundwater, direct precipitation, surface water runoff, streams and drainage features. Mercer Slough and Mercer Slough West Branch are the largest water body features in the Project area and Lake Washington is located near the southern end of the Project area.

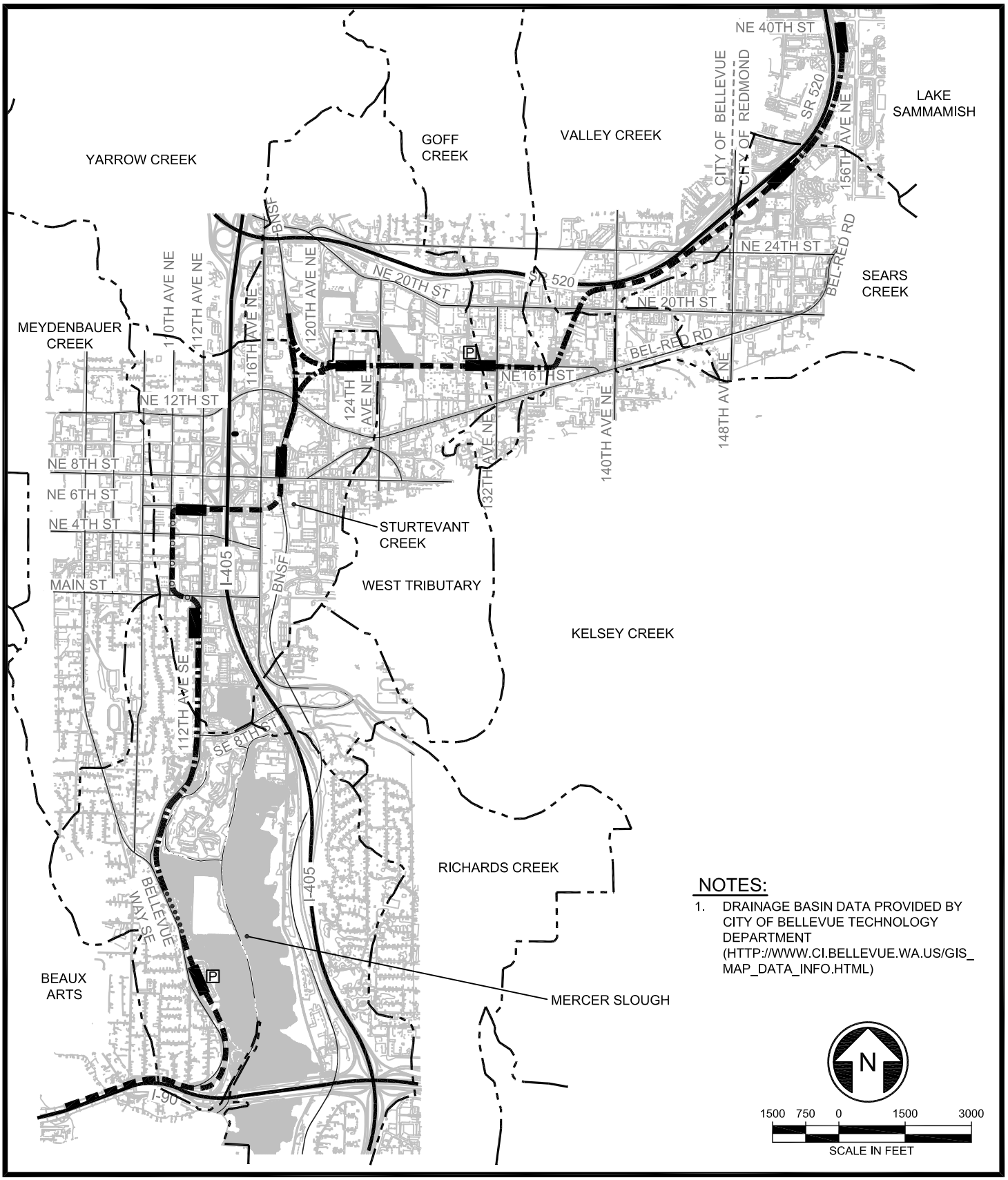
In total, 11 streams were identified and/or delineated within areas of proposed Project construction or are in close proximity to the Project within Bellevue limits. Stream names were established specifically for the Project and are based on common geographic identifiers within the area. A summary of stream channels within the Project area that will be disturbed, or have buffers that will be disturbed, under the proposed Project are discussed in Section 2.3. A complete description of the stream survey and associated figures showing the locations of streams within the Project area are presented in the *Sound*

Transit East Link Extension Project Wetland, Stream, and Jurisdictional Ditch Delineation Report (Delineation Report; Anchor QEA 2013); maps of these resources are included in Appendix A.

1.3.5 Plant Communities and Habitat

The Project area lies within the western hemlock (*Tsuga heterophylla*) vegetation zone of western Washington (Franklin and Dyrness 1988). Vegetation is dominated by needle-leaved, evergreen tree species, such as Douglas fir (*Pseudotsuga menziesii*), western hemlock, and western red cedar (*Thuja plicata*). Other dominant tree species include red alder (*Alnus rubra*) and big-leaf maple (*Acer macrophyllum*). The western hemlock vegetation zone is a forest climax community and does not necessarily reflect existing vegetation in the Project area, but provides a general description of forested habitat in this region of Puget Sound.

Overall, five vegetation communities were identified within the Project area: mowed and unmowed grassland areas; shrubland; mixed deciduous/coniferous forest; commercial and residential areas containing a fragmented mixture of native, nonnative, and ornamental plant species; and wetlands. Generally, tree species occur in scattered patches and upland areas, including areas adjacent to the existing roadway, residential and commercial properties, and disturbed areas. Vegetation in the ROW upland areas includes species typically associated with human disturbance and past land-clearing activities. The largest undisturbed forested habitat areas within and near the Project area are the habitat areas associated with the Mercer Slough. A complete description of vegetation in the Project area is presented in Section 2.1.2.



NOTES:

1. DRAINAGE BASIN DATA PROVIDED BY CITY OF BELLEVUE TECHNOLOGY DEPARTMENT (HTTP://WWW.CI.BELLEVUE.WA.US/GIS_MAP_DATA_INFO.HTML)

LEGEND

- DRAINAGE BASIN BOUNDARY LINE
- ELEVATED GUIDEWAY
- TRENCHED GUIDEWAY
- RETAINED CUT-FILL/AT GRADE GUIDEWAY
- TUNNELED GUIDEWAY
- STATION
- P PARK-AND-RIDE

FINAL DESIGN PARTNERS.

SOUNDTRANSIT

EAST LINK EXTENSION

SOUTH BELLEVUE TO OVERLAKE TRANSIT CENTER

FIGURE 1-4
CITY OF BELLEVUE
DRAINAGE BASIN BOUNDARIES

The *USFWS Wetlands Mapper for NWI Map Information* identifies Palustrine aquatic bed (PAB), Palustrine emergent (PEM), Palustrine scrub-shrub (PSS), and Palustrine forest (PFO) wetland systems within and in the vicinity of the Project area (USFWS 2013). WDFW Priority Habitats and Species (PHS) maps identify wetland habitat in the same area as the NWI maps (WDFW 2013a).

In total, 21 wetlands were identified and/or delineated within areas of proposed Project construction or are in close proximity to the Project within Bellevue limits. Wetland names were specifically established for the Project and are based on common geographic identifiers within the area. A summary of wetlands and wetland buffers within the Project area that will be disturbed under the proposed Project are discussed in Section 2.2. A complete description of the wetland delineation results and associated figures are presented in the *Sound Transit East Link Extension Project Wetland, Stream, and Jurisdictional Ditch Delineation Report* (Delineation Report; Anchor QEA 2013); maps of these resources are included in Appendix A.

1.4 Project Compliance with City Code Performance Standards and Criteria

The preparation of this CAR included an evaluation of the BCC requirements for the development of light rail facilities and associated critical areas review and reporting. A summary of these code requirements and how the analyses contained within this report meet the requirements is summarized here.

1.4.1 Consistency with Light Rail Overlay District (Chapter 20.25M LUC)

In February 2013, the City passed Ordinance 6101, which amended the LUC to "allow for the permitting and review of Light Rail Facilities and Systems," and created a Light Rail Overlay District (Chapter 20.25M LUC). Under Ordinance 6101, the provisions of the Critical Areas Overlay District (LUC 25.25H) are incorporated by reference into the new Light Rail Overlay District. At the same time, the City also passed Ordinance 6102, to provide consistency between the new Light Rail Overlay and existing land use code. Ordinance 6102 includes an amendment to LUC.20.25H.055.B that specifically identifies Regional Light Rail Transit (RLRT) Facilities as Essential Public Facilities that are regulated by Part 20.25M. The methodology and analyses contained within this CAR are consistent with the standards established for the Light Rail Overlay District and with the corresponding critical areas allowances.

The provisions of Ordinance 6101 include LUC 20.25M.030.C.3, which defines the requirements for a consolidated permitting process for light rail facilities—Design and Mitigation Review. These requirements include specific measures for proposed RLRT Facility that "will be located, in whole or in part, in a critical area regulated by Part 20.25H LUC." These requirements (LUC 20.25.M.030.3.j) include the measure that such a facility shall satisfy the following additional criteria.

i. The proposal utilizes, to the maximum extent possible, the best available construction, design, and development techniques, which result in the least impact on the critical area and critical area buffer;

Demonstration of Meeting Criteria: Sound Transit completed a lengthy environmental review process, which served to avoid and minimize impacts to critical areas throughout

the alignment. During design, further efforts were made to adjust the light rail alignment and positioning of features such as the guideway columns to avoid wetlands and streams and their buffers. The resulting impacts from the Project (less than 1 acre) represent the maximum extent of avoiding impacts to critical areas.

ii. The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable; and

Demonstration of Meeting Criteria: Achievement of these performance standards to the maximum extent possible is discussed in Section 1.4.2.

iii. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210; except that a proposal to modify or remove vegetation pursuant to an approved Vegetation Management Plan under LUC 20.25H.055.C.3.i shall not require a mitigation or restoration plan.

Demonstration of Meeting Criteria: The Project includes a mitigation plan, contained within this report.

1.4.2 Performance Standards

In accordance with LUC 20.25H.055.B, projects within a critical area or its buffer must meet all applicable performance standards. The performance standards applicable to the Project are identified in Table 1-1 and discussed in the following sections.

Table 1-1 City of Bellevue Performance Standards for Proposed Elements of Light Rail Project in Critical Areas

Improvement	Performance Standards			
	Wetlands	Streams	Geologic Hazard Areas	Areas of Special Flood Hazard
New or expanded essential public facilities	20.25H.055.C.2; 20.25H.100	20.25H.055.C.2; 20.25H.080.A; 20.25H.080.B	20.25H.055.C.2; 20.25H.125	20.25H.055.C.2; 20.25H.180.C; 20.25H.180.D.3

1.4.3 LUC 20.25H.055.C.2

The Project, which includes its associated mitigation, is an Essential Public Facility. The performance standards of 20.25H.055C.2 ordinarily require an applicant who proposes to do work in a critical area to demonstrate that there is "no technically feasible alternative with less impact on the critical area or critical area buffer." However, this performance standard does not apply to this application because Chapter 20.25M LUC states in LUC 20.25M.040.I.2 that, "[a] regional transit authority is not required to demonstrate that no technically feasible alignment or location alternative with less impact exists for any RLRT Facility, provided that the alignment location and profile of the RLRT System or Facility use has been approved by the City Council pursuant to an adopted resolution..." The City Council approved the alignment on April 22, 2013 in Resolution No. 8576.

1.4.4 LUC 20.25H.080.A and LUC 20.25H.080.B

The proposed Project meets the performance standard described in LUC 20.25H.080, which reads as follows for development in certain streams:

> Development on sites with a type S or F stream or associated critical area buffer shall incorporate the following performance standards in design of the development, as applicable:
>
> A. General.
>
> 1. Lights shall be directed away from the stream.

Performance Standard Achievement: Four streams that will be impacted by the Project meet the condition of this standard: Wye Creek (Type F), Mercer Slough West Branch (Type S), Sturtevant Creek (Type F), and Goff Creek (Type F). Light features will be directed away from streams, with the exception of areas that require illumination to address public safety concerns. Minimization efforts, such as shielding or reduced footcandles, will be implemented where possible.

> 2. Activity that generates noise such as parking lots, generators, and residential uses shall be located away from the stream or any noise shall be minimized through use of design and insulation techniques.

Performance Standard Achievement: The proposed operational improvements that would impact the Type F and Type S streams are anticipated to have minimal impacts to aquatic habitat. Care has been taken during design to avoid and minimize impacts to these streams by locating facilities away from streams and implementing mitigation measures where possible.

> 3. Toxic runoff from new impervious area shall be routed away from the stream.

Performance Standard Achievement: Any toxic runoff from new impervious areas will be collected and routed away from the Type F and Type S streams.

> 4. Treated water may be allowed to enter the stream critical area buffer.

Performance Standard Achievement: Water will be treated before entering into Type F or Type S stream buffers or routed away from Type F and Type S streams and their associated buffers.

> 5. The outer edge of the stream critical area buffer shall be planted with dense vegetation to limit pet or human use.

Performance Standard Achievement: All planted buffer areas that are adjacent to areas that can be accessed by the public will be densely planted with thorny species and/or fenced off with signage.

> 6. Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the stream critical area buffer shall be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as hereafter amended.

Performance Standard Achievement: Use of pesticides, insecticides, and fertilizers within 150 feet of the edge of the stream critical area buffer will be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as amended in the future.

B. Modification of Stream Channel.

1. When Allowed. A stream channel shall not be modified by relocating the open channel, or by closing the channel through pipes or culverts unless in connection with the following uses allowed under LUC 20.25H.055:

    a. A new or expanded utility facility or system;

    b. A new or expanded essential public facility;

    c. Public flood control measures;

    d. In-stream structures;

    e. New or expanded public ROW, private roads, access easements or driveways;

    f. Habitat improvement project; or

    g. Reasonable use exception; provided, that a modification may be allowed under this section for a reasonable use exception only where the applicant demonstrates that no other alternative exists to achieve the allowed development.

Performance Standard Achievement: The Project is a new essential public facility, and therefore meets this performance standard under B.1.b. above.

A critical areas report may not be used to modify the uses set forth in this subsection B.1.

2. Critical Areas Report Required. Any proposal to modify a stream channel under this section may be approved only through a critical areas report.

Performance Standard Achievement: The Project will require the relocation of Sturtevant Creek, and this Critical Areas Report has been prepared to support the approval of the relocation design. The relocation will provide an overall improvement in ecological function of Sturtevant Creek as demonstrated in Section 3 of this report.

3. Relocation of Closed Stream Channel. Any proposal to relocate an existing closed stream channel may be approved only through a critical areas report. (Ord. 5680, 6-26-06, § 3)

Performance Standard Achievement: The Project will require the relocation of Unnamed Tributary to Kelsey Creek, and this CAR has been prepared to support the approval of the relocated design. The relocation will maintain existing hydrologic functions, and mitigation for impacts will be addressed at West Tributary to Kelsey Creek, which will be an improvement over existing conditions. Further discussion of the proposed mitigation and resulting ecological improvements is provided in Section 3 of this report.

1.4.5 LUC 20.25H.100

The proposed Project meets the performance standard described in LUC 20.25H.100, which reads as follows for Development on Sites with a wetland or wetland critical area buffer:

> Development on sites with a wetland or wetland critical areas buffer shall incorporate the following performance standards in design of the development, as applicable:
>
> A. Lights shall be directed away from the wetland.
>
> B. **Performance Standard Achievement:** Light features will be directed away from wetlands, with the exception of areas that require illumination to address public safety concerns. Minimization efforts, such as shielding or reduced footcandles, will be implemented where possible.

Performance Standard Achievement: The proposed operational improvements that would impact the wetlands are anticipated to have minimal impacts. Care has been taken during design to avoid and minimize impacts to wetlands by locating facilities away from wetlands and implementing mitigation measures where possible.

> C. Toxic runoff from new impervious area shall be routed away from the wetlands.

Performance Standard Achievement: Any toxic runoff from new impervious surfaces will be routed away from the wetlands within the Project corridor.

> D. Treated water may be allowed to enter the wetland critical area buffer.

Performance Standard Achievement: Water will be treated before entering into wetland buffers, or routed away from wetlands and their associated buffers, if it is not needed to maintain hydrologic functions.

> E. The outer edge of the wetland critical area buffer shall be planted with dense vegetation to limit pet or human use.

Performance Standard Achievement: All planted buffer areas that are adjacent to areas that can be accessed by the public will be densely planted with thorny species and/or fenced off with signage.

> F. Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the stream (SIC) buffer be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as hereafter amended. (Ord. 5680, 6-26-06, § 3)

Performance Standard Achievement: Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the wetland critical area buffers shall be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as amended in the future.

1.4.6 LUC 20.25H.125

The proposed Project meets the performance standard described in LUC 20.25H.125, which reads as follows regarding landslide hazards and steep slopes:

In addition to generally applicable performance standards set forth in LUC 20.25H.055 and 20.25H.065, development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

A. Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

Performance Standard Achievement: Elevated track segments will maintain existing slope contours at columns' locations, where possible. At-grade track segments between 130th Avenue NE and NE 20th Street will conform to existing street grades. Required track grade separations for maintaining access to the historic Winters House and for street crossings of 112th Avenue SE, 120th Avenue NE, and 124th Avenue NE will require topography modifications. Retaining walls and slopes minimize the Project footprint and extent of topography modification.

A. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

Performance Standard Achievement: Improvements in steep slopes and structure setbacks have been located to minimize impacts to wetland and stream critical areas. There is no ability to modify locations. Retaining walls and slopes are designed to match existing topography and minimize disturbance to natural landforms and vegetation. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;

Performance Standard Achievement: Structure design in steep slope areas, buffers, and structures setbacks is based on geotechnical analyses and recommendations that avoid risk to the light rail transit facilities, users, and neighboring properties. Geotechnical analyses are available upon request as a separate report.

B. The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;

Performance Standard Achievement: Retaining walls are used in proximity to critical areas to minimize Project footprint, slope modification, and disturbance to adjacent properties.

C. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;

Performance Standard Achievement: Project impervious surfaces are minimized. All retained cut track sections on steep slopes or buffers have track and retaining wall underdrains.

D. Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification.

On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;

Performance Standard Achievement: This condition is not generally relevant to the elevated, at-grade, and retained cut and fill track sections. The East Main, Hospital, and 120th Avenue Stations are built to property lines and do not have these conditions. Site grading for the South Bellevue Station and parking structure and the 130th Avenue Station and surface parking is designed to minimize topographic modification.

E. Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;

Performance Standard Achievement: Retaining walls are integral with transit guideway and station components.

F. On slopes in excess of 40 percent, use of pole-type construction which conforms to the existing topography is required where feasible. If pole-type construction is not technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification;

Performance Standard Achievement: Pole-type construction is not appropriate for the transit guideway construction located on and over steep slopes. The Project has been designed to minimize topographic modification.

G. On slopes in excess of 40 percent, piled deck support structures are required where technically feasible for parking or garages over fill-based construction types; and

Performance Standard Achievement: The Project does not include any parking areas or garages on slopes in excess of 40 percent.

H. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210. (Ord. 5680, 6-26-06, § 3)

Performance Standard Achievement: The mitigation and monitoring additional provisions for steep slopes required by 20.25H.135 will be met by the contract plans and specifications including, but not limited to, temporary erosion and sediment control, drainage, and landscape site restoration, and by monitoring of discharges to surface waters.

Measures to be taken to provide long-term stabilization of steep slopes include the installation of soil nails within areas surrounding guideway columns to prevent erosion and scouring and assist in protection against landslides triggered by seismic activity. These techniques are proposed within a wetland buffer as an alternative to fill slopes that would extend into and impact adjacent wetlands. More information can be found within the geotechnical recommendations reports.

Retaining walls within areas adjacent to existing wetlands are also proposed as a means to protect high-quality critical areas and associated habitat.

1.4.7 LUC 20.25H.180.C

The proposed Project meets the performance standard described in LUC 20.25H.180.C, which reads as follows regarding Special Flood Hazard Areas:

> C. General Performance Standards
>
> Where use or development is allowed pursuant to LUC 20.25H.055 (*See Table 1-1*), the following general performance standards apply:
>
> 1. Intrusion Over the Area of Special Flood Hazard Allowed. Any structure may intrude over the area of special flood hazard if:
>
> a. The intrusion is located above existing grade, and does not alter the configuration of the area of special flood hazard;
>
> b. The intrusion is at an elevation and orientation which maintains the existing vegetation of the area of special flood hazard in a healthy condition. Solar access to vegetation must be maintained at least 50 percent of daylight hours during the normal growing season; and
>
> c. The intrusion does not encroach into the regulated floodway except in compliance with subsection C.5 of this section.

Performance Standard Achievement: The guideway crosses over the existing grades of areas of special flood hazard, just north of the Hospital Station to the east of Lake Bellevue, and near Valley Creek, just southeast of the intersection of 140th Avenue NE and SR 520. In both areas, the guideway is elevated with columns that are not located within the floodplains, and that are at a sufficient height and orientation to maintain the existing vegetation in a healthy condition. The existing vegetation will be maintained where possible, but may be altered due to the need to replace vegetation for safety concerns and the need to replace invasive species with native species. In both areas, solar access to vegetation will be maintained at least 50 percent of daylight hours during the normal growing season.

Development not meeting the requirements of this subsection C.1 may be allowed pursuant to LUC 20.25H.055 and only in accordance with the requirements set forth in the remainder of this section C.

> 2. Elevation Certificate Following Construction. Following construction of a structure within the area of special flood hazard, where the base flood elevation is provided, the applicant shall obtain an elevation certificate. The elevation certificate shall be completed by a surveyor licensed in the state of Washington and shall be submitted to City of Bellevue, Utilities Department. The Director shall obtain and transmit to the Director of the Utilities Department the elevation in relation to City of Bellevue vertical datum (North American Vertical Datum 1988 [NAVD88]) of the lowest floor, including

basement, and attendant utilities of a new or substantially improved structure permitted by this part. All records shall be maintained for public inspection in accordance with 44 Code of Federal Regulations 60.3(b)(5)(iii) and the City of Bellevue record retention policy.

Performance Standard Achievement: No structures are planned to be located within areas of special flood hazard relating to this Project.

3. Construction Materials and Methods.

a. Site Design. All structures, utilities, and other improvements shall be located on the buildable portion of the site out of the area of special flood hazard unless there is no buildable site out of the area of special flood hazard. For sites with no buildable area out of the area of special flood hazard, structures, utilities, and other improvements shall be placed on the highest land on the site, oriented parallel to flow rather than perpendicular, and sited as far from the stream and other critical areas as possible. Located in flood-fringe where flood flow velocities are less than three feet per second and flood depths are less than three feet. If the Director detects any evidence of active hyporheic exchange on a site, the development shall be located to minimize disruption of such exchange.

Performance Standard Achievement: Improvements are proposed within the Sweyolocken mitigation site, which is partially located within the 100-year floodplain of Mercer Slough East. These improvements would not interfere with the function of an area of special flood hazard or require a buildable site. Currently, approximately 7 acres of wetland enhancement/rehabilitation are proposed at this site, and it is estimated that 3 acres are within the 100-year floodplain. Project demands led to using this site for mitigation because there are limited mitigation sites within the City of Bellevue. The nature of the wetland enhancement/rehabilitation work involves some minor grading activities, but presents little opportunity to place improvements on the highest land on the site, orient improvements parallel to the flow, or locate improvements away from streams or other critical areas. However, if Project mitigation needs are reduced, reductions will occur within the 100-year floodplain areas first.

b. Methods That Minimize Flood Damage. All new construction and substantial improvements shall be constructed using flood-resistant materials and using methods and practices that minimize flood damage.

Performance Standard Achievement: Flood waters entering into the Sweyolocken mitigation site are not anticipated to create any damage to the improvements.

c. Utility Protection. Electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

Performance Standard Achievement: No utilities or service facilities that are associated with the Project are proposed to be located within at-grade areas of special flood hazard.

d. Anchoring. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.

Performance Standard Achievement: A majority of the habitat features within the Sweyolocken mitigation site will be located outside of the 100-year floodplain. Any habitat features (such as large woody debris) that are located within the 100-year floodplain will be anchored with duckbill anchors and cables to prevent lateral movement.

4. No Rise in the Base Flood Elevation (BFE). Any allowed use or development shall not result in a rise in the BFE.

a. Post and Pile. Post and piling techniques are preferred and are presumed to produce no increase in the BFE. Demonstration of no net rise in the BFE through calculation is not required.

b. Compensatory Storage. Proposals using compensatory storage techniques to assure no rise in the BFE shall demonstrate no net rise in the BFE through the calculation by methods established in the Utilities Storm and Surface Water Engineering Standards, January 2011, Section D4-04.5, Floodplain/Floodway Analysis, now or as hereafter amended.

Performance Standard Achievement: Earthwork improvements within the Sweyolocken mitigation site that are within the 100-year floodplain will be balanced, meaning there will be no rise in the BFE. This will be shown using the calculation methods established in the Utilities Storm and Surface Water Engineering Standards mentioned above.

5. Development in the Regulatory Floodway.

a. Encroachment into Regulatory Floodway Prohibited. Encroachments, including, but not limited to, fill, new construction, substantial improvements, and other development, are prohibited, unless a registered professional engineer certifies that the proposed encroachment into the regulatory floodway shall not result in any rise in the BFE using hydrological and hydraulic analysis performed in accordance with City of Bellevue Storm and Surface Water Engineering Standards, January 2011, or as hereafter amended. All new construction and substantial improvements shall comply with this section.

Performance Standard Achievement: The Sweyolocken mitigation site is a habitat improvement project and is not considered to be substantial or an encroachment into the regulatory floodway.

b. Residential Structures. A residential structure located partially within the regulatory floodway will be considered as totally within the regulatory floodway and must comply with this subsection C.5. This subsection does not apply to structures

identified as historical places. Construction or reconstruction of residential structures is prohibited within the regulatory floodway, except when:

i. Repairs, reconstruction, or improvements to a structure do not increase the footprint; and

ii. Repairs, reconstruction, or improvements to a structure, the cost of which does not exceed 50 percent of the market value of the structure either (1) before the repair, reconstruction, or improvement is begun, or (2) if the structure has been damaged, and is being restored, before the damage occurred. Work done to comply with state or local health, sanitary, or safety codes identified by the Building Official and which are the minimum necessary to assure safe living conditions or any alteration of a structure listed on the National Register of Historic Places shall not be included in the 50 percent market value determination.

Performance Standard Achievement: Residential structures are not included in this Project

c. Substantially Damaged Residential Structures.

i. The Director may request the Washington State Department of Ecology (Ecology) assess the risk of harm to life and property posed by the specific conditions of the regulatory floodway, and provide the City with a recommendation on repair or replacement of a substantially damaged residential structure consistent with WAC 173-158-076, now or as hereafter amended. Property owners shall be responsible for submitting to the City any information necessary to complete the assessment when such information is not otherwise available. No repair or replacement of a substantially damaged residential structure located in the regulatory floodway is allowed without a recommendation from the Department of Ecology.

ii. Before the repair, replacement, or reconstruction is started, all requirements of this section must be satisfied. In addition, the following conditions shall be met:

(1) There is no potential safe building location for the replacement residential structure on the same property outside the regulatory floodway;

(2) A replacement residential structure is a residential structure built as a substitute for a previously existing residential structure of equivalent use and size;

(3) Repairs or reconstruction or replacement of a residential structure shall not increase the total square footage of floodway encroachment;

(4) The elevation of the lowest floor of the substantially damaged or replacement residential structure is a minimum of one foot higher than the base flood elevation;

(5) New and replacement water supply systems are designed to eliminate or minimize infiltration of flood water into the system;

(6) New and replacement sanitary sewerage systems are designed and located to eliminate or minimize infiltration of flood water into the system and discharge from the system into the flood waters; and

(7) All other utilities and connections to public utilities are designed, constructed, and located to eliminate or minimize flood damage.

Performance Standard Achievement: Repair or replacement of residential structures is not included in this Project.

6. Modification of Stream Channel. Alteration of open stream channels shall be avoided, if feasible. If unavoidable, the following provisions shall apply to the alteration:

   a. Modifications shall only be allowed in accordance with the habitat improvement projects.

   b. Modification projects shall not result in blockage of side channels.

   c. The City of Bellevue shall notify adjacent communities, the state departments of Ecology and Fish and Wildlife, and the Federal Insurance Administration about the proposed modification at least 30 days prior to permit issuance.

   d. The applicant shall maintain the altered or relocated portion of the stream channel to ensure that the flood-carrying capacity is not diminished. Maintenance shall be bonded for a period of five years, and be in accordance with an approved maintenance program.

Performance Standard Achievement: None of the stream channels located within areas of special flood hazard will have modifications.

7. Compensatory Storage. Development proposals must not reduce the effective base flood storage volume of the area of special flood hazard. Grading or other activity that would reduce the effective storage volume must be mitigated by creating compensatory storage on the site. The compensatory storage must:

   a. Provide equivalent elevations to that being displaced;

   b. Be hydraulically connected to the source of flooding;

   c. Be provided in the same construction season and before the flood season begins on September 30th;

d. Occur on site or off site if legal arrangements can be made to assure that the effective compensatory storage volume will be preserved over time;

e. Be supported by a detailed hydraulic analysis that:

   i. Is prepared by a licensed engineer;

   ii. Demonstrates that the proposed compensatory storage does not adversely affect the BFE; and

f. Meet all other critical areas rules subject to this part. If modification to a critical area or critical area buffer is required to complete the compensatory storage requirement, such modification shall be mitigated pursuant to an approved mitigation and restoration plan, LUC 20.25H.210.

Performance Standard Achievement: None of the Project areas will reduce the effective base flood storage volume within areas of special flood hazard. Minor grading activities are proposed at the Sweyolocken mitigation site, but will result in no rise in BFE because all earthwork will be balanced within this area.

2.0 Critical Areas Assessment

This section provides a description of critical areas protected under the BCC (Bellevue 2013a), including Habitat Associated with Species of Local Importance, Wetlands, Streams, Areas of Special Flood Hazard, and Geologic Hazard. In addition, this section provides a description of Probable Cumulative Impacts associated with the Project.

Shoreline critical area buffers impacted by the Project overlap in all instances with stream and wetland critical area buffers. As such, avoidance, minimization, impacts, and mitigation to shoreline critical area buffers are fully addressed in the discussion of stream and wetland buffers in this document.

2.1 Habitat Associated with Species of Local Importance

This section was prepared based on the submittal requirements identified in LUC 20.25H.250 (City of Bellevue 2013a). Species of local importance are recognized populations of native species that are at risk of being lost from the City.

This section also includes a Habitat Assessment in accordance with LUC 20.25H.165. The habitat assessment is an investigation of the site to evaluate the potential presence or absence of designated species of local importance or habitat for species of local importance. Information in the habitat assessment includes a description of vegetation communities and habitat conditions in the Project area, the identification of species of local importance that occur or could potentially occur in the Project area, and whether site conditions meet the needs of any species of local importance. Also included in the assessment is a summary of the analysis of federally-listed species protected under the Endangered Species Act (ESA), as described in the Biological Assessment (BA) that was prepared for the Project (Axis Environmental, LLC and CH2M HILL 2010).

2.1.1 Methods

To document and describe habitat characteristics within the Project area, existing information was reviewed (Section 1.3.1), an aerial photograph assessment was performed, and site visits were conducted in in February, March, April, and May, June, July, and August 2013. During the site visits, general information regarding habitats and dominant plant species and communities was documented while walking through the Project area and performing wetland delineations and tree surveys for the Project. The majority of the Project area was accessible during the investigation, although some property parcels were not accessible due to limited right-of-entry (ROE) authorizations. Wildlife species, tracks, and other signs observed during the site visits were documented. All observations were qualitative; no quantitative wildlife surveys were performed.

2.1.2 Vegetation Communities

The Project area is located within a densely populated urban area of the City that is dominated by commercial and residential development, with the exception of the Mercer Slough Nature Park. As a result, the majority of vegetation communities located within the Project area are fragmented and

associated with road ROWs and residential and commercial development. Mercer Slough Nature Park is a large complex (greater than 350 acres) of wetland and upland habitats associated with the slough and Lake Washington. The park contains a wide variety of emergent, shrub, and forested vegetation communities.

Five general vegetation communities were identified within the Project area: mowed and unmowed grassland areas; shrubland; mixed deciduous/coniferous forest; commercial and residential areas containing a fragmented mixture of native, nonnative, and ornamental plant species; and wetlands.

