I-405, Tukwila to Renton Improvement Project (I-5 to SR 169 – Phase 2)

INTERSTATE 405 Corridor Program

Congestion Relief & Bus Rapid Transit Projects

TRANSPORTATION DISCIPLINE REPORT

September 2007

Washington State Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

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SUMMARY

Study Approach

The study area for the I-405, Tukwila to Renton Improvement Project (I-5 to SR 169 – Phase 2), referred to as the Tukwila to Renton Project, was identified as the sections of I-405 between I-5 in Tukwila to SR 169 in Renton, and SR 167 between I-405 and SW 43rd Street in south Renton. The study area also includes any adjacent intersections and local streets that may be affected by the improvements to I-405 and SR 167.

In addition to the study area, we also analyzed the entire length of the I-405 corridor and adjacent sections of I-5, SR 167, I-90, SR 520, and SR 522. We analyzed this larger area to capture effects outside Tukwila and Renton that may change operations in the study area.

Existing Conditions

In the study area, I-405 and SR 167 have two general-purpose lanes and one HOV lane. The general-purpose lanes on I-405 and SR 167 currently experience congestion and reduced speeds for several hours during the morning and afternoon commutes. The I-405/SR 167 interchange is considered one of the most congested and inefficient areas in the region.

What are general-purpose lanes?

Roadway lanes available for use by all traffic.

What are high-occupancy vehicle (HOV) lanes?

Roadway lanes available for buses, motorcycles, vanpools and carpools with more than one occupant. Currently, two or more (2+) occupants are required to use the I-405 HOV lanes.

Baseline Conditions

The baseline conditions represent future conditions in 2014 after the previously approved and funded Renton Nickel Improvement Project is constructed in the study area, but without the Tukwila to Renton Project being constructed. The Renton Nickel Improvement Project will add one lane in each direction of I-405 between I-5 in Tukwila and SR 169, one new lane to southbound SR 167 from I-405 to SW 41st Street, and extend the southbound SR 167 HOV lane north to I-405.

Project Effects

The Tukwila to Renton Project will add capacity, increase travel speed, and improve operations on I-405, SR 167, and at the I-405/SR 167 interchange. This project will also improve the surface streets operations at the I-405 interchanges with SR 181, SR 167, and SR 169, allowing more vehicles to access I-405. HOV operations will also be improved with the direct-

connector ramps from the northbound SR 167 HOV lane to the northbound I-405 HOV lane, and the southbound I-405 HOV lane to the southbound SR 167 HOV lane.

The project will improve safety by reducing congestion, and in turn, congestion related accidents. The project will also improve the roadway configuration in locations where high numbers of crashes are occurring.

Measures to Avoid or Minimize Effects

Project construction will be planned to minimize disruptions to the freeway whenever possible. Lane closures will occur in off-peak hours and will be coordinated with local agencies.

Unavoidable Adverse Effects

We do not foresee the project causing any substantial unavoidable adverse effects to traffic and transportation.

ACRONYMS AND ABBREVIATIONS

Term	Meaning
AWDT	average weekday traffic
EA	environmental assessment
EIS	environmental impact statement
FHWA	Federal Highway Administration
GP	general-purpose
HAC	High Accident Corridor
HAL	High Accident Location
HOT	high-occupancy toll
HOV	high-occupancy vehicle
HOV 2+	high-occupancy vehicle requirement of two or more persons per vehicle
HOV 3+	high-occupancy vehicle requirement of three or more people per vehicle
LOS	level of service
Metro	King County Metro Transit Agency
mph	miles per hour
NEPA	National Environmental Policy Act
P & R	park-and-ride
PSRC	Puget Sound Regional Council
Sound Transit	Central Puget Sound Regional Transit Authority
SOV	single occupant vehicle
SR	State Route
TDM	transportation demand management
vph	vehicles per hour
WSDOT	Washington State Department of Transportation

GLOSSARY

Term	Meaning
access	The ability to enter a freeway or roadway via an on-ramp or other entry point.
arterial	A major street that primarily serves through traffic, but also provides access to abutting properties. Arterials are often divided into principal and minor classifications depending on the number of lanes, connections made, volume of traffic, nature of traffic, speeds, interruptions (access functions), and length.
average weekday traffic (AWDT)	The number of vehicles traveling in both directions on a given section of road during an average weekday 24-hour period.
bicycle lane	A portion of a roadway reserved for preferential or exclusive use by bicycles. These lanes are identified using striping, signs, and/or pavement markings.
bottleneck	A narrow or obstructed section of a highway that contributes to traffic congestion.
capacity	The maximum sustained traffic flow of a transportation facility under prevailing traffic and roadway conditions in a specified direction.
congestion	The condition when unstable traffic flows constrain travel speeds to less than the posted limit. Recurring congestion is caused by constant excess traffic volume compared with the highway's capacity. Nonrecurring congestion is caused by unusual or unpredictable events such as traffic accidents.
CORSIM	A traffic analysis software package that simulates roadway intersection operating conditions and the effects of design modifications.
delay	The increased travel time experienced because of circumstances that impede the desirable movement of traffic.
demand	The desire for travel by potential users of the transportation system.
emergency vehicle	Any vehicle used to respond to an incident or accident. Examples include police, fire, ambulance, maintenance vehicles, and incident response tow trucks.
general-purpose (GP) lane	A freeway or arterial lane available for use by all traffic.

Term	Meaning
Growth Management Act (GMA)	Washington State legislation adopted in 1990, and subsequently amended that requires all cities and counties in the state to do some long-range comprehensive planning, and has more extensive requirements for the largest and fastest-growing counties and cities in the state. Such comprehensive plans must address several required topics, including but not limited to land use, transportation, capital facilities, utilities, housing, etc. The GMA requirements also include guaranteeing the consistency of transportation and capital facilities plans with land use plans.
High Accident Corridor (HAC)	A High Accident Corridor is a section of road one mile or more in length that exceeds the county average for collisions and severity on rural two lane arterials, minor arterials and major collectors. The “high-accident-corridor” rate shall be based on number of crashes per million vehicle miles.
High Accident Location (HAL)	High Accident Locations are those places on the highway system that experience a higher than average number of accidents compared to other locations with similar characteristics.
high-occupancy vehicle (HOV)	High-occupancy vehicle is a special designation for a bus, carpool, or vanpool provided as an encouragement to increase ride-sharing. Specially designated HOV lanes and parking are among the incentives for persons to pool trips, use fewer vehicles, and make the transportation system more efficient. HOV lanes are generally inside (left-side) lanes, and are identified by signs and a diamond on the pavement. Currently, two or more (2+) occupants are required to use the I-405 HOV lanes. Motorcycles are allowed to use freeway HOV lanes as well. .
jurisdiction	A municipal government agency, such as a city or county, and as appropriate, federal and state agencies and federally recognized tribes. The term also can mean “to have authority over.”
level of service (LOS)	A measure of how well a freeway or local signalized intersection operates. For freeways, LOS is a measure of traffic congestion typically based on volume-to-capacity ratios. For local intersections, LOS is based on how long it takes a typical vehicle to clear the intersection. Other criteria also may be used to gauge the operating performance of transit, non-motorized, and other transportation modes.

Term	Meaning
Master Plan (I-405)	The master plan for fixing I-405 traffic includes all transportation modes, adding up to two new lanes each direction to I-405, a corridor-wide bus rapid transit (BRT) line and increased local transit service. It will fix bottlenecks such as the SR 167/I-405 interchange, and improve key arterials.
measure of effectiveness	An indicator or criterion used to assess how a roadway performs.
modeling	Use of statistics and mathematical equations to simulate and predict real events and processes.
non-motorized	Bicycle, pedestrian, and other modes of transportation not involving a motor vehicle.
off-peak direction	Travel direction of the freeway with the lower demand.
park-and-ride facility	A facility where individuals can park their vehicle for the day and access public transportation or rideshare for the major portion of their trip.
peak direction	Travel direction of the freeway with the higher demand.
peak hour	The hour in the morning or in the afternoon when the maximum demand occurs on a given transportation facility or corridor.
peak period	The period of the day during which the maximum amount of travel occurs. It may be specified as the morning (AM) or afternoon or evening (PM) peak.
person trips	The total number of persons that pass through a section of roadway during a given time period. For example, one vehicle carrying three people comprises three person trips.
Puget Sound Regional Council (PSRC)	The Metropolitan Planning Organization (MPO) and Regional Transportation Planning Organization (RTPO) for the central Puget Sound region, which is comprised of Snohomish, King, Pierce, and Kitsap counties. The MPO and RTPO is the legally-mandated forum for cooperative decision-making about regional growth policies and transportation issues in the metropolitan planning area.
queue	A line of vehicles waiting to move through an access point in traffic, such as a signal or turn lane.
ramp metering	A system used to reduce congestion on a freeway facility by managing vehicle in-flow from local-access on-ramps. An on-ramp is equipped with a traffic signal that allows vehicles to enter the freeway at intervals based on freeway congestion, traffic speeds, and other conditions.
single-occupancy vehicle (SOV)	A vehicle with only one occupant (i.e., the driver).

Term	Meaning
State Environmental Policy Act (SEPA)	Washington State legislation adopted in 1974, that establishes an environmental review process for all development proposals and major planning studies prior to taking any action. SEPA includes early coordination to identify and mitigate any substantial issues or significant effects that may result from a project or study.
Synchro	A traffic analysis software application for performing capacity analyses and optimizing traffic signal timing for an individual intersection, an arterial, or a complete roadway network.
throughput	The number of vehicles being carried on a facility. This is usually measured at a specific point on the roadway facility for a predetermined period of time.
transportation demand management (TDM)	A varied collection of methods to reduce or modify travel demand and encourage more efficient use of the transportation system.
travel demand forecasting	Methods for estimating the desire for travel by potential users of the transportation system, including the number of travelers, the time of day, travel mode, and travel routes.
Two-directional total	A traffic volume that combines both directions of traffic into one number.
vanpool	A ridesharing arrangement in which a number of people travel together on a regular basis in a public or employer-provided van, usually designed to carry five or more persons.
vehicle	Any car, truck, van, motorcycle, or bus designed to carry passengers or goods. Bicycles and other pedestrian-oriented vehicles are not included in this definition.
vehicle trips	The total number of vehicles that pass through a section of roadway over a given time.
VISSIM	A traffic analysis software package used for the modeling and simulating operation of the transportation system and its elements.

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SECTION 1 INTRODUCTION

What are the primary features of the Tukwila to Renton Project?

WSDOT is proposing to construct the I-405, Tukwila to Renton Improvement Project (I-5 to SR 169 – Phase 2), referred to as the Tukwila to Renton Project, to relieve congestion. The Tukwila to Renton Project extends approximately four miles along I-405, from I-5 to SR 169, and approximately two miles along SR 167, from I-405 to SW 43rd Street. The project will:

- Add capacity to both I-405 and SR 167.
- Replace bridges over the Green River and Cedar River and add one new bridge over the Green River.
- Improve the SR 181 and SR 169 interchanges.
- Reconstruct the SR 167 interchange consisting of new general-purpose direct-connector ramp from I-405 southbound to SR 167 southbound, HOV direct-connector ramps from SR 167 northbound to I-405 northbound and from I-405 southbound to SR 167 southbound, and a split-diamond interchange at Lind Avenue and Talbot Road with connecting frontage roads.
- Replace the two local street accesses to Renton Hill.

These improvements represent the second phase of the I-405 Corridor Program for this portion of I-405. The first phase consists of improvements in the Renton Nickel Improvement Project.

What is the purpose of this report?

This Transportation Discipline Report presents the results of our detailed study of the effects of the Tukwila to Renton Project on the transportation system. The report identifies the meaningful differences between the No Build Alternative and the Build Alternative in terms of freeway and local street performance, safety, and effects to transit and non-motorized facilities.

What topics are included In the Transportation Discipline Report?

