

CITY OF KIRKLAND

**TRANSIT
IMPLEMENTATION
PLAN**

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CITY OF KIRKLAND TRANSIT IMPLEMENTATION PLAN

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BUS BAY
1

KIRKLAND AVE

King County METRO
236 Woodinville/
Totem Lake
248 Aardale/
Redmond

RIDER ALERT
Be alert for
bicycles,
strollers,
wheelchairs,
and other
passengers
with
special
needs.

TO TERMINAL

1169

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CROSSWALK
WARNING
DEVICE
CAUTION



INTRODUCTION

PLAN PURPOSE

Today, Kirkland's over 83,000 residents are served by several transit routes connecting the city to various Eastside destinations, as well as in Seattle and southwest Snohomish County. Kirkland is also a growing employment center that attracts transit trips from around the region.

In response to increased growth, the City of Kirkland developed the Kirkland Transit Implementation Plan (KTIP) to improve transit service within the City. In 2015, the City worked closely with stakeholders and the community to develop the Transportation Master Plan (TMP), which helped to prioritize transportation projects through 2035.

The TMP establishes several goals relevant to transit, which include:

- **Goal T-0 Safety:** By 2035 eliminate all transportation related fatal and serious injury crashes in Kirkland.
- **Goal T-3 Public Transportation:** Support and promote a transit system that is recognized as a high value option for many trips.
- **Goal T-5 Link to Land Use:** Create a transportation system that supports Kirkland's land use plan.
- **Goal T-6 Be Sustainable:** As the transportation system is planned, designed, built, maintained and operated, provide mobility for all using reasonably assured revenue sources while minimizing environmental impacts.
- **Goal T-7 Be an Active Partner:** Coordinate with a broad range of groups; public and private to help meet Kirkland's transportation goals.

The KTIP builds upon the goals of the Transportation Master Plan and serves as a tool to help get Kirkland residents where they want to go in the safest and most efficient way.

PLANNING PROCESS

This Plan is the result of a year-long process that involved local stakeholders, transit agencies, community members, and comprehensive technical analyses to understand the current state of fixed-route transit service and plan for the future. A Technical Advisory Committee comprised of King County Metro, Sound Transit, and Washington State Department of Transportation (WSDOT) was convened to identify the best strategies to enhance transit connections, while the Kirkland Transportation Commission provided guidance throughout the plan development process.

COMMUNITY OUTREACH

The KTIP was informed by two phases of community outreach. For the first phase, feedback was collected at an in-person Open House in November 2017 and through an online survey that was available for resident participation in December 2017 and January 2018. After these comments were collected, the input was used to guide transit improvement priorities in Kirkland and to identify specific projects which enhance transit service throughout the City. For the second phase, the City hosted an Online Open House for community members to learn more about potential transit projects and provide feedback on the proposals. These efforts are described in greater detail in the upcoming sections.





6TH STREET



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Blvue TC/Kingsgte
Kirkland
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Overlake/S Bellev
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Drickyan/Seattle
Kirkland
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www.kingcounty.gov/metro
King County
METRO



255

King County
METRO

6998

IT STARTS
WITH
YES
The Campaign For
Seattle Children's
Seattle Children's
Hospital

6900



EXISTING AND FUTURE CONDITIONS



EXISTING TRANSIT LANDSCAPE

Existing Services

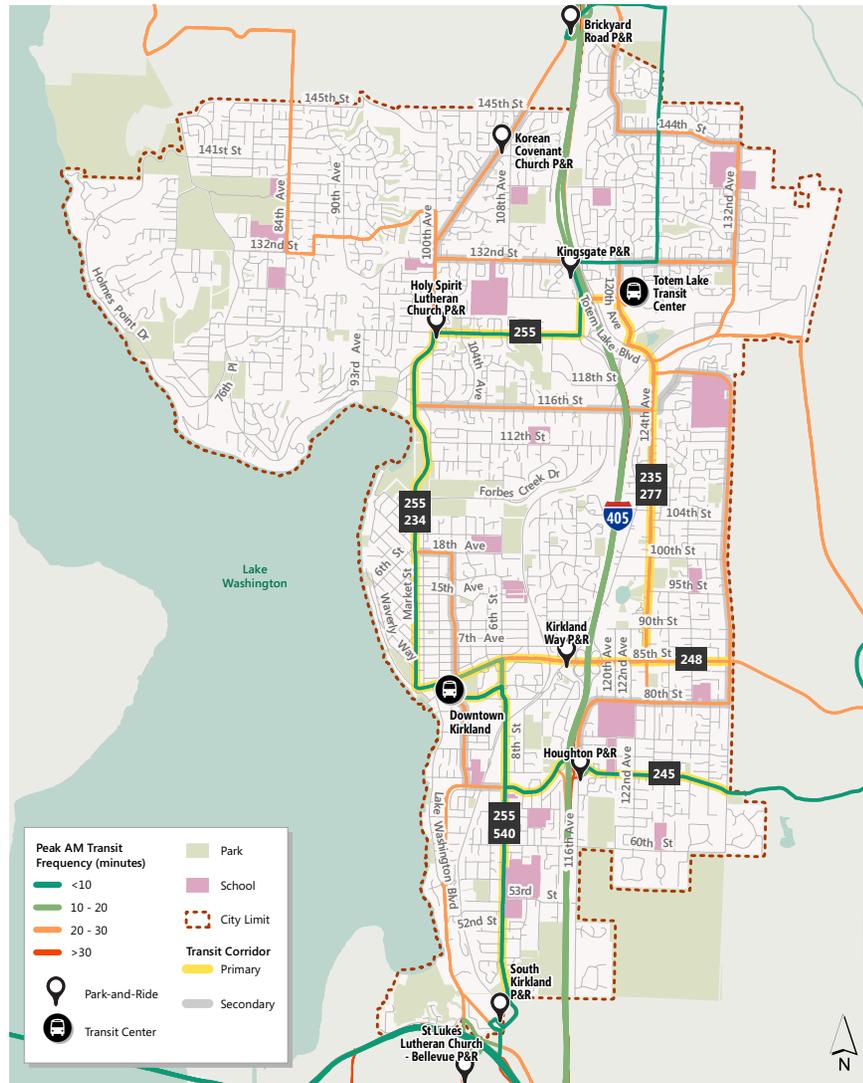
Kirkland currently has fourteen bus routes that pass through its boundaries: two frequent lines, with buses arriving every 15 minutes or less during peak periods (the 245 and 255); four express lines, with limited stops (the 252, 257, 277, and 540); and eight local lines. There are three hubs for transit in City limits – the Downtown Kirkland Transit Center, the Totem Lake Transit Center, and the South Kirkland Park and Ride. Additionally, there are five other Park and Ride lots in Kirkland, including Houghton, Kirkland Way, Kingsgate, Holy Spirit Lutheran Church, and Korean Covenant Church. These are shown in **Figure 1**.

The Transportation Master Plan identified priority transit areas along primary and secondary corridors, shown in yellow and grey respectively in **Figure 1**. The corridors represent key transit functions with existing or planned frequent service. However, much of the City is still without frequent service, and some areas, such as the northwestern part of the City along Juanita Drive, have no transit service.¹

Approximately 8,000 people board a bus in Kirkland each day, with some routes carrying a majority of the total ridership. Route 255, which operates between Kirkland and Downtown Seattle has the highest ridership among all Kirkland routes with approximately 3,300 people boarding each day. In general, ridership has increased since 2013, with citywide daily boardings up over 100 percent, as shown in **Table 1**.

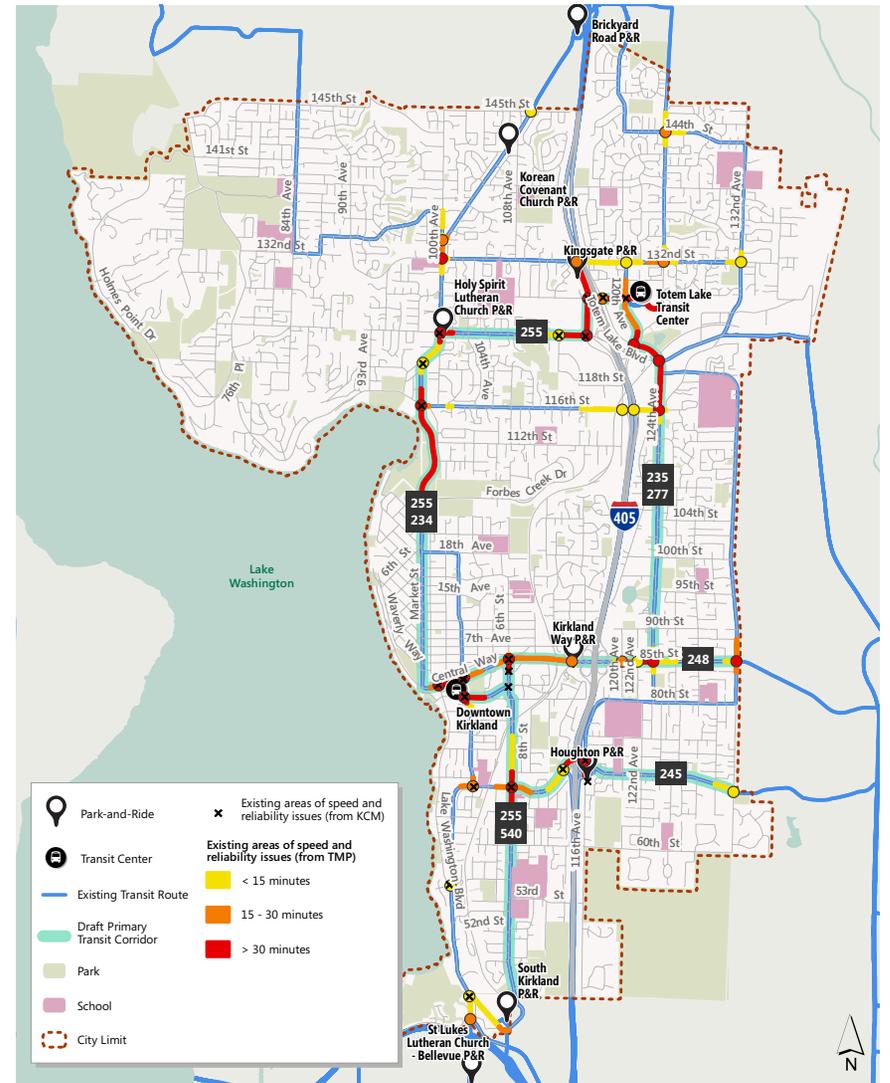
1. The City of Kirkland is working with King County Metro through their "Community Connections" program in order to identify the appropriate alternative solution.

Figure 1: Existing Transit Network in Kirkland



Source: Fehr & Peers, 2018

Figure 2: Existing Transit Speed and Reliability in Kirkland



Source: Fehr & Peers, 2018

Service Performance

The Kirkland Transportation Master Plan and recent King County Metro studies provided the location and type of speed & reliability issues typically experienced by transit. Several locations throughout the city experience significant transit delay and reliability issues. **Figure 2** highlights these areas, which include:

- Kingsgate Park & Ride
- Totem Lake area along NE 128th Street and 124th Avenue NE
- Market Street/98th Avenue NE south and north of Forbes Creek Drive
- Downtown Kirkland and the Kirkland Transit Center
- Houghton Park & Ride
- 6th Street S/108th Avenue NE
- NE 85th Street at 124th Avenue NE and 132nd Avenue NE
- 100th Avenue NE at NE 132nd Street and NE 124th Street

Many of the significant delays are associated with turning movements at major intersections within Kirkland. Several corridors also experience significant delay, such as 98th Avenue NE south of NE 116th Street and 124th Avenue NE north of NE 116th Street.

PLANNING CONTEXT

Travel Demand

In order to best serve transit users in the City of Kirkland in the future, it is essential to understand the full landscape of how travel demand is anticipated to change. A driving factor will be

changes to land use. Because transit, more than any other mode, is dependent on land use for success, Kirkland's land use choices will have an important influence on where and how transit service is deployed. Kirkland's Comprehensive Plan sets a goal of promoting a compact, efficient, and sustainable land use pattern in Kirkland that:

- Supports a multimodal transportation system that efficiently moves people and goods;
- Minimizes energy use, greenhouse gas emissions, and service costs;
- Conserves land, water, and natural resources; and
- Provides sufficient land area and development intensity to accommodate Kirkland's share of the regionally adopted population and employment targets.

The majority of Kirkland's growth will be concentrated in the Totem Lake Urban Center, which will have significant concentrations of employment and housing, as well as high-capacity transit service and a wide range of land uses. Downtown Kirkland will experience moderate commercial and residential growth, serving as a hub for transit. Several other mixed use centers around the City will experience growth, including Juanita Village, the South Kirkland Park & Ride, and other mixed use centers shown in **Figure 5**.