Mowed and unmowed grassland areas are common throughout the Project area. Portions of the Project area that are dominated by grassland habitat include residential and commercial properties and habitat adjacent to City roads and SR 520. Plant species within the grassland habitat includes a variety of native and nonnative grasses and herbaceous species that are common within King County, including Colonial bentgrass (*Agrostis capillaris*), common velvet-grass (*Holcus lanatus*), Kentucky bluegrass (*Poa pratensis*), red fescue (*Festuca rubra*), tall fescue *(Festuca arundinacea*), redtop (*Agrostis gigantea*), common dandelion (*Taraxacum officinale*), English plantain (*Plantago lanceolata*), red clover (*Trifolium pratense*), and white clover (*Trifolium repens*).

Shrub communities include landscaped vegetation associated with residential and commercial development and roadside and disturbed areas. Native shrub species observed in the Project area include western azalea (*Rhododendron occidentale*), Indian plum (*Oemleria cerasiformis*), red elderberry (*Sambucus racemosa*), salal (*Gaultheria shallon*), snowberry (*Symphoricarpos albus*), beaked hazelnut (*Corylus cornuta*), and salmonberry (*Rubus spectabilis*). Ornamental shrub species include English laurel (*Prunus laurocerasus*), crabapple (*Malus* sp.), English ivy (*Hedera helix*), and a variety of ornamental hedge species. Several areas adjacent to the roads and development are dominated by the nonnative species Himalayan blackberry (*Rubus armeniacus*).

Mixed deciduous/coniferous forest habitat is primarily fragmented patches associated with road ROW, and commercial and residential development. The only vegetation community in the Project area that includes undisturbed habitat larger than one acre and is not fragmented is the habitat near Mercer Slough. A tree survey of all trees in the Project area was performed within areas of potential disturbances. Native tree species observed within the Project area include big-leaf maple, Douglas fir, red alder, western hemlock, western red cedar, paper birch (*Betula papyrifera*), Oregon ash (*Fraxinus latifolia*), and black cottonwood (*Populus trichocarpa*). Ornamental species include Austrian black pine (*Pinus nigra*), crabapple, and cherry (*Prunus* sp.). Many of the shrub species observed in the Project area are present as understory species of the forested vegetation.

Twenty-one wetland communities were identified within the Project area. These wetlands are all palustrine systems and include open water, emergent, scrub-shrub, and forested wetland systems. A detailed discussion of these wetlands is presented in Section 2.2. Common and scientific names of plant species observed within the Project area are provided in Table 2-1.

Table 2-1 Plant Species Observed within the Project Area

Scientific Name	Common Name
Trees	
Acer macrophylum	Big-leaf maple
Abies grandis	Grand fir
Alnus rubra	Red alder
Arbutus menziesii	Pacific madrona
Betula papyrifera	Paper birch
Crataegus douglasii	Black hawthorn
Fraxinus latifolia	Oregon ash
Malus domestica	Domestic apple
Malus Sp.	Crabapple
Physocarpus capitatus	Pacific ninebark
Picea sitchensis	Sitka spruce
Pinus monticola	Western white pine
Pinus nigra	Austrian black pine
Populus tremuloides	Quaking aspen
Populus trichocarpa	Black cottonwood
Prunus sp.	Cherry
Prunus emarginata	Bitter cherry
Pseudotsuga menziesii	Douglas fir
Quercus sp.	Oak
Rhamnus purshiana	Cascara
Salix hookeriana	Hooker willow
Salix lasiandra	Pacific willow
Salix scouleriana	Scouler willow
Thuja plicata	Western red cedar
Tsuga heterophylla	Western hemlock
Shrubs	
Acer circinatum	Vine maple
Cornus nuttallii	Pacific dogwood
Cornus sericea	Red-osier dogwood
Corylus cornuta	Beaked hazelnut
Cytisus scoparius	Scot's broom
Gaultheria shallon	Salal

Scientific Name	Common Name
Hedera helix	English ivy
Holodiscus discolor	Oceanspray
Ilex aquifolium	Holly
Kalmia spp.	Laurel
Lonicera involucrate	Twinberry
Mahonia aquifolium	Tall Oregon grape
Mahonia nervosa	Low Oregon grape
Oemleria cerasiformis	Indian plum
Oplopanax horridus	Devil's club
Polygonum cuspidatum	Japanese knotweed
Prunus laurocerasus	English laurel
Rhododendron occidentale	Western azalea
Rhododendron macrophyllum	Pacific rhododendron
Ribes bracteosum	Stink currant
Ribes lacustre	Prickly currant
Rosa gymnocarpa	Wood rose
Rosa nutkana	Nootka rose
Rubus armeniacus	Himalayan blackberry
Rubus laciniatus	Evergreen blackberry
Rubus parviflorus	Western thimbleberry
Rubus spectabilis	Salmonberry
Rubus ursinus	Trailing blackberry
Sambucus racemosa	Red elderberry
Spiraea douglasii	Spirea
Symphoricarpos albus	Snowberry
Vaccinium ovatum	Evergreen huckleberry
Vaccinium parvifolium	Red huckleberry
Grass, Ferns, & Herbaceous	
Achillea millefolium	Yarrow
Agropyron repens	Quackgrass
Agrostis capillaris	Colonial bentgrass
Agrostis gigantean	Redtop
Athyrium filix-femina	Lady fern

Scientific Name	Common Name
Blechnum spicant	Deer fern
Brassica campestris	Field mustard
Carex deweyana	Dewey sedge
Carex obnupta	Slough sedge
Cirsium arvense	Canadian thistle
Convolvulvus arvensis	Orchard morning glory
Dicentra formosa	Pacific bleeding heart
Digitalis purpurea	Foxglove
Epilobium angustifolium	Fireweed
Epilobium watsonii	Watson's willow-herb
Equisetum arvense	Field horsetail
Equisetum telmateia	Giant horsetail
Festuca arundinacea	Tall fescue
Festuca rubra	Red fescue
Gallium trifidum	Small bedstraw
Geranium robertianum	Stinky bob
Hedera hibernica	English ivy
Holcus lanatus	Common velvet grass
Juncus effusus	Soft rush
Lemna minor	Common duckweed
Linnaea borealis	Twinflower
Lysichiton americanus	Skunk cabbage
Maianthemum dilatatum	False-lily-of-the-valley
Mentha arvensis	Field mint
Oenanthe sarmentosa	Water-parsley

Scientific Name	Common Name
Phalaris arundinacea	Reed canarygrass
Plantago lanceolata	English plantain
Plantago major	Common plantain
Poa pratensis	Kentucky bluegrass
Polypodium glycyrrhiza	Licorice fern
Polystichum munitum	Sword fern
Pteridium aquilinum	Bracken fern
Ranunculus repens	Creeping buttercup
Rorippa palustris	Marsh yellowcress
Rumex crispus	Curly dock
Senecio triangularis	Arrowleaf groundsel
Stachys cooleyae	Cooley's hedge-nettle
Streptopus amplexifolius	Claspleaf twisted-stalk
Tanacetum vulgare	Common tansy
Taraxacum officinale	Common dandelion
Tolmiea menziesii	Piggyback plant
Trifolium pratense	Red clover
Trifolium repens	White clover
Trillium ovatum	Western trillium
Typha latifolia	Cattail
Urtica dioica	Stinging nettle
Verbascum thapsus	Common mullein
Veronica americana	American speedwell
Eleocharis palustris	Spike rush

2.1.3 Fish and Wildlife Habitat

The mosaic of vegetation communities within the Project area provides habitat for a variety of terrestrial and aquatic wildlife. Wildlife relies on vegetation for food, shelter, and cover from predators. Wildlife diversity is generally related to the structure and composition of plant species within vegetative communities. In general, vegetation communities that contain few species or vegetative layers (herbaceous vegetation, shrubs, or trees) support a low diversity of wildlife, whereas vegetation communities that are more complex and contain a wide variety of plant species and vegetative layers can support a greater diversity of wildlife. Forested and riparian areas with well-developed shrub layers are likely to support the greatest number of species and populations of wildlife (Brown 1985).

Wildlife habitats in the Project area range in quality from low in commercial and residential areas to high in the wetland habitat and forested riparian habitat associated with Mercer Slough. The majority of habitat in the Project area is developed and therefore provides habitat for disturbance-tolerant species typical of urban areas.

Wildlife species typically observed in the Project area include American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), and eastern gray squirrel (*Sciurus carolinensis*). Habitat associated with the Mercer Slough provides foraging and nesting sites for a variety of native songbird species, small mammals, reptiles, and amphibians. Kelsey West Tributary Pond Wetland is the other notable feature within the Project area that provides diverse foraging and nesting habitat for a variety of wildlife species. This habitat is surrounded by development so the wetland habitat has minimal vegetated buffer and no vegetated corridors connecting the habitat to other undisturbed habitats.

Eleven stream channels were identified within the Project area. One of the streams was identified as a Type S system (Mercer Slough West Branch), four were identified as Type F streams, four were identified as Type N streams, and two were identified as Type O streams. Similar to wildlife habitat, fish habitat in the Project area ranges in quality from low in commercial and residential areas to high in the wetland habitat and forested riparian habitat associated with Mercer Slough. A detailed discussion of these streams and potential fish use is presented in Section 2.3. Fish use of streams in the Project area is also discussed in Section 2.1.4.

2.1.4 Species of Local Importance

The City recognizes 23 species of local importance (LUC 20.25H.150; City of Bellevue 2013a). As part of the analysis of species of local importance, Anchor QEA reviewed information from the WDFW PHS database on state priority species and habitats that may occur in or near the Project area (WDFW 2013a). Species of local importance that could occur within the Project area were identified based on observations during the site visits, the WDFW PHS data, the presence of potential suitable habitat for priority species within the Project area, and WDFW management recommendations for priority species (Larsen 1997, Larsen et. al. 2004, WDFW 2013a).

Table 2-2 identifies the 23 species of local importance by group (amphibians, birds, mammals, reptiles, and fish), the presence or absence of potential suitable habitat within the Project area, and the state and federal status of each species (LUC 20.25H.150; City of Bellevue 2013a).

Table 2-2 Summary of City of Bellevue Designated Species of Local Importance Potential Presence within the Project Area

Common Name (Scientific Name)	Suitable Habitat	Potential Suitable Habitat Present Within Project Area	State Status	Federal Status
Amphibians				
Oregon spotted frog (*Rana pretiosa*)	Ponds and lakes with dense emergent vegetation	Yes (Mercer Slough habitat)	Endangered	Candidate
Western toad (*Bufo boreas*)	Still water in ponds and small lakes	Yes (Mercer Slough habitat)	Candidate	Species of concern
Birds				
Bald eagle (*Haliaeetus leucocephalus*)	Mature trees near water and prey sources	Yes (Mercer Slough habitat)	Sensitive	Species of concern
Common loon (*Gavia immer*)	Marine and large lakes and rivers	No (Lake Washington outside Project area)	Sensitive	None
Great blue heron (*Ardea herodias*)	Fresh and salt-water wetlands, rivers	Yes (Mercer Slough and Kelsey West Tributary Pond Wetland habitat)	Priority	Monitor
Green heron (*Butorides striatus*)	Fresh water wetlands with forested habitat	Yes (Mercer Slough and Kelsey West Tributary Pond Wetland habitat)	None	None
Merlin (*Falco columbarius*)	Prairies and conifer forests	Yes (Mercer Slough, habitat and mature trees)	Candidate	None
Osprey (*Pandion haliaetus*)	Marine coasts, lakes, and rivers	Yes (Mercer Slough and Kelsey West Tributary Pond Wetland habitat)	None	None
Peregrine falcon (*Falco peregrinus*)	Cliffs and vegetated slopes	No	Sensitive	Species of concern
Pileated woodpecker (*Dryocopus pileatus*)	Forest with snags and downed wood	Yes (Mercer Slough, Kelsey West Tributary Pond Wetland habitat, and mature trees)	Candidate	None
Purple martin (*Progne subis*)	Large dead trees or artificial nesting structures near wetlands, ponds, or marine systems	Yes (Mercer Slough, Kelsey West Tributary Pond Wetland habitat, and mature trees)	Candidate	None

Common Name (Scientific Name)	Suitable Habitat	Potential Suitable Habitat Present Within Project Area	State Status	Federal Status
Red-tailed hawk (B*uteo jamaicensis*)	Open habitat near forests	Yes (Mercer Slough, Kelsey West Tributary Pond Wetland habitat, and mature trees)	None	None
Vaux's swift (*Chaetura vauxi*)	Old growth forest	No	Candidate	None
Western Grebe (*Aechmophorus occidentalis*)	Large lakes	No (Lake Washington outside Project area)	Candidate	None
Fish/Salmon				
Bull trout (*Salvelinus confluentus*)	Marine, rivers, and streams	Yes (Mercer Slough)	Candidate	Threatened
Chinook salmon (*Oncorhynchus tshawytscha*)	Marine, rivers, and streams	Yes (Mercer Slough)	Candidate	Threatened
Coho salmon (*Oncorhynchus kisutch*)	Marine, rivers, and streams	Yes (Mercer Slough)	Candidate	Species of concern
River lamprey (*Lampetra ayresi*)	Rivers and streams	Yes (Mercer Slough)	None	Species of concern
Mammals				
Keen's myotis (*Myotis keenii*)	Mature coniferous forest	Yes (Mercer Slough, habitat and mature trees)	Candidate	None
Long-eared myotis (*Myotis evotis*)	Mature coniferous forest	Yes (Mercer Slough, habitat and mature trees)	Monitored	None
Long-legged myotis (*Myotis volans*)	Mature coniferous forest	Yes (Mercer Slough, habitat and mature trees)	Monitored	None
Western big-eared bat (*Plecotus townsedii*)	Mature coniferous forest	Yes (Mercer Slough, habitat and mature trees)	None	None
Reptiles				
Western pond turtle (*Clemmys marmorata*)	Ponds, sloughs, small lakes	Yes (Mercer Slough, habitat)	Endangered	Species of concern

Note:
Sources: City of Bellevue 2013, WDFW 2013, Larsen et al. 1995, Larsen 1997, and Larsen et al. 2004

Five species of local importance were observed during February, March, April, and May, June, July, and August 2013 site visits: bald eagle, great blue heron, osprey, pileated woodpecker, and red-tailed hawk. All five of these species were observed in the forested habitat associated with the Mercer Slough adjacent to the Project area and not specifically within the Project area boundary. The WDFW PHS database identifies the following habitats and species of local importance within the vicinity of the Project area (0.2 mile):

- Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*), resident cutthroat trout (*Oncorhynchus clarki*), coho salmon (*Oncorhynchus kisutch)*, rainbow trout (*Oncorhynchus mykiss)*, and sockeye salmon (*Oncorhynchus nerka*) occurrence and migration are documented in Mercer Slough.
- In addition to these five species, Puget Sound steelhead (*Oncorhynchus mykiss)* and Coastal Puget Sound bull trout (*Salvelinus confluentus*) are documented in Lake Washington south of the Project area.
- Coho salmon occurrence and migration are documented in the reach of the Mercer Slough West Branch within the Project area and the Mercer Slough East Branch near the Project area.
- Bald Eagle breeding areas are located on the east shoreline of Lake Washington, more than 1,000 feet outside the Project area to the west.
- Semipalmated plover (*Charadrius semipalmatus*) was documented in 1993 south of downtown Bellevue, near the Project area. Semipalmated plover does not have state or federal protected status and is not identified by the City of Bellevue as a species of local importance.
- A peregrine falcon (*Falco peregrinus*) breeding area is documented on a building in downtown Bellevue in the area of the Project that will be tunneled beneath downtown.
- As described in Section 2.2, wetlands within the Project area identified on the WDFW PHS database include Mercer Slough Wetland, Lake Bellevue Wetland, and Kelsey West Tributary Pond Wetland.

The Project area is deliberately located through a highly urbanized area to maximize ridership. Of the 23 species identified on the City's species of local importance list, potential suitable habitat for 18 of the species is present within the Project area primarily due to two areas, along the western edge of the Mercer Slough wetland and slough habitat system and the southern edge of the Kelsey West Tributary Pond Wetland habitat. These areas contain open water habitat, forested, shrub, and emergent wetland and upland vegetation communities, and habitat features such as snags for perching, nesting, and foraging. Within these areas, at certain times of the year, bird and bat species of local importance may occupy these habitats for breeding, foraging, or passing through on a migratory route. Amphibian, reptile, and fish species of local importance could potentially occur within the Mercer Slough habitat. Mature trees in the Project area outside of the Mercer Slough habitat could provide habitat for bird and bat species of local importance, although they are limited to isolated and fragmented patches in upland areas on residential or commercial property or in road ROW.

2.1.5 Federally Protected Species and Critical Habitats

A BA was prepared for the Project to evaluate the potential effects on ESA-listed species and critical habitat in compliance with Section 7(a)(2) and Section 3(5)(A) of the ESA (Axis Environmental, LLC and CH2M HILL 2010). Information from the BA is summarized in this report. Table 2-3 presents the federally-listed species identified in the BA as potentially occurring in the Project area. ESA-listed species under National Marine Fisheries Service (NMFS) and USFWS jurisdiction are identified based on the geographic boundaries of Distinct Population Segments (DPSs) and Evolutionary Significant Units (ESUs). The table also identifies whether critical habitat has been designated by NMFS or USFWS for those species within the vicinity of the Project area.

Table 2-3 Federally Listed and Proposed Species, ESA Status, Critical Habitat, and Effect Determinations

Species	Status	Agency	Effects Determination
Chinook salmon (Oncorhynchus tshawytscha)	Threatened (Puget Sound ESU)	NMFS	NLAA
Chinook salmon Critical Habitat	Designated (Puget Sound ESU)	NMFS	NLAA
Puget Sound steelhead (Oncorhynchus mykiss)	Threatened (Puget Sound DPS)	NMFS	NLAA
Puget Sound steelhead Critical Habitat	Under development (Puget Sound DPS)	NMFS	NA
Bull trout (Salvelinus confluentus)	Threatened (Puget Sound DPS)	USFWS	NLAA
Bull trout Critical Habitat	Designated (Puget Sound DPS)	USFWS	NLAA

Notes:
ESU = Evolutionary Significant Units
DPS = Distinct Population Segment
NLAA=Not Likely to Adversely Affect
NA=Not Applicable
NMFS=National Marine Fisheries Service
USFWS=United States Fish and Wildlife Service
Source: Axis Environmental, LLC and CH2M HILL 2010

As shown in Table 2-3, the BA prepared for the proposed Project did not identify the potential presence of terrestrial species in the vicinity of the Project area; fish species and associated critical habitats were the only federally-listed species identified with documented presence in or potential to occur in the Project area. The ESA analysis in the BA concluded that the proposed Project will result in temporary adverse impacts to fish and salmon. However, these impacts are minimized via Project timing and other avoidance and minimization measures. As a result, the BA analysis determined that the proposed

Project may affect, but is not likely to adversely affect, Puget Sound Chinook salmon, Puget Sound steelhead, or bull trout or associated critical habitats (Axis Environmental, LLC and CH2M HILL 2010).

According to the BA analysis, Chinook salmon, steelhead, and bull trout have not been documented in the stream systems within the Project area. Chinook salmon and steelhead presence was identified as possibly occurring with the Mercer Slough and Valley Creek systems. In addition, the area of potential Project impacts in the BA analysis included Lake Washington, and Lake Washington is not within the Project area addressed in this report. Critical habitat for Chinook salmon and bull trout includes Lake Washington, but stream systems within the Project area, including Mercer Slough, Mercer Slough West Branch, and Valley Creek, are excluded from the bull trout, Chinook salmon, and steelhead critical habitat designation.

The BA also performed an analysis for Essential Fish Habitat (EFH) consultation with NMFS, in compliance with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The BA analysis concluded that the proposed Project will have no adverse effect on EFH for salmonid species (Axis Environmental, LLC and CH2M HILL 2010).

2.1.6 Impact Assessment for Habitat Associated with Species of Local Importance

The primary potential construction impact on potential habitat for species of local importance (fish and wildlife habitat, wetlands, streams, and upland vegetation communities) will be removal and loss of habitat. In general, the severity of impact varies depending on the type and quantity of affected vegetation. For example, losing plant communities that offer limited wildlife habitat, such as fragmented ornamental vegetation in commercial and residential areas, results in less of an adverse effect than losing more complex vegetation associations, such as forested areas and wetlands.

The majority of clearing and grading associated with the Project will include areas with existing impervious surfaces and managed grass and fragmented and isolated tree and shrub vegetation within a densely developed urban area. The majority of the vegetation communities in the Project area is landscaped and does not include understory vegetation that provides habitat for amphibian, bird, reptile, and mammal species. Wildlife species that would likely occupy habitat in these developed areas include birds and small mammals typically associated with urban residential and commercial development.

Potential habitat within the Project area for species of local importance includes Mercer Slough Wetland habitat and the Kelsey West Tributary Pond Wetland habitat. With the exception of these systems, wetlands and streams in the Project area lack potential habitat for species of local importance due to their small size and locations adjacent to existing roads and residential and commercial development. The Kelsey West Tributary Pond Wetland is also surrounded by existing roads and development but is a relatively large wetland system, about 6 acres. While mature trees on residential and commercial property provide potential perching habitat for species of local importance, they are less likely to be used for nesting or foraging activity than mature trees within a forested complex.

Impacts to streams and wetlands have been largely avoided as part of the design process (Section 2.6). For the Mercer Slough Wetland, 0.23 acre of permanent wetland impacts and 1.84 acres of permanent wetland buffer impacts have been identified. Permanent impacts to the Mercer Slough West Branch stream system include shading of 236 square feet (sf) and 1.22 acres of permanent stream buffer impacts due to guideway impacts, and the proposed location of the pump station at SE 15th Street. SE 15th Street will be realigned to accommodate new ingress and egress for the Bellfield Office park. For the Kelsey West Tributary Pond Wetland, 0.01 acre of permanent wetland impacts and 0.13 acre of permanent wetland buffer impacts are anticipated due to the location of the guideway columns in the area. A complete description of wetland and stream impacts is presented in Sections 2.2 and 2.3, respectively.

Disturbances caused by construction may affect wildlife in adjacent habitats by disrupting feeding and nesting activities. Increased noise levels created by heavy machinery could cause birds to abandon their nests and may temporarily displace wildlife during construction. While noise associated with construction activities could result in avoidance behavior by some wildlife species, including species of local importance, wildlife would likely resume use of the site once construction is complete because human disturbance associated with traffic and residential and commercial development has been occurring in the Project area for several decades. As described in the Project ROD, the Federal Transit Authority concluded that the Project complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act for the protection of these birds, and the Project will not improperly affect such birds (FTA 2011).

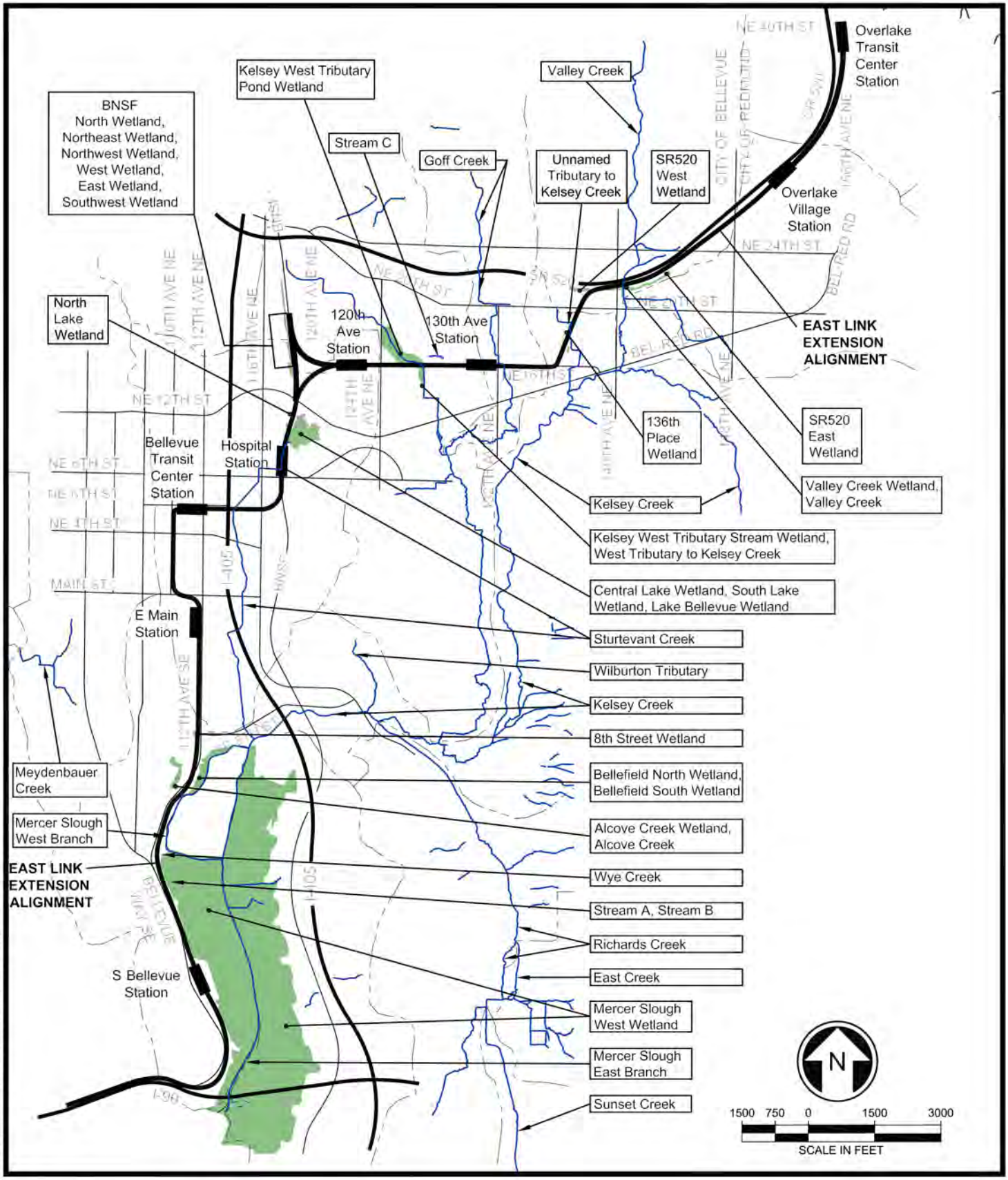
Operational impacts on wildlife and habitat communities and species of local importance associated with the Project would be minor and related principally to ambient noise levels associated with light rail use in a populated urban area. The Project area has been occupied with roads and residential and commercial development for several decades. Noise levels associated with operation of the light rail after construction are expected to be consistent with current ambient noise levels.

Due to the overall lack of potential habitat for species of local importance within the Project area outside the Mercer Slough and Kelsey West Tributary Pond Wetland habitats, the relatively low impact areas of disturbance in critical areas, and the proposed mitigation activities for permanent and temporary impacts (Section 3), overall habitat losses to sensitive areas resulting from the Project are expected to be relatively small and are unlikely to result in a significant impact on native wildlife and species of local importance. Proposed wetland and wetland buffer mitigation measures will also include incorporating habitat features such as woody debris and tree vegetation that can support species of local importance. Proposed stream and stream buffer mitigation measures will also incorporate measures to improve habitat conditions compared to existing conditions in a populated urban area.

2.2 Wetlands

Wetlands in the Project area were identified and delineated based on the criteria identified in the BCC LUC 20.25H.095 (City of Bellevue 2013a). Wetland locations are shown on Figure 2-1. The results of the

wetland survey are presented in the Delineation Report (Anchor QEA 2013). The wetland survey methods and results from that report are summarized in the following sections.



LEGEND

WETLANDS

STREAMS

DRAINAGE BASIN BOUNDARY LINE

FINAL DESIGN PARTNERS.

SOUNDTRANSIT

EAST LINK EXTENSION

SOUTH BELLEVUE TO OVERLAKE TRANSIT CENTER

FIGURE 2-1

EXISTING WETLANDS AND STREAMS

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2.2.1 Methods

2.2.1.1. Wetland Delineation

The delineation and rating analysis of wetland habitat in the Project area was performed in February, March, April, and May 2013. As specified by the BCC (City of Bellevue 2013a), the wetland delineations were conducted based on the methods defined in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps 2010). Wetland delineation guidelines identified in Ecology's *Washington State Wetland Identification and Delineation Manual* (Ecology 1997) is based on the information in the *U.S. Army Corps of Engineers Wetland Delineation Manual*.

The U.S. Army Corps of Engineers (Corps) and Ecology method for delineating wetlands is based on the presence of three parameters: hydrophytic vegetation; hydric soils; and wetland hydrology. Vegetation, soils, and hydrology information were collected at sample plots and recorded on field data sheets. Wetland determination data forms from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps 2010) were recorded for each wetland. A complete description of the wetland delineation methods, wetland ratings, and data forms are presented in the Delineation Report (Anchor QEA 2013).

2.2.1.2. Wetland Classifications

Wetland community types were identified according to the USFWS classification developed by Cowardin et al. (1979) for use in the NWI. This system bases the classification of wetlands on their physical characteristics, such as the general type of vegetation in the wetland (e.g., trees, shrubs, grass) and where and how much water is present in the wetland. All wetlands in the Project area are palustrine systems. Palustrine wetlands are inland, nontidal wetlands characterized by the presence of trees, shrubs, and emergent vegetation (vegetation that is rooted below water but grows above the surface). Palustrine wetlands range from permanently saturated or flooded land (as in marshes, swamps, and lake shores) to land that is wet only seasonally. The following wetland community types were identified during the wetland investigation:

- Palustrine forested (PFO) – These wetlands have at least 30 percent cover of woody vegetation that is more than 20 feet high.
- Palustrine scrub-shrub (PSS) – These wetlands have at least 30 percent cover of woody vegetation that is less than 20 feet high.
- Palustrine emergent (PEM) – These wetlands have erect, rooted, herbaceous vegetation present for most of the growing season in most years.
- Palustrine aquatic bed (PAB) – These wetlands are dominated by vegetation that grows principally on or below the surface of the water for most of the growing season in most years.

2.2.1.3. Wetland Ratings and Functions Assessment

At the state level, wetland ratings and functions were determined using the most current version of Ecology guidance in *Washington State Wetlands Rating System for Western Washington: Revised* (Hruby 2004) and *Washington State Wetland Rating Form – Western Washington, Version 2* (Ecology 2008a).

The BCC classifies wetlands into four categories (Categories I, II, III, and IV) based on the adopted Washington State Wetland Rating System for Western Washington, Washington State Department of Ecology (LUC 20.25H.095).

Using Ecology's rating system, points are awarded to three functional value categories: water quality, hydrologic functions, and wildlife habitat. To determine an accurate assessment of a wetland's functional values, function scores were calculated based on entire wetland systems, when applicable, not just the delineated portion of wetlands.

Washington State Wetland Rating Forms (Ecology 2008a) were recorded for each wetland. Wetland rating forms are included in Appendix E of the Delineation Report (Anchor QEA 2013).

2.2.1.4. State Hydrogeomorphic Classification System

Scientists have come to understand that wetlands can perform functions in different ways. The way a wetland functions depends to a large degree on hydrologic and geomorphic conditions. To recognize these differences among wetlands, a way to group or classify them has been developed. This classification system, called the Hydrogeomorphic (HGM) Classification, groups wetlands into categories based on the geomorphic and hydrologic characteristics that control many functions. The revision to the *Washington State Wetland Rating Form – Western Washington, Version 2* (Ecology 2008a) incorporates the new system as part of the questionnaire for characterizing a wetland's functions. The rating system uses only the highest grouping in the classification (i.e., wetland class). Wetland classes are based on geomorphic settings, such as riverine, slope, or depressional. A classification key is provided within the rating form to help identify which of the following HGM Classifications apply to the wetland: riverine, depressional, slope, lake-fringe, tidal fringe, or flats.

2.2.2 Wetland Study Results

Twenty-one wetlands were identified within the Project area. All 21 wetlands are located within the City and are therefore described in this report. The Project alignment has a cumulative length of 7.13 miles and crosses nine drainage basins within the Cedar/Sammamish Watershed (Water Resource Inventory Area 8 [WRIA 8]) (Ecology 2013). Wetlands were identified within five of the eight drainage basins within the City (Section 1.3.4; Figure 1-4). A drainage basin map is shown on Figure 1-4. Wetlands are described in location sequence from west to east. Each wetland was given a descriptive name to reflect its relative location along the alignment. This section provides a summary of the 21 wetlands within the Project area. A complete description of the 21 wetlands and figures noting their locations are presented in the Delineation Report (Anchor QEA 2013). Table 2-4 presents a summary of the wetlands in the Project area, including the approximate wetland size and drainage basin. Table 2-5

presents a summary of the wetlands USFWS classification, hydrogeomorphic classification, state and local ratings, and protective buffer widths, per the BCC (Bellevue 2013a).