The report includes results from our freeway and local street operations analysis including the number of vehicles and persons moved, changes in freeway congestion, and intersection level of service (LOS). We conducted a safety study for the freeway corridor and examined the effects project construction will have on the transportation system. Effects on transit service and facilities are identified as well as the effects on the non-motorized facilities.

Why is transportation important to consider?

Transportation is vital to the health of the region's economy and affects everyone's quality of life. I-405 plays a crucial role in moving people and goods through the Puget Sound region. As the population and employment of the Puget Sound region increases, it is important to continually improve our transportation system. We need to understand the likely effects of transportation improvements to I-405 before we can efficiently design the project and get approvals from federal agencies.

What studies were completed?

In October of 2005, the Transportation Discipline Report for the I-405 Renton Nickel Improvement Project documented the project's effects on the transportation system. The I-405 Renton Nickel Improvement Project is included in the 2014 baseline conditions for this project.

In March 2006, the Renton to Bellevue Project, SR 169 to I-90, Transportation Discipline Report documented the project's effects on the transportation system north of the Tukwila to Renton Project study area.

The Puget Sound Regional Council (PSRC) four-county travel forecast model was used as a starting point for determining future travel demand. This model predicts traffic volumes and travel patterns based on adopted land use plans within the region.

I-405 is an important link in the region's transportation system.

What are the key messages from this report?

The key messages in this report include the following:

- The study area currently experiences congestion during the morning and afternoon peak travel periods.
- Projected future regional population and employment growth will increase freeway demand compared to 2005 existing conditions. By 2014, for most locations in the study area, we forecast the baseline conditions/No Build Alternative will experience slower travel speeds than the 2005 existing conditions.
- The Build Alternative will add capacity to I-405 and SR 167, and rebuild the majority of the I-405/SR 167 interchange allowing more people to travel on the freeway and generally increasing 2014 average travel speeds 10 to 15 miles per hour compared to the No Build Alternative. The rebuilt I-405/SR 167 interchange will remove a bottleneck in the center of the study area and improve the efficiency of the freeway system.
- The Build Alternative will improve safety compared to the No Build Alternative by reducing congestion, and in turn, congestion related accidents. The Build Alternative will also improve safety by improving roadway configurations.
- The project will construct HOV direct-connector ramps from the northbound SR 167 HOV lane to the northbound I-405 HOV lane, and the southbound I-405 HOV lane to the southbound SR 167 HOV lane. The new ramps will save transit and HOVs travel time and improve the efficiency of the HOV lanes.
- The Build Alternative will improve the surface streets at the I-405 interchanges with SR 181, SR 167, and SR 169. This will improve the local street operations in Tukwila and Renton and allow more vehicles to access I-405.
- The Tukwila to Renton Project improves a portion of the I-405 corridor. It will not offer the full solution for the I-405 corridor, but serves as a step in implementing the long-term plan (Master Plan) for the I-405 corridor. The Master Plan includes additional freeway and transit capacity and will substantially replace and upgrade interchanges along the entire length of the I-405 corridor.

What measures are proposed to avoid or reduce impacts?

The purpose of the project is to improve freeway and local street operations by adding roadway capacity. When the project is built and operational, no mitigation measures related to roadway operations will be required.

Project construction will affect the transportation system because of temporary closures and construction vehicles. The project will be constructed and staged to minimize the effects whenever possible. WSDOT will coordinate with the local agencies and other projects to prepare a Traffic Management Plan prior to making any changes to the traffic flow or allowing lane closures.

What will happen if we adopt the No Build Alternative?

By 2014, we project peak-hour traffic volumes will generally be similar to 2005 existing conditions, but travel speeds will be slower for most locations in the study area. Periods of traffic congestion will increase and the I-405/SR 167 interchange will continue to act as a bottleneck. With the No Build Alternative, the flow of traffic will become more constrained and some drivers wishing to use I-405 and SR 167 would not choose to do so. Freeway delays would force drivers to seek alternate routes on local and regional roadways, choose to travel by different means or at different times, or forego their desired trips altogether. The flow of traffic will be most constrained in the year 2030 and beyond.

The surface streets in Tukwila and Renton will become more congested, particularly near the I-405 interchanges with SR 167 and SR 169.

SECTION 2 PROJECT DESCRIPTION

What is the intent of the Tukwila to Renton Project?

WSDOT is proposing to construct the I-405, Tukwila to Renton Improvement Project (I-5 to SR 169 – Phase 2), referred to as the Tukwila to Renton Project, to relieve congestion. Relieving congestion will benefit the public by:

- Lowering the number of accidents thus improving safety.
- Increasing overall speeds through this section of freeway.
- Improving response times for emergency service vehicles using I-405.
- Improving access to and from I-405 and local circulation.

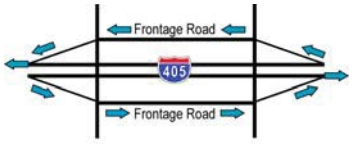
The Tukwila to Renton Project extends approximately four and one half miles along I-405, from I-5 to SR 169, and approximately two miles along SR 167, from I-405 to SW 43rd Street. The project adds capacity to both I-405 and SR 167; improves the SR 181 and SR 169 interchanges; reconstructs the SR 167 interchange consisting of a split-diamond interchange at Lind Avenue and Talbot Road with connecting frontage roads, general-purpose direct-connector ramp from I-405 to SR 167 southbound, and high-occupancy vehicle (HOV) direct-connector ramps from SR 167 northbound to I-405 northbound and from I-405 southbound to SR 167 southbound. These improvements are detailed in the following section.

What are the details of the Tukwila to Renton Project?

The Tukwila to Renton Project improvements are described from west to east (northbound) along the study area on the following pages. These improvements are also illustrated on Exhibits 2-1 through 2-15.

What is a split-diamond interchange?

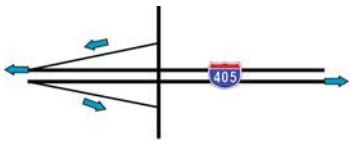
This interchange type consists of two half-diamond interchanges at arterials. These are connected by two, one-way frontage roads. Traffic enters and exits the freeway at the two arterials, creating an elongated diamond configuration as shown.



Split Diamond

What is a half-diamond interchange?

It is an interchange where traffic exits or enters the freeway in one direction. This creates a triangular or half-diamond configuration as shown.



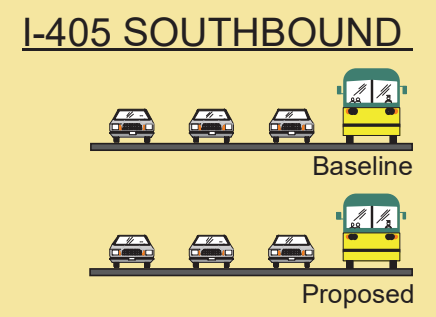
Half Diamond

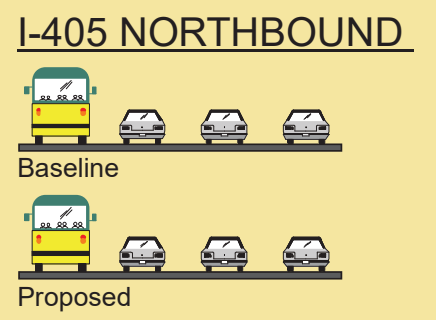
Exhibit 2-1: Project Features, Sheet 1

I-405 from I-5 to East of SR 181

For this portion of the project, WSDOT will:

- Remove the existing northbound I-405 Tukwila Parkway on-ramp. See Exhibits 2-2 and 2-3 for where the project will provide a new on-ramp.
- Realign I-405 mainline slightly to the south beginning just west of the existing northbound I-405 Tukwila Parkway on-ramp to the SR 181 interchange as shown in Exhibits 2-1 and 2-2.





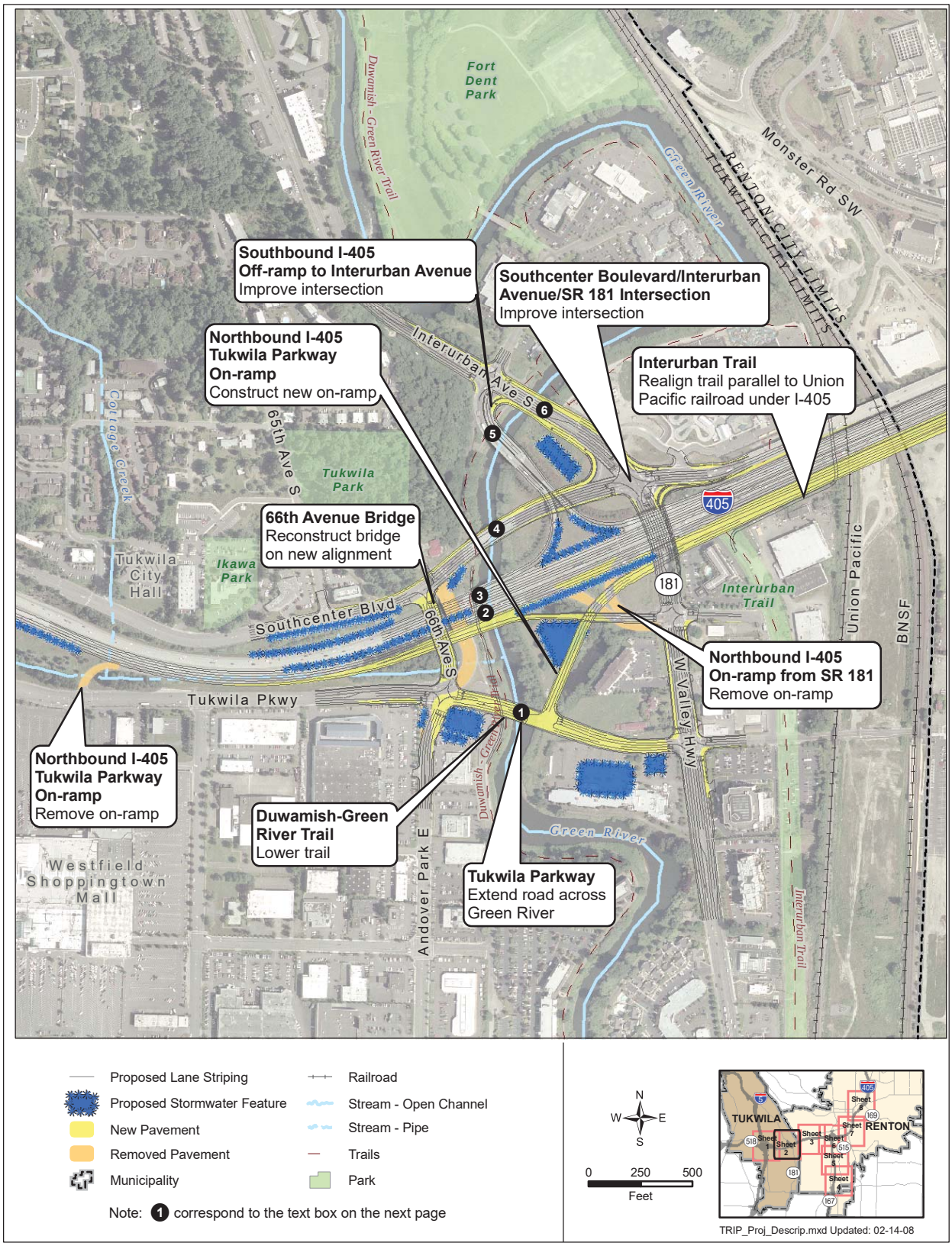
The project will not change capacity along this section

What are baseline conditions for this project?

Baseline conditions describe the site conditions just before construction of the project begins. This can include the build conditions of earlier phased projects that are already approved and funded and expected to be complete before the next project begins. Baseline provides an important point of comparison for understanding the effects of the proposed build alternative.

For the Tukwila to Renton Project, the baseline condition assumes that the Renton Nickel Improvement Project has been completed.

