RESOLUTION R-5532

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KIRKLAND ADOPTING THE NE 128TH STREET MULTIMODAL CORRIDOR STUDY.

WHEREAS, the City Council approved the NE 128th Street Multimodal Corridor Study ("Study") as part of the 2019-2024 Capital Improvement Program update; and

WHEREAS, in March 2021, work began on the Study with the goal of assessing the NE 128th Street Corridor needs ("primary study area") and on adjacent streets ("secondary study area") providing recommended improvements; and

WHEREAS, the study includes a primary study area that is the roadway designated as NE 128th Street between 116th Avenue Northeast and 120th Avenue Northeast and the secondary study area on existing streets and future potential street extensions between NE 128th Street and NE 132nd Street and Totem Lake Boulevard and 124th Avenue Northeast; and

WHEREAS, extensive community outreach was conducted, including a project website; stakeholder interviews and meetings with the Evergreen Hill and Juanita Neighborhoods, Sound Transit, King County Metro, and EvergreenHealth Medical Center; two on-line community meetings; and bi-weekly meetings with the Washington State Department of Transportation; and

WHEREAS, the Transportation Commission was consulted throughout the Study and provided its expertise, review, and recommendations; and

WHEREAS, on February 1, 2022, the City Council received a detailed briefing on the Study that included a description of the primary and secondary corridor needs, project background, public outreach efforts, key findings and recommended improvements; and

WHEREAS, the comments and direction received from the City Council throughout the Study have been addressed in the final Study; and

WHEREAS, the Study recommendations consist of 14 projects that are grouped by location; and five policy and education initiatives that offer solutions for transit, bicyclists, pedestrians, vehicles, vehicle parking, and land use; and

WHEREAS, the new major projects of the Study are recommended for incorporation into the *Kirkland Transportation Master Plan*.

NOW, THEREFORE, be it resolved by the City Council of the City of Kirkland as follows:

Section 1. The NE 128th Street Corridor Study attached as Exhibit A and incorporated by this reference is adopted.

Passed by majority vote of the Kirkland City Council in open meeting this 19 day of April, 2022.

Signed in authentication thereof this 19 day of April, 2022.

Penny Sweet, Mayor

Attest:

Kathi Anderson, City Clerk

Attachment A

City of Kirkland

NE 128th Street Multi Modal Corridor Study

April 2022

NE 128th Street Multimodal Corridor Study

Prepared for:

City of Kirkland
123 5th Ave
Kirkland, WA 98033

Prepared by:

KPG Psomas
3131 Elliott Avenue, Suite 400
Seattle, WA 98121

April 2022

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Introduction

The Totem Lake area has been experiencing significant growth over the past several years with new urban high-density development. NE 128th Street is an important multimodal corridor that connects the Kingsgate Park & Ride, I-405 express toll lane ramps and flyer bus stops, Totem Lake Transit Center, and Evergreen Health Medical Center. The Puget Sound Regional Council has designated the Totem Lake area as a Regional Growth Center.

The purpose of this project is to create an attractive, multimodal environment on NE 128th Street and the other study corridors to facilitate transit connections and be an appealing and safe place for people walking, bicycling, driving, and taking transit.

Study Objectives

The primary objectives of this study include the following:

- Conduct an extensive public involvement process to understand the transportation needs, issues, and ideas of the community.
- Develop a set of improvement projects to enhance safety and the multimodal environment for the NE 128th Street primary study corridor and four secondary study corridors (described on the following page).
- For three potential street extensions, identify the street cross sections, including the number and width of vehicle lanes and the type of pedestrian and bicycle facilities.
- To guide implementation, rank the projects into three priority categories and identify potential funding sources for each project.

Previous Studies

The Totem Lake area has been the focus of several transportation and land use planning documents written to guide the development of the neighborhood. This study incorporates the concepts from previous efforts, further refines area improvements, and provides the City a plan for implementation. The analysis builds upon the following studies:

- City of Kirkland Transportation Improvement Program (2021)
- Design Guidelines for the Totem Lake Business District (2020)
- Evergreen Health/Totem Lake Traffic Study (2019)
- Kirkland Transit Implementation Plan (2019)
- Totem Lake Urban Center Enhancement & Multimodal Transportation Network Plan (2018)
- Totem Lake Business District Plan (Updated 2015)
- City of Kirkland Transportation Master Plan (2015)

A full list of references to previous studies and plans is provided in **Appendix A**.

Study Areas

For this analysis, the street network was divided into a primary study corridor, secondary study corridors, and three potential street extensions within the study area that have been identified in the Comprehensive Plan. **Figure 1** shows the study area, study corridors and key destinations.

Primary Study Corridor: NE 128th Street between 116th Avenue NE and 120th Avenue NE

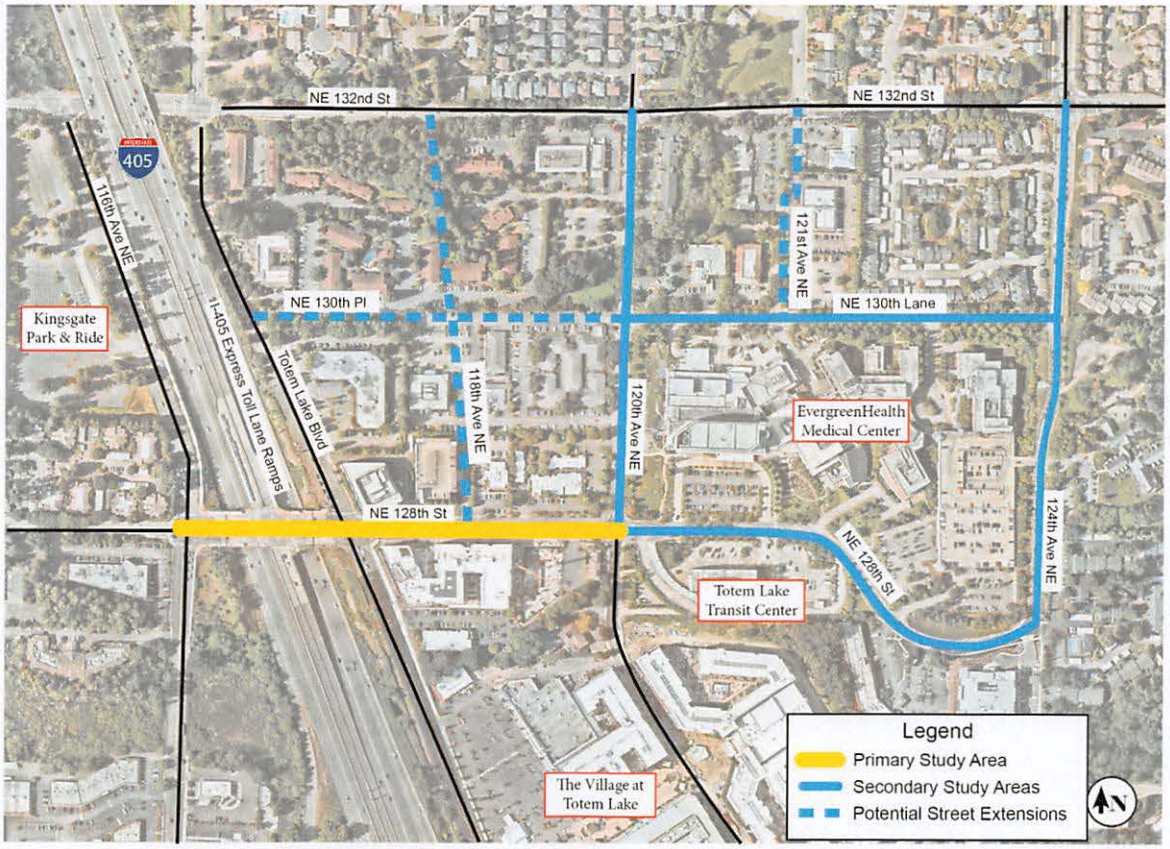
Secondary Study Corridors:

- NE 128th Street between 120th Avenue NE and 124th Avenue NE
- NE 130th Lane between 120th Avenue NE and 124th Avenue NE
- 120th Avenue NE between NE 132nd Street and NE 128th Street
- 124th Avenue NE between NE 132nd Street and NE 128th Street

Potential Street Extensions:

- NE 130th Place between Totem Lake Boulevard and 120th Avenue NE
- 118th Avenue NE between NE 132nd Street and NE 128th Street
- 121st Avenue NE between NE 132nd Street and NE 130th Lane

Figure 1. Study Area and Corridors



Summary of Transportation Analysis

The study completed the following tasks to analyze transportation conditions and develop multimodal improvements for the study area.

- Review previous transportation and land use plans for the study area.
- Analyze existing transportation conditions for each of the travel modes.
- Analyze 2035 Baseline Conditions, including projects that are planned to be constructed by other agencies.
- Meet with the public and stakeholders to share project findings and receive input on the community's transportation needs, issues and ideas.
- Develop draft multimodal improvements for the primary study corridor, secondary study corridors, and three potential street extensions. This includes developing a preliminary design and cost estimate for improvements to the primary study corridor.
- Meet with the public and stakeholders a second time to share draft multimodal improvements and receive the community's feedback.
- Incorporate public and stakeholder comments and finalize the recommended multimodal improvements.
- Rank the projects into three priority categories and identify potential funding sources.

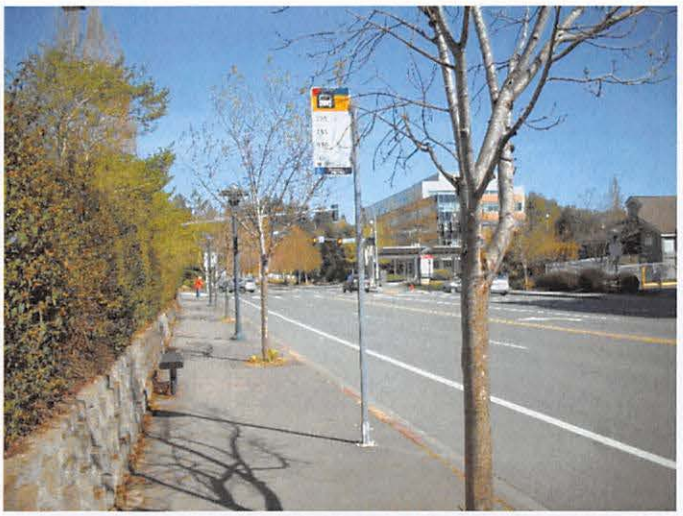
NE 128 Street, looking east at Totem Lake Boulevard

Existing Conditions

This section describes the existing transportation conditions along the primary and secondary study corridors for pedestrian, bicycle, transit, and vehicle facilities.

Pedestrian Facilities

Each of the primary and secondary study corridors include sidewalks on both sides of the street. Along the NE 128th Street primary study corridor, the sidewalks were constructed adjacent to the roadway and the sidewalk area includes trees, light poles, and signs. The newer developments along the south side of NE 128th Street between Totem Lake Boulevard and 120th Avenue NE have widened the sidewalk area with a planter strip buffer and areas for street furniture, plantings, and lighting.



NE 128 Street, looking east towards 120th Avenue NE

The secondary study corridors, with the exception of 120th Avenue NE, typically have 5'-wide sidewalks with a landscaped buffer between the sidewalk and the street. On 120th Avenue NE, the 5' sidewalks are typically placed along the curb, adjacent to the street.

The majority of the marked crosswalks are located at signalized intersections. There are three marked crosswalks that are enhanced with pedestrian-activated flashing beacons, including the crosswalk on 116th Avenue NE at the Kingsgate Park & Ride that has in-pavement flashing beacons.

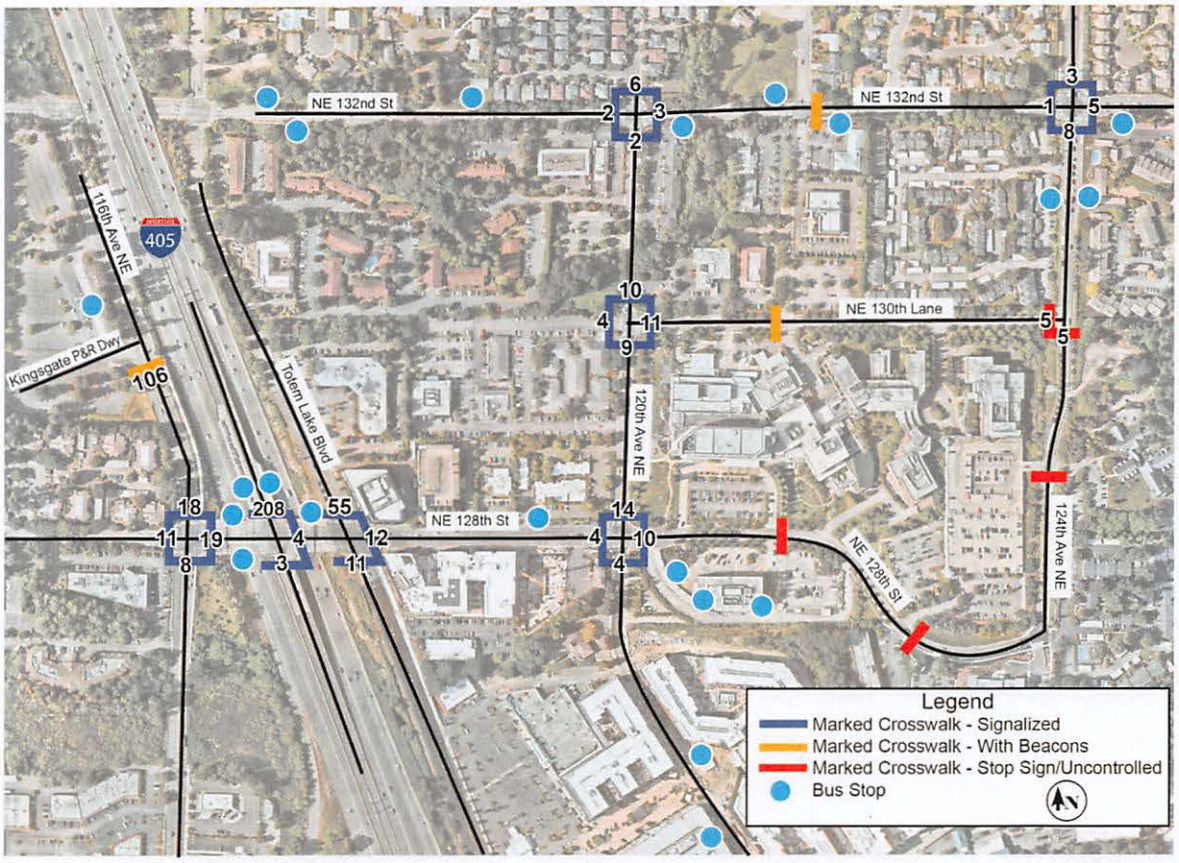
Pedestrian Volumes

Pedestrian crossing volumes were assembled from counts collected in August 2019 and October 2019. The highest pedestrian crossing volume occurs at the north leg of the NE 128th Street/I-405 ramps intersection, with 208 people crossing per hour at this location during the afternoon. This location has high pedestrian activity because it provides access to the I-405 flyer bus stops.

Primary connections and destinations for people walking in the area include the Kingsgate Park & Ride, I-405 flyer bus stops, Totem Lake Transit Center, EvergreenHealth Medical Center, and The Village at Totem Lake located south of NE 128th Street.

Figure 2 shows the pedestrian crossing volumes at each study intersection leg during the afternoon peak hour.

Figure 2. Existing Pedestrian Crossing Volumes (Afternoon Peak Hour)



Bicycle Facilities

The primary study corridor has 5' wide on-street bike lanes in both directions. The secondary study corridors do not include formal bicycle facilities.

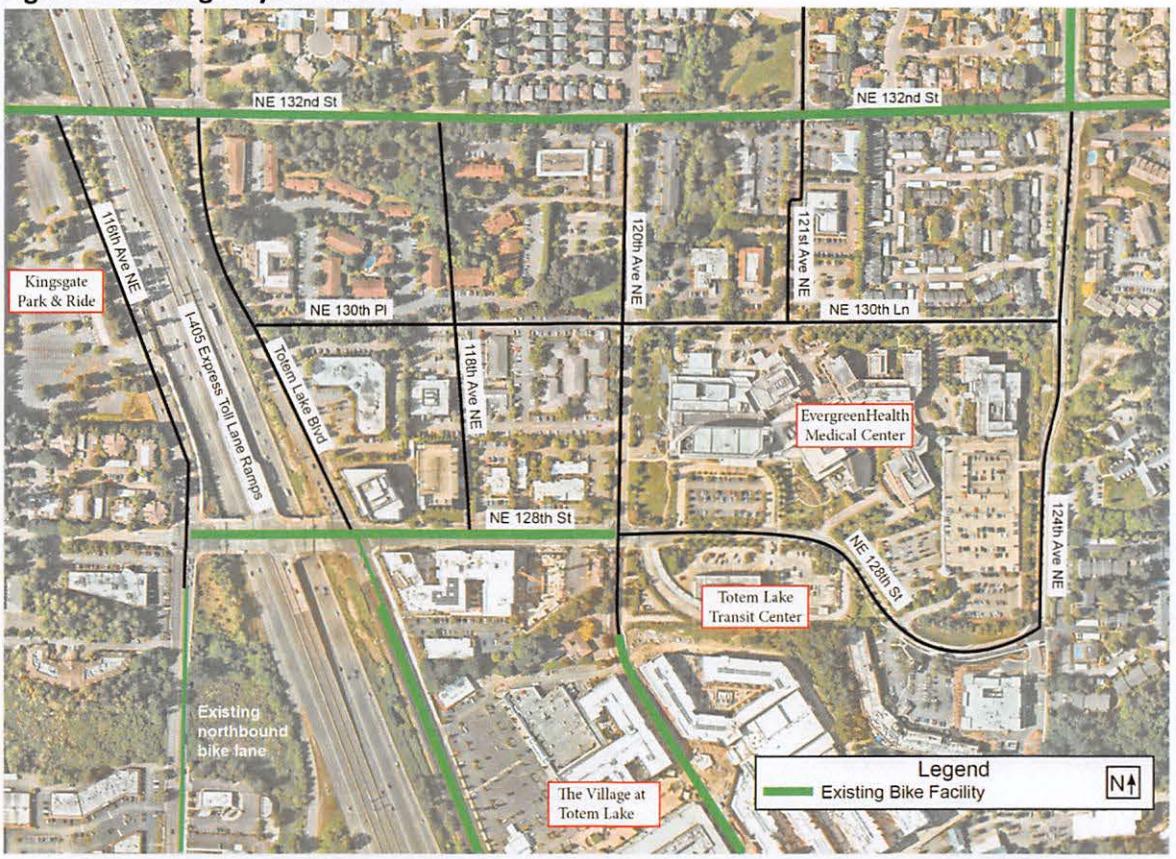
At the north end of the study area, NE 132nd Street and the segment of 124th Avenue NE, north of NE 132nd Street have bike lanes in both directions.

Through The Village at Totem Lake, 120th Avenue NE includes raised off-street bike lanes in both directions. These lanes are not clearly delineated and can function as part of the sidewalk area. South of NE 128th Street, Totem Lake Boulevard includes a 10'-wide, shared-use path along the east side of the street.

There are no north-south bicycle facilities to connect the bike lanes on NE 132nd Street and bike lanes on NE 128th Street. South of NE 128th Street, there are short missing segments for the northbound bike lane on 116th Avenue NE and the southbound bike lane on Totem Lake Boulevard. Transportation counts indicate low bicycle ridership along the study corridors due to the limited bike facilities in the area. **Figure 3** shows the existing bike network.

The Totem Lake Enhancement and Multimodal Transportation Network Plan developed a bicycle network vision consisting of existing and future bicycle facilities. The network included bike facilities on all study streets, but did not propose the type of bike facilities on the street.