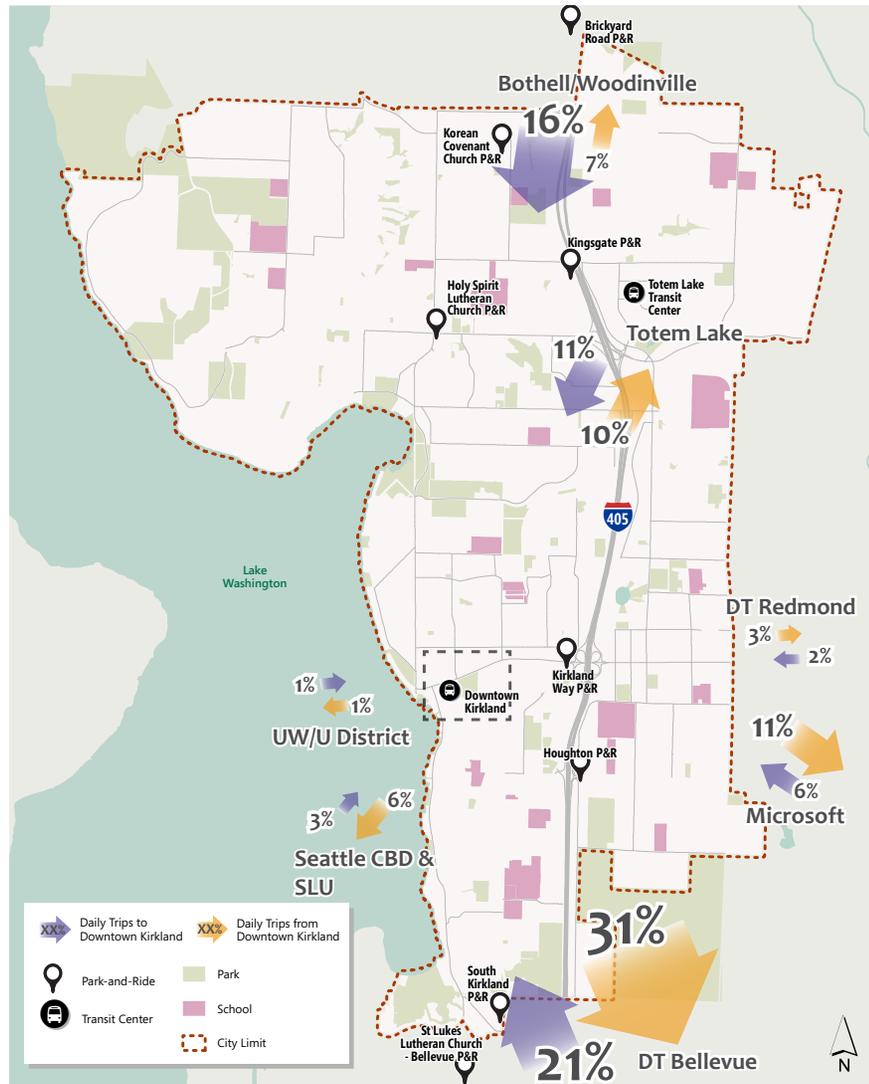
To understand future transportation conditions, the PSRC Travel Demand Model² provided forecasted travel demand from Downtown Kirkland and the Totem Lake Regional Growth Center for a 2025 horizon year.

Table 1: Change in Transit Ridership by Route

Rte	Service Type	2013 Daily Boardings	2017 Daily Boardings	Δ Daily Boardings
234	Frequent	320	660	340
235	Frequent	300	660	360
236	Local	150	350	200
238	Local	305	490	185
243	Local	0	3	3
244	Local	75	90	15
245	Frequent	250	660	410
248	Local	120	340	220
249	Local	80	135	55
252	Express	265	365	100
255	Frequent	1,365	3,320	1,955
257	Express	230	300	70
277	Express	140	135	-5
540	Express	220	280	60

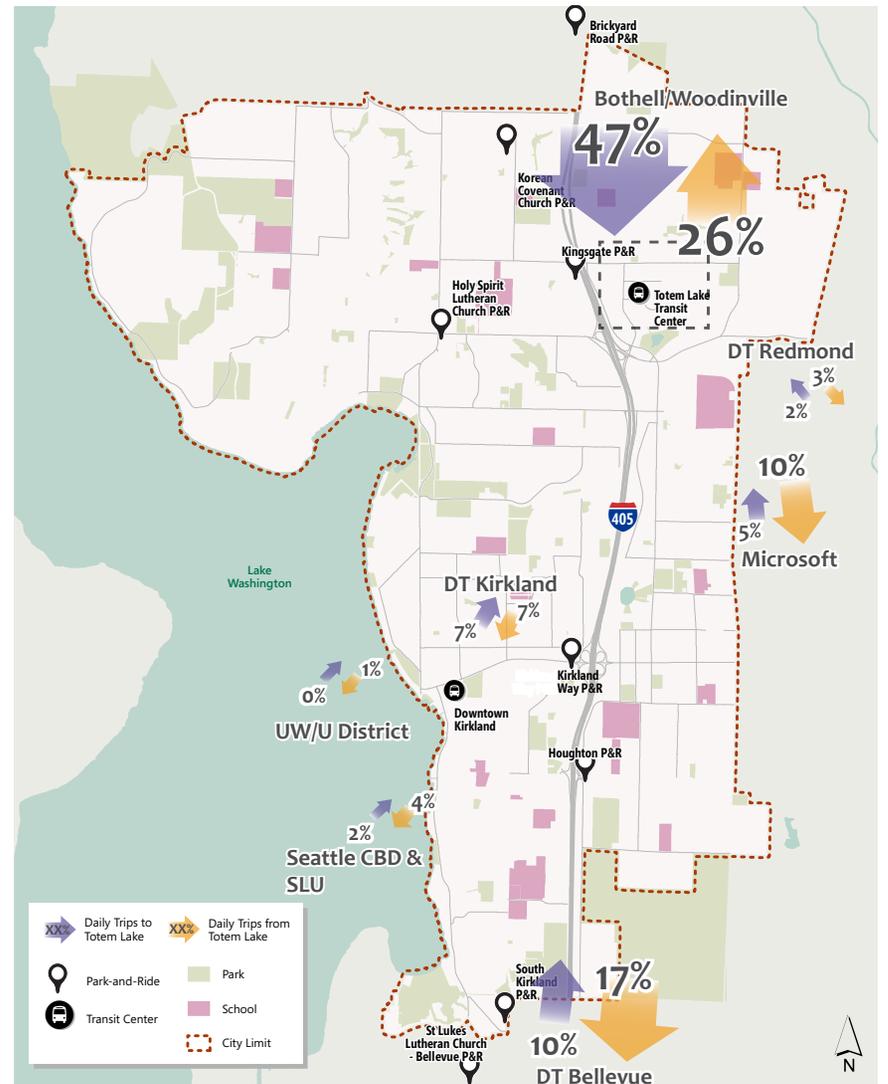
2. The PSRC travel demand model version used for the development of METRO CONNECTS

Figure 3: Daily Travel Demand from Downtown Kirkland in 2025



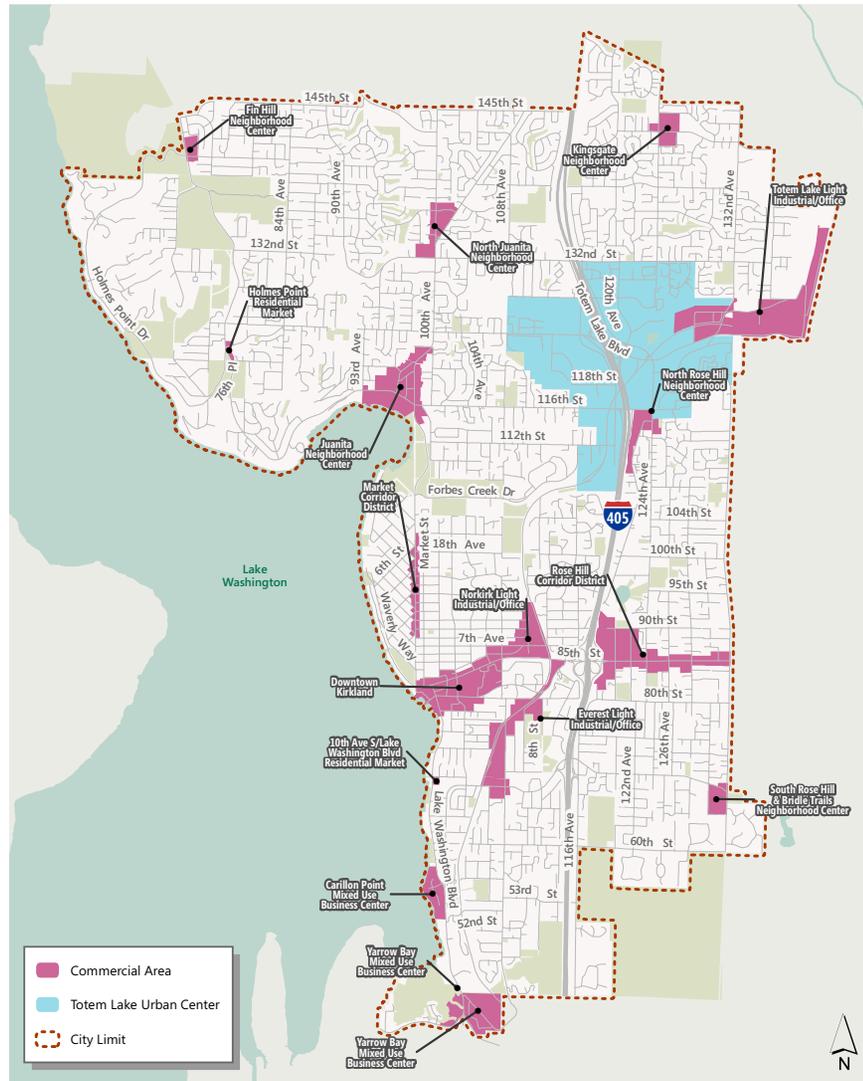
Source: Fehr & Peers, 2018. Data Source: PSRC 4k Travel Demand Model, 2025

Figure 4: Daily Travel Demand from Totem Lake in 2025



Source: Fehr & Peers, 2018. Data Source: PSRC 4k Travel Demand Model, 2025

Figure 5: Commercial and Mixed Use Areas in Kirkland



Source: Fehr & Peers, 2018

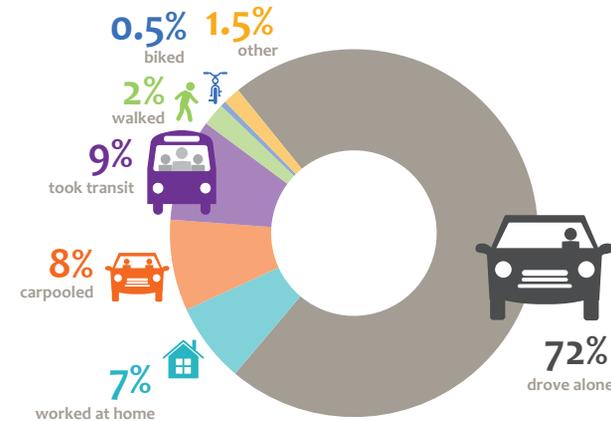
Figures 3 and 4 demonstrate where people will travel to in the region in 2025 when starting their trip in Downtown Kirkland and Totem Lake, respectively. From Downtown Kirkland, heavy demand is anticipated to and from Downtown Bellevue, Totem Lake, Bothell, and Woodinville. From Totem Lake, the demand for traveling to Bothell and Woodinville is much greater than it will be from Downtown Kirkland, and demand to Downtown Bellevue is also strong.

Transit Travel Demand

Given the longer distances of Kirkland residents' journeys to work, most residents either drive or take transit to work. Results from the American Community Survey (ACS) show that while most Kirkland residents drive alone to work (72%), transit is the second most common commute mode (9%), followed by carpooling (8%) and telecommuting (7%), as shown in Figure 6.

The Sound Transit Ridership Model provided forecasts of future transit demand along key corridors within the City. Current ridership from 2017 is based on average daily departing number of riders on the bus in both directions. The 2025 and 2040 models assume Bus Rapid Transit (BRT) service on I-405 and frequent transit service along NE 85th Street will be in place.

Figure 6: Kirkland Residents' Modeshare



Source: Fehr & Peers, 2018. Data Source: 2015 American Community Survey 5-year estimate

The corridor that will experience the greatest **percent increase** in daily ridership by 2025 is NE 85th Street, with up to 440 new riders (over a 100 percent increase from 2017), primarily due to connections to the I-405 BRT system. NE 85th Street will continue to see significant increases in ridership by 2040, with up to 610 new riders from 2017 (150 percent increase). By 2040, NE 124th Street will experience the biggest percent change in ridership, with up to 1,230 new riders (190 percent increase from 2017).

In terms of **net change**, the Kirkland Transit Center will see steady growth in ridership, with up to 730 new riders expected by 2025 (25 percent increase) and 1,230 new riders by 2040 (40 percent increase), as shown in **Figure 7**. Market Street at Forbes Creek and NE 124th Street at 116th Avenue NE will also experience steady growth – 1,400 new riders are expected on Market Street at Forbes Creek by 2040 (70 percent increase), and 1,230 riders are expected at NE 124th Street and 116th Avenue NE by 2040 (190 percent increase).

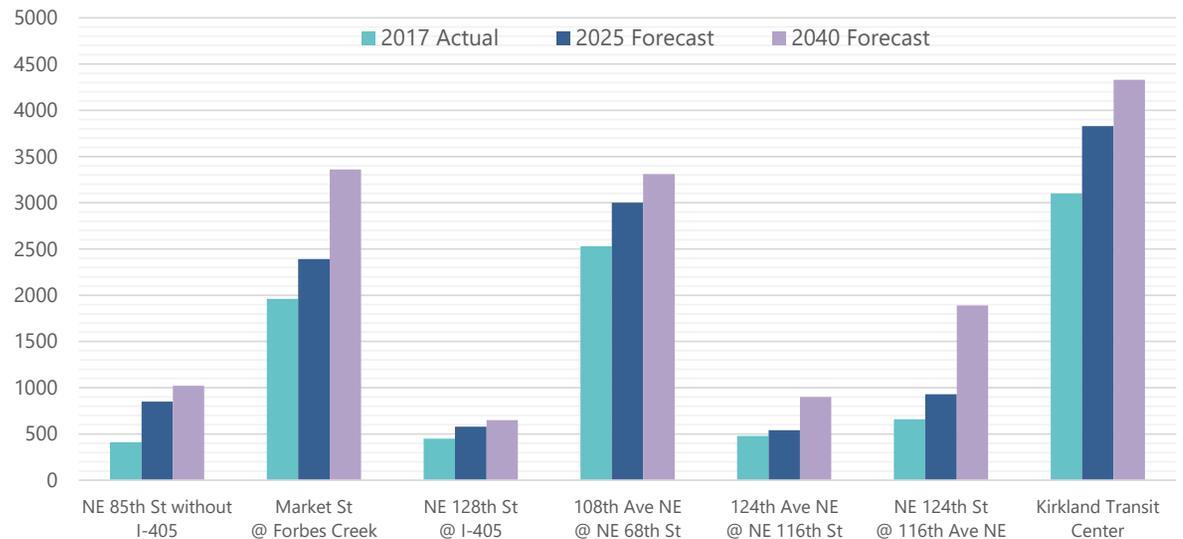
Future Transportation in Kirkland

The Sound Transit 3 (ST3) System Plan will build rail and bus projects throughout the region over the next 25 years. Of the many projects in the ST3 System Plan, a few are of particular interest to Kirkland, including:

- I-405 Bus Rapid Transit:** This project establishes a Bus Rapid Transit (BRT) corridor along I-405 connecting Lynnwood and Burien. This project will utilize the I-405 Express Toll Lanes to improve travel times and increase service reliability. The project will also construct a new station at the NE 85th Street interchange, including a transit connection to downtown Kirkland. (Project completion: 2024)
- East Link Light Rail:** This project builds light rail from Seattle’s International District across I-90 to Mercer Island and South Bellevue, and through downtown Bellevue to Redmond Technology Station. As a second phase, the line will be extended to downtown Redmond. (Project completion: 2023 for Phase 1 and 2024 for Phase 2)
- South Kirkland to Issaquah Light Rail:** This project builds light rail between South Kirkland and Issaquah, including new stations at the South Kirkland Park and Ride, the Richards Road area, near Bellevue College in Eastgate, and central Issaquah. (Project completion: 2041)

Additionally, King County Metro is expanding its RapidRide service throughout the region, including service to Kirkland. By 2040, Kirkland will be served by three RapidRide lines (Routes 1025, 1026, and 1027). RapidRide will provide riders better connections, buses that come more often, and faster service that is more reliable and comfortable. Planning of Route 1027 between Kirkland, Bellevue, and Eastgate will begin in 2019.

