
Chapter 6:

Recommendations and Planning Level Cost Estimates

This chapter provides descriptions and planning level cost estimates (typically based on less than 1 percent design) for the recommendations in this corridor plan.

As the economy recovers, traffic conditions or multi-modal services change, or if there are unanticipated land use changes along the corridor in the future, the data that was used to develop the recommendations should be updated and reevaluated. It is possible that some of these recommendations may not be needed if conditions change or if other improvements address the safety or operational issues identified in this study.

Due to limited state funding, the recommendations in this study will need to compete for funding with other proposed improvements around the state based on performance outcome.

Development of the Recommendations

Moving Washington and building on existing investments

The recommendations apply the Moving Washington principles and strategies of reducing congestion and improving mobility by addressing maintenance, preservation, safety, demand management, system efficiency, and adding capacity strategically. The recommendations also build upon a range of existing programs, infrastructure, transit service, and traffic management systems.

Transportation Demand Management

Demand management strategies reduce vehicle trips or shift use of the roadway to off peak periods. These strategies are implemented in partnership with local governments, transit agencies, and employers, so the development of strategies will depend on the capacity and interests of local partners. Other considerations will include the adopted study vision for the corridor, existing land uses and services, analysis of travel patterns and travel behavior, and financial resources. A five percent reduction in future traffic volumes is the target for these strategies. This target is assumed to be achieved by the year 2030. The demand management strategies for this corridor are:

- Vanpool promotion: market vanpools and offer subsidies and incentives for new vanpools
- Engage employers: supplement existing commute trip reduction, growth and transportation efficiency centers, transportation management activities, and transit efforts with targeted investments at businesses that employ corridor residents. Support for employers who will improve commute efficiency by offering telework/compressed work week technical assistance; transit, carpool and vanpool subsidies; priority parking for carpools and vanpools; and increasing SOV parking fees at worksites.
- Relocate Vanpools: target outreach and incentives to existing vanpools to encourage them to move from over utilized park and rides to underutilized park and rides. This frees up parking at over utilized park and rides for new transit users. Vanpools that move to underutilized park and rides stay in these locations because they are often more convenient
- Multimodal commute coaching, outreach and incentives: employ community-based outreach and marketing programs (e.g. Curb the Congestion, In Motion) that provide individualized commute coaching and incentives to move people from SOV commutes to other modes.
- Ridesharing: promote vanpools and carpools, provide ride matching assistance through Rideshareonline.com, develop and maintain ride share meet-up locations

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- Transit improvements: add service where appropriate to support connections to rail and transit routes
 - School trip management: work with schools to support increased walking, bicycling, and school bus use, parent ride-sharing
 - Bike to transit stations: promote and support safe bicycling routes to rail/transit stations to create broader access to main commuter routes
 - Employer/commute trip reduction programs: work with employers to promote commute options to employees through outreach, assistance, and incentives; identify key employers on the destination end to work with to affect trips originating in the suburban community
 - Residential-based trip reduction programs: use individualized and social marketing programs to educate and support households to make more efficient trip choices
 - Personal travel assistance: establish a public outreach presence to assist travelers in making choices and using alternatives
 - Incentives: provide incentives for travelers that use alternative modes being promoted in the corridor
 - Improve non-motorized infrastructure: make investments in bicycle and pedestrian infrastructure to improve access and safety for bikers and walkers
 - Human service improvements: improve/expand human services transportation
 - Land use policies: work with local governments to make land use policies, plans and regulations more transportation-efficient, may include requirements for new development (such as limited parking, transit passes to residents, etc.)

The estimated cost is projected to reach up to \$500,000 per year by the twentieth year. This estimate assumes improved transit service on the corridor, ongoing support for foundational TDM activities and bicycle/pedestrian improvements.

Key Findings That Informed Development of the Recommendations

Highway operations, including volumes, speeds and collisions within the corridor study area were analyzed to help identify current and future travel characteristics for the years 2010 and 2030.

Key findings from the SR 520 traffic analyses include:

- SR 520 will continue to operate as it does today, with peak flows that occur westbound in the morning and eastbound in the evening
- Current and future congestion on the mainline is mainly a result of congestion at the major interchanges (I-405, 124th Avenue NE, 148th Avenue NE, NE 40th Street, NE 51st Street, West Lake Sammamish Parkway, SR 202, Avondale Road) that spill back from the ramps onto the highway
- There is currently, and will continue to be, available capacity in the HOV lane
- Light rail to Bellevue and Redmond will meet some of the travel demand along the study corridor. Since the final link of the light rail connection between Overlake Transit Center and downtown Redmond must still be funded, bus service, including current routes and possibly restructured service, will still be needed to serve that segment.

In addition to levels of service and speed performance of the system, the evaluation criteria also considered how a proposed improvement affected economy, transportation, and community (ETC). The intent of looking at ETC was to get a fuller picture of how a recommended improvement would benefit the community as a whole, not just the study corridor itself. For example, would a recommendation enhance freight movement or improve access to transit oriented development, promote energy conservation, or improve safety? In total, there were 18 separate evaluation criteria in which the recommendations were measured against.

Project Evaluation Criteria

The potential projects were evaluated in a screening process to assess which ones would provide the most transportation benefit and the least disruption to the natural and built environments. The evaluation criteria used for that screening process are listed below and were developed in consultation with the stakeholders. Additionally, recently completed corridor studies that had developed evaluation criteria were also referenced during the development of the screening criteria for this corridor study.

A benefit/cost (b/c) ratio exercise was not conducted for the potential projects. The reasons for not conducting the b/c analysis are:

- One of the measures of a b/c ratio is the “value” of a project based on motorized travel time savings. There is no widely accepted methodology for determining travel time savings for non-motorized projects.
- The improvements at the 124th Ave NE and the 148th Ave NE interchanges have already been evaluated and scoped by WSDOT.
- Two of the short term motorized projects still need to be defined and scoped by WSDOT. They are shown in the short term period due to their low cost and professional judgment by WSDOT that the improvements will benefit the SR 520 corridor.

Exhibit 6.1: SR 520 Multi-Modal Corridor Study - Project Evaluation Criteria - Performance Measures

Consistency With Plans And Standards

Criteria	Measure	Methodology
Consistency with PSRC's Transportation 2040 Plan	Is the project consistent with T2040?	Stakeholder input
Consistency with PSRC's VISION 2040 Plan	Does the project support the policies of V2040?	Stakeholder input
Consistency with local land use/comp plans	Is the project consistent with local land use/comp plans?	Stakeholder input
Consistency with WSDOT HSP and policies of Moving Washington and Connecting Washington	Is the project consistent with WSDOT HSP and policies of Moving Washington and Connecting Washington?	WSDOT and Stakeholder Input
Consistency with transit agencies' long-range plans	Is the project consistent with transit agencies' long-range plans?	Transit agency input

Safety

Criteria	Measure	Methodology
Does the project reduce the number or severity or risk of fatal or serious injury collisions?	Reduction in the number and severity of fatal and serious injury collisions.	Quantitative/Collision Analysis Corridor; Collision Analysis Location; Intersection Analysis Location

Preservation

Criteria	Measure	Methodology
Pavement and structure: use WSDOT maintenance and preservation criteria	Lowest lifecycle costs	Quantitative/WSDOT performance goals

Mobility

Criteria	Measure	Methodology
Travel Time	Personal delay reduction	Regional Model/Highway Capacity Manual (HCM)
Roadway travel speed threshold	70% Posted speed	Regional model/HCM
Intersection threshold	LOS E/local standards	HCM/local measures
Facility utilization	Volume to capacity ratio	Regional model/HCM
Does it improve transit, pedestrian and bicycle utilization?	Usage; cost and effectiveness	Stakeholder input

Environment

Criteria	Measure	Methodology
Energy conservation	Reduction of vehicle miles traveled by offering increased access to transit and non-motorized facilities	Regional model
Protect natural environment	Impacts to known environmentally sensitive areas	GIS database
Transit oriented development	Supports access to TOD	Qualitative/ stakeholder input
Fish and stormwater	Retrofit highway needs based on current WSDOT environmental policies	Treatment of barriers and storm water within a project's limits

Economic Vitality

Criteria	Measure	Methodology
Support economic development	Enhance access to existing and planned developments	Qualitative/stakeholder input; Quantitative
Enhance freight movement	Improves speed and reliability for freight	Quantitative/WSDOT's Truck Performance Measures

Exhibit 6.2: Project Recommendations and Performance Criteria

Project ID #	PROJECTS - From I-405 to Avondale Road	Project Cost Est. 2012\$ in millions	Funding Need - in Millions \$\$	Consistency with Plans and Standards Criteria					Safety Criteria	Preservation Criteria	Mobility Criteria					Environmental Criteria				Economic Vitality Criteria	
				Consistency with PSRC's T2040 Plan	Consistency with PSRC's V2040 Plan	Consistency with local land use/ comp plans	Consistency with WSDOT HSP and policies of "Moving Washington" and "Connecting Washington"	Consistency with transit agencies' long-range plans			Does the project reduce the number or severity or risk of fatal or serious injury collisions?	Pavement and structure: use WSDOT maintenance and preservation criteria	Travel Time	Roadway travel speed threshold	Intersection threshold	Facility utilization	Improves transit, bicycle, and ped utility	Energy conservation	Protect natural environment	Transit Oriented Development	Fish and Stormwater
1	Operational Enhancements	\$39	\$39	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	SR 520 Interim Regional Trail Improvements (108th Ave NE to 124th Ave NE)	\$12	\$4	Yes	Yes	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
3	New Dedicated SR 520 Regional Trail Alignment (108th Ave NE to 124th Ave NE)	TBD	TBD	Yes	Yes	Yes	Yes	Yes	Yes	No	No	N/A	N/A	N/A	Yes	N/A	Yes	Yes	Yes	Yes	N/A
4	SR 520/124th Full Interchange (incl. Auxiliary lanes)	\$265	\$265	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
5	SR 520/148th Interchange Overlake Access Ramp	\$53.1	\$53.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
6	SR 520/148th Avenue NE Trail Connection	\$7.9	\$7.9	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A
7	SR 520 Regional Trail Grade Separation at 148th Ave NE	\$9-21.5	\$9-21.5	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	SR 520 Eastbound Auxiliary Lane - 148th Ave NE to NE 40th Street	\$9.5-\$12.7	\$9.5-\$12.7	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
9	SR 520 Regional Trail Grade Separation at NE 40th Street	\$6.6	\$6.6	N/A	Yes	Yes	Yes	Yes	Yes	No	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	Overlake Village Station Ped/Bike Bridge (SR 520/152nd Ave NE)	\$11	\$11	N/A	Yes	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
11	Overlake Transit Center Ped/Bike Bridge (SR 520/NE 40th Street/ 156th Ave NE)	TBD	TBD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
12	SR 520 Regional Trail Grade Separation at NE 51st Street	\$4.2	\$4.2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	No
13	SR 520 Eastbound Shoulder Bus Lane - NE 51st Street to West Lake Sammamish Parkway	\$0.5	\$0.5	N/A	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