Figure 3. Existing Bicycle Facilities



Transit Facilities

There are three major transit facilities in the study area.

Kingsgate Park & Ride provides 502 parking spaces and it is located along 116th Avenue NE, a short walk to the Totem Lake Freeway Station.

Totem Lake Freeway Station has northbound and southbound bus stops at the NE 128th Street and I-405 Interchange. The station is located just north of NE 128th Street, along the northbound and southbound interchange ramps that connect directly to the I-405 Express Toll Lanes.

Totem Lake Transit Center provides several bus stops south of NE 128th Street and east of 120th Avenue NE. It is a short walk to the EvergreenHealth Medical Center. Buses exit the Transit Center via the traffic signal at the NE 128th Street/120th Avenue NE intersection.

Transit Routes

In March 2020, King County Metro expanded transit service as part of the Northeast Mobility Project. This included the restructuring or elimination of some routes, but overall provided an increase in transit service in the area. The COVID-19 pandemic has reduced transit ridership in the region and the transit agencies have temporarily reduced the number of bus routes and buses that serve the study area. A summary of the transit service in the study area before the COVID-19 pandemic is described in **Appendix B**.

Currently, Metro bus routes 225, 255, and 930 provide service along the NE 128th Street primary study corridor. Each of these routes has a stop at the Totem Lake Transit Center.

Street Network

This section describes the streets that make up the primary study corridor and secondary study corridors. **Figure 4** shows the existing lane channelization and traffic controls at intersections and the speed limits in the study area. Each of the primary and secondary study corridors have a 25 mile per hour speed limit and the majority of the intersections along the corridors are controlled by traffic signals.

Primary Study Corridor

NE 128th Street between 116th Avenue NE and 120th Street NE is a minor arterial with 2 through lanes in each direction. The segment between 116th Avenue NE and Totem Lake Boulevard provides access to the I-405 express toll lane ramps, has three closely spaced traffic signals, additional turn lanes, and is controlled by the Washington State Department of Transportation (WSDOT).

NE 128 Street, looking west towards I-405 ramps

The segment of NE 128th Street between Totem Lake Boulevard and 120th Avenue NE provides access to medical office buildings on the north side of the street and new retail/multifamily development along the south side of the street. The segment west of 120th Avenue NE does not include a center left turn lane and vehicles must turn left from the through lanes. At the NE 128th Street/Totem Lake Boulevard intersection, the westbound and eastbound left turn movements are restricted to improve traffic operations in the interchange area.

Secondary Study Areas

NE 128th Street between 120th Avenue NE and 124th Avenue NE is a collector arterial with one through lane in each direction. On the north side of the street is the EvergreenHealth Medical Center and along the south side are the EvergreenHealth DeYoung Pavilion, Totem Lake Transit

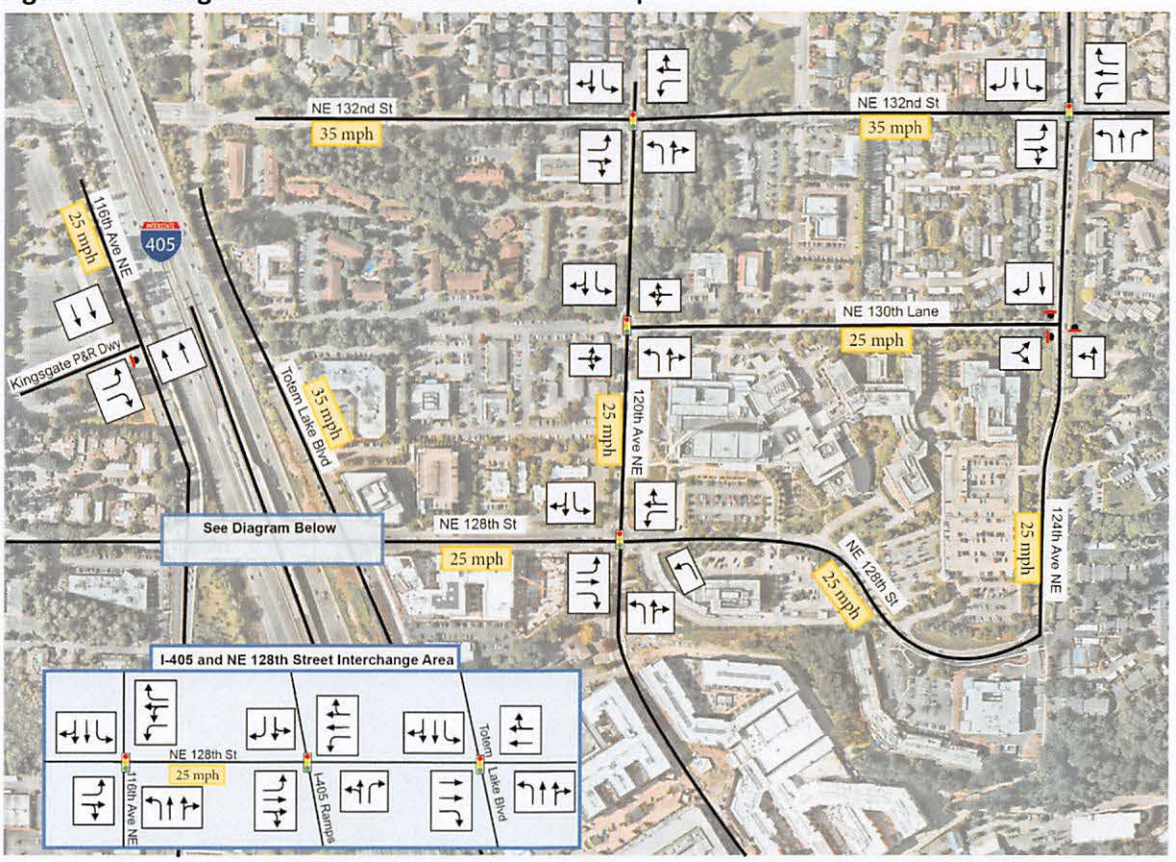
Center, and senior housing facilities. Approaching 124th Avenue NE, there is a steep uphill grade in the eastbound direction.

NE 130th Lane between 120th Avenue NE and 124th Avenue NE is a collector arterial with one through lane in each direction and it includes on-street parking along the majority of the street. The emergency entrance to EvergreenHealth Medical Center is located along the south side of the street. The north side of the street has medical office buildings and the Evergreen Heights apartment complex.

120th Avenue NE between NE 132nd Street and NE 128th Street is a collector arterial with one through lane in each direction and a center left turn lane. The corridor serves the EvergreenHealth Medical Center and several commercial buildings.

124th Avenue NE between NE 132nd Street and NE 128th Street is a local access street with one through travel lane in each direction. North of NE 130th Lane, there are multifamily developments along both sides of the street. South of NE 130th Lane, there are apartments and a hospice facility on the east side of the street and the parking garage for the EvergreenHealth Medical Center is located along the west side of the street.

Figure 4. Existing Intersection Channelization and Speed Limits

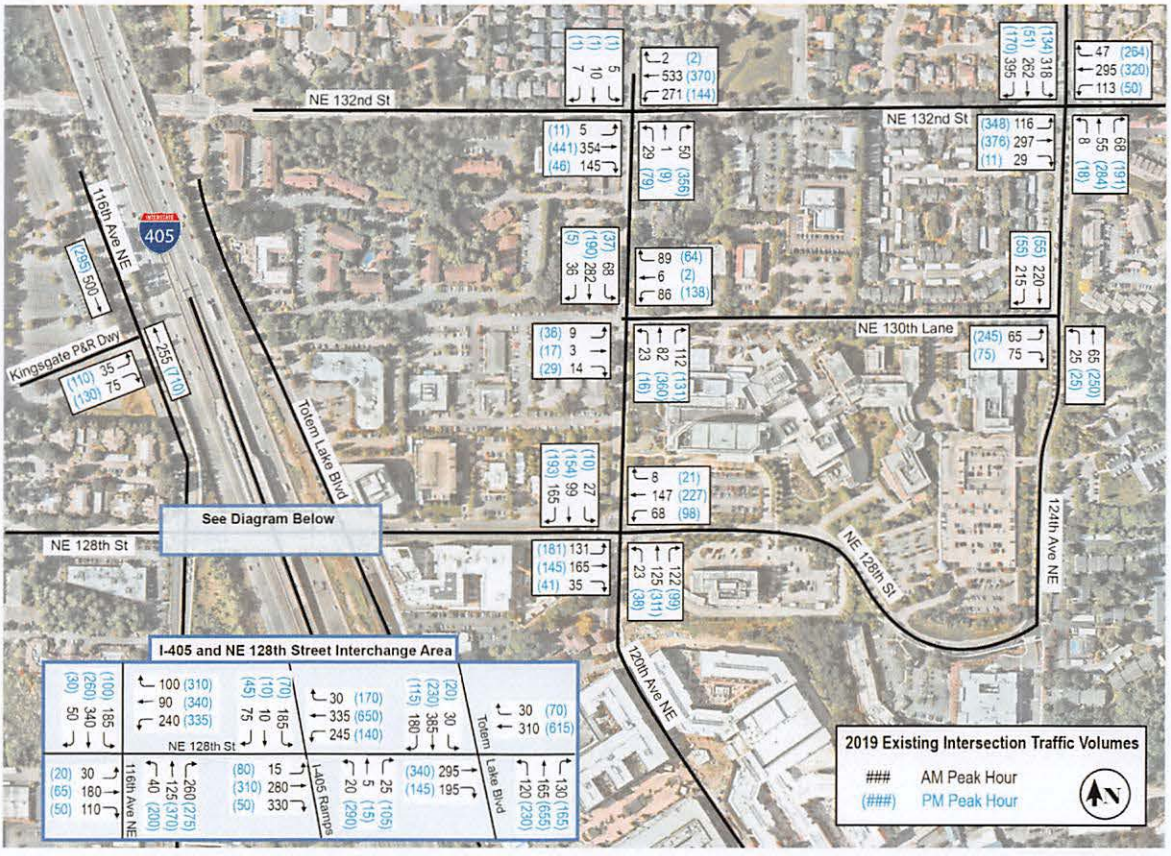


Vehicle Volumes

Intersection counts were collected in October 2019 prior to the COVID-19 pandemic. **Figure 5** shows the morning (AM) and afternoon (PM) hour vehicle volumes at the study intersections. In the study area, the AM peak hour occurs approximately between 7:30 AM and 8:30 AM and the PM peak hour occurs approximately between 4:15 PM and 5:15 PM.

The NE 128th Street primary study corridor has approximately 17,000 vehicles per weekday on the I-405 overpass bridge and approximately 11,000 vehicles per weekday between Totem Lake Boulevard and 120th Avenue NE.

Figure 5. Existing AM and PM Peak Hour Intersection Vehicle Volumes



Intersection Operations

Intersection level of service (LOS) is a measurement of the traffic flow or traffic congestion at an intersection. Intersection LOS is defined by the average seconds of delay experienced by vehicles traveling through the intersection. The intersection LOS ranges from A to F, with LOS A assigned when minimal delays are present and LOS F when lengthy delays occur. **Appendix C** shows the LOS criteria for signalized and unsignalized intersections.

Table 1 shows the existing AM and PM peak hour intersection LOS and delay at the study intersections. The PM peak hour typically carries the highest vehicle volumes and experiences the longer delays. All study intersections operate at LOS D or better during both the AM and PM peak hours. The NE 128th Street/120th Avenue NE intersection has a separate signal phase for the Totem Lake Transit Center that adds approximately 20 seconds of delay to the intersection each time a bus exits the Transit Center.

The City of Kirkland has adopted a LOS standard based on the "level of completion" of its 20-year transportation network as identified in the Comprehensive Plan. This performance metric aims to balance the City's multimodal transportation network with land use development activity, without prioritizing one mode over others. The City has met its "level of completion" standard for the study area.

Table 1. Existing AM and PM Peak Hour Intersection LOS and Delay (Seconds)

Intersection	Traffic Control	AM Peak Hour	PM Peak Hour
		LOS (Delay)	LOS (Delay)
Kingsgate Park & Ride/116th Ave NE[1]	Side Street Stop Control	B (12)	B (11)
NE 128th St/116th Ave NE	Signal	D (39)	D (53)
NE 128th St/I-405 Ramps	Signal	B (19)	C (21)
NE 128th St/Totem Lake Blvd	Signal	B (13)	D (41)
NE 128th St/120th Ave NE[2]	Signal	C (33)	D (37)
NE 130th Ln/120th Ave NE	Signal	A (7)	A (8)
NE 132nd St/120th Ave NE	Signal	A (4)	C (20)
NE 130th Ln/124th Ave NE	All-Way Stop	A (9)	B (12)
NE 132nd St/124th Ave NE	Signal	C (35)	D (42)

Note: LOS calculated using HCM 6th Edition methodology.

[1] Side street stop delay is calculated for the worst stop-controlled approach.

[2] Intersection has non-NEMA signal phasing and LOS is reported using Synchro 11 methodology.

Crash Data Analysis

The study evaluated crash data during the five-year period from 9/1/2015 to 8/31/2020 for the study corridors and intersections. During this time, there were a total of 154 reported crashes with 127 crashes occurring at intersections and 27 crashes occurring at mid-block locations. The NE 128th Street/Totem Lake Boulevard intersection experienced the most crashes with 46 during the five-year period. **Appendix D** describes the five-year crash data for the study intersections and corridors.

2035 Baseline Conditions

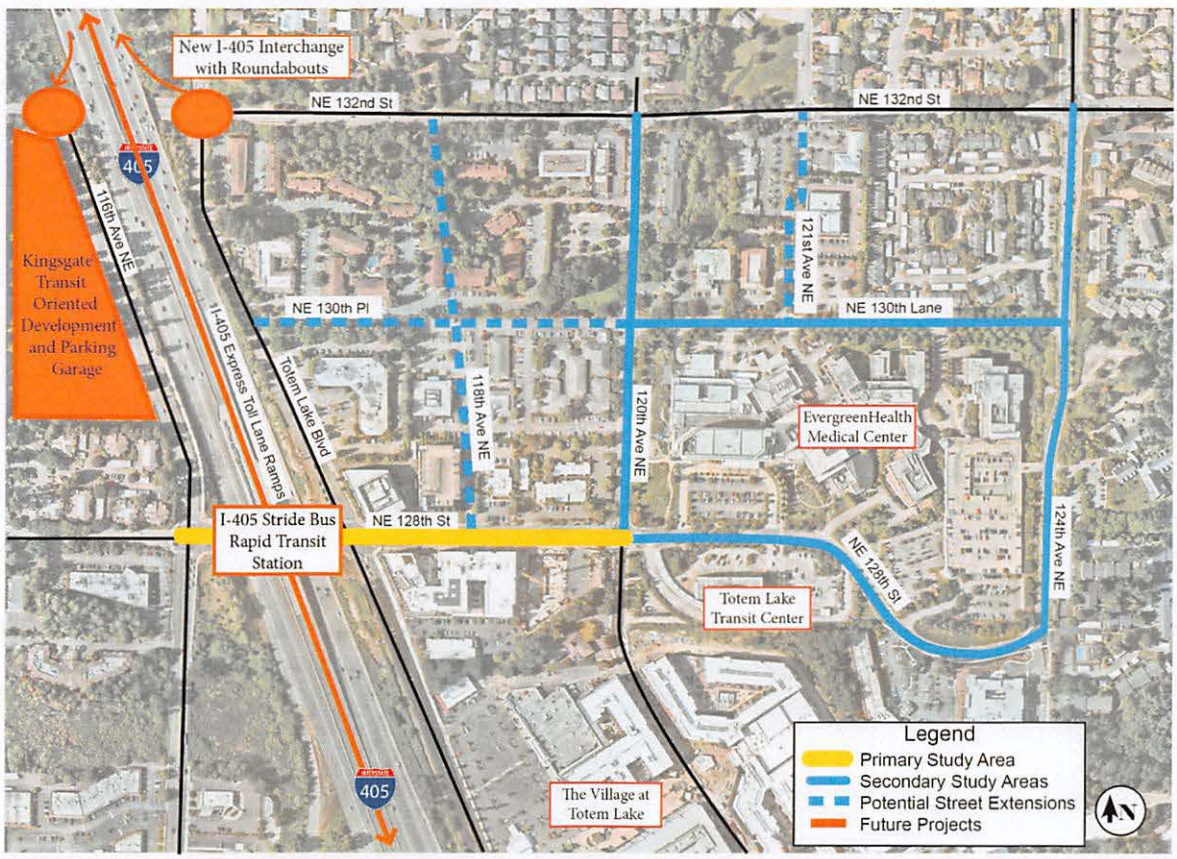
The study area is expected to continue to experience growth with new businesses and residents moving into the area. This study defines 2035 Baseline Conditions as the 2035 forecasted traffic volumes and the existing street network plus transportation projects that are planned to be completed by other agencies. Baseline Conditions does not include the three potential street extensions.

WSDOT, Sound Transit, and King County Metro are responding to the expected growth and have identified four transportation improvements that will be implemented over the next 13 years. This section describes the transportation projects that will be implemented by other agencies and the 2035 baseline traffic volumes and intersection operations.

Planned Transportation Projects by Other Agencies

Figure 6 shows the planned transportation projects that will be constructed by other agencies in the study area.

Figure 6. Planned Projects by Other Agencies



I-405 / NE 132nd Street Interchange Project - WSDOT will construct a new half interchange at NE 132nd Street scheduled to be complete in 2024. The project will add a new southbound off-ramp at the north leg of the NE 132nd Avenue/116th Avenue NE intersection and a new northbound on-ramp at the north leg of the NE 132nd Avenue/Totem Lake Boulevard intersection. Both of these intersections will be reconstructed as multi-lane roundabouts with a non-motorized path through the roundabouts. This half interchange will improve the study area's access to I-405 for trips to and from the north. The project will divert traffic volumes from the I-405 interchanges at both NE 128th Street and NE 124th Street.

Source: WSDOT

Kingsgate Transit Oriented Development (TOD) – WSDOT, King County and Sound Transit plan to reconfigure the Kingsgate Park & Ride to construct a parking garage and mixed-use TOD with residential and commercial land uses. This will increase non-motorized and vehicle volumes at the site.

STRIDE Bus Rapid Transit (BRT) – Sound Transit will add bus rapid transit service along I-405 between Lynnwood and Burien with bus stops located at the Totem Lake Freeway Station at NE 128th Street. Scheduled to open in 2027, this project will provide high-frequency transit, approximately every 8 minutes, throughout the day in both directions. This new bus service will increase pedestrian and bicycle volumes along NE 128th Street.