Figure 7: Forecasted Change in Daily Ridership



Source: Fehr & Peers, 2018



SPEED
LIMIT
35





6999

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PROJECT DEVELOPMENT



As the City of Kirkland plans for future transit, it is important to recognize opportunities and challenges for the City's and region's transportation system. Sound Transit and King County Metro are heavily investing in the region's transit infrastructure. Additional RapidRide routes, light rail expansion, and revisions to I-405 in the upcoming years will make it easier to take transit to and from Kirkland. Despite these revisions, growing traffic congestion is a regional reality, limited right-of-way influences what improvements are feasible on our roadways, and limited funding is an ongoing challenge. Further, the City of Kirkland must balance how much to invest in maintaining existing operations versus new capital expenses.

This chapter details a long list of potential projects to address existing or anticipated transit challenges. These projects stem from public input, discussions with City staff and the Technical Advisory Committee, field visits, Kirkland's Transportation Master Plan (TMP), and recent King County Metro studies. Projects fall into one of three overall categories – speed and reliability, non-motorized access to transit, and flexible transit service.

COMMUNITY OUTREACH FEEDBACK

On November 14, 2017, the City held an Open House at Heritage Hall with almost 20 people in attendance. Community members identified additional speed & reliability issues, which include:

- Delays entering/exiting the South Kirkland Park & Ride
- Delays near Northwest University
- Access within the neighborhood of Juanita
- Reliability of Route 540
- Queueing northbound on Market Street
- NE 132nd Street congestion (eastbound in the AM, westbound in the PM)
- 124th Avenue NE congestion between NE 85th and 104th Streets in the AM
- NE 85th Street congestion (eastbound in the AM, westbound in the PM)

Attendees were asked to rank six potential transit improvement types using dots at the meeting on a scale of one to six, one being the highest priority and six being the lowest. Attendee rankings of these potential improvements were averaged and

are shown in **Table 2**. The full ranking and additional details on the Open House can be found in **Appendix A**.

To supplement the in-person input, the City conducted an online survey which included an interactive web map on the project website from December 15, 2017 to January 15, 2018 to gauge how people experience using transit in Kirkland today and what their priorities are for future transit. Over 260 people responded to the survey and almost 100 comments were pinned on the web map. Route 255 was the most commented on route with 76 percent of respondents stating that they ride it at least once a week. Survey respondents had the same top three transit priorities as Open House participants:

1. Speed and reliability
2. Frequency
3. Accessibility

Table 2: Community Ranking of Transit Improvement Types

Priorities	Open House Weighted Average	Survey Weighted Average
Speed and Reliability	1.9	1.8
Frequency	2.2	2.5
Accessibility	3.6	3.1
Safety	4.2	3.7
Information Technology	3.9	4.3
Comfort	5.3	4.7

Source: Fehr & Peers, 2018

The majority of the web map comments identified speed and reliability issues on specific bus routes and along specific corridors. Others identified neighborhoods that need additional and/or improved bus service, such as Inglewood/Finn Hill, Highlands, Juanita, and new development areas in Kingsgate. Several comments identified locations that need bus shelters, crosswalks, bike parking, improved lighting, and other pedestrian and bicycle facilities. Participants had several requests for improved transit access at the Kingsgate, Houghton, and South Kirkland Park & Rides. Lastly, while outside of Kirkland, there were a few requests for improved reliability of Route 540 to Kirkland from the University of Washington. Detailed summaries by area are included in **Appendix A**.

Ultimately, this public input directly informed and served as the basis for the projects in this plan. The project team further refined the project details through field visits and observation.

SPEED AND RELIABILITY PROJECTS

Speed and Reliability was ranked the community's top priority for future transit improvements at the Open House and in the online survey, as shown in **Table 2**.

The Speed and Reliability project type seeks to address how fast and reliable bus service is throughout the city. The analysis addresses locations where buses consistently do not show up on time or get stuck in traffic.

Speed and Reliability investments provide a number of benefits, including faster and more reliable travel time for riders and reduced operating costs for the transit operators. The savings in operating costs can be reinvested to provide more frequent and reliable service. As an example, for every five minutes in travel time saved on Route 255, one less bus is required to provide the same frequency of service.

Methodology

The initial project list for speed and reliability improvements was developed based on a number of sources, including:

- King County Metro analysis – King County Metro recently analyzed a sample of bus routes in Kirkland and identified preliminary problem areas and potential solutions.
- Transportation Master Plan hotspot locations – The TMP identified certain intersections and roadway segments where transit historically experiences significant delay.

- Public feedback – The Open House and survey provided the opportunity for the public to identify areas where they typically experience poor reliability on transit.
- Field visits – The Consultant and City staff visited the most commonly cited locations mentioned above to verify speed and reliability issues.

Project Evaluation Criteria

City staff and the Transportation Commission worked jointly to develop ten evaluation criteria (shown in **Appendix B**) to assess each of the proposed solutions and develop initial project priorities. They measure how effective each potential project would be in supporting effective transit service primarily along the priority and secondary transit corridors established in the TMP. There was a mix of quantitative and qualitative criteria, and criteria was weighted to place more emphasis on factors that aligned best with public input and overall project objectives.

Results

Each project received a total score summing the individual metric scores based on the weighting highlighted in Appendix B. The prioritization scores, in conjunction with public input and professional judgement, guided the development of a focused set of priority projects for inclusion in this plan. The Final Project List chapter describes these priority projects in detail.

The full list of speed and reliability improvements evaluated is outlined below, and projects included in the Final Project List are in bold.

1. **South Kirkland Park & Ride traffic signal**
2. **108th Avenue NE improvements**
3. **Market Street BAT lanes**
4. **Totem Lake Transit Center bus stop consolidation**
5. **Downtown Kirkland Transit Center restructure**
6. **NE 124th Street & 100th Avenue NE improvements**
7. **NE 85th Street BAT lanes**
8. **Houghton Park and Ride stop relocation**
9. **NE 124th St & 116th Ave NE improvements**
10. Totem Lake Boulevard & NE 128th Street improvements for westbound buses
11. NE 128th Street & 116th Avenue NE improvements for westbound buses
12. NE 124th Street & 124th Avenue NE improvements and signal modifications
13. NE 85th Street & 124th Avenue NE improvements for east/westbound buses
14. New bus stop on 116th Avenue NE at the Kingsgate Park & Ride
15. NE 85th Street & 132nd Avenue NE improvements for westbound buses
16. Extend westbound right turn lane at NE 132nd Street & 100th Avenue NE
17. Bus stop relocation on 100th Avenue NE near NE 137th Street

NON-MOTORIZED ACCESS PROJECTS

During the Open House and in the online survey, community members expressed a desire for projects that improve transit accessibility and safety.

Additionally, the Transportation Master Plan has a policy to integrate transit facilities with pedestrian and bicycle networks.³ The Non-Motorized Access project type focuses on identifying Activity Centers⁴ that would warrant investment to improve the pedestrian and bicycle connections to transit. Specific facilities could include upgraded sidewalks, signalized crosswalks, or bike lanes.

Non-motorized access projects improve the safety and connectivity to transit stops and increase the usefulness of transit. Shorter walk and bicycle distances and faster crossings of arterials enable potential riders to safely and more quickly get to and from their transit stop to reach their destination.

Methodology

This assessment specifically looked at locations near key transit centers, Park & Rides, and nodes of commercial activity. 26 locations in total were ultimately analyzed based on input from City staff. At each location, a 0.6 mile walkshed was

3. Policy T-3.3

4. Activity Centers are key trip hubs in the City, such as where people work, shop, catch the bus, or congregate within a neighborhood

5. 0.6 miles is roughly a 15-minute walkshed on level terrain

Figure 8: Two Approaches for Estimating 0.6 Mile Walkshed from Downtown Kirkland



Source: Fehr & Peers, 2018.

generated from a central point (as shown as A in **Figure 8**), which was based on the existing “walk network” (i.e. streets and trails). In other words, how far can a person get if they walk 0.6 miles from the central point.⁵ This was compared to the walkshed “as the crow flies” (as shown as B in **Figure 8**). In an area with a consistent north-south and east-west street network, the ratio between the two distances (A divided by B) would be approximately 70 percent. Once the ratios were determined for each location, the final Walkshed Index score was calculated. Sites ranking closest to 70 percent received a Walkshed Index of 100.

This assessment was meant to provide a high-level comparison between key transit activity centers to understand general locations that should be targeted for non-motorized investment. The evaluation did not incorporate other aspects including sidewalk quality, ADA facilities, or bicycle infrastructure. It also did not incorporate terrain into the walkshed distance. Understanding how terrain impacts the walkshed will be useful in the next phase of analysis to determine appropriate locations for non-motorized investments. For example, if terrain significantly restricts the walkshed from an activity center, an area closer than 0.6 miles around the activity center should be the focus of any proposed non-motorized projects. This ensures that the proposed project would benefit an area within the actual walkshed (once terrain is accounted for).

Project Evaluation Criteria and Results

The ten locations with the lowest Walkshed Index score were included in the Online Open House during June 2018 for feedback from the community. The Final Project List

chapter incorporates the community feedback and ranking of the locations to outline the overall strategy for addressing non-motorized access to transit. Identifying specific projects will be addressed in the upcoming Active Transportation Plan update.

FLEXIBLE TRANSIT SERVICE PROJECTS

During the Open House and in the online survey, community members expressed a desire for projects that improve transit frequency and accessibility. **Table 2** shows how the 262 survey participants ranked what aspects of transit the City should prioritize, with 1 being the highest priority and 5 being the lowest priority.

The Flexible Transit Service project type seeks to provide a more cost-effective transit option at certain times of day when fixed-route transit service is not as efficient as alternative modes. As an example, during times when fixed-route transit service only carries a handful of riders, alternative mobility options such as an on-demand ride-hailing service (e.g. Uber and Lyft) could provide connections to high frequency transit or to a rider’s final destination for a comparable price. This approach could help make it possible to maintain or improve convenient fixed-route transit service where it is the most efficient, providing the appropriate level of service in certain areas and times of the day.

It is important to note that this evaluation process is intended to start the conversation around the general need for flexible transit service in

terms of demand and locations, as opposed to specific routes that should be restructured. As a result, this will help inform City decisions on if this type of project makes sense and how many resources to devote to it.

Methodology

To identify the areas where flexible service may be appropriate, the project team used King County Metro data to calculate the operating cost per trip, cost per rider, and average customer trip length for a given route and time period. This data was then used to estimate the cost of using a ride-hailing service such as Uber or Lyft instead of fixed-route transit. While this analysis evaluated existing bus routes, potential

areas outside of existing fixed-route service areas were considered for flexible transit.

King County Metro is currently evaluating bus routes in northeast King County through the North Eastside Mobility Project. That evaluation will complement the initial assessment conducted for the Kirkland Transit Implementation Plan.

Project Evaluation Criteria and Results

The estimated cost of a ride-hailing trip was compared to the operating cost per trip for existing transit routes. Routes were ranked as having a high, medium, or low opportunity for

flexible transit based on the cost comparison between a ride-hailing service and fixed-route transit. The analysis was not meant to target specific routes, but was meant to provide a general understanding of how fixed-route transit service performs in Kirkland throughout the day and what opportunities may exist for flexible forms of transit.

A Flexible Transit Service program is described in the Final Project List chapter later in the plan.





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FINAL PROJECT LIST

The potential Speed & Reliability projects were prioritized based on the evaluation criteria, and the top nine projects were carried forward to the Final Project List. In addition, two programmatic projects focused on Non-Motorized Access and Flexible Transit are included in the Final Project List. The projects are not listed in priority order.

This section includes a description of each project, the benefits and challenges, and the estimated costs of the project. Additionally, a timeline of each project and coordination and funding considerations are included to establish the next steps for implementation of the Plan.

The benefits, cost estimates, and considerations are based on a mostly qualitative review of existing information and are provided as a means to compare separate projects. More detailed technical analysis would be required to more accurately estimate travel time benefits, design-based cost estimates, and other technical considerations for construction and feasibility.

All of these projects will require partnering with King County Metro and Sound Transit to ensure that the City's capital investments continue to align with the agencies' planned service improvements. Successful

capital projects enable transit agencies to provide additional service as transit becomes faster and more reliable.