Project ID #	PROJECTS - From I-405 to Avondale Road	Project Cost Est. 2012\$ in millions	Funding Need - in Millions \$\$	Consistency with Plans and Standards Criteria					Safety Criteria	Preservation Criteria	Mobility Criteria					Environmental Criteria				Economic Vitality Criteria	
				Consistency with PSRC's T2040 Plan	Consistency with PSRC's V2040 Plan	Consistency with local land use/ comp plans	Consistency with WSDOT HSP and policies of "Moving Washington" and "Connecting Washington"	Consistency with transit agencies' long-range plans			Does the project reduce the number or severity or risk of fatal or serious injury collisions?	Pavement and structure: use WSDOT maintenance and preservation criteria	Travel Time	Roadway travel speed threshold	Intersection threshold	Facility utilization	Improves transit, bicycle, and ped utility	Energy conservation	Protect natural environment	Transit Oriented Development	Fish and Stormwater
14	SR 520 Eastbound Auxiliary Lane - NE 51st Street to West Lake Sammamish Parkway	\$20-\$26	\$20-\$26	N/A	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
15	SR 520 Westbound Auxiliary Lane - West Lake Sammamish Parkway to NE 51 St.	\$19-\$25	\$19-\$25	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
16	NE 51st Street/ NE 40th Street/ Westbound Exit Ramp Modifications	\$0.9	\$0.9	N/A	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
17	SR 520/West Lake Sammamish Parkway East bound off-ramp Improvements	\$2.6-\$5	\$2.6-\$5	N/A	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
18	SR 520/West Lake Sammamish Parkway/ Leary Way Interchange Improvements	\$3-\$6.6	\$3-\$6.6	N/A	Yes	No	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
19	SR 520 Regional Trail Grade Separation at West Lake Sammamish Parkway	\$4.6-\$8.7	\$4.6-\$8.7	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	N/A	N/A	Yes	Yes	No	Yes	No	Yes	Yes	Yes
20	East Lake Sammamish Parkway Regional Trail Connection SR 520/ SR 202)	TBD	TBD	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
21	SR 520/SR 202 Interchange Improvements at WB Ramp/SR202 Intersection	\$10	\$10	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
22	SR 520/Avondale Rd/ Union Hill Rd Intersection Improvements	\$31-\$87	\$31-\$87	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	Total (Rounded)	\$509-\$603	\$501-\$595																		

Recommendations

Following are descriptions, locations, benefits, and planning level cost estimates of the motorized and non-motorized recommendations. The motorized recommendations, which involve adding capacity strategically, were developed after maintenance, preservation, and operating efficiently measures had been factored into improvements for the corridor. The recommendations are presented going from west (I-405) to east (Avondale Road,) and not in order of priority.

Additionally, due to limited state funding, the recommendations will need to compete for funding with other proposed improvements around the state based on performance outcome.

Exhibit 6.2: Recommendations



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| <ul style="list-style-type: none"> ① Operational Enhancements ② SR 520 Interim Regional Trail Improvements (108th Ave NE to 124th Ave NE) ③ New Dedicated SR 520 Regional Trail Alignment (108th Ave NE to 124th Ave NE) ④ SR 520/124th Ave NE Full Interchange (incl. Auxiliary lanes) ⑤ SR 520/148th Ave NE Interchange Overlake Access Ramp | <ul style="list-style-type: none"> ⑥ SR 520/148th Avenue NE Trail Connection ⑦ SR 520 Regional Trail Grade Separation at 148th Ave NE ⑧ SR 520 Eastbound Auxiliary Lane - 148th Ave NE to NE 40th Street ⑨ SR 520 Regional Trail Grade Separation at NE 40th Street ⑩ Overlake Village Station Ped/Bike Bridge (SR 520/152nd Ave NE) | <ul style="list-style-type: none"> ⑪ Overlake Transit Center Ped/Bike Bridge (SR 520/NE 40th Street/156th Ave NE) ⑫ SR 520 Regional Trail Grade Separation at NE 51st Street ⑬ SR 520 Eastbound Shoulder Bus Lane - NE 51st Street to West Lake Sammamish Parkway ⑭ SR 520 Eastbound Auxiliary Lane - NE 51st Street to West Lake Sammamish Parkway | <ul style="list-style-type: none"> ⑮ SR 520 Westbound Auxiliary Lane - West Lake Sammamish Parkway - NE 51st Street ⑯ NE 51st Street/NE 40th Street Westbound Exit Ramp Modifications ⑰ SR 520/West Lake Sammamish Parkway Eastbound Off-Ramp Improvements ⑱ SR 520/West Lake Sammamish Parkway/Leary Way Interchange Improvements | <ul style="list-style-type: none"> ⑲ SR 520 Regional Trail Grade Separation at West Lake Sammamish Parkway ⑳ East Lake Sammamish Parkway Regional Trail Connection (SR 520/SR 202) ㉑ SR 520/SR 202 Interchange Improvements at WB Ramp/SR 202 Intersection ㉒ SR 520/Avondale Rd/Union Hill Rd Intersection Improvements |
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**Due to limited state funding the recommendations will need to compete for funding with other proposed improvements around the state based on performance outcome. WSDOT is open to considering funding partnerships with jurisdictions if a non-motorized improvement meets mutual performance objectives.*

Project ID Number: 1
Project Title: Operational Enhancements; Intelligent Transportation Systems (ITS) including Active Traffic Management (ATM) and Traffic Signal System Upgrades and Optimization
Project Location: Throughout corridor
Project Cost Estimate: \$39 million
Year of Need: 2018



Operational Enhancements; Intelligent Transportation Systems (ITS) including Active Traffic Management (ATM) and Traffic Signal System Upgrades and Optimization

Background - Existing and/or Future Deficiency to Address:

Smart corridors can improve vehicle throughput capacity and reduce traveler delay, reduce accident rates, improve traveler information and route choices, as well as provide system operators the flexibility for dynamic lane assignments, occupancy, and merge control.

Project Description:

Operational Enhancements include the following:

- Phased implementation of ATM systems including variable message signs, dynamic message signs and lane control signs. General system requirements include full monotube sign structures installed every 1/2 mile with electronic signs at each location.
- Traffic Signal System Upgrades include employing adaptive signal technologies at key intersections and corridors as well as providing for interoperability of closely spaced traffic signal between neighboring jurisdictions.

Project Benefits:

One of the three principles of “Moving Washington” is to operate existing roadways more efficiently. Operational enhancements allow transportation entities the tools and flexibility to operate existing roadways to their maximum throughput potential while improving safety.

Project ID Number: 2
Project Title: SR 520 Interim Regional Trail Improvements
(108th Ave NE to 124th Ave NE)
Project Location: SR 520 – 108th Ave NE to 124th Ave NE
Project Cost (Estimate): \$4 million
Year of Need: 2011

Background - Existing and/or Future Deficiency to Address:

The SR 520 Bridge Replacement Project is scheduled to be completed in 2015. Without this interim trail project, there would remain one missing section of dedicated bicycle facility between the Montlake Interchange in Seattle (University of Washington) and downtown Redmond. This missing link is located between 108th Ave NE and 124th Ave NE in Bellevue.

Project Description:

This project will build bike lanes and sidewalks on both sides of Northup Way between NE 33rd Street and NE 24th Street. It also includes bike lanes along NE 24th Street that will connect to the existing SR 520 regional trail to Northup Way. Other project features include a pedestrian and bicycle bridge over the Burlington Northern Santa Fe railway, planter strips, street lighting, driveway access improvements, and pedestrian crossings at key locations. This is an interim project with the final configuration being constructed as indicated by Project ID Number 3.

Estimated Cost (2011 \$): 12 million (\$8 million committed, funding gap is \$4 million)

Project Benefit:

Interim improvements will provide a continuous signed and striped bicycle route between Montlake Interchange (University of Washington) to the Microsoft campus and continuing to downtown Redmond. Completion of this interim improvement would also provide for a continuous loop around the north end of Lake Washington, out to Redmond, and across SR 520 back to the University of Washington by connecting the SR 520 Regional Trail, the Burke Gilman trail, and the Sammamish River trail.



SR 520 Interim Regional Trail Improvements (108th Ave NE to 124th Ave NE)

Project ID Number: 3
Project Title: New Dedicated 520 Regional Trail Alignment (108th Ave NE to 124th Ave NE)
Project Location: SR 520 – 108th Ave NE to 124th Ave NE
Project Cost (Estimate): TBD
Year of Need: 2019

Background - Existing and/or Future Deficiency to Address:

The SR 520 Bridge Replacement Project is scheduled to be completed in 2015. With the interim trail project complete, there would remain only this one missing section of dedicated barrier or landscaped separated shared use trail between the Montlake Interchange in Seattle (University of Washington) and downtown Redmond. This missing link is between 108th Ave NE and 124th Ave NE in Bellevue. The long term vision for stakeholders along this corridor is to complete a continuous dedicated separate shared use path that is not shared with other roadway users (vehicles and trucks).