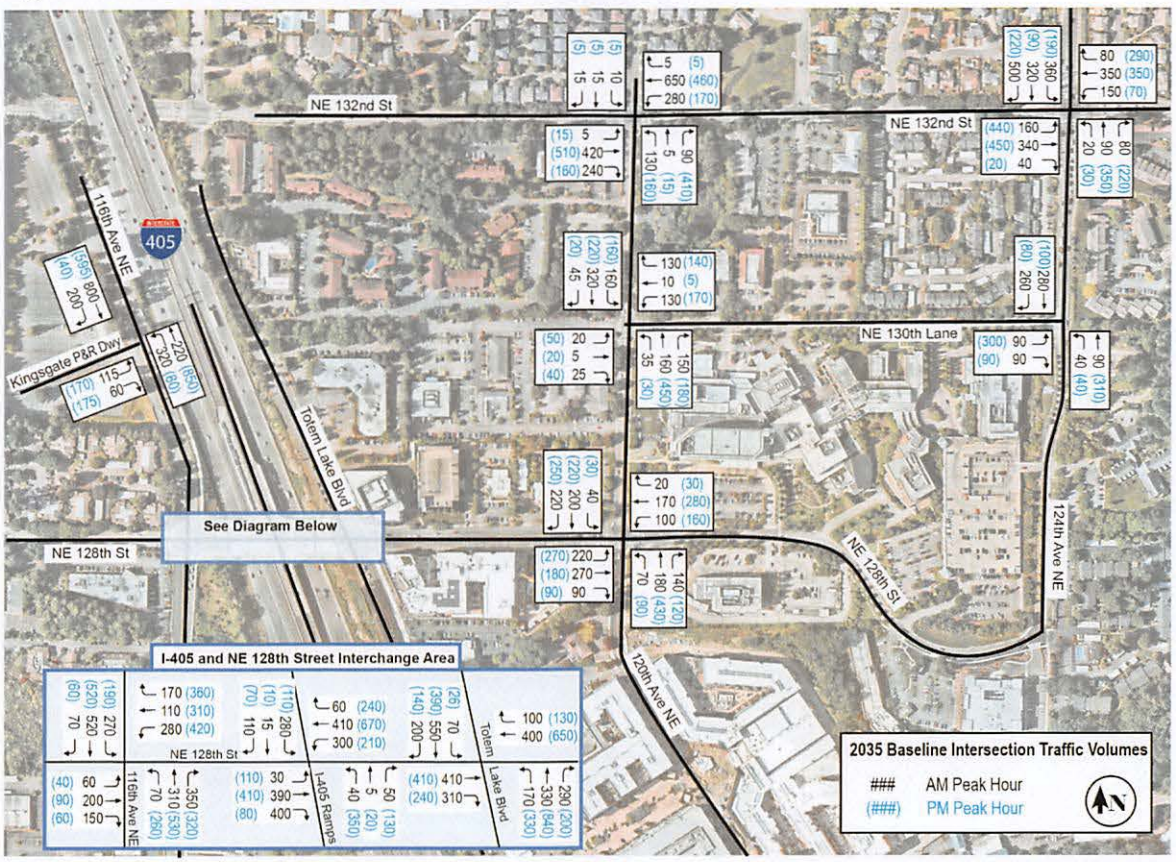
King County Metro RapidRide K Line – Metro plans to initiate RapidRide K Line bus service between the Totem Lake Transit Center and the Eastgate Park & Ride lot in Bellevue. This project is not shown on Figure 6 because the specific route alignment has not been determined.

2035 Baseline Vehicle Volumes

The Bellevue-Kirkland-Redmond (BKR) travel demand model was used to develop 2035 PM peak hour traffic volumes based on future land use projections and planned transportation facilities. The traffic forecasts for the 2035 AM peak hour were based on growth rates identified for the PM peak hour.

Figure 7 shows the 2035 AM and PM peak hour vehicle volumes for Baseline Conditions at the study intersections.

Figure 7. 2035 AM and PM Peak Hour Intersection Volumes



2035 Baseline Intersection Operations

Results of the 2035 Baseline Conditions intersection operations analysis found that the NE 128th Street/116th Avenue NE intersection is forecast to operate at LOS E during the 2035 AM and PM peak hours. The NE 128th Street/120th Ave NE intersection is forecast to operate at LOS E during the 2035 PM peak hour. The remaining study intersections operate at LOS D or better during both the 2035 AM and PM peak hours.

As part of the redevelopment of the Kingsgate Park & Ride, the southern driveway at 116th Avenue NE is expected to be converted to traffic signal by 2035.

Table 2 shows AM and PM peak hour intersection LOS and seconds of delay for existing and 2035 baseline conditions.

Table 2. Existing and 2035 Baseline Intersection LOS and Delay (Seconds)

Intersection	Traffic Control	Existing		2035 Baseline	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Kingsgate Park and Ride/116th Ave NE[2]	Stop Sign / Signal (2035)	B (12)	B (11)	C (22)	B (15)
NE 128th St/116th Ave NE	Signal	D (39)	D (53)	E (60)	E (70)
NE 128th St/I-405 Ramps	Signal	B (19)	C (21)	C (30)	C (28)
NE 128th St/Totem Lake Blvd	Signal	B (13)	D (41)	B (16)	D (41)
NE 128th St/120th Ave NE[1]	Signal	C (33)	D (37)	D (46)	E (63)
NE 130th Ln/120th Ave NE	Signal	A (7)	A (8)	A (9)	B (15)
NE 132nd St/120th Ave NE	Signal	A (4)	C (20)	B (11)	C (20)
NE 130th Ln/124th Ave NE	All-Way Stop	A (9)	B (12)	B (11)	C (19)
NE 132nd St/124th Ave NE	Signal	C (35)	D (42)	D (43)	D (48)

Note: LOS calculated using HCM 6th Edition methodology.

[1] Intersection has non-NEMA signal phasing and LOS is reported using Synchro 11 methodology.

[2] Side street stop delay is calculated for the worst stop-controlled approach.

Stakeholder and Public Input

The project included a detailed public and stakeholder involvement process. Due to the COVID-19 pandemic all the meetings were virtual.

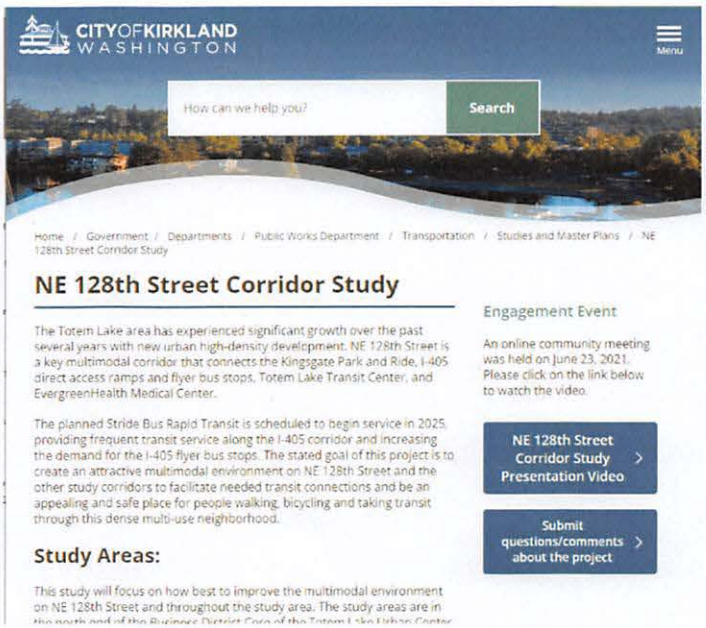
The Project Team used a two-meeting approach for involvement with the public, City of Kirkland Transportation Commission, King County Metro, Sound Transit, and EvergreenHealth Medical Center. At the first meeting, the Project Team shared the project background, goals, and initial findings, and gathered input from the public and stakeholders regarding their transportation-related needs, issues, and ideas for the study area. At the second meeting, the Project Team shared the results of the transportation analysis and the draft recommended improvements and received feedback on the recommended improvements.

This section describes the project webpage, stakeholder meetings, public open houses, and other public meetings related to the project, as well as summarizes the feedback gathered during this outreach process.

Project Webpage

A project website was developed that provided a project overview, description of the study corridors, project schedule, notification of upcoming events, and links to presentations and videos of the two community meetings.

Additionally, there was a form to allow site visitors to submit comments and questions about the project. Information on the website was available for translation into seven additional languages.



Stakeholder Meetings

The project worked with key stakeholders throughout the project. This included meetings with neighborhood associations, businesses, and relevant government agencies.

Neighborhood Associations

The Project Team met online with the Evergreen Hill Neighborhood Association (4/21/2021) and Juanita Neighborhood Association (4/26/2021). These meetings included a presentation of the project and initial concepts as well as an opportunity for discussion and feedback.

EvergreenHealth Medical Center

EvergreenHealth Medical Center is the largest employer in the vicinity of the study area. The Project Team met with EvergreenHealth on two occasions (5/5/2021 and 10/26/2021) to understand their needs and future plans for expansion of the medical center campus and receive feedback on the draft recommended improvements.

WSDOT

WSDOT participated in bi-weekly meetings with the Project Team to discuss issues and develop multimodal improvements for the NE 128th Street and I-405 interchange (between 116th Avenue NE and Totem Lake Boulevard). Improvements to this segment of NE 128th Street require WSDOT approval.

King County Metro and Sound Transit

The Project Team met with representatives King County Metro and Sound Transit on two occasions (6/8/2021 and 11/23/2021) to discuss existing operations and system development plans. Future transit service in the study area includes Sound Transit's Stride Bus Rapid Transit (BRT) and King County Metro's RapidRide K Line. The Project Team shared the idea of providing enhanced bus stops on NE 128th Street, west of 120th Avenue NE as an alternative to buses stopping at the Totem Lake Transit Center, which would reduce travel times for select routes. Metro and Sound Transit were potentially open to this idea, but this change would be part of a future bus network redesign.

Public Open Houses

The project held two online community meetings on 6/23/2021 and 11/9/2021. These meetings were advertised via the project website, email invitations, social media, and flyers posted throughout the study area. Video recordings of the two meetings were posted on the website for public review and comment.

The first meeting presented an overview of the project and its goals and provided the public an opportunity to submit feedback on transportation issues, needs, and ideas via an online survey.

During the second meeting, the Project Team presented the draft recommended improvements and gathered feedback and comments. The meeting included an online discussion, questions and answers session, and an online comment form.

Other Public Events

The City of Kirkland's Transportation Commission is comprised of 8 volunteers appointed by the City Council who meet regularly and advise the Council regarding transportation topics. The Project Team met twice with the Kirkland Transportation Commission on April 28, 2021 and

October 27, 2021. Both meetings included opportunities for discussion and feedback from the commissioners regarding the initial project findings and the draft recommended improvements.

The Project Team met with the City Council on February 1, 2022 to share project findings and draft recommended improvements, and receive input from Council members.

Community Input and Feedback

The webpage, presentations, and meetings listed above provided opportunity for comment and feedback at various stages of the project development. Below is a summary of the comments gathered from the community during this process.

- At the three NE 128th Street intersections with 116th Avenue NE, I-405 ramps, and Totem Lake Boulevard, there were pedestrian safety concerns related to the long crosswalk distances and the high number of turning vehicles.
- Comments requested the build out of the bicycle network in the study area, including adding north-south connections between the existing bicycle facilities on NE 132nd Street and NE 128th Street.
- Comments recommended no longer having on-street bike lanes and instead designing bike facilities that can be used by people of all ages and abilities, including bike facilities that are separated from vehicle traffic.
- For the new bike lanes on 120th Avenue NE adjacent to The Village at Totem Lake, comments indicated that the bike lanes were not properly delineated from the adjacent sidewalk and were regularly being used by pedestrians. The comments recommended improving the delineation between the bike lanes and sidewalks.
- For the segment of NE 128th Street between Totem Lake Boulevard and 120th Avenue NE, comments expressed concern that vehicles turning left from NE 128th Street to driveways do not have a center left turn lane.
- The EvergreenHealth Medical Center expressed the desire to add a westbound left turn phase at the NE 128th Street/Totem Lake Boulevard intersection to improve access and circulation. The Project Team worked with WSDOT to evaluate this request and it was not recommended due to property impacts at the northeast corner of this intersection and negative traffic operations impacts to the NE 128th Street and I-405 interchange area.

Northeast corner of the NE 128th Street/ Totem Lake Boulevard intersection

Multimodal Improvements

This section describes the criteria used to develop and rank improvement projects, resulting recommended multimodal projects for the primary and secondary study corridors. To guide implementation, the multimodal improvements are divided into three priority groups.

Criteria to Develop and Rank Projects

The following criteria were used to develop recommended improvement projects and rank the projects into three priority categories.

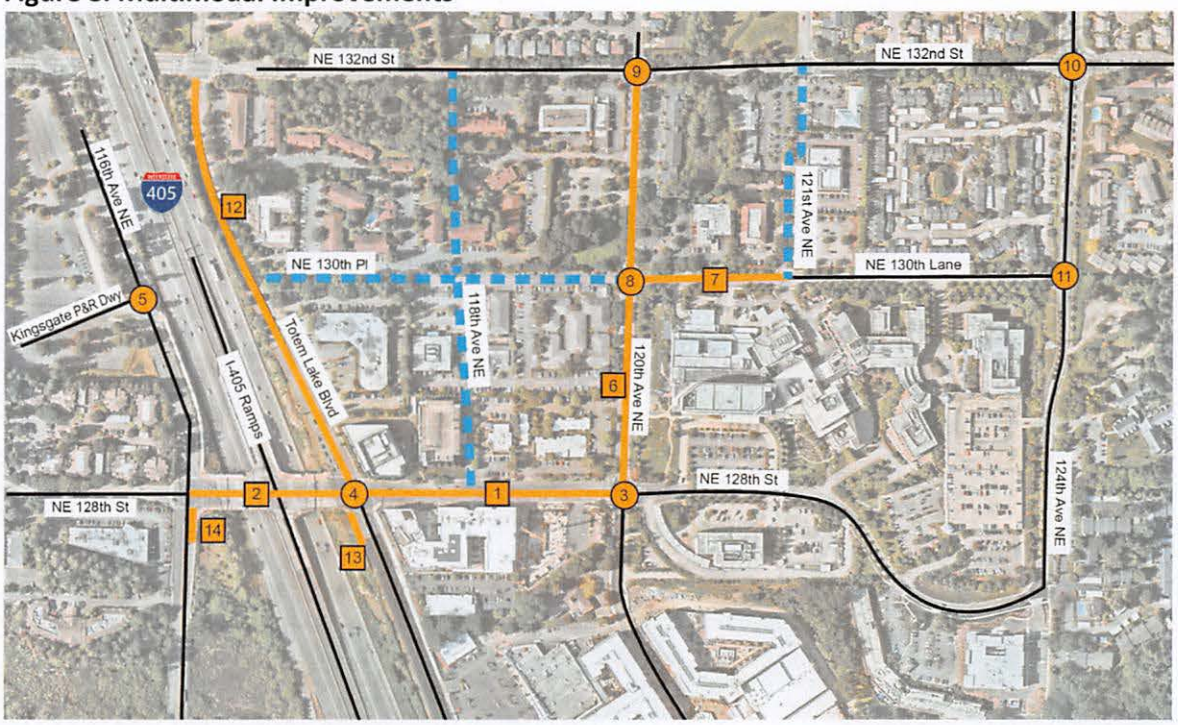
- Safety – potential to reduce crashes and improve multimodal safety.
- Pedestrian and Bicycle Mobility – connectivity, comfort, and user experience of facilities and crossing treatments.
- Transit Access – non-motorized connections to transit facilities and bus stops.
- Traffic Operations – vehicle access and circulation and ability to accommodate 2035 volumes.
- Public and Stakeholder Input – address comments from the outreach process.
- Vision – consistent with previous plans and studies for the Totem Lake area.
- Property Impacts – how widening for improvements impacts properties and buildings.
- Cost – related to construction, purchase of right of way, and property and environmental restoration.

The Project Team evaluated a wide range of improvements and identified multimodal improvements that best addressed these criteria. For example, roundabouts were evaluated at several intersections, but were not selected due to greater properties and right of way impacts and the higher cost of implementation.

Recommended Multimodal Improvements

Based on the criteria described above, the Project Team developed a set of 14 improvement projects and placed these projects into three priority groups to guide implementation. **Figure 8** shows the locations of projects. The numbers in squares represent improvements to a corridor segment and the numbers in circles represent intersection improvement projects.

Figure 8. Multimodal Improvements



Priority 1 Projects

1 **NE 128th Street between Totem Lake Boulevard and 120th Avenue NE**: Maintain the same number of vehicle lanes. Along north side of the street, add a planter strip buffer, raised bike lane, amenity zone, and wider sidewalk. Along south side of the street, add a 2' buffer with pylons to the existing bike lane. The following section includes a more detailed description of the project, including a cross section, preliminary design, and cost estimate.

2 **NE 128th Street between 116th Avenue NE and Totem Lake Boulevard**: Coordinate with WSDOT to add 2' buffers to existing bike lanes and marked crossings for bikes (crossbikes) with green paint to increase bike lane visibility. From the I-405 ramps to Totem Lake Boulevard, relocate eastbound bike lane to be adjacent to the curb to improve bicycle safety. At the south leg crosswalk of the Totem Lake Boulevard intersection, add a bike signal with a corresponding eastbound right turn restriction. A more detailed description of this project including a preliminary design and cost estimate are included in the next section.

3 **NE 128th Street/120th Avenue NE Intersection**: For the eastbound left turn, change signal phasing from permissive to protected-permissive with flashing yellow arrow.

4 **Totem Lake Boulevard/NE 128th Street Intersection**: Implement flashing yellow arrow for northbound left turns to improve safety; monitor traffic operations and collisions, and potentially convert to protected-only left turn phasing.

5 **Crosswalk at Kingsgate Park & Ride Driveway/116th Avenue NE Intersection**: Convert in-pavement flashers to a rectangular rapid flashing beacon (RRFB) system. With redevelopment of the Kingsgate Park & Ride to transit-oriented development, this intersection may change to a traffic signal.

Priority 2 Projects

6 **120th Avenue NE between NE 132nd Street and NE 128th Street**: Add raised bike lanes, planter strip buffer, and wider sidewalks.

7 **NE 130th Place between 120th Avenue NE and 121st Avenue NE**: Install bike facilities on both sides of the street. Requires removal of four on-street parking spaces.

8 **NE 130th Lane/120th Avenue NE Intersection**: Add crosswalk at west leg and lead pedestrian interval phasing to enhance pedestrian safety and mobility.

9 **NE 132nd Street/120th Avenue NE Intersection**: Install flashing yellow arrow for left turn signal phases and add lead pedestrian interval phasing.

10 **NE 132nd Street/124th Avenue NE Intersection**: The City's Capital Improvement Program includes Project STC 07900 (NE 132nd Street Roadway Improvement Phase III) that would widen NE 132nd Street to add a second eastbound left turn lane. An alternative project would remove the exclusive northbound right turn lane and add bike lanes south of NE 132nd Street. The study recommends monitoring traffic volumes and operations at the intersection and selecting the appropriate alternative. Install leading pedestrian intervals for all crosswalks.

11 **NE 130th Lane/124th Avenue NE Intersection**: Install crosswalk at the north leg. Remove southbound right turn lane and replace with either curb bulb and on-street parking or bike lanes if constructed with Project 10.

12 **Totem Lake Boulevard between NE 132nd Street and NE 128th Street**: Add shared-use path along east side of the street. Re-channelize the street with one southbound lane, a center two-way left turn lane, and two northbound lanes to improve vehicle safety and access to properties. At NE 130th Place intersection, provide a southbound left turn lane and a refuge lane for westbound left turns (Flying-T intersection treatment). This project could be implemented with the I-405 / NE 132nd Street Interchange Project.

Priority 3 Projects

These projects will add missing segments of bike lanes, but will have significant cost to widen the roadway, which will likely require reconstructing or adding a retaining wall.

13 **Southbound Bike Lane on Totem Lake Boulevard south of NE 128th Street**: Complete missing segment of southbound bike lane just south of the intersection.

14 **Northbound Bike Lane on 116th Avenue NE south of NE 128th Street**: Complete missing segment of northbound bike lane just south of the intersection.