Table 2-4 Summary of Wetlands Located within the Project Area

Wetland Name	Size[1] (acres)	Drainage Basin
Mercer Slough West	350[2]	Mercer Slough
Alcove Creek	0.23[3] / 0.64[2]	Mercer Slough
Bellefield South	0.29	Mercer Slough
Bellefield North	0.11	Mercer Slough
8th Street	0.05[3] / 0.13[2]	Mercer Slough
Lake Bellevue	0.54[3] / 7.00[2]	Sturtevant Creek
South Lake	0.09	Sturtevant Creek
Central Lake	0.03	Sturtevant Creek
North Lake	0.04	Sturtevant Creek
BNSF Southwest	0.12	West Tributary
BNSF East	0.06[3] / 0.12[2]	West Tributary
BNSF West	0.63[3] / 0.83[2]	West Tributary
BNSF Northeast	0.02	West Tributary
BNSF Northwest	0.06	West Tributary
BNSF North	0.02	West Tributary
Kelsey West Tributary Pond	5.98[2]	West Tributary
Kelsey West Tributary Stream	0.04	West Tributary
136th Place	0.03	Kelsey Creek
SR 520 West	0.51[3] / 0.64[2]	Valley Creek
Valley Creek	0.37	Valley Creek
SR 520 East	0.23	Valley Creek

Notes:

1 When only one number is present, total wetland area is located within the Project area. When two numbers are present, the wetland extends outside the Project area, and both the estimated total area (see footnote 2) and the delineated area (see footnote 3) are provided. Estimates for wetlands outside the Project area are based on observations during the field investigation and aerial photograph analysis. Wetland acreages were provided by HJH.

2 Approximate total wetland area, includes delineated area plus estimated wetland area extending outside Project area

3 Delineated wetland area within Project area

Table 2-5 Summary of Wetland USFWS Classification, Hydrogeomorphic Classification, State and Local Ratings, and Local Buffer Widths

Wetland Name	USFWS Classification	Hydrogeomorphic Classification Used for Rating	State (Ecology) and Local (Bellevue) Rating	Bellevue Buffer Widths (feet)
Mercer Slough West	PFO, PSS, PEM, PAB	Depressional, Lake-Fringe, Riverine, Slope	II	110
Alcove Creek	PFO, PSS, PEM	Depressional, Riverine	II	75
Bellefield South	PFO, PSS, PEM	Riverine, Slope	II	75
Bellefield North	PFO, PSS	Riverine, Slope	II	75
8th Street	PFO, PSS, PEM	Depressional	III	60
Lake Bellevue	PAB	Depressional	III	60
South Lake	PFO, PSS, PEM	Depressional	III	60
Central Lake	PSS, PEM	Depressional	III	60
North Lake	PFO, PEM	Slope	IV	0
BNSF Southwest	PFO, PEM	Depressional, Slope	III	60
BNSF East	PEM	Depressional	III	60
BNSF West	PFO, PSS, PEM	Depressional, Slope	III	60
BNSF Northeast	PFO, PSS	Depressional	III	60
BNSF Northwest	PFO, PEM	Depressional, Slope	IV	40
BNSF North	PFO, PSS	Depressional, Slope	III	60
Kelsey West Tributary Pond	PFO, PEM	Depressional, Riverine	II	75
Kelsey West Tributary Stream	PFO, PSS, PEM	Riverine	III	60
136th Place	PFO, PSS, PEM	Depressional	III	60
SR 520 West	PFO, PSS, PEM	Depressional, Slope	III	60
Valley Creek	PFO, PSS, PEM	Riverine, Slope	II	75
SR 520 East	PFO, PSS, PEM	Slope	III	60

Notes:
Ecology = U.S. Department of Ecology
PFO = palustrine forested
PSS = palustrine scrub-shrub
PEM = palustrine emergent
PAB = palustrine aquatic bed
USFWS = U.S. Fish and Wildlife Service

2.2.2.1. Mercer Slough West Wetland

Mercer Slough West Wetland is a large, heavily modified wetland system associated with Mercer Slough and Lake Washington. Prior to the Ballard Locks controlling the level of Lake Washington, Mercer Slough contained much more open water. The locks dropped the level of Lake Washington about 9 feet in 1916, exposing the saturated soils. Further dredging, ditching, and filling of the area through the first half of the 20th century for agricultural reasons further reduced the area of wetlands. By the last half of the 20th century, the slough experienced additional filling to accommodate I-405, and I-90 roadways. Approximately 130 acres of Mercer Slough was filled to create the Bellefield Office Park and the South Bellevue Park and ride in the 1960s and 1970s. The west channel around Bellefield Office Park is manmade and was created to float barges in for pile driving and construction of Bellefield Office Park. By the 1980s, continued urban development, including Newport Shores and the Newport Yacht Basin, added additional fill, peat removal, and draining. Today, Mercer Slough Park is approximately 350 acres. Portions of Mercer Slough West Wetland were delineated within the Project area. Mercer Slough West Wetland is also associated with several small streams (described in Section 2.3). For this investigation, only the western boundary of the wetland associated with the proposed Project alignment was delineated. The delineated boundary of the wetland is located adjacent to Bellevue Way SE and 112th Avenue SE. Based on aerial photograph analysis and City of Bellevue critical areas maps (Bellevue 2013b), the Mercer Slough West Wetland is part of a very large wetland complex, approximately 350 acres or greater in size. The delineated boundary of the wetland is located adjacent to Bellevue Way SE and 112th Avenue SE (Appendix A, Frames 2, 3, and 4). The wetland is also identified on City critical areas maps (City of Bellevue 2013b).

Mercer Slough West Wetland is a large wetland with PFO, PSS, PEM, and PAB vegetation classes and depressional, lake-fringe, riverine, and slope HGM classes. Dominant vegetation includes red alder, black cottonwood, western red cedar, Pacific willow (*Salix lasiandra*), red-osier dogwood (*Cornus sericea*), twinberry, spirea (*Spirea douglasii*), creeping buttercup, reed canarygrass, lady fern, and salmonberry. The wetland soils are saturated, seasonally inundated, and riverine and lake-fringe associated. Mercer Slough West Wetland is a Category II wetland under Ecology's rating system and the City's critical areas regulations (110-foot buffer).

2.2.2.2. Alcove Creek Wetland

Alcove Creek Wetland is located in an area between residential development at SE 15th Street and 112th Avenue SE (Appendix A, Frame 5). The wetland extends outside the Project area to the west, and ROE was not provided to identify the entire wetland boundary. A 0.23-acre portion of the Alcove Creek Wetland was delineated within the Project area. Based on visual observations from within the Project area, aerial photograph analysis, and the location of development features that would limit the extent of the wetland system, the total size of the Alcove Creek Wetland is estimated to be approximately 0.64 acre if the two associated residential pond features meet the criteria of wetland habitat. The Alcove Creek Wetland is associated with Alcove Creek (Section 2.3). A portion of the wetland is identified on City critical areas maps (City of Bellevue 2013b).

Alcove Creek Wetland is a small wetland with PFO, PSS, and PEM vegetation classes and depressional and riverine HGM classes. Dominant vegetation includes red alder, Oregon ash, black cottonwood, Pacific willow, red-osier dogwood, lady fern, and skunk cabbage. It is a Category II wetland under Ecology's rating system and the City's critical areas regulations (75-foot buffer).

2.2.2.3. Bellefield South Wetland

Bellefield South Wetland is located between Mercer Slough West Branch and 112th Avenue, and north of SE 15th Street. This wetland is associated with Mercer Slough (Section 2.3). Bellefield North Wetland is located north of the wetland (Appendix A, Frame 5). The entire wetland boundary was delineated, approximately 0.29 acre within the Project area.

Bellefield South Wetland is a small wetland with PFO, PSS, and PEM vegetation classes and riverine and slope HGM classes. Dominant vegetation includes Oregon ash, red alder, Pacific willow, Himalayan blackberry, and stinging nettle. It is a Category II wetland under Ecology's rating system and the City's critical areas regulations (75-foot buffer).

2.2.2.4. Bellefield North Wetland

Bellefield North Wetland is located in an area between 112th Avenue SE and Mercer Slough West Branch and is associated with Mercer Slough (Section 2.3). Bellefield South Wetland is located approximately 50 feet south of Bellefield North Wetland (Appendix A, Frame 5). The entire wetland boundary, approximately 0.11 acre, was delineated within the Project area.

Bellefield North Wetland is a small wetland with PFO and PSS vegetation classes and riverine and slope HGM classes. Dominant vegetation includes Oregon ash, black cottonwood, red alder, Pacific willow, prickly currant, Himalayan blackberry, lady fern, and stinging nettle. Bellefield North Wetland is a Category II wetland under Ecology's rating system and the City's critical areas regulations (75-foot buffer).

2.2.2.5. 8th Street Wetland

The 8th Street Wetland is located in a narrow area between 112th Avenue NE and residential development (Appendix A, Frame 5). The 8th Street Wetland is approximately 0.13 acre. Due to lack of ROE, only the portion of the wetland located within the City ROW of 112th Avenue NE was delineated. The wetland area located on private property was evaluated using visual observations from the ROW on the east side of the wetland. A 0.05-acre portion of the 8th Street Wetland was delineated within the Project area. Based on visual observations from within the Project area, aerial photograph analysis, and the location of development features the wetland does not extend more than 30 feet west of the ROW.

The 8th Street Wetland is a small, narrow wetland with PFO, PSS, and PEM vegetation classes and a depressional HGM class. Dominant vegetation includes stinging nettle and reed canarygrass. The 8th Street Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.6. Lake Bellevue Wetland

Lake Bellevue is regulated by the City of Bellevue as a wetland and not a lake because the system was historically a wetland that was dredged to create open water habitat. It is located east of the old BNSF railroad tracks south of NE 12th St. and north of NE 8th St. (Appendix A, Frame 9). Note that Sound Transit now owns a portion of the former BNSF ROW, but it is still referred to as BNSF ROW throughout the document. The wetland has commercial and residential structures built on piles that line the shoreline and are over much of the open water portion of the wetland. The western wetland boundary of the wetland, 0.54 acre, was delineated within the Project area. Based on visual observations from within the Project area, aerial photograph analysis, and the location of development features the total size of the wetland is estimated to be 7 acres. A narrow upland area is located between the wetland and an adjacent wetland and the old BNSF railroad tracks.

Lake Bellevue Wetland is a large depressional feature with mostly PAB vegetation classes and a depressional HGM class. Tree, shrub, and emergent vegetation was located in the delineated portion of the wetland; however, this is only a small percentage of the overall wetland system, and therefore, the wetland is described as having a PAB vegetation class. Dominant vegetation within the delineated area was black cottonwood, red alder, spirea, reed canarygrass, English ivy, and horsetail. Lake Bellevue Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.7. South Lake Wetland

South Lake Wetland is located in a narrow area between railroad tracks and development on the shoreline of Lake Bellevue (Appendix A, Frame 9). The entire wetland boundary, approximately 0.09 acre, was delineated within the Project area. Upland area is located between the wetland and Lake Bellevue.

South Lake Wetland is a small, narrow wetland with PFO, PSS, and PEM vegetation classes and a depressional HGM class. Dominant vegetation includes Hooker's willow, salmonberry, spirea, and reed canarygrass, with giant horsetail, Himalayan blackberry, and English ivy also occurring. South Lake Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.8. Central Lake Wetland

Central Lake Wetland is located in a narrow area between railroad tracks and development on the shoreline of Lake Bellevue. The entire wetland boundary, approximately 0.03 acre, was delineated within the Project area (Appendix A, Frame 9). Upland area is located between the wetland and Lake Bellevue.

Central Lake Wetland is a small, narrow wetland with PSS and PEM vegetation classes and a depressional HGM class. Dominant vegetation includes spirea, reed canarygrass, water purslane, and Watson's willow herb, with red-osier dogwood and Himalayan blackberry also occurring. Central Lake

Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.9. North Lake Wetland

North Lake Wetland is located in a narrow area between railroad tracks located to the east and development located to the west. The entire wetland boundary, approximately 0.04 acre, was delineated within the Project area (Appendix A, Frame 9).

North Lake Wetland is a small, narrow wetland with PFO and PEM vegetation classes and a slope HGM class. Dominant vegetation includes red alder, Scouler's willow, soft rush (*Juncus effusus*), and reed canarygrass, with Himalayan blackberry and Watson's willow-herb also occurring. North Lake Wetland is a Category IV wetland under Ecology's rating system and the City's critical areas regulations (no buffer due to wetland size of less than 2,500 sf).

2.2.2.10. BNSF Southwest Wetland

BNSF Southwest Wetland is located adjacent to railroad tracks located to the east and with commercial development located to the west. The entire wetland boundary, approximately 0.12 acre, was delineated within the Project area (Appendix A, Frame 10).

BNSF Southwest Wetland is a small, narrow wetland with PFO and PEM vegetation classes and depressional and slope HGM classes. Dominant vegetation includes black cottonwood, Pacific willow, red alder, reed canarygrass, and Colonial bentgrass. BNSF Southwest Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.11. BNSF East Wetland

BNSF East Wetland is located between railroad tracks to the west and commercial development located to the east. This wetland has a long, linear ditch shape. A chain link fence runs along the south side of the wetland that provides the Project area boundary. A riprap embankment is located about 5 feet east of the fence. The wetland appears to extend a few feet east of the fence. The wetland boundary within the Project area (0.06 acre, up to the fence) was delineated. Based on visual observations from within the Project area and the location of the embankment south of the chain link fence, the total size of the wetland is estimated to be 0.12 acre (Appendix A, Frame 10).

BNSF East Wetland is a small, narrow wetland with a PEM vegetation class and a depressional HGM class. Dominant vegetation includes cattail (*Typha latifolia*), common duckweed, reed canarygrass, and soft rush. BNSF East Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.12. BNSF West Wetland

BNSF West Wetland is located adjacent to railroad tracks located to the east and has commercial development located to the west. A portion of BNSF West Wetland, approximately 0.63 acre, was delineated within the Project area. The wetland extends outside the Project area to the west (Appendix

A, Frame 10). Based on visual observations from within the Project area, aerial photograph analysis, and the location of development features that would limit the extent of the wetland system, the total wetland size is estimated to be 0.83 acre.

BNSF West Wetland has PFO, PSS, and PEM vegetation classes and depressional and slope HGM classes. Dominant vegetation includes Scouler's willow, red alder, spirea, lady fern, Colonial bentgrass, reed canarygrass, and piggyback plant. BNSF West Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.13. BNSF Northeast Wetland

BNSF Northeast Wetland is located between railroad tracks, with commercial development located outside the railroad tracks. The entire wetland boundary, approximately 0.02 acre, was delineated within the Project area (Appendix A, Frame 10).

BNSF Northeast Wetland is a small, narrow wetland with PFO and PSS vegetation classes and a depressional HGM class. Dominant vegetation includes red alder, black cottonwood, spirea, and water purslane. BNSF Northeast Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.14. BNSF Northwest Wetland

BNSF Northwest Wetland is located adjacent to railroad tracks located to the east with commercial development located to the west. The entire wetland boundary, approximately 0.06 acre, was delineated within the Project area (Appendix A, Frame 10).

BNSF Northwest Wetland is a small, narrow wetland with PFO and PEM vegetation classes and depressional and slope HGM classes. Dominant vegetation includes Pacific willow, lady fern, soft rush, and English ivy. BNSF Northwest Wetland is a Category IV wetland under Ecology's rating system and the City's critical areas regulations (40-foot buffer).

2.2.2.15. BNSF North Wetland

BNSF North Wetland is located between the fill prism of two railroad tracks located to the west with commercial development located to the east. The entire wetland boundary, approximately 0.02 acre, was delineated within the Project area (Appendix A, Frame 10).

BNSF North Wetland is a small, narrow wetland with PFO and PSS vegetation classes and depressional and slope HGM classes. Dominant vegetation includes black cottonwood, Pacific willow, spirea, and bittersweet nightshade. BNSF North Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.16. Kelsey West Tributary Pond Wetland

Kelsey West Tributary Pond Wetland is located east of 124th Avenue NE and is entirely surrounded by commercial development (Appendix A, Frame 11). The pond itself is used for stormwater control, and its level is maintained by the City. An approximately 40-foot-wide weir is located at the southeast end

of the wetland to control flow out of the system. Approximately 5.98 acres of this wetland were delineated by Parametrix in 2011 as part of a City Project, and the data from that delineation were incorporated as part of the wetland delineation report (Parametrix 2012). The 2011 delineation was verified in 2013.

Kelsey West Tributary Pond Wetland is a large wetland with PFO and PEM vegetation classes and depressional and riverine HGM classes. This wetland is dominated by red alder, reed canarygrass, Pacific willow, spirea, and cattail. Kelsey West Tributary Pond Wetland is a Category II wetland under Ecology's rating system and the City's critical areas regulations (75-foot buffer).

2.2.2.17. Kelsey West Tributary Stream Wetland

Kelsey West Tributary Stream Wetland is associated with the West Tributary of Kelsey Creek, identified as West Tributary to Kelsey Creek Stream (Section 2.3). Kelsey West Tributary Stream Wetland is located in a narrow area between a paved parking lot and commercial developments . The entire wetland boundary, approximately 0.04 acre, was delineated within the Project area. The wetland is located on the left and right banks of the stream (Appendix A, Frame 11).

Kelsey West Tributary Stream Wetland is a small, narrow wetland with PFO, PSS, and PEM vegetation classes and a riverine HGM class. Dominant vegetation includes Pacific willow, red-osier dogwood, bittersweet nightshade, and reed canarygrass, with soft rush and Himalayan blackberry also occurring. Kelsey West Tributary Stream Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.18. 136th Place Wetland

The 136th Place Wetland is located in a narrow area between commercial developments (Appendix A, Frame 13). A footbridge that connects the two commercial buildings located on the east and west sides of the wetland crosses the middle portion of the wetland. The entire wetland boundary, approximately 0.03 acre, was delineated within the Project area.

The 136th Place Wetland is a small, narrow wetland with PFO, PSS, and PEM vegetation classes and a depressional HGM class. Dominant vegetation includes red alder, Pacific willow, bittersweet nightshade, and reed canarygrass, with horsetail and English ivy also occurring. The 136th Place Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.19. SR 520 West Wetland

SR 520 West Wetland is located in a narrow area between commercial development and the fill prism associated with SR 520, with 140th Avenue NE located to the east of the wetland (Appendix A, Frame 13). This wetland is located within the WSDOT ROW. Approximately 0.51 acre of SR 520 West Wetland was delineated within the Project area. The wetland extends outside the Project area to the west. Based on visual observations from within the Project area, aerial photograph analysis, and the location

of development features that would limit the extent of the wetland system, the total wetland size is estimated to be 0.64 acre.

SR 520 West Wetland is a small, narrow wetland with PFO, PSS, and PEM vegetation classes and depressional and slope HGM classes. Dominant vegetation includes red alder, black cottonwood, Pacific willow, red-osier dogwood, spirea, water parsley, and skunk cabbage, with horsetail and Himalayan blackberry also occurring. SR 520 West Wetland is a Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.2.20. Valley Creek Wetland

Valley Creek Wetland is located between commercial development and SR 520, with 140th Avenue NE located to the west of the wetland. The wetland is located within WSDOT ROW (Appendix A, Frame 13). Only a portion of Valley Creek Wetland was investigated due to lack of ROE. For this investigation, a confirmation of the wetland boundary was completed based on information from a previous delineation as identified in the *East Link Light Rail Project Final EIS* (Sound Transit 2011), where the wetland is identified as Wetland WR-10W. The wetland was not flagged or surveyed as part of this investigation. The wetland appears to extend outside the Project area to the south for a short distance along Valley Creek between commercial development to the east and west; however, the available area between development is only about 15 feet wide, including the stream channel. Based on visual observations from within the Project area, aerial photograph analysis, and the location of development features that would limit the extent of the wetland system, the approximate size of Valley Creek Wetland is 0.37 acre. Valley Creek Wetland is associated with Valley Creek.

Valley Creek Wetland is a small, narrow wetland with PFO, PSS, and PEM vegetation classes and riverine and slope HGM classes. Dominant vegetation includes red alder, black cottonwood, Pacific willow, bittersweet nightshade, spirea, and water parsley, with horsetail, reed canarygrass, red-osier dogwood, and Himalayan blackberry also occurring. Valley Creek Wetland is a Category II wetland under Ecology's rating system and the City's critical areas regulations (75-foot buffer).

2.2.2.21. SR 520 East Wetland

SR 520 East Wetland is located between commercial development and the fill prism associated with SR 520 (Appendix A, Frames 13 and 14). Only the west portion of this wetland was investigated due to lack of ROE. For this investigation, Anchor QEA performed a confirmation of the eastern portion of the wetland based on information from a previous delineation as identified in the *East Link Light Rail Project Final EIS* (Sound Transit 2011). The entire wetland boundary, including the delineated portion and the verified portion, is approximately 0.23 acre. The majority of the wetland is located within WSDOT ROW and the Project area.

SR 520 East Wetland is a small, narrow wetland with PFO, PSS, and PEM vegetation classes and a slope HGM class. Dominant vegetation includes red alder, black cottonwood, Scouler's willow, lady fern, and skunk cabbage, with horsetail and Himalayan blackberry also occurring. SR 520 East Wetland is a

Category III wetland under Ecology's rating system and the City's critical areas regulations (60-foot buffer).

2.2.3 Wetland Functional Analysis

Wetlands in the Project area provide many functions, including water quality improvements, floodwater storage, groundwater recharge, and wildlife habitat. However, wetlands in the Project area are typically located in low-lying areas adjacent to roads or other development features, and have been disturbed by human influence to some extent. Consequently, these wetlands are compromised in their ability to provide the full suite of these functions.

Based on the Ecology rating scores, the overall functions of each of the three wetland rating categories of water quality, hydrologic, and wildlife habitat are rated as low (less than 34 percent of the possible maximum score), moderate (34 percent to 67 percent of the possible maximum score), or high (greater than 68 percent of the possible maximum score). This method was used to identify the functions of wetlands within the Project area and is in accordance with Ecology methods for comparing functions between impacted wetlands and wetland mitigation sites (Ecology 2008b), which is discussed in Section 3.2.

Wetland function rating categories are summarized in Table 2-6. Water quality, hydrologic, and habitat functional value scores for wetlands in the Project area are shown in Table 2-7. The narrative that follows the tables provides a summary of the functions of only those wetlands within the Project area that will be disturbed, or have buffers that will be disturbed, under the proposed Project. A complete description of the functions all 21 wetlands is presented in the Delineation Report (Anchor QEA 2013).

Table 2-6 Summary of Wetland Function Rating Categories

Qualitative Rating of Function	Improving Water Quality Potential (Point Range)	Improving Hydrologic Potential (Point Range)	Habitat Functions Potential (Point Range)	Habitat Functions Opportunity (Point Range)
High	12 to 16	12 to 16	15 to 18	15 to 18
Moderate	6 to 11	6 to 11	7 to 14	6 to 13
Low	0 to 5	0 to 5	0 to 6	0 to 5

Note:
Source: Ecology 2008b

Table 2-7 Summary of Functions and Values Wetland Rating Scores

Wetland	Water Quality Functions Potential Score	Water Quality Functions Opportunity (Yes/No)	Hydrologic Functions Potential Score	Hydrologic Functions Opportunity (Yes/No)	Habitat Functions Potential Score	Habitat Functions Opportunity Score	Total Functions Score[1]
Depressional and Riverine Maximum Scores	**16**	**No = 1 Yes = 2**	**16**	**No = 1 Yes = 2**	**18**	**18**	**100**
Mercer Slough West	10	Yes	10	No	17	10	57
Alcove Creek	7	Yes	10	Yes	11	8	53
Bellefield South	10	Yes	8	Yes	10	8	54
Bellefield North	10	Yes	8	Yes	9	8	53
8th Street	3	Yes	12	Yes	6	5	41
Lake Bellevue	2	Yes	16	Yes	5	7	30
South Lake	7	Yes	8	Yes	8	5	43
Central Lake	5	Yes	10	Yes	7	4	41
BNSF Southwest	7	Yes	8	Yes	8	4	42
BNSF East	7	Yes	8	Yes	3	4	37
BNSF West	7	Yes	8	Yes	8	4	42
BNSF Northeast	7	Yes	8	Yes	6	4	40
BNSF Northwest	4	Yes	3	Yes	6	4	24
BNSF North	7	Yes	8	Yes	6	4	40
Kelsey West Tributary Pond	11	Yes	12	Yes	17[2]		63
Kelsey West Tributary Stream	8	Yes	9	Yes	9	7	50
136th Place	5	Yes	10	Yes	6	4	40
SR 520 West	9	Yes	8	Yes	9	5	48
Valley Creek	8	Yes	9	Yes	10	7	51
Slope Maximum Scores	**12**	**No = 1 Yes = 2**	**8**	**No = 1 Yes = 2**	**18**	**18**	**76**
North Lake	4	Yes	2	Yes	6	4	22
SR 520 East	5	Yes	5	Yes	9	4	33

Notes:

1 Total functions score calculated as: (Q x R) + (S x T) + U + V = W

Where:

Q = Water Quality Functions Potential Score
R = Water Quality Opportunity Score
S = Hydrologic Functions Potential Score
T = Hydrologic Functions Opportunity Score
U = Habitat Functions Potential Score
V = Habitat Functions Opportunity Score
W = Total functions score

2 Habitat Function potential/opportunity scores are combined due to unavailable data sheets (Parametrix 2012).

2.2.3.1. Water Quality Functions

All of the wetlands in the Project area provide opportunities to improve water quality to varying degrees, primarily because their location in an urban environment allows for the possibility of water quality improvement. Wetlands in the Project area with a moderate to high potential to improve water quality typically have a high proportion of wetland area with seasonal ponding or dense vegetation to restrict flow through the wetland.

2.2.3.2. Hydrologic Functions

With exception to Mercer Slough West Wetland, all of the wetlands in the Project area provide opportunities to reduce flooding and erosion. Mercer Slough West Wetland lacks the opportunity to reduce flooding or erosion because the wetland is associated with Lake Washington, which has water level controlled by the Ballard Locks. Wetlands with moderate or high scores typically have characteristics such as a highly constricted outlets or significant water storage depths during wet periods. Wetlands with a low potential to reduce flooding and erosion is due to a lack of natural surface water outlets, ponding features, and the types of vegetation to reduce surface flows; a high presence of ditch-like characteristics; and small contribution of the wetland to the larger watershed.

2.2.3.3. Habitat Functions

Wetlands with a low score for habitat functions general lack of vegetative structure, hydroperiods, plant richness, habitat diversity, and special habitat features. Wetlands with moderate or high scores typically have characteristics such as a several Cowardin vegetation classes, several hydroperiods, high habitat interspersion, or the presence of special habitat features. Fourteen of the 21 wetlands have a low opportunity to provide habitat for many species. Wetlands with a low score for habitat opportunity are due to the characteristics of the wetland buffers and the overall lack of quality habitat conditions near or adjacent to the wetlands, including their proximity to roads. In addition to the wetlands being located near roads, the wetlands are often located near residential or commercial development. Wetlands with moderate scores have relatively undisturbed buffer areas.

2.2.3.4. Mercer Slough West Wetland

Mercer Slough West Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (20 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and does not provide the opportunity to reduce flooding and erosion (10 out of 32 possible maximum score). The wetland scores a high potential and moderate opportunity (27 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Mercer Slough West Wetland is 57 out of a possible 100.

2.2.3.5. Alcove Creek Wetland

Alcove Creek Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (14 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion

(20 out of 32 possible maximum score). The wetland scores a moderate potential and moderate opportunity (19 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Alcove Creek Wetland is 53 out of a possible 100.

2.2.3.6. Bellefield South Wetland

Bellefield South Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (20 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (16 out of 32 possible maximum score). The wetland scores a moderate potential and moderate opportunity (18 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Bellefield South Wetland is 54 out of a possible 100.

2.2.3.7. Bellefield North Wetland

Bellefield North Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (20 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (16 out of 32 possible maximum score). The wetland scores a moderate potential and moderate opportunity (17 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Bellefield North Wetland is 53 out of a possible 100.

2.2.3.8. 8th Street Wetland

The 8th Street Wetland scores a low potential to improve water quality and provide opportunities to improve water quality (6 out of 32 possible maximum score). The wetland scores a high potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (24 out of 32 possible maximum score). The wetland scores a low potential and low opportunity (11 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for 8th Street Wetland is 41 out of a possible 100.

2.2.3.9. South Lake Wetland

South Lake Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (14 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (16 out of 32 possible maximum score). The wetland scores a moderate potential and low opportunity (13 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for South Lake Wetland is 43 out of a possible 100.

2.2.3.10. Central Lake Wetland

Central Lake Wetland scores a low potential to improve water quality and provide opportunities to improve water quality (10 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (20 out of 32 possible maximum score). The wetland scores a moderate potential and low opportunity (11 out of

36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Central Lake Wetland is 41 out of a possible 100.

2.2.3.11. North Lake Wetland

North Lake Wetland scores a low potential to improve water quality and provide opportunities to improve water quality (8 out of 24 possible maximum score). The wetland scores a low potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (4 out of 16 possible maximum score). The wetland scores a low potential and low opportunity (10 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for North Lake Wetland is 22 out of a possible 76.

2.2.3.12. BNSF East Wetland

BNSF East Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (14 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (16 out of 32 possible maximum score). The wetland scores a low potential and low opportunity to provide habitat functions (7 out of 36 possible maximum score). Overall, the total Ecology wetland functions score for BNSF East Wetland is 37 out of a possible 100.

2.2.3.13. BNSF Northeast Wetland

BNSF Northeast Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (14 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (16 out of 32 possible maximum score). The wetland scores a low potential and low opportunity to provide habitat functions (10 out of 36 possible maximum score). Overall, the total Ecology wetland functions score for BNSF Northeast Wetland is 40 out of a possible 100.

2.2.3.14. Kelsey West Tributary Pond Wetland

Kelsey West Tributary Pond Wetland was delineated and rated by Parametrix in 2011 as part of a City Project, and the data from that delineation was incorporated as part of the wetland delineation report. Kelsey West Tributary Pond Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (22 out of 32 possible maximum score). The wetland scores a high potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (24 out of 32 possible maximum score). The wetland scores a moderate potential and opportunity (17 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Kelsey West Tributary Pond Wetland is 63 out of a possible 100.

2.2.3.15. SR 520 West Wetland

SR 520 West Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (18 out of 32 possible maximum score). SR 520 West Wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and

erosion (16 out of 32 possible maximum score). The wetland scores a moderate potential and low opportunity (14 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for SR 520 West Wetland is 48 out of a possible 100.

2.2.3.16. Valley Creek Wetland

Valley Creek Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (16 out of 32 possible maximum score). Valley Creek Wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (18 out of 32 possible maximum score). The wetland scores a moderate potential and moderate opportunity (17 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Valley Creek Wetland is 51 out of a possible 100.

2.2.3.17. SR 520 East Wetland

SR 520 East Wetland scores a low potential to improve water quality and provide opportunities to improve water quality (10 out of 24 possible maximum score). SR 520 East Wetland scores a low potential to reduce flooding and erosion and provide the opportunity to reduce flooding and erosion (10 out of 16 possible maximum score). The wetland scores a moderate potential and low opportunity (13 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for SR 520 East Wetland is 33 out of a possible 76.

2.2.4 Wetland Impact Assessment

During the course of the Project, portions or all of 12 of the 21 wetlands in the Project area will be filled or temporarily disturbed. Approximately 0.48 acre of wetland will be permanently filled or graded to construct the Project and 0.22 acre will be temporarily disturbed. Project activities will also require tree removal or replacement within wetland areas due to criteria outlined in Sound Transit's Design Criteria Manual (DCM; Sound Transit 2013) for light rail operations, which specifies that a "vegetation clear zone" be established. The tree removal or replacement results in a change in vegetation class and is defined as a wetland vegetation conversion impact. The Project is expected to have 0.96 acre of wetland vegetation conversion impacts. These conversion activities are described in Section 2.2.4.5.

The wetland buffers of 13 of the 21 wetlands in the Project area will be permanently filled or temporarily disturbed. Approximately 2.83 acres of wetland buffer will be permanently filled or graded to construct the Project, and 4.90 acres of wetland buffer will be temporarily disturbed.