The following benefits are summarized for each project:

- Travel time saved per bus trip – The amount of travel time saved per trip is determined by standard estimates of travel time improvements based on project type
- Number of bus trips per peak hour – The number of trips operating per hour is based on schedule information for both current and planned service
- Number of riders benefited – The total number of riders on transit that would benefit from the project is based on current ridership and growth projections
- Total travel time saved per day – The combined person-hours savings is based on the total number of daily riders multiplied by the estimated travel time savings per trip

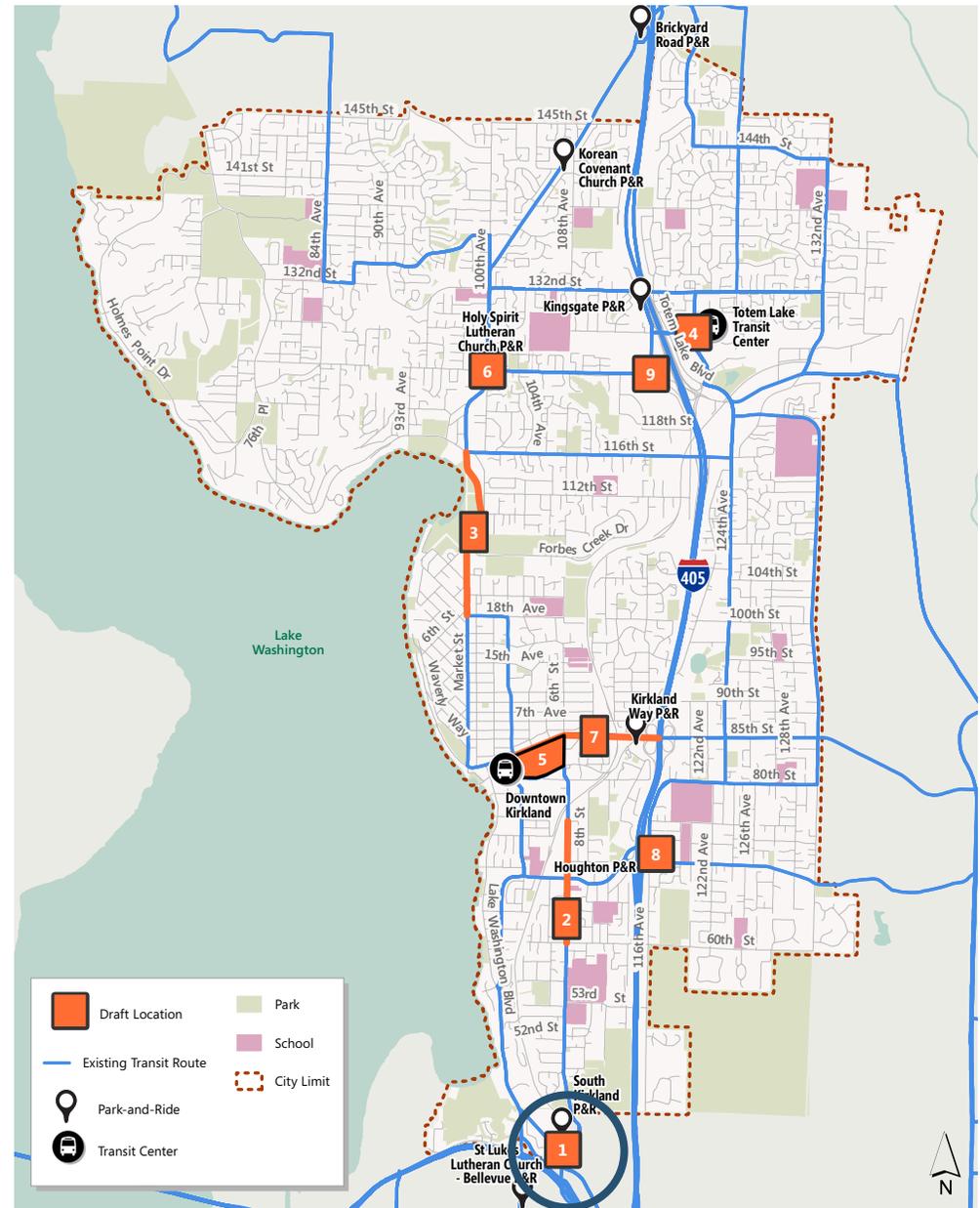
PROJECT 1: SOUTH KIRKLAND PARK & RIDE TRAFFIC SIGNAL

Project Description

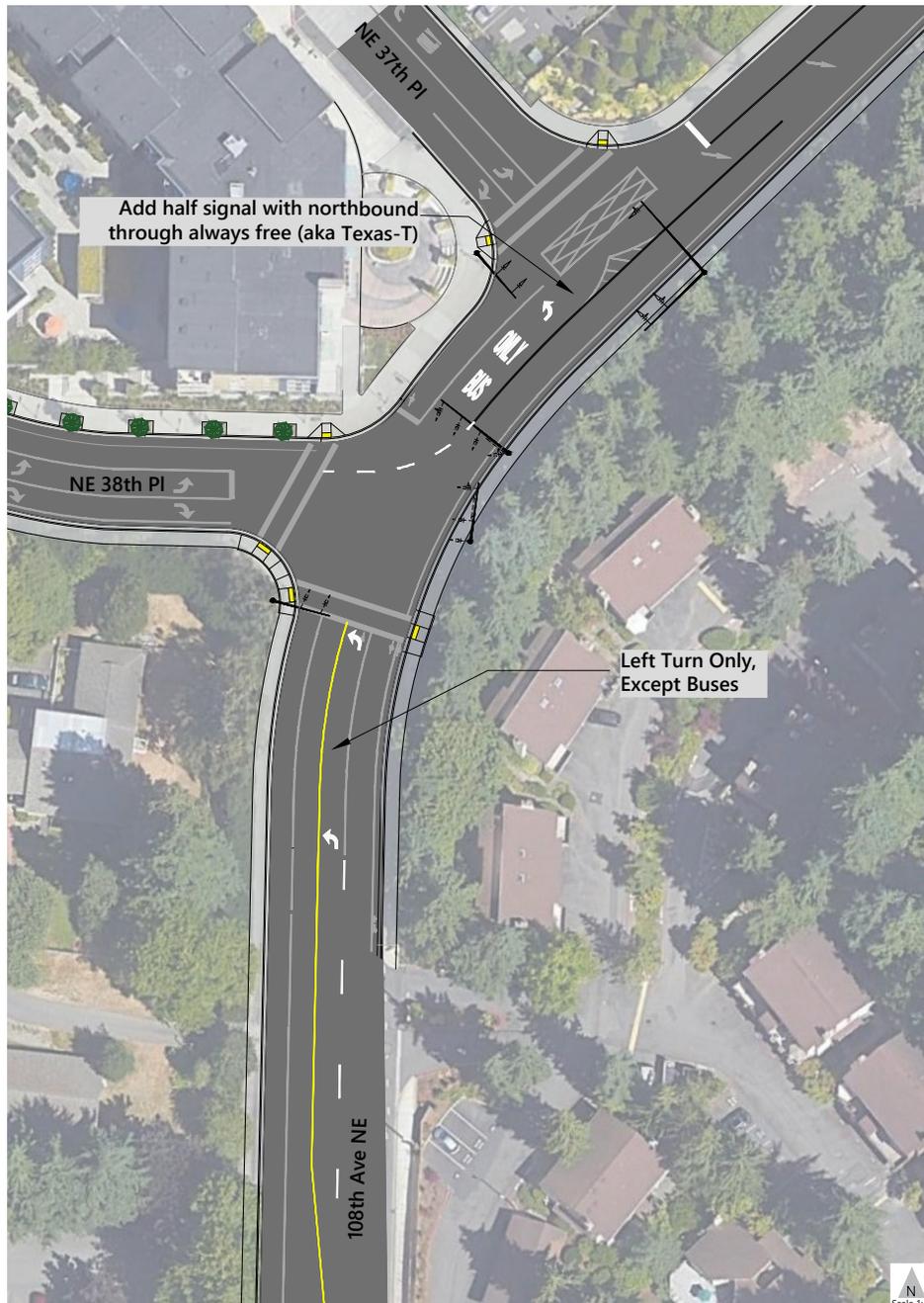
All buses accessing the South Kirkland Park & Ride must enter from 108th Avenue NE at NE 37th Place. There is no signal at this intersection and therefore, buses must wait for gaps in southbound traffic in order to make the left-turn into the Park & Ride. Therefore, this project would construct a transit-only left-turn signal at 108th Avenue NE and NE 37th Place in order to provide a protected left-turn movement for buses. It would require vehicles entering the Park & Ride to use NE 38th Place to access the parking lot from 107th Lane NE. Vehicles exiting the Park & Ride would still be able to use the NE 37th Place intersection.

Project Benefits

- On average, 15-20 seconds saved per bus trip
- 15 to 20 bus trips per hour benefit from the project
- Project improves travel times for 5,000 to 6,000 riders per day
- Travel time savings of over 20 person-hours per day based on ridership and per trip savings
- Increased safety based on reducing potential conflicts with oncoming vehicles
- On a planned RapidRide corridor



Source: Fehr & Peers, 2018



Source: Fehr & Peers, 2018
 Conceptual - Not for construction. Detailed analysis and engineering required

Project Considerations and Potential Challenges

- Signal spacing constraints (current signal is at 38th Place)
- Southbound and northbound vehicle delays and queuing
- Transit-only signal head for northbound left-turn

Coordination Needs

- King County Metro
- Sound Transit
- Adjacent property owners
- WSDOT
- City of Bellevue

Potential Funding Mechanisms

- King County Metro RapidRide Program
- Transportation Improvement Board
- Local City funds

Cost Estimate

\$1-2 million

Timeline for Implementation

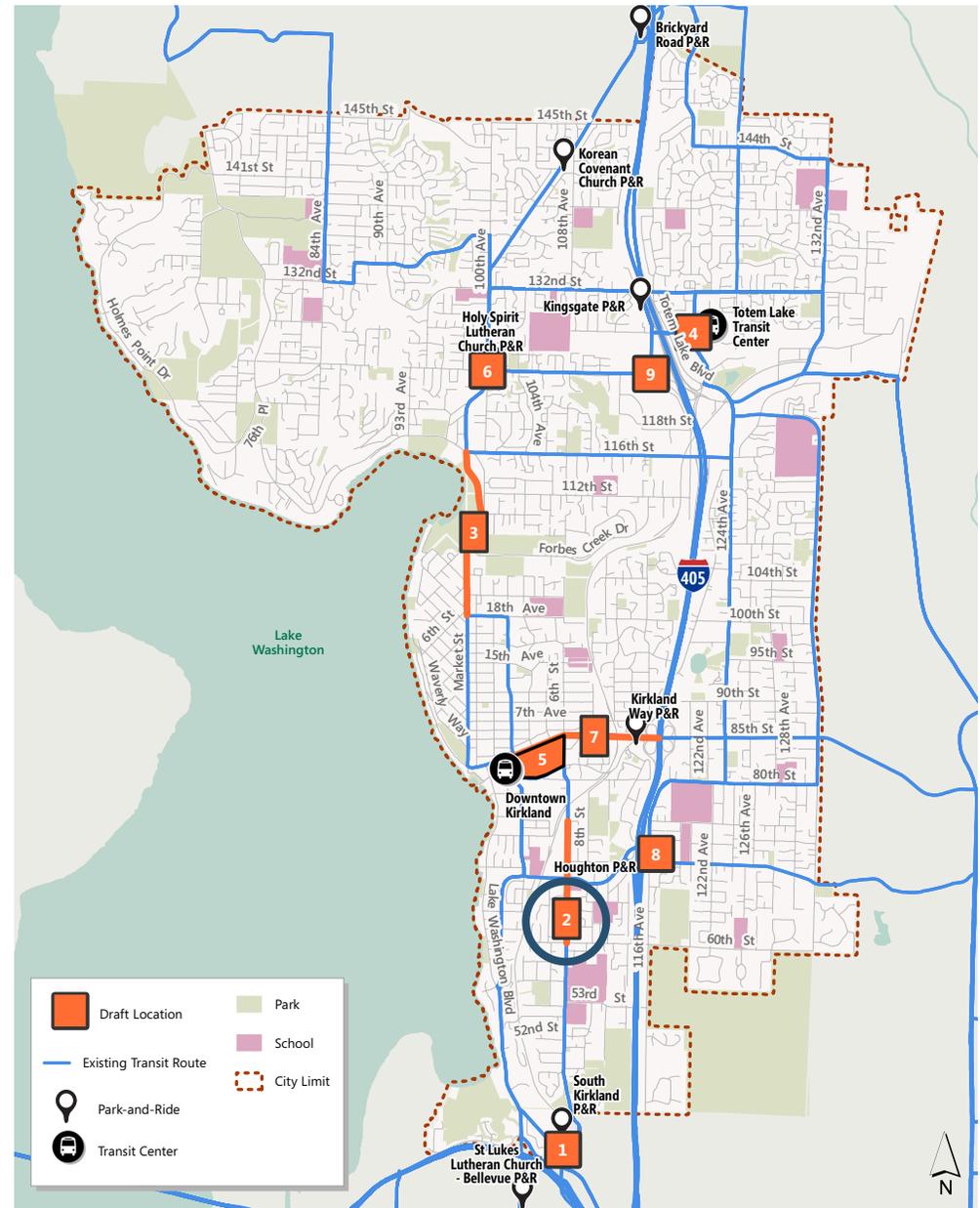


PROJECT 2: 108TH AVENUE NE IMPROVEMENTS

Project Description

Buses routinely experience delay along the 108th Avenue NE corridor, particularly in the PM peak period. The recently completed Houghton Everest Neighborhood Center & 6th Street Corridor Study identified a number of solutions to address transit delay throughout the 108th Avenue/6th Street corridor. This project includes the following components:

- Add a northbound bus lane/queue jump and bus-only signal on 108th Avenue NE at NE 68th Street.
- Explore moving the southbound 245 bus stop north of the intersection (near-side stop).
- Widen 108th Avenue NE to provide a northbound queue jump and/or new signal at NE 60th Street.
- Coordinate the traffic signals along the corridor.
- Consolidate driveways around the businesses at NE 68th Street & 108th Avenue NE.
- Reduce business access on NE 68th Street & 108th Avenue NE to signalized intersections.