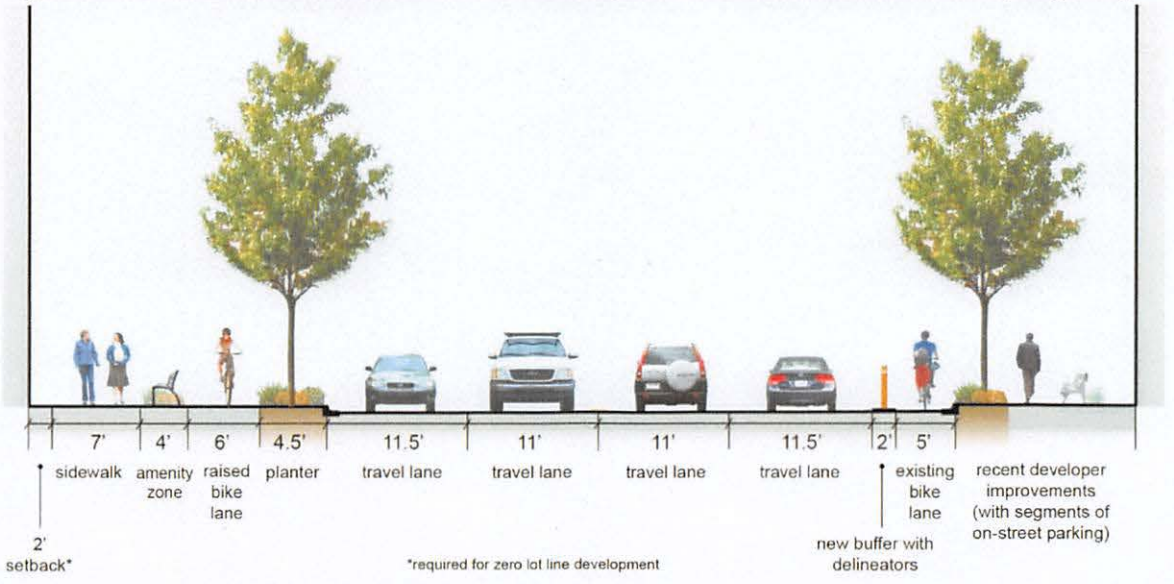
Primary Study Corridor

This section describes the primary study corridor Projects 1 and 2 in more detail, including providing preliminary designs and cost estimates.

NE 128th Street between Totem Lake Boulevard and 120th Avenue NE (Project 1)

The north side of this segment of NE 128th Street will be reconstructed to add a 4.5' planter strip buffer, 6' raised bike lane, 4' amenity zone, 7' sidewalk, and an enhanced bus stop. The amenity zone will provide space for benches, bike parking, trash receptacles, secondary landscaping, and separation between the bike lane and sidewalk. **Figure 9** shows the cross section for Project 1.

Figure 9. NE 128th Street Between Totem Lake Boulevard and 120th Avenue NE (Project 1)



On the south side of NE 128th Street, recent development frontage improvements maintained the existing on-street bike lanes and constructed planter strip buffers, wider sidewalks, amenity zones, and select locations with on-street parking. This project will add a 2' buffer with pylons to the bike lane to increase separation between vehicles and bikes. The project will relocate the eastbound bus stop farther to the east, and in front of the bus stop the bike lane will ramp up to curb height. This will reduce bus/bike conflicts that result from buses pulling into the bike lane to unload/load and will allow buses to stay in their lane.

To reduce impacts to adjacent properties and right of way, the project will maintain the 4-lane section between Totem Lake Boulevard and just west of 120th Avenue NE. Two lanes in each direction are needed to maintain operations at the I-405 interchange and accommodate the high volume of buses that serve the corridor. Not having a center two-way left turn lane will require left turns from NE 128th Street to continue to use the inside through lane. The study recommends monitoring traffic operations along this segment of NE 128th Street and potentially restricting left turn movements at select locations if needed. **Figure 10** shows the preliminary design for Project 1 on page 25. The cost estimate for Project 1 is $6,500,000.

NE 128th Street between 116th Avenue NE and Totem Lake Boulevard (Project 2)

The west segment of the primary study corridor is an overpass of I-405 that includes the I-405 ramps and several bus stops. This project will coordinate with WSDOT to narrow vehicle lanes in order to add 2' buffers with pylons to the existing bike lanes. Improvements include adding crossbikes (green pavement markings) to increase bike lane visibility. From the I-405 ramps to Totem Lake Boulevard, the project will relocate the eastbound bike lane to be adjacent to the curb to avoid bicyclists merging between two lanes of vehicle traffic. At the south leg crosswalk of the NE 128th Street/Totem Lake Boulevard intersection, add a protected bike signal phase with a corresponding eastbound right turn restriction (blank-out sign).

At the NE 128th Street/116th Avenue NE intersection, project will add green bike boxes at the westbound approach in front of the shared through-left turn lane and right turn lane and at the northwest corner of the intersection in front of the crosswalk. This will facilitate the westbound through movement and the westbound to southbound left turn movement. As part of the future design process and coordination with WSDOT, these intersection improvements may include a westbound bike signal and protected bike phase with a corresponding westbound right turn restriction (blank-out sign).

The project includes several signal phasing changes to reduce potential conflicts between vehicles and pedestrians/bicyclists. At the I-405 ramps traffic signal, the project will change the eastbound and westbound left turn protected-permissive phasing to not use the permissive phase when a pedestrian call is detected at the corresponding north leg or south leg crosswalk. As part of this study, WSDOT has already implemented lead pedestrian interval (LPI) phasing at the three NE 128th Street traffic signals at 116th Avenue NE, I-405 ramps, and Totem Lake Boulevard. This gives pedestrians and bicyclists a 3 second head start before the vehicle phase starts to better establish themselves in the crosswalk.

Figure 11 shows the preliminary design for Project 2. The cost estimate for Project 2 is $500,000.

Figure 10. Preliminary Design for NE 128th Street Between Totem Lake Boulevard and 120th Avenue NE (Project 1)

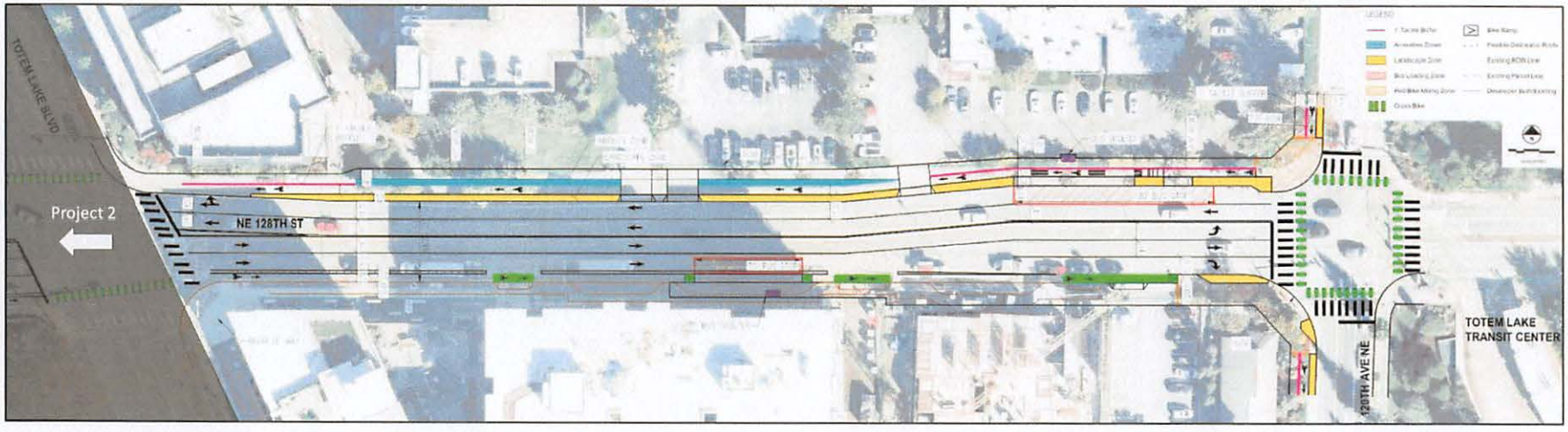
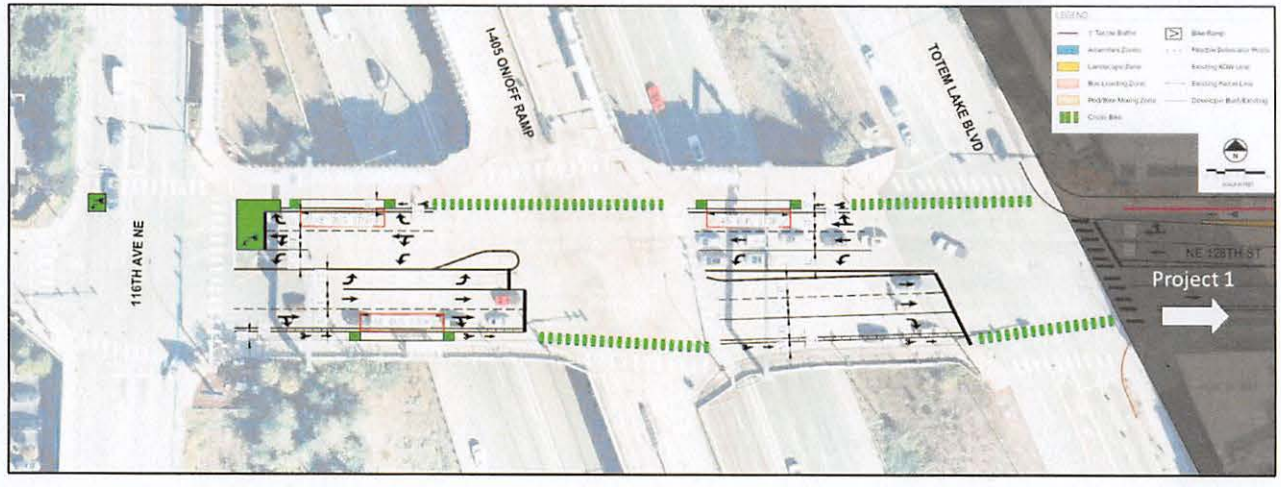


Figure 11. Preliminary Design for NE 128th Street Between 116th Avenue NE and Totem Lake Boulevard (Project 2)



Secondary Study Corridors

This section describes the secondary study corridors and the recommended improvements in more detail.

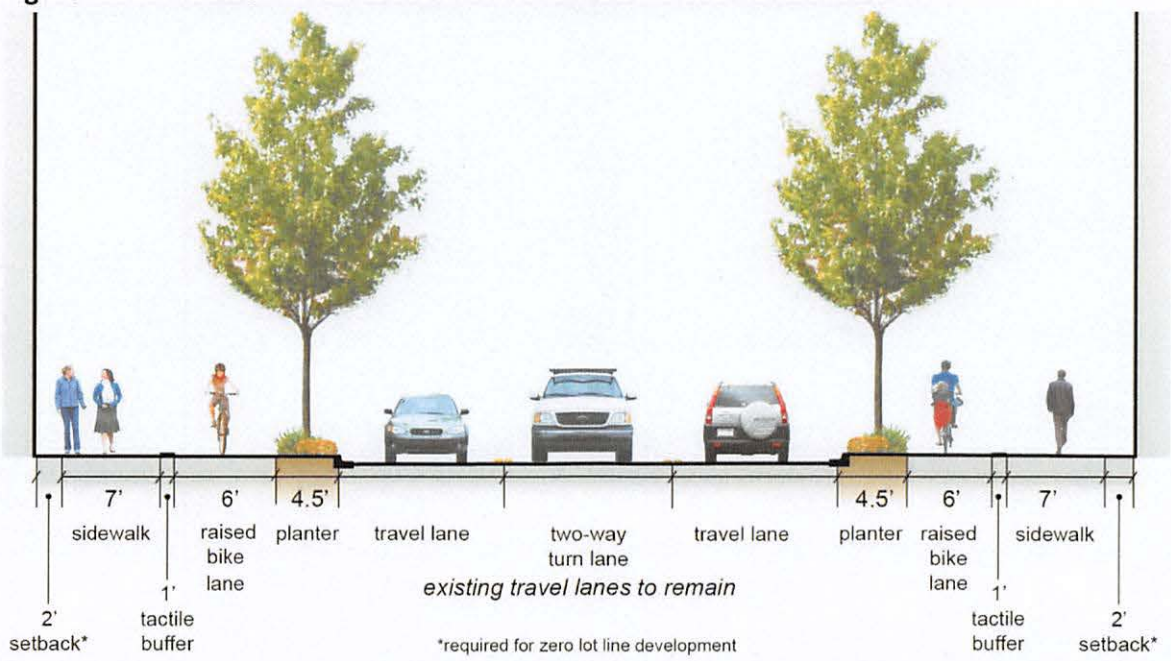
NE 128th Street between 120th Avenue NE and 124th Avenue NE

This segment of NE 128th Street has been improved with sidewalks on both sides of the street that typically include a planter strip with mature street trees that provide a buffer from vehicle traffic. This study does not recommend reconstructing this corridor to provide bicycle facilities, because widening will impact street trees, properties and right of way. There is a significant hill in the eastbound direction and protected bicycle facilities are recommended on other streets and street extensions that will provide flatter and more direct options through the study area.

120th Avenue NE between NE 132nd Street and NE 128th Street

Project 6 will maintain the existing 3-lane street section and reconstruct the NE 120th Street corridor to add 4.5 planter strip buffer, 6' raised bike lanes, 1' buffer, and 7' sidewalk along both sides of the street. The raised bike lanes will extend the existing protected bike lanes south of NE 128th Street, and provide a bicycle connection between the existing facilities on NE 132nd Street and NE 128th Street. **Figure 12** shows the cross section for Project 6. Due to the amount of right of way needed for this project, it will likely be constructed as part of development frontage improvements.

Figure 12. 120th Avenue NE between NE 132nd Street and NE 128th Street



NE 130th Lane between 120th Avenue NE and 124th Avenue NE

NE 130th Lane has sidewalks and planter strips with mature street trees and on-street parking that provides pedestrians a buffer from vehicle traffic. Between 120th Avenue NE and the 121st Avenue NE street extension, Project 7 will install either raised bike lanes or on-street bike lanes with a 2' buffer. The on-street bike lane option would only require the removal of four on-street parking spaces. East of 121st Avenue NE, the study recommends maintaining the existing facilities, including the on-street parking along the EvergreenHealth Medical Center.

NE 130th Lane, looking east towards 124th Avenue NE

124th Avenue NE between NE 132nd Street and NE 128th Street

124th Avenue NE has sidewalks along both sides of the street and typically includes a planter strip buffer with street trees. Projects 10 and 11 are intersection improvements that include an option to add northbound and southbound bike lanes between NE 132nd Street and NE 130th Lane. This would extend the existing bike lanes on 124th Avenue NE to the northeast corner of the Evergreen Health Medical Center.

South of NE 130th Lane, the study does not recommend reconstructing this corridor to provide bicycle facilities, because widening will impact street trees, properties, right of way, and require retaining walls due to the grade changes along this segment. Bicycle facilities are recommended on other streets and street extensions that will provide more direct options through the study area.

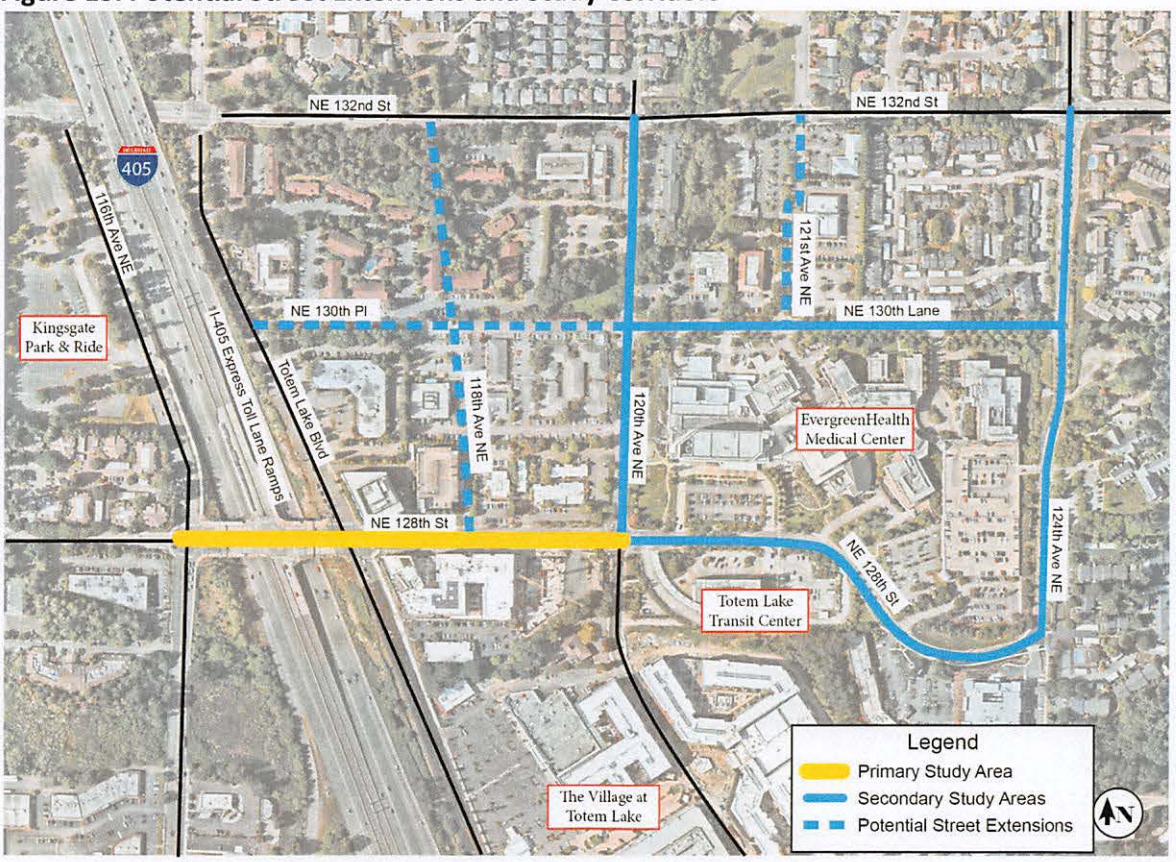
Potential Street Extensions

The study evaluated the three street extensions included in the City's Comprehensive Plan with the goal of improving vehicle and nonmotorized circulation and supporting the redevelopment of properties in the study area. **Figure 13** shows the three potential street extensions.

- NE 130th Place between Totem Lake Boulevard and 120th Avenue NE
- 121st Avenue NE between NE 132nd Street and NE 130th Lane
- 118th Avenue NE between NE 132nd Street and NE 128th Street

The street extensions will be constructed as either part of a City project or as a requirement with redevelopment of properties. The study developed recommended cross sections for the street extensions, including vehicle lanes, planter strip buffers, pedestrian and bicycle facilities, and on-street parking if included. This section also forecasts 2035 traffic volumes and traffic operations for the recommended street extensions.