Exhibit 2-2: Project Features, Sheet 2



I-405 at SR 181 Interchange

WSDOT designed the improvements in Exhibits 2-2 and 2-3 to improve freeway and local travel in this area. WSDOT will:

- Improve the SR 181 interchange:
  - Remove the existing SR 181 on-ramp to northbound I-405.
  - Extend Tukwila Parkway from the intersection with 66th Avenue east over the Green River to SR 181.
  - Construct new northbound I-405 on-ramp from Tukwila Parkway just east of the new crossing over the Green River (replaces the two existing on-ramps).
  - Reconstruct the 66th Avenue S bridge over I-405 on a new alignment to the west and reconstruct the intersections with Southcenter Boulevard and Tukwila Parkway.
  - Reconstruct the off-ramp from northbound I-405 to SR 181.
  - Improve local arterials within the interchange area such as Southcenter Boulevard and Interurban Avenue.
- Reconstruct five bridges and build one new bridge over the Green River.
- Lower the Duwamish-Green River Trail.
- Reconstruct the I-405 structures over SR 181.
- Realign the Interurban Trail.

What bridge construction will occur over the Green River?

❶ Tukwila Parkway Bridge (new)

❷ Northbound I-405 Bridge

❸ Southbound I-405 Bridge

❹ Southcenter Boulevard Bridge

❺ Off-Ramp Bridge from southbound I-405.

❻ Interurban Avenue Bridge

See Exhibit 2-2 for the bridge locations.

Exhibit 2-3: SR 181 Interchange Improvements

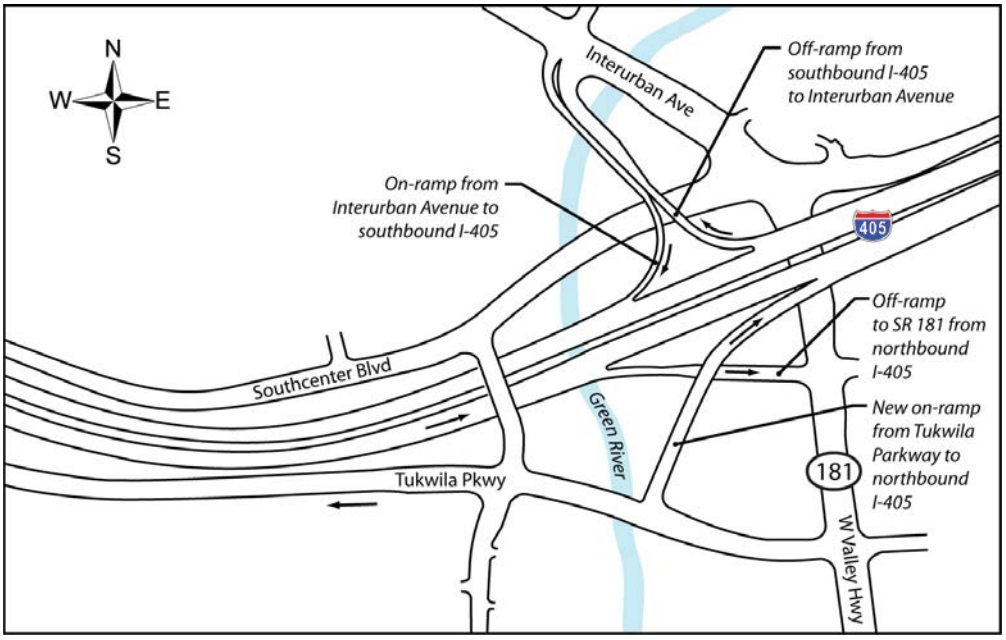
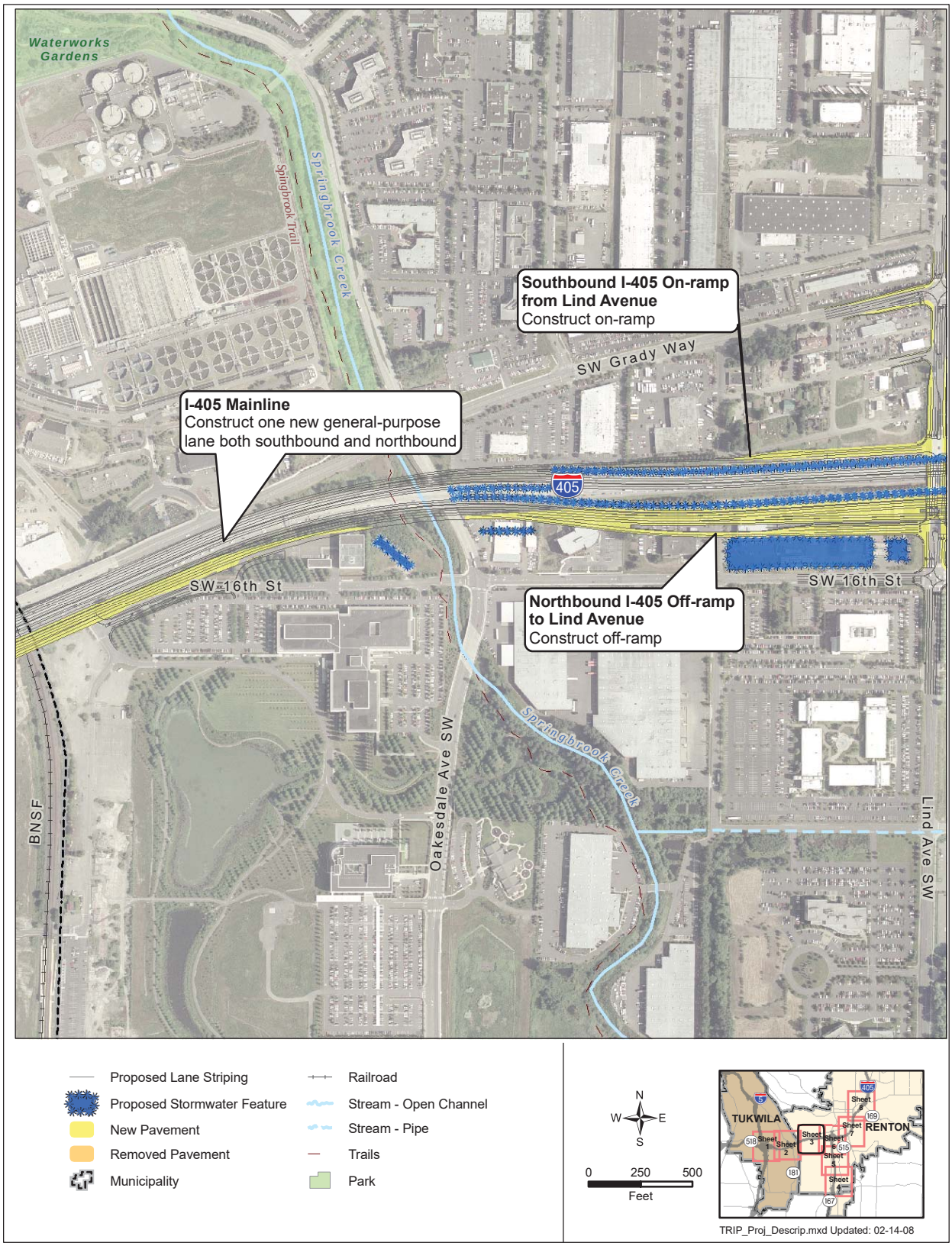


Exhibit 2-4: Project Features, Sheet 3



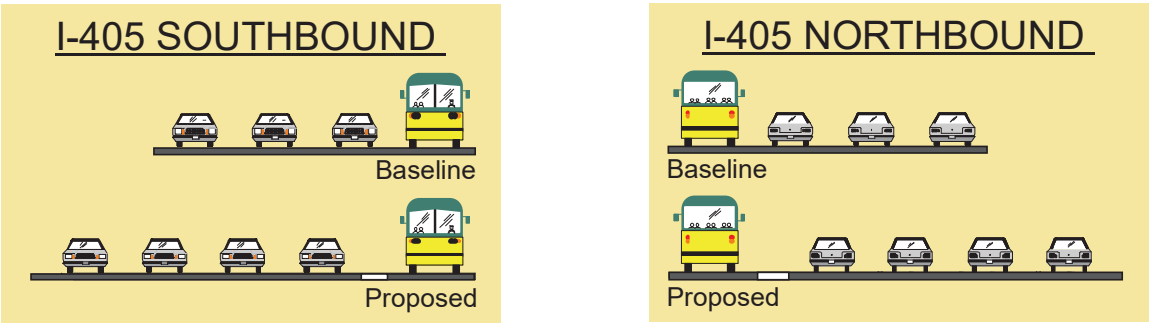
I-405 from East of SR 181 to SR 167 Interchange

From the SR 181 interchange east, WSDOT will realign I-405 to the south. This will:

- Provide a smooth transition onto the new Springbrook Creek/Oakesdale Avenue bridge that was constructed under the Renton Nickel Improvement Project.
- Minimize effects on SW Grady Way and businesses north of I-405.

In addition to realigning I-405, WSDOT will:

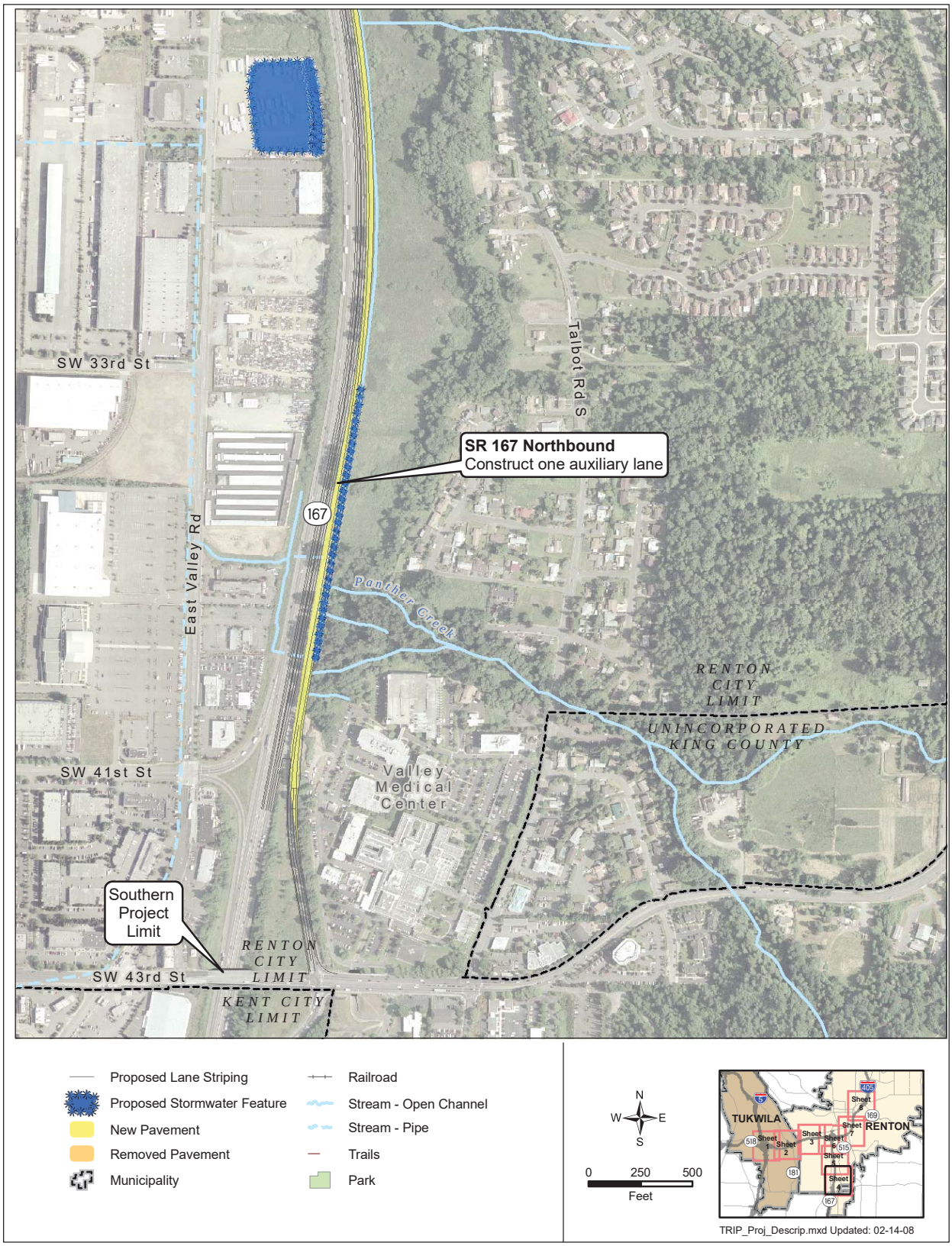
- Construct one additional general-purpose lane in both directions on I-405 from SR 181 through SR 167.
- Stripe lanes to provide a buffer between HOV and general-purpose lanes along I-405.