Project Description:

Construct a separated 14' wide non-motorized trail on a dedicated alignment between 108th Ave NE and the proposed full directional interchange at 124th Avenue NE. Final trail configuration and planning should be included in upcoming 124th Interchange project and construction included as part of that project and/or a future SR520/I-405 System Interchange. Bellevue and WSDOT are working collaboratively to complete the interim project.

Project Benefit:

Construction of a dedicated 14' wide non-motorized trail on a dedicated alignment through the I-405 Interchange would provide a continuous dedicated shared use path between Montlake Interchange (University of Washington) to the Microsoft campus and continuing to downtown Redmond. Completion of this dedicated path would also provide for a continuous dedicated path around the north end of Lake Washington, out to Redmond and across SR 520 back to the University of Washington by connecting the SR 520 Regional Trail, the Burke Gilman trail, and the Sammamish River trails.

Project ID Number: 4
Project Title: SR 520/124th Avenue NE Full Interchange
(including auxiliary lanes)
Project Location: SR 520 / 124th Ave NE Interchange, auxiliary lanes
to 148th Ave NE
Project Cost (Estimate): \$265 million
Year of Need: 2012

Background - Existing and/or Future Deficiency to Address:

SR 520 is a major east-west corridor connecting the cities of Seattle, Bellevue, Kirkland, and Redmond. The existing half-diamond interchange at 124th serves traffic traveling to and from the west on SR 520 and well as access to and from Interstate 405. This interchange does not provide access to and from the east, so vehicles must either use the 148th interchange, which is roughly 1 3/4 miles away, or use the I-405 interchange or the Bellevue Way interchange further to the west. All three existing interchanges (148th, I-405, and Bellevue Way/108th) are highly congested. In particular, the westbound to southbound loop ramp at the SR 520/I-405 interchange is one of the most congested movements in the region, experiencing congestion for many hours a day that spills back regularly past 124th Avenue NE. A full interchange at 124th Avenue NE would provide relief to the I-405/SR 520 system interchange by providing an alternative route for the high volume of origin destination trips that occur between Redmond and downtown Bellevue.

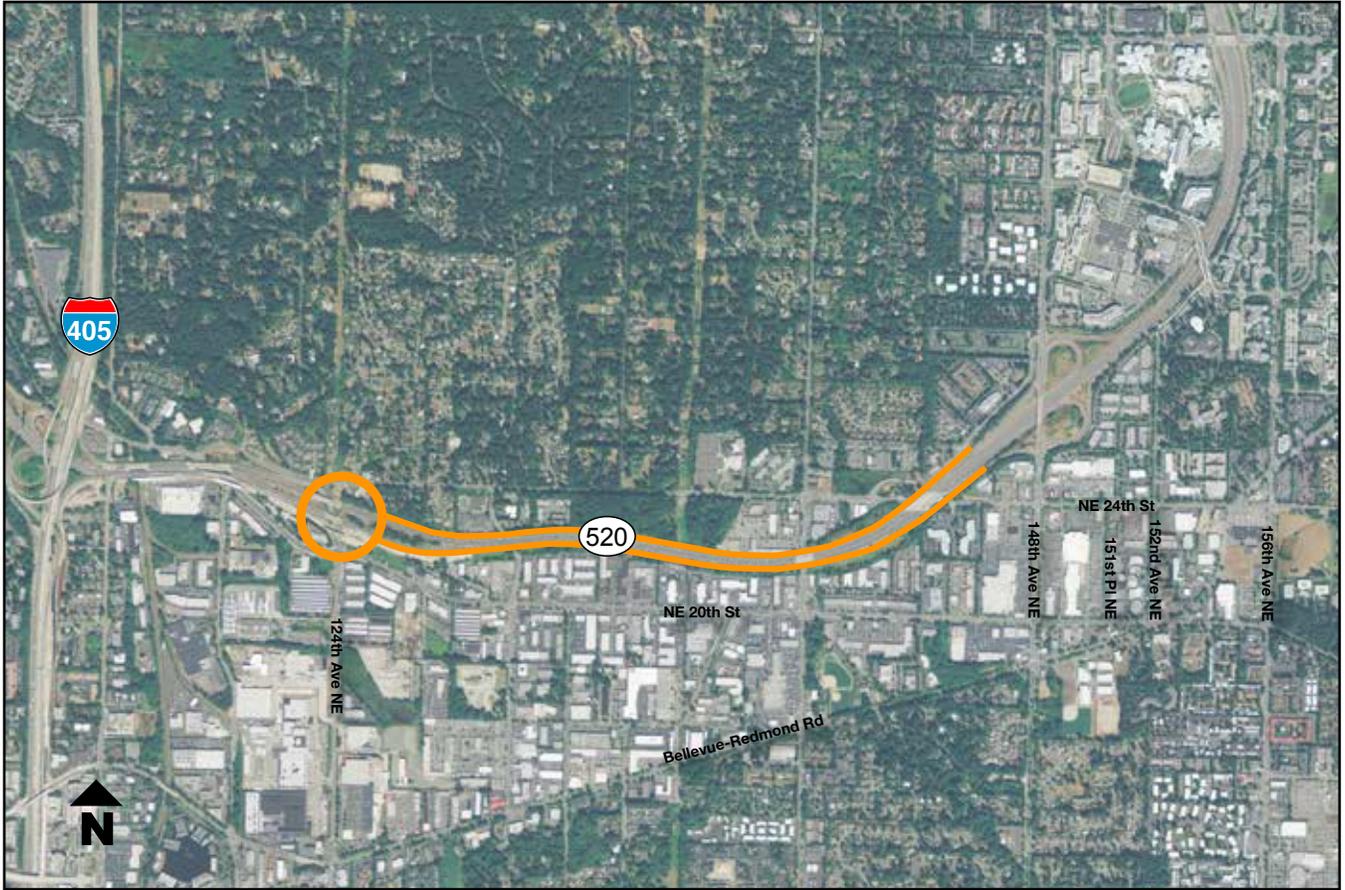
The Spring District is a planned transit oriented development in the vicinity of Bel-Red Road and 124th Avenue NE, approximately 0.7 mile south of the SR 520/124th Avenue NE interchange. Phase one is estimated to include 560 residential units and 1.5 million square feet of business and retail space and could be experiencing occupancy between 2014 to 2018.

Project Description:

Reconstruct the existing half diamond interchange to provide a fully directional interchange accommodating all movements to and from the west and the east on SR 520. Several interchange concepts have been studied and a final interchange configuration will be determined during the next interchange justification report (IJR) and environmental phase.

Project Benefit:

The interchange improvements would reduce regional trips between Redmond and Bellevue that use the congested I-405/SR 520 Interchange.



SR 520/124th Avenue NE Full Interchange (including auxiliary lanes)

Project ID Number: 5
Project Title: SR 520/148th Avenue NE Interchange/
Overlake Access Ramp
Project Location: SR 520/148th Ave NE Interchange
Project Cost (Estimate): \$53.1 million
Year of Need: 2010

Background - Existing and/or Future Deficiency to Address:

This interchange currently serves about 52,000 vehicle trips a day and the off-ramps are severely congested during the peak periods. This congestion is predicted to expand in the future. This full access partial clover leaf interchange provides access to the Overlake area spanning the jurisdictions of Redmond and Bellevue. Despite the WSDOT and the local agencies' effort to optimize the signal timing at these ramp terminals, off-ramp queues can regularly extend nearly to the mainline of SR 520, and occasionally back up onto the mainline.

Future plans for the Group Health site, located in the Overlake Urban Growth Center, include a full-service hotel/conference center, 1,400 condos or apartments, and 1.2 million square feet of business and retail space, encouraging development that maintains an area for research and development, advanced technology, compatible manufacturing, and corporate headquarters; and encouraging higher-intensity employment development.

Project Description:

Construct a grade separated through movement at this interchange ramp terminal for the eastbound off-ramp. Currently, through movements are prohibited because there is no local street network in which to connect. Existing traffic exiting to 148th Ave NE must either travel south via the existing diamond off-ramp or north via the existing loop ramp. A local network will be constructed by the city of Redmond and a grade separated "Overlake Slip Ramp" would be constructed under 148th Ave NE from an existing eastbound SR 520 off-ramp. Coordination with the East Link Light Rail project will be needed during the design and alignment phases of this project.

Project Benefits:

Proposed project will: address current congestion problems; and accommodate planned and approved Overlake Village land use changes in and around this interchange.



SR 520/148th Avenue NE Interchange/Overlake Access Ramp

Project ID Number: 6
Project Title: SR 520/148th Avenue NE Trail Connection
Project Location: SR 520/148th Ave NE Interchange
Project Cost (Estimate): \$7.9 million
Year of Need: 2010

Background - Existing and/or Future Deficiency to Address:

In conjunction with project #5 (SR 520/148th Avenue NE Interchange/Overlake Access Ramp) this project address non-motorized access across the interchange area.