Specific characteristics contributing to generally low to moderate values related to wetland functions include their association with roadside drainage ditches with culverts or catch basins that provide unconstricted or slightly constricted surface outlets; lack of ponding features and the types of vegetation to reduce surface flows; the overall lack of quality habitat conditions near or adjacent to the wetlands; and the general lack of vegetative structure, plant richness, habitat diversity, and special habitat features.

The temporary and permanent impacts to wetlands in the Project area will primarily result in a loss of stormwater management functions provided by these wetlands. Stormwater best management practices (BMPs) will be implemented as part of the Project; therefore, stormwater quality will be significantly improved as a whole, but wetland loss will reduce the flood water desynchronization, sediment removal, nutrient and toxicant removal, and erosion control functions provided by the affected wetlands.

2.2.4.1. Permanent Wetland Impacts

Permanent direct impacts from the proposed Project include filling and grading within the wetlands to construct the Project. Seven of the 21 wetlands in the Project area will be permanently disturbed because of partial filling or grading for Project construction for a total of 0.48 acres of permanent wetland impact. Four of the wetlands that will be permanently disturbed are Category II wetlands, and three are Category III wetlands according to the Ecology rating system. A summary of wetlands with permanent impacts under the Project is provided in Table 2-8. A summary of the classifications of wetlands with permanent impacts is provided in Table 2-9. Permanent wetland impact areas are shown in Appendix B.

Table 2-8 Summary of Permanent Wetland Impacts

Wetland Name	Size[1] (acres)	State (Ecology) and Local (Bellevue) Rating	Permanent Impacts (acres)	Source of Impact
Mercer Slough West	350[2]	II	0.23	Geotechnical ground improvements (soil replacement, stone columns), access road between Winter's House & Blueberry Farm, retaining wall at proposed Winter's House parking lot, proposed storm drain easements/outfalls east and north of Winter's House, and guideway location,
Bellefield South	0.29	II	0.07	Proposed realignment of SE 15th St. and its associated retaining wall/footings
Bellefield North	0.11	II	0.02	Proposed realignment of SE 15th St. and its associated retaining wall/footings
8th Street	0.05[3] / 0.13[2]	III	0.09	Guideway location
BNSF East	0.06[3] / 0.12[2]	III	0.05	Guideway location and associated ballast wall
Kelsey West Tributary Pond	5.98	II	0.01	Guideway column locations (drilled shafts)
SR 520 West	0.51[3] / 0.64[2]	III	0.01	Location of guideway abutment and column (#D52—drilled shaft)
		Total	**0.48**	

Notes:

1 When only one number is present, total wetland area is located within the Project area. When two numbers are present, the wetland extends outside the Project area, and both the estimated total area (see footnote 2) and the delineated area (see footnote 3) are provided. Estimates for wetlands outside the Project area are based on observations during the field investigation and aerial photograph analysis. Wetland acreages were provided by HJH.

2 Approximate total wetland area, includes delineated area plus estimated wetland area extending outside project area

3 Delineated wetland area within project area

Table 2-9 Summary of Permanent Wetland Impacts by Classification

Classification Type	Class	Permanent Impact Area (acres)
Cowardin (USFWS)	PEM	0.05
	PFO, PEM	0.01
	PSS, PEM	0.02
	PFO, PSS, PEM	0.17
	PFO, PSS, PEM, PAB	0.23
	Total	**0.48**
Ecology Rating	II	0.33
	III	0.15
	Total	**0.48**
Hydrogeomorphic Class	Depressional	0.14
	Depressional, Lake-Fringe, Riverine, Slope	0.23
	Depressional, Riverine	0.01
	Depressional, Slope	0.01
	Riverine, Slope	0.09
	Total	**0.48**

2.2.4.2. Temporary Wetland Impacts

Temporary impacts to four wetlands will occur from vegetation clearing, alterations to existing grades, and shading from temporary structures. Project elements expected to cause temporary construction impacts to wetlands include construction access routes, grading, wall construction, temporary public traffic routes, staging areas, and utility installations and relocations.

Temporary wetland impacts would produce short-term loss of wetland functions during construction and for several years following construction. They would not, however, result in a permanent loss of wetlands after the Project is completed and once disturbed vegetation or wetland hydrology is reestablished. The extent of short-term degradation would vary depending on the intensity of the temporary impacts but is anticipated to be from 1 to 3 years. Wetlands where the vegetation is cleared or trimmed would still retain some water quality and quantity function, although at a diminished level. Temporarily filled wetlands would provide no beneficial functions until they are restored. Wetlands temporarily impacted during construction would be restored to pre-existing grades and replanted following the completion of work, and it is anticipated that they would return to a functioning state within 5 years. Four of the 21 wetlands in the Project area would result in approximately 0.22 acres of short-term loss of wetland functions. This estimate is based on offsets from planned cut and fill and further avoidance and minimization activities during construction may reduce this impact. A summary

of wetlands with temporary impacts under the Project is provided in Table 2-10. Temporary wetland impact areas are shown in Appendix B.

Table 2-10 Summary of Temporary Wetland Impacts

Wetland Name	Size[1] (acres)	State (Ecology) and Local (Bellevue) Rating	Temporary Impacts (acres)	Source of Impact
Mercer Slough West	350[2]	II	0.16	Future installation of proposed boardwalk, construction of retaining wall at Winter's House (scaffolding, vehicles), construction access (vehicular) between Winter's House and Wye Creek (along east side of proposed guideway)
Alcove Creek	0.23[3] / 0.64[2]	II	0.01	Construction of retaining wall along west side of 112th Ave. SE (scaffolding, vehicles)
Bellefield South	0.29	II	0.04	Construction of retaining wall at SE 15th St. (scaffolding, vehicles), geotechnical ground improvements (soil replacement)
Bellefield North	0.11	II	0.01	Construction of retaining wall at SE 15th St. (scaffolding, vehicles), geotechnical ground improvements (soil replacement)
		Total	**0.22**	

Notes:
1 When only one number is present, total wetland area is located within Project area. When two numbers are present, the wetland extends outside the Project area and both the estimated total area (superscript 2) and the delineated area (superscript 3) are provided. Estimates for wetlands outside the Project area are based on observations during the field investigation and aerial photograph analysis. Wetland acreages were provided by HJH.
2 Approximate total wetland area, includes delineated area plus estimated wetland area extending outside project area
3 Delineated wetland area within project area

2.2.4.3. Permanent Wetland Buffer Impacts

Permanent wetland buffer impacts would result in a decrease in area adjacent to wetland areas, which could consequently result in decreased wetland function for the remaining wetlands within the Project area after construction. Eleven of the 21 wetlands in the Project area would have permanent wetland buffer impacts because of partial filling or grading for Project construction for a total of 2.83 acres of permanent wetland buffer impact. A summary of wetlands with permanent buffer impacts under the Project is provided in Table 2-11. Permanent wetland buffer impact areas are shown in Appendix B.

Table 2-11 Summary of Permanent Wetland Buffer Impacts

Wetland Name	State (Ecology) and Local (Bellevue) Rating	Permanent Buffer Impacts (acres)	Source of Impact
Mercer Slough West	II	1.84	Guideway location, guideway column locations (drilled shafts), perimeter ornamental landscape south of the South Bellevue Station parking structure, access road between Winter's House and Blueberry Farm, sidewalk improvements along Bellevue Way SE, improvements to the Winter's House parking lot, location of proposed building pad for future retail building, proposed storm drain easements/outfalls,
Alcove Creek	II	0.03	Location of retaining wall along west side of 112th Ave. SE, sidewalk improvements, location of realigned Bellefield Park Lane
Bellefield South	II	0.22	Location of realigned SE 15th St. and adjacent sidewalk
Bellefield North	II	0.21	Location of realigned SE 15th St. and adjacent sidewalk
8th Street	III	0.22	Location of guideway and adjacent sidewalk improvements
South Lake	III	0.01	Location of guideway columns (drilled shafts), location of guideway trestle
Central Lake	III	0.07	Location of guideway trestle
BNSF East	III	0.02	Location of guideway and associated ballast wall
BNSF Northeast	III	0.06	Location of guideway and associated ballast wall
Kelsey West Tributary Pond	II	0.13	Location of storm drain easements/outfalls, location of guideway columns (drilled shafts)
SR 520 West	III	0.02	Location of guideway columns (drilled shafts)
	Total	**2.83**	

2.2.4.4. Temporary Wetland Buffer Impacts

Project elements expected to cause temporary construction impacts to wetland buffers include construction access routes, temporary public traffic detour routes, staging areas, and utility installations and relocations. Eleven of the 21 wetlands in the Project area will have temporary wetland buffer impacts for a total of 4.90 acres. This estimate is based on offsets from planned cut and fill and further avoidance and minimization during construction may reduce this impact. A summary of wetlands with temporary buffer impacts under the Project is provided in Table 2-12. Temporary wetland buffer impact areas are shown in Appendix B.

Table 2-12 Summary of Temporary Wetland Buffer Impacts

Wetland Name	State (Ecology) and Local (Bellevue) Rating	Temporary Impacts (acres)	Source of Impact
Mercer Slough West	II	2.86	Construction access (vehicular) and staging, geotechnical ground improvements (soil replacement, stone columns), grading activities associated with guideway and retaining wall locations
Alcove Creek	II	0.09	Construction access for retaining wall (scaffolding, vehicles)
Bellefield South	II	0.03	Construction access for retaining wall (scaffolding, vehicles)
Bellefield North	II	0.10	Construction access for retaining wall (scaffolding, vehicles)
8th Street	III	0.11	Access for guideway construction (vehicles)
South Lake	III	0.24	Construction access for guideway and columns (scaffolding, vehicles)
Central Lake	III	0.07	Construction access for guideway and trestle (scaffolding, vehicles)
Kelsey West Tributary Pond	II	0.34	Construction access for guideway and columns (scaffolding, vehicles)
SR 520 West	III	0.57	Construction access for guideway and columns (scaffolding, vehicles)
Valley Creek	II	0.33	Construction access for guideway and columns (scaffolding, vehicles)
SR 520 East	III	0.16	Construction access for guideway and columns (scaffolding, vehicles)
	Total	**4.90**	

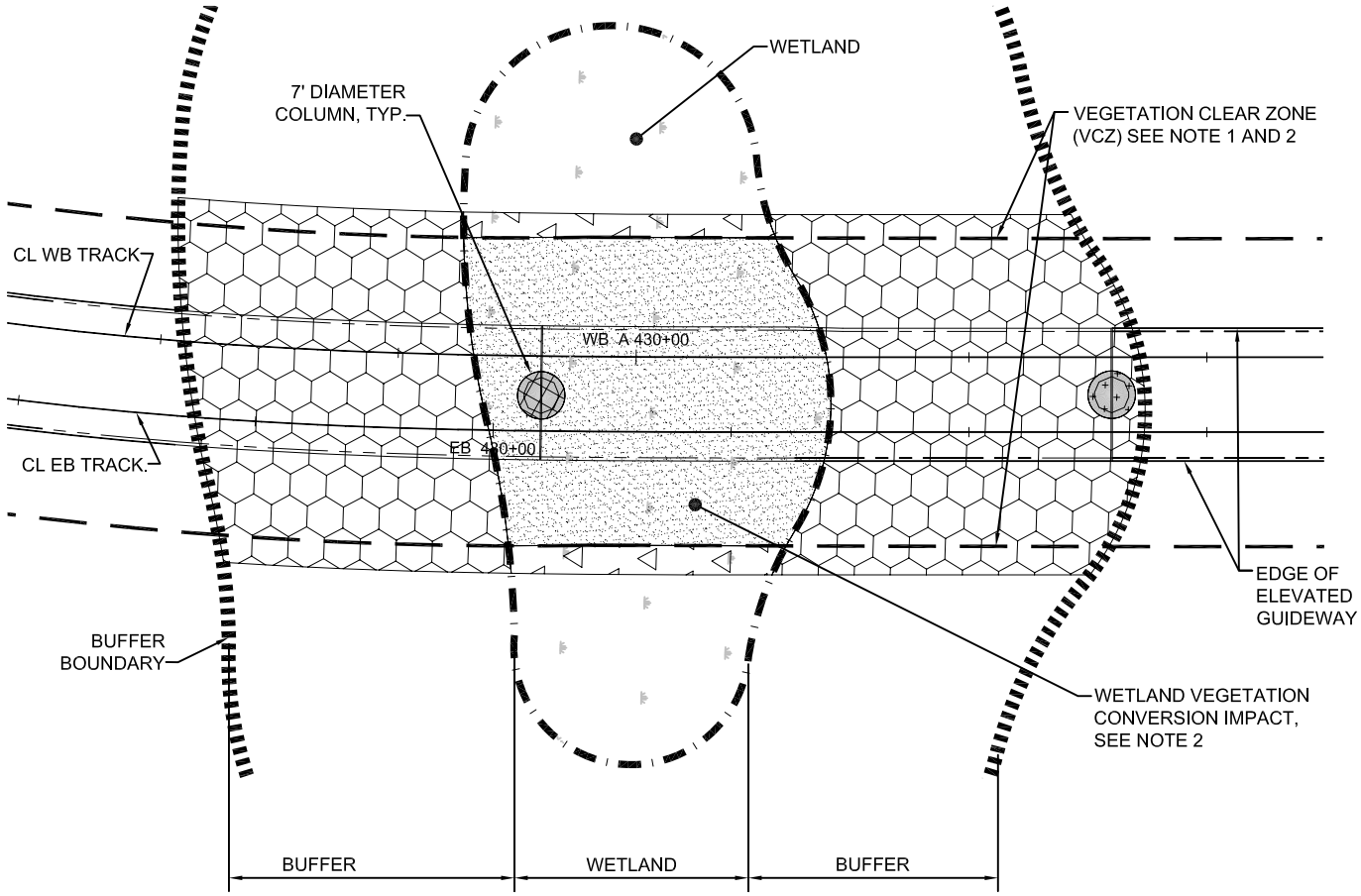
2.2.4.5. Wetland Vegetation Conversion Impacts

Project activities will require tree removal or replacement within wetland areas from criteria outlined in Sound Transit's DCM for light rail operations (Sound Transit 2013), which specifies that a "vegetation clear zone" be established. The tree removal or replacement results in a change in vegetation class and is defined as a wetland vegetation conversion impact. Light rail safety guidelines dictate that trees not be located beneath or within 20 feet of each side of the light rail guideway to provide safe operating conditions. Therefore, all trees located within these areas of the Project will be removed or replaced with tree or shrub species that are anticipated to not interfere with operations in both upland and wetland areas, but only wetland areas are considered a wetland impact. Tree removal and pruning in these areas will be an ongoing maintenance activity associated with operation of the Project.

Removing trees and implementing ongoing maintenance activities to prevent trees from encroaching into the areas under and adjacent to the light rail guideway will result in a decrease in wetland functions in these areas. In general, existing PFO wetland habitat will be converted to PSS and or PEM habitat. Losing tree cover within a wetland system can decrease specific wetland functions such as plant species diversity, evapotranspiration rates, and habitat wildlife features. If tree removal resulted in the loss of all tree vegetation cover within a wetland, losing PFO habitat would result in a decrease in Ecology's wetland rating score for the given wetland. If tree removal resulted in the loss of a portion of trees within the wetland, the Ecology wetland rating score could remain unchanged. Mitigation for tree removal in wetland areas will include re-planting wetland shrub and herbaceous vegetation and enhancing wetlands at a mitigation area adjacent to the Project alignment. Dense shrub growth in these areas will reduce the functional loss of removing trees and will also reduce the establishment of colonizing tree species.

In order to mitigate impacts to existing Mercer Slough Park trails, a new boardwalk is proposed within Mercer Slough Nature Park. The boardwalk will be permitted under this Project; however, the final design and construction will be handled by the City of Bellevue. Most of this boardwalk will be installed within wetland areas and will result in a permanent wetland vegetation conversion impact due to the anticipated conversion from a PSS to a PEM. The pin piles needed for structural support will have a permanent impact to the wetland and will total approximately 0.01 acre.

Nine of the 21 wetlands in the Project area will have vegetation conversion impacts for a total of 0.96 acre. While these are considered to be permanent impacts, the mitigation approach does not have the same ratio requirements, which is why it is listed separately from other permanent wetland impacts. A schematic representation of tree removal and associated mitigation in wetland areas is shown in Figure 2-2. A summary of wetlands with vegetation conversion impacts under the Project is provided in Table 2-13.



IMPACTS	RESTORATION / MITIGATION
PERMANENT WETLAND IMPACT	WETLAND CREATION AND ENHANCEMENT AT MITIGATION SITES
PERMANENT WETLAND VEGETATION CONVERSION IMPACT	RESTORATION ON SITE WITH EMERGENT AND LOW PLANTING, PLUS ENHANCEMENT AT MITIGATION SITES
TEMPORARY WETLAND IMPACT	RESTORATION ON SITE (WITH THE EXCEPTION OF NO TREES IN THE VCZ)
PERMANENT BUFFER IMPACT	BUFFER CREATION AND ENHANCEMENT AT MITIGATION SITES
TEMPORARY BUFFER IMPACT	RESTORATION ON SITE

NOTES:

1. AT ELEVATED GUIDEWAY AND TRANSITION STRUCTURES, TREES WITH A 30 FOOT DIAMETER OR LESS AT MATURITY THAT ARE NOT ANTICIPATED TO EXCEED THE HEIGHT OF THE RAILING SHALL BE PLANTED NO CLOSER THAN 31 FEET FROM CENTER OF GUIDEWAY TO CENTER OF TREE OR 17 FEET FROM EDGE OF GUIDEWAY TO CENTER OF TREE. FOR TREES ANTICIPATED TO BE TALLER THAN THE RAILING HEIGHT, THE TREE BRANCHING SHALL BE NO CLOSER THAN 11 FEET TO THE EDGE OF THE GUIDEWAY.
2. WETLAND AREAS WITHIN THE VCZ ARE CONSIDERED TO BE PERMANENT WETLAND VEGETATION CONVERSION IMPACT AREAS IF THERE IS A CHANGE IN VEGETATION CLASS (FOR EXAMPLE, A CONVERSION FROM FORESTED WETLAND TO SCRUB-SHRUB WETLAND). MITIGATION FOR IMPACTS TO THESE AREAS SHALL INCLUDE REPLANTING IN THE RIGHT-OF-WAY AND WETLAND ENHANCEMENT AT MITIGATION SITES.

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FINAL DESIGN PARTNERS.

SOUNDTRANSIT

EAST LINK EXTENSION

SOUTH BELLEVUE TO OVERLAKE TRANSIT CENTER

FIGURE 2-2

SCHEMATIC REPRESENTATION OF IMPACTS AND MITIGATION FOR ELEVATED GUIDEWAY

Table 2-13 Summary of Wetland Vegetation Conversion Impacts

Wetland Name	State (Ecology) and Local (Bellevue) Rating	Vegetation Conversion Impacts (acres)	Source of Impact
Mercer Slough West	II	0.36	Conversion of vegetation types under guideway and within Vegetation Conversion Zones (approx. 20-24' from edge of guideway), vegetation conversion under future boardwalk
8th Street	III	0.07	Conversion of vegetation types under within Vegetation Conversion Zones (approx. 20-24' from edge of guideway)
South Lake	III	0.09	Conversion of vegetation types under guideway and within Vegetation Conversion Zones (approx. 20-24' from edge of guideway)
Central Lake	III	0.03	Conversion of vegetation types under guideway and within Vegetation Conversion Zones (approx. 20-24' from edge of guideway)
North Lake	IV	0.04	Conversion of vegetation types under guideway and within Vegetation Conversion Zones (approx. 20-24' from edge of guideway)
BNSF East	III	0.07	Conversion of vegetation types under within Vegetation Conversion Zones (approx. 20-24' from edge of guideway)
Kelsey West Tributary Pond	II	0.01	Conversion of vegetation types under guideway and within Vegetation Conversion Zones (approx. 20-24' from edge of guideway)
SR 520 West	III	0.26	Conversion of vegetation types under guideway and within Vegetation Conversion Zones (approx. 20-24' from edge of guideway)
Valley Creek	II	0.03	Conversion of vegetation types under guideway and within Vegetation Conversion Zones (approx. 20-24' from edge of guideway)
	Total	**0.96**	

2.2.5 Wetland Regulatory Compliance

Guidance from USFWS, Ecology, and the City was used to determine the wetland classifications and appropriate buffer widths. Information and excerpts from the specific guidance language are provided in section 2.2.5.1. Table 2-5 lists the USFWS classifications for the wetlands and the Ecology and City wetland ratings and classifications. Ecology wetland rating forms for the 21 delineated wetlands are included in the Delineation Report (Anchor QEA 2013).

2.2.5.1. Wetland Buffer Requirements

Appropriate minimum wetland buffers were identified according to the current BCC (City of Bellevue 2013a). The BCC identifies minimum protective buffer widths based on the wetland category, per the Ecology rating system, the existing land use within the prescribed buffer, and the Ecology function scores for habitat. According to the BCC, wetland buffers shall be established from the wetland edge, as summarized in Table 2-14. Bellevue will determine the final wetland ratings and minimum buffers. Wetland buffer widths based on the local rating are identified in Table 2-15.

Table 2-14 City of Bellevue Wetland and Wetland Buffer Regulations

Wetland Category	Wetland Characteristics[1]	Buffer Width (feet)
Category I	Natural heritage wetlands	190
	Bogs	190
	Forested	Based on score for habitat or water quality functions
	Habitat score of 29 to 36	225
	Habitat score of 20 to 28	110
	Water quality score of 24 to 32 and habitat score of less than 20	75
	Not meeting any of the above	75
Category II	Habitat score of 29 to 36	225
	Habitat score of 20 to 28	110
Category III	Water quality score of 24 to 32 and habitat score of less than 20	75
	Not meeting any of the above	75
Category III	Habitat score of 20 to 28 points	110
	Not meeting any of the above	60
Category IV (more than 2,500 square feet)	Score for functions less than 30 points	40

Notes:
Source: City of Bellevue 2013a, Chapter 20.25H.095.C.1.a
1 Habitat and water quality scores per Hruby 2004 and Ecology 2008a.

Table 2-15 City of Bellevue Regulations Wetland Rating and Buffer Distance

Wetland	State and Local Wetland Rating[1]	Wetland Characteristics Buffer Criteria	Buffer Width (feet)
Mercer Slough West	II	Habitat Score 20 to 28	110
Alcove Creek	II	Habitat Score < 20	75
Bellefield South	II	Habitat Score < 20	75
Bellefield North	II	Habitat Score < 20	75
8th Street	III	Habitat Score < 20	60
Lake Bellevue	III	Habitat Score < 20	60
South Lake	III	Habitat Score < 20	60
Central Lake	III	Habitat Score < 20	60
North Lake	IV	< 2,500 sf	0
BNSF Southwest	III	Habitat Score < 20	60
BNSF East	III	Habitat Score < 20	60
BNSF West	III	Habitat Score < 20	60
BNSF Northeast	III	Habitat Score < 20	60
BNSF Northwest	IV	> 2,500 sf	40
BNSF North	III	Habitat Score < 20	60
Kelsey West Tributary Pond	II	Habitat Score < 20	75
Kelsey West Tributary Stream	III	Habitat Score < 20	60
136th Place	III	Habitat Score < 20	60
SR 520 West	III	Habitat Score < 20	60
Valley Creek	II	Habitat Score < 20	75
SR 520 East	III	Habitat Score < 20	60

Notes:
1 All wetlands identified during the investigation were located within the City jurisdiction.
sf = square feet

2.3 Streams

Streams in the Project area were identified and the stream ordinary high water marks (OHWMs) were delineated based on the criteria identified in the BCC LUC 20.25H.095 (City of Bellevue 2013a). Stream locations are shown on Figure 2-1. The results of the stream OHWM survey are presented in the Delineation Report (Anchor QEA 2013). The stream OHWM survey methods and results from that report are summarized in the following sections.

2.3.1 Methods

To document the OHWM of the streams within the Project area, existing information was reviewed (described in Section 1.3.1), an aerial photograph analysis was performed, and site visits were

conducted in February, March, April, and May 2013. The OHWM delineation was completed by walking the stream shorelines and identifying the OHWM with flagging for survey or collected OHWM data with a global positioning system (GPS) unit. Delineated stream reaches within the Project area were limited in some areas due to lack of ROE.

The stream OHWM boundaries were identified consistent with Chapter 90.58 of the Revised Code of Washington (RCW) and Chapter 173-22 of the Washington Administrative Code (WAC). The WAC provides the following definition:

> *"Ordinary high water line" means the mark on the shores of all waters that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual and so long continued in ordinary years, as to mark upon the soil or vegetation a character distinct from that of the abutting upland: Provided, that in any area where the ordinary high water line cannot be found the ordinary high water line adjoining saltwater shall be the line of mean higher high water and the ordinary high water line adjoining freshwater shall be the elevation of the mean annual flood.*

Guidance and policy documents from WDFW and Ecology use OHWM and "ordinary high water line" interchangeably; this report uses OHWM.

2.3.1.1. Stream Classifications

A stream is defined by the City (BCC LUC 20.25H.075) as an aquatic area where surface water produces a channel, not including a wholly artificial channel, unless the artificial channel is:

1. Used by salmonids; or
2. Used to convey a stream that occurred naturally before construction of the artificial channel.

Streams are classified under the BCC LUC 20.25H.075.A into four categories (Types S, F, N, and O) that are defined as follows:

- Type S water means all waters, other than shoreline critical areas designated under Land Use Code 20.25E.017, within their bankfull width, as inventoried as "shorelines of the state" under Chapter 90.58 RCW and the rules promulgated pursuant to Chapter 90.58 RCW, including periodically inundated areas of their associated wetlands.
- Type F water means all segments of waters that are not Type S waters, and that contain fish or fish habitat, including waters diverted for use by a federal, state, or tribal fish hatchery from the point of diversion, for 1,500 feet or the entire tributary, if the tributary is highly significant for protection of downstream water quality.
- Type N water means all segments of waters that are not Type S or F waters and that are physically connected to Type S or F waters by an aboveground channel system, stream, or wetland.

- Type O water means all segments of waters that are not Type S, F, or N waters and that are not physically connected to Type S, F, or N waters by an aboveground channel system, stream, or wetland.

2.3.2 Stream Study Results

Eleven streams were identified within the Project area. The Project area spans a cumulative length of 7.13 miles (Figure 1-1) and contains nine drainage basins within the Cedar/Sammamish Watershed (WRIA 8) (Ecology 2013). The eight basins within the City are shown on Figure 1-4. Streams are described in location sequence from west to east. Each stream was given a descriptive name to reflect its relative location along the alignment. This section provides a summary of the 11 streams within the Project area. A complete description of the 11 streams, including the OHWM results, are presented in the Delineation Report (Anchor QEA 2013). Table 2-16 presents a summary of the streams in the Project area, approximate stream OHWM length, and the stream's drainage basin. Stream local ratings and buffer widths per the BCC are identified in Table 2-17.

Table 2-16 Summary of Streams Located within the Project Area

Stream	OHWM Length[1] (feet)	Drainage Basin[2]
Stream A	260	Mercer Slough
Stream B	83	Mercer Slough
Wye Creek	150	Mercer Slough
Mercer Slough West Branch	2,700	Mercer Slough
Alcove Creek	64	Mercer Slough
Sturtevant Creek	689	Sturtevant Creek
West Tributary to Kelsey Creek	321	West Tributary
Stream C	291	West Tributary
Goff Creek	61	Goff Creek
Unnamed Tributary to Kelsey Creek	250	Kelsey Creek
Valley Creek	205	Valley Creek

Notes:
Stream delineations were limited within some areas of the Project area due to lack of ROE.
1 Calculations provided by HJH for open channel areas that were delineated.
2 City of Bellevue 2013b
OHWM = ordinary high water mark

Table 2-17 Local Critical Areas Regulations Stream Rating and Buffer Distance

Stream	Local Stream Rating[1]	Buffer Width (feet)
Stream A	Type N	50
Stream B	Type N	50
Wye Creek	Type F	100
Mercer Slough West Branch	Type S	100
Alcove Creek	Type O	25
Sturtevant Creek	Type F	50[2]
West Tributary to Kelsey Creek	Type N	50
Stream C	Type O	25
Goff Creek	Type F	50[2]
Unnamed Tributary to Kelsey Creek	Type N	50
Valley Creek	Type F	50[2]

Notes:
1 BCC (City of Bellevue 2013a).
2 These streams' buffers were applied based on guidance from City of Bellevue 2013a, Chapter 20.25H.075.C.1.a.

2.3.2.1. Stream A

Stream A is an unnamed stream that flows from wetland seeps near 112th Avenue SE and the western edge of the Mercer Slough West Wetland (Section 2.2.2.1). The stream flows outside the Project area to the east. Based on observations during the field investigation and an analysis of aerial photographs, Stream A appears to drain into the Mercer Slough West Branch. An approximately 260-foot reach of Stream A was delineated within the Project area (Appendix A, Frame 4). Stream A appears to meet the criteria of a Type N water under the City's critical areas regulations (50-foot buffer), physically connected to Type S or F waters (Mercer Slough) by an aboveground channel system, stream, or wetland. Stream A is not identified on City critical area maps (City of Bellevue 2013b) or WDFW PHS maps (WDFW 2013a).

2.3.2.2. Stream B

Stream B is an unnamed stream that flows east from wetland seeps near 112th Avenue SE and the western edge of the Mercer Slough West Wetland (Section 2.2.2.1). Stream B flows into Stream A within the Project area (Appendix A, Frame 4). An approximately 83-foot reach of Stream B was delineated within the Project area. Stream B appears to meet the criteria of a Type N water under the City's critical areas regulations (25- or 50-foot buffer, depending on site conditions), physically connected to Type S or F waters (Mercer Slough) by an aboveground channel system, stream, or wetland. Site conditions indicate the stream warrants a 50-foot buffer. Stream B is not identified on City critical area maps (City of Bellevue 2013b) or WDFW PHS maps (WDFW 2013a).

2.3.2.3. Wye Creek

Wye Creek is an unnamed stream that flows east from a pair of culverts located under the split at Bellevue Way and 112th Avenue SE. The stream was originally characterized as a wetland, but it was delineated as a stream during field investigations. Wye Creek flows east into the Mercer Slough West Wetland and appears to drain into the Mercer Slough West Branch. An approximately 150-foot reach of Wye Creek flows within the Project area (Appendix A, Frame 4). Wye Creek appears to meet the criteria of a Type F rating under the City's critical areas regulations (100-foot buffer), physically connected to Type S waters (Mercer Slough) by an aboveground channel system, stream, or wetland. Wye Creek is not identified on City critical area maps (City of Bellevue 2013b) or WDFW PHS maps (WDFW 2013a).

2.3.2.4. Mercer Slough West Branch

The OHWM of the right bank of the Mercer Slough West Branch was delineated within the Project area (Appendix A, Frames 2, 4, and 5) where the slough primarily flows south to Lake Washington. The West Branch meets the definition of in BCC LUC 20.25H.075 of a wholly artificial channel; however, as it may have salmonids present, it is considered a stream under the BCC. This section of open water was created by dredging a channel to float in pile drivers when the 130 acres of the slough was filled in to create the Bellefield Office Park. Three of the wetlands delineated as part of the investigation, Mercer Slough West (Section 2.2.2.1), Bellefield South (Section 2.2.2.3), and Bellefield North (Section 2.2.2.4) wetlands, are associated with the right bank of Mercer Slough West Branch (Section 2.2.2.1).

Within the Project area, the right bank of Mercer Slough West Branch shoreline is dominated by Himalayan blackberry and mowed grass adjacent to 112th Avenue SE. An approximately 2,700-foot reach of the Stream OHWM was delineated within the Project area. The Mercer Slough West Branch is identified as Type S waters on City critical area maps (City of Bellevue 2013b). Under the City's critical areas regulations, Type S waters have a 100-foot protective buffer. This stream is also identified on WDFW PHS maps (WDFW 2013a).

2.3.2.5. Alcove Creek

Alcove Creek is a stream that originates from two man-made ponds within the Alcove Creek Wetland (Section 2.2.2.2), located within a residential development. The creek flows east through a culvert under 112th Avenue SE (Appendix A, Frame 5). There is no open channel of Alcove Creek east of 112th Avenue SE; however, the stream flows directly into the West Branch of Mercer Slough from a hanging culvert. A second pond is located upstream of the first pond that is located outside the Project area. The upstream location of the stream is located outside the Project area boundary and was not identified during the investigation. The Project drainage team identified an artificial hydrology source, which pumps water from the Mercer Slough West Branch to the upper pond. Alcove Creek flows in a an open channel for about 240 lineal feet within the Project area. Alcove Creek meets the criteria of Type O waters under the City's critical areas regulations (25-foot buffer), not physically connected to Type S, F, or N waters by an above ground channel system, stream, or wetland. Alcove Creek is not identified on City critical areas maps (City of Bellevue 2013b) or WDFW PHS maps (WDFW 2013a).