Project improvements will add capacity to I-405 for both southbound and northbound traffic and will provide a buffer between the HOV lane and the general-purpose lanes

- Stripe the bridges over Springbrook Creek/Oakesdale Avenue to provide five lanes in both directions.
- Reconstruct I-405 structures over the Burlington Northern Santa Fe (BNSF) and Union Pacific railroads.
- Construct a half-diamond interchange at Lind Avenue (see sidebar on page 2-1).

Exhibit 2-5: Project Features, Sheet 4



SR 167 from SW 43rd Street On-ramp North to SW 27th Street

In this area, WSDOT will:

- Construct an auxiliary lane on northbound SR 167 from SW 43rd Street to SW 27th Street.
- Stripe lanes to provide a buffer between HOV and general-purpose lanes along northbound SR 167.

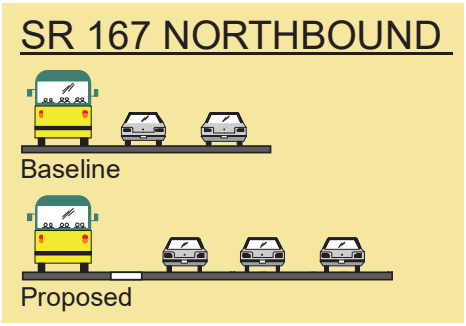
As shown on Exhibit 2-5, the new northbound lane will be added north of the SW 43rd Street on-ramp. This will improve the ability of traffic to merge onto SR 167 and increase capacity along this stretch. To minimize effects on the streams and wetlands along SR 167, WSDOT has used retaining walls instead of fill slopes.

What is an auxiliary lane?

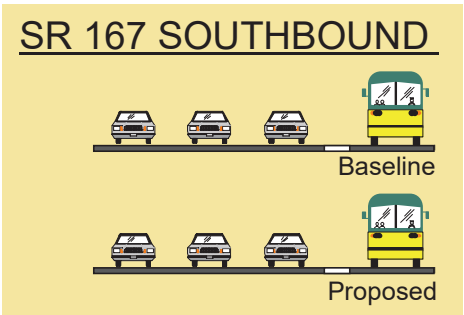
An auxiliary lane is a lane added between interchanges—from one on-ramp to the next off-ramp. It is dedicated to traffic entering and leaving the freeway and provides motorists with more time and extra room to accelerate or decelerate and merge when getting on and off the freeway.

The signs below show how an auxiliary lane changes how an on-ramp operates.

Existing Proposed

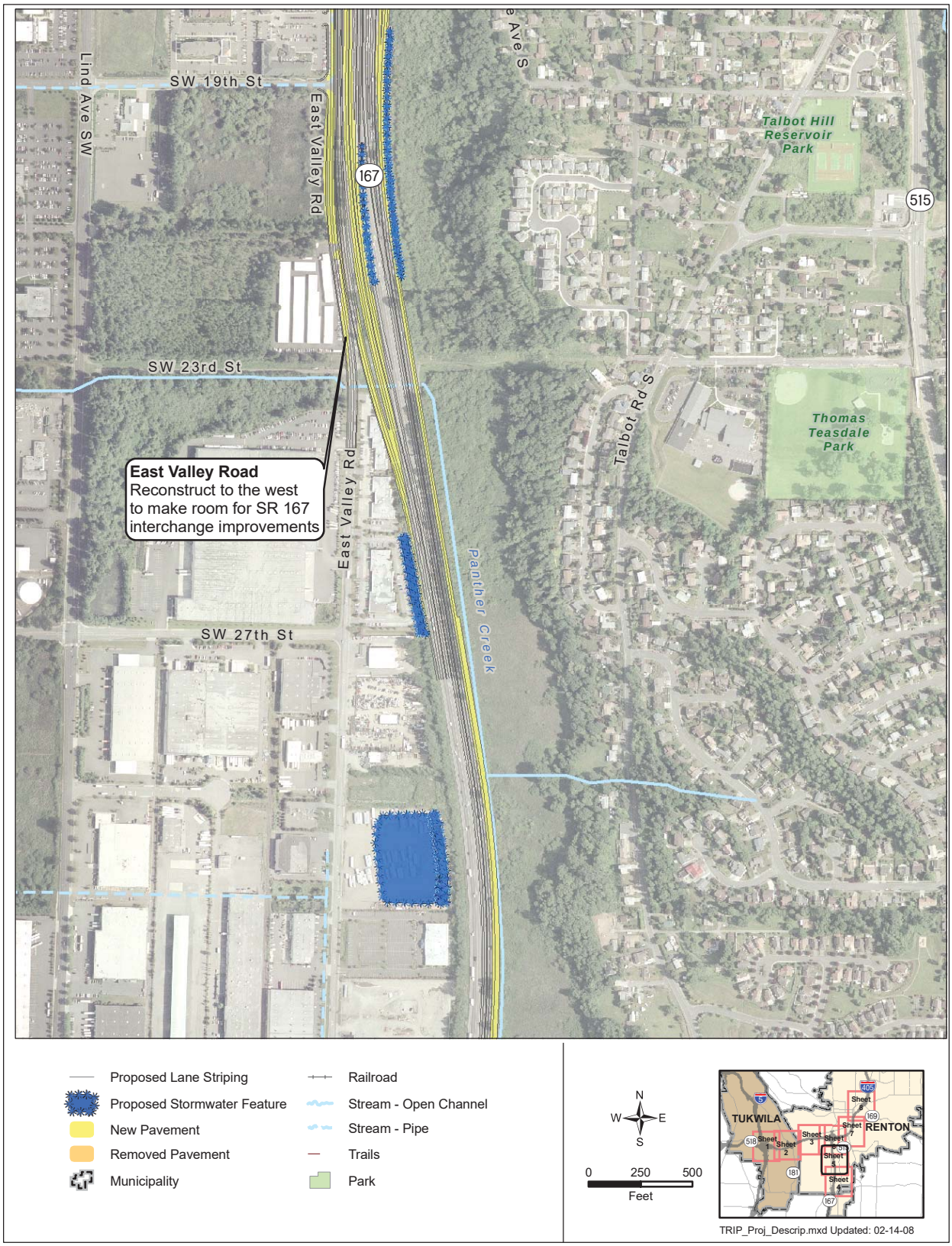


Project improvements will add capacity to northbound SR 167 and will provide a buffer between the HOV lane and the general-purpose lanes



The project will not affect the southbound lanes of SR 167

Exhibit 2-6: Project Features, Sheet 5

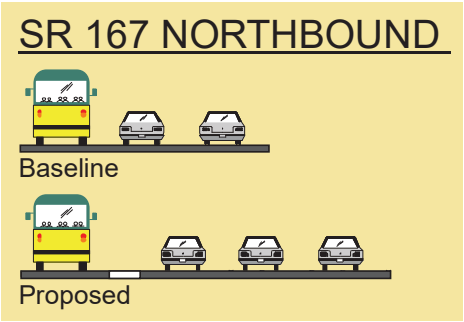


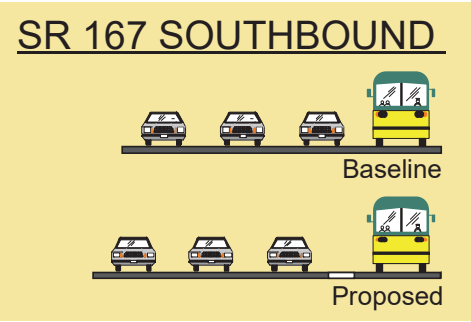
SR 167 from SW 27th Street to I-405

Along this section of SR 167, the project will:

- Reconstruct SR 167 between SW 27th Street and I-405 to accommodate the reconstructed SR 167 interchange as shown on Exhibits 2-7 to 2-9.
- Reconstruct East Valley Road to the west of its current alignment between SW 23rd Street and SW 16th Street to accommodate the reconstructed SR 167 interchange.
- Stripe lanes to provide a buffer between HOV and general-purpose lanes along SR 167.
- Construct an auxiliary lane on northbound SR 167 from SW 27th Street to I-405.

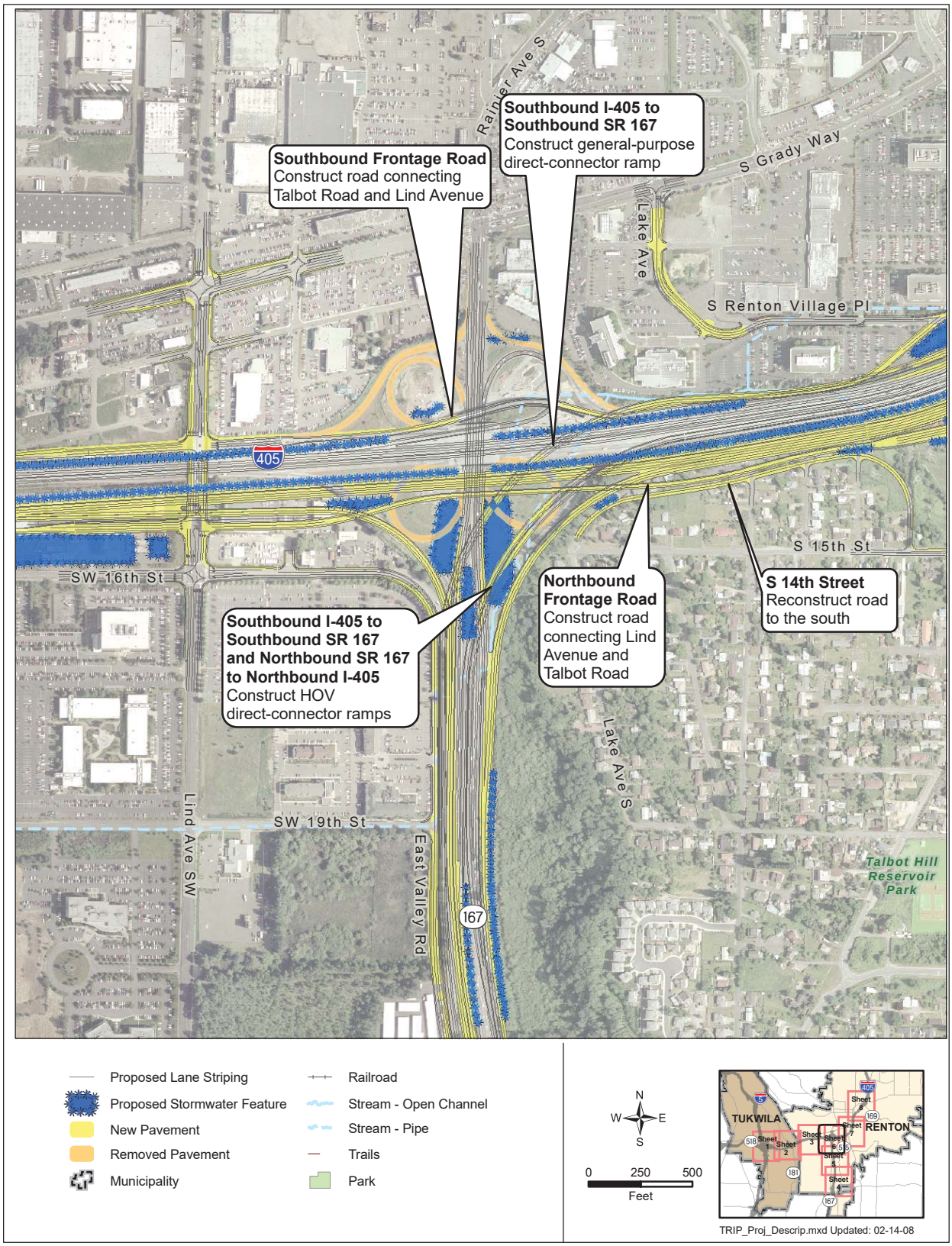
WSDOT has designed the improvements in this area to the west as much as possible to minimize effects on the Panther Creek wetlands while also limiting the effects on businesses west of SR 167. To further minimize the area needed to accommodate the improvements, the new southbound I-405 to southbound SR 167 direct-connector ramp will be built over local street and freeway improvements as shown on Exhibit 2-9. WSDOT also used design features such as retaining walls to minimize the area needed for improvements.