Figure 13. Potential Street Extensions and Study Corridors



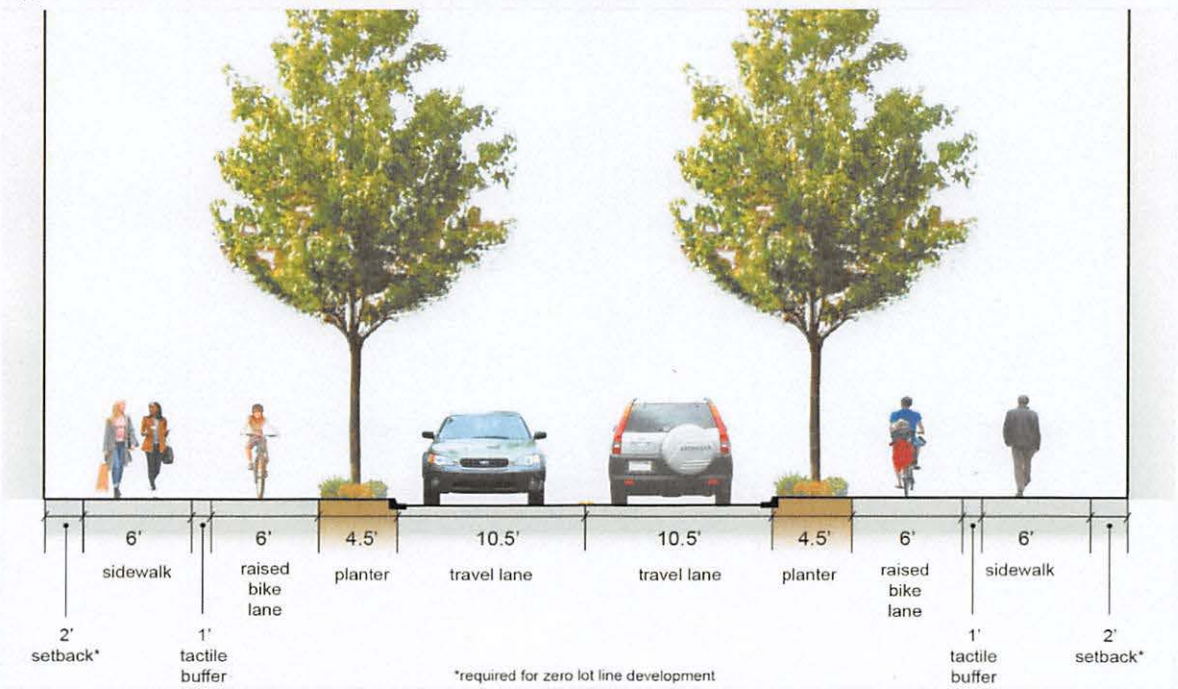
NE 130th Place Extension

This street extension will create a public street between Totem Lake Boulevard and 120th Avenue NE along the NE 130th Place/Lane alignment. The NE 130th Place extension will be designed as a street with low vehicle speeds. **Figure 14** shows the recommended cross section for the NE 130th Place extension, which includes two 10.5' travel lanes, 4.5' planter strip buffers, 6' raised bike lanes, and 6' sidewalks. A 1' tactile buffer will separate the raised bike lanes and sidewalks. This street extension is primarily expected to service office and residential development and does not include on-street parking.

This street extension will provide a parallel alternative route to NE 128th Street, support redevelopment of properties, and improve access to the EvergreenHealth Medical Center. While this study does not recommend adding the westbound left turn movement at the NE 128th Street/Totem Lake Boulevard intersection, this street extension will provide an alternative route for westbound vehicles to turn left from NE 130th Place and travel southbound on Totem Lake Boulevard. The 130th Place NE extension will provide the most benefit to vehicle circulation of the three street extensions in the study area. For example, this street extension will reduce the demand for left turns along NE 128th Street between Totem Lake Boulevard and 120th Avenue NE.

The recommended improvements for the future NE 130th Place/Totem Lake Boulevard intersection include the westbound approach having a stop sign, a left turn lane, and a right turn lane. The NE 130th Lane/120th Avenue NE intersection already has as a traffic signal and this street extension will improve the eastbound intersection approach to have a left turn lane and a shared through-right turn lane.

Figure 14. NE 130th Place Extension between Totem Lake Boulevard and 120th Avenue NE

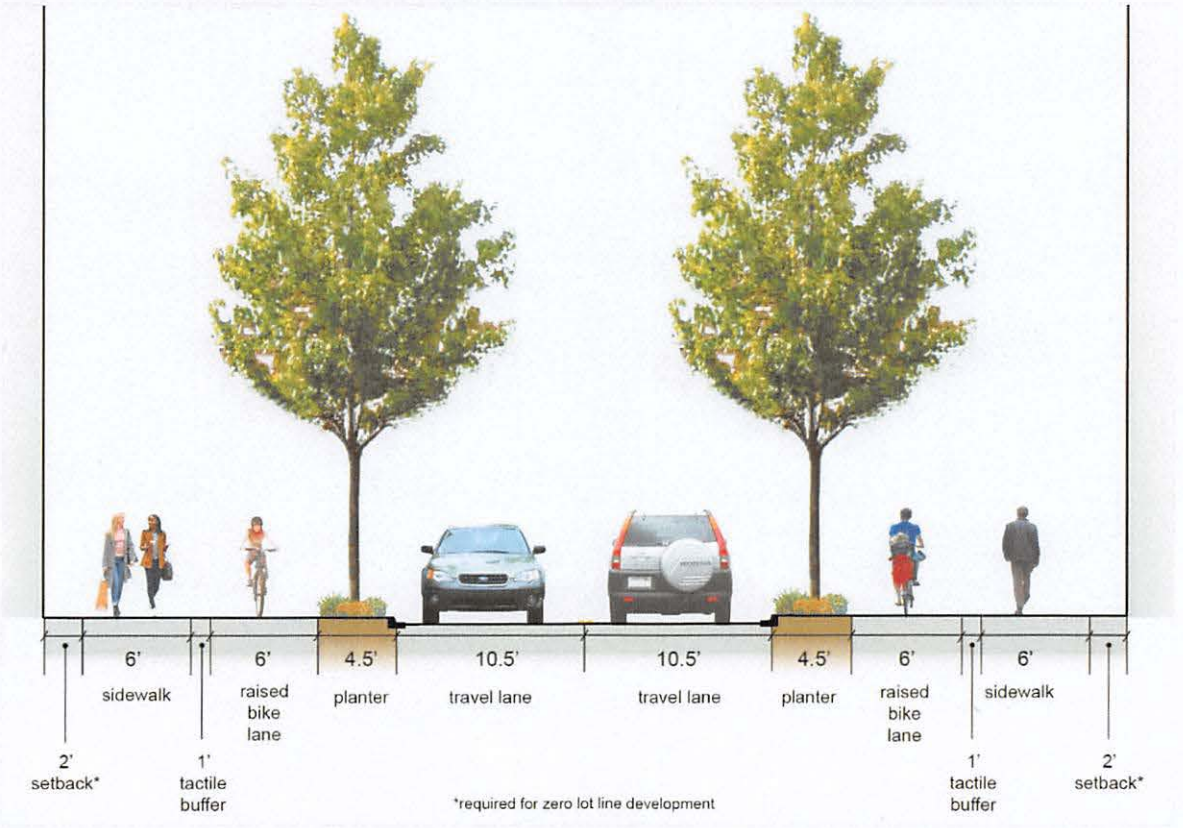


121st Avenue NE Extension

The 121st Avenue NE extension will create a public street between NE 132nd Street and NE 130th Lane. This new street extension will improve north-south multimodal circulation and support the redevelopment of properties. The 121st Avenue NE extension is recommended to have the same cross section as the NE 130th Place extension, with two 10.5' travel lanes, 4.5' planter strip buffers, 6' raised bike lanes, 6' sidewalks, and 1' tactile buffers separating the bike lanes and sidewalks. This street extension is primarily expected to service office and residential development and does not include on-street parking. **Figure 15** shows the cross section for the 121st Avenue NE extension.

At the NE 132nd Street/121st Avenue NE intersection, the south leg of this intersection is currently a driveway with a single lane and stop sign control. The City will construct a new Fire Station (#27) at the southeast corner of the NE 132nd Street/121st Ave NE intersection which is expected to include a new traffic signal at the intersection. The recommended improvements for the NE 130th Lane/121st Avenue NE intersection include the southbound approach having a stop sign, a left turn lane, and a right turn lane.

Figure 15. 121st Avenue NE Extension between NE 132nd Street and NE 130th Lane



118th Avenue NE Extension

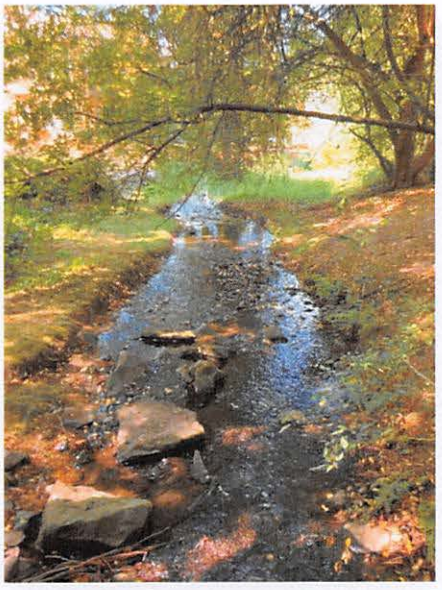
The study evaluated a potential street extension between NE 132nd Street and NE 128th Street, and developed separate cross sections for the segment north of NE 130th Place and the segment south of NE 130th Place.

118th Avenue NE between NE 132nd Street and NE 130th Place

The northern segment of the 118th Avenue NE extension has a steep slope just south of NE 132nd Street, with approximately 50 feet of elevation change over a length of 150 feet resulting in a grade change of approximately 30 percent. Juanita Creek also crosses the 118th Avenue NE alignment at approximately NE 131st Place. The traffic analysis identified limited benefits to the street network for the northern segment of the 118th Avenue NE street extension between NE 132nd Street and NE 130th Place.

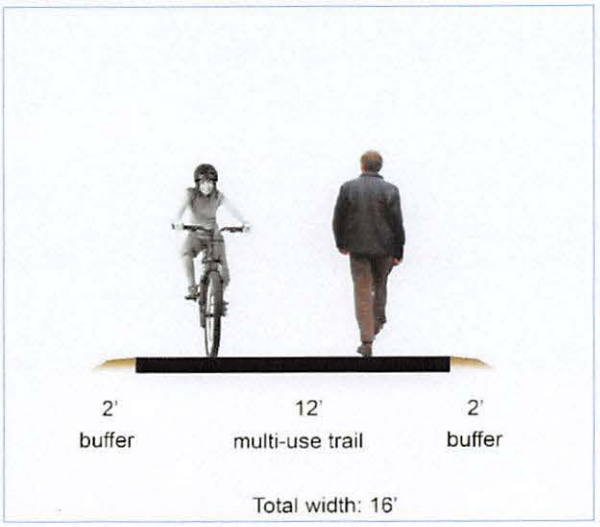
Steep grade south of NE 132nd Street

Due to the steep grades, higher costs for construction, impacts to Juanita Creek, and limited traffic operations benefits, the recommended cross section for this segment is a 12' multi-use trail. **Figure 16** shows the cross section for the segment of 118th Avenue NE between NE 132nd Street and NE 130th Place. A RRFB system is recommended for the non-motorized crossing at NE 132nd Street.



Juanita Creek

Figure 16. 118th Avenue NE Multi-Use Trail between NE 132nd Street and NE 130th Place



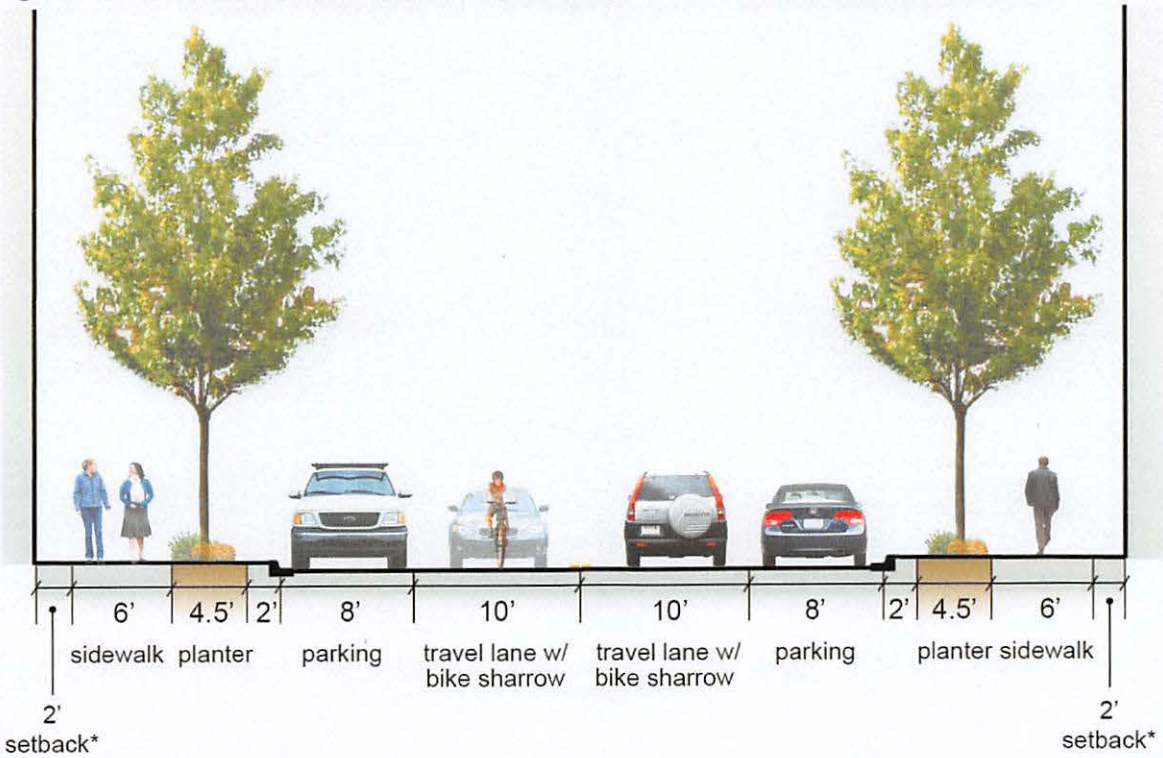
118th Avenue NE between NE 130th Place and NE 128th Street

The 118th Avenue NE extension will create a public street between NE 130th Place and NE 128th Street. This new street extension will improve north-south multimodal circulation, improve vehicle access to properties, and support redevelopment of properties. This short street segment will be designed with slower vehicle speeds and will carry low vehicle volumes. **Figure 17** shows the recommended cross section for southern segment of 118th Avenue NE, which includes two 10' lanes with bicycle sharrows, 8' on-street parking, 2' step out zones at the curb, 4.5' planter strip buffers, and 6' sidewalks. The on-street parking will provide traffic calming and serve retail land uses in the area.

The future intersection of the NE 130th Place extension/118th Avenue NE extension will be a 3-leg intersection with single lane approaches and all-way stop control. The future intersection of NE 128th Street/118th Avenue NE will be a 3-leg intersection with the southbound approach having a stop sign, a left turn lane, and a right turn lane. As the Totem Lake area continues to redevelopment and traffic volumes along NE 128th Street increase, the 118th Avenue NE intersection approach may need to be restricted to right-in and right-out movements.

NE 128th Street at Future 118th Avenue NE

Figure 17. 118th Avenue NE Extension between NE 130th Place and NE 128th Street

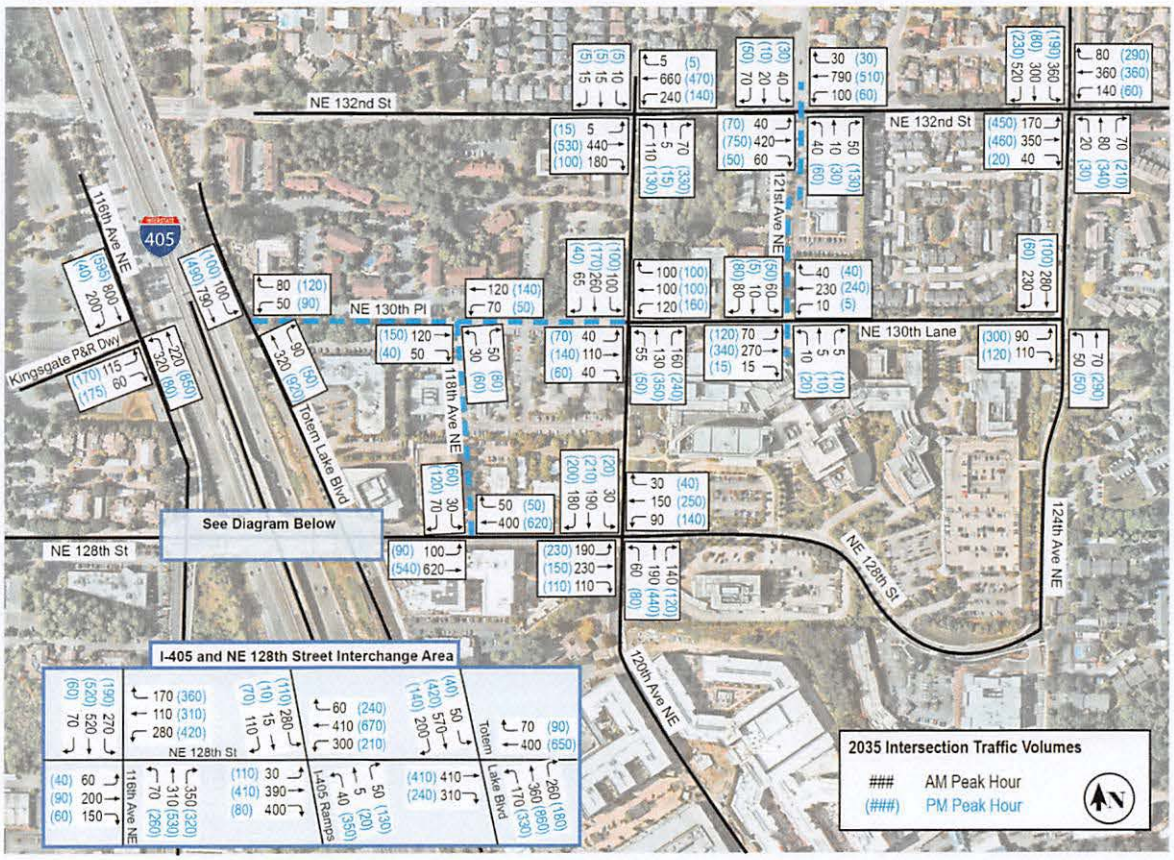


*required for zero lot line development

2035 Vehicle Volumes With Street Extensions

The Bellevue-Kirkland-Redmond (BKR) travel demand model was used to develop 2035 PM peak hour traffic volumes for the three street extensions in the study area. The traffic forecasts for the 2035 AM peak hour were based on growth rates identified for the PM peak hour. **Figure 18** shows the 2035 AM and PM peak hour intersection vehicle volumes with the three street extensions of NE 130th Place, 121st Avenue NE, and 118th Avenue NE. The street extensions are forecast to carry low to moderate traffic volumes and will include one travel lane in each direction.

Figure 18. 2035 AM and PM Peak Hour Intersection Volumes with Street Extensions



2035 Operations For Street Extensions and Multimodal Improvements

The three future street extensions will improve vehicle circulation and result in the same or improved intersection operations for the study intersections. **Table 3** shows the 2035 AM and PM peak hour intersection operations results, comparing conditions with street extensions and conditions with street extensions plus the multimodal improvements. The five future intersections that will be created with the street extensions are listed at the bottom of Table 3. Each of these future intersections are forecast to operate at LOS C or better, except for the NE 130th Place/Totem Lake Boulevard intersection. At this intersection, the westbound stop-controlled approach is forecast to operate at LOS F.

Project 12 will improve traffic operations at the NE 130th Place/Totem Lake Boulevard intersection to LOS C by implementing a Flying-T intersection treatment, which provides a southbound refuge lane for westbound vehicles turning left from NE 130th Place.

At the NE 128th Street/120th Avenue NE intersection, Project 3 is forecast to reduce vehicle delay by changing signal phasing from permissive to protected-permissive.