2.3.2.6. Sturtevant Creek

Within the Project area, Sturtevant Creek flows from Lake Bellevue south along the former BNSF railway for approximately 600 feet before flowing through another approximately 35-foot-long culvert located beneath railroad tracks (Appendix A, Frame 9; Appendix B, Figures 12 and 16-21). The stream then flows west for approximately 20 feet before flowing into a culvert of unknown length to the west near I-405. Sturtevant Creek passes under I-405 through an approximately 250-foot culvert located 700 feet south of Main Street. An approximately 689-foot reach of Sturtevant Creek was delineated within the Project area. Sturtevant Creek is identified as a Type F water on City critical area maps (City of Bellevue 2013b). Under the City's critical areas regulations, Type F waters have a 50- or 100-foot protective buffer, depending on site conditions. Site conditions indicate that this stream warrants a 50-foot buffer. This reach of Sturtevant Creek is not identified on WDFW PHS maps (WDFW 2013a).

2.3.2.7. West Tributary to Kelsey Creek

Within the Project area, the West Tributary to Kelsey Creek flows from the Kelsey West Tributary Pond Wetland southeast and then south from an approximately 60-foot long culvert located beneath a large reinforced weir (Appendix A, Frame 11). An approximately 321-foot reach of the stream was delineated within the Project area. The stream flows into a culvert at the downstream end of the OHWM delineation. The West Tributary to Kelsey Creek is identified as a Type N water on City critical area maps (City of Bellevue 2013b). Under the City's critical areas regulations, Type N waters have a 25- or 50-foot protective buffer, depending on site conditions. Site conditions indicate that the stream warrants a 50-foot buffer. This reach is not identified on WDFW PHS maps (WDFW 2013a).

2.3.2.8. Stream C

Stream C is an unnamed stream that flows west and into a culvert at the upstream and downstream reaches (Appendix A, Frames 11 and 12). Based on aerial photograph analysis, this system appears to be an unnamed tributary to the West Tributary to Kelsey Creek. The culverts are located beneath commercial development near the Project area. An approximately 291-foot reach of Stream C was delineated within the Project area. Stream C discharges into West Tributary to Kelsey Creek via a culvert. The upstream source of the stream could not be identified based on observations during the site visits and a review of City of Bellevue stream and culvert information. Surface runoff from surrounding development appears to contribute to the system; however, during two site visits that occurred when no precipitation was present for at least 2 days prior to the site visits, flow was present in the stream indicating that surface runoff could not be the sole source of the system. Stream C appears to meet the criteria of a Type O water under the City's critical areas regulations (25-foot buffer), not physically connected to Type S, F, or N waters by an aboveground channel system, stream, or wetland. Stream C is not identified on City critical areas maps (City of Bellevue 2013b) or WDFW PHS maps (WDFW 2013a).

2.3.2.9. Goff Creek

Anchor QEA staff delineated the OHWM of Goff Creek within the Project area. Goff Creek flows south and southeast through an open channel between commercial development upstream of the Project area. At the downstream end of the delineated reach, Goff Creek flows east through a culvert located beneath 132nd Avenue NE that extends for several hundred feet before becoming an open channel again south of NE Bellevue Redmond Road (Appendix A, Frame 12). An approximately 61-foot reach of Goff Creek was delineated within the Project area. Goff Creek is identified as a Type F water on City critical areas maps (City of Bellevue 2013b). Under the City's critical areas regulations, Type F waters have a 50- or 100-foot protective buffer, depending on site conditions. Because the reach of Goff Creek within the Project area is located within commercial development, site conditions indicate a 50-foot protective buffer is applicable for Goff Creek (Bellevue 2013b). This reach of Goff Creek is not identified on WDFW PHS maps (WDFW 2013a).

2.3.2.10. Unnamed Tributary to Kelsey Creek

Within the Project area the Unnamed Tributary to Kelsey Creek flows south from a culvert located beneath a commercial development parking lot in the ROW on the west side of 136th Place (Appendix A, Frame 13). The first reach of the stream is part of a heavily planted mitigation site adjacent to a city side walk and a parking lot. The stream channel has no defined bed and bank due to dense vegetation, but flow within the vegetation was observed. The second reach is in a channelized ditch that flows south into a double culvert. The stream then flows into a 24-inch pipe within the City storm drain system located within 136th Pl. No downstream reaches of the stream were delineated within the Project area. An approximately 250-foot reach of the stream was delineated within the Project area. The Unnamed Tributary to Kelsey Creek is identified as a Type N water on City critical areas maps (City of Bellevue 2013b). Under the City's critical areas regulations, Type N waters have a 25- or 50-foot protective buffer, depending on site conditions. Site conditions indicate the stream warrants a 50-foot buffer. The reach of the Unnamed Tributary to Kelsey Creek is not identified on WDFW PHS maps (WDFW 2013a).

2.3.2.11. Valley Creek

Valley Creek flows south from two 36-inch culverts located under SR 520, and then flows south to a weir structure at NE 21st Street. Valley Creek flows through the Valley Creek Wetland and is a tributary to Kelsey Creek (Appendix A, Frame 13). Valley Creek appears to meet the criteria of a Type F water under the City's critical areas regulations (50- or 100-foot buffer, depending on site conditions), physically connected to the Mercer Slough (Type S water) by an aboveground channel system, stream, or wetland. Site conditions indicate the stream warrants a 50-foot buffer. Valley Creek is identified on City critical area maps (City of Bellevue 2013b).

2.3.3 Stream Characteristics

This section provides a summary of the characteristics of stream reaches within the Project area that will be disturbed, or have buffers that will be disturbed, under the proposed Project. Stream characteristics

described in this section include hydrologic conditions, channel bed and bank conditions, substrate composition, and riparian vegetation.

2.3.3.1. Wye Creek

Within the Project area, Wye Creek averaged about 3 to 6 feet wide and ranged from about 6 to 24 inches deep at the time of the investigation. The banks are deeply incised and the top of bank was more than 3 feet above the water line in some areas. The banks showed evidence of scouring, indicating high flow conditions during storm events. Dominant substrate in the channel consisted of a mixture of fine-textured sediment of silt, sand, and small gravels. Large gravels and cobbles were present in patches within the channel. Riparian vegetation was dominated by a dense canopy of native trees and shrubs, with nonnative Himalayan blackberry occasionally present. Small and large branches of woody debris were present within the channel and crossing at the top of the banks a few feet above the water line.

2.3.3.2. Mercer Slough West Branch

Within the Project area, Mercer Slough West Branch is a 50 to 80 foot wide shallow slough with slow flowing conditions and aquatic vegetation is present in several areas. Due to the urbanized character of the area, turbidity is very high in the system with poor visibility within the water column. Substrate in the channel is likely dominated by a mixture of fine-textured sediment of silt, sand, and small gravels. Within the area of proposed disturbances, the riparian vegetation is a dominated by forested wetland habitat with a variety of native trees and shrubs. Himalayan blackberry is also present along the shoreline. Potential woody debris recruitment in this area of the stream is high.

2.3.3.3. Alcove Creek

Within the Project area, Alcove Creek is located on the west side of 112th Avenue SE. The channel averaged about 2 to 6 feet wide and ranged from about 2 to 10 inches deep at the time of the investigation. Bank conditions are not clearly defined in some areas, indicating frequent overbank flooding and variations in flow during storm events. Dominant substrate in the channel consisted of a mixture of fine-textured sediment of silt, sand, and small gravels. Large gravels and cobbles are rare. Riparian vegetation included a mixture of native trees such as black cottonwood, and willow, nonnative vegetation such as Himalayan blackberry and mowed grass associated with residential development. Small and large branches of woody debris were very dense within the channel, accumulating at the culvert at the downstream end of the channel.

2.3.3.4. Sturtevant Creek

Within the Project area, Sturtevant Creek is a linear trapezoidal channel with almost no sinuosity. The channel averaged about 3 to 6 feet wide and ranged from about 6 to 18 inches deep at the time of the investigation. The banks are almost vertical and deeply incised and the top of bank was more than 2 feet above the water line through most of the reach. The banks showed evidence of scouring, indicating high flow conditions during storm events. Dominant substrate in the channel consisted of a mixture of fine-textured sediment of silt, sand, and small gravels. Large gravels and cobbles were infrequent within the channel. Angular rock was observed within the channel associated with fill material present on both

banks. Riparian vegetation at the south end of the channel was dominated by nonnative shrubs such as Himalayan blackberry and Scot's broom, the nonnative grass species reed canarygrass, and weedy herbaceous species. Red alder and black cottonwood trees are present at the north end of the channel near Lake Bellevue. The riparian zone is very narrow, with development located to the east and railroad tracks located to the west side of the channel. Woody debris within the channel was rare. Significant litter accumulation was present within the channel at the time of the investigation.

2.3.3.5. West Tributary to Kelsey Creek

Within the Project area, the West Tributary to Kelsey Creek channel is linear with very little sinuosity and a narrow floodplain between development. The channel averaged about 4 to 8 feet wide and ranged from about 2 to 18 inches deep at the time of the investigation. The banks are vertical and the top of bank was more than 3 feet above the water line through most of the reach. The banks showed evidence of scouring, indicating high flow conditions during storm events. Dominant substrate in the channel consisted of a mixture of fine-textured sediment of silt, sand, and small gravels. Large gravels and cobbles were present in patches within the channel. Both banks are comprised of fill material, and angular rock was observed within the channel. Riparian vegetation at the south end of the channel was dominated by the nonnative shrub Himalayan blackberry, with red alder, willow, grass, and weedy herbaceous species also present. The riparian zone is very narrow (less than 60 feet), with a parking lot development located near the top of the right bank and parking lots and a building located near the top of the left bank. Small and large woody debris associated with alder and willow was present within the channel. Litter accumulation was present within the channel at the time of the investigation.

2.3.3.6. Stream C

Within the Project area, Stream C averaged about 2 to 3 feet wide and ranged from about 2 to 18 inches deep at the time of the investigation. Bank conditions are not clearly visible throughout most of the reach due to dense growth of grass and herbaceous vegetation covering the channel. Dominant substrate in the channel consisted of a mixture of fine-textured sediment of silt, sand, and small gravels. Large gravels and cobbles were rare. Riparian vegetation is dominated by grass and herbaceous species. Tree and shrub vegetation is present on the hillside north of the channel but does not extend to the channel bank for most of the reach. Woody debris was rare within the channel.

2.3.3.7. Goff Creek

Within the Project area, Goff Creek averaged about 3 to 5 feet wide and ranged from about 4 to 14 inches deep at the time of the investigation. Banks are clearly defined and the top of bank ranged from 2 to 3 feet above the water line. Riprap for erosion control is a component of the bank structure. Dominant substrate in the channel consisted of a mixture of silt, sand, small and large gravels, and cobbles. Riparian vegetation is dominated by narrow patches of native and ornamental tree and shrub landscape vegetation associated with the adjacent commercial development and public sidewalk. Woody debris was rare within the channel.

2.3.3.8. Unnamed Tributary to Kelsey Creek

Within the Project area the Unnamed Tributary to Kelsey Creek stream averaged about 2 to 6 feet wide and ranged from about 4 to 18 inches deep at the time of the investigation. The first reach of the stream is part of a heavily planted mitigation site adjacent to fill prisms associated with a city sidewalk on the east side and a parking lot on the west side. The stream channel has no defined bed and bank due to dense vegetation, but flow within the vegetation was observed. The second reach is in a channelized ditch with angular rock banks. Riparian vegetation in this reach is mowed grass. Dominant substrate in the channel consisted of a mixture of fine-textured sediment of silt, sand, and small gravels. Large gravels and cobbles were rare. Angular rock is present within the channel. Woody debris was absent within the channel.

2.3.4 Stream Impact Assessment

During the course of the Project, portions of seven of the 11 stream reaches will be permanently or temporarily filled, relocated, piped, or bridged over (shaded) Approximately 6,436 sf of stream channel will be permanently disturbed due to guideway and station locations, bridge structures (shading), and streetscape improvements. Approximately 1,281 sf of stream channel will be temporarily disturbed due to construction access and staging needs. The stream buffers of five of the 11 stream reaches within the Project area will be permanently or temporarily removed or altered. Approximately 1.56 acres of stream buffer will be permanently disturbed to construct the Project because of the proposed location of the guideway and stations, utility improvements, streetscape improvements, and areas that prohibit planting because of future improvements. Approximately 1.63 acres of stream buffer will be temporarily disturbed because of the construction access and staging needs, and ground improvements needed for structural stability. Impacts to stream buffers will overlap with the impacts to wetland buffers. Overlapping stream and wetland buffer areas are counted as wetland buffer; therefore, the analysis of stream buffers only includes the stream buffer where there is no overlap with wetland buffers. Wetland buffer impacts are addressed in the Section 2.2.4.

2.3.4.1. Permanent Stream Impacts

Permanent direct impacts from the proposed Project include relocating stream channels, extending culverts, and bridging over streams to construct the Project. Four of the 11 stream reaches in the Project area will permanently disturbed, totaling approximately 6,436 sf, because of grading for Project construction. One of the stream reaches that will be permanently disturbed is a Type S stream, two are Type F streams, and one is a Type N stream according to the BCC stream typing system. A summary of stream reaches and classifications with permanent impacts under the Project is provided in Table 2-18. Permanent stream impact areas are shown in Appendix B.

Table 2-18 Summary of Permanent Stream Impacts

Stream	Local Stream Rating[1]	Permanent Impacts (sf)	Source of Impact
Wye Creek	Type F	218	Shading due to bridge crossing
Mercer Slough West Branch	Type S	236	Shading due to bridge crossing
Sturtevant Creek	Type F	3,443	Relocated to the west to avoid Hospital Station and guideway columns
Unnamed Tributary to Kelsey Creek	Type N	2,539	Roadway corridor widened to accommodate proposed guideway, roadway, and sidewalks
	Total	**6,436**	

Notes:
1 BCC (City of Bellevue 2013a).
sf = square feet

2.3.4.2. Temporary Stream Impacts

Temporary impacts to stream reaches are anticipated to occur due to vegetation clearing, alterations to existing grades, and shading from temporary structures. Project elements expected to cause temporary construction impacts to streams include construction access routes, temporary public traffic detour routes, staging areas, and utility installations and relocations.

Temporary stream impacts produce short-term loss of stream functions during construction. The extent of short-term degradation would vary depending on the intensity of the temporary impact. Stream reaches temporarily impacted during construction will be restored to their pre-existing conditions or better as described in Section 3.0. Four of the 11 stream reaches in the Project area will incur temporary impacts because of construction activities. This includes 1,281 sf of temporary impacts resulting in a short-term loss of stream functions. A summary of stream reaches with temporary impacts under the Project is provided in Table 2-19. Temporary stream impact areas are shown in Appendix B.

Table 2-19 Summary of Temporary Stream Impacts

Stream	Local Stream Rating[1]	Temporary Impacts (sf)	Source of Impact
Wye Creek	Type F	312	Fill and temporary bypass within OHWM due to construction access and circulation parallel to guideway
Alcove Creek	Type O	57	Construction access to build retaining wall
West Tributary to Kelsey Creek	Type N	472	Construction access bridge over creek (south of future guideway)
Stream C	Type O	440	Construction access to build TPSS station
Total		**1,281**	

Notes:
1 BCC (City of Bellevue 2013a).
OHWM = ordinary high water mark
sf = square feet
TPSS = transit power substation

2.3.4.3. Permanent Stream Buffer Impacts

Permanent Stream buffer impacts will result in a decrease in area adjacent to stream channels, which could consequently result in decreased stream and stream buffer functions within the Project area after construction. Five of the 11 stream channels in the Project area will have permanent stream buffer impacts because of partial filling or grading for Project construction, for a total of 1.56 acres. Overlapping stream and wetland buffer areas are counted as wetland buffer; therefore, the analysis of stream buffers only includes the stream buffer where there is no overlap with wetland buffers. A summary of streams with permanent buffer impacts under the Project is provided in Table 2-20. Permanent stream buffer impact areas are shown in Appendix B.

Table 2-20 Summary of Permanent Stream Buffer Impacts

Stream	Local Stream Rating[1]	Permanent Buffer Impacts (acres)[2]	Source of Impact
Wye Creek	Type F	0.09	Shading due to bridge crossing; guideway impacts (retained cut/fill)
Mercer Slough West Branch	Type S	1.22	Guideway (at-grade), SE 15th Street realignment, (4) proposed storm drain easements/outfalls
Sturtevant Creek	Type F	0.21	Hospital Station, guideway columns, rail/trail envelope
Stream C	Type O	0.03	TPSS enclosure, guideway column
Goff Creek	Type F	0.01	Ingress/egress driveway and streetscape improvements for park-and-ride
	Total	**1.56**	

Notes:
1 BCC (City of Bellevue 2013a).
2 Areas only include stream buffer where there is no wetland buffer overlap. Overlapping buffer areas are counted as wetland buffers and are described in the Section 2.2.4.
TPSS = transit power substation

2.3.4.4. Temporary Stream Buffer Impacts

Project elements expected to cause temporary construction impacts to stream buffers include construction access routes, temporary public traffic detour routes, staging areas, and utility installations and relocations. Four of the nine stream reaches in the Project area will have temporary stream buffer impacts, for a total of 1.63 acres. This estimate is based on offsets from planned cut and fill and further avoidance and minimization during construction may reduce this impact. A summary of streams with temporary buffer impacts under the Project is provided in Table 2-21. Temporary stream buffer impact areas are shown in Appendix B on Figure 2-1.

Table 2-21 Summary of Temporary Stream Buffer Impacts

Stream	Local Stream Rating[1]	Temporary Buffer Impacts (acres)[2]	Source of Impact
Wye Creek	Type F	0.11	Construction access / circulation for bridge, construction access (vehicular) along east side of guideway
Mercer Slough West Branch	Type S	1.05	Construction access / circulation, bridge construction
Sturtevant Creek	Type F	0.40	Construction access / circulation, stream construction
Stream C	Type O	0.07	Construction access, construction of TPSS enclosure and detention vault
Total		**1.63**	

Notes:
1 BCC (City of Bellevue 2013a).
2 Areas only include stream buffer where there is no wetland buffer overlap. Overlapping buffer areas are counted as wetland buffers and are described in the Wetland Impact Section 2.2.4.
TPSS = transit power substation

2.3.5 Stream Regulatory Compliance

Guidance from Ecology and the City was used to determine the stream classifications and appropriate buffer widths. Information and excerpts from the specific guidance language are provided in the following sections.

2.3.5.1. Stream Classifications and OHWM

Streams are classified under the BCC LUC 20.25H.075.A into four categories (Types S, F, N, and O). The definition of the four categories is presented in Section 2.3.1.1. The stream OHWM boundaries were identified consistent with Chapter 90.58 of the RCW and Chapter 173-22 of the WAC. The WAC definition is provided in Section 2.3.1.

2.3.5.2. Stream Buffer Requirements

Appropriate minimum stream buffers were identified according to the current BCC (City of Bellevue 2013a). The BCC identify minimum protective buffer widths based on the stream rating, as described in Section 2.3.1.1. According to the BCC, stream buffers shall be established from the stream OHWM. The City will determine the final stream ratings and minimum buffers. Stream buffer widths based on the local rating are identified in Table 2-17.

2.4 Areas of Special Flood Hazard

2.4.1 Methods

LUC 20.25H.175 describes areas of special flood hazard to include land subject to a 100-year flood, areas identified on the Flood Insurance Rate Map(s) (FIRM), or federal, state, or other sources of information

that identify any base flood elevation and floodway data. The City of Bellevue designates all Areas of Special Flood Hazard as critical areas.

A floodplain is defined as the area adjacent to a stream or river that is inundated during the 100-year flood event. The floodway is the channel of a river or stream and overbank areas adjacent to the channel. The floodway carries the bulk of floodwater downstream and is usually the area where water velocities and forces are the greatest and most destructive. The floodway and the adjacent land areas must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot (BCC 20.25H [City of Bellevue 2013a]).

Per LUC 20.25H.180, no use, development or activity may occur in an area of special flood hazard except as specifically allowed under this section of the land use code. Allowable use, development or activity is subject to the performance standards of this section and shall not result in the rise of the BFE, also referred to as the 100-year flood. The City of Bellevue prohibits construction that results in any rise of the base flood; an exception is construction using post and- piling techniques, which is presumed without modeling to cause no rise in the base flood (Ordinance 5680). Fill within the 100-year floodplain must be mitigated by excavating an equal volume of material from within a proximate portion of the Federal Emergency Management Agency (FEMA) floodplain and at a comparable elevation to create "compensatory storage." Allowable use, development or activity is subject to the performance standards of this section and shall not result in the rise of the BFE, also referred to as the 100-year flood.

The objectives of the special flood hazard assessment were to: (1) identify areas of special flood hazard in the Project area; (2) discuss the effect of the Project on special flood hazard areas; and (3) discuss how both general and specific City of Bellevue performance standards are achieved.

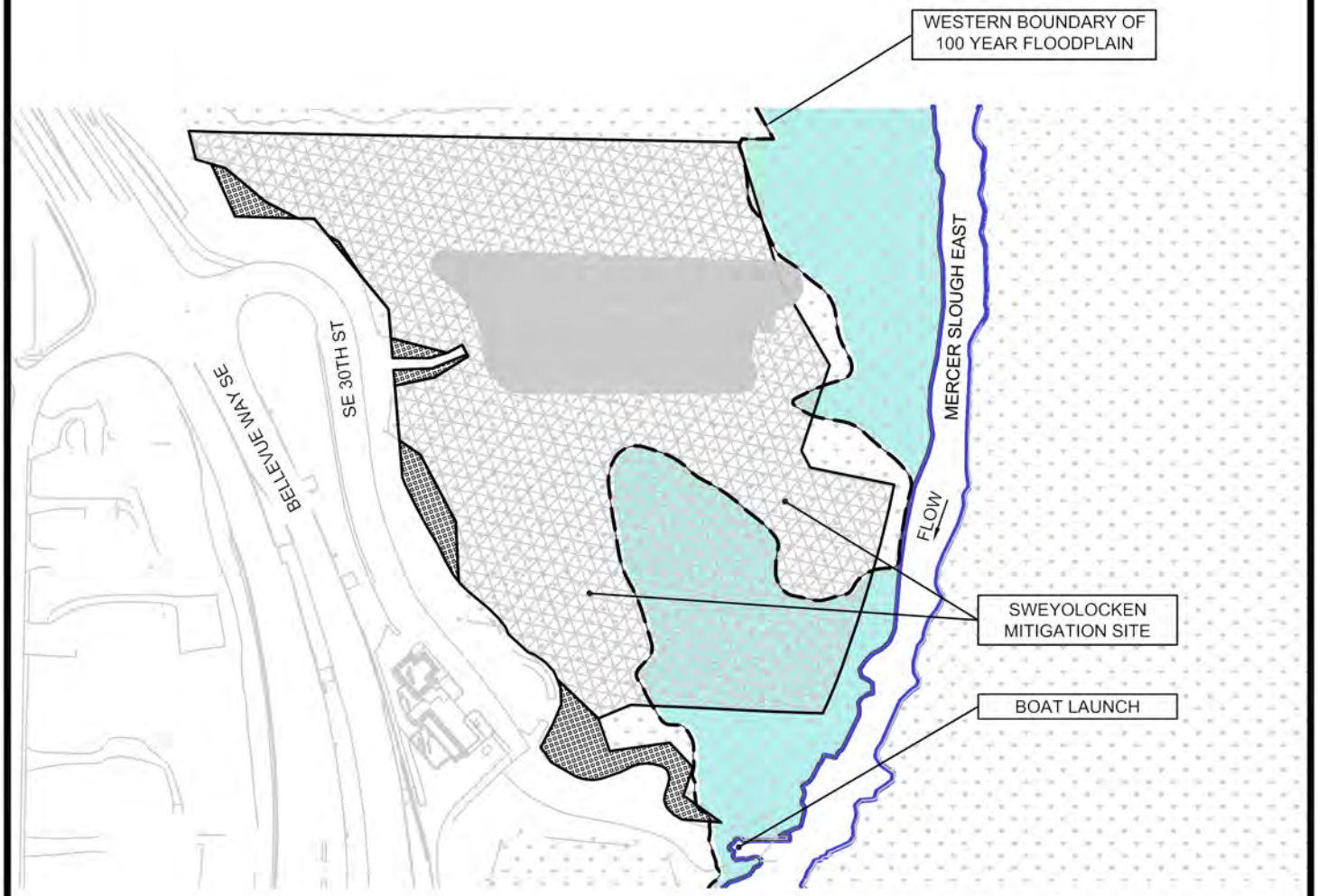
2.4.2 Study Results

The 100-year floodplains, as mapped by FEMA, are shown in Exhibits 4.9-2 through 4.9-4 within Section 4.9 (Water Resources) of the Final EIS. In general, 100-year floodplains that are crossed by the Project are less than 200 feet wide. Some of the smaller creeks and tributaries, including Goff Creek, Sears Creek, and Sturtevant Creek, do not have formally delineated floodplains. Occasional flooding has been reported on Sturtevant Creek south of Lake Bellevue and on Valley Creek north of the intersection of NE 20th Street and 140th Avenue NE (Watson 2007).

2.4.3 Project Impact on Special Flood Hazards and Mitigation

The East Link Project would generally employ elevated guideways to cross water bodies at a number of locations. Columns to support the elevated guideway will be located outside of stream channel floodways or floodplains.

Using the elevation listed on the associated FEMA FIRM maps, only the Sweyolocken mitigation site is within the 100-year floodplain (Figure 2-3). Minor grading activities (e.g., filling in agricultural ditches, removing culverts) are proposed in this area, but earthwork improvements within the 100-year floodplain will be balanced or decreased, meaning there will be no rise in the BFE.



NOTES:

1. EARTHWORK IMPROVEMENTS WITHIN THE 100-YEAR FLOODPLAIN WILL BE BALANCED OR DECREASED. NO RISE IN BASE FLOOD ELEVATION IS ANTICIPATED.

N

100 50 0 100 200

SCALE IN FEET

LEGEND

100 YEAR FLOODPLAIN BOUNDARY (AT ELEVATION 18.8' PER FIRM MAPS)

100 YEAR FLOODPLAIN

STREAM OHWM

FINAL DESIGN PARTNERS.

SOUNDTRANSIT

EAST LINK EXTENSION

SOUTH BELLEVUE TO OVERLAKE TRANSIT CENTER

FIGURE 2-3

FLOODPLAIN BOUNDARY AT SWEYOLOCKEN

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2.5 Geologic Hazard

The City of Bellevue LUC 20.25H.025 designates three types of geologic hazard areas: landslide hazards, steep slopes, and coal mine hazards. There are no coal mine hazards in the vicinity of the East Link Light Rail Extension within Bellevue.

Steep slopes are defined as a slope of 40 percent or more, with a rise of at least 10 feet, and that is more than 1,000 sf in area (LUC 20.25H.120.A.2). The steep slopes have a critical area buffer width of 50 feet at the top of the slope and a structure setback of 75 feet at the toe of the slope (LUC 20.25H.035).

Landslide Hazards have slopes of 15 percent or more, with 10 feet or more of rise, and display any of the following characteristics (LUC 20.25H.120.A.1):

- Areas of historic failures, including those areas designated as quaternary slumps, earthflows, mudflows, or landslides
- Areas that have shown movement during the Holocene Epoch (past 13,500 years) or that are underlain by landslide deposits
- Slopes that are parallel or subparallel to planes of weakness in subsurface materials
- Slopes exhibiting geomorphological features indicative of past failures, such as hummocky ground and back-rotated benches on slopes
- Areas with seeps indicating a shallow groundwater table on or adjacent to the slope face
- Areas of potential instability because of rapid stream incision, stream bank erosion, and undercutting by wave action

2.5.1 Methods

2.5.1.1. Steep Slopes

Digital terrain models (DTMs) of surface features provided cross-sections of existing ground slopes for the Project track alignments. These were reviewed for all track alignments except for the Downtown Land Use District, where the Critical Areas Overlay District does not apply (LUC 20.25H.005). The DTMs were developed from DTMs prepared for the Preliminary Engineering phase and supplements in the Final Design by additional ground survey. Table 2-22 lists the alignment cross sections use to identify steep slope areas. All sections are centered on the eastbound track centerline and are either 100 or 150 feet to the left and the right of the track centerline. In addition to the cross-sections, 1-foot-interval contour topographic maps provided slope information for the guideway, station areas, transit power substations, utilities, and other Project structures.

Table 2-22 East Link Alignment Cross Sections for Steep Slope Screening

East Link Section	Contract Package(s) [1, 2]	Distance Left and Right from EB Track (feet)	Cross Section Frequency (feet)
Lake Washington to 300 block 112th Avenue SE	E320	150	25
300 block 112th Avenue SE to Downtown[3]	E330/E335	100	25
Downtown[4] to 124th Avenue NE	E335	100	25
124th Avenue NE to NE 20th Street	E340	100	25
NE 20th Street to 148th Avenue NE	E360	100	10

Notes:

1. The East Link Project is broken down into individual contract packages. These contract packages will be bid separately and are based upon discrete Project elements and geography . The packages are called E320 (Mercer Slough area), E330 (downtown tunnel), E335 (surface elements from E. Main street station to 124th Ave NE), E340 (Bel-Red section), and E360 (State Route 520 section to Overlake Village Station). The E360 package extends into the City of Redmond. Only the section within the City of Bellevue is described in this table.
2. Contract packages E320, E330/E335, and E340 were 60 percent final design completion when reviewed for steep slope hazards. Package E360 was reviewed for steep slope hazards with the aerial guideway option design at approximately 10 percent completion. This package will be advertised for design-build delivery.
3. The East Link alignment crosses the south boundary of the Downtown Land Use District at the center of Main Street.
4. The East Link alignment crosses the east boundary of the Downtown Land Use District at the I-405 west right-of-way line.

EB = eastbound

2.5.1.2. Landslide Hazards

Landslide hazards meeting the Critical Areas Overlay District Criteria have not been identified in the Project area.

2.5.2 Study Results

Steep slope criteria were met at 36 locations where Project structures will be located on or below the surface of the steep slope, the steep slope critical area buffer, or the structure setback area. There are other areas of 40 percent or greater slope in the Project vicinity, but these have less than 10 feet of rise or 1,000 square feet or less area, and do not meet the steep slope geologic hazard criteria.

Table 2-23 identifies the location of the 36 steep slope areas in relation to the eastbound track centerline stationing. Guideway columns are listed and noted for slope, buffer, and setback location. Most, but not all, Project underground construction elements within the slopes, buffers, and setbacks are listed. All areas of the alignment that are on grade or within trenches also include the installation of underground conduit. See Appendix E for figures, including stationing references.