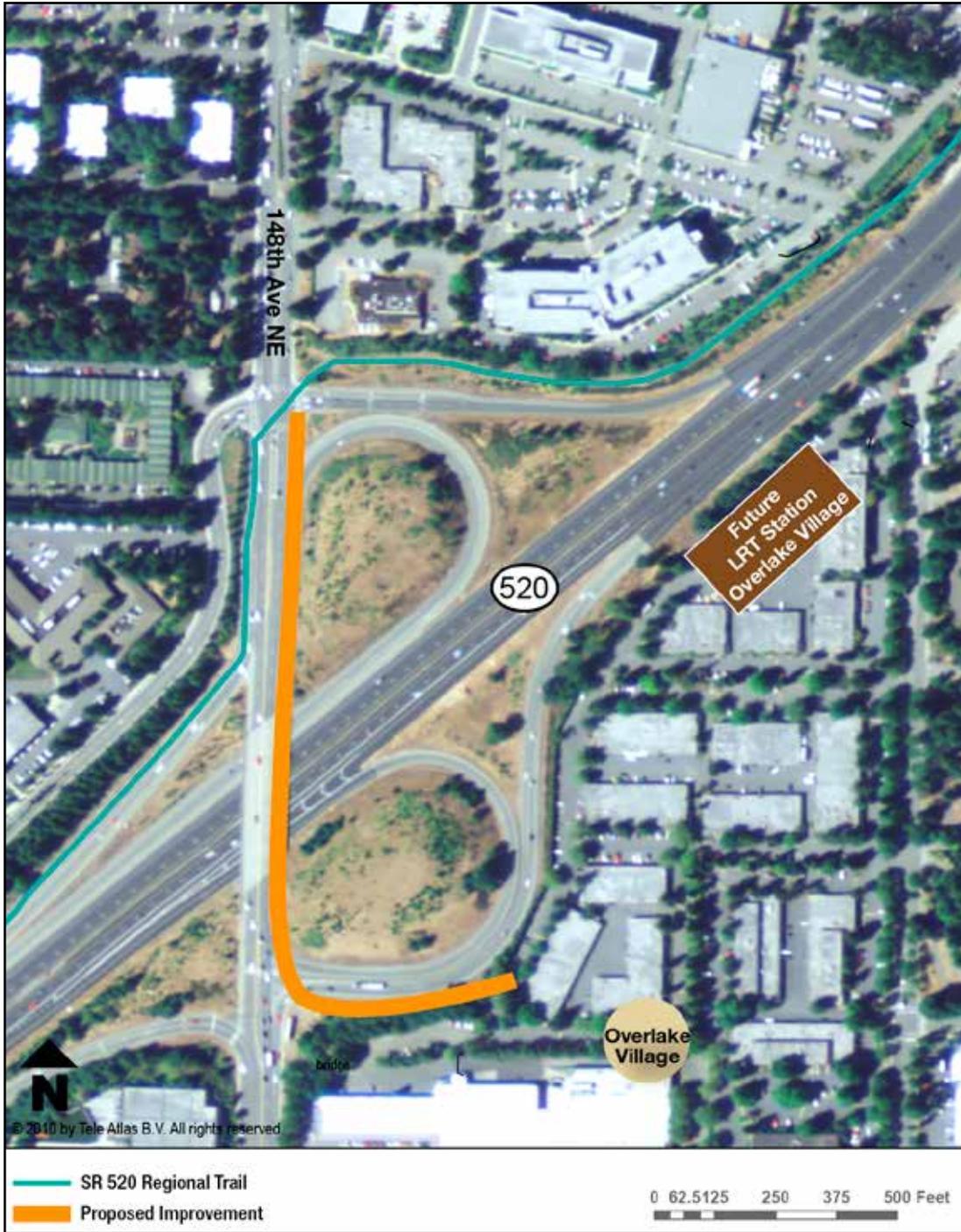
The same aforementioned future plans for the Group Health site, (located in the Overlake Urban Growth Center) will generate non-motorized transportation demand as well as motorized.

Project Description:

Construct a non-motorized connection across the east side of the 148th Ave NE structure to tie together the existing and future development to the south of SR 520 with the SR 520 Regional Trail on the north side of SR 520. This non-motorized, trail connection would also serve the East Link Light Rail project. Coordination will be needed during the design and alignment phases of this project with project #5 as well as the East Link Light Rail project.

Project Benefit:

Proposed project will: accommodate planned and approved Overlake Village land use changes in and around this interchange; and improve non-motorized connectivity in the Overlake vicinity.



SR 520/148th Avenue NE Trail Connection

Project ID Number: 7
Project Title: SR 520 Regional Trail Grade Separation at 148th Avenue NE
Project Location: SR 520 / 148th Ave NE interchange vicinity
Project Cost (Estimate): \$9 million to \$21.5 million
Year of Need: 2017

Background - Existing and/or Future Deficiency to Address:

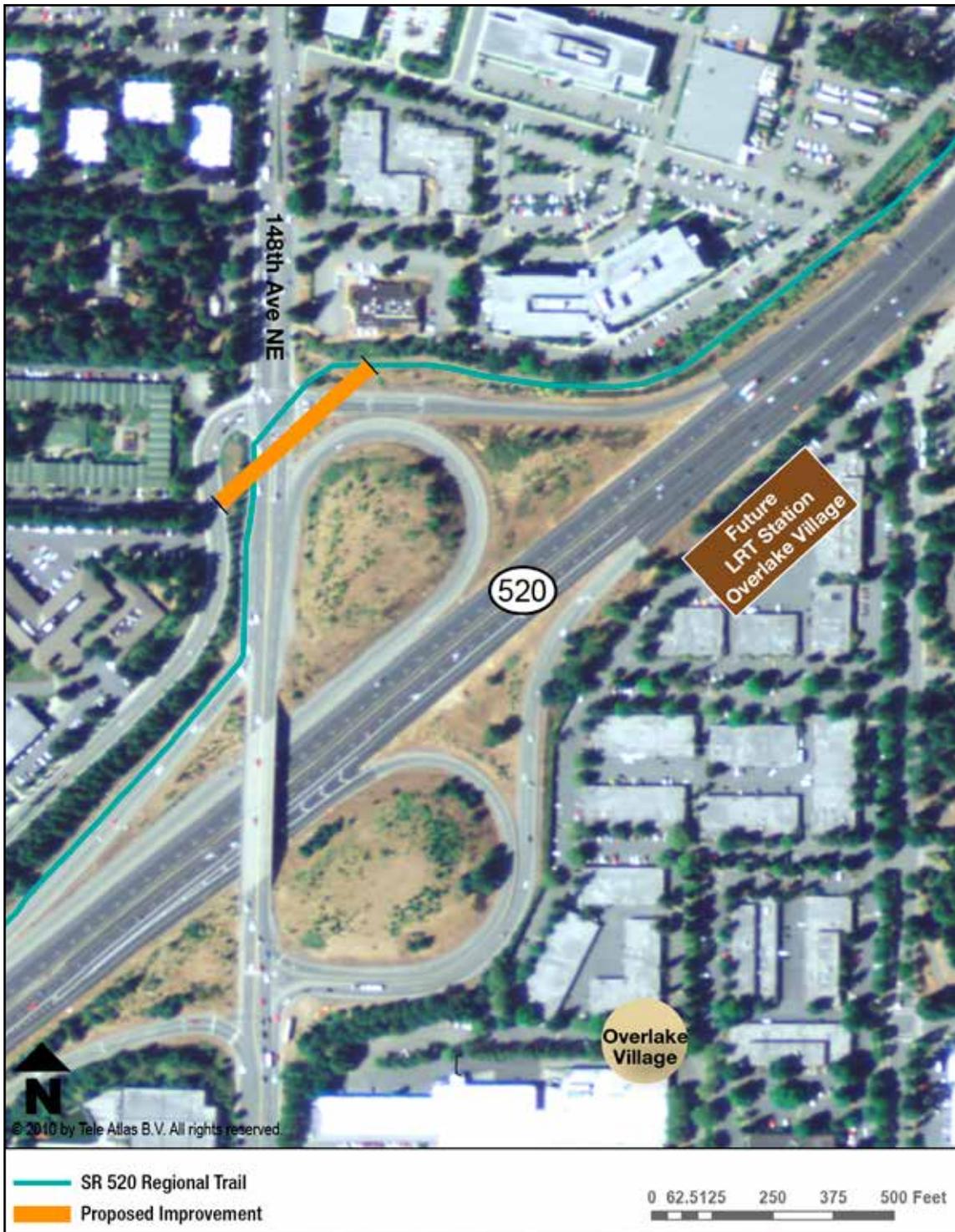
The existing 520 Regional Trail crosses two legs of the very congested 148th Ave NE/NE 29th Pl/SR 520 ramp terminal intersection. Increasing numbers of cyclists and pedestrians using these existing at-grade crossings create additional vehicle/pedestrian operational conflicts. In 2015 when the new SR 520 bridge completes this trail to Montlake/University of Washington, it is forecasted that non-motorized trips at this interchange could more than double from existing counts which will further degrade traffic operations at these at-grade crossings. A vision for SR 520 Regional Trail includes grade separation of this trail from all high volume roadways, including principle arterials such as 148th Ave NE, in order to reduce vehicle/non-motorized operational conflicts as well as improve the functionality of this regional trail.

Project Description:

First, conduct preliminary design to provide design and construction efficiencies for final construction. Estimated cost of preliminary design is \$0.5 million. Second, construct a non-motorized tunnel under 148th Ave NE and supporting structures as needed on the north side of the interchange. Exact tunnel alignment to be confirmed during preliminary design phase. Design parameters include: 10' vertical clearance, 14' width, linear (tangent) alignment, ADA compatible, with tunnel lighting and security camera(s). Estimated cost of \$8.5 million to \$21 million. Due to overlapping limits, these improvements could be combined with Project #5, SR 520/148th Avenue NE Interchange/Overlake Access Ramp, which would provide design and construction efficiencies.

Project Benefit:

Improve safety and traffic operations at this interchange by reducing vehicle and non-motorized operational conflicts.



SR 520 Regional Shared Use Trail; Grade Separation - 148th Ave NE

Project ID Number: 8
Project Title: SR 520 Eastbound Auxiliary Lane – 148th Avenue NE to NE 40th Street
Project Location: SR 520 (MP 9.6 to 10.2) Eastbound Mainline
Project Cost (Estimate): \$9.5 million to \$12.7 million
Year of Need: 2022

Background - Existing and/or Future Deficiency to Address:

During peak periods, there is a high volume of vehicles that both get on SR 520 eastbound from the 148th Ave NE interchange as well as exit off to NE 40th Street. When the HOV lane is ultimately moved to the inside, this merge and diverge are predicted to fail from a LOS perspective during the peak periods. In addition, this mainline segment is predicted to operate at a speed of less than 20 mph.

Project Description:

Widen SR 520 mainline to construct a new 12' wide auxiliary lane eastbound between the 148th Ave NE Interchange and the NE 40th Street Interchange. The length of this auxiliary lane would be approximately 3000 feet.