Project improvements will add capacity to northbound SR 167 and will provide a buffer between the HOV lane and the general-purpose lanes in both the northbound and southbound directions of SR 167

Exhibit 2-7: Project Features, Sheet 6



I-405 Interchange with SR 167

Within the I-405/SR 167 interchange, the project will improve freeway to freeway access and local access.

Freeway to Freeway Access

To improve access, WSDOT will:

- Construct a general-purpose direct-connector ramp from southbound I-405 to southbound SR 167, replacing the existing loop ramp.
- Reconstruct exterior ramps from northbound I-405 to southbound SR 167 and from northbound SR 167 to northbound I-405, replacing the existing ramps. This project will also add a general-purpose lane to both ramps.
- Construct HOV direct-connector ramps from southbound I-405 to southbound SR 167 and from northbound SR 167 to northbound I-405.
- Maintain existing loop ramp from northbound SR 167 to southbound I-405.

Exhibit 2-8 focuses on the freeway to freeway interchange improvements and Exhibit 2-9 presents how these improvements will look.

Exhibit 2-8: Freeway to Freeway Ramps in Reconstructed I-405/SR 167 Interchange

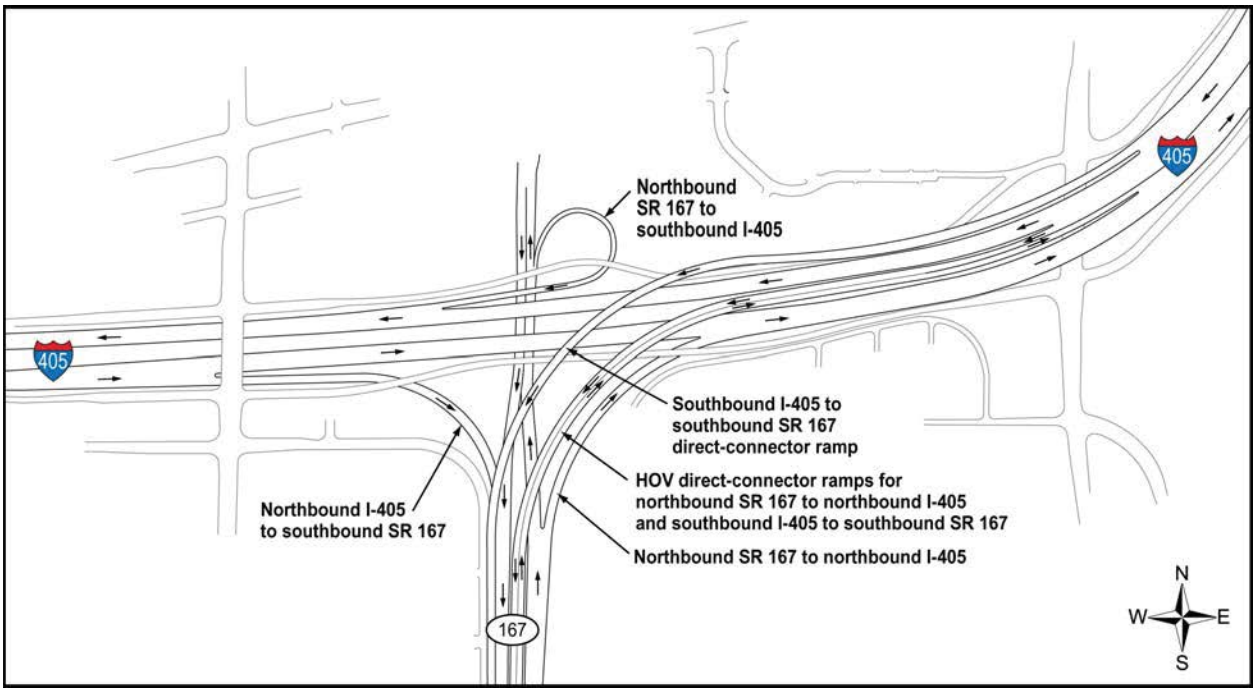


Exhibit 2-9: Rendering of I-405/SR 167 Interchange Improvements

Local Access

WSDOT will improve local access at the SR 167 interchange. The improvements will:

- Construct a split-diamond interchange at Lind Avenue and Talbot Road (SR 515). See Exhibits 2-10 and 2-11.
- Construct southbound and northbound frontage roads connecting Lind Avenue and Talbot Road. The southbound frontage road will reuse the existing I-405 to SR 167 southbound bridge.
- Reconstruct the Lind Avenue bridge over I-405.
- Reconstruct the I-405 structures over Talbot Road.
- Improve local street intersections.
- Provide new connection to Grady Way from S Renton Village Place.

Exhibit 2-10: Split-diamond Interchange at Lind Avenue and Talbot Road

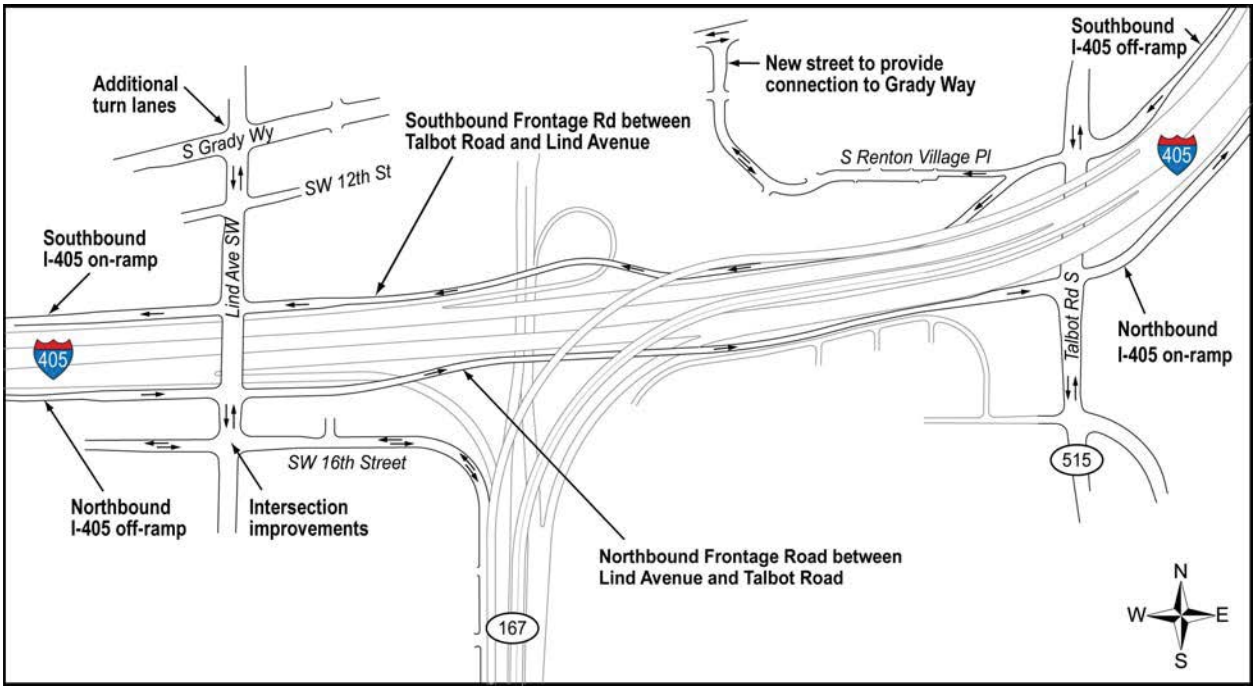
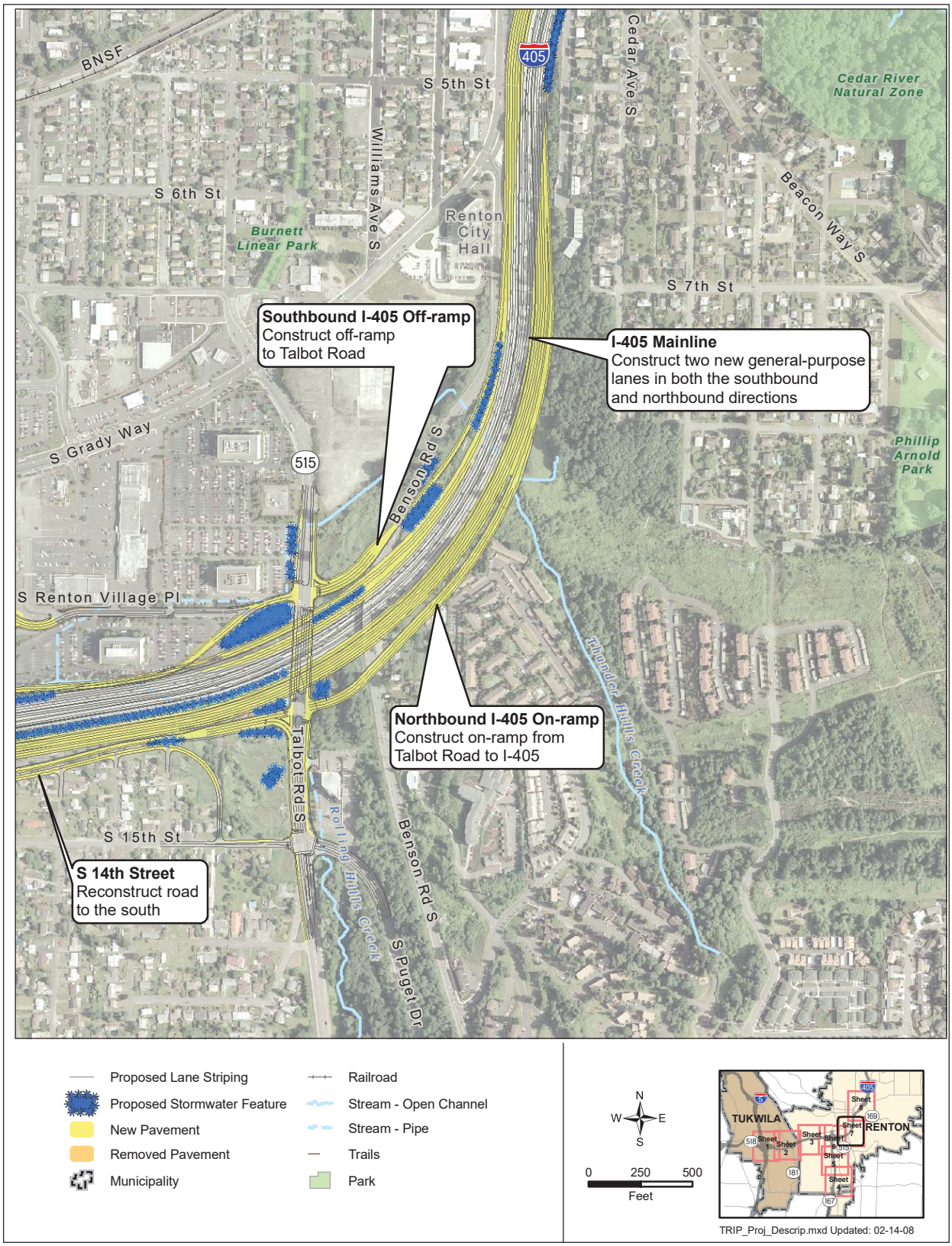