Table 2-23 Geologic Hazard Steep Slopes

App. E Figure ID	EB Track Stationing		Length (feet)	Slope, Buffer and Setback Location	Project Element and Location			
	Start	End			Project Element	Buffer	Slope	Setback
1	421+75	423+75	200	WSDOT I-90 ROW	Column B06 foundation	X	X	
					guardrail		X	
					storm drain	X		
2	425+00	428+00	300	WSDOT I-90 ROW	Column B08 foundation		X	
					Column B09L foundation		X	
					Column B09R foundation			X
					Column B10 foundation			X
					guardrail	X		X
					storm drain			X
3	433+25	435+25	200	WSDOT ROW City of Bellevue ROW EL-101 700010-0210	Column B15R foundation		X	
					Column B16 foundation	X	X	
					guardrail	X		
					storm drain	X	X	• X
4	447+75	450+00	225	EL-110 068540-0035 EL-111 700010-0360 EL-112 068540-0030 EL-113 068540-0025 EL-114 068540-0035	traffic signal foundation			X
					sewer			X
					roadway pavement/sidewalk			X
					catch basin			X
5	450+75	454+25	350	EL-111 700010-0360 064420-0030 EL-114 064420-0035 EL-115 064420-0040 EL-117 064420-0045 EL-118 064420-0050	water line			X
					roadway pavement/sidewalk			X
					catch basin			X
6	453+75	456+75	300	EL-111 700010-0360 EL-123 082405-9278	Column B35L foundation			X
					Column B35R foundation			X
					Column B36 foundation			X
					Column B37 foundation	X	X	
					sidewalk	X		
					light poles	X		
					utilities			
					soil nails		X	
7	455+00	460+00	500	EL-121 064421-0010 EL-122 064421-0020 EL-124 064421-0100 EL-125 064421-0110 EL-126 064421-0120 EL-127 064421-0130 EL-129 666400-0090 EL-123 082405-9278 EL-128 082405-9278	roadway pavement/ sidewalk			X
					track trench retaining wall			X
					aerial guideway abutment			X
					light poles			X
					water line			X
					storm drain			X
					other utilities			X

App. E Figure ID	EB Track Stationing		Length (feet)	Slope, Buffer and Setback Location	Project Element and Location			
	Start	End			Project Element	Buffer	Slope	Setback
8	457+75	458+50	75	EL-123 082405-9278	roadway pavement/ sidewalk	X		X
					light poles	X		X
					water line	X	X	X
					storm drain	X	X	X
					sewer	X	X	X
					other utilities	X	X	X
9	460+50	463+50	300	EL-129 666400-0090	roadway pavement/sidewalk			X
				EL-130 666400-0100	light poles			X
				EL-131 666400-0110	water line			X
				EL-132 666400-0120	storm drain			X
				EL-128 052405-9254	sewer			X
				EL-136 052405-9084	track trench retaining wall			X
					track underdrain			X
10	466+00	466+50	50	EL-134 666400-0140	roadway pavement/sidewalk			X
				EL-135 666400-0150	light poles			X
					water line			X
					storm drain			X
					other utilities			X
11	467+75	469+50	175	EL-137 666400-0140	roadway pavement/curb and gutter			X
				EL-138 666400-0150	light poles			X
				EL-136 052405-9084	water line			X
					storm drain			X
					other utilities			X
					track trench wall and lid			X
					track underdrain			X
12	470+25	471+00	75	EL-136 052405-9084	curb, gutter and sidewalk	X		
					light poles		X	X
					storm drain		X	X
					other utilities	X		
					track west retaining wall		X	• X
13	473+50	475+00	150	EL-143 732490-0085	roadway pavement/curb and gutter			X
				EL-144 052405-9208	light poles			X
				EL-136 052405-9084	water line			X
					storm drain			X
					other utilities			X
					track west wall 8.1B-W			X
					track underdrain			X
14	473+75	474+25	50	EL-136 052405-9084	curb, gutter and sidewalk	X		
				EL-141 066287-0090	light poles	X		
					storm drain		X	X
					other utilities	X		
					track west wall 8.1B-W		X	• X

App. E Figure ID	EB Track Stationing		Length (feet)	Slope, Buffer and Setback Location	Project Element and Location			
	Start	End			Project Element	Buffer	Slope	Setback
15	476+00	480+00	400	EL-141 052405-9084	curb, gutter, multi-purpose path	X	X	
					light poles	X		
					storm drain			X
					other utilities	X		
					track west wall 8.1B-W		X	X
					track west wall 8.4A-W		X	X
					Wye Creek crossing structure			X
					track underdrain			X
16	509+50	510+25	75	EL-166 321060-0220	multi-purpose path		X	
				EL-167 321060-0210	light pole			• X
					retaining wall 8.8B-W	X		
					eastbound track and underdrain		X	
					westbound track and underdrain	X		
17	517+25	519+75	250	EL-173 322505-9140	curb and gutter			X
				322505-9134	multi-purpose path		X	X
				322505-9046	light poles			X
					retaining wall 8.8B-W	X	X	
					traffic signal pole foundation			X
					OCS foundations		X	
					track and underdrain		X	X
18	524+75	525+50	75	EL-181 814630-0050	wall 9.3A-W and underdrain		X	
				EL-182 814630-0045	westbound track and underdrain			X
				EL-185 140240-0000				
19	534+00	534+75	75	EL-190 814630-0015	sound wall 9.4A-W		X	X
				EL-191 814630-0010	platform foundations			X
				EL-193 140100-0000	light pole foundations			X
					rockery wall 9.4BW			X
					storm drain			X
					track and underdrains			X
20	611+25	613+25	200	398690-0000	track ballast walls			X
				EL-265 109910-0003	track and underdrains			X
				EL-266 109910-0025	OCS foundations			X
				EL-1000 282505-9038				
21	612+25	613+75	150	NE 12th Street ROW	track ballast walls			X
				282505-9076	track and underdrains			X
				282505-9207	OCS foundations			X
				282505-9017				
				EL-265 109910-0003				
				EL-1000 282505-9038				
22	638+50	639+00	50	EL-285 282505-9003	retained fill track	X		
				EL-286 282505-9296	wall 11.5B-W	X		
					abutment D01 foundation	X		
					water utility	X		
					track and wall underdrains	X		

App. E Figure ID	EB Track Stationing		Length (feet)	Slope, Buffer and Setback Location	Project Element and Location			
	Start	End			Project Element	Buffer	Slope	Setback
23	641+50	642+25	75	EL-286 282505-9296 EL-287 282505-9240	Column D04 foundation storm drain	X X		
24	643+75	644+25	50	EL-286 282505-9296 EL-287 282505-9240 EL-289 282505-9193	Column D06 foundation storm drain	X	X	• X
25	647+75	652+75	500	EL-290 282505-9041 EL-291 282505-9178 EL-293 282505-91955	track and underdrains Column D09 foundation Column D10 foundation Column D11 foundation Abutment D12 foundation storm drain electric power wall 11.7A-E and underdrains wall 11.7B-W and underdrains stormwater vault signal house foundation OCS pole foundation stair tower foundation	X X	X X	X X X X X X X X X X X X X
26	651+25	651+75	50	EL-290 282505-9041 EL-291 282505-9178	Abutment D12 foundation track and underdrains wall 11.7A-E and underdrains wall 11.7B-W and underdrains storm drain	X X X	X X X	X X X • X
27	656+50	657+00	50	EL-295 282505-9058 EL-296 282505-9159 ELEL-299 282505-9191	eastbound platform foundation westbound track and platform track and platform drains light pole foundations	X X X	X X	X • X
28	656+50	658+25	175	EL-297.1 282505-9243 EL-299 282505-9191	130th Station park and ride Storm drain light pole foundations			X X X
29	695+20	700+40	520	WSDOT SR 520 ROW EL-331 272505-9288 272505-9222 272505-9066	Abutment E01 foundation Column E02 foundation Column E03 foundation Column E04 foundation retaining walls storm drain water utility track and underdrains		X X X X	X X X X X X

App. E Figure ID	EB Track Stationing		Length (feet)	Slope, Buffer and Setback Location	Project Element and Location			
	Start	End			Project Element	Buffer	Slope	Setback
30	701+60	715+60	1,400	WSDOT SR 520 ROW 140th Ave NE ROW EL-335 272505-9270 272505-9271 272505-9272 272505-9071	Column E06 foundation			X
					Column E07 foundation		X	X
					Column E08 foundation		X	X
					Column E09 foundation		X	X
					Column E10 foundation		X	
					Column E11 foundation		X	
					Column E12 foundation		X	
					Column E13 foundation		X	
					Column E14 foundation		X	
					Column E15 foundation		X	
					Column E16 foundation		X	
					Column E17 foundation		X	X
					electric power			X
31	714+40	715+60	120	WSDOT SR 520 ROW EL-337 272505-9103	Column E17 foundation	X		
32	717+30	719+00	170	WSDOT SR 520 ROW NE 24th Street ROW EL-338 272505-9025	Column E19 foundation	X		
					Column E20 foundation		X	
					TPSS enclosure	X		
					signal house foundation	X		
					water utility	X	X	
					electric power	X	X	
					sanitary sewer	X	X	
33	720+00	722+00	200	NE 24th Street ROW EL-338 272505-9025	[no Project construction]			
34	720+70	723+40	270	WSDOT SR 520 ROW EL-338 272505-9025	Column E22 foundation		X	
					Column E23 foundation		X	
					Column E24 foundation	X	X	
					drainage swale	X	X	
35	727+80	728+80	100	WSDOT SR 520 ROW	Column E28L foundation	X		
36	730+60	732+00	140	WSDOT SR 520 ROW	[no Project construction]			

Notes:
EB stationing is the horizontal alignment distance along the eastbound track. A full station is 100 feet. For example, the horizontal distance between stations 510+50 and 514+75 is 425 feet.
Aerial guideway column IDs ending in “L” are the left side of two-column supports looking eastbound. IDs ending in “R” are the right side of two-column supports looking eastbound.
EB = eastbound
ROW = right-of-way
WSDOT = Washington State Department of Transportation

2.5.3 Project Impact on Geologic Hazards

The Project is self-mitigating with respect to steep slopes. Retaining walls and slopes minimize the Project footprint and extent of topography modification. Structure design in steep slope areas, buffers, and structures setbacks is based on geotechnical analyses and recommendations that avoid risk to the light rail transit facilities, users, and neighboring properties.

2.6 Probable Cumulative Impacts

Construction and operation of the East Link Project may coincide with other development Projects that also affect the critical areas identified in this report. However, adverse cumulative impacts are not anticipated due to regulatory considerations, habitat enhancement efforts for natural resources in the Project area, and Sound Transit's commitment to no net loss of wetland function and area.

2.6.1 Wetlands, Streams, and Habitat Associated with Species of Local Importance

The East Link Project Final EIS noted that other planned regional transportation projects, and the City's Downtown Implementation Plan could contribute to cumulative impacts on upland habitat, streams, and wetlands in the Project area in conjunction with the Project. These impacts may include vegetation and tree removal, filling or altering wetlands, disturbance to stream channels, removal of riparian habitat, and increases in pollution-generating impervious surfaces. These changes, along with additional urban development, continue to reduce remaining available high-quality nesting and foraging areas for wildlife species present in the area, which provide habitat for species of local importance.

Positive impacts may result from efforts to enhance the Bear Creek and Kelsey Creek watersheds that cross through and extend beyond the Project vicinity. The City has adopted the Bel-Red Plan, which has an element devoted to "The Great Streams Strategy." This strategy involves stream enhancements that include removing culverts where possible, removing impassable fish barriers, planting riparian vegetation along stream banks, and generally improving stream quality. These efforts are focused on Goff Creek and the West Tributary of Kelsey Creek, both of which cross Mercer Slough Nature Park.

The Project and other state-permitted and locally permitted projects incrementally provide net benefit to stream suitability for fish. These projects are required to mitigate impacts on streams, wetlands, and high-value habitats in accordance with federal, state, and local regulations. Mitigation measures implemented as a result of the East Link and other projects will benefit fish and wildlife habitat for species of local importance when compared to existing conditions and improve conditions for federally listed threatened or endangered species. Also, with regard to wetland and stream impacts, Sound Transit has committed to achieving no net loss of function and area on a Project-wide basis, and therefore, would not have a lasting cumulative impact on wetlands and streams.

2.6.2 Geology and Soils

The Project will not adversely impact geologic conditions in the Project area. Additional development in the area would increase the amount of infrastructure placed in localized geologically sensitive areas such as steep slopes or seismic hazard areas. However, all of these projects must be constructed in

accordance with state and local laws that require design and construction to meet seismic standards; therefore, a cumulative impact is not expected.

2.6.3 Floodplains

Construction within areas of special flood hazard, as well as new impervious surfaces added by the Project and other reasonably foreseeable future actions would include appropriate stormwater control and quality treatment in accordance with Ecology regulations. This mitigation would improve the treatment of some existing stormwater drainages and thus provide an overall cumulative benefit for water quality over existing conditions.

3.0 Mitigation

This section describes the compensatory mitigation measures for those impacts that cannot be addressed through avoidance and minimization or through the restoration of temporarily disturbed areas. Mitigation is proposed to address potential impacts to wetlands, streams, and their buffers. The Project has been designed to mitigate for potential impacts to areas of geologic hazard. No further mitigation is provided for these areas.

This mitigation will occur at four sites, all of which are adjacent to the rail alignment where impacts occur (see Figure 3-1). These sites (Sweyolocken, Mercer Slough Buffer Creation/Enhancement, Sturtevant and West Tributary) are publically owned. With the exception of Mercer Slough Buffer Creation/Enhancement, all four sites will be protected in perpetuity through existing or new covenants/Native Growth Protection Easements or Tracts. Areas within these covenants are shown in Appendix D. These areas will be maintained by Sound Transit for a minimum of 5 years to insure that the vegetation communities are established and that the mitigation goals, objectives, and performance standards are met. The protective covenants will ensure that, once established, the ecological functions of the sites are protected from future land use actions.

The mitigation sites were selected based on their ability to replace the ecological functions that will be impacted by the Project. The wetland impacts and proposed mitigation are shown in Table 3-1 below.

Table 3-1 Project Wetland Impacts and Proposed Mitigation Summary

Permanent Conversion of Wetland Vegetation type by Basin and Wetland Rating[1]						
Wetland Category	**Drainage Sub-basin**	**Permanent Vegetation Conversion**	**Mitigation Type**	**Mitigation Ratio[1]**	**Mitigation Requirement[1] (Acres)**	**Proposed Mitigation by Type and Site**
Category II	Mercer Slough/ West Tributary / Valley Creek	0.40	Enhancement	6:1	2.40	Enhancement at Sweyolocken
Category III	Mercer Slough/ Sturtevant Creek / West Tributary / Valley Creek	0.52	Enhancement	4:1	2.08	Enhancement at Sweyolocken
Category IV	Sturtevant Creek	0.04	Enhancement	3:1	0.12	Enhancement at Sweyolocken
	Subtotal	**0.96**		**Subtotal**	**4.60 Acres of Enhancement**	
Permanent Impacts to Wetlands by Basin and Wetland Rating[1]						
Wetland Category	**Drainage Sub-basin**	**Permanent Impacts (Acres)**	**Mitigation Type**	**Mitigation Ratio[1]**	**Mitigation Requirement[1] (Acres)**	**Proposed Mitigation by Type and Site**
Category II	Mercer Slough	0.20	Rehabilitation	6:1	1.20	Rehabilitation at Sweyolocken
Category III	Mercer Slough	0.07	Enhancement	8:1	0.56	Enhancement at Sweyolocken
	Subtotal	**0.27**		**Subtotal**	**1.20 Acres of Rehabilitation 0.56 Acres of Enhancement**	
Category II	Mercer Slough	0.12	Creation	3:1	0.36	Creation at West Tributary
Category III	Mercer Slough	0.02	Creation	2:1	0.04	Creation at West Tributary
Category II	West Tributary	0.01	Creation	3:1	0.03	Creation at West Tributary
Category III	West Tributary	0.05	Creation	2:1	0.10	Creation at West Tributary
Category III	Valley Creek	0.01	Creation	2:1	0.02	Creation at West Tributary
	Subtotal	**0.21**		**Subtotal**	**0.55 of Creation**	

Notes:

1 Mitigation ratios and requirements provided here are based on Washington Department of Ecology, US Army Corps of Engineers Seattle District, and Environmental Protection Agency, Region 10 guidance (Ecology et al. 2006) except for permanent vegetation.

The overall wetland mitigation approach is further summarized in Table 3-2 below, which demonstrates that required mitigation ratios are being addressed. The specific functional lift of wetland areas being enhanced and rehabilitated is described in Section 3.3.

Table 3-2 Project Wetland Mitigation Summary

Required Mitigation[1]	Proposed Mitigation
5.16 Acres of Enhancement	5.29 Acres of Enhancement at Sweyolocken; 0.05 Acre of Enhancement at West Tributary
1.20 Acres of Rehabilitation	1.20 Acres of Rehabilitation at Sweyolocken
0.55 of Creation	0.64 Acres of Creation at West Tributary

Note:
1 Mitigation requirements provided here are based on Washington Department of Ecology, US Army Corps of Engineers Seattle District, and Environmental Protection Agency, Region 10 guidance (Ecology et al. 2006)

Stream impacts will be mitigated on site to the extent possible. Permanent impacts to Wye Creek and West Mercer Slough are relatively minor and related to shading of the water by the guideway. These impacts will be mitigated through riparian buffer enhancements. Sturtevant Creek will be realigned with a new channel that provides improved ecological function over the existing channel. Finally, impacts to the Unnamed Tributary to Kelsey Creek will be mitigated by daylighting a portion of the West Tributary to Kelsey Creek channel which is currently in a culvert. These impacts and the proposed mitigation are summarized in Table 3-3 below.

Table 3-3 Project Stream Impacts and Proposed Mitigation

Stream	Local Stream Rating	Permanent Impacts (sf)	Proposed Mitigation
Sturtevant Creek	Type F	3,443	3,500 sf of restoration at Sturtevant Creek
Wye Creek	Type F	218 (shading)	454 sf of Stream Buffer Enhancement to Mercer Slough West Branch; 40 sf of stream daylighting at Wye Creek
Mercer Slough West Branch	Type S	236 (shading)	
Unnamed Tributary to Kelsey Creek	Type N	2,539	2,600 sf of Creek Daylighting at West Tributary

Note:
sf = square feet

In addition to the permanent impacts above, permanent, unavoidable impacts to stream and wetland buffers will occur. Restoration of these buffer areas is impractable due to interference with new infrastructure, such as the guideway or other Project appurtenances. These will be mitigated through the enhancement of existing buffers that currently have very low function. In most cases, function will be restored by replacing existing invasive species with high functioning native vegetation communities.

Tables 3-2 and 3-3 describe the permanent impacts to wetland and stream buffers that will be mitigated at other locations along the Project corridor.

Table 3-2 Summary of Permanent Wetland Buffer Impacts

Wetland Name	State (Ecology) and Local (Bellevue) Rating	Permanent Buffer Impacts (acres)	Proposed Restoration
Mercer Slough West	II	1.84	Revegetation
Alcove Creek	II	0.03	Revegetation
Bellefield South	II	0.22	Revegetation
Bellefield North	II	0.21	Revegetation
8th Street	III	0.22	Revegetation
South Lake	III	0.01	Revegetation
Central Lake	III	0.07	Revegetation
BNSF East	III	0.02	Revegetation
BNSF Northeast	III	0.06	Revegetation
Kelsey West Tributary Pond	II	0.13	Revegetation
SR 520 West	III	0.02	Revegetation
Total Permanent Wetland Buffer Impacts		**2.83**	

Table 3-3 Summary of Permanent Stream Buffer Impacts

Stream	Local Stream Rating[1]	Permanent Buffer Impacts (acres)[2]	Proposed Restoration
Wye Creek	Type F	0.09	Revegetation
Mercer Slough West Branch	Type S	1.22	Revegetation
Sturtevant Creek	Type F	0.21	Revegetation
Stream C	Type O	0.03	Revegetation
Goff Creek	Type F	0.01	Revegetation
Total		**1.56**	

3.1 Mitigation Sequence

3.1.1 Measures to Avoidance and Minimization Impacts

The ROD and subsequent adoption of the alignment by the Bellevue City Council makes all avoidance of critical areas impossible. Therefore, the Sound Transit engineering team has worked collaboratively within this defined alignment to avoid and minimize proposed impacts. During the preliminary design process, Sound Transit made adjustments to avoid or minimize impacts to natural resources, including wetlands and streams and their associated buffers. When a wetland or stream appeared to be located

within the Project footprint, engineers changed the footprint to avoid the wetland or stream, or, if the wetland or stream could not be avoided, it was determined how much direct wetland, stream, and buffer area would be affected due to Project construction.

The following avoidance and minimization measures have been incorporated into the Project design to allow Sound Transit to meet the transportation Project needs, without directly affecting important natural resources:

- Wetlands and streams are avoided where practicable.
- Associated Project facilities, such as stormwater treatment systems, staging areas, and access roads, are located outside of the identified critical areas, where practicable.
- The Project footprint has been minimized (e.g., using retaining walls instead of fill slopes and using existing roads and thereby limiting the amount of new impervious surfaces required).

During 90% design, Sound Transit will identify specific BMPs and other measures that will be incorporated into the construction specifications for the Project, to be developed during the final design process. BMPs will be implemented during construction and operation of the Project to minimize sedimentation to wetlands and streams and contamination associated pollutants in stormwater runoff.

- Sound Transit has met with, and will continue to coordinate with federal, state, and local agencies to identify mitigation priorities and options for avoiding or minimizing wetland and stream impacts, and to compensate for any impacts.

Specific avoidance and minimization measures include the following:

- Installing a retaining wall at 15th Street to avoid additional impacts to Bellefield South and Bellefield North wetlands
- Shifting the alignment to south and elevating the guideway to have a minimum 15-foot clearance, to minimize impacts to Kelsey West Tributary Pond wetland

The avoidance and minimization measures above resulted in the avoidance of impacts as described below:

- There are no proposed permanent wetland impacts to ten of the 21 wetlands in the Project area.
- There are no permanent wetland buffer impacts to ten of the 21 wetlands in the Project area.
- There are no temporary wetland impacts to 17 of the 21 wetlands in the Project area.
- There are no temporary wetland buffer impacts to ten of the 21 wetlands in the Project area.
- There are no proposed permanent stream impacts to seven of the 11 streams in the Project area.
- There are no permanent stream buffer impacts to six of the 11 streams in the Project area.
- There are no temporary stream impacts to seven of the 11 streams in the Project area.

- There are no temporary stream buffer impacts to seven of the 11 streams in the Project area.

3.1.2 Measures to Rectify and Restore Impacts

After avoiding and minimizing impacts, the next mitigation sequencing activity requires restoring the impacted resource(s). Therefore, all wetland, stream, and buffer areas temporarily affected from construction activities will be restored within the Project area. The goal is to restore them to previous or better conditions. Tables 3-4 and 3-5 describe the wetlands and wetland buffers that will be temporarily impacted and restored.

Table 3-4 Summary of Temporary Wetland Impacts

Wetland Name	Size[1] (acres)	State (Ecology) and Local (Bellevue) Rating	Temporary Impacts (acres)	Proposed Restoration
Mercer Slough West	350[2]	II	0.16	Revegetation
Alcove Creek	0.23[3] / 0.64[2]	II	0.01	Revegetation
Bellefield South	0.29	II	0.04	Revegetation
Bellefield North	0.11	II	0.01	Revegetation
Total Temporary Wetland Impacts			**0.22**	

Notes:
1 When only one number is present, the total wetland area is located within Project area. When two numbers are present, the wetland extends outside the Project area, and both the estimated total area (footnote 2) and the delineated area (footnote 3) are provided. Estimates for wetlands outside the Project area are based on observations during the field investigation and aerial photograph analysis. Wetland acreages were provided by HJH.
2 Approximate total wetland area, includes delineated area plus estimated wetland area extending outside the Project area
3 Delineated wetland area within the Project area

Table 3-5 Summary of Temporary Wetland Buffer Impacts

Site	Drainage Sub-basin	State (Ecology) and Local (Bellevue) Rating	Temporary Buffer Impact (acres)	Proposed Restoration
Mercer Slough West	Mercer Slough	II	2.86	Revegetation/Enhancement
Alcove Creek	Mercer Slough	II	0.09	Revegetation/Enhancement
Bellefield South	Mercer Slough	II	0.03	Revegetation/Enhancement
Bellefield North	Mercer Slough	II	0.10	Revegetation/Enhancement
8th Street	Mercer Slough	III	0.11	Revegetation/Enhancement
South Lake	Sturtevant Creek	III	0.24	Revegetation/Enhancement
Central Lake	Sturtevant Creek	III	0.07	Revegetation/Enhancement
Kelsey West Tributary Pond	West Tributary	II	0.34	Revegetation/Enhancement
SR 520 West	Valley Creek	III	0.57	Revegetation/Enhancement
Valley Creek	Valley Creek	II	0.33	Revegetation/Enhancement
SR 520 East	Valley Creek	III	0.16	Revegetation/Enhancement
Total Temporary Wetland Buffer Impacts:			**4.90**	

Tables 3-6 and 3-7 describe the streams and stream buffers that will be temporarily impacted and restored on site.

Table 3-6 Summary of Temporary Stream Impacts

Stream	Local Stream Rating[1]	Temporary Impacts (sf)	Proposed Restoration
Wye Creek	Type F	312	Remove Fill and bypass, restore channel
Alcove Creek	Type O	57	Remove Fill and bypass, restore channel
West Tributary to Kelsey Creek	Type N	472	Remove Construction access bridge, restore Channel
Stream C	Type O	440	Remove Fill and bypass, restore channel
Total		**1,281**	

Notes:
1 BCC (City of Bellevue 2013a).
sf = square feet

Table 3-7 Summary of Temporary Stream Buffer Impacts

Stream	Local Stream Rating	Temporary Buffer Impacts (acres)
Wye Creek	Type F	0.11
Mercer Slough West Branch	Type S	1.05
Sturtevant Creek	Type F	0.40
Stream C	Type O	0.07
Total Temporary Stream Buffer Impacts:		**1.63**

3.1.2.1. Wetland and Buffer Restoration

Temporary impacts to critical areas located along the Project corridor—within the Sturtevant, West Tributary Kelsey Creek, and Valley Creek subbasins—will be restored to previous conditions or better after construction. Wetland enhancement in these areas will cover 5.34 acres, and stream and wetland buffer enhancement will cover 7.43 acres.

Specific restoration activities include removing all geotextile fabric and temporary fill material used for construction staging or access roads from all wetland and buffer areas. Grades will be restored to pre-Project conditions, and the soils will be lofted or loosened to restore soil condition and wetland hydrology. Soil amendments or topsoil will be added where necessary to restore soil fertility, porosity, and texture. Wetland areas will match the existing hydrologic conditions in adjacent wetlands and will be restored to within 0.50 feet of preconstruction elevations. The contractor will be required to meet soil decompaction levels that will be suitable for plant establishment.

Native plant communities will be selected for each site to meet site conditions (i.e., sunny, shady, wet, or dry) and growth preferences (i.e., tall or short tree, shrub, or groundcovers). Many adjacent buffer areas along the corridor are currently dominated or infested with invasive species, such as Himalayan blackberry. Robust communities of non-native invasive species located immediately adjacent to temporarily affected areas will be cleared so as not to interfere with long-term maintenance and monitoring. It is expected that there will be an increase in functions and values in many areas by replacing these monocultures of non-native vegetation with native vegetation communities.

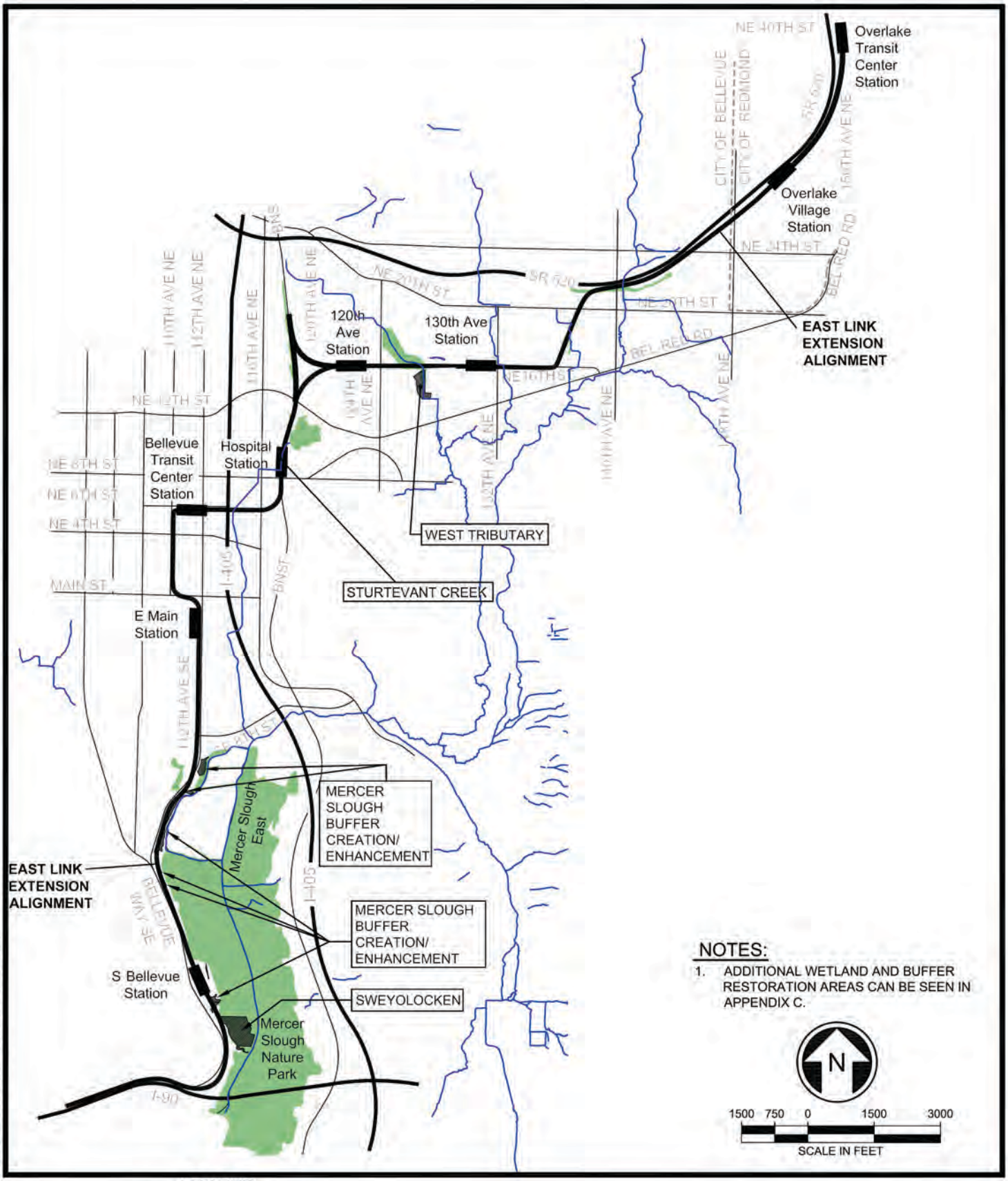
3.2 Compensatory Mitigation

3.2.1 Sweyolocken Site

The Sweyolocken site is on City-owned property in Section 08, Township 24 North, Range 5 East (Figure 3-1). The site is within the 350+-acre Mercer Slough wetland complex. The land is currently zoned as R-1 (Single-Family Residential Estate), and the current land use is agricultural for blueberry farming. Field investigations revealed that most or all of this area is within the existing jurisdictional wetland boundary. Efforts to alter the hydrology by draining the agricultural area are evident from two large ditches running perpendicular to Mercer Slough. Until recently, water has been pumped from the ditches to the slough, affecting the wetland hydrology. The existing ditches are still having a negative

impact on the ability of the area to detain and filter flows of stormwater. Filling in these ditches will improve the hydrologic function immediately adjacent to the ditches providing rehabilitation of that wetland area. Field studies are underway to determine the "zone of influence" of this rehabilitation effort, but it is currently estimated that hydrology associated with 1.20 acres of wetland would rehabilitated by these actions. The site was selected for several reasons, including;

- It is within a large, protected wetland complex – dominated by native wetland vegetation
- It is within the same wetland, sub-basin, and basin as some of the wetland impacts
- It has existing wetland soils
- The elevation, topography, and hydrology lend themselves to successful wetland rehabilitation and enhancement.
- It is in an area that is heavily used by many species, including species that prefer wetland habitats



FINAL DESIGN PARTNERS:

SOUNDTRANSIT

EAST LINK EXTENSION

SOUTH BELLEVUE TO OVERLAKE TRANSIT CENTER

FIGURE 3-1
PROPOSED
MITIGATION SITES

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3.2.1.1. Existing Conditions of the Site

The Sweyolocken site is part of the Mercer Slough Wetland complex, which is at the mouth of the Mercer Slough sub-basin of WRIA 8. Historically, the site was submerged, but when Lake Washington was lowered in 1916, the area began to form into a several-hundred-acre freshwater wetland complex. Portions of the wetland have been used to produce berries (primarily blueberries), although most of the complex is now in restoration or in relatively natural condition. The hydrology of the site is primarily controlled by Lake Washington, but is also influenced by occasional high flows in Mercer Slough. The elevation of Lake Washington is controlled at the Chittenden Locks in Ballard. Typical water surface elevations are about 2 feet higher at the maximum in late spring or early summer than at their minimum in late fall or early winter. Surface water flows from Mercer Slough, direct precipitation, and run off also affect the site hydrology. Hydrology within the mitigation site is also affected by drainage ditches that run from the west to the east and drain to Mercer Slough. Evidence (e.g., air photos, site infrastructure) suggests that these ditches were pumped to Mercer Slough during the summer months (when lake levels are high), at least.