Project Benefit:

A new auxiliary lane will provide operational and safety benefits for SR 520 mainline operations. An existing merge and diverge would be eliminated. Merging traffic from the 148th Ave NE interchange would benefit from a longer gap acceptance length and extended roadway length to complete the merge. Traffic exiting to NE 40th Street will benefit from added off-ramp storage from the arterial. In cases where off-ramp queues extend back onto mainline, queues will be contained to the auxiliary lane rather than the general purpose mainline lane. Traffic modelling analysis indicates that mainline speeds would increase from below 20 mph to 49 mph.



SR 520 Eastbound Auxiliary Lane – 148th Avenue NE to NE 40th Street

Project ID Number: 9
Project Title: SR 520 Regional Trail Grade Separation at NE 40th Street
Project Location: SR 520/NE 40th Street Interchange vicinity
Project Cost (Estimate): \$6.6 million
Year of Need: 2014

Background - Existing and/or Future Deficiency to Address:

Numerous operational conflicts exist between non-motorized traffic on the SR 520 Regional Trail and motorized traffic on NE 40th Street and the SR 520 interchange ramps. This shared use also adversely impacts traffic and transit operations. Located near Microsoft's Headquarters and West Campus, this location is an important ingress and egress point for pedestrians and cyclists desiring to use the SR 520 Regional Trail. A vision for the SR 520 Regional Trail includes grade separation of this trail with all high volume roadways including principle arterials such as NE 40th Street in order to reduce vehicle and non-motorized operational conflicts as well as improve the functionality of this regional trail.

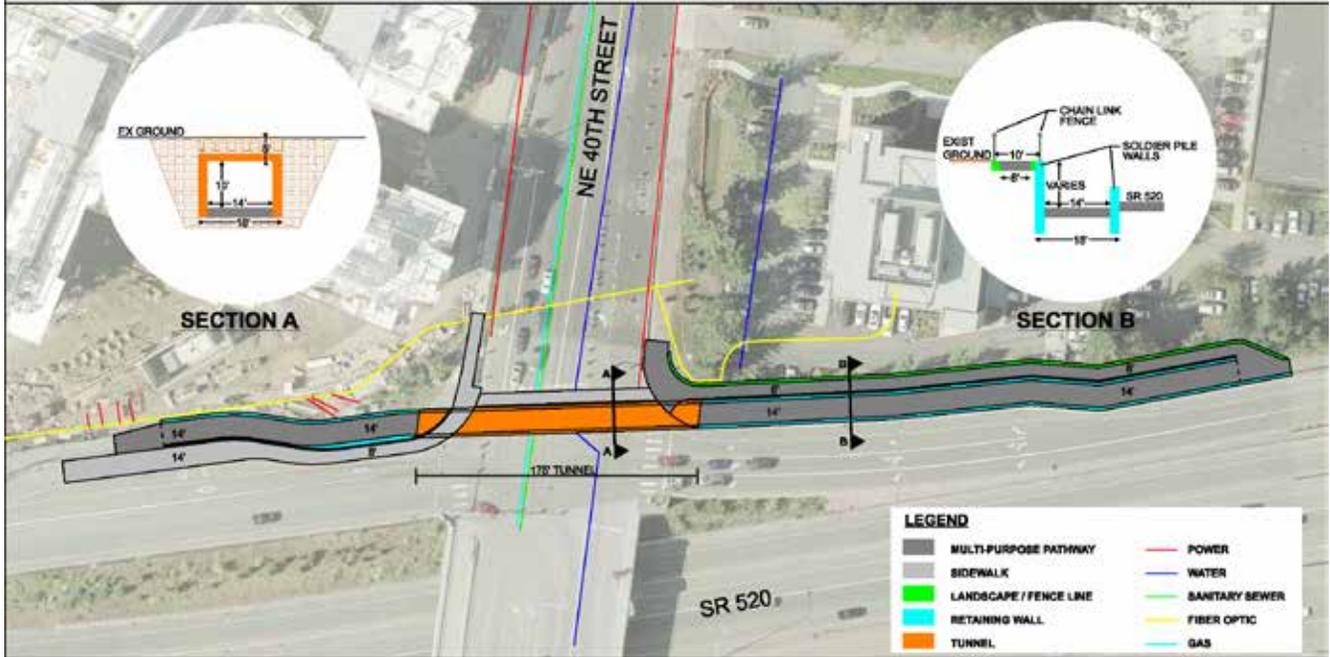
Project Description:

Construct a non-motorized tunnel under NE 40th St on the west side of the interchange. Exact tunnel alignment to be confirmed during preliminary design phase. Design parameters include: 10' vertical clearance, 14' width, linear (tangent) alignment, ADA compatible, with tunnel lighting and security camera(s). This is the highest priority grade-separation for the SR 520 Regional Trail and needs funding in the near-term.

Project Benefits:

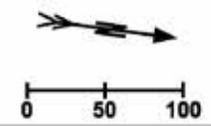
This project will help reduce motorized and nonmotorized operational conflicts, improving both safety and traffic operations at this interchange.

CONCEPTUAL DESIGN - MULTI PURPOSE PATHWAY TUNNEL OPTION 10/6/2011





NE 40TH STREET





SR 520 Regional Trail Grade Separation - NE 40th Street

Project ID Number: 10
Project Title: Overlake Village Station Pedestrian & Bicycle Bridge
(SR 520/152nd Ave NE)
Project Location: SR 520 at 152nd Ave NE vicinity
Project Cost (Estimate): \$11 million
Year of Need: 2012

Background - Existing and/or Future Deficiency to Address:

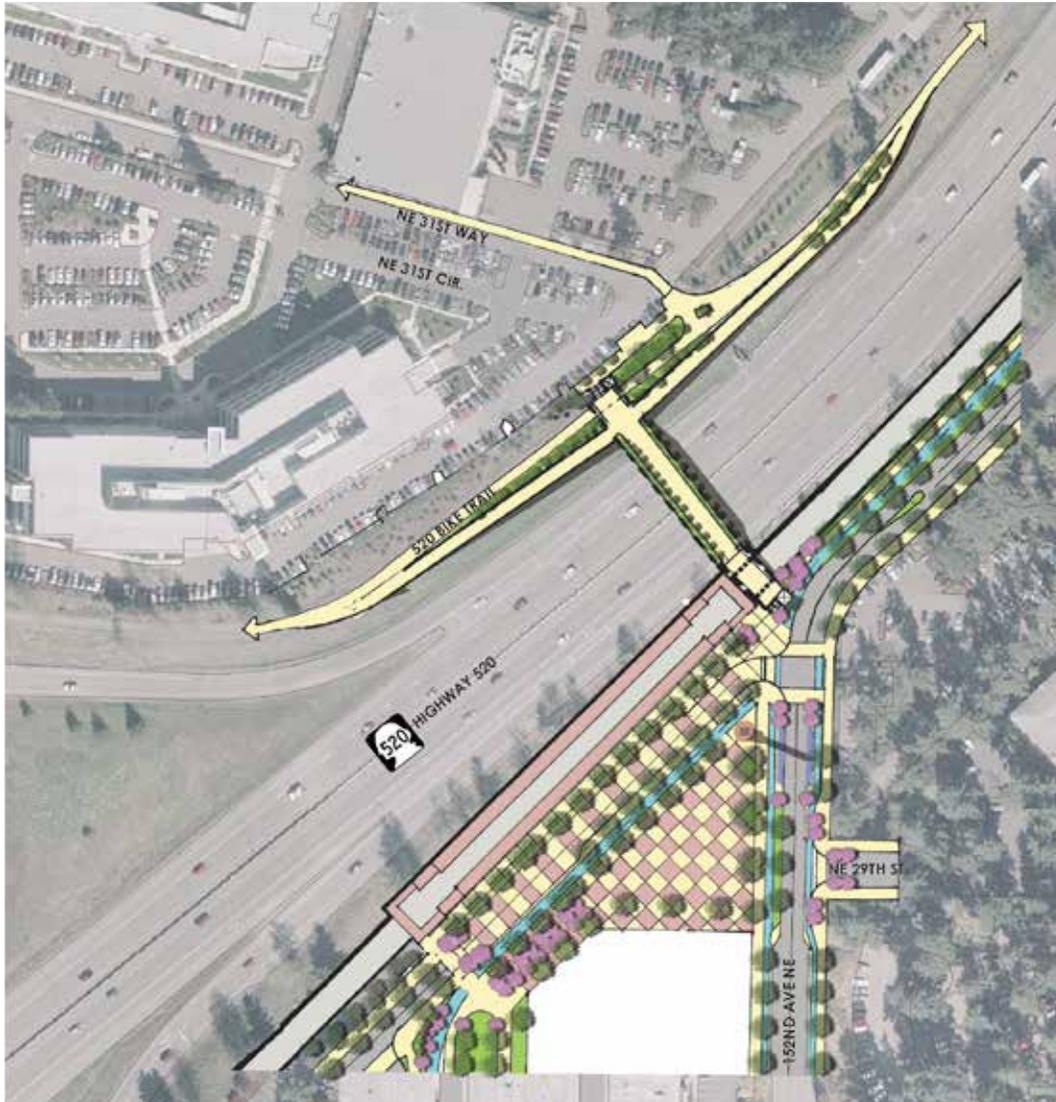
SR 520 divides the Overlake Urban Center Neighborhood. There is existing development on the north side of SR 520 that needs a direct walking and biking connection to both the future Overlake Village Light Rail Station and the future dense multi-use development in the Overlake Village area. Future plans include a “retail street” on 152nd Ave N, within walking distance of 156th Avenue NE, north of NE 31st Street and south of NE 40th Street. Redmond expects the growth in the area to be 5,000 new homes and 25,000 new jobs.

Project Description:

Construct a new bicycle and pedestrian bridge over SR 520 locating the southern landing at the East Link Light Rail Overlake Village Station and Overlake Regional Growth Center with the north landing at the 520 Regional Trail and employment area. Sound Transit and City of Redmond are working collaboratively to fund, design, and construct this project. The project design funding is committed, and the design will be completed in 2014.