Table 3. 2035 Intersection LOS and Delay for Street Extensions and Multimodal Improvements

Intersection	Traffic Control	2035 With Street Extensions		2035 With Street Extensions and Multimodal Improvements	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Kingsgate P & R/116th Ave NE	Signal	C (22)	B (15)	C (22)	B (15)
NE 128th St/116th Ave NE	Signal	E (60)	E (70)	E (60)	E (70)
NE 128th St/I-405 Ramps	Signal	C (30)	C (28)	C (30)	C (28)
NE 128th St/Totem Lake Blvd	Signal	B (16)	D (37)	B (19)	D (40)
NE 128th St/120th Ave NE[1]	Signal	D (42)	D (54)	D (39)	D (50)
NE 130th Ln/120th Ave NE	Signal	A (9)	B (15)	A (9)	B (15)
NE 132nd St/120th Ave NE	Signal	A (7)	B (19)	A (7)	B (19)
NE 130th Ln/124th Ave NE	All-Way Stop	B (10)	C (17)	A (10)	C (17)
NE 132nd St/124th Ave NE	Signal	D (43)	D (42)	D (43)	D (42)
NE 128th St/118th Ave NE[2]	Stop Sign	C (15)	C (24)	C (15)	C (24)
NE 130th Pl/Totem Lake Blvd[2]	Stop Sign	C (19)	F (108)	C (15)	C (22)
NE 130th Pl/118th Ave NE	All-Way Stop	A (9)	A (9)	A (9)	A (9)
NE 130th Ln/121st Ave NE[2]	Stop Signs	C (18)	C (24)	C (18)	C (24)
NE 132nd St/121st Ave NE	Signal	A (9)	B (12)	A (9)	B (12)

Note: LOS calculated using HCM 6th Edition methodology.

[1] Intersection has non-NEMA signal phasing and LOS is reported using Synchro 11 methodology.

[2] Side street stop delay is calculated for the worst stop-controlled approach.

Potential Funding Sources

This section summarizes potential funding sources for each project, which are shown in **Table 4.** Potential funding sources include:

- City funds
- Constructed as a requirement for the redevelopment of properties (redevelopment)
- Puget Sound Regional Council grant programs (PSRC)
- Transportation Improvement Board grant programs (TIB)
- WSDOT Pedestrian and Bicycle Grant Program (Ped-Bike)
- WSDOT Highway Safety Improvement Program grant (HSIP)
- Sound Transit system access grant programs (ST)

Table 4. Potential Funding Sources

#	Project	Potential Funding Sources
1	NE 128th St between Totem Lake Blvd and 120th Ave NE	Grants (PSRC, TIB, Ped-Bike, ST), redevelopment or City funds.
2	NE 128th St between 116th Ave NE and Totem Lake Blvd	Grants (PSRC, TIB, Ped-Bike, ST), WSDOT or City funds.
3	NE 128th St/120th Ave NE Intersection	HSIP grant, redevelopment, or City funds.
4	Totem Lake Blvd/NE 128th St Intersection	WSDOT or City funds.
5	Crosswalk at Kingsgate Park & Ride Dwy/116th Ave NE Intersection	Grants (TIB, Ped-Bike, HSIP), redevelopment, WSDOT or City funds.
6	120th Ave NE between NE 130th Pl and NE 128th St	Grants (PSRC, TIB), redevelopment or City funds.
7	NE 130th Pl between 120th Ave NE and 121st Ave NE	Grants (PSRC, TIB, Ped-Bike), redevelopment, or City funds.
8	NE 130th Lane/120th Ave NE Intersection	HSIP grant, redevelopment, or City funds.
9	NE 132nd St/120th Ave NE Intersection	HSIP grant, redevelopment, or City funds.
10	NE 132nd St/124th Ave NE Intersection	Grants (TIB, Ped-Bike), redevelopment, or City funds.
11	NE 130th Pl/124th Ave NE Intersection	City funds.
12	Totem Lake Blvd between NE 132nd St and NE 128th St	Grants (PSRC, TIB, Ped-Bike), redevelopment, or City funds.
13	Southbound Bike Lane on Totem Lake Blvd south of NE 128th St	WSDOT or City funds.
14	Northbound Bike Lane on 116th Ave south of NE 128th St	WSDOT or City funds.

Appendix A: Reference List

Reference List

- City of Kirkland Transportation Improvement Program (2021-2026), City of Kirkland.
- Design Guidelines for Totem Lake Business District (Adopted 2020), City of Kirkland.
- Evergreen Health/Totem Lake Traffic Study (2019). Prepared by Transportation Solutions, Inc. for the EvergreenHealth Medical Center and City of Kirkland.
- Transit Implementation Plan (2019), City of Kirkland.
- Totem Lake Urban Center Enhancement & Multimodal Transportation Network Plan (2018). Prepared by Alta Planning + Design and PLACE Studio for the City of Kirkland.
- Totem Lake Business District Plan (Updated 2015)
- City of Kirkland Comprehensive Plan (2015), City of Kirkland.
- City of Kirkland Transportation Master Plan (2015), City of Kirkland.
- RapidRide K Line Preliminary Designs (No date). Prepared by KPFF and Nelson/Nygaard for King County Metro

Appendix B: Transit Service Before COVID-19 Pandemic

Table B-1. Transit Routes in Study Area

Route	Time Periods	Frequency	Endpoints	Destinations Served
Metro 225	All-Day, incl. Sat, Sun	30 minutes	Kenmore P & R – Redmond Tech Station	Kingsgate P & R, Totem Lake TC, Overlake, Finn Hill
Metro 239	All-Day, incl. Sat, Sun	30 minutes	UW Bothell/CC – Kirkland TC	Kingsgate P & R, Totem Lake TC, Brickyard P & R
Metro 930 (DART)	Weekday All-Day	30 minutes	Kingsgate P & R – Redmond Town Center	Kingsgate P & R, Totem Lake TC, Willows Road
Metro 252	Weekday Peak	20 minutes	Kingsgate P & R – Downtown Seattle	Kingsgate P & R, Downtown Seattle
Metro 255	All-Day, incl. Sat, Sun	6-10 minutes	Totem Lake TC – University District	Totem Lake TC, Kirkland TC, S. Kirkland P & R, SR-520
Metro 257	Weekday Peak	15-20 minutes	Brickyard P & R – Downtown Seattle	Kingsgate P & R, Evergreen Point Station
Metro 311	Weekday Peak	20 minutes	Woodinville P & R – Downtown Seattle	Totem Lake Freeway Station, Brickyard P & R, Evergreen Point Station
Metro 237/352	Weekday Peak	25 minutes	Woodinville P & R – Bellevue TC	Woodinville P & R, Brickyard P & R, Totem Lake Freeway Station, Houghton Freeway Station, Bellevue TC
Sound Transit 532/ 535	Weekday All-Day, Saturday Hourly	15-20 minutes	Bellevue – Everett Station/ Lynnwood TC	Totem Lake Freeway Station, Totem Lake TC, UW Bothell/ CC, Canyon Park P & R

Sources: Final Eastside Restructure Map by King County Metro. Changes coming in March 2020. King County Metro, March 2020. 2020 Service Implementation Plan, Sound Transit, December 2019

Appendix C: Intersection Level of Service Criteria

Table C-1. LOS Criteria for Unsignalized and Signalized Intersections

Level of Service	Unsignalized Average Delay per Vehicle (seconds)	Signalized Average Delay per Vehicle (seconds)
A	0 to 10	0 to 10
B	10 to 15	10 to 20
C	15 to 25	20 to 35
D	25 to 35	35 to 55
E	35 to 50	55 to 80
F	> 50	> 80

Source: 2010 Highway Capacity Manual.

Appendix D: Crash Data Analysis

Table D-1 lists the number and type of reported crashes that occurred at study intersections and the intersection collision rate, which is the collisions per million vehicles that enter the intersection over the five-year period.

Table D-1. Intersection Crash Data (5 Years)

Location	Rear-End	Side-swipe	Angle	Ped/ Bike	Other	5-Year Total	Intersection ADT	Intersection Collision Rate*
NE 128th St/116th Ave NE	3	2	5	0	2	12	24,550	0.27
NE 128th St/I-405 Ramps	4	1	2	2	2	11	19,350	0.31
NE 128th St/Totem Lake Blvd	6	2	34	1	3	46	25,850	0.97
NE 128th St/120th Ave NE	5	3	21	1	3	33	15,230	1.19
NE 130th Ln/120th Ave NE	1	0	1	0	1	3	10,250	0.16
NE 132nd St/120th Ave NE	4	0	6	0	0	10	14,610	0.38
NE 130th Ln/124th Ave NE	0	0	0	0	0	0	7,050	0.00
NE 132nd St/124th Ave NE	4	0	5	0	3	12	22,170	0.30
Totals	**27**	**8**	**74**	**4**	**14**	**127**		

Source: WSDOT data from 3/1/2015 to 2/29/2020.
ADT: Average Daily Traffic
*Intersection Collision Rate = (1,000,000 * total crashes)/(365 days * 5 years * ADT)

The NE 128th Street/Totem Lake Boulevard intersection experienced the most crashes with 46 crashes during the five-year period. Of the 46 collisions, 34 were angle collisions with 16 involving a northbound left turning vehicle and a southbound through vehicle. The northbound left turn movement has permissive-protected signal phasing. The high volume of northbound left turning vehicles and the permissive left turn signal phase are likely contributing factors to these crashes.

The NE 128th Street/120th Avenue NE intersection experienced the second most crashes with 33 crashes in the five-year period. 21 of these crashes were angle crashes, of which 17 crashes occurred when an eastbound left turning vehicle crashed with a vehicle traveling westbound. The high volume of eastbound left turning vehicles and the permissive left turn signal phase are likely a contributing factor in these crashes.

There were five incidents at the study intersections and study corridors (non-intersections) in which a vehicle struck a person walking or biking at an intersection. Each of these involved a

turning vehicle. Four of the five crashes occurred at the two signalized intersections of NE 128th Street/I-405 ramps and NE 128th Street/Totem Lake Boulevard.

- Westbound right turning vehicle crashed with a bicyclist (right hook) at the NE 128th Street/Totem Lake Boulevard intersection (suspected minor injury).
- Westbound right turning vehicle crashed with a person walking across the north leg of the NE 128th Street/Totem Lake Boulevard intersection (possible injury).
- A westbound left-turning bus struck a pedestrian at the south crosswalk of the NE 128th Street/I-405 ramp intersection (suspected minor injury).
- An eastbound left-turning vehicle struck a pedestrian at the north crosswalk of the NE 128th Street/I-405 ramp intersection (suspected minor injury).
- An eastbound vehicle on NE 128th Street, east of 124th Avenue NE turned left into a driveway and struct a bicyclist (suspected serious injury).

There was one crash that resulted in a fatality (a single-vehicle crash near the I-405 ramps).

The analysis also evaluated reported crash data for street segments between intersections for the 5-year period. The NE 128th Street primary study corridor between 116th Avenue NE and 120th Avenue NE experienced the most crashes with 8 sideswipe crashes and 4 angle crashes. **Table D-2** summarizes the five years of crash data on street segments excluding intersections.

Table D-2. Street Segment (Non-Intersection) Crash Data (5 Years)

Location	Segment	Rear-End	Side-swipe	Angle	Ped/ Bike	Other	5-Year Total
NE 128th St	116th Ave NE - 120th Ave NE	0	8	4	0	0	**12**
NE 128th St	120th Ave NE - 124th Ave NE	0	0	4	1	1	**6**
NE 130th Ln	120th Ave NE - 124th Ave NE	0	0	1	0	2	**3**
120th Ave NE	NE 132nd St - NE 128th St	3	0	0	0	0	**3**
124th Ave NE	NE 132nd St - NE 128th St	0	0	0	0	3	**3**
Totals		**3**	**8**	**9**	**1**	**6**	**27**

Source: WSDOT data from 3/1/2015 to 2/29/2020.

Attachment B

NE 128TH STREET MULTIMODAL CORRIDOR STUDY

URBAN & LANDSCAPE DESIGN CORRIDOR GUIDELINES

KPG PSOMAS

April 2022

acknowledgements

City of Kirkland Staff
Kimberly Scrivner
Aoife Blake
Joel Pfundt
Daniel Rawlings
Kurt Triplett

City Council
Mayor Penny Sweet
Deputy Mayor Jay Arnold
Councilmember Neal Black
Councilmember Kelli Curtis
Councilmember Amy Falcone
Councilmember Toby Nixon
Councilmember Jon Pascal

Transporation Commission
Chair Kurt Ahrensfeld
Vice-Chair Faith DeBolt
Youth Member Hayden Goldberg
Lisa McConnell
Brian Magee
AJ Antrim
Rafael Fernandez
Michelle Quinton

WSDOT
Sidhu Maan

Consultant
KPG Psomas Inc.

Background Documents
Design Guidelines for Totem Lake Business District (City of Kirkland, 2020)

Totem Lake Urban Center Enhancement + Multimodal Transportation Network Plan (Transportation Commission, 2018)

Cross Kirkland Corridor Master Plan (City of Kirkland, 2014)

Totem Lake Park Master Plan (City of Kirkland, 2013)

table of contents

introduction

What is a Streetscape?

Streetscape: the appearance or view of a street.
streetscape noun \'strēt-ˌskāp\ Source: merriam-webster.com

For the purposes of this project, this area includes, but is not limited to, the sidewalk surface, medians, crosswalks, street trees, bike facilities, lighting and site furnishings. Site furnishings can include, but are not limited to, benches, planters, tree grates, litter and recycling receptacles, bike racks, transit shelters, and bollards. The sidewalk surface generally runs from the building face to the street curb and may include public plazas.

Project Description

The streetscape for the NE 128th Street Multimodal Corridor Study supports drivers, cyclists, pedestrians and transit users as they visit or pass through the Totem Lake area. By guiding drivers with wayfinding signage and visual cues, maintaining clear paths walkers and cyclists, providing amenities at bus stops and key junctions, and overall improving the aesthetic experience of moving through the corridor, the streetscape supports the growth of the corridor into a bustling live-work space.

As the Totem Lake area continues to develop into a dense, well-connected neighborhood, these guidelines imagine NE 128th Street as a bustling area where shoppers, residents, health care workers, and commuters can thrive. The design of the streetscape aims to complement the neighboring lifestyle center The Village at Totem Lake, anticipate and guide developer-created amenities, establishing an aesthetic that feels fresh and new, while also maintaining a timeless and distinctively Kirkland feel.

study corridors & site context

Kingsgate Park and Ride

This transit hub attracts commuters to the area.

EvergreenHealth Medical Center

The primary employer and destination for the Totem Lake area provides opportunities to enhance the pedestrian connections to transit and to increase bicycle facilities to support multimodal travel.

The Village

The Village at Totem Lake is located south of NE 128th Street and features dense, mixed-use development including residential, shopping, dining, and a movie theater. It has become a local and regional draw featuring a number of specialty stores within a highly walkable environment.

Totem Lake Park

A new recreational park opened in 2021, Totem Lake Park provides a fully accessible playground, picnic area, restrooms and a boardwalk that will connect to the Cross Kirkland Corridor trail. A staircase from the south end of 124th Avenue NE provides a connection between the study area and the park.

existing conditions

NE 128th Street is blossoming with multi-use buildings that are slated to bring more pedestrians, cyclists, and commerce to this corridor. This area is also slated to become busier with the addition of the I-405 Stride Bus Rapid Transit. The project aims to allow the area to seamlessly transition into its higher density condition.

NE 128th Street is a corridor for residents of homes for the elderly, as well as those who work or receive services at EvergreenHealth Medical Center. These user groups could all benefit from sidewalk amenities and wayfinding signage.

The remainder of the study area hosts a lower density of residents and businesses but acts as an important piece of the connectivity puzzle. A different suite of amenities should be applied to these corridors to suit their specific needs.

design goals & objectives

Overarching Project Objective

The streetscape design throughout the NE 128th Street Multimodal Corridor Study areas will be a key component for achieving the goal of the project: to facilitate transit connections and to be an appealing and safe place for people walking, bicycling, driving, and taking transit.

Goal 1

Create a live-work corridor on NE 128th Street where drivers, cyclists, pedestrians, and transit users can safely access their destinations.

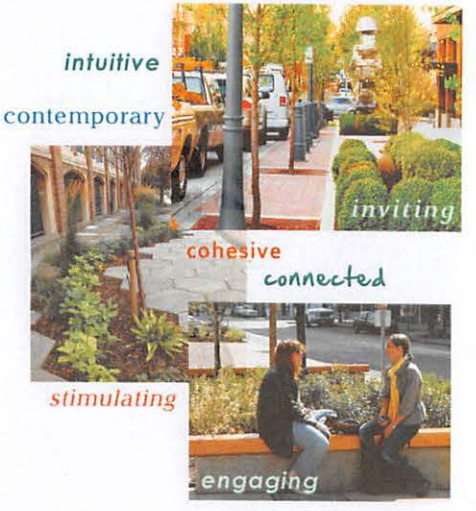
Goal 2

Enhance connections to nearby attractions such as the Cross Kirkland Corridor and The Village at Totem Lake through improved bike facilities, pedestrian amenities, and enhanced bus stops.

Goal 3

Create an aesthetic feel that complements existing development and brings new life to the area through additional planting areas, decorative pavement, and site furnishings.

> "The streetscape design throughout the NE 128th Street Multimodal Corridor Study areas will be a key component for achieving the goal of the project: to facilitate transit connections and to be an appealing and safe place for people walking, bicycling, driving, and taking transit."



design principles & strategies

The KPG Psomas team identified and established a set of design principles that will be important to the success of the corridors. These included bringing urban design elements into the corridor and improving safety and connectivity, while providing a refreshed aesthetic feel. Streets are divided into a primary study area, a secondary study area, and future street extensions, which allows us to assign different treatments according to each street's needs and existing conditions.

Design Principles

- Attract and support pedestrian and cyclist activity
- Complement surrounding development while providing an enhanced aesthetic experience
- Humanize the street corridors
- Design for aesthetics as well as function
- Create a safe environment for all age groups, all users, pedestrians, bicyclists, drivers, and transit users
- Utilize sustainable and durable options

Strategies

Creating Detail
Use a palette of pavement types, site furnishings, integrate art, and urban design elements that will create interest and encourage pedestrian activity.

Guiding Movement
Use visual cues to guide pedestrians, cyclists, drivers, and transit users to walk, roll, or rest in a designated area to ensure safety and comfort.

Cohesive Aesthetics
Choose pavement types, site furnishings, and other urban design details with current and future development in mind, creating a look that is contemporary and uniquely Kirkland.

Enhanced Connectivity
Support users on their journeys to nearby attractions by making the journey safe and enjoyable through separation between the road and pedestrian zones, adding key pedestrian/bicycle amenities, and creating an overall enhanced aesthetic experience.

Ecological Consideration
Plant trees and shrubs that are appropriate for Kirkland's climate and the streetscape environment, use durable materials, and preserve existing mature trees wherever possible.

purpose of this document

This document provides guidance for City staff, property/business owners, developers and engineering and design consultants for design and construction projects within the study corridors. Individual frontage improvements shall be adjusted at the discretion of the City to proportionately reflect the level of proposed development or redevelopment by the applicant. Any improvement projects in this study area will go through a review and official approval process by City staff prior to construction installation.

The guideline will also insure over time that the streetscape design, including the materials and furnishings used, will create an attractive yet cohesive look and feel. These highly visible infrastructure and streetscape improvements are vital to the success of NE 128th Street and the other study corridors, providing spaces for the everyday interaction of people, community events, and for development of adjoining private property.

STEP 1 Identify the project on the *Urban Study Corridors* map (page 13) to determine whether it falls within the primary study area, secondary study area, key intersections, or future street extensions.

STEP 2 Take a look at the appropriate Urban Corridor Study Area page for a typical cross section or plan drawing. Check the key to see which *Urban Corridor Zones* are in that area and use the green bubbles to guide you to the right page.

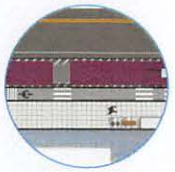
STEP 3 Flip to the section on Urban Corridor Zones to get a more detailed look at the recommended layout. Check the key below for the *Streetscape Elements* recommended for that zone.

STEP 4 Use the Streetscape Elements section to get more information on the recommended pavement types, site furnishings, and plants.