The site soils are mapped as Seattle muck in the north and Snohomish silt loam to the south. Field investigation of soils indicates that the entire site is underlain by peat or stratified peat and muck below a depth of about 12 to 14 inches. Above the peat the soils are very dark and very poorly drained, and range in texture from silt loam to muck. Soils ranged from black (10YR 2/1), to very dark brown (10YR 2/2), to very dark gray (10YR 3/1), to dark gray (10YR 4/1). Wetland soil textures in the upper horizons ranged from silt, to silt loam, to clay loam, to sandy loam.

Soils were typically saturated to the surface in the soil data pits, except near the ditches. Hydrology was also affected by microtopography, but saturation was always encountered at depth of 16 inches or less. The water table was typically encountered at a depth of less than 12 inches, but ranged from the surface to a depth greater than 18 inches, where the effect of the drainage ditches was most pronounced.

Vegetation communities on the site indicate the effects of both agricultural management and limited ecological restoration efforts. The majority of the mitigation area is planted in rows of mature domesticated blueberry (*Vaccinium* sp.) Between the rows a variety of wetland grasses are present, but reed canarygrass (*Phalaris arundinacea*) dominates. Near the ditches, the Himalayan blackberry is becoming established. The north portion of the site is dominated by spirea and red-osier dogwood. A dense, approximately ¼-acre patch of Pacific willow that may be the result of a restoration effort is located between the two ditches. A grove of paper birch planted in rows is just southeast of the Pacific willow on the opposite side of the ditch. The southern border of the site and much of eastern edge near the slough is dominated by large black cottonwood, in some cases with an understory of Himalayan blackberry. Additional plant species common at the site include red alder, salmonberry, cattail, soft rush, small bedstraw, and spike rush (*Eleocharis palustris*).

The Mercer Slough Wetland complex supports a wide variety of fauna. One hundred and four bird species and 24 mammals have been observed in the Mercer Slough area (Carrsaco et al. 2013). Seventy

species have been observed in the shrub and forested swamp areas and the riparian edge, due to the structural complexity of the vegetation. By comparison, only 37 species were observed in the agricultural lands. Passerine birds enjoy habitats like shrub swamps adjacent to open water. The highest diversity of birds occurs in the late spring. Common year round birds are sparrows, robins, chickadees, bushtits, kinglets, crows, jays, woodpeckers, and wrens. American bitterns and green backed herons forage and breed in the Mercer Slough. Great blue herons have been known to nest in the Mercer Slough (Carrsaco et al. 2013).

3.2.1.2. Description of Mitigation Design

The proposed wetland mitigation will compensate for wetland impacts in the southern areas of the Project. The rehabilitation of wetland hydrology and vegetation enhancement will create diverse, complex habitat structure to support a much greater diversity of species than are supported by the site's current agricultural use. Topographic adjustments will be made to rehabilitate hydrology, and create niches for forested, shrub-scrub, and emergent wetland types. Small depressions will be created that not only support obligate emergent vegetation, but that will also increase the hydrologic and water quality function of the wetland. The primary site constraint is access, and beyond a few existing roads, care will be taken to avoid soil compaction during construction using wetland soil mats or plates. Existing roads, and all associated culverts and other drainage infrastructure encountered will be decommissioned, and associated soils will be decompacted and amended as needed. Specific functions provided by the mitigation are described below.

3.2.1.3. Proposed Mitigation Site Hydrology

Site hydrology will continue to be controlled by Lake Washington and Mercer Slough water surface elevations. Ditches across the site will be filled to remove the influence of these structures on the adjoining areas. It is anticipated that this will effectively raise water surface (or groundwater) elevation in the winter and spring when the ditches are most effective (due to low lake levels). In addition, small, shallow depressions will be created by excavating soil to create a mound and pool feature. These "microtopographic features" increase habitat diversity and detain surface water flows during major rain events and rain on snow events. Microtopography mimics tip up mounds from forested systems and allows facultative plant species to establish on the hummock and obligate species to establish in the depressions. The increase in woody vegetation and dense vegetation in general will increase sediment trapping and other water quality functions of the wetland. The overall grading affect will work with the existing microtopography to create areas of standing water that will create an opportunity to trap sediment and nutrients before it reaches the slough and lake. These features will dry in the summer months, but wetland hydrology will be maintained by the high lake levels. The lake is typically at or near the high elevation of 18.67 feet (National Geodetic Vertical Datum 1988 [NGVD88]) from May to July.

3.2.1.4. Mitigation Site Soils and Grading

Existing site soils are described above. Minor grading will be required on site to fill ditches and any associated drain tiles, and create microtopographic features; therefore, a minimal amount of soil will be

imported. Soil amendments and woody mulch will be used in some areas to suppress invasive species and provide decompaction of existing soils over time. Site grading will have three major components: lowering grades within the reed canarygrass field in the north, filling existing ditches to match existing grades, and creating microhabitats throughout the site to establish forested and emergent vegetation.

Areas north of the agricultural ditches that have a robust reed canarygrass community will be lowered in elevation to maintain inundation past the germination period for reed canarygrass (April to May) and to sustain obligate wetland species. The site is currently relatively flat, with an extremely low slope in the direction of Mercer Slough. The ditches (and associated pumps) are the only known drainage infrastructure on the site, and any drain tile or other subgrade drainage encountered during the construction will be removed or effectively decommissioned in place. All the ditches will be filled with imported material and any culvert under internal access roads will be removed. Habitat and species diversity will be increased by excavating tip up mounds and creating small ponded areas surrounded by slightly higher areas. This will create ponded depressions for obligate species where inundation well into the growing season will help to limit facultative invasive species such as reed canarygrass. On the mounds and other raised areas, woody vegetation will be planted to create a dense overstory that will help to shade out invasive species. This variety of species will provide diversity to increase the opportunity to meet specific habitat requirements of a variety of fauna..

3.2.1.5. Mitigation Site Planting

Prior to planting, the contractor will canvas the site for invasive species. Species-specific approaches will be developed to control invasive species. These will include mechanical removal, mowing, mulching (with cardboard), and other methods developed in coordination with King County Noxious Weed Control Program staff. Between 25 and 50 percent of the existing blueberry plants located in the southern portion of the site will be cut off at the ground level. Native species will be planted in between the blueberry rows to increase shade and limit the establishment of invasive species. This approach will benefit establishing wetland tree species, such as western red cedar and Sitka spruce. Additionally, the shade will benefit the existing robust small-fruited bulrush emergent community thriving under the blueberry shrubs south of the existing ditches. Dead wood from the blueberry shrubs will be placed throughout the site in piles for songbird and mammal habitat.

Plant species selection will be based on developing a number of habitat types with high degree of interspersion and edge length. This arrangement will help to increase habitat diversity and complexity within the larger wetland. Buffer area will also be treated by removing invasive species, including blackberry and ivy, and under planting existing trees with native shrubs.

3.2.2 Sturtevant Creek

Conflicts with the Project alignment require that 3,443 sf of the OHWM of Sturtevant Creek be permanently filled and realigned to a new channel. This work will occur in Section 28, Township 25 North, Range 5 East, just north of NE 8th Street, east of a Whole Foods grocery store, and southwest of Lake Bellevue (Appendix C, Figures 16 to 21; Appendix D, Figures 8 and 9). The stream will be relocated

to the west, directly adjacent to its current location. The new stream channel will match current flow and volume capacity, while providing improved habitat. The new channel will be slightly longer because it will be shifted approximately 13 feet to the west of its current location. The existing overflow structure at the south end of the stream will also be relocated to the west, which will reduce the existing piped stream length by approximately 13 feet. The substrate of the channel will be cobble that is sized for the flow regime and the slopes will be vegetated to prevent erosion.

3.2.2.1. Existing Conditions of the Site

Sturtevant Creek flows out of Lake Bellevue wetland. The area of impact is downstream of the lake outlet. The stream in this area is confined to a straightened trapezoidal channel that runs parallel and east of the BNSF tracks. The channel bed is fairly uniform and consists of fine grain sediment with some vegetation. At the downstream end the vegetation is thicker and is dominated by reed canarygrass. The stream enters a manhole with a drop where it is combined with stormwater from the south. The flow is directed west, under the tracks in a short culvert. A very short (about 15 foot) daylighted section of stream exists to the west of the tracks before another culvert directs the flow south under NE 8th Street. The new channel alignment will remain on the BNSF ROW, which is now controlled by Sound Transit. A zone to accommodate future heavy rail or trail use is located to the west of the new channel and guideway alignments. This zone, or development envelope, is 18 feet wide and 22.5 feet tall and can be seen in Figure 19 of Appendix B. No additional space is available in this heavily developed area to increase the meander zone of the creek or decrease the slope of the banks.

The site was selected to minimize the disturbance to the hydrology and conveyance of the system and to allow for the continued use of existing downstream conveyances. Historically, the site was used as a rail corridor and is zoned as Commercial (BR-CG).

There are two existing wetlands on the site (South Lake and Central Lake) that will be impacted during construction of the elevated guideway, and restoration efforts are anticipated to provide a vegetative community with smaller plant species. The mitigation for this vegetation conversion impact will occur at another site. South Lake Wetland and Central Lake Wetland are both considered Category III wetlands using City criteria.

Flows in the reach are controlled at the outlet of Lake Bellevue. No actions related to this Project will occur at the outlet, and flows and lake levels will not be affected. Currently the outlet of the lake is managed by property owners to prevent vegetation and debris from reducing the flow out of the lake and creating flood hazards to the private development on and adjacent to the lake. The discharge downstream to the realigned reach is not changed, but the stream slope, bank roughness and capacity will be engineered to minimize velocity and scour while maintaining the same or greater conveyance capacity of the existing channel.

Site soils are mapped as Alderwood, gravelly, sandy loam; however, there is a great deal of railway ballast and fill prisms on the site associated with the railroad tracks and adjacent development. As a

result, angular rock, gravel, and cobble fill material frequently overlays or is mixed within the native soils.

Vegetation is extremely limited, and most of the site is bare gravel or pavement. Riparian vegetation is limited to herbaceous weeds on the channel banks, with red alder, Himalayan blackberry, Scot's broom and other perennial weeds and grasses in the adjacent jurisdictional buffer. Other areas of the buffer are paved or part of the railway bed and track. There is no known fish use in the reach and little habitat suitable for wildlife.

3.2.2.2. Description of Mitigation Design

The mitigation design will essentially mimic the current conditions with the following exceptions;

- The new channel will be slightly longer and aligned farther to the west
- The new channel will have a rounded cobble substrate (existing channel is sand and silt)
- The new channel and the nearby South Lake and Central Lake wetlands will have a native scrub-shrub buffer that will be increased by 0.29 acre from its current conditions

3.2.2.3. Mitigation Site Hydrology

The hydrology of the new channel will be essentially consistent with the existing channel. The hydrology is controlled at the outlet of Lake Bellevue and will not be impacted by the Project or the mitigation. The new channel has a similar capacity and slope as the existing channel.

3.2.2.4. Mitigation Site Soils

All soils, including topsoil, amendments, and stream bed materials will be imported. Railway ballast and other unsuitable material will be removed from the mitigation area. These areas will be converted into new buffer for the stream and nearby wetlands to the north.

3.2.2.5. Mitigation Site Planting

The site will be planted with a native scrub-shrub community. The use of larger species (trees) would create a long-term hazard and conflict with the rail alignment. Native species will be selected based on hydrologic conditions where planting is to occur. One community will be used in wetter locations and will include willows, red-osier dogwood, and spirea. Vegetation installed along the banks of the stream channel will be chosen to not interfere with stream flow volumes. A second community for upland buffer areas may include thimbleberry, snowberry, and Oregon grape.

3.2.3 West Tributary

This site is made up of three parcels along the West Tributary to Kelsey Creek west of 124th Avenue NE and just south of the ponded wetland (Kelsey West Tributary Pond wetland). The site is located in Section 28, Township 25 North, Range 5 East, just north of Bel-Red Road (Appendix C, Figures 23 and 24; Appendix D, Figures 10 and 11). Mitigation of permanent impacts to streams and wetlands will occur on this site, and will be accomplished by removing pavement and compacted fill on 2.46 acres of the site,

constructing a new, meandering open-channel and a riparian wetland complex, and the establishing a native vegetation buffer. The stream reach is currently considered a non-fish-bearing perennial stream due to impassable culverts downstream of this reach. The site will provide 0.64 acre of wetland creation and 2,600 sf of stream restoration.

3.2.3.1. Existing Conditions of the Site

The site is located in the upper reaches of the Kelsey Creek sub-basin of the Mercer Slough watershed. The drainage into the site comes largely from stormwater run-off, but is also fed by groundwater seeps along the toe of the SR 520 embankments. The existing site consists of compacted gravel and asphalt parking lot to the west and south. The lot was previously used for parking trucks in conjunction with a warehouse currently located on the site. A commercial building is located on a portion of the eastern property line. The site is zoned commercial (BR-CR) and is owned by the City of Bellevue Parks and Community Services. Future plans for the site include park amenities to the west of the mitigation area.

To the north of the site is a large open water wetland complex (Kelsey Creek West Tributary Pond Wetland) that is controlled at the outlet by a weir structure. This weir structure is managed to control downstream flooding and is not currently fish passable. This wetland is dominated by red alder, reed canarygrass, Pacific willow, spirea, and cattail. Beaver are active in the system, and localized flooding is an issue that requires maintenance by the City. Other species using the site are primarily birds (both migratory and resident species), especially waterfowl.

The West Tributary to Kelsey Creek flows from the ponded wetland to the south through the proposed mitigation site. The stream runs in a rock-lined channel for about 200 feet along the northeast corner of the site. This stream reach has a vegetated buffer width of about 60 feet. There is a small (0.04 acre) riparian wetland associated with both banks of the creek. Immediately to the east of the channel is a large commercial building. A small berm separates the creek and riparian wetland from the building.

Soils on site are mapped as Alderwood gravelly sandy loam, but are likely overlain by imported fill in paved and gravel areas. Field investigations conducted for the Project found that soils in the wetland are consistent in color and character from the surface to below 18 inches deep. The soils are a very dark grayish brown (10YR 3/1) silt loam with no redox features. The hydrology of the wetland is linked with the West Tributary to Kelsey Creek, and soils are commonly saturated or inundated to the surface. Site hydrology is currently being investigated by monitoring shallow groundwater wells placed within the proposed mitigation and excavation area.

The dominant vegetation species within this wetland are Pacific willow, red-osier dogwood, bittersweet nightshade, reed canarygrass, soft rush, and Himalayan blackberry. Vegetation on the margins of the site and around the stream is dominated by Himalayan blackberry and other invasive vegetation.

A Phase 2 subsurface site assessment has been developed for the site (G-Logics 2009) and utilities have been located and surveyed.

Kelsey West Tributary Stream Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (16 out of 32 possible maximum score). The wetland

scores a moderate potential to reduce flooding and erosion and provide the opportunity to reduce flooding and erosion (18 out of 32 possible maximum score). The wetland scores a moderate potential and opportunity (16 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Kelsey West Tributary Stream Wetland is 50 out of a possible 100.

3.2.3.2. Description of Mitigation Design

The goal of the mitigation design will be to remove about 10 feet of soil, to remove/abandon a 406-linear-foot section of piped West Tributary to Kelsey Creek, and to create a 441-linear-foot section of restored stream and significantly expand the associated wetland. Adjacent areas will be planted with native species to provide a dense vegetated buffer. Slopes to the east will range from 4H:1V to 8H:1V to meet the grades at the existing property line. The design preserves the existing riparian wetland and provides 0.64 acre of created wetland on the west (right) bank of the stream. The design includes a depressional terrace adjacent to the channel to provide flood storage of high flows and off channel refuge to aquatic species.

The mitigation design concepts in Appendix C (Figures 23 and 24) include a newly created 60-foot-wide average wetland buffer, which matches the buffer for a Category III wetland. The narrowest buffer areas are not less than 45 feet, which follows the BCC requirements to provide a buffer that is at least 75 percent of the required buffer for the newly created wetland. In the southern portion of the mitigation site where there is no proposed wetland creation, a 50-foot average stream buffer is proposed. The site provides an excellent opportunity to improve the connection between the Kelsey West Tributary Pond Wetland with other stream and wetland habitats downstream, many of which are in restoration (Glendale Country Club, Kelsey Creek Farm, SE 8th Culvert, etc.).

3.2.3.3. Mitigation Site Hydrology

Once excavated, the proposed mitigation site is anticipated to remain saturated at the surface by groundwater and stormwater outfall at the northwestern portion of the mitigation site. The proposed stormwater outfall will be collecting water from various sources west of the mitigation site and the groundwater sources are anticipated to derive from the same hydrology source as the Kelsey West Tributary Stream Wetland. In addition, peak flows from the West Tributary to Kelsey Creek will potentially enter the created wetland during large storm events at a regular recurrence. While base flows are relatively low (<2 cubic feet per second [cfs]) peak flows are much higher. The estimated two-year recurrence flow (annual probability 50%) is 25 cfs (FEMA 2005).

3.2.3.4. Mitigation Site Soils and Grading

Mitigation site soils, amendments, and stream bed materials will be imported from an approved off site location to ensure adequate fertility and composition. Boulders, snags, and large woody debris will also be imported (or obtained from the Project area as practicable) to create stream and wetland habitat complexity. Large woody debris placed in the streambanks will provide habitat and potentially protect the channel against erosion of the banks during high flows. The created wetland will be configured to allow access to fish at high flows and provide a quiescent area for turbid water to settle and sediment

and waterborne contaminants to be entrained by wetland vegetation. The site is designed to concentrate the habitat areas in a migratory corridor suitable for multiple species along the eastern boundary of the site. This will minimize the habitat impacts of future park development. Site grading will also create areas of ponded water from rainfall, site runoff, and after inundation by high flows. These areas are expected to stay inundated well into the growing season (May or June), and this inundation will help promote the establishment of dense, obligate vegetation and help control facultative invasive species—notably reed canarygrass. Some of the banks above the ponded areas are expected to be fed by groundwater seeps that will remain moist based on well data now being collected. This will allow the establishment of woody facultative species that provide shade and cover to aquatic areas.

3.2.3.5. Mitigation Site Planting

The mitigation design and site planting is shown in Appendix C (Figures 1 through 29) and D (Figures 1 through 13). The site was configured to improve the connectivity of existing high quality aquatic, wetland, and riparian habitats while maintaining the potential for future park and trail improvements outside the jurisdictional wetland buffer. Any future use of the site will be required to comply with the CAO (BCC Chapter 20.25H), including buffer protection.

Plant species selection will only include native species and will focus on those that provide water quality and or specific habitat function. Emergent and scrub-shrub wetland species that are able to trap sediment and other pollutants include, but are not limited to bulrush, willow, hardhack and slough sedge. Buffer species that provide forage and nesting habitat include, but are not limited to willow, red twig dogwood, hardhack, snowberry, thimbleberry, Douglas fir, and Sitka spruce.

3.2.4 Mercer Slough Buffer Creation and Enhancement

These areas are located along the east side of Bellevue Way SE and 112th Avenue SE, within the buffer of Mercer Slough West wetland and Mercer Slough West Branch. The area is primarily dominated by mowed lawn and non-native blackberry thickets, which makes it a good candidate for buffer creation and enhancement. Native buffer vegetation will be planted to enhance the remaining area between the future guideway and the west bank of West Mercer Slough, and in areas between the existing Mercer Slough West wetland and Bellevue Way SE. This buffer enhancement and creation work will improve water quality, habitat cover, organic input, shade, and other stream and wetland buffer functions.

These buffer creation and enhancement actions are in addition to other areas where restoration of temporary impacts will occur. Restoration of temporary impact areas are described in Section 2.8.

3.2.4.1. Existing Conditions of the Site

The site is currently comprised of City owned ROW, areas within Mercer Slough Nature Park, and a privately held tract lot associated with the Bellefield Office Park (a tract lot is an undivided interest within a plat and is not considered a lot or building site for purposes of development or construction).

The areas are topographically perched several feet above Mercer Slough and lack wetland characteristics and wetland vegetation. The soils include a mix of imported soils, fill associated with the adjacent road, and excavated materials from the slough and landfill debris. Vegetation is dominated by mowed lawn and dense thickets of the invasive species Himalayan blackberry, with a few isolated patches of ornamental and native trees.

The Bellefield Office Park site was created by filling 130 acres of wetlands. This area contains two Category II riverine-slope wetlands that will be impacted from unavoidable impacts related to Project construction. Dominant vegetation in the two wetlands includes Oregon ash, black cottonwood, red alder, Pacific willow, prickly currant (*Ribes lacustre*), Himalayan blackberry, lady fern (*Athyrium felix-femina*), and stinging nettle (*Urtica dioica*) This includes construction of the 112th Avenue SE and SE 15th Street intersection that accommodates the guideway undercrossing.

Site soils are mapped as Seattle muck in the slough and relic channels, Alderwood gravelly sandy loam, and Everett-Alderwood gravelly sandy loam in upland areas. However, this area has a history of development and excavation and other ground disturbance activities, and evidence of fill material and other imported soil material is present in most of the upland areas.

The hydrology of the two wetlands is associated with Mercer Slough. However, the wetland is located upslope of the slough, and the source of hydrology within the wetland is dominated by seeps and groundwater sources, as opposed to water from the slough extending above the OHWM into the wetland. Additional hydrology from seeps along the slopes above the slough will also help support a diversity of riparian vegetation.

Soils in the two wetlands were identified as typically black (10YR 2/1) loam to below 18 inches deep. Charcoal and brick were observed in the soil profile, these may be an indication of past land use activities on the site. Upland soils observed were significantly lighter in color (10YR 3/4 to 5/4, 10YR 2/2) and loamy, but often containing coarse organic material, charcoal or debris at depth. The charcoal and debris is consistent with known use of the site as a construction material dump in the 1960s.

Dominant vegetation species in the wetlands include Oregon ash and black cottonwood canopy, with stinging nettle, red twig dogwood, and Himalayan blackberry understory. The buffer is dominated by Himalayan blackberry, with some stinging nettle and red elderberry. Areas along the entrance to the Bellefield Office Park (SE 15th Street) are landscaped with turf and ornamental trees. There are some functions provided by the existing vegetation. Specifically, shade and organic input from trees and ground cover to prevent soil erosion. Himalayan blackberry provides food and nesting sites for some birds.

3.2.4.2. Description of Mitigation Design

The Project requires that the roadway at the 112th Avenue SE and SE 15th Street intersection be elevated to allow the light rail guideway to go under 112th Ave. SE. This will result in permanently filling 0.07 acres of the Bellefield South Wetland, 0.02 acres of the Bellevue North Wetland, and a total of 0.43 acre of buffer impact (0.22 to Bellefield South and 0.21 to Bellefield North). The buffers of these

wetlands will also be permanently impacted by roadway construction. To the south guideway and other Project-related construction will impact some areas of non-native vegetation in buffers. The mitigation design will rely on controlling the existing Himalayan blackberry and establishing a native riparian community. Willow and other flood tolerant species will be used near the water while more drought tolerant pioneer and seral species will be planted in the remainder of the upland buffer.

Other buffer enhancement and creation areas are located to the south and east of the proposed South Bellevue Station/Park and Ride. The concept for the area to the south includes a conversion of open lawn areas into wetland buffer. Many of these areas are not considered buffers, so this would provide more buffer for the Mercer Slough West wetland. The east side of the proposed parking structure has a major infestation of English ivy that is growing on many of the native deciduous trees. The concept here is to remove all invasive species and plant native species where appropriate.

3.2.4.3. Mitigation Site Hydrology

This buffer enhancement/creation site will remain upland. The connection of the wetlands to Mercer Slough will not be affected by the Project, so no impact to wetland hydrology of wetland areas to remain is anticipated.

3.2.4.4. Mitigation Site Soils

Site soils will be grubbed to remove the roots and other organic material associated with invasive species. Soil amendments will be added, as necessary, and woody mulch will be used to control future colonization by invasive species and to retain moisture in the soil. Wetland areas to remain will not be impacted, and their soils will not be disturbed unless it is necessary for invasive species removal. Care will be taken not to compact soils in wetland areas with temporary impacts to vegetation.

3.2.4.5. Mitigation Site Planting

The mitigation site will be planted in zones based on relative elevation above Mercer Slough and distance from the guideway. Within four vertical feet of the OHWM, willow and dogwood will be planted. Above that a forested community comprised of Douglas fir, big leaf Maple, red alder and grand fir will be planted, with an understory of native shrubs such as Tall Oregon grape, thimbleberry and red elderberry. Adjacent to the guideway, only shrubs will be planted to limit future conflicts with light rail operations. Temporary irrigation will be used as needed during plant establishment (typically 1 to 3 years).

3.3 Wetland Mitigation Site Functional Lift Analysis

Two of the four proposed wetland mitigation Project sites (Sweyolocken and West Tributary) were rated according to the most current Ecology guidance documents (Hruby 2004; Ecology 2008a), based on the proposed design for these wetland systems (Appendix D). As described in Section 3.0, the Sweyolocken site is an existing wetland proposed for wetland enhancement and rehabilitation, while the West Tributary site is proposed for wetland and stream creation.

The expected classifications and ratings of the proposed Sweyolocken and West Tributary wetland mitigation sites based on the design approach are provided in Table 3-8. Expected water quality, hydrologic, and habitat functional values for the proposed mitigation sites are shown on Table 3-9 and described below in Table 3-8.

Table 3-8 Wetland Mitigation Sites Classifications and Ratings Based on the Design Approach

Wetland Mitigation Site	USFWS (Cowardin) Classification	Hydrogeomorphic Classification	State (Ecology) and Local (Bellevue) Rating
Sweyolocken	Forested, Scrub-shrub, and Emergent	Riverine	II
West Tributary	Forested, Scrub-shrub, and Emergent	Riverine	II

Table 3-9 Summary of Functions and Values for Proposed Wetland Mitigation Site Rating Scores

Wetland Mitigation Sites	Water Quality Functions Potential Score	Water Quality Functions Opportunity (Yes/No)	Hydrologic Functions Potential Score	Hydrologic Functions Opportunity (Yes/No)	Habitat Functions Potential Score	Habitat Functions Opportunity Score	Total Functions Score
Riverine Maximum Scores	**16**	**No = 1 Yes = 2**	**16**	**No = 1 Yes = 2**	**18**	**18**	**100**
Sweyolocken	10	Yes	13	No	13	10	56
West Tributary	10	Yes	13	Yes	13	10	69

3.3.1 Water Quality Functions

Both wetland mitigation sites are designed to score a moderate potential to improve water quality due to surface depressions within the riverine wetland that can trap sediments during a flooding event and the characteristic of vegetation within the wetlands to trap sediments and pollutants. The amount of expected area within the wetland mitigation sites for seasonal ponding or inundation also contributes to a moderate score.

Both wetland mitigation sites are expected to provide opportunities to improve water quality due to their location near roads and/or other developed areas.

3.3.1.1. Hydrologic Functions

Both wetland mitigation sites are designed to have high scores for the potential to reduce flooding and erosion. The expected high scores for potential hydrologic functions are due to characteristics such as overbank storage capability and characteristics of the vegetation to slow down water velocities.

The West Tributary Wetland mitigation site provides the opportunity to reduce flooding and erosion because it drains to streams that flow downstream to areas that can be damaged by flooding. The Sweyolocken mitigation site does not provide this opportunity due to its association with Lake Washington, which has controlled water levels. The Mercer Slough West Wetland, which is located near the Sweyolocken mitigation site, was also scored as not providing the opportunity to reduce downstream flooding and erosion for this reason.

3.3.1.2. Habitat Functions

Both wetland mitigation sites are designed to have a high potential score to provide habitat. The high scores for potential habitat functions are due to the vegetative structure having several Cowardin vegetation classes, the presence of several water regimes or hydroperiods, plant richness (more than 19 native species), and the presence of special habitat features, such as downed woody debris and not allowing invasive plants to become established. The wetland mitigation sites will not contain forested vegetation classes during the first few years, as planted trees become established. Both wetland mitigation sites are designed to be planted with vegetation to develop forested, scrub-shrub, and emergent Cowardin vegetation classes once the vegetation matures.

Both wetland mitigation sites are expected to score a moderate potential opportunity to provide habitat for many species. The moderate score for habitat opportunity is due to the characteristics of the wetland buffers (developed verses undisturbed conditions), the overall quality of habitat conditions near or adjacent to the wetlands, and the connections to other wetland habitats. Several of these features depend on the condition outside of the mitigation sites and cannot be controlled as part of the mitigation design.

3.3.2 Comparison between Functions and Values of Disturbed Wetlands and Wetland Mitigation Sites

Ecology has produced the focus sheet *Using the Wetland Rating System in Compensatory Mitigation* (Ecology 2008b) as a guide to estimate changes in functions that can occur from impacts and compensatory mitigation. The methodology includes a qualitative comparison between individual groups of functions, based on the rating of function scores as low, moderate, or high (Tables 3-3 and 3-4), and calculating statistical variability in the function scores between the disturbed wetlands and the compensatory mitigation. The overall functions score has to increase by more than one-third to be considered a lift in functions. A difference of less than one-third is not considered statistically significant. The following assessment comparing functions of the ten disturbed wetlands and the two wetland mitigation sites was prepared per this Ecology methodology (Ecology 2008b). For this analysis, of the ten wetlands that will be permanently disturbed, four have been allocated to the Sweyolocken wetland mitigation site, and six have been allocated to the West Tributary wetland mitigation site, based on the geographic locations of the wetlands and wetland mitigation sites within the Project area . The qualitative comparison of functions and the statistical variability in the functions scores between the wetlands permanently disturbed and the Sweyolocken wetland mitigation site is provided in Table 3-10 and for the West Tributary Wetland mitigation site is provided in Table 3-11.