Project Benefit:

Connection of the East Link Light Rail Overlake Village Station and Overlake Regional Growth Center with the north landing at the 520 Regional Trail and employment area including Microsoft’s main west campus area.



Overlake Village Station Pedestrian & Bicycle Bridge (SR 520/152nd Ave NE)

Project ID Number: 11
Project Title: Overlake Transit Center Pedestrian & Bicycle Bridge
(SR 520/NE 40th Street/156th Ave NE)
Project Location: SR 520 /NE 40th Street Interchange
Project Cost (Estimate): TBD
Year of Need: 2012

Background - Existing and/or Future Deficiency to Address:

SR 520 divides the Overlake Neighborhood. The existing connection along NE 40th St between the office development on the west side of SR 520 and the Overlake Transit Center is not a comfortable place to walk or bike and requires notable out of direction travel for a very high volume of pedestrians between the Overlake Transit Center Light Rail Station and dense employment. It also effects traffic flow and bus operations at the NE 40th St Interchange.

Project Description:

Construct a new bicycle and pedestrian bridge over SR 520 south of NE 40th Street. The non-motorized bridge will link Microsoft's West and Main campuses to the future Overlake Transit Center (OTC) and OTC garage; and to Sound Transit's planned light rail station. The eastern landing will be located at the East Link Light Rail Overlake Transit Center Station and Overlake Regional Growth Center with the west landing at the 520 Regional Trail and employment area. Sound Transit, the city of Redmond, and Microsoft are working collaboratively to fund, design and construct this project.

Project Benefits:

This project will improve safety and traffic operations of the congested NE 40th Street interchange by removing vehicle/pedestrian operational conflicts at this interchange. For Sound Transit's 545 bus route, the project will provide travel time benefits to through riders and reduce operating hours by not having to deviate to OTC bays in the afternoon.

Preliminary Concepts - Improvement 1 (Ped Bridge Crossing of SR-520)



NE 40th Street

Corridor Study



Overlake Transit Center Pedestrian & Bicycle Bridge (SR 520/NE 40th Street/156th Ave NE)

Project ID Number: 12
Project Title: SR 520 Regional Trail Grade Separation at NE 51st Street
Project Location: SR 520 – NE 51st Street Interchange
Project Cost (Estimate): \$4.2 million
Year of Need: 2015

Background - Existing and/or Future Deficiency to Address:

There are numerous operational conflicts between high volumes of non-motorized traffic and motorized traffic at the 520 Regional Trail crossing of NE 51st Street. This situation is not conducive to pedestrian and bicycle mobility or safety, nor to general purpose traffic and bus operations. A vision for the SR 520 Regional Trail includes grade separation of this trail with all high volume roadways including principle arterials such as NE 51st Street in order to reduce vehicle/non-motorized operational conflicts as well as improve functionality of this regional trail.

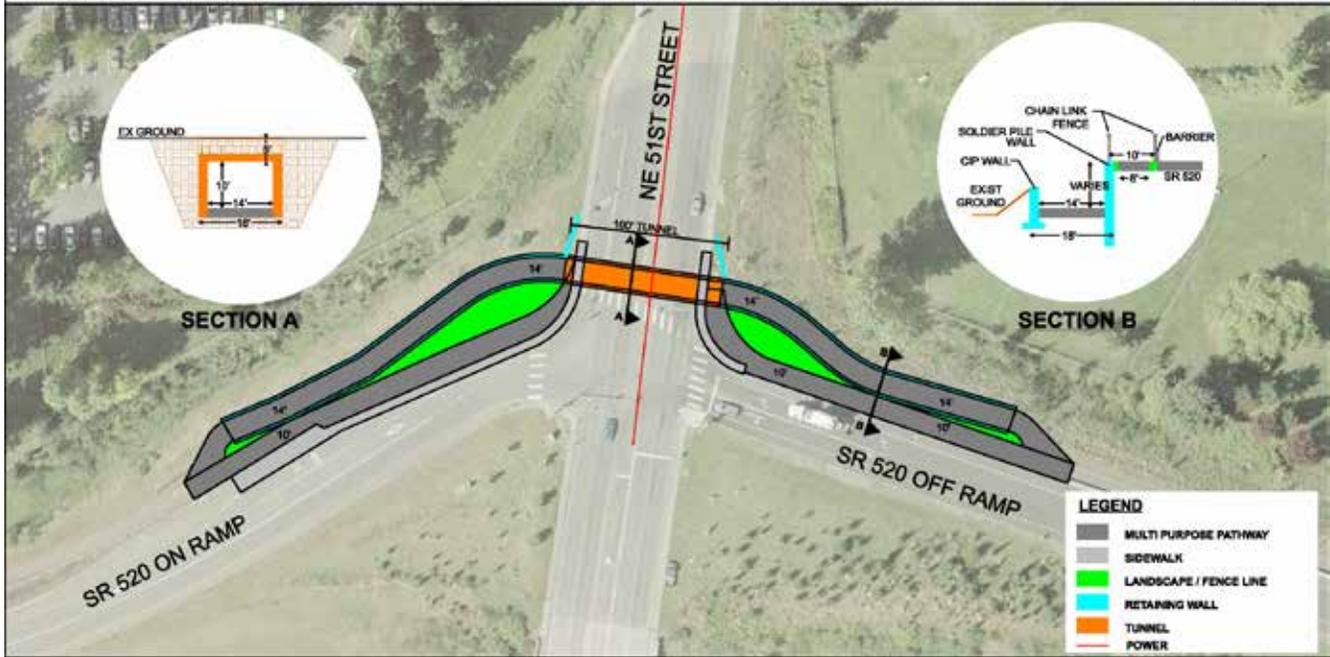
Project Description:

Construct a non-motorized tunnel under NE 51st Street on the west side of the interchange. Exact tunnel alignment to be confirmed during preliminary design phase. Design parameters include: 10' vertical clearance, 14' width, linear (tangent) alignment, ADA compatible, with tunnel lighting and security camera(s).

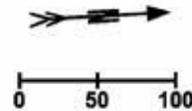
Project Benefit:

This project would move forward a vision for the SR 520 Regional Trail that includes grade separation of this trail with all high volume roadways including principle arterials such as NE 51st Street. These improvements will not only make this regional trail more attractive and inviting for non-motorized users, but will result in reduced vehicle/non-motorized operational conflicts improving both safety and traffic operations at this interchange.

CONCEPTUAL DESIGN - MULTI PURPOSE PATHWAY TUNNEL OPTION 10/6/2011



NE 51ST STREET



SR 520 Regional Trail Grade Separation at NE 51st Street

Project ID Number: 13
Project Title: SR 520 Eastbound Shoulder Bus Lane –
NE 51st Street to WLSP
Project Location: SR 520 (MP 10.7 to 11.5) – NE 51st Street to WLSP
Project Cost (Estimate): \$0.5 million
Year of Need: 2014

Background - Existing and/or Future Deficiency to Address:

Existing eastbound traffic during the evening commute routinely backs up from the end of SR 520 to west of NE 51st Street and transit service operation is significantly impacted by delayed travel times and schedule disruption. This situation is expected to worsen in the future.

Project Description:

Construct an eastbound shoulder lane for bus use on the outside of the freeway.

Project Benefit:

Adding the shoulder lane would help improve the ability of buses to access the NE 51st Street and West Lake Sammamish Parkway exits, minimize operational conflicts with general purpose traffic, and improve travel time reliability for transit.



520 Eastbound Shoulder Bus Lane - NE 51st Street to West Lake Sammamish Parkway

Project ID Number: 14
Project Title: 520 Eastbound Auxiliary Lane - NE 51st Street to West Lake Sammamish Parkway
Project Location: SR 520 (MP 10.7 to 11.5) – NE 51st Street to West Lake Sammamish Parkway
Project Cost (Estimate): \$20 million to \$26 million
Year of Need: 2014

Background - Existing and/or Future Deficiency to Address:

Based on existing traffic data, the average PM peak hour travel speed is 24 mph. In 2030, with the assumption of the HOV lane on the inside, the estimated travel speed will be 13 mph due to reduced general purpose capacity due to restripe along with additional future forecast demand. By 2030 the volume to capacity ratio for general purpose lanes is predicted to be between 1.29 and 1.37; meaning those lanes will be 29% to 37% over capacity.

Project Description:

Add a full 12' eastbound lane with full shoulders from NE 51st Street on-ramp to Westlake Sammamish Parkway off-ramp. This project includes bridge reconstruction, retaining walls, storm water detention and treatment facilities, signing, and traffic control. Other infrastructure improvements may be needed and will be determined upon further engineering design when funding is available.

Project Benefit:

Adding the auxiliary lane would improve the volume to capacity ratio to 0.94 - 0.99 range. The estimated travel speed would improve up to 45 mph in 2030. With managed lane the estimated speed would improve up to 52 mph with 0.84 - 0.90 volume to capacity ratio.



SR 520 Eastbound Auxiliary Lane - NE 51st Street to West Lake Sammamish Parkway

Project ID Number: 15
Project Title: SR 520 Westbound Auxiliary Lane – West Lake
Sammamish Parkway to NE 51st Street
Project Location: SR 520 (MP 10.7 to 11.5) – NE 51st Street to WLSP
Project Cost (Estimate): \$19 million to \$25 million
Year of Need: 2026

Background - Existing and/or Future Deficiency to Address:

Currently there is no existing deficiency. However, when the HOV lane is moved to the inside as anticipated, additional general purpose traffic will be shifted into the weave section between the westbound WLSP on-ramp and the off-ramp to NE 51st Street. This, combined with 2030 future forecast demands, will result in the estimated travel speed being 34mph during the AM peak hour. Also, in 2030 the volume to capacity ratio for general purpose lanes is predicted to be between 1.05 and 1.06.