Source: Fehr & Peers, 2018

Project Benefits

- On average, over 80 seconds saved per bus trip for the portion of the corridor between NE 62nd Street and 9th Avenue S
- 8 to 12 bus trips per peak hour benefit from the project
- Project improves travel times for 1,500 to 1,800 riders per day
- Over 40 person-hours saved per day
- On a planned RapidRide corridor

Project Considerations and Potential Challenges

- Right-of-way requirements
- Signal modifications

Coordination Needs

- King County Metro
- Sound Transit
- Adjacent property owners
- Fire Department

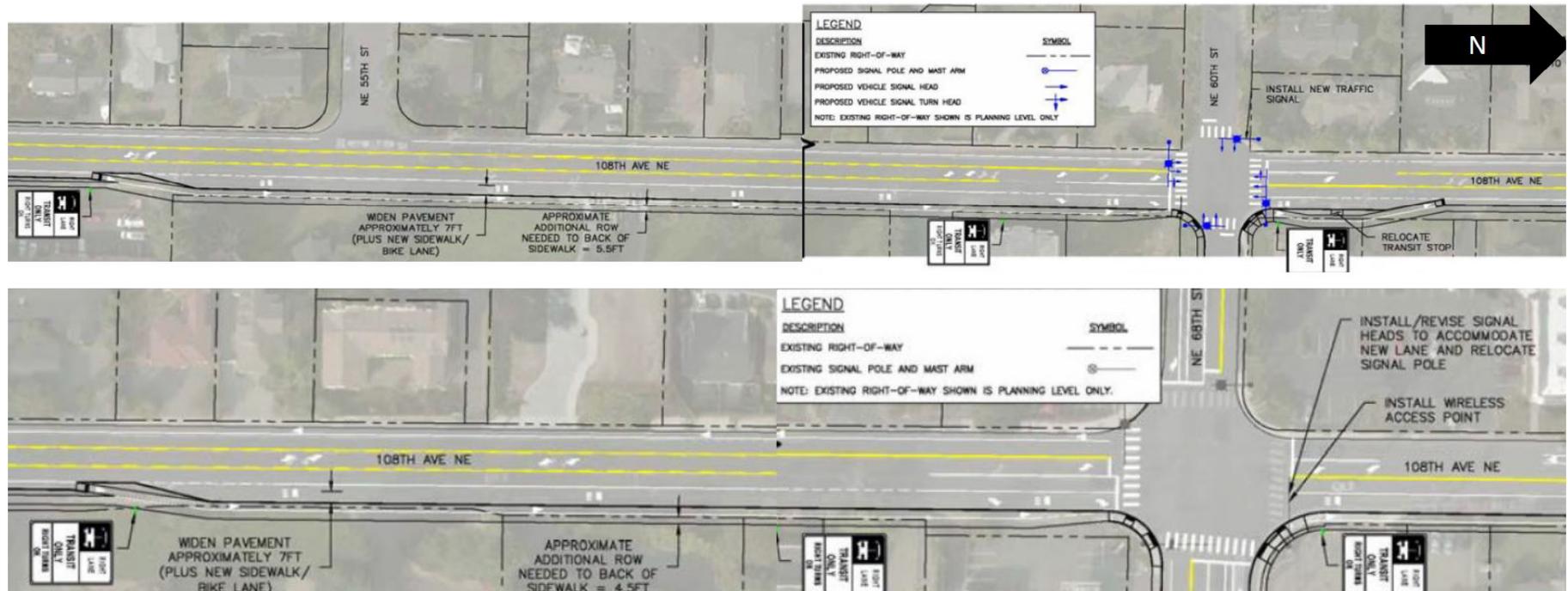
Potential Funding Mechanisms

- King County Metro RapidRide Program
- Transportation Improvement Board
- Local City funds

Cost Estimate

\$10-12 million

Timeline for Implementation



Source: Houghton Everest Neighborhood Center & 6th Street Corridor Study, 2018.
Conceptual - Not for construction. Detailed analysis and engineering required

PROJECT 3: MARKET STREET BAT LANES

Project Description

Transit experiences delays primarily in the northbound direction along Market Street/98th Avenue NE between 18th Avenue and NE 116th Street. Rolling queues develop along Market Street south of Forbes Creek Drive in the PM period and queues block both lanes along 98th Avenue NE at the NE 116th Street intersection.

This project would construct a Business-and-Transit (BAT) Lane from NE 18th Street to NE 116th Street along Market Street/98th Avenue NE. The BAT lane would be in effect during peak travel periods and would be used for parking during non-peak travel times. Beyond the direct travel time improvements for riders on the bus, this project would improve on-time reliability for the substantial number of riders that board at stops further south along the route. The plan describes two potential options for how this could be implemented.

In Option 1, a northbound shared transit/bike lane would be implemented in the AM/PM peak period, with existing parking and bike lanes remaining during the non-peak period. Existing parking and bike lanes would remain on the west side of Market Street. In Option 2, a northbound transit lane would be implemented in the AM/PM peak period, with existing parking remaining during the non-peak period. A two-way protected bike lane would be added on the west side of Market Street.

Project Benefits

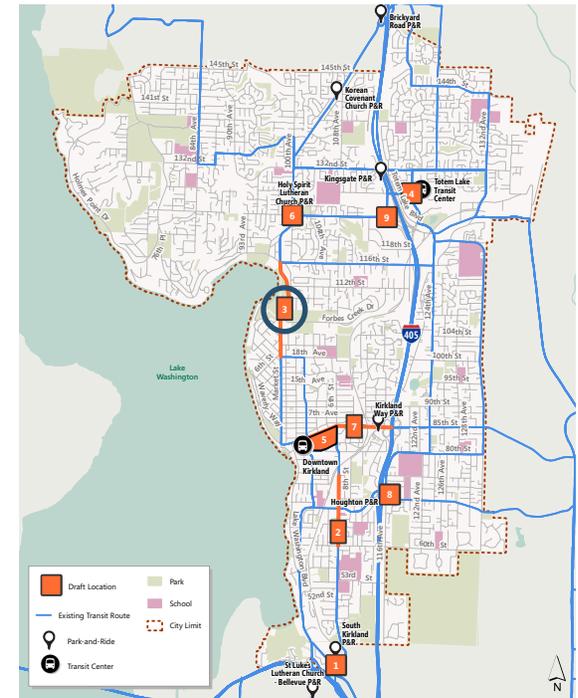
- On average, over one minute saved per bus trip
- 10 to 12 bus trips per peak hour benefit from the project
- Project improves travel times for 2,000 to 2,500 riders per day
- Over 30 person-hours saved per day
- On a planned RapidRide corridor

Project Considerations and Potential Challenges

- Parking removal for portion along Market Street north of NE 18th Street during peak hours (AM and PM)
- Right-of-way constraints with median and bike lanes
- City is currently planning a southbound queue jump lane at Forbes Creek intersection
- Potential options for shared bus/bike lane northbound
- Final options to address parking, bicycles, and transit priority to be determined through a detailed planning and design process

Coordination Needs

- King County Metro
- Adjacent property owners
- Fire Department
- Parks Department



Source: Fehr & Peers, 2018

Potential Funding Mechanisms

- King County Metro RapidRide Program
- Transportation Improvement Board
- Local City funds

Cost Estimate

\$8-12 million

Timeline for Implementation

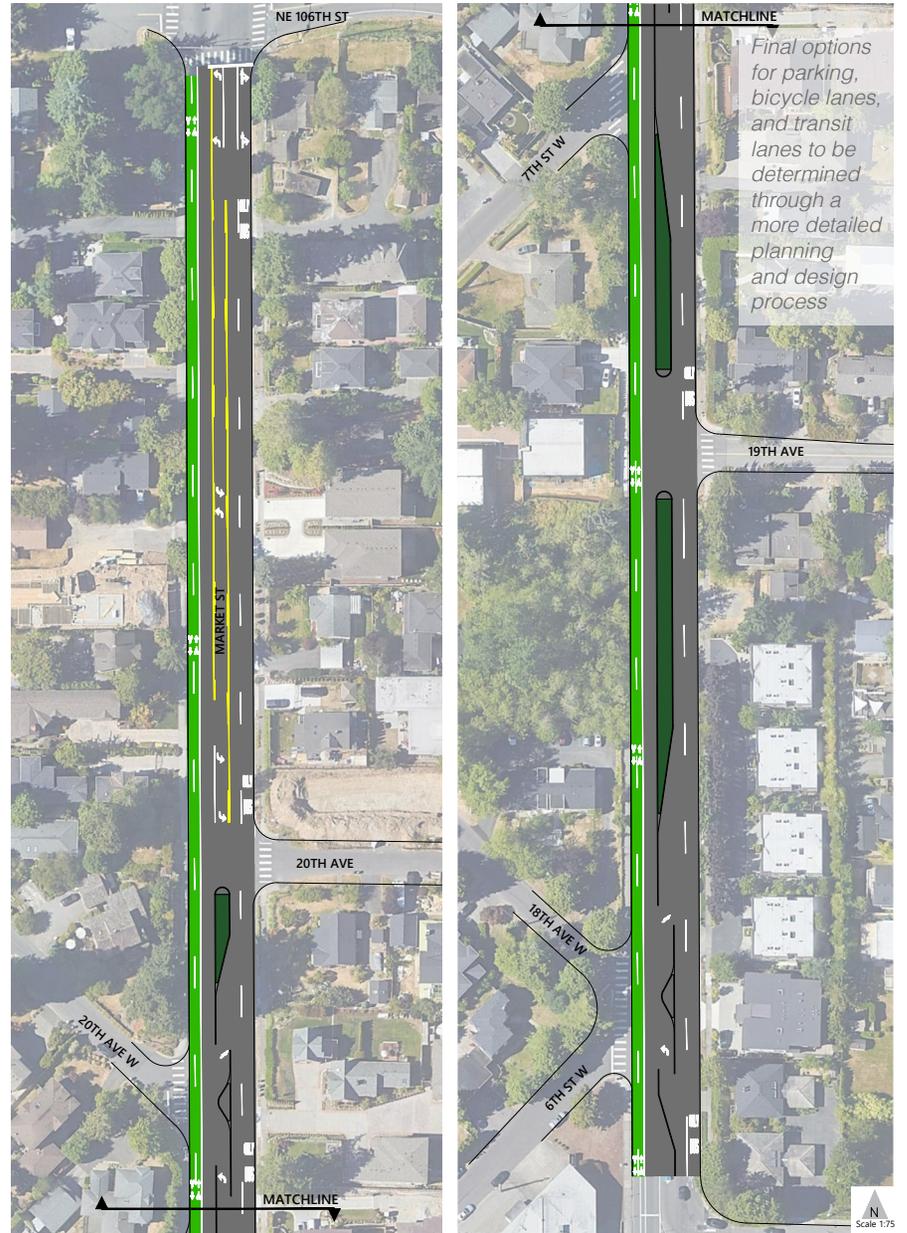


Option 1



Source: Fehr & Peers, 2018
 Conceptual - Not for construction. Detailed analysis and engineering required

Option 2



Source: Fehr & Peers, 2018
 Conceptual - Not for construction. Detailed analysis and engineering required

PROJECT 4: TOTEM LAKE TRANSIT CENTER BUS STOP CONSOLIDATION

Project Description

The Totem Lake Transit Center's location is difficult to serve and duplicates the access provided by the stops near the Totem Lake Freeway Station and the Kingsgate Park & Ride. Buses stopping at the Transit Center must divert from a more direct alignment in order to serve the Transit Center loop. The Transit Center's value is primarily as a place to layover buses between their trips. This project would identify potential route restructures to consolidate the Totem Lake Transit Center stops to locate on-street or to use existing stops on NE 128th Street.

Project Benefits

- On average, almost two minutes saved per bus trip
- 17 to 20 bus trips per peak hour benefit from the project
- Project improves travel times for 500 to 600 riders per day
- Over 15 person-hours saved per day

Project Considerations and Potential Challenges

- Nearby medical facilities require stops within close walking distance
- Potential right-of-way limitations for new stop locations
- Options may include a new eastbound near-side stop on NE 128th Street at 120th Avenue NE or a southbound far-side stop.

Coordination Needs

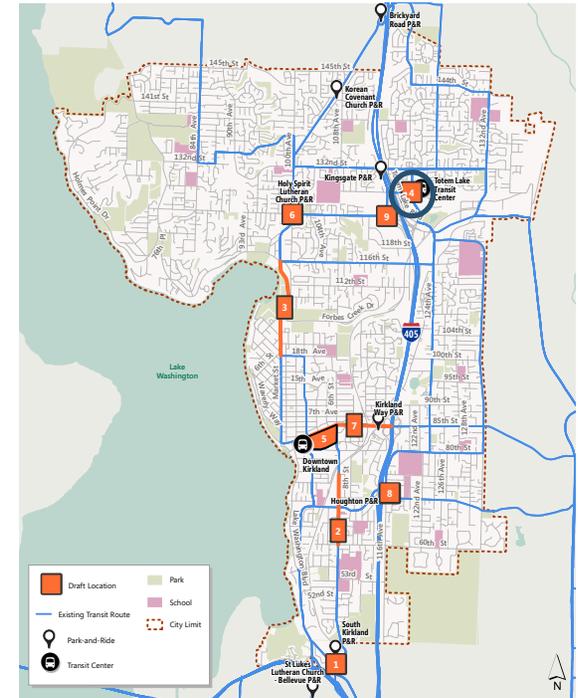
- King County Metro
- Sound Transit
- Adjacent property owners
- WSDOT

Potential Funding Mechanisms

- King County Metro

Cost Estimate

\$700,000 – \$900,000



Source: Fehr & Peers, 2018

Timeline for Implementation





Source: Fehr & Peers, 2018
 Conceptual - Not for construction. Detailed analysis and engineering required