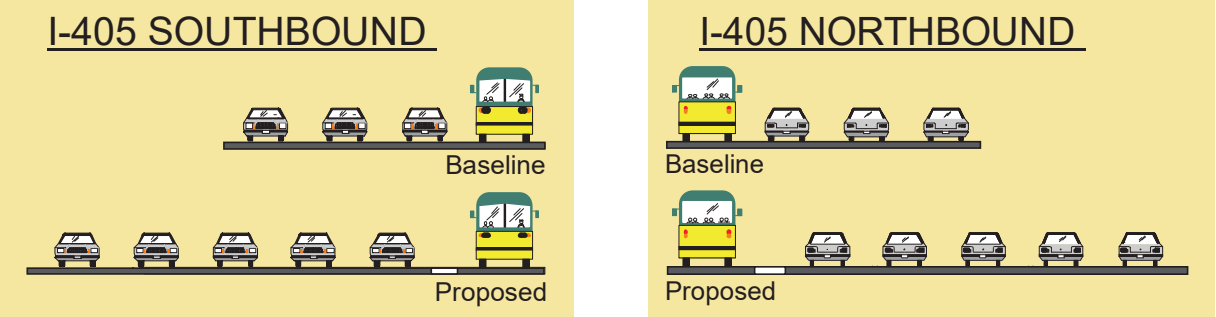
Exhibit 2-11: Project Features, Sheet 7



I-405 from East of SR 167 Interchange to North of S 5th Street

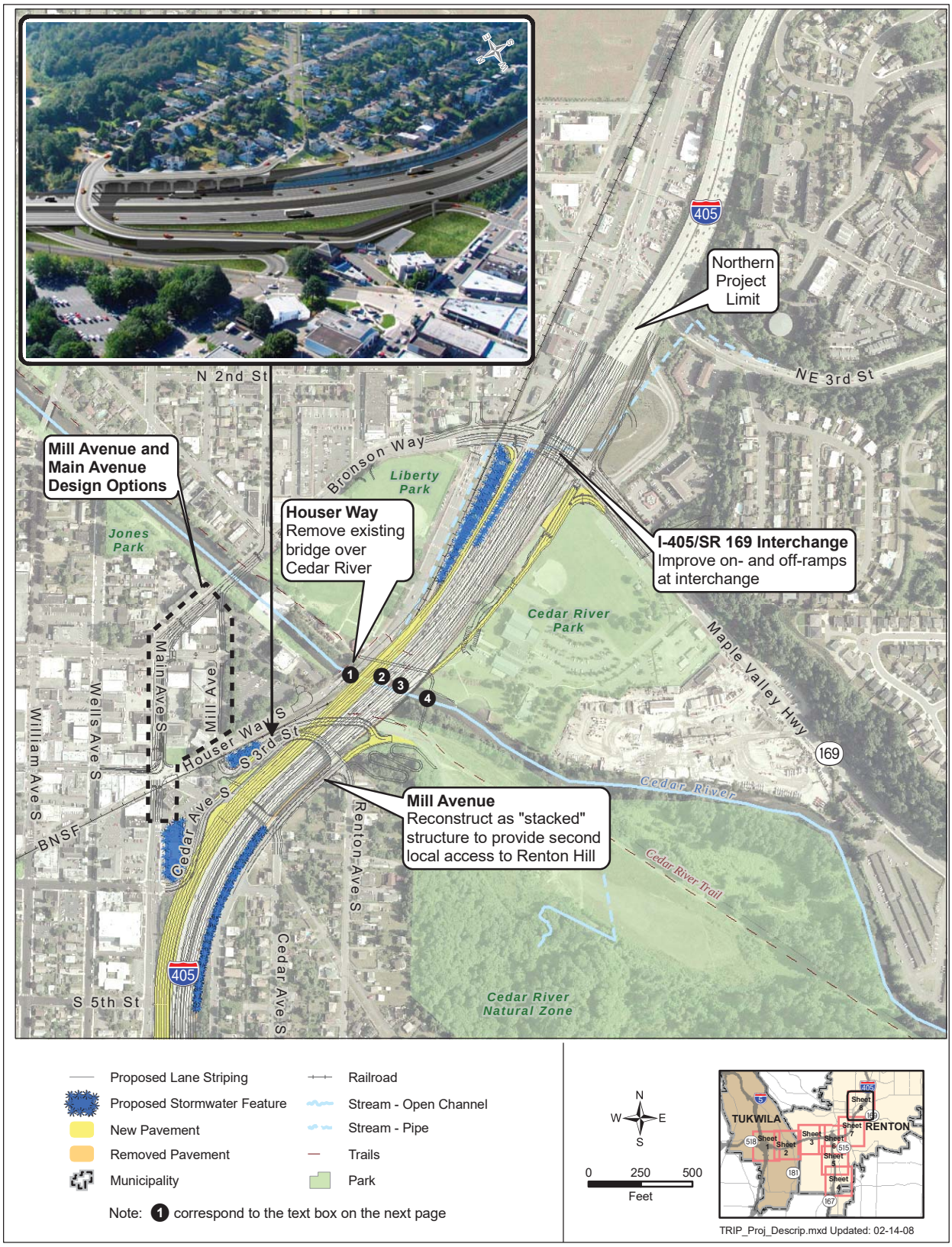
For the section of I-405 that extends from the SR 167 interchange past Renton City Hall as shown on Exhibit 2-11, WSDOT will:

- Construct two additional lanes in both directions on I-405 from SR 167 through SR 169.
- Stripe lanes to provide a buffer between HOV and general-purpose lanes along I-405.
- Construct a new half-diamond interchange at Talbot Road as shown on Exhibit 2-10.
- Reconstruct S 14th Street south of its existing location.



Project improvements will add capacity to I-405 for both southbound and northbound traffic and will provide a buffer between the HOV lane and the general-purpose lanes

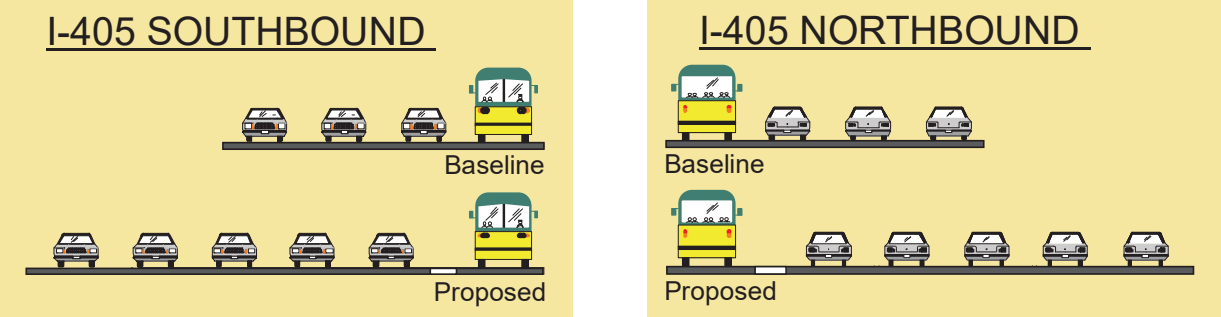
Exhibit 2-12: Project Features, Sheet 8



I-405 from S 5th Street to SR 169

This last portion of the Tukwila to Renton Project crosses the Cedar River to the SR 169 interchange. In this section, WSDOT will:

- Construct two additional lanes in both directions on I-405 from SR 167 through SR 169.
- Stripe lanes to provide a buffer between HOV and general-purpose lanes along I-405.



Project improvements will add capacity to I-405 for both southbound and northbound traffic and will provide a buffer between the HOV lane and the general-purpose lanes

- Cantilever the I-405 structures over Main Avenue.
- Reconstruct three bridges over the Cedar River: southbound I-405, northbound I-405, and a pedestrian bridge.
- Relocate the Burlington Northern Santa Fe railroad bridge.
- Close Houser Way south of the Cedar River north to Bronson Way and remove the bridge over the Cedar River.
- Reroute northbound traffic to Bronson Way, which will be striped to accommodate the new traffic pattern.
- Reconstruct two local street accesses to Renton Hill.

What bridge construction will occur over the Cedar River?

❶ Burlington Northern Santa Fe Railroad Bridge
❷ Southbound I-405 Bridge
❸ Northbound I-405 Bridge
❹ Pedestrian Bridge

See Exhibit 2-12 for the bridge locations.

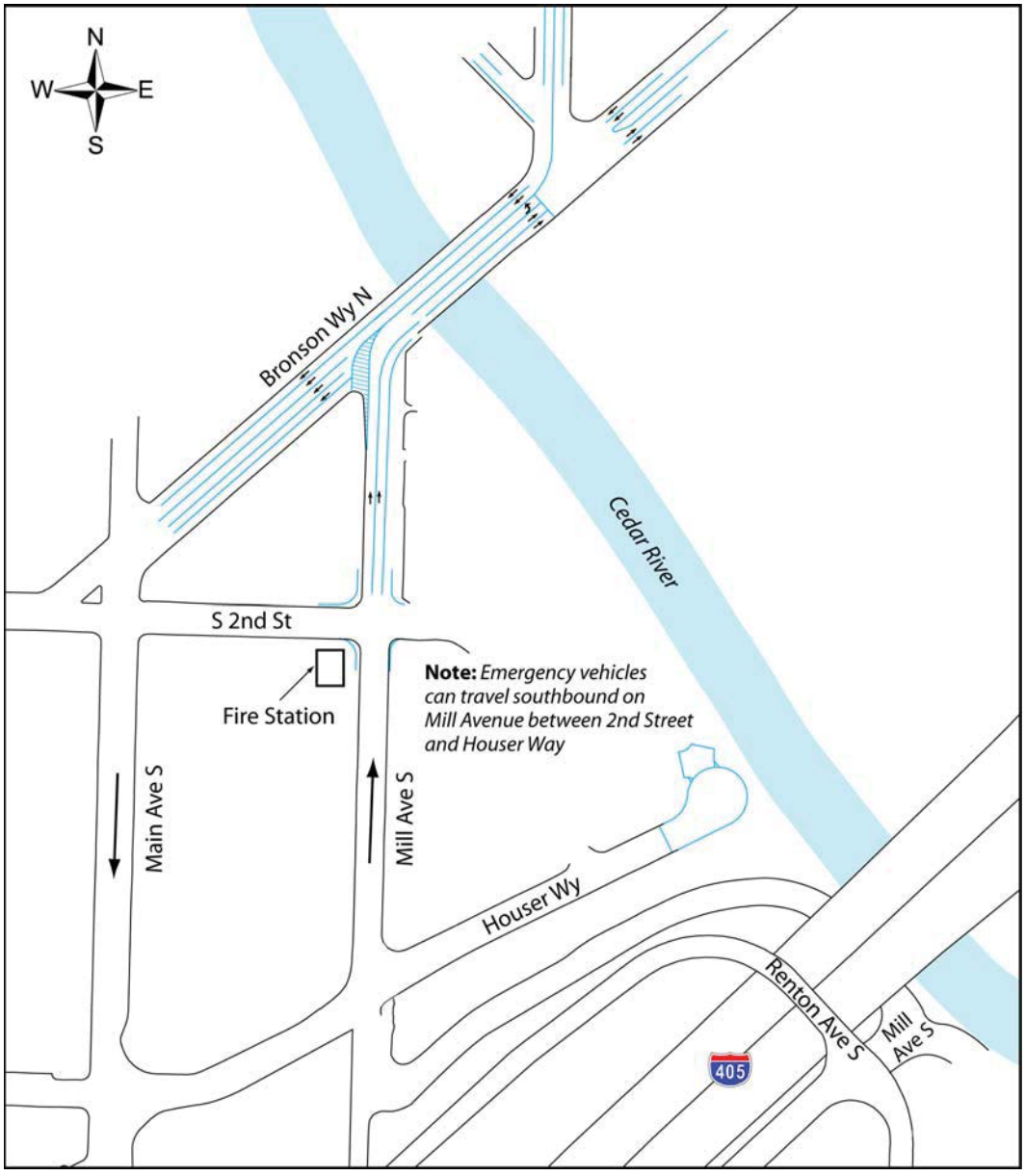
To accommodate the I-405 improvements, the Tukwila to Renton Project also required rerouting traffic from Houser Way and changing access to Renton Hill. These improvements are discussed on the following pages.