Project Description:

Add a westbound lane from Westlake Sammamish Parkway on-ramp to NE 51st Street off-ramp. This project includes bridge reconstruction, retaining walls, storm water detention and treatment facilities, signing, and traffic control. Other infrastructure improvements may be needed and will be determined upon further engineering design when funding is available.

Project Benefit:

Adding the auxiliary lane on the westbound between West Lake Sammamish Parkway on ramp and NE 51st Street is predicted to improve the AM peak hour travel speeds to 51 mph, compared to 34 mph without this improvement.



SR 520 Westbound Auxiliary Lane – West Lake Sammamish Parkway to NE 51st Street

Project ID Number: 16
Project Title: NE 51st Street/NE 40th Street Westbound Exit Ramp Modifications
Project Location: Westbound Collector Distributor for NE 40th Street and NE 51st Street Interchanges
Project Cost (Estimate): \$0.9 million
Year of Need: 2015

Background - Existing and/or Future Deficiency to Address:

Exiting volume is too high for a single lane off-ramp; which at times is overwhelmed with combined volumes of NE 40th Street and NE 51st Street bound traffic. This is more of an AM peak period problem with traffic heading to the Microsoft campus in the morning.

Project Description:

Reconfigure the one lane exit into two separate exits by constructing a new exit for NE 40th Street about 1/2 mile further west of the existing exit. These separate exits will be able to handle respective traffic demand by replicating the capacity of a two lane exit.

Project Benefit:

This project should improve the LOS in the p.m. peak from D to B and reduce queuing on the ramp and onto the mainlines. Drivers should experience limited delay at the ramp terminal in the evening peak hour.

The future operations of this improvement will need to be finalized by NW Region Traffic Operations staff.



Westbound NE 51st Street/NE 40th Street Exit Ramp Modifications

Project ID Number: 17
Project Title: SR 520/West Lake Sammamish Parkway Eastbound Off-Ramp Improvements
Project Location: SR 520 WLSP Interchange Eastbound Ramp Terminal
Project Cost (Estimate): \$2.6 million to \$5 million
Year of Need: 2021

Background - Existing and/or Future Deficiency to Address:

The current eastbound off ramp configuration is comprised of one left turn lane and one left/right turn lane. The heavy left turn volumes during peak hours often block the drivers who need to turn right. The existing PM peak hour LOS at the eastbound approach is E with an average of 58 seconds delay. In 2030, the PM peak hour LOS would be F, with an average of 80 seconds delay. Due to congestion at this ramp terminal, traffic often backs up onto the SR 520 mainline. When the congestion extends onto the mainline it creates a high speed differential on the downhill grade between highway traffic and traffic stopped on the ramp. This condition creates the potential for rear-end collisions.

Additionally, this intersection's capacity is often limited by the downstream intersection located at West Lake Sammamish Parkway (WLSP) and Leary Way. The effectiveness of this proposed improvement is directly related to improvements made at the WLSP/Leary Way intersection. These two projects should be considered as a package, with improvements at WLSP/Leary Way occurring before improvements at WLSP and the SR 520 east bound off-ramp.

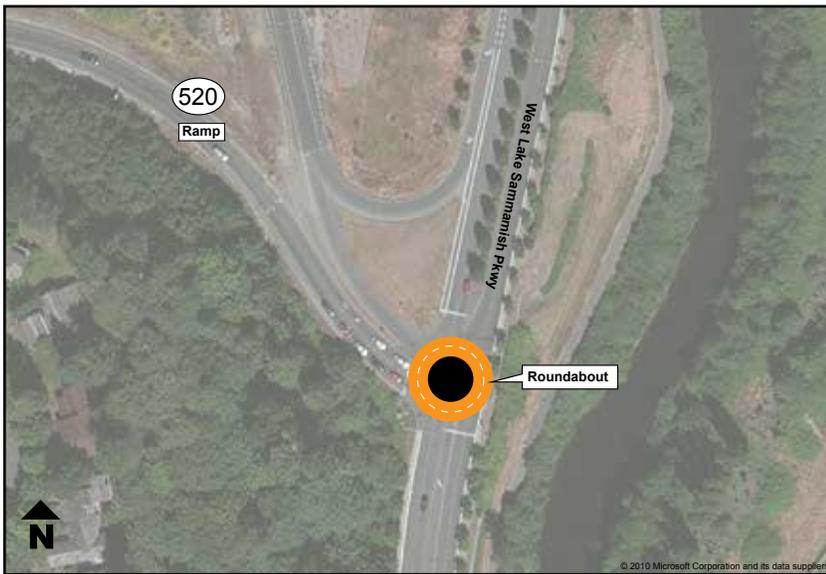
Project Description:

Construct either a multilane roundabout or exclusive right turn lane at the ramp terminal. This project includes earthwork, new pavements, landscaping, striping, signing, traffic control, and other improvements yet to be identified. Consideration should be given to relocating the intersection north and west to avoid building a retaining wall on the south side of the off-ramp and to avoid environmental constraints on the east side of WLSP.

Project Benefit:

Exclusive Right Turn Lane: Adding an exclusive right turn lane would improve the LOS for this approach to E with 64 seconds delays in 2030 PM peak hour.

Roundabout: Operations and capacity of a multilane roundabout were not modeled as part of this study, however, it is recognized by transportation planners and traffic engineers that a multilane roundabout could accommodate forecasted volumes at this intersection and operate in concert with a roundabout on the other side of 520 at this interchange, thus providing continual flow operational and safety benefits at this interchange.



SR 520/West Lake Sammamish Parkway Eastbound Off-Ramp Improvements

Project ID Number: 18
Project Title: SR 520/West Lake Sammamish Parkway /Leary Way Interchange Improvements
Project Location: SR 520 WLSP/Leary Way Interchange Westbound Ramp Terminal
Project Cost (Estimate): \$3 million to \$6.6 million
Year of Need: 2019

Background - Existing and/or Future Deficiency to Address:

The critical movements at West Lake Sammamish Parkway/Leary Road/SR 520 ramps intersections are southbound left turn and northbound right turn. During the existing PM peak hour about 240 vehicles turn left from southbound West Lake Sammamish Parkway. The LOS for that movement is E with an average 73 seconds delay. In the 2030 PM peak hour, the estimated average delay for this left turn movement would become 190 seconds. The estimated overall intersection LOS in 2030 PM peak hour would be F, with an average 88 seconds delay.

Project Description:

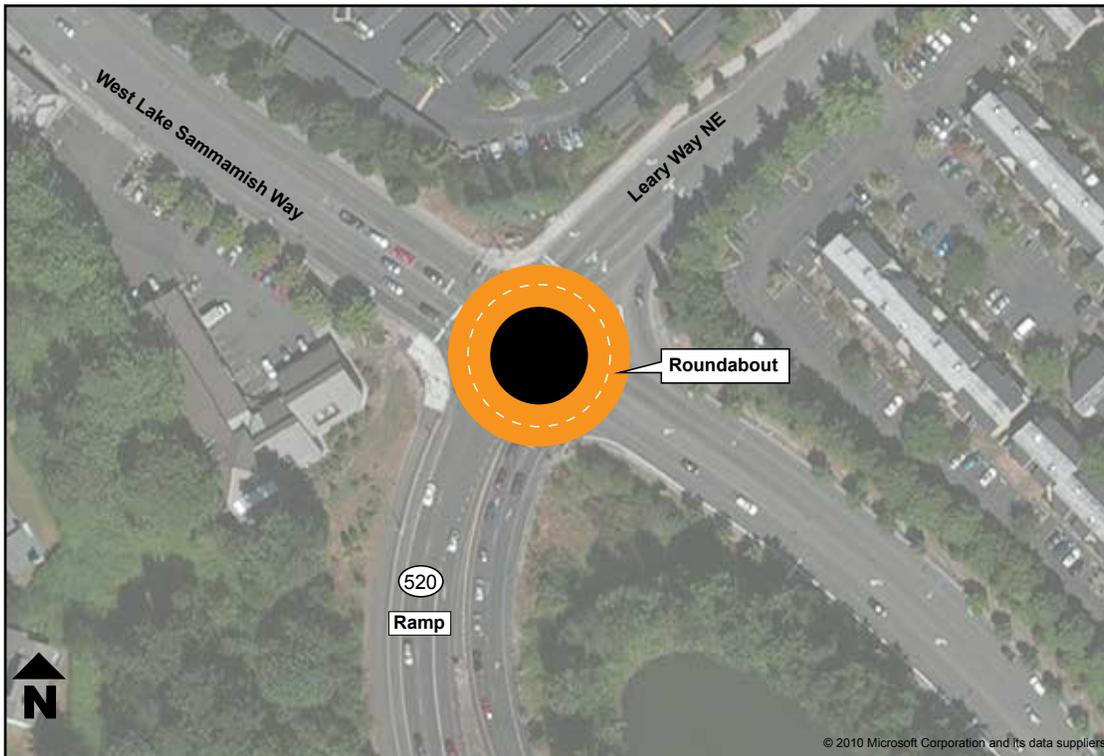
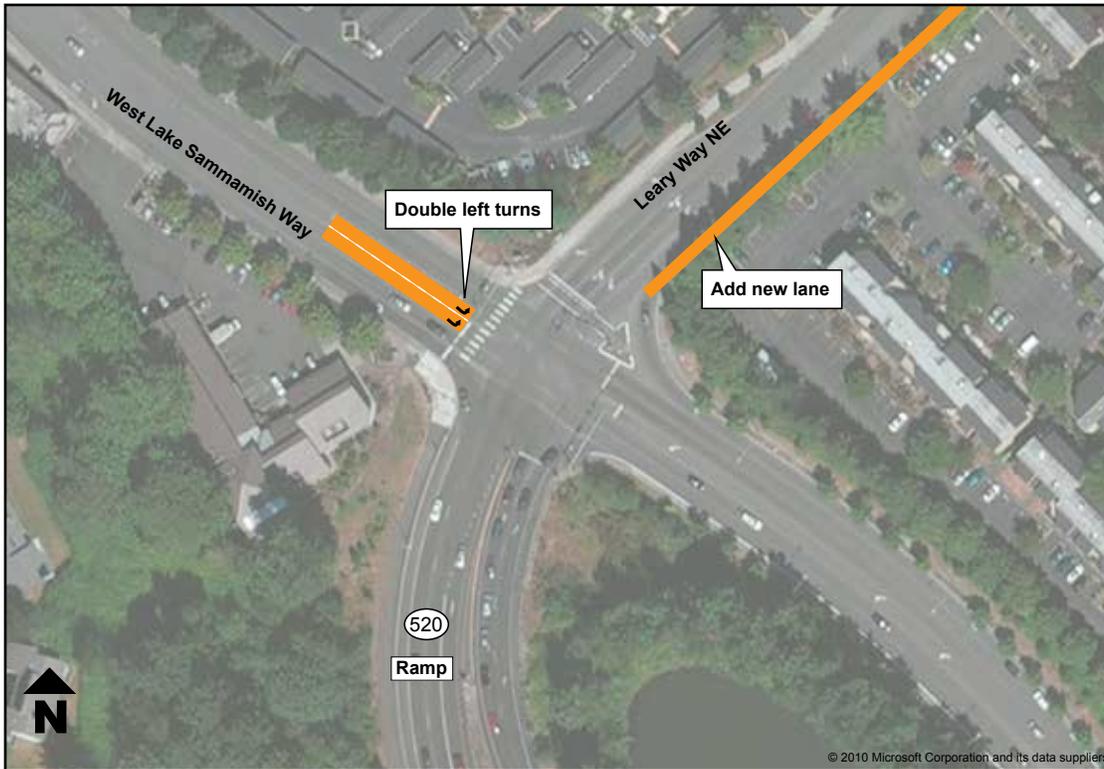
One solution alternative is to widen the existing intersection in order to provide added channelization to accommodate existing and future deficiencies. Specifically, an additional left-turn lane would be constructed from West Lake Sammamish Parkway to Leary Way. This intersection capacity improvement would require construction of an additional receiving lane on Leary Way from West Lake Sammamish Parkway over the bridge spanning the Sammamish River.