PROJECT 5: DOWNTOWN KIRKLAND TRANSIT CENTER RESTRUCTURE

Project Description

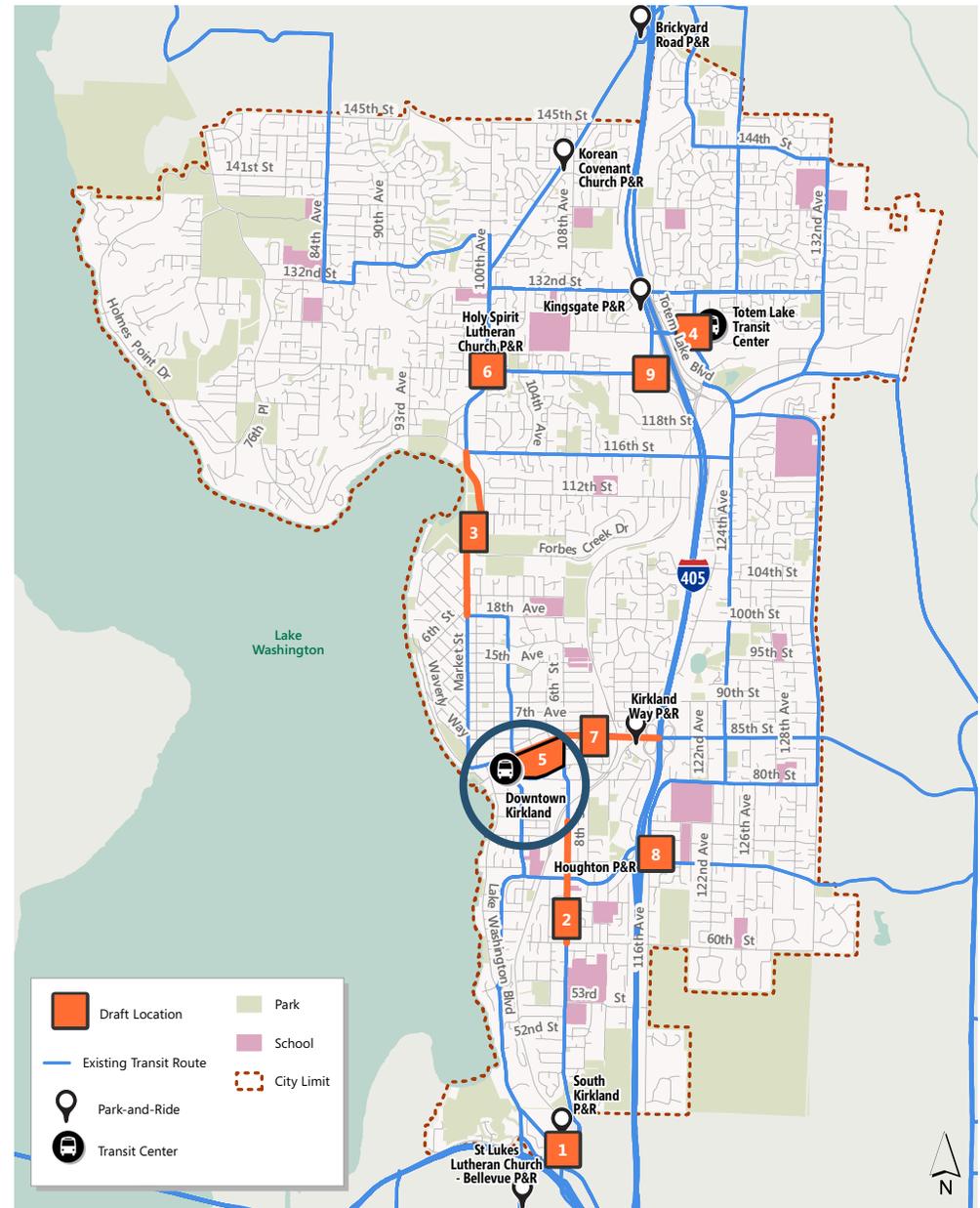
Transit is often delayed by general purpose traffic using 3rd Street through the Kirkland Transit Center. Delays occur when buses re-enter the travel lane and when buses wait in queues at the intersections with Kirkland Avenue and Central Way. This project would evaluate alternatives to restrict vehicle access along 3rd Street between Central Way and Kirkland Avenue in order to speed up buses through the Transit Center.

Project Benefits

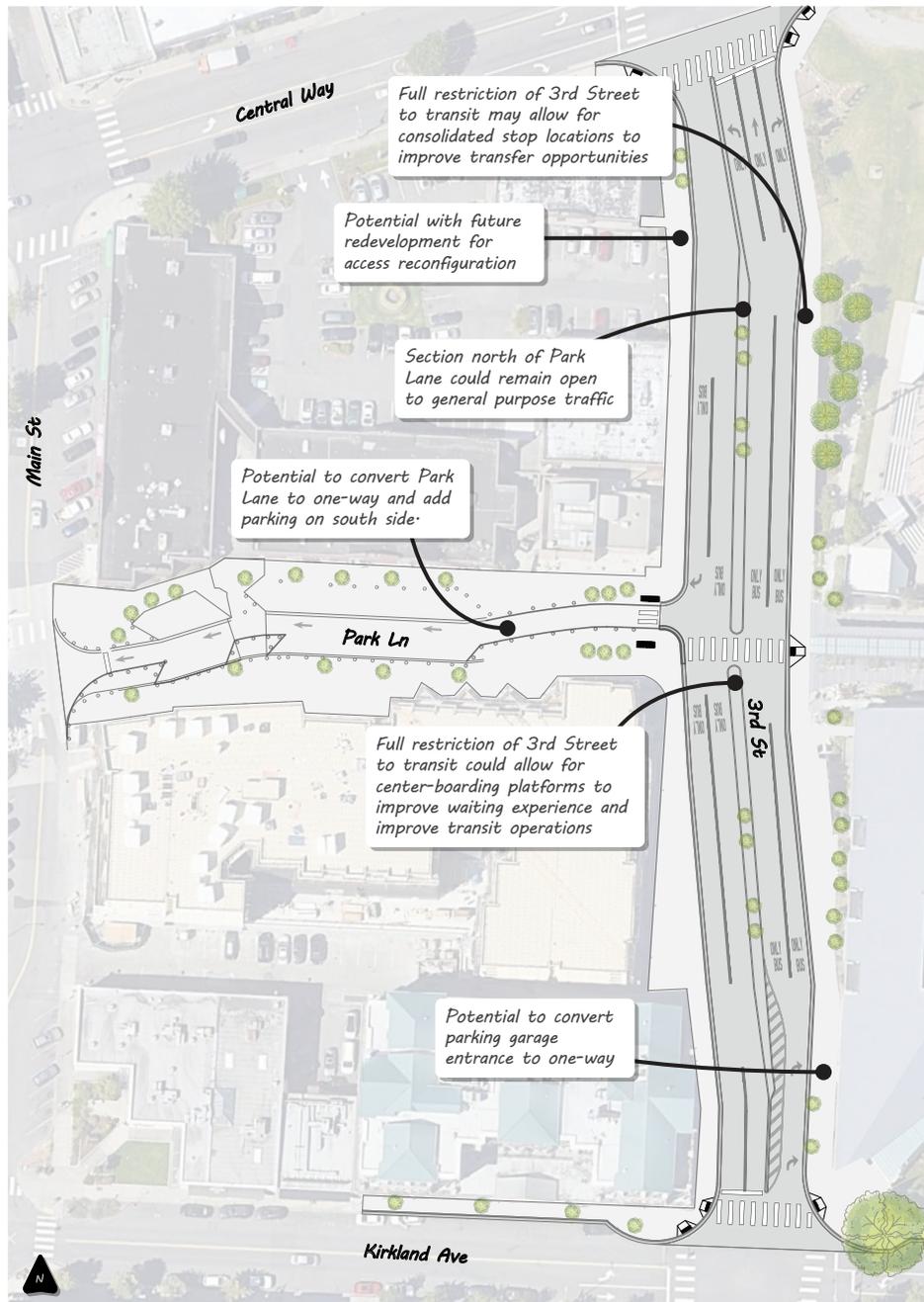
- On average, over 30 seconds saved per bus trip
- 36 to 40 bus trips per peak hour benefit from the project
- Project improves travel times for 3,000 to 4,000 riders per day
- Over 20 person-hours saved per day
- On a planned RapidRide corridor

Project Considerations and Potential Challenges

- Access/egress for parking garage and land use adjacent to 3rd Street
- Potential to extend curb to shorten crossing for pedestrians
- Potential for partial closure of access for vehicles (only northern or southern half or only northbound or southbound)
- Potential for specific time-of-day restrictions
- Diversion of traffic from 3rd Street to parallel streets
- An alternative short-term project is to evaluate the current bus bay assignments. Currently the two routes that travel across Lake Washington (540 and 255) do not serve the same bus bays, and riders must choose a specific route rather than using the next-arriving bus.



Source: Fehr & Peers, 2018



Source: Fehr & Peers, 2018
 Conceptual - Not for construction. Detailed analysis and engineering required

Coordination Needs

- King County Metro
- Sound Transit
- Adjacent property owners
- Kirkland Library
- Parks Department

Potential Funding Mechanisms

- King County Metro RapidRide Program
- Sound Transit System Access Fund Program
- Transportation Improvement Board
- Local City funds

Cost Estimate

\$10-20 million

Timeline for Implementation



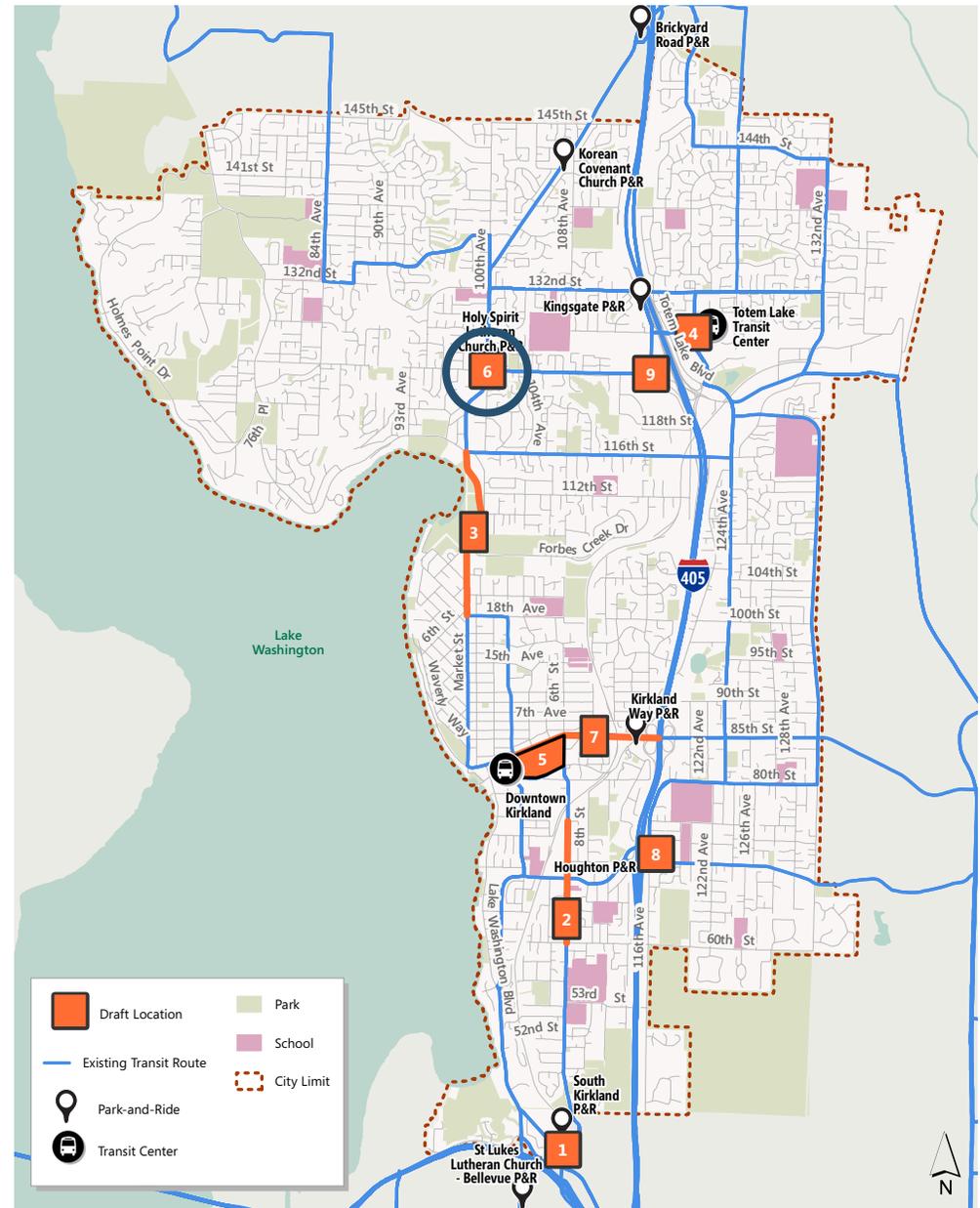
PROJECT 6: NE 124TH ST & 100TH AVE NE IMPROVEMENTS

Project Description

Transit currently experiences significant delay in the westbound direction attempting to make a left-turn from NE 124th Street to 100th Avenue NE. This project would re-stripe and modify the signal in order to allow for dual left-turns from the westbound approach. The intersection would require split phasing for the east and west approaches (only one approach proceeds during a signal phase) in order to allow the dual left-turns. Beyond the direct travel time improvements for riders on the bus, this project would improve on-time reliability for the substantial number of riders that board at stops further south along the route.

Project Benefits

- On average, over 30 seconds saved per bus trip
- 6 to 8 bus trips per peak hour benefit from the project
- Project improves travel times for 700 to 1,000 riders per day
- Almost 10 person-hours saved per day
- On a planned RapidRide corridor



Source: Fehr & Peers, 2018



Source: Fehr & Peers, 2018
 Conceptual - Not for construction. Detailed analysis and engineering required

Project Considerations and Potential Challenges

- Requires split phasing
- Signal head modifications required
- Potential minor increase in intersection delay due to split phasing

Coordination Needs

- King County Metro

Potential Funding Mechanisms

- King County Metro RapidRide Program
- Transportation Improvement Board
- Local City funds

Cost Estimate

\$100,000 – \$300,000

Timeline for Implementation



PROJECT 7: NE 85TH STREET BAT LANES

Project Description

The planned I-405 Bus Rapid Transit project would construct a freeway station at NE 85th Street. This station would provide a key connection to Downtown Kirkland from the I-405 BRT system. Currently, the connection requires buses to travel in mixed traffic between Downtown Kirkland and I-405. The recently approved Sound Transit 3 (ST3) funding package plans for bus only lanes on NE 85th Street between I-405 and 6th Street to improve the connection between these two key transit hubs.