Mill Avenue and Main Avenue Design Options

To accommodate widening I-405 over the Cedar River, the Houser Way bridge will be closed. WSDOT worked closely with the City of Renton to develop the most acceptable and feasible solution for redirecting traffic coming from south of Houser Way. For northbound traffic within Renton south of the Cedar River, two design options are being considered:

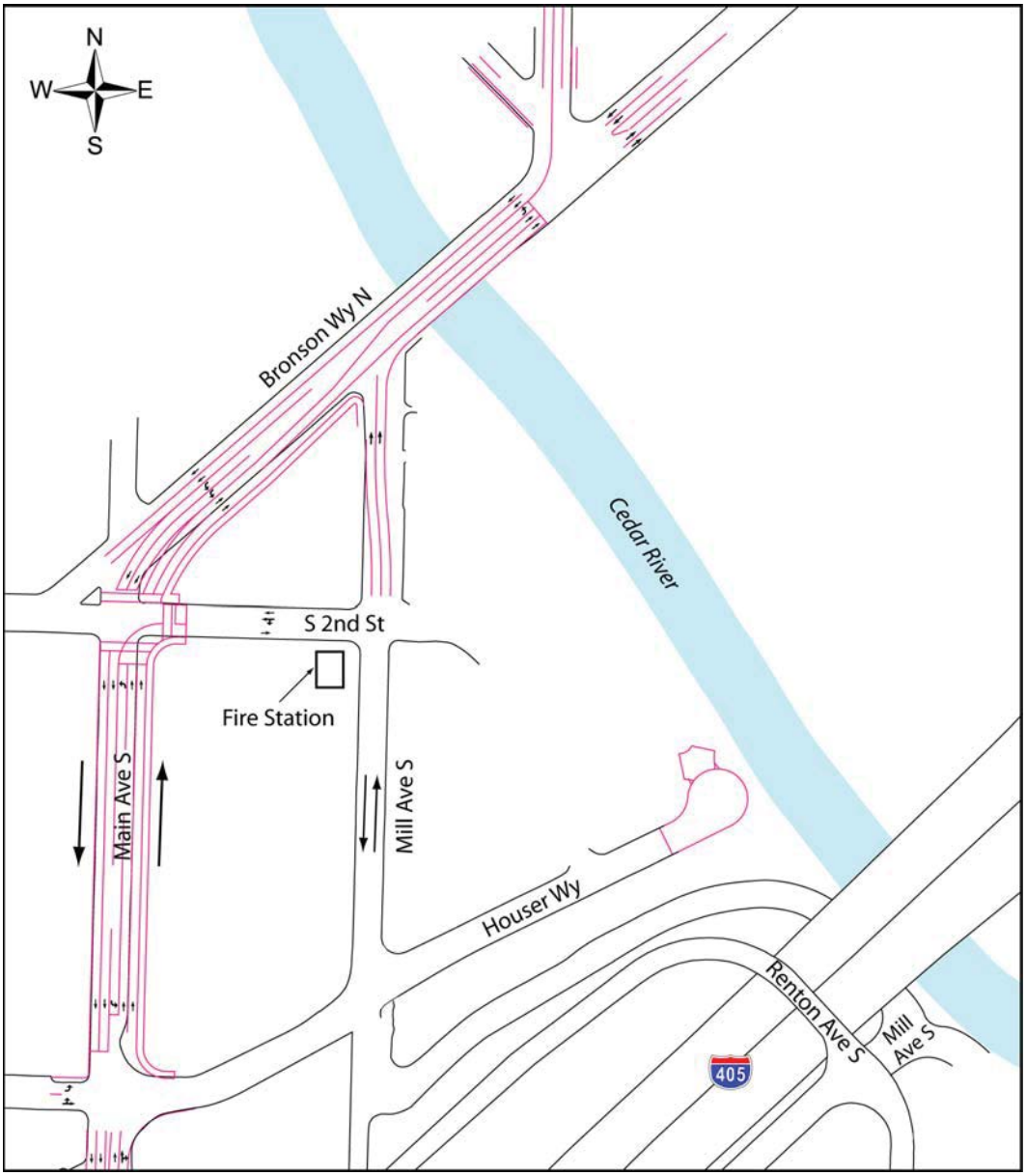
- The first option stripes Mill Avenue as a one-way street to provide two lanes northbound from the intersection of Houser Way and Mill Avenue to Bronson Way (see Exhibit 2-13).

Exhibit 2-13: Mill Avenue Design Option for Local Access to Bronson Way



- The second option leaves Mill Avenue as a two-way street up to the intersection with 2nd Street where it will be striped for one-way traffic northbound and reconfigures Main Avenue, a one-way street southbound, to provide two-way traffic. Main Avenue would be widened and striped for two-way traffic to provide access from the south to Bronson Way (see Exhibit 2-14).

Exhibit 2-14: Main Avenue Design Option for Local Access to Bronson Way

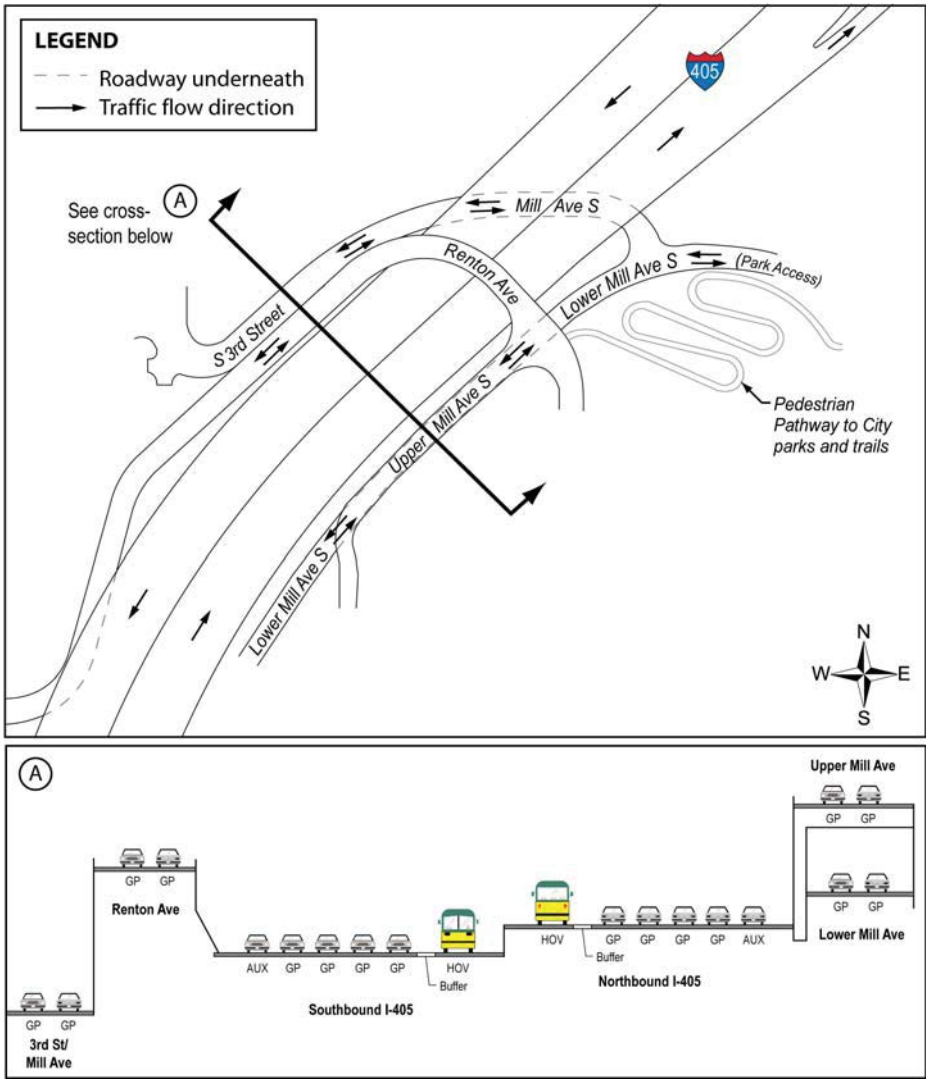


Changes to Renton Hill Access

As shown in the inset on Exhibit 2-12, the Renton Hill Access will be changed to accommodate the widening of I-405. These changes are detailed in Exhibit 2-15 below. WSDOT will:

- Reconstruct the Renton Avenue bridge over I-405 and realign the north end to intersect with Main Avenue rather than Houser Way as it currently does.
- Reconstruct Mill Avenue as a stacked structure that also provides access to Renton Hill as shown in Exhibit 2-15.
- Remove the existing Cedar Avenue bridge.
- Construct a pedestrian pathway connecting residents on Renton Hill to the City's parks and trails.

Exhibit 2-15: New Local Access for Renton Hill



What are the construction methods and schedule for implementation?

Construction Methods

The Tukwila to Renton Project will use different methods to construct the various project elements. The main approaches to construction for this project are described below.

At-grade Construction

At-grade construction, which occurs on the same elevation as the existing lanes, will be staged to minimize traffic delays and detours. One method would shift lanes toward the median. WSDOT then would place a concrete barrier to provide a work zone outside of the roadway. A second method would build the entire new section, then shift traffic to the new portion and reconstruct the existing section. Staging allows construction to occur safely without closing lanes for the duration of construction.

Bridge Construction

Bridge construction will generally occur in multiple stages to minimize traffic delays and detours. The following describes a typical staging approach for bridge construction on I-405 that will be used where practicable. As the first step, traffic is shifted toward the I-405 median, and the existing lanes and shoulders are narrowed slightly. This approach allows widening of the existing structure or construction of the new bridge, depending on the design, to occur on the outside of the roadway. Next, traffic is shifted onto the new bridge area. If the bridge is being replaced rather than simply widened, the old structure is demolished after traffic is shifted to the new bridge.

Road Closures

Some road closures will be necessary to construct various improvements. WSDOT will notify local agencies, public services, utilities, and the general public prior to any temporary road closures and will clearly mark detour routes. As much as possible, closures will be scheduled during times that will have the least impact on the traveling public.

Traffic Control

WSDOT will work with local agencies to develop detours as needed during construction. Prior to starting construction, WSDOT will develop a traffic control plan. The plan's primary objectives will be to provide a safe facility, to streamline the construction schedule, and to minimize reductions to existing traffic capacity. To lessen effects on traffic, the duration of activities will be minimized and reductions in capacity will be limited and will be targeted to a period when they will have the least effect.

Schedule

Because the I-405 Corridor Program master plan configuration is very expensive, WSDOT will implement the improvements in phases as funding becomes available. The Tukwila to Renton Project represents Phase 2 for this section of I-405. This discipline report assumes a baseline condition where the Phase 1 improvements, Renton Nickel Improvement Project, have been completed prior to the start of Phase 2.

Construction of the entire Tukwila to Renton Project is expected to be spread over several years as funding becomes available. For this reason, construction activity will not be constant throughout the entire study area and the duration will vary depending on the improvement being constructed.

The first element of the Tukwila to Renton Project that is proposed for construction is the SR 515 Interchange Project. This portion is funded through the 2005 Transportation Partnership Account (TPA). This Tukwila to Renton project element will construct a half-diamond interchange on I-405 at Talbot Road (SR 515). Construction of this element is scheduled to begin in autumn of 2008. The remaining elements of the Tukwila to Renton Project are unfunded at this time.

To complete the master plan for I-405 from I-5 to SR 169, additional work will need to be accomplished in this area.