Another alternative solution option would be to build a multilane roundabout at the ramp terminal. This project includes earthwork, new pavements, landscaping, striping, signing, traffic control, and other works.

Project Benefit:

Added Channelization Option: It is predicted that adding a second southbound left turn lane would help reduce the average delay by up to 90 seconds. The overall intersection LOS in the 2030 PM peak hour would become an acceptable LOS E with 61 seconds of average delay for the intersection.

Multilane Roundabout Option: Operations and capacity of a multilane roundabout were not modeled as part of this study, however, was accepted that a multilane roundabout would accommodate the forecasted volumes at this intersection and operate in concert with a roundabout on the south side of SR 520 at this interchange, thus providing continual flow with operational and safety benefits.



SR 520/West Lake Sammamish Parkway /Leary Way Interchange Improvements

Project ID Number: 19
Project Title: SR 520 Regional Trail Grade Separation at West Lake Sammamish Parkway
Project Location: SR 520/WLSP westbound on-ramp intersection
Project Cost (Estimate): \$4.6 million to \$8.7 million
Year of Need: 2019

Background - Existing and/or Future Deficiency to Address:

The West Lake Sammamish Pkwy intersection currently operates at LOS F during the PM peak hour. The 520 Regional Trail also crosses the north leg of this intersection in order to connect to the other regional trails in the area, including the Sammamish River Trail, Bear Creek Trail and East Lake Sammamish Trail. There are operational conflicts between non-motorized traffic and motorized traffic at this location. A vision for SR 520 Regional Trail includes grade separation of this trail with all high volume roadways including principle arterials such as West Lake Sammamish Parkway in order to reduce operational conflicts as well as improve functionality of this regional trail.

Project Description:

Construct a non-motorized overpass at West Lake Sammamish Parkway that connects the end of the SR 520 Regional Trail to the Sammamish River Regional Trail. Design parameters include: 14' width and ADA compatibility.

Project Benefit:

This project would move forward a vision for SR 520 Regional Trail that includes grade separation of this trail with all high volume roadways including principle arterials such as West Lake Sammamish Parkway. These improvements will not only make this regional trail more attractive and inviting for non-motorized users, but will result in reduced vehicle and non-motorized operational conflicts, improving both safety and traffic operations at this interchange.



SR 520 Regional Trail Grade Separation at West Lake Sammamish Parkway

Project ID Number: 20
Project Title: East Lake Sammamish Parkway Regional Trail
Connection (SR 520/SR 202)
Project Location: SR 520 /SR 202 Interchange
Project Cost (Estimate): TBD
Year of Need: 2022

Background - Existing and/or Future Deficiency to Address:

The connection through the SR 520/SR 202 Interchange and over Bear Creek is the only remaining link on a regional trail system that stretches over 40 miles from Golden Gardens Park in Seattle to the City of Issaquah. This completes a critical gap in connecting three regional Trails: the East Lake Sammamish Regional Trail, Redmond Central Connector, and Sammamish River Trail.

Project Description:

Construct a missing segment of the trail system through the interchange. Final trail profile through WSDOT limited access is to be confirmed during the preliminary design phase. Design parameters include a 14' wide asphalt trail under the SR 520 mainline and crossing ramps shall be grade separated (over or under). Trail clearance of 10' and ramp clearance of 16.5' are required. Tunnels may include lighting and security camera(s) depending on final length.

Project Benefit:

A trail connection through the SR 520/SR 202 Interchange and over Bear Creek would complete the only remaining missing link on a regional trail system that stretches over 40 miles from Golden Gardens Park in Seattle to the City of Issaquah. This completes a critical gap in connecting three regional Trails: the East Lake Sammamish Regional Trail, Redmond Central Connector, and Sammamish River Trail.



East Lake Sammamish Parkway Regional Trail Connection (SR 520/SR 202)

Project ID Number: 21
Project Title: SR 520/SR 202 Interchange Improvements at
WB Ramp/SR 202 Intersection
Project Location: SR 520/SR 202 Interchange westbound ramp
Project Cost (Estimate): \$10 million
Year of Need: 2015

Background - Existing and/or Future Deficiency to Address:

There are existing non-motorized and motorized operational conflicts and congestion problems in this location. The problems include a traffic bottleneck at the on-ramp to SR 520 from SR 202 and multi-modal operational conflicts at the East Lake Sammamish Regional Trail (ELST) and Redmond Way (SR 202), as cyclists use a narrow (5') sidewalk across the existing bridge or use Redmond Way.

Project Description:

Modify the bridge over Bear Creek to add a vehicular lane, providing a double left turn lane on Redmond Way to improve traffic flow and reduce conflict between motorized and pedestrian and bicycle traffic at the SR 520 and 202 Interchange. In addition, this project will construct a pedestrian and bicycle bridge on the south side of the bridge over Bear Creek to provide safe passage for non-motorized users.

Project Benefit:

Proposed project will address the bottleneck and improve vehicular flow to SR 520. Moreover, the proposed project will greatly reduce modal operational conflicts between vehicles and pedestrians and cyclists traveling along Redmond Way. Finally, the proposed project will complete a portion of the missing connection between the East Lake Sammamish Trail and Bear Creek Trail.



Proposed Improvement East Lake Sammamish Trail Bear Creek Trail

SR 520/SR 202 Interchange Improvements at WB Ramp/SR 202 Intersection

Project ID Number: 22
Project Title: SR 520/Avondale Rd/Union Hill Rd Intersection Improvements
Project Location: SR 520/Avondale Rd/Union Hill Rd Intersection
Project Cost (Estimate): \$31 million to \$87 million
Year of Need: 2022

Background - Existing and/or Future Deficiency to Address:

The Avondale Road/Union Hill Road intersection is the first signalized intersection off the SR 520 mainline at the eastern end of this corridor. This existing intersection experiences significant delay and congestion in both the morning and afternoon peaks. In the afternoon peaks, queues can regularly extend onto SR 520 for more than one mile. Eastbound 520 mainline queues regularly begin at the West Lake Sammamish Parkway interchange, but can occasionally extend back to the 51st Ave NE interchange.

Currently this intersection operates poorly with several critical movements operating at LOS F. Those critical movements are southbound through, westbound left turn and northbound left turn in AM peak hour and southbound left turn, westbound left turn, northbound left turn and entire eastbound approach in PM peak hour. With 2030 demands, the average delays at some critical movements would go up to 200 seconds

The City of Redmond has exhausted all at-grade channelization and signal timing improvements for this existing intersection and congestion persists.

Project Description:

Study and design solutions for this heavily congested at-grade intersection. Develop a preliminary design to determine which option listed below should be pursued. Estimated cost for the preliminary design work is \$3 million. Solutions to study include:

1. Grade separation of critical movements such as:
 - Westbound Union Hill Rd to Southbound SR 520 left turn, or
 - Northbound and southbound through movements between SR 520 and Avondale Rd., or
 - All left turns at intersection.
2. Flyover Ramp: This option would provide a flyover ramp from westbound Union Hill Road to westbound SR 520. To accommodate this flyover from the center of Union Hill Road to the center of SR 520, it would be necessary to widen both roadways, modify the NE 76th Street ramps, build retaining walls and potentially require additional right of way.

Construction estimates range between \$28 million and \$84 million, and depend on the solution selected during the preliminary design work.

Project Benefit:

Providing for additional throughput capacity at this critical intersection would improve travel times for users accessing SR 520. In particular, eastbound 520 traffic destined for both Avondale Road and Union Hill Road during the PM peak period, would benefit from this improvement. SR 520 mainline would benefit from improved safety by reducing mainline queuing and thus the potential for rear-end accidents on this segment of the SR 520 Corridor.

With the westbound left turn flyover ramp, the volumes for that movement would not need to go through the intersection. The overall intersection LOS would improve to D in both AM and PM peak hour with 35 and 51 seconds delays, respectively.



SR 520/Avondale Rd/Union Hill Rd Intersection Improvements – Preliminary Design