Project Benefits

- On average, between 30 and 60 seconds saved per bus trip
- 8 to 12 bus trips per peak hour benefit from the project
- Project improves travel times for 800 to 1,000 riders per day
- Almost 20 person-hours saved per day

Project Considerations and Potential Challenges

- Potential to achieve similar travel time savings with targeted queue jump and signal priority investments at the following locations along NE 85th Street:
 - 3rd Street
 - 6th Street
 - 114th Avenue NE

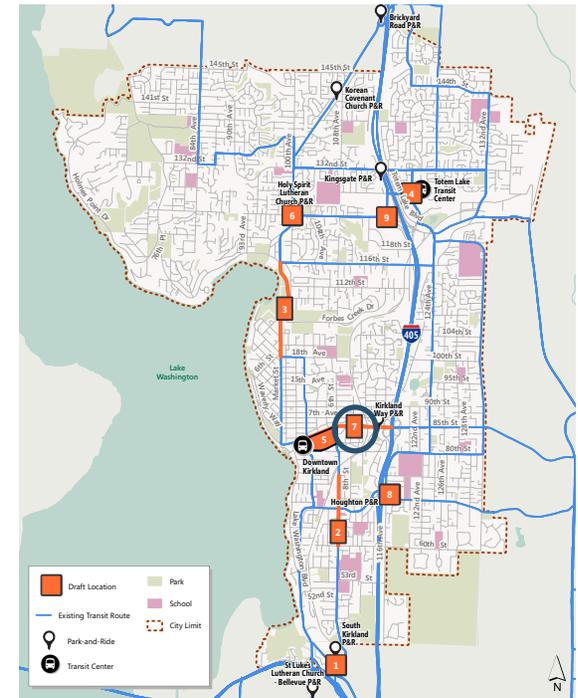
- Significant constructability issues due to topography constraints between 6th Street and 114th Avenue NE
- Limited delay exists for portions of the NE 85th Street corridor and the travel time savings for full BAT lanes may not be realized
- More detailed analysis is required to understand the specific benefits of targeted priority treatments and the ability of other strategies to achieve similar transit connectivity outcomes
- Coordination and design considerations required for potential shared-use path from Cross-Kirkland Corridor to I-405

Coordination Needs

- Sound Transit
- King County Metro
- WSDOT
- Adjacent property owners
- Department of Ecology

Potential Funding Mechanisms

- Sound Transit 3 I-405 BRT Program



Source: Fehr & Peers, 2018

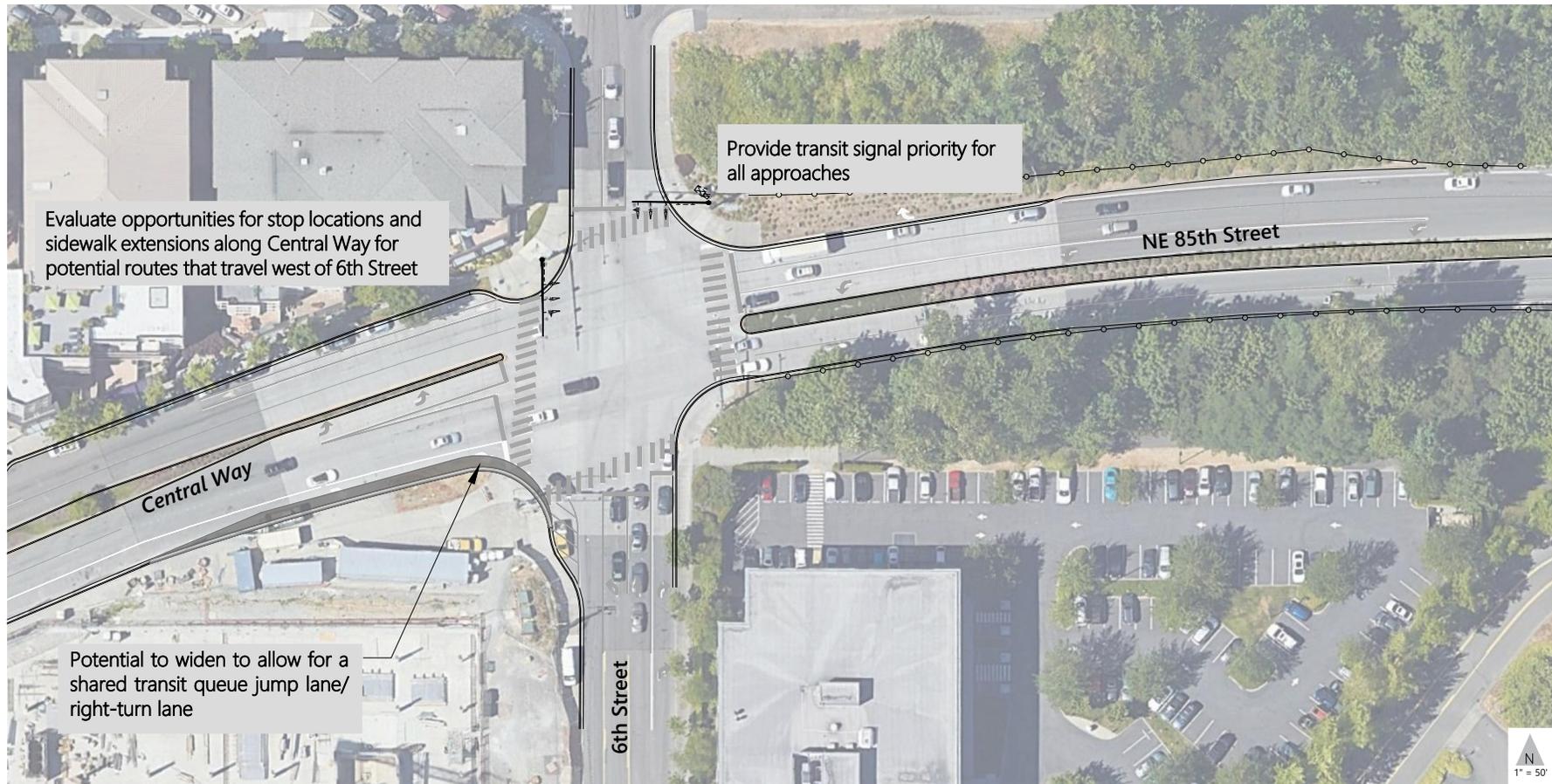
Cost Estimate

\$40-50 million

Timeline for Implementation



The figure below identifies an opportunity to provide an eastbound queue jump along Central Way across 6th Street.



Source: Fehr & Peers, 2018
Conceptual - Not for construction. Detailed analysis and engineering required

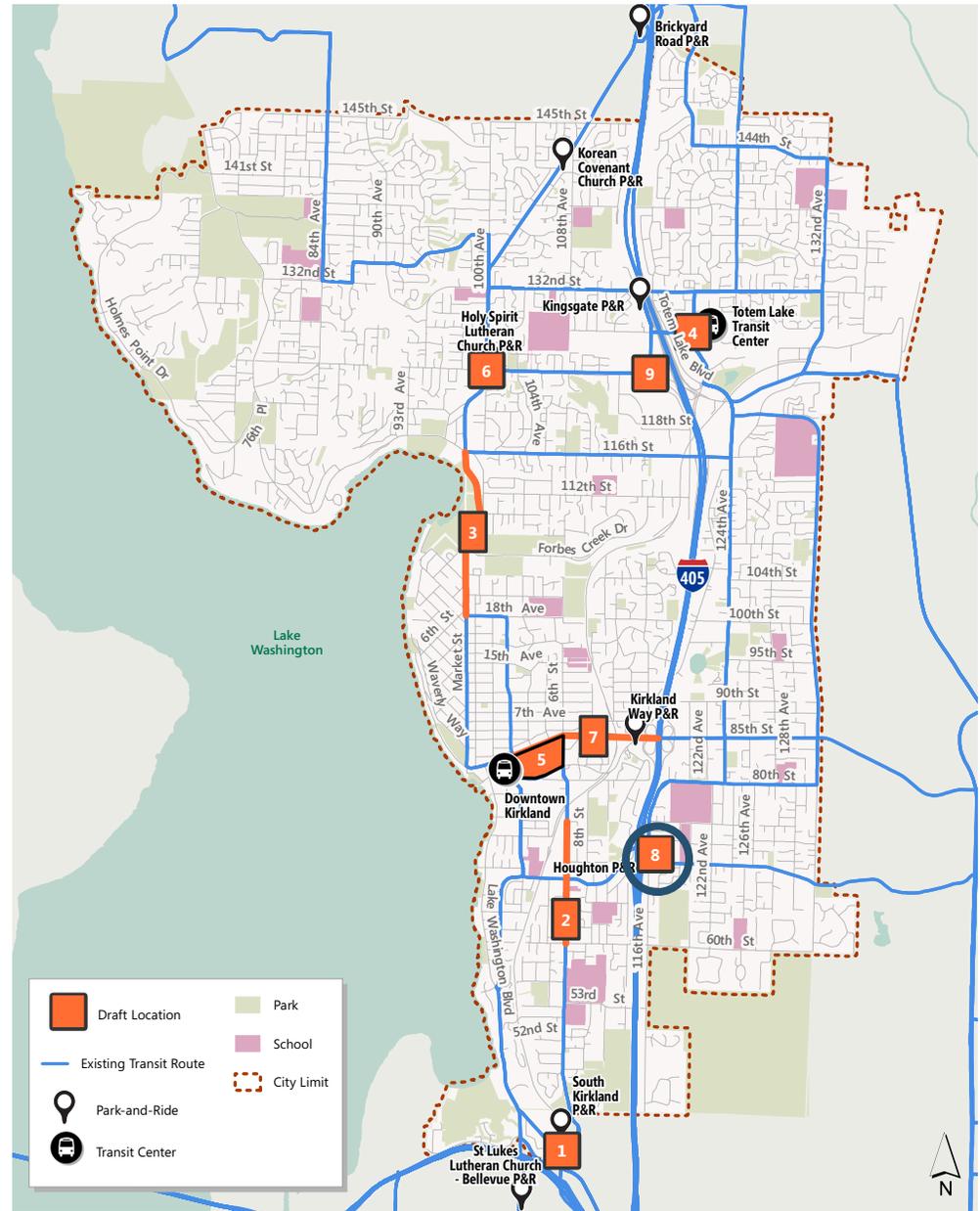
PROJECT 8: HOUGHTON PARK AND RIDE STOP RELOCATION

Project Description

Buses travelling westbound along NE 70th Place must divert into the Houghton Park & Ride in order to serve stop on the eastside of 116th Avenue NE. The diversion adds approximately 60 seconds of delay because the bus must make two left-turns to access and exit the Park & Ride. Therefore, this project re-routes buses so they do not circulate through Houghton Park & Ride by adding an on-street bus stop on NE 70th Place at 116th Avenue NE for westbound buses. Riders would use the existing crosswalk across NE 70th Place to reach the Park & Ride.

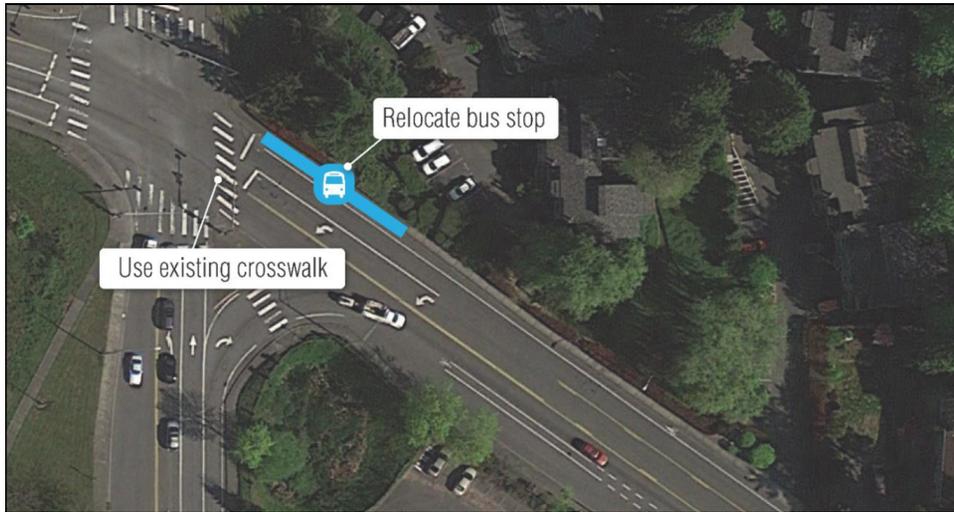
Project Benefits

- On average, over 90 seconds saved per bus trip
- 4 to 6 bus trips per peak hour benefit from the project
- Project improves travel times for 500 to 600 riders per day
- Almost 10 person-hours saved per day



Source: Fehr & Peers, 2018

New Bus Stop Location



Source: King County Metro Route 245 Speed and Reliability Improvements Report, 2016

Project Considerations and Potential Challenges

- Passengers using the stop may incur some additional delay due to crossing NE 70th Place to reach the Park & Ride