STEP 5 Remember... these are just guidelines! All roadway and streetscape projects must be approved by the City of Kirkland!

STEP 1

STEP 2



STEP 3

STEP 4

streetscape definitions

The proposed design for NE 128th Street Corridor Study areas will create new improvements on existing roadways and new roadways where throughways do not currently exist. The Primary Study Corridor receives the most concentrated improvements due to its high traffic flow, while the Secondary Study Areas and Future Street Extensions receive improvements targeted to the more localized user groups. The new and improved streetscapes work together to create corridors that allow visitors and residents to safely travel to their destinations and enjoy their experience along the way. The proposed design would include the following elements:

Multimodal Promenade

The Amenity Zone, Walk Zone, and Bike Facilities combine to create a single Multimodal Promenade. This concept provides an attractive, pedestrian-scaled feature that supports a mix of users, including bicyclists, strollers, dog walkers, and runners. The Promenade is a flexible space and could accommodate festivals and other events.

Amenity Zone (4.5' width)

The proposed corridor design includes primary, secondary, and on-street amenity zones with design elements such as: pedestrian-scaled lighting, bicycle parking, benches, trash receptacles, wayfinding signage, and public art. Landscaping and street trees are included in these zones as well. There is also an opportunity for flexible space that could developed to allow for outdoor dining or other activities.

Walk Zone (6-7' width)

Sidewalk area that provide for pedestrian circulation and access to street-level businesses.

Delineator Zone (1' width)

Separates bike users from roadway and sidewalk users.

Raised Bike Facility (6' width)

Sometimes referred to as a "cycle track," the proposed raised bike facility is separated from the road by the amenity zone, providing enhanced safety and comfort to cyclists. Bicyclists have opportunities to dismount and lock their bikes on proposed bike racks and are guided through bus stops and intersections with appropriate channelization.

Bike Lane (5-6' width)

Bike lanes at grade with traffic benefit from proposed buffer zones with delineator to separate them from traffic.

Sharrow

Where streets have low vehicle volumes and are too narrow for bike lanes, pavement markings can signal for cyclists to use the roadway and for cars to share the road.

Building Zone (2' width)

The Building Zone allows for access to building entrances, room for window shopping, and protection from inclement weather through awnings and building overhangs. Cafe seating and other pedestrian amenities may be appropriate for encroachment into the Building Zone as long as the minimum clear Walk Zone width is maintained. This zone is paved and may also be appropriate for small portable signage, movable planters, or outdoor displays.

Sidewalk Zones

The sidewalk portion of the streetscape shall consist of the Amenity Zone, the Walk Zone, and the Building Zone.

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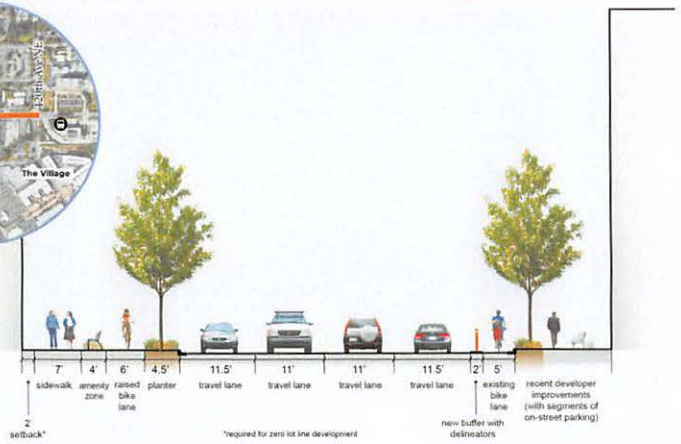
urban corridors

urban study corridors

primary study corridor

Typical Cross Section NE 128th Street
Between Totem Lake Boulevard & 120th Avenue NE (looking east)



KEY | URBAN CORRIDOR ZONES

primary study corridor

Examples & Descriptions

The improvements to the primary study corridor are aimed at preparing NE 128th St for increased use with the addition of the I-405 Stride Bus Rapid Ride Line, new high-density residences, and other new amenities in the area. This study corridor is slated to be a Live Work Street, as outlined by the Totem Lake Urban Center Enhancement and Multimodal Network Plan. The Urban Design Guidelines are thus aimed at creating an appealing place for people to go about their daily commutes, while inviting them to stop along the way to rest, converse, or visit local retail locations.

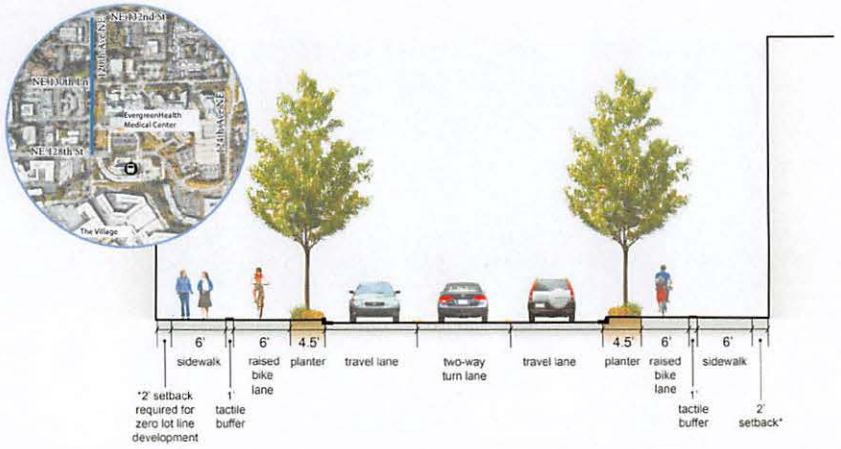
TOP: The addition of a buffer zone with delineators adds a layer of safety and separation to existing on-street bike lanes.

LEFT: Walking zones and amenity zones are distinguished through distinct pavement treatments. Amenity zones include planting areas and paved areas.

BOTTOM RIGHT: A planting strip separates cyclists from traffic, helping to ensure safety, comfort, and separation from amenity zones.

secondary study corridor

Typical Cross Section: 120th Avenue NE between NE 128th Street & NE 132nd Street



KEY | URBAN CORRIDOR ZONES

secondary study corridor

Examples & Descriptions

The improvements to the secondary study corridor are focused on 120th Avenue NE, with the continuation of raised bike lanes and pedestrian amenity zones. These streets support the primary study corridor and should reflect the same aesthetic character.

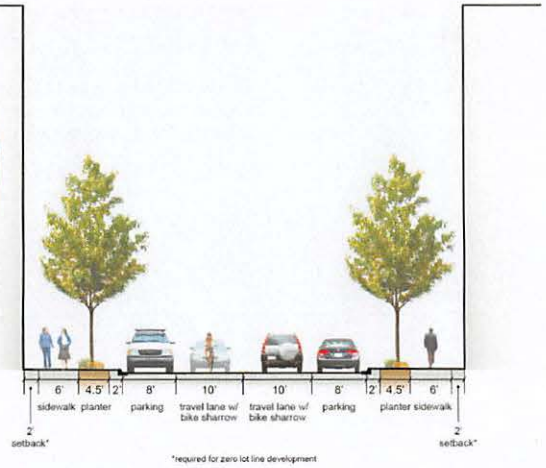
TOP LEFT: A planting strip separates cyclists from traffic, helping to ensure safety and comfort.

BOTTOM RIGHT: The walking zone abuts the raised cycle track, with a tactile buffer to encourage cyclists to stay in their lane.

BOTTOM LEFT: 6' walking zones allow for casual foot traffic, and distinct pavement treatments create visual separation from amenity zones.

future street extensions

Typical Cross Section: 118th Avenue NE between NE 128th Street & NE 130th Place

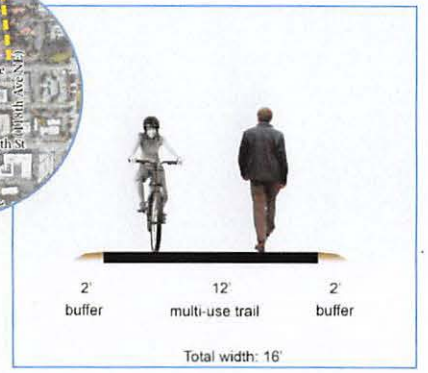


KEY | URBAN CORRIDOR ZONES

secondary pedestrian amenity zone.....page 28

future street (multi-use trail) extensions

Typical Cross Section: 118th Avenue NE between NE 132nd Street & NE 130th Place

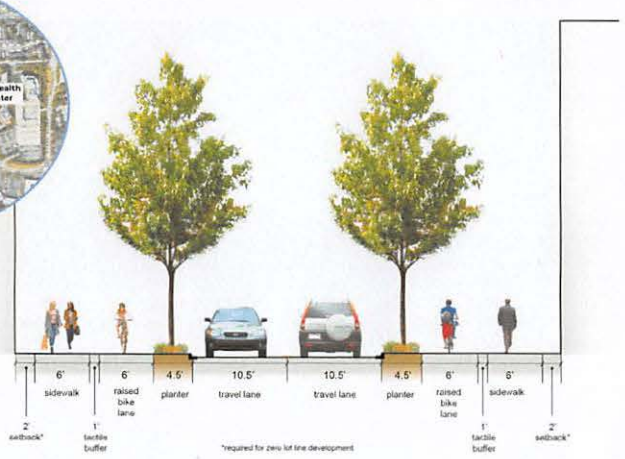


Due to steep grades and an existing creek, this stretch of 118th Ave NE is best suited to be a multi-use trail

future street extensions

Typical Cross Section: 121st Avenue NE between NE 130th Place & NE 132nd Street

Typical Cross Section: NE 130th Place between Totem Lake Boulevard & 120th Avenue NE



KEY | URBAN CORRIDOR ZONES

raised bike lane.....page 26

secondary pedestrian amenity zone.....page 28

future street extensions

Examples & Descriptions

The addition of street extensions will strengthen connectivity in this area and open the possibility for more amenities for cyclists, pedestrians, and transit users. These streets have a more local feel, and thus recommended amenities should be designed for lower traffic speeds. Where bike lanes are not crucial, sharrows are a low impact option for improving safety for cyclists.

TOP RIGHT: The addition of street trees creates a pleasant experience for pedestrians, while adding ecological value.

TOP LEFT: On 121st Avenue NE and NE 130th Place, the bike lane is separated from the sidewalk via a tactile strip. To its left, an amenity zone planted with street trees provides separation from street traffic.

BOTTOM LEFT: The designation of 118th Avenue NE as a "sharrow" would signal to cyclists and drivers to share the road.

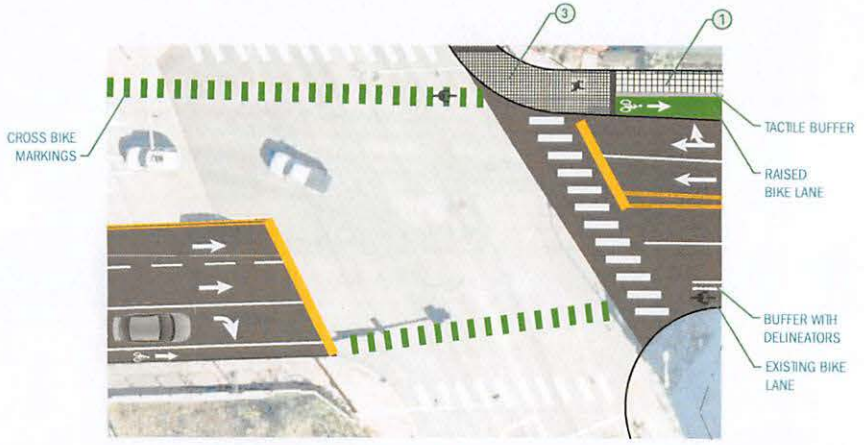
key intersections

NE 128th Street & 120th Avenue NE

KEY | STREETSCAPE ELEMENTS

key intersections

NE 128th Street & Totem Lake Boulevard

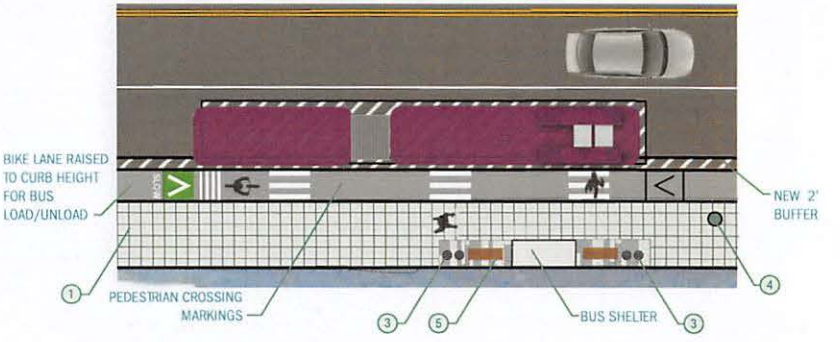


KEY | STREETSCAPE ELEMENTS

enhanced bus stop

NE 128th Street between Totem Lake Boulevard & 120th Avenue NE

South Side of the Street

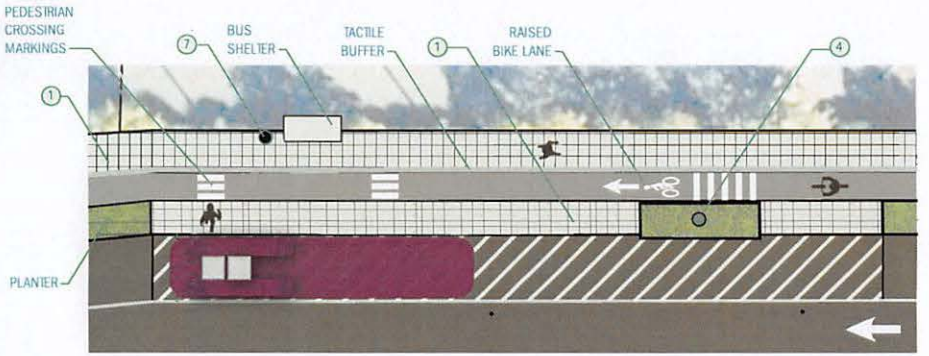


KEY | STREETSCAPE ELEMENTS

raised bike lane

NE 128th Street between Totem Lake Boulevard & 120th Avenue NE

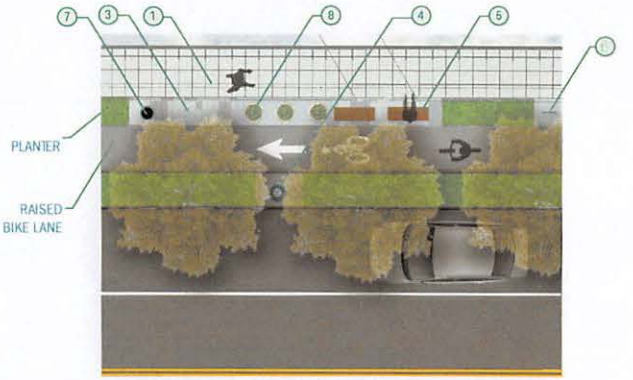
North Side of the Street



KEY | STREETSCAPE ELEMENTS

primary pedestrian amenity zone

NE 128th Street between Totem Lake Boulevard & 120th Avenue NE



KEY | STREETSCAPE ELEMENTS

secondary pedestrian amenity zone

Secondary Study Areas & Future Street Extensions

KEY | STREETSCAPE ELEMENTS

on-street amenity zone

On surrounding streets in the Totem Lake area that have on street parking, an on-street amenity zone is an excellent way to make use of parking space. In areas where people commute via ride share, these spaces can act as pick up/drop off zones during rush hour. In areas with greater need for bike parking, they can host bike corrals with vibrant pavement motifs. Where restaurants and other businesses develop, these areas can be used as parklets. See "Urban Design Features" section for more information (page 47).

KEY | STREETSCAPE ELEMENTS

KEY | FEATURES

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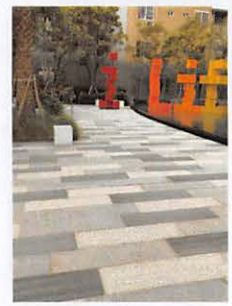
streetscape elements

Streetscape elements are integrated design features within the roadway which provide both functional and aesthetic amenities as well as enhance the experience of all users, including drivers, cyclists and pedestrians. Urban design elements can provide a cohesive look and feel that is unique and characteristic to the NE 128th Street Corridor study areas.

This plan will help guide in the development of functional, accessible, safe, and aesthetically-enhanced streets. With some exceptions, like roadway lighting, this chapter offers a number of elements to help build streetscapes that fit the context of each study area. While this streetscape chapter lays out a kit of parts including design guidelines and physical attributes for urban design elements, it is important to note that urban design elements determined by Kirkland staff to be of equal or greater than those highlighted in this plan can be incorporated into streets with the City approval process.



NOTE: Hardscape color, materials and finishes in this section are recommended to help guide hardscape selections through their aesthetic and physical attributes rather than dictate a particular look. The ultimate hardscape selection shall be determined in final design based on availability, cost and other factors.

① Standard Hardscape

Design Guidelines

Standard hardscape can be applied to walking zones, amenity zones, bus stops and plaza areas.

Standard compliance: concrete, curing compound, spec and joint spacing per WSDOT.

Physical Attributes

- Special accent surface treatment such as sandblasting, acid-etching, surface retardants, stamping, color hardener and/or staining shall be reviewed and approved by City prior to construction
- Thickness of concrete pavement will vary depending on necessary pedestrian or vehicular load

FINE SCALE HARDSCAPE

Description: Concrete at a fine scale 1'x1', 2'x2', 1/8" width x 1/2" deep
Method: Sawcut grid scoring on natural standard cement concrete pavement with light-medium broom finish

LARGE SCALE CONCRETE

Description: Concrete at a large scale 4'x4', 1/8" width x 1/2" deep
Method: Sawcut grid scoring on natural standard cement concrete pavement with light-medium broom finish

② Crosswalk Treatment

Design Guidelines

- Align the score pattern grid with roadway centerline
- Locations of raised crosswalks and intersections shall be determined as part of public improvement projects

CROSSWALK TREATMENT

Description: Fine scale 1'x1', 2'x2', 1/8" width x 1/2" deep
Method: Sawcut grid scoring on natural standard cement concrete pavement with medium broom finish
Scale: 10 ft minimum crosswalk widths

③ Accent Hardscape

Design Guidelines

- Accent hardscape can be applied to amenity areas, bus stops, and other significant nodes
- Standard compliance: concrete, curing compound, spec and joint spacing per WSDOT

Physical Attributes

- Concrete pavement thickness shall vary depending on pedestrian or vehicular load
- Special accent surface treatment such as sandblasting, acid-etching, surface retardants, stamping, color hardener and/or staining shall be reviewed and approved by City prior to construction

CONCRETE PAVER HARDSCAPE

Manufacturer: Tectura Designs
Description: Granitex, long rectangular concrete pavers
Color: Warm gray, light gray and light beige tones
City Standard Plan Compliances: ADA

ACID INLAID SURFACING

Manufacturer: Ennis-Flint Duratherm
Method: Hot-applied thermoplastic

COLORED CONCRETE BANDS

Description: Colored cement concrete
Method: Integral pigmented concrete in Davis Color 'Gray Carbon'

ENGRAVING TREATMENT

Description: Black lithochrome engraving onto concrete with medium sandblast treatment

NOTE: Lighting products provided in this section are recommended to help guide product selections through their aesthetic and physical attributes rather than dictate the use of certain product(s). The ultimate lighting selection shall be determined in final design based on necessary illumination levels/uniformity, availability, cost and other factors.