Table 3-10 Summary of Wetland Rating Scores and Sweyolocken Mitigation Site Functional Lift

	Improving Water Quality		Hydrologic Functions		Habitat Functions		Total Rating Score
	Potential (Score)	Opportunity (Yes/No)	Potential (Score)	Opportunity (Yes/No)	Potential (Score)	Opportunity (Score)	
Mercer Slough West Wetland							
Disturbed Wetland Rating	Moderate (10)	Yes	Moderate (10)	No	High (17)	Moderate (10)	57
Sweyolocken Mitigation Site Rating	Moderate (10)	Yes	High (13)	No	High (13)	Moderate (10)	56
Change	**No Change**	**No Change**	**Moderate to High**	**No Change**	**No Change**	**No Change**	**-1 (-2%) Not Significant[1]**
Bellefield South Wetland							
Disturbed Wetland Rating	Moderate (10)	Yes	Moderate (8)	Yes	Moderate (9)	Moderate (8)	54
Sweyolocken Mitigation Site Rating	Moderate (10)	Yes	High (13)	No	High (13)	Moderate (10)	56
Change	**No Change**	**No Change**	**Moderate to High**	**Change from Yes to No**	**Moderate to High**	**No Change**	**2 (4%) Not Significant[1]**
Bellefield North Wetland							
Disturbed Wetland Rating	Moderate (10)	Yes	Moderate (8)	Yes	Moderate (9)	Moderate (7)	53
Sweyolocken Mitigation Site Rating	Moderate (10)	Yes	High (13)	No	High (13)	Moderate (10)	56
Change	**No Change**	**No Change**	**Moderate to High**	**Change from Yes to No**	**Moderate to High**	**No Change**	**3 (6%) Not Significant[1]**
8th Street Wetland							
Disturbed Wetland Rating	Low (2)	Yes	High (12)	Yes	Low (6)	Low (5)	41
Sweyolocken Mitigation Site Rating	Moderate (10)	Yes	High (13)	No	High (13)	Moderate (10)	56

	Improving Water Quality		Hydrologic Functions		Habitat Functions		Total Rating Score
	Potential (Score)	Opportunity (Yes/No)	Potential (Score)	Opportunity (Yes/No)	Potential (Score)	Opportunity (Score)	
Change	**Low to Moderate**	**No Change**	**No Change**	**Change from Yes to No**	**Low to High**	**Low to Moderate**	**15 (37%) Significant[1]**

Notes:
Source: Ecology 2008b
1 Significant is defined as an increase of the total score by more than one third

Table 3-11 Summary of Wetland Rating Scores and West Tributary Mitigation Site Functional Lift

	Improving Water Quality		Hydrologic Functions		Habitat Functions		Total Rating Score
	Potential (Score)	Opportunity (Yes/No)	Potential (Score)	Opportunity (Yes/No)	Potential (Score)	Opportunity (Score)	
South Lake Wetland							
Disturbed Wetland Rating	Moderate (7)	Yes	Moderate (8)	Yes	Moderate (8)	Low (5)	43
West Tributary Mitigation Site Rating	Moderate (10)	Yes	High (13)	Yes	High (13)	Moderate (10)	69
Change	**No Change**	**No Change**	**Moderate to High**	**No Change**	**Moderate to High**	**Low to Moderate**	**26 (60%) Significant[1]**
Central Lake Wetland							
Disturbed Wetland Rating	Low (4)	Yes	Moderate (10)	Yes	Moderate (7)	Low (4)	41
West Tributary Mitigation Site Rating	Moderate (10)	Yes	High (13)	Yes	High (13)	Moderate (10)	69
Change	**Low to Moderate**	**No Change**	**Moderate to High**	**No Change**	**Moderate to High**	**Low to Moderate**	**26 (68%) Significant[1]**
North Lake Wetland							
Disturbed Wetland Rating	Low (4)	Yes	Low (4)	Yes	Low (6)	Low (4)	22
West Tributary Mitigation Site Rating	Moderate (10)	Yes	High (13)	Yes	High (13)	Moderate (10)	69
Change	**Low to Moderate**	**No Change**	**Low to High**	**No Change**	**Low to High**	**Low to Moderate**	**47 (214%) Significant[1]**

	Improving Water Quality		Hydrologic Functions		Habitat Functions		
	Potential (Score)	Opportunity (Yes/No)	Potential (Score)	Opportunity (Yes/No)	Potential (Score)	Opportunity (Score)	Total Rating Score
BNSF East Wetland							
Disturbed Wetland Rating	Moderate (7)	Yes	Moderate (8)	Yes	Low (3)	Low (4)	37
West Tributary Mitigation Site Rating	Moderate (10)	Yes	High (13)	Yes	High (13)	Moderate (10)	69
Change	**No Change**	**No Change**	**Moderate to High**	**No Change**	**Low to High**	**Low to Moderate**	**32 (86%) Significant[1]**
West Tributary Pond Wetland							
Disturbed Wetland Rating	High (11)	Yes	High (12)	Yes	Moderate (9)	Moderate (8)	63
West Tributary Mitigation Site Rating	Moderate (10)	Yes	High (13)	Yes	High (13)	Moderate (10)	69
Change	**High to Moderate**	**No Change**	**No Change**	**No Change**	**Moderate to High**	**No Change**	**6 (10%) Not Significant[1]**
SR 520 West Wetland							
Disturbed Wetland Rating	Moderate (9)	Yes	Moderate (8)	Yes	Moderate (9)	Low (5)	48
West Tributary Mitigation Site Rating	Moderate (10)	Yes	High (13)	Yes	High (13)	Moderate (10)	69
Change	**No Change**	**No Change**	**Moderate to High**	**No Change**	**Moderate to High**	**Low to Moderate**	**21 (44%) Significant[1]**

Notes:
Source: Ecology 2008b
1 Significant is defined as an increase of the total score by more than one third

The results of the qualitative comparison of functions between the wetlands and the wetland mitigation sites show some variation in the function ratings. As shown on Tables 3-3 and 3-4, the Sweyolocken and West Tributary wetland mitigation sites have one difference in their expected functional rating score based on the mitigation design. As described previously, the Sweyolocken mitigation site does not provide the opportunity to reduce flooding and erosion to downstream areas that can be damaged by flooding.

Because all ten wetlands and both wetland mitigation sites provide the opportunity to improve water quality, there is no change in the water quality opportunity between the wetlands and the mitigation sites. In addition to wetland mitigation, the Project will include several upgrades to on-site stormwater management facilities as a key component of the Project that will provide significant additional on-site mitigation of water quality.

The results of the qualitative comparison of functions between six of the ten wetlands and the associated wetland mitigation sites show no change in function rating for potential to improve water quality. Three of the wetlands show a change in function rating from low to moderate for potential to improve water quality. One wetland, Kelsey Creek West Tributary Pond, shows a change in function rating from high to moderate for the potential to improve water quality because the high quality water quality functions of the presence of organic soils cannot be replicated at a created wetland mitigation site during the initial wetland mitigation creation. However, the wetland impact area for the wetland is very small, 0.01 acre, and on the border of the wetland system, so the overall high quality water quality functions of the existing wetland will not decrease as a result of the proposed disturbance.

Two wetlands, Kelsey Creek West Tributary Pond and 8th Street Wetlands, show no change in function rating for potential to reduce flooding and erosion. Seven of the ten wetlands show a change in function from moderate to high and one wetland shows a change in function rating from low to high.

The Sweyolocken wetland mitigation site does not provide the opportunity to reduce flooding and erosion, while the West Tributary site does provide the opportunity. As a result, of the four wetlands allocated to the Sweyolocken mitigation site, one wetland, the Mercer Slough West Wetland, has no change in this function, while the other three wetlands show a change from providing the opportunity to provide this function to not providing the opportunity. For the West Tributary mitigation site, there is no change in the hydrologic opportunity between the remaining six wetlands and the West Tributary mitigation site. In addition to wetland mitigation, the Project will include several upgrades to on-site stormwater management facilities as a key component of the Project that will provide significant additional on-site mitigation of flow control functions.

One wetland (Mercer Slough West) shows no change for potential to provide habitat. Three of the ten wetlands show a change in function rating from low to high and six of the wetlands show a change in function rating from moderate to high for the potential to provide habitat. Finally, four of the ten wetlands show no change for opportunity to provide habitat and six wetlands show a change in function rating from low to moderate.

Six of the ten wetlands meet the statistically significant criteria of a lift in functions (an increase by more than one-third of the total score) between the disturbed wetland and the associated wetland mitigation sites (Ecology 2008a). The 8th Street Wetland has a 15 point difference in total function score, with at least 14 points necessary. The South Lake and Central Lake Wetlands have 26 point and 28 point differences in total function score, respectively, with at least 14 points necessary. The North Lake Wetland has a 47 point difference in total function score, with at least 7 points necessary, and the BNSF East Wetland has a 32 point difference in total function score, with at least 12 points necessary.

The four wetlands that do not meet the statistically significant criteria of a lift in functions are the four Category II wetlands with existing moderate to high functional score values. The Mercer Slough West Wetland has a -1 point difference in total function score, with at least 19 points necessary. The Bellefield South and Bellefield North Wetlands have a 2 point and 3 point difference in total function scores, respectively, with at least 18 points necessary. The Kelsey Creek West Tributary Pond Wetland has a 6 point difference in total function score, with at least 21 points necessary.

3.4 Goals, Objectives, and Performance Standards

3.4.1 Goal 1: Restore Wetland Hydrology at the Sweyolocken and West Tributary Mitigation Sites

Objective 1-1: Wetland hydrology will be restored at the **Sweyolocken Mitigation Site** by filling two agricultural ditches and removing culverts and other associated drainage infrastructure that is related to historical agricultural use within the site.

Performance Standard 1: Post construction monitoring and survey indicates that grading was completed according to the approved mitigation plans or approved modification of those plans.

Performance Standard 2: Soils will be saturated to the surface, or standing water will be present within 12 inches of the surface for at least 12 percent of the growing season in years when rainfall meets or exceeds the 30-year-average.

Performance Standard 3: Hydroperiod of areas between the two restored ditches at the site will mimic the surrounding wetland areas determined from digging soil pits and measuring water levels.

Objective 1-2: Wetland hydrology will be restored at the **West Tributary Mitigation Site** by removing fill material and creating a hydrologic connection between the wetland and stream system.

Performance Standard 1: Post construction monitoring and survey indicates that grading was completed according to the approved mitigation plans or approved modification of those plans.

Performance Standard 2: Soils will be saturated to the surface, or standing water will be present within 12 inches of the surface for at least 12 percent of the growing season in years when rainfall meets or exceeds the 30-year-average.

Performance Standard 3: The created wetland will be delineated in the spring of Year 2 (using current accepted methodologies) to ensure the size of the actual wetland is the same size or greater, than the designed wetland.

Objective 1-3: Increase surface roughness of the site at the **Sweyolocken and West Tributary Mitigation Sites**.

Performance Standard 1: A total of 5 to 10 microtopographic features (tip-up mounds) ranging from approximately 12 to 24 inches below existing grades to an approximate maximum of 24-inches above existing grades will be created and documented in the as-built plans. Mounds of each feature will be a minimum of 10 inches high, and troughs will be a minimum of 8 inches deep (in comparison to the average surrounding ground surface elevation).

3.4.2 Goal 2: Establish Native Plant Communities at the Sweyolocken, Mercer Slough Buffer Creation/Enhancement, Sturtevant Creek, and West Tributary Mitigation Sites

Objective 2-1: Plant communities will be restored by installing native trees, shrubs, and emergent species.

Performance Standard 1: Average survival of all planted stock will be at least 90% at the end of Year 1.

Performance Standard 2: Native wetland woody vegetation species cover shall be at least 25 percent by Year 3, at least 50 percent by Year 5. Sites requiring 10 years of monitoring shall reach 70 percent cover.

Performance Standard 3: Native upland woody vegetation species cover shall be at least 20 percent by Year 3 and at least 40 percent by Year 5. Cover at sites to be monitored for 10 years will reach 70 percent cover.

Performance Standard 4: Native herbaceous coverage within designated emergent wetland areas shall be at least 50 percent by Year 2, 70 percent by Year 3, and 100 percent by Year 5.

Performance Standard 5: A minimum of 19 desirable native plant species are present in the mitigation sites by the end of Year 5.

Performance Standard 6: Invasive, non-native and plant species are maintained at levels below 20 percent total cover. Species such as creeping buttercup may not necessarily be included in invasive cover standards as long as those species do not interfere with long-term goals.

3.4.3 Goal 3: Create Stable Channels at the Sturtevant Creek and West Tributary Mitigation Sites that Reduces Sediment Transport Downstream

Objective 3-1: Recreate 567 linear feet of stream channel at the **Sturtevant Creek Mitigation Site** west of the existing stream channel and replace 406 linear feet of culvert with 441 linear feet of stream channel at the **West Tributary Mitigation Site**.

Performance Standard 1: Post-construction monitoring and survey indicates that grading was completed according to the approved mitigation plans.

Objective 3-2: Channel conditions and in-stream features at the **West Tributary Mitigation Site** are stable at a range of flows from the summer low flow to the 2-year peak flow.

Performance Standard 1: Soils above the OHWM will be stable with established vegetation.

Performance Standard 2: After construction and for the duration of the 10 year monitoring period, channel banks material will consist of specified gradations of cobble. (Erosion shall be limited to prevent channel migration into native soils.)

Objective 3-3: Improve aquatic habitat at the **West Tributary and Sturtevant Creek Mitigation Sites.**

Performance Standard 1: The site is resilient to overbank flooding up to the 10% recurrence flow (10-year flood)

Performance Standard 3: Evidence (rack marks, leaf staining, sediment deposition, etc.) of a surface water connection between the stream and wetland is visible

Performance Standard 2: After construction, and for the duration of the 10-year monitoring period, pool and riffle features are stable and located as shown on the as-built plans.

Objective 3-4: Improve geomorphologic function at the **West Tributary and Sturtevant Creek Mitigation Sites.**

Performance Standard 1: After construction, there are three large woody debris structures present, below the OHWM in the West Tributary Mitigation Site.

Performance Standard 2: After construction and for the duration of the 10-year monitoring period, channel banks material will consist of specified gradations of cobble. Erosion shall be limited to prevent channel migration into native soils.

Performance Standard 3: After construction, and for the duration of the 10-year monitoring period, riparian vegetation is established as described in Goal 2.

Performance Standard 4: After construction, and for the duration of the 10-year monitoring period, pool and riffle features are stable and located as shown on the as-built plans.

3.4.4 Goal 4: Improve Wildlife and Aquatic Habitat Structures at the Sweyolocken, Mercer Slough Buffer Creation/Enhancement , Sturtevant Creek, and West Tributary Mitigation Sites

Objective 4-1: Provide habitat structure to benefit a variety of fauna, including but not limited to, song birds, cavity-nesting birds, insects, and mammals by incorporating habitat features.

Performance Standard 1: There will be at least 17 habitat features per acre (1 piece/2,500 square feet) including down woody material (logs, rootwads, etc.), stumps, snags, brush piles, boulder

piles, and constructed cavities in stumps and down logs. There will also be one bird nest box installed on each snag. These features will be documented in the as-built plan.

Performance Standard 2: Install one bat box per 25,000 square feet on existing trees in mitigation sites and buffers where existing appropriate trees are present.

Performance Standard 3: Evidence of wildlife use of the sites will be documented. This may include scat, nests, visual observations, tracks, or other evidence.

3.4.5 Goal 5: Restore Wetland, Stream, and Buffer Areas Temporarily Impacted during Construction to Pre-existing or Better Conditions

Objective 5-1: Wetland hydrology will be restored at all temporarily impacted wetland sites by adding or removing fill material and restoring pre-construction elevations.

Performance Standard 1: Post-construction monitoring and survey indicates that grading was completed according to the approved mitigation plans or approved modification of those plans. Soils are decompacted to be no more than 80 percent of maximum compaction.

Performance Standard 2: Soils are saturated to the surface, or standing water is present within 12 inches of the surface for at least 12 percent of the growing season in years when rainfall meets or exceeds the 30-inch average.

Objective 5-2: Plant communities will be restored by installing native trees, shrubs, and emergent species.

Performance Standard 1: Average survival of all planted stock will be at least 90% at the end of Year 1.

Performance Standard 2: Native wetland woody vegetation species cover shall be at least 25 percent by Year 3, at least 50 percent by Year 5.

Performance Standard 3: Native upland woody vegetation species cover shall be at least 20 percent by Year 3, at least 40 percent by Year 5.

Performance Standard 4: Native herbaceous coverage within designated emergent wetland areas shall be at least 50 percent by Year 2, 70 percent by Year 3, and 100 percent by Year 5.

Performance Standard 5: A minimum of 19 native plant species shall be in the mitigation sites by the end Year 5.

Performance Standard 6: Invasive, non-native and plant species are maintained at levels below 20 percent total cover. Species such as creeping buttercup may not necessarily be included in invasive cover standards as long as those species do not interfere with long-term goals.

3.5 Monitoring, Maintenance, and Contingency Plan

3.5.1 Baseline Monitoring

Baseline monitoring at Sturtevant Creek and West Tributary Kelsey Creek will occur. The biologists will collect data regarding stream conditions, such as bank full width, substrate composition, and vegetation structure and cover. This information will document how the stream systems functioned prior to relocation and daylighting and evaluate success of the mitigation projects.

3.5.2 Post-Construction Monitoring

An as-built monitoring report will be prepared and submitted to the City, WDFW, and the Corps in the same calendar year that the restoration and mitigation elements occur. Mitigation Performance monitoring will be conducted annually for a period of 5 years for shrub or emergent communities restored along the Project corridor. These areas will have annual monitoring reports submitted to the City, WDFW, and the Corps in Years 1 through 5.

The Sweyolocken and West Tributary site will be monitored for 10 years. Annual reports will be submitted to the City, the Corps, and WDFW in Years 1 through 5, 7, and 10. All other restoration and compensatory mitigation areas will be monitored for 5 years.

Monitoring reports will follow the format outlined in Corps regulatory guidance letter 08-03 and will document how the Project is meeting the performance standards outlined above. If one or more of the performance standards are not met the report will identify actions to be taken in order to meet the standard.

3.5.3 As-built or Year 0 Monitoring

A post-construction assessment will be conducted upon completing the mitigation plan construction, and a report including record drawings will be submitted to agencies with jurisdiction. The purpose of this assessment will be to determine whether the site conditions are consistent with the approved plan, document any changes that occurred during construction, and establish baseline conditions for future monitoring.

3.5.4 Methods to Monitor Progress in Attaining the Performance Standards

Each monitoring report will include an evaluation of the mitigation project to ensure that the goals, objectives, and performance standards are being met. The performance standards above will be monitored using the following methods.

3.5.5 Wetland Hydrology

Indicators of wetland hydrology will be recorded, including ponding, water marks, water-stained leaves, and soil saturation. Water elevations in test pits or wells (if installed) will be recorded.

3.5.6 Stream Hydrology and Condition

Regular monitoring of the, bank stability, large woody debris structures, pool and riffle structures, and vegetation will occur at both the Sturtevant and West Tributary sites. At the West Tributary Site, additional monitoring of the stability of large woody debris structures and pool and riffle structures and wetland connectivity at high flow, will occur.

3.5.7 Vegetation Monitoring

Monitoring quadrats or transects will be established for each site during the as-built monitoring. Monitoring protocols could include 10 meter square Quadrats or transects. Transects will include both wetland and buffer, and will be located to cross as many plant communities as possible in the mitigation areas.

3.5.7.1. Species Diversity

During fall monitoring events, the percent areal cover of shrubs and trees could be evaluated through the use of point-intercept sampling methodology. Using this methodology, a tape will be extended between two permanent markers. Shrubs and trees intercepted by the tape will be identified, and the intercept distance recorded. Species diversity will then be calculated to determine the number of species intercepted as a total proportion of the tape length.

3.5.7.2. Plant Survival

During the first fall monitoring event, plant survival will be evaluated within each of the sampling transect locations. Percent survival of shrubs and trees will be evaluated in a 10-foot belt along the established transect. The species and location of shrubs and trees within this belt will be recorded. The established vegetation sampling transects will aid in determining the success of plant establishment. Monitoring and calculations to determine percent survival will only occur in Year 1.

3.5.7.3. Invasive Species

During monitoring events, undesirable plant species will also be measured within each sampling location. Invasive plants will be maintained at levels below 20 percent total cover. Removal of these species will occur regularly to prevent infestations. Removal will occur by hand whenever possible. Undesirable species include, but are not limited to, Scot's broom, Himalayan and evergreen blackberry, reed canarygrass, purple loosestrife, hedge bindweed (morning glory), Japanese knotweed, and creeping nightshade. Naturally colonizing and aggressive native species, including reed canarygrass, red alder, Douglas' spirea, and Cattails, may also be removed if they threaten to crowd out planted species to the extent that performance standards for species diversity cannot be met.

3.5.8 Habitat Use

During each monitoring event, evidence that mitigation sites are being used by birds, mammals, amphibians, or fish will be recorded. This includes the presence of scat or other physical evidence of species presence, as well as sightings, vocalizations etc. Formalized wildlife monitoring will not occur.

3.5.9 Monitoring Schedule

Monitoring events will be conducted according to the schedule presented in Table 3-12.

Table 3-12 Projected Calendar for Performance Monitoring and Maintenance Events

Year	Date	Maintenance Review	Performance Monitoring	Report Due to Agencies
0 (BA)	Fall	X	X	X
1	Spring	X	X	
	Fall	X	X	X
2	Spring	X		
	Fall	X	X	X
3	Spring	X		
	Fall	X	X	X
4	Spring	X		
	Fall	X	X	X
5	Spring	X		
	Fall	X	X	X
6	Spring	X		
	Fall			
7	Spring	X		
	Fall	X	X	X
8	Spring	X		
	Fall			
9	Spring	X	X	
	Fall	X		
10	Spring	X		
	Fall	X	X	X*

Notes:
BA = Baseline Assessment following construction completion.
* Obtain final approval from Corps (presumes performance criteria are met).

3.5.10 Maintenance Actions

Maintenance will be performed regularly to address conditions that could jeopardize the success of the mitigation sites. During regular monitoring visits (schedule shown in Table 3-12), any necessary maintenance actions will be identified and reported to the landscape maintenance contractor.

Established performance standards for the Project will be compared to the monitoring results to judge the success of the mitigation project. If there is a significant problem with achieving the performance

standards, Sound Transit shall develop a corrective action plan. Corrective actions may include, but are not limited to, additional plant installation, erosion control, adjustment to hydrology, and plant substitutions of type, size, quantity and location. Maintenance and remedial action on site will be implemented immediately upon completion of the monitoring event (unless otherwise specifically indicated below). Typical maintenance activities will include, but are not limited to:

- During Year 1, replace all dead plant material to achieve 100% survival.
- Mitigation plantings will be watered at a minimum rate of 1 inch of water between June 15 and October 15 (or as needed) during the first year after installation. If replacement plantings are installed following Year 1, then the newly installed plants shall also be watered at a rate of 1 inches of water every week between June 15 and October 15 for the first year after planting.
- Replace dead plants with the same species or a substitute species that meets the goals and objectives of the mitigation plan, subject to the approval of Sound Transit.
- Re-plant area after reason for failure has been identified and corrected (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.).
- Remove and control weedy or exotic invasive plants (e.g., Scot's broom, reed canarygrass, Himalayan blackberry, bindweed, purple loosestrife, etc.). Use of herbicides or pesticides within the mitigation area would only be implemented if other measures failed or were considered unlikely to be successful. Mulch rings should be maintained on trees and shrubs, until they become established.
- Remove trash and other debris.
- Prune woody plants as necessary to meet the mitigation plan's goals and objectives (e.g., thinning and removing dead or diseased portions of trees and shrubs).
- Make minor excavations by hand, as needed and after consulting with Sound Transit, to correct surface drainage or soils moisture conditions.

3.5.11 Contingency Plan

Contingency plans describe what actions can be taken to correct site deficiencies. Mitigation goals, objectives, and performance standards create a baseline by which to measure if the site is performing as proposed and whether or not a contingency plan is necessary. All contingencies cannot be anticipated. The contingency plan will be flexible so that modifications can be made if portions of the final design do not produce the desired results. Problems or potential problems will be evaluated by a qualified wetland ecologist, Sound Transit, the City of Bellevue, WDFW, the Corps, and Ecology. Specific contingency actions will be developed, agreed to by consensus, and implemented based on all scientifically and economically feasible recommendations.

Contingency actions may include the following:

- Re-grading or modifying hydrologic sources to address problems with wetland or stream hydrology, which may include:

  - Changing existing, ditches, watercourses, and/or flow patterns
  - Revising grades to direct sheetflow and affect areas of inundation
  - Adding in stream features (Large woody debris, weirs, or boulders) to modify/improve flow or bank stability

- Additional soil amendments
- Modifying grades to correct too low or too high elevations
- Providing fencing to prevent vandalism or other damage caused by humans

Establishing a stable wetland and stream hydrology across the site is one of the most critical factors in controlling the success of the mitigation site. Sound Transit will closely monitor the effect of the planned alterations to surface water flows and determine if the resultant changes in the hydrologic regime of the site meet modeled expectations. If not, the alterations to the surface water flows, to the planting plan, or to both should be changed prior to plant installation. If desirable wetland hydrology is achieved initially but is not found to be stable throughout the monitoring period, additional contingency measures may be required once the cause(s) of the instability is determined.

Sound Transit will implement contingency plans on an as-needed basis. Contingency plans will be developed for review and approval by regulatory agencies, as appropriate. In addition, implemented contingency plans will be described in the next monitoring report. Contingency plans shall be submitted by December 31 of the year in which deficiencies are discovered. A contingency plan, if required, will be submitted before construction activities.

If, during the monitoring program, other maintenance needs are identified as necessary to ensure the success of the mitigation Project, they will be implemented, unless generated by third parties or acts of nature. These include soil testing and additional soil amendments or the use of broadcast fertilizer if approved in advance by the City, the Corps, and Ecology. Specific contingency actions relative to interim performance standards are identified in Tables 3-13 and 3-14. These interim standards will be used internally by Sound Transit to determine if the sites are on track to meet the main performance standards. Reports will only indicate whether the sites are meeting, are not meeting, or are on track to meet the main performance standards.

Table 3-13 Potential Contingency Actions for the Wetland Mitigation Site

Design Feature	Monitoring Year(s)	Interim Performance Standards	Contingency Action[1]
Forest/ Shrub Wetland Plantings	1	Greater than 80 percent survival of planted stock	None
Emergent Wetland Plantings	1	Total cover 20 percent and at least 10 percent cover by the emergent wetland species planted	None
		Total cover less than 20 percent and less than 10 percent cover by the emergent wetland species planted	Re-evaluate the suitability of the plant species for site conditions and re-establish, if necessary. Consider make-up of cover species and, if functioning, do nothing. Consider use of alternate species. Undertake additional monitoring.
Emergent Wetland Plantings	2	Total cover 40 percent and at least 20 percent cover by the emergent wetland species planted	None
		Total cover less than 25 percent and less than 10 percent cover by the emergent wetland species planted	Re-evaluate the suitability of the plant species for site conditions and re-establish, if necessary. Consider make-up of cover species and, if functioning, do nothing. Consider use of alternate species. Undertake additional monitoring.
	5	Total cover by emergent wetland species at least 70 percent	None
		Total cover by emergent wetland species less than 70 percent	Re-evaluate the suitability of the plant species for site conditions and re-establish, if necessary. Consider make-up of cover species and, if functioning, do nothing. Consider use of alternate species. When invasive species (reed canarygrass) represent greater than 20 percent cover, control of this species in accordance with City of Bellevue "Environmental Best Management Practices" (Ordinance 5680, 6-26-06, §3)

Design Feature	Monitoring Year(s)	Interim Performance Standards	Contingency Action[1]
Hydrologic Regime	1 to 5	In forested/shrub wetland areas, saturation within 6 to 16 inches of surface from December through April (normal rainfall years)	Evaluate reasons for failure. Possible solutions include modification of off-site drainage to wetland, revision of planting plan to correlate to the hydrologic regime, or addition of water level control structures to regulate water levels.

Notes:
1 Contingency actions listed in Table 3-9 are only a sub-set. All contingency actions discussed above should be considered and the appropriate actions taken based on an understanding of the actual causes of poor performance.

Table 3-14 Potential Contingency Actions for the Stream Mitigation Site

Design Feature	Monitoring Year(s)	Interim Performance Standards	Contingency Action[1]
Riparian Buffer Plantings	1	Total cover 20 percent and at least 10 percent cover by the emergent wetland species planted	None
		Total cover less than 20 percent and less than 10 percent cover by the emergent wetland species planted	Re-evaluate the suitability of the plant species for site conditions and re-establish, if necessary. Consider makeup of cover species and, if functioning, do nothing. Consider use of alternate species. Undertake additional monitoring.
	2	Total cover 40 percent and at least 20 percent cover by the emergent wetland species planted	None
		Total cover less than 25 percent and less than 10 percent cover by the emergent wetland species planted	Re-evaluate the suitability of the plant species for site conditions and re-establish, if necessary. Consider makeup of cover species and, if functioning, do nothing. Consider use of alternate species. Undertake additional monitoring.
	5	Total cover by emergent wetland species at least 70 percent	None
		Total cover by emergent wetland species less than 70 percent	Re-evaluate the suitability of the plant species for site conditions and re-establish, if necessary. Consider makeup of cover species and, if functioning, do nothing. Consider use of alternate species. When invasive species (reed canarygrass) represent greater than 20 percent cover, control of this species in accordance with City of Bellevue "Environmental Best Management Practices" (Ordinance 5680, 6-26-06, §3)

Design Feature	Monitoring Year(s)	Interim Performance Standards	Contingency Action[1]
Pools	1,2,5,10	Area and depth of pools are within 10% of as-built dimensions	None
		Area and depth of pools are less 90% of as-built condition	Determine the cause(s) of sedimentation and address with adjustments to large woody debris structures , installation of additional large woody debris or other measures
		Pool scour is causing bank erosion	Determine the cause(s) of scour and address with adjustments to large woody debris structures or other measures
Riffles	1,2,5, 10	Riffle length and substrate size (D_{50})[2] are within 20 percent of as-built condition	None
		Riffle length is less than 80 percent of as-built condition	Determine the cause(s) of grade change and address with grading or substrate adjustments
		Riffle substrate size is 20 percent greater or smaller than as-built condition	Determine if the change is impacting stream functions such as benthic production, if so address
Bank Stability	1,2,5, 10	Banks are stable	None
		Erosion on banks is revealing native soils	Determine the cause(s) of erosion and address with greater channel roughness, greater capacity, or decreased slope between structures
Wetland Connecti vity	1,2,5, 10	Evidence of surface water connections under high flow exist	None
		Wetland connection is silted in	Determine the cause(s) of sedimentation and address with adjustments to large woody debris structures , installation of additional large woody debris or other measures
		Wetland connection is eroding	Determine the cause(s) of erosion and address with greater channel roughness, greater capacity, or decreased slope between wetland and stream.

Notes:

1 Contingency actions listed in Table 3-10 are only a sub-set. All contingency actions discussed above should be considered and the appropriate actions taken based on an understanding of the actual causes of poor performance.

2 D_{50} refers to the average diameter of the average sized or 50^{th} percentile piece of gravel or cobble across the wetted channel width.

4.0 References

Anchor QEA, 2013. *Sound Transit East Link Extension Project Wetland, Stream, and Jurisdictional Ditch Delineation Report*. Prepared for H-J-H Final Design Partners and Sound Transit. September 2013.

Axis Environmental, LLC and CH2M HILL, 2010. *East Link Project Biological Assessment*. Prepared for Sound Transit. October 2010.

Brown, E. R., (ed.). 1985. *Management of Wildlife Habitats in Forests of Western Oregon and Washington*, Vols. 1 and 2.

Carrsaco, Yvan; Richard Hicks; Natasha Luhrs; Penny Manning; Matthew Riewe; Tara Waggoner and Warren Gold. Study of Mercer Slough. Accessed online at http://www.rlh.newproject.us/Webpage/MercerSlough6.html September, 30, 2013.

City of Bellevue. 2010. *Kelsey Creek Basin Stream Flow Frequency: Predicted Peak Annual Flows for Bellevue Streams*. Plot Date: 1/29/2010. URL: http://www.bellevuewa.gov/pdf/Utilities/StreamFlowFrequency_KelseyCreekBasin.pdf (accessed September 2013).

City of Bellevue. 2013a. Bellevue City Code. URL: http://www.codepublishing.com/wa/bellevue/ (accessed September 2013).

City of Bellevue. 2013b. Critical Areas Maps. URL: http://nwmaps.net/mapsearch.htm?theme=environmental (accessed September 2013).

Corps (U.S. Army Corp of Engineers), 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Publ. # FWS/OBS-79/31. U.S. Fish and Wildlife Service.

Ecology (Washington State Department of Ecology), 1997. *Washington State Wetland Identification and Delineation Manual*.

Ecology, 2008a. Washington State Wetland Rating Form – Western Washington, Version 2.

Ecology, 2008. *Using the Wetland Rating System in Compensatory Mitigation - Focus Sheet*. Olympia, Washington.

Ecology (Washington State Department of Ecology), U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10, 2006. *Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1)*. Washington State Department of Ecology Publication #06-06-011a. Olympia, Washington, March 2006.

Environmental Laboratory, 1987. *U.S. Army Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi.

Franklin, J.F. and C.T. Dyrness. 1988. *Natural vegetation of Oregon and Washington.* Oregon State University Press. Corvallis, OR.

G-Logics, Inc., 2009. *Additional Phase II Subsurface Assessment Safeway-Mid Mountain Property*. Prepared for the City of Bellevue. August 2009.

Hruby, T., 2004. *Washington State Wetland Rating System for Western Washington: Revised*. Washington State Department of Ecology Publication #04-06-25.

Larsen, E. M., editor. 1997. Management recommendations for Washington's priority species, Volume III: Amphibians and Reptiles. Washington Department of Fish and Wildlife, Olympia, Washington, USA.

Larsen, E.M., J. M. Azerrad, and N. Nordstrom (editors), 2004. *Management Recommendations for Washington's Priority Species, Volume IV: Birds*. Washington Department of Fish and Wildlife, Olympia, Washington.

Parametrix, 2012. *Critical Areas Report West Tributary Detention Pond 165 Enhancement Project*. City of Bellevue. December 2012.

Sound Transit. 2011. *East Link Light Rail Project Final Environmental Impact Statement and Technical Appendices*.

Sound Transit. 2013. *Design Criteria Manual Revision 3*. August 2013.

USDA (U.S. Department of Agriculture), 2013a. *Natural Resource Conservation Service (NRCS) Web Soil Survey*. Cited: February 1, 2013. Available from: http://websoilsurvey.nrcs.usda.gov/app.

USDA, 2013b. *Hydric Soil List for Washington State*. USDA Soil Conservation Service. Cited: February 1, 2013. Available from: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_023872.xls.

USFWS (U.S. Fish and Wildlife Service), 2013. *USFWS Wetlands Mapper for National Wetlands Inventory (NWI) Map Information*. Cited: February 1, 2013. Available from: http://wetlandsfws.er.usgs.gov.

WDFW (Washington Department of Fish and Wildlife). 2013a. Priority Habitats and Species Maps.

WDFW, 2013b. SalmonScape Interactive mapper – Salmon presence; forage fish spawning habitat. Available from: http://wdfw.wa.gov/mapping/salmonscape/. Accessed on: February 2, 2013.