Coordination Needs

- WSDOT
- King County Metro
- Adjacent property owners

Potential Funding Mechanisms

- WSDOT
- King County Metro

Cost Estimate

\$150,000 – \$200,000

Timeline for Implementation



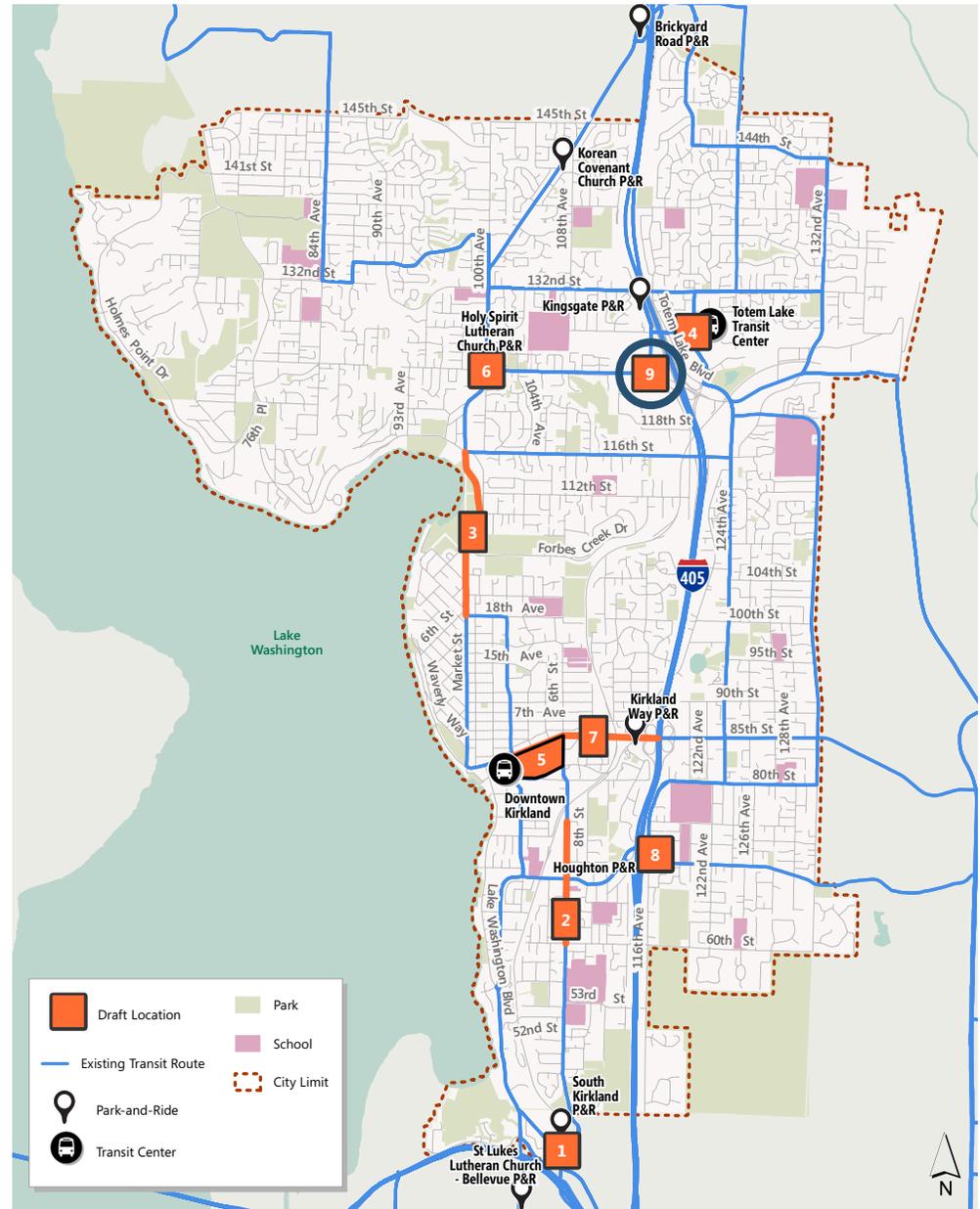
PROJECT 9: NE 124TH STREET & 116TH AVENUE NE IMPROVEMENTS

Project Description

Buses experience substantial delay in the southbound approach at NE 124th Street and 116th Avenue NE due to the high volume of traffic attempting to turn right from 116th Avenue NE. Queues at times can back up as far as NE 128th Street along 116th Avenue NE. Therefore, this project would construct a new southbound right-turn lane to provide additional storage space and to improve operations at the intersection. Beyond the direct travel time improvements for riders on the bus, this project would improve on-time reliability for the substantial number of riders that board at stops further south along the route.

Project Benefits

- On average, over 50 seconds saved per bus trip
- 6 to 8 bus trips per peak hour benefit from the project
- Project improves travel times for 300 to 400 riders per day
- Almost five person-hours saved per day
- On a planned RapidRide corridor



Source: Fehr & Peers, 2018



Source: Fehr & Peers, 2018
 Conceptual - Not for construction. Detailed analysis and engineering required

Project Considerations and Potential Challenges

- Construction challenges include:
 - Underground utility relocations
 - Pole relocations
 - Driveway reconstruction
- Right-of-way constraints

Coordination Needs

- King County Metro
- Sound Transit
- Adjacent property owners
- WSDOT

Potential Funding Mechanisms

- King County Metro RapidRide Program
- Transportation Improvement Board
- Local City funds
- Redevelopment

Cost Estimate

\$1-2 million

Timeline for Implementation



PROJECT 10: NON-MOTORIZED ACCESS TO TRANSIT PROGRAM

Project Description

Safe, comfortable, and easy connections to transit stops are a primary requirement to improve the usability of transit. Within the City of Kirkland, barriers exist that limit the accessibility of transit stops by pedestrians and bicyclists. The constraints include gaps in the street network, major facility barriers such as freeways, topography, lighting, and limited bicycle infrastructure. New amenities at bus stops, such as shelters, real-time bus arrival information systems, and improved lighting, would improve access to transit. Information provided in this plan can inform the update of Kirkland’s Active Transportation Plan and help with prioritizing of previously identified non-motorized projects.

Project Benefits

- Potential ridership gains based on increasing the viable walkshed around transit stops
- Increased pedestrian and bicyclist safety
- Overall improvements to the citywide bicycling network

Project Considerations and Potential Challenges

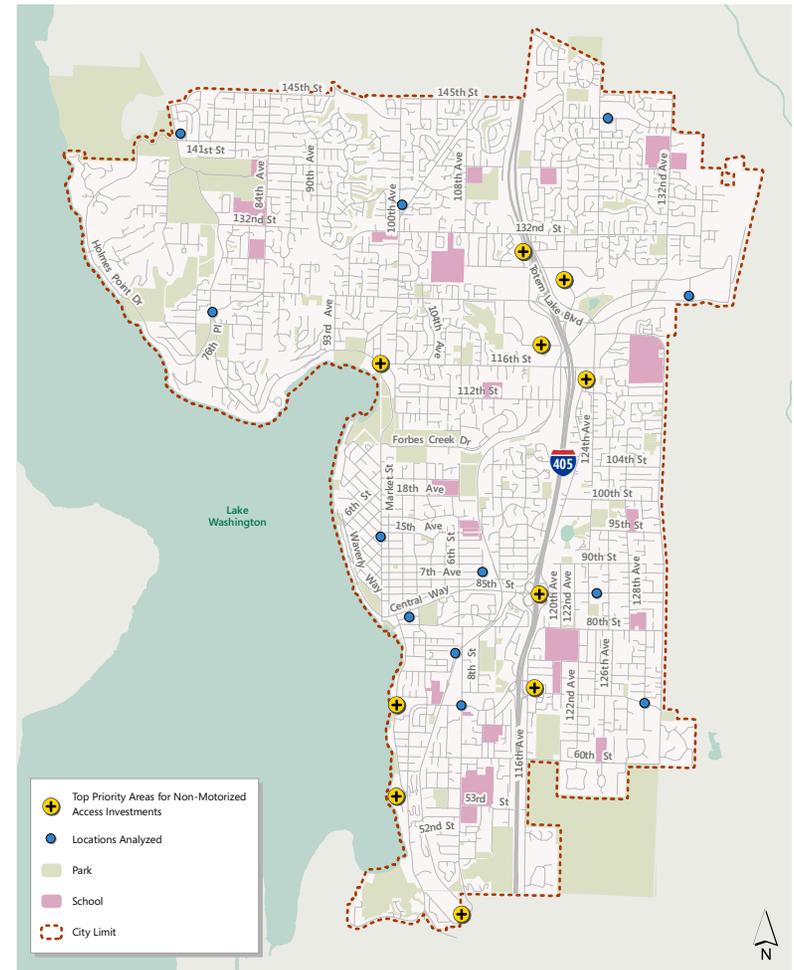
- Limited right-of-way for safe bicycling infrastructure
- Limited data availability of other pedestrian access factors such as safety, lighting, and comfort
- Prioritization process to target non-motorized investments

Coordination Needs

- King County Metro
- Sound Transit
- Adjacent property owners
- WSDOT

Potential Funding Mechanisms

- King County Metro RapidRide Program
- Transportation Improvement Board
- Local City funds



Source: Fehr & Peers, 2018

Timeline for Implementation



KIRKLAND TRANSIT CENTER

-   Bus Bays 1, 2
Kirkland Ave
Library
-  Bicycle Storage
-   Bus Bays 3, 4
-  Main St
Marina Park

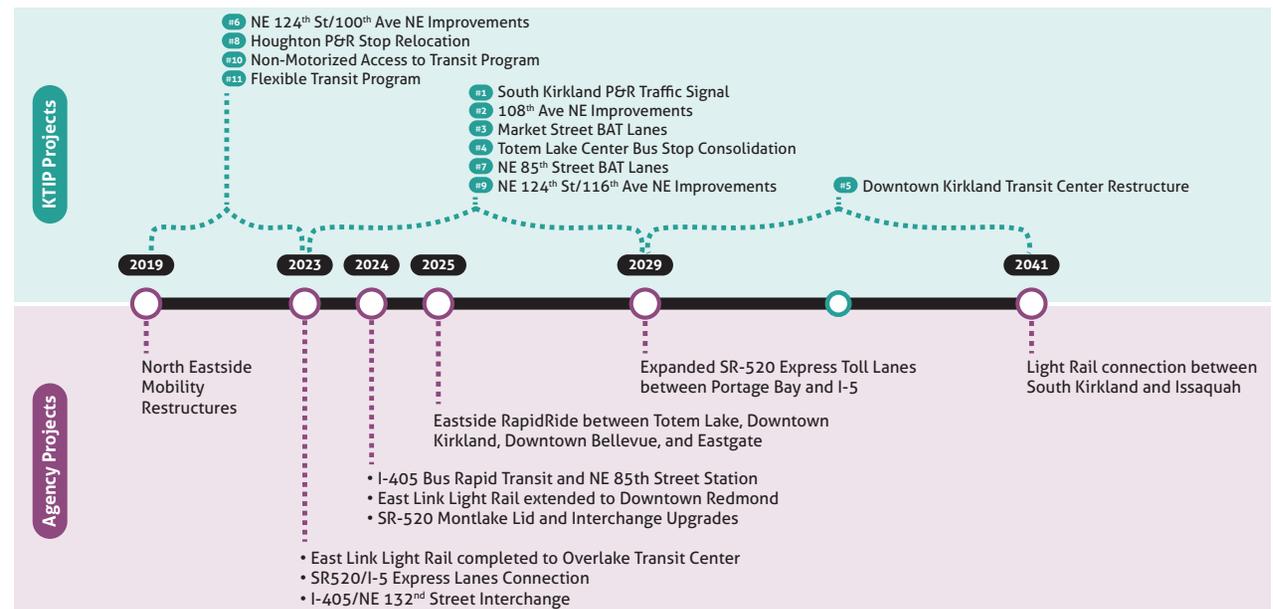




IMPLEMENTATION AND NEXT STEPS

Establishing a prioritized list of transit investments is the first step in improving the transit experience for riders within the City of Kirkland. The areas of focus and potential strategies establish a framework to move forward to secure funding, leverage partner agencies, and begin the planning and design phases for implementation of the projects. Key actions are required in order to engage with upcoming planning processes and to ensure the phasing of the next steps aligns with other projects, both under city control and with other agencies.

The timeline below highlights the expected planning phases for the prioritized projects and ongoing planning efforts with other agencies. Expected years for completion are based on current schedules for projects managed by Washington State Department of Transportation, Sound Transit, and King County Metro.





 HOTEL

- Bus Bay 1
Kirkland Ave
- Library
- Bus Bay 3
- Bicycle Storage
- Main St
Main Park

3

APPENDICES

- A. PUBLIC OPEN HOUSE SUMMARY
- B. SPEED & RELIABILITY PROJECT EVALUATION CRITERIA



APPENDIX A: PUBLIC OPEN HOUSE SUMMARY

APPENDIX B: SPEED & RELIABILITY PROJECT EVALUATION CRITERIA

Evaluation Criteria	Score	Weight	Weighting Rationale
Ridership: Average daily number of riders	0 = Bottom third in terms of number of riders affected 1 = Middle third in terms of number of riders affected 2 = Top third in terms of number of riders affected	3	More moderate factor (overlaps with Travel Time, so weighting is 3 instead of 4)
Travel Time: Person-hour savings estimate (daily)	0 = Bottom third in terms of person-hours saved 1 = Middle third in terms of person-hours saved 2 = Top third in terms of person-hours saved	4	Major factor from outreach and overall project objective
Cost: High-level cost comparison	0 = Bottom third in terms of cost estimates 1 = Middle third in terms of cost estimates 2 = Top third in terms of cost estimates	2	Moderate factor to be considered
General Purpose Traffic: Potential to have neutral or positive impact on auto travel time	0 = Increases general purpose congestion or delay 1 = Possible increase in general purpose congestion or delay 2 = No increase or improves general purpose congestion or delay	2	Moderate factor to consider general purpose traffic
Agency Plans: On future RapidRide corridor (2025 or 2040)	0 = Not on future RapidRide corridor 1 = Only on 2040 RapidRide corridor 2 = On 2025 RapidRide corridor	3	More moderate factor to align with RapidRide planning and future funding/partnership opportunities
TMP: Consistent with the TMP	0 = Other transit service 1 = On a Secondary Transit Corridor 2 = On a Primary Transit Corridor	2	Moderate factor to ensure projects along priority corridors are prioritized
Feasibility/Complexity: Feasible and achievable	0 = May take more than 7 years to implement, or the City is not in control 1 = May require some coordination, could take 3-7 years to implement 2 = Under City control, can be done quickly (within next 1-3 years)	2	Moderate factor to consider overall project complexity (without negating complex projects entirely)
Activity Density: Serves area with current and expected high population/ employment activity	0 = Low (single family housing or other low density commercial) 1 = Medium 2 = High (similar scale to Downtown Kirkland)	1	Minor factor given broad definition of density and location of project versus population served
Access to Regional Centers: Improves a connection to/from a regional center or transit node	0 = Doesn't improve connections to/from a Regional Center or transit node 1 = Improves connection to the region, but is not in a Regional Center 2 = In Regional Center (i.e. Totem Lake)	1	Minor factor to provide contextual ranking to connecting in Regional Growth Centers
Community Support: Level of support for the project via online survey prioritization	0 = Bottom third of priority project ranking 1 = Middle third of priority project ranking 2 = Top third of priority project ranking	3	More moderate factor rather than major factor to provide community input while recognizing survey was not a full sample of the population



255 TOTEM LAKE TC

King County
METRO

6998

255 TOTEM LAKE

IT STARTS
YES
The Campaign for
Seattle Children's

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WASHINGTON
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