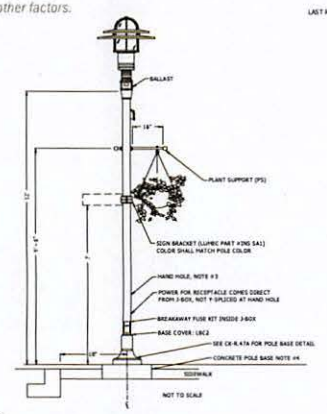
LAST REVISED: 01/2021

Design Guidelines

- Pedestrian lighting shall not occur within pedestrian access routes (PAR) walking areas
- Standard compliance: foundation standards, setback from curb, site distance for pedestrian lighting shall be approved by the City

Physical Attributes

- Fasteners: Tamper resistant and weather resistant such as zinc-plated, galvanized steel or stainless steel material
- Metal & finishes: Galvanized steel, powder coating over aluminum/steel, stainless steel



NOTES:

1. INSTALL PHOTO ELECTRIC CELL (P.E.C.) ON LIGHTING CABINET. SEE CITY OF KIRKLAND INSPECTOR FOR PART NUMBERS OR EQUIVALENT. FACTORY INSTALLED P.E.C. IS NOT ACCEPTABLE.
2. THE ONLY CONNECTION MADE AT HAND HOLE IS THE POLE GROUNDING CONNECTION.
3. WITH SLOPED SIDE WALKS, THE POLE BASE MUST PROTRUDE ABOVE FINISHED GRADE SO THAT BASE COVER WILL SIT LEVEL.
4. PS ORIENTATION UNDERNEATH LIGHT UNLESS OTHERWISE DESIGNATED.
5. LIGHTS SHALL BE GENERALLY SPACED AT 80' ON CENTER.
6. ALL PEDESTRIAN LIGHTS SHALL HAVE 1 SIGN BRACKET.
7. ALL SPLICE CONNECTIONS IN J-BOX SHALL BE MADE USING:
   A. C-TAP (COPPER CRIMP)
   B. 3M 2000 MASTIC COVER
   C. 3M SUPER 88 TAPE

CITY OF KIRKLAND
PLAN NO. CK - R.47M
TOTEM LAKE PEDESTRIAN STREET LIGHT STANDARD

④ Pedestrian Lighting

Design Guidelines

- Allow for lighting accessories such as street name signage, decorative banners, hanging flower baskets, and irrigation
- All lighting accessories including straps, banner arms, flower basket arms, and pole assembly shall be the same color as finishes approved by City
- Decorative banners, hanging flower baskets shall be maintained by development and business owners
- Provide adequate vertical clearance of 9.5 ft from finished grade of sidewalk for any pole attachment (e.g. flower basket or banner arms)
- Special circumstances for custom foundations for pedestrian lighting shall be designed to avoid utility conflicts and with proper geotechnical soil per standard with site considerations
- If pedestrian lighting is included, determine appropriate lighting levels, uniformity and spacing for pedestrian lighting per current City of Kirkland illumination requirements
- Pole spacing and illumination levels shall be based on specific project needs and site or design constraints.
- Standard compliance: foundation standards, setback from curb, site distance for pedestrian lighting shall be approved by the City
- Pedestrian lighting selection and layout shall undergo project review and approval by the City prior to construction

NOTE: Furnishing products provided in this section are recommended to help guide product selections through their aesthetic and physical attributes rather than dictate the use of certain product(s). The ultimate selection of actual furnishings shall be determined in final design based on availability, cost and other factors.

⑤ Benches

Design Guidelines

- All benches shall be clear of through zone, frontage zone and areas required for maintenance access
- Bench shall be set 2 feet back from edge of required sidewalk width to ensure proper seated leg clearance
- Bench locations shall be predictably and as evenly spaced along a streetscape as possible. Standard Benches are appropriate in most situations; where foot traffic occurs on both sides of the bench, a backless option is preferable. Accent benches are appropriate for plaza or courtyard areas
- All benches must be embed or surface mounted with the exceptions of benches located within on-street amenity zones
- Bench locations should be reviewed and approved by City as part of development approval and public improvement projects
- Potential bench locations include areas adjacent to mixed-use and residential building entrances, near corners and intersections, at pocket parks, parklets and public gathering places
- Other amenities, such as waste receptacles and bike racks shall also be considered to coordinate with bench locations
- Benches shall be maintained by development and business owners
- Bench accessories such as backs, armrests or dividers shall be considered given the site location, ease of use and site visibility
- Selected manufacturer shall provide installation & maintenance guide to City

Physical Attributes

- Wood & Sealer: 100% FSC hardwood w/ alkyd-urethane hybrid technology, no peel/flake/crack over time, UV resistant, water repellent, low VOC, clear satin finish oil sealer
- Exposed fasteners for benches shall be corrosion and tamper resistant

BENCH W/ CUSTOM BACK OPTION

Manufacturer: Landscape Forms
Product Model: Generation 50
Sizing & Material: 6' bench with back & arms; domestically sourced thermally modified ash slats; aluminum casting frame; powder coating
Installation Type: Embed mount per manufacturer's recommendations

STANDARD BENCH

Manufacturer: Dumor
Product Model: Bench 185
Sizing & Material: 6' and 8' lengths with back and optional armrests; recycled plastic slats; cast plastic frame
Installation Type: Surface mount per manufacturer's recommendations

BACKLESS BENCH

Manufacturer: Landscape Forms
Product Model: Strata Beam Bench
Sizing & Material: 5.5' and 6.5' lengths; domestically sourced thermally modified ash slats; MeldStone™ base
Installation Type: Dowel embed mount per manufacturer's recommendations

STANDARD BACKLESS BENCH OPTION

Manufacturer: Forms + Surfaces
Product Model: Flight
Sizing & Material: Backed and backless options in 6' and 8' lengths; Corrosion-resistant aluminum frames with powdercoat finish; slats of IENSI Ultra High Performance Concrete (UHPC)
Installation Type: Surface mount per manufacturer's recommendations

Accent Benches

MODULAR BENCH OPTION

Manufacturer: Forms + Surfaces
Product Model: Quadra
Sizing & Material: Backless bench in 1.5, 4, and 6 foot lengths and optional planter modules; IENSI Ultra High Performance Concrete (UHPC) with inset material options of FSC® Recycled 100% Teak hardwood slats; powdercoated aluminum; or IENSI UHPC with or without a surface pattern
Installation Type: Surface mount per manufacturer's recommendations

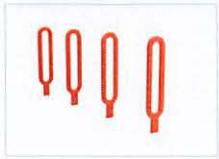
⑥ Bike Racks

Design Guidelines

- A minimum of 1 rack for 2 or more bikes per 200 LF is recommended
- Bike rack locations suggested near intersections, building entrances, and public gathering areas
- Ensure bikes parked in racks will be clear of areas required for maintenance access
- Determine final placement and number of racks during review of individual private developments and public improvement projects. Bike racks shall be oriented such that parked bikes are not an obstruction to pedestrian circulation paths and access to fire hydrants, waste receptacles and building doors
- Exposed fasteners for bike racks shall be corrosion and tamper resistant
- Selected bike rack manufacturer shall provide installation & maintenance guide to City

BIKE RACK
Manufacturer: Maglin
Product Model: 2300 series
Sizing & Material: Cast aluminum with several powdercoaed color options
Installation Type: Surface mount per manufacturer's recommendations

BIKE RACK
Manufacturer: Landscape Forms
Product Model: MultipliCITY
Sizing & Material: Powder coated metal with domestically sourced thermally modified ash accent piece
Installation Type: Surface mount per manufacturer's recommendations



BIKE RACK
Manufacturer: Vestre
Product Model: Looper
Sizing & Material: hot-dip galvanized steep core surrounded by soft polyurethane in red or gray
Installation Type: Emed mount per manufacturer's recommendations

⑦ Standard Litter/Recycle Receptacles

Design Guidelines

- Maintain 36" minimum buffer around litter/recycle receptacles from other streetscape elements
- Maintain 48" minimum buffer around litter/recycle receptacle from fire hydrants
- Ensure one litter/recycle receptacle is provide per block face
- Additional litter/recycle receptacles may be needed in high traffic areas and larger public seating areas
- Ensure litter/recycle receptacles are to be clear of pedestrian walk zones, through zones, and areas required for maintenance access
- Selected litter/recycle receptacle manufacturer shall provide installation & maintenance guide to City

Approved equal to standard litter/recycle receptacle (above) shall meet the following attributes:

Physical Attributes

- Durable, weather resistant material in metal materials/finishes including; brushed stainless steel/powder coated aluminum or steel, UV-resistant non-sacrificial anti-graffiti coating
- Litter/recycle receptacle components includes: lid top with side opening, include polyethylene liner, surface mount installation with 4 inch minimum tamper resistant embedment
- Other consideration for litter receptacles with split receptacle with recycle option, standalone recycle receptacle or solar litter compactor can be considered deviations for design review and approval process

Aesthetic Attributes

- Color, type and style shall be consistent to standard litter/recycle receptacle and yet bring not only functionality but will help control maintenance needs over time.

LITTER/RECYCLE RECEPTACLE
Manufacturer: Forms+Surfaces
Product Model: Universal
Sizing & Material: 12- to 36-gallons in five stainless steel finishes for receptacle body, variety of lid options, polyethylene liners
Installation Type: Surface mount per manufacturer's recommendations

LITTER/RECYCLE RECEPTACLE
Manufacturer: Forms+Surfaces
Product Model: Tonyo
Sizing & Material: 30, 36, or 60 gallon capacity; receptacle body in powdercoated aluminum with or without perforations
Installation Type: Surface mount per manufacturer's recommendations or cast in place

LITTER/RECYCLE RECEPTACLE
Manufacturer: Landscape Forms
Product Model: Generation 50
Sizing & Material: The 30-gallon-capacity receptacles made of domestically sourced, thermally modified ash, steel, and a black polyurethane base and lid, lids and side panels finished with Pangard II polyester powdercoat; receptacle liner is black roto-molded polyethylene.
Installation Type: Surface mount per manufacturer's recommendations or free standing.

⑧ Freestanding Planters

Design Guidelines

- Planters can be located in plazas at mid-blocks, amenity and gathering spaces including pocket parks, parklets/streeteries, and at locations that do not conflict with site distance and pedestrian safety through CPTED
- Maintain 36" minimum buffer around planters from other streetscape elements
- Maintain 48" minimum buffer around planters from fire hydrants.
- Planters are to be clear of areas required for maintenance access
- Planters may have accommodations for irrigation and drainage system
- Planters shall be maintained by development and business owners
- Selected planter manufacturer shall provide installation & maintenance guide to City

Physical Attributes

- No wood

METAL PLANTER
Manufacturer: Landscape Forms
Product Model: Gus
Sizing & Material: 1.5' by 4' planter made of aluminum siding and a steel frame; powdercoated metal

MODULAR PLANTER
Manufacturer: Tournesol
Product Model: Kitsap Modular Planting Walls
Sizing & Material: Powder coated steel in 4, 6, and 8' lengths; optional wood bench
Installation Type: Anchored or freestanding

CONCRETE PLANTER
Manufacturer: QCP
Product Model: Elevaire
Sizing & Material: Precast concrete in square and rectangular sizes

NOTE: Featured elements provided in this section are all optional and can be incorporated into the Streetscape Plan as approved by the City.

⑨ Standard Bollards

Design Guidelines

- Located in amenity and buffer zone areas: Along areas not impeding landscape zones, tree grates and utility vaults/lids
- Bollards are to be clear of areas required for maintenance access
- Bollards shall be included wherever the City determines there is a need for additional pedestrian protection or better definition of pedestrian space
- Selected planter manufacturer shall provide installation & maintenance guide to City

LIT BOLLARD
Manufacturer: Landscape Forms
Product Model: Helio, Series 600
Sizing & Material: 40" tall and 6" diameter; stainless with with a satin finish
Installation Type: Surface mount per manufacturer's recommendations

SECURITY BOLLARD
Manufacturer: Calpipe Security Bollards
Product Model: IBF12080 fixed security bollard
Sizing & Material: 12" diameter, high security, type 304/316 grade stainless steel, #4 polish finish
Installation Type: Embed mount

⑩ Standard Tree Grates

Design Guidelines

- 4 feet wide at minimum

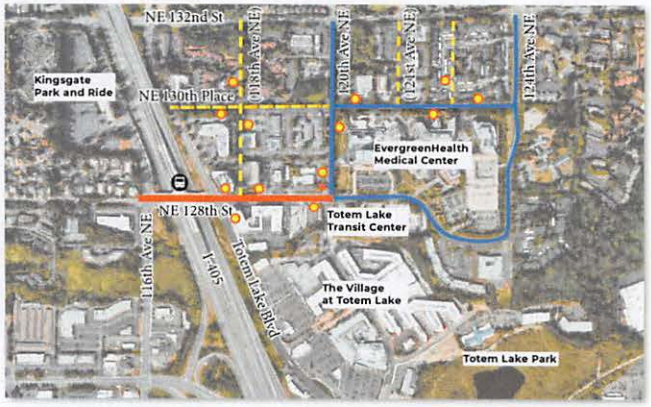
TREE GRATE
Manufacturer: Urban Accessories
Product Model: Jamison
Sizing & Material: 4' by 6' in 100% Recycled Grey Iron, per ASTM A48 class 35b

TREE GRATE
Manufacturer: Urban Accessories
Product Model: Cascade
Sizing & Material: 4' by 8' in 100% Recycled Grey Iron, per ASTM A48 class 35b

What is Wayfinding?

Wayfinding signage guides people through a physical environment and enhances their understanding and experience of the place, guiding the user to specific destinations. It can be a network of signs including in-pavement treatment, directional signage and/or pedestrian kiosks, that guides the user (vehicle, bicyclist, and/or pedestrian) to destinations such as municipal services, medical services, public parking, parks and trails and other desired destinations. Wayfinding signage is intended as a visual communication system directing first time visitors, while adding an aesthetic look and feel to the area with the use of color, symbols, fonts and other visual cues.

The implemented wayfinding system for the NE 128th Street Multimodal Corridor area should not only help visitors navigate from place to place, but should also encourage active modes of transportation and support the identity of this area.



wayfinding

Design Guidelines

Wayfinding should clearly direct users to identified destinations. It can be a means to create a cohesive visual theme for the area through the character of the signs. The implemented wayfinding signs shall have the following parameters for the final sign design:

- Vehicular Directional Signs should be legible for motorists (faster and slower speeds)
- Pedestrian/Bike Directional Signs should be legible for bicyclists and pedestrians
- Public Parking Signs should be legible for motorists (faster and slower speeds), bicyclists and pedestrians
- Information Kiosks should be adaptive, contain flexible information, be eye-catching from a distance and user-friendly to pedestrians
- All sign types should use the City logo / branding guide color palette as inspiration, but the colors can vary from the palette to provide appropriate color contrast for legibility and interest
- The type of destinations on each sign blade or panel should coordinate with its designated color categories
- All sign types shall be made of highly durable materials and easy to maintain and replace

INFORMATION KIOSK

Digital screen shall be outdoor rated UL listed with waterproof enclosure.
Material: acrylic, aluminum and/or steel with high performance coating or vinyl wrap, tamperproof fasteners
Installation: surface mounted or anchor bolted in concrete foundations

DIRECTIONAL SIGNAGE

Font type and sizing: meet MUTCD and AASHTO standards
Material: aluminum and steel with high performance coating or vinyl wrap, tamperproof fasteners
Installation: surface mounted or embedded into concrete foundations

IN-PAVEMENT MEDALLIONS

Material: thermoplastic, various color with reflective beads per WSDOT standard

art integration

"NE 93rd St Promenade" by KPG

"Flow" by Chris Spadafore

"Apache Stories" by Benson Shaw

art integration

The Totem Lake Business District identifies artwork as a key feature for pedestrian amenities along sidewalks, interior pathways and within plazas and other open spaces.

The City of Kirkland has a wealth of arts and cultural opportunities to residents and visitors, and the City maintains a diverse public art program. Integrating art pieces as standalone installations or into the wayfinding sign system and streetscape elements would not only improve the aesthetics of the entire corridor but could also potentially showcase the work of local artists to highlight the role that arts and culture plays in the City.

Art elements can be installed as individual pieces or they could be installed as a series of multiple pieces. It is highly encouraged for new development to incorporate art into spaces to assist with activation as well as public enjoyment.

urban design features

NOTE: Featured elements provided in this section are all optional and can be incorporated into the Streetscape Plan as approved by the City.

(11) Bike Corral

Bike corrals transform a standard parking space, or area of pavement within the sidewalk realm, into high density bicycle parking. Bike corrals are appropriate in areas of high density employment or restaurant/retail space where anticipated bicycle parking needs are high.

Design Guidelines

- Wheel stops and flexi-posts shall be used to protect the ends of the corral if located in a parking space.
- Rack shall allow bikes to be parked completely outside of roadway or pedestrian circulation route.

(12) Dockless Bike Parking

Dockless bike parking areas provide easily identified space to park dockless bike-share bikes and scooters. Providing this dedicated space helps to encourage people to leave bikes and scooters in areas where they do not block access or pedestrian circulation. Dockless bike parking areas are appropriate near transit or in areas of high-density employment or restaurant/retail space where use of bike and/or scooter-share is expected to be high.

Design Guidelines

- Dockless parking areas should be delineated by distinctive pavement, such as through the use of paint, decorative pavers, or colored concrete.
- Parking area should include clear graphic icons indicating their intended use (e.g. bicycle symbol)
- Area shall be large enough to accommodate multiple bike-share bikes or scooters in a manner that provides sufficient offset from the roadway edge and does not encroach into the pedestrian circulation route.

urban design features

NOTE: Featured elements provided in this section are all optional and can be incorporated into the Streetscape Plan as approved by the City.

⑬ Parklets & Streeteries

Parklets and streeteries repurpose roadway space, typically an on-street parking space, as open space (parklet) or outdoor dining (streetery). These features are often installed at the request of adjacent businesses for use by their customers for dining or waiting, and can be either temporary or permanent.

Design Guidelines

Layouts of on-street parklet and streetery site furnishings must consider the maneuverability and access of maintenance personnel and equipment operations

⑭ Pocket Parks

Pocket parks are small areas of respite within the sidewalk realm (or behind the sidewalk within adjacent developments). Pocket parks are desirable in areas that lack larger open space areas to provide human-scale space for passive enjoyment of the streetscape.

Design Guidelines

All elements shall be located outside of the pedestrian circulation route and with required minimum offset from the roadway

landscape street & accent trees

Design Guidelines

Street tree selection and placement should follow Design Guidelines for Totem Lake Neighborhood, including:

- Selecting trees that are low maintenance as well as provide seasonal interest
- Selecting trees appropriate to the urban environment of the Totem Lake Business District
- Incorporating street trees along all streets, internal access roads, and pathways.
- Encouraging developments to use street trees as a unifying feature of the development
- Selecting and maintaining tree species that will accommodate pedestrian and vehicular traffic, and maintain visibility into and through sites for safety purposes

Street Trees

EMERALD SUNSHINE ELM

Fast-growing and tough, with showy fall foliage.

FORUM TUPELO

Low maintenance, with a refined pyramidal form.

SPRING FLURRY SERVICEBERRY

A reliable street treet that blooms white in spring.

Accent Trees

BUTTERFLIES MAGNOLIA

Hardy magnolia with buttery yellow blooms.

STARLIGHT DOGWOOD

A relatively low maintenance deciduous dogwood.

VINE MAPLE

Native species with rich fall foliage.

landscape planting palette

SHRUBS


JAPANESE SPIREA


dwarf fothergilla


rhododendron


dwarf mountain laurel


japanese barberry


hebe


scotch heather


lavender

GRASSES


autumn moor grass


dwarf fountain grass


blue gramma grass


tufted hair grass

PERENNIALS


avens


coneflower

GROUNDCOVERS


speedwell


epimedium


creeping thyme


sedum


common yarrow


daylily