Does this project relate to any other improvements on I-405 or connecting highways?

The Tukwila to Renton Project is part of a comprehensive program to address the congestion problems in the I-405

corridor. WSDOT worked with the Federal Highway Administration (FHWA), Federal Transit Administration, Central Puget Sound Regional Transit Authority, King County, and local governments to develop strategies to reduce traffic congestion and improve mobility along the I-405 corridor. The I-405 Corridor Program Environmental Impact Statement (EIS) and Record of Decision (ROD), published in 2002, document these strategies. The selected alternative has become known as the master plan.

WSDOT is constructing the master plan as funding becomes available. For the southern end of I-405 extending from I-5 to SR 169, the Renton Nickel Improvement Project was Phase 1. This phase was largely funded by the statewide transportation-funding plan called the "nickel package," which was approved by the Washington State Legislature in 2003. In 2005, the legislature passed a second funding package, TPA. It also provided funding for the Renton Nickel Improvement Project. Construction of the Renton Nickel Improvement Project began in 2007 and will be completed by 2011.

The other I-405 projects that relate to the Tukwila to Renton Project address the sections north of SR 169 to the end of I-405 at I-5 in Lynnwood. Of these projects, the first stage for the Kirkland area of I-405 is currently under construction. The first stage for Bellevue, SE 112th Street to SE 8th Street, began construction in 2007. As each successive project becomes operational, the public will benefit from the improved traffic movement, safety, and capacity along the I-405 corridor.

Another related project is the HOT Lanes Pilot Project on SR 167. This project will convert the existing HOV lanes to High-Occupancy Toll (HOT) lanes between Auburn and Renton. HOT lanes will better manage the SR 167 corridor traffic demand through tolling. The Tukwila to Renton Project will tie into the HOT lanes project.

In addition, some local agencies are working on projects that will tie into the work on I-405. For example, the City of Renton is proposing to reconstruct Rainier Avenue S, in particular, improving local access and circulation to the interchange with I-405 and SR 167.

As well as the road projects discussed above, WSDOT and the City of Renton are constructing the Springbrook Creek

Wetland and Habitat Mitigation Bank. This project will create a large wetland complex that will provide mitigation credits to multiple projects including the Tukwila to Renton Project.

What is the No Build Alternative?

The No Build Alternative assumes that the improvements associated with the Renton Nickel Improvement Project are constructed as does the baseline condition. Only routine activities such as road maintenance, repair, and safety improvements would be expected to take place between 2014 and 2030. This alternative does not include improvements that would increase roadway capacity or reduce congestion beyond baseline conditions. For these reasons, it does not satisfy the project's purpose to reduce congestion on I-405 between I-5 in Tukwila and SR 169 in Renton.

The No Build Alternative has been evaluated in this discipline report as a comparison for the effects associated with the Build Alternative.

SECTION 3 STUDY APPROACH

What is the study area and how was it determined?

The study area is the section of I-405 between I-5 in Tukwila to SR 169 in Renton, and SR 167 between I-405 and SW 43rd Street in south Renton. In addition to the study area, our analysis included the whole length of the I-405 corridor and adjacent sections of I-5, SR 167, I-90, SR 520, and SR 522. We analyzed this larger area to capture effects outside Tukwila and Renton that may change operations in the study area.

The study area also includes the local streets and intersections adjacent to I-405 and SR 167. We chose these intersections because they may be affected by the improvements to I-405 and SR 167.

What policies or regulations are related to effects on Transportation?

The Tukwila to Renton Project must comply with the State Environmental Policy Act (SEPA), National Environmental Policy Act (NEPA), Federal Highway Administration (FHWA) regulations, Tukwila and Renton plans and policies, and other local and national policies and regulations. See the *Land Use Discipline Report* for a complete description of the policies and regulations related to transportation.

How did we collect information on transportation for this report?

For the Tukwila to Renton Project, we used the year 2005 to represent existing conditions in the corridor. We assembled I-405, SR 167, and I-5 freeway and ramp traffic volumes from available year 2005 WSDOT data. We collected local street traffic volumes from traffic impact studies, the cities of Tukwila and Renton, and we conducted traffic counts for the remaining locations.

How did we develop forecasts of travel demand for the freeway?

The I-405 Team used the Puget Sound Regional Council (PSRC) four-county travel forecast model as a starting point

for determining future travel demand. This model predicts traffic volumes and travel patterns based on adopted land use plans within the region. We then refined the model to include the specific details of the I-405 freeway.

Time Periods

What is the peak period?

The period of the day during which the maximum amount of travel occurs. It may be specified as the morning (a.m.) or afternoon (p.m.) peak.

What is the peak hour?

The hour within the morning or afternoon peak period when the maximum demand occurs on a given transportation facility or corridor.

The year of opening for the Tukwila to Renton Project is 2014. The design year, 2030, is consistent with the corridor planning horizon and federal requirements for environmental documentation because it is 20 years past the start of construction. Also, 2030 is PSRC's forecast year for household, employment, and population projections. We evaluated 2014 and 2030 conditions for the No Build Alternative and the Build Alternative. In this report, we focus on the year 2014; we provide the 2030 results in Appendix B.

The morning and evening commutes using the I-405 corridor last for several hours. To capture these peak commute periods, we considered a 6-hour period in the morning (5:00 to 11:00 AM) and a 6-hour period in the evening (2:00 to 8:00 PM). We evaluated these 6-hour periods to determine how the freeway becomes congested, how it operates during the congested period, and how congestion dissipates. Although we evaluated a 6-hour period, the results in this report reflect the single peak hour (morning and afternoon) when the highest traffic demand occurs.

For the local street network, we used the hour of highest traffic volume to evaluate operations. We used this peak hour because it represents the worst case conditions for the local street operations.

Future Roadway Improvements

The travel forecast model for the Build Alternative and the No Build Alternative includes funded regional improvement projects and other planned projects. We anticipate some projects will be completed by 2014 and others by 2030. Appendix C lists the roadway projects included in the travel forecast model and describes why the projects were included.

Build Alternative

In addition to the projects included in the No Build Alternative (listed in Appendix C), the travel forecast model for the Build Alternative includes capacity improvements

associated with the Tukwila to Renton Project. We assume that funding for the Tukwila to Renton Project will be part of a larger regional investment. In addition to building new lanes to the section of I-405 in the study area between I-5 and SR 169, that investment is assumed to add continuous lanes on I-405, north of SR 169, consistent with the I-405 corridor program. By 2030, it is assumed the investment will also construct an additional lane in each direction on SR 167.

No Build Alternative

The travel forecast model for the No Build Alternative only includes the funded projects and the projects that are planned to be built. We list these projects in Appendix C.

Traffic Volumes

The I-405 Team started with existing general-purpose and HOV lane volumes as measured in 2005. Based on this information, we used the regional travel forecast model to estimate future changes. The forecasts for years 2014 and 2030 both assume the HOV lanes will operate differently in the future than they do today. Based on future growth in HOV volumes and the WSDOT policy on HOV lane operations, this analysis assumes the HOV lanes occupancy requirement will be increased from the existing two or more persons in a vehicle (HOV 2+) to three or more persons (HOV 3+).

How did we evaluate effects on transportation?

Freeway

Traffic analysts used VISSIM microsimulation software to evaluate the freeway traffic operations for the entire I-405 corridor and the adjacent sections of I-5, SR 522, SR 520, I-90 and SR 167. The software models the movement of individual vehicles and can describe how vehicles accelerate, decelerate, and change lanes in response to freeway geometry and the behavior of other vehicles.

In our analysis, we evaluated freeway performance with respect to effectiveness, vehicle trips, person trips, and speed. Vehicle trips are the total number of vehicles that pass through a section of roadway within a specific time period. To calculate person trips, we estimated the number of passengers

in carpools, vanpools, and transit buses. Next, we used the microsimulation model to calculate the average travel speed of vehicles in the general-purpose and high-occupancy vehicle (HOV) lanes over time. For this project, we calculated the speeds on an hourly basis.

Local Streets

What is a signalized intersection?

An intersection that uses a traffic light to control vehicle and pedestrian movements.

What is an unsignalized intersection?

An intersection without a traffic light that uses signs such as "Stop" and "Yield" to control vehicle and pedestrian movements.

For the local streets, we measured the effects on traffic based on intersection delay, which is the average delay experienced by vehicles that travel through an intersection. Transportation analysts rate intersection delay as a level of service (LOS) from A to F. LOS A is the best operating condition with minimal delays. LOS F is the worst condition with very long delays and heavy congestion. We used CORSIM microsimulation software to calculate the intersection delay. Exhibit 3-1 shows the LOS ranking for signalized and unsignalized intersections.

Exhibit 3-1: Level of Service Criteria for Signalized and Unsignalized Intersections

LOS	Signalized Average Delay per Vehicle (seconds)	Unsignalized Average Total Delay per Vehicle (seconds)	Description
A	0 - 10	0 - 10	Little or no delay
B	10 - 20	10 - 15	short delays
C	20 - 35	15 - 25	moderate delays
D	35 - 55	25 - 35	long delays
E	55 - 80	35 - 50	very long delays
F	>80	>50	failure - extreme congestion

Source: Highway Capacity Manual, 2000

We used peak-hour traffic volumes for the morning and afternoon periods to measure delay and LOS in the study area. We evaluated 36 signalized and 11 unsignalized intersections in the study area.

SECTION 4 BASELINE CONDITIONS

This section is comprised of two different sets of conditions—baseline conditions and existing conditions. The primary conditions, or baseline conditions, represent how the project area will look in 2014 after the Renton Nickel Improvement Project I-5 to SR 169 (Renton Nickel Improvement Project) is constructed. The Renton Nickel Improvement Project has already been environmentally cleared. Existing conditions consist of the current freeway system in 2005 as described below.

EXISTING CONDITIONS

How do existing conditions help us understand baseline conditions?

The existing conditions represent the current 2005 conditions in the study area. By including information about existing conditions, readers can compare current conditions to future conditions and better understand what traffic will be like at the starting point of this project.

What information did we use for existing conditions?

The I-405 Team used the year 2005 to represent existing conditions in the corridor. We assembled freeway and ramp traffic volumes from available WSDOT data. We collected local street traffic volumes from traffic impact studies, the cities of Tukwila and Renton, and we conducted traffic counts for the remaining locations.

How many vehicles use I-405 and SR 167 today?

Daily Traffic

The I-405 Team compiled the existing 2005 average weekday traffic volumes from available WSDOT information. The following volumes represent two-directional totals with northbound and southbound traffic added together. Between I-5 and SR 167, I-405 carries 148,000 vehicles per day. Between SR 167 and SR 169, I-405 carries 144,000 vehicles per day. The section of SR 167 between the SW 43rd Street interchange and

Peak hours represent the most congested conditions.

I-405 carries 127,000 vehicles per day. Truck traffic makes up approximately nine percent of the average weekday traffic volumes in the study area.

Peak-Hour Traffic

The peak period is the time of day when the maximum amount of travel occurs. It may be specified as the morning (a.m.) or afternoon (p.m.) peak. The peak hour within the peak period is the hour when the maximum demand occurs.

Freeway bottlenecks constrain peak-period freeway volumes in the study area. The I-405/SR 167 interchange acts as a bottleneck limiting the number of vehicles passing through the center of the study area. Bottlenecks outside the study area also restrict the freeway volumes. These bottlenecks include: I-5 to the west, I-405 to the north, and in the afternoon peak period, southbound SR 167 south of SW 41st Street.

Both northbound and southbound I-405 in the study area are considered peak travel directions because both directions carry high volumes during the morning and afternoon peak travel periods. The highest traffic volumes in the study are on the section of I-405 between SR 167 and SR 169. In the morning peak hour, southbound I-405 from SR 169 to SR 167 carries the highest volumes–some 4,020 vehicles and 4,400 persons in the general-purpose lanes, and 700 vehicles and 1,600 persons in the HOV lanes. In the afternoon peak hour, northbound I-405 from SR 167 to SR 169 carries the highest volumes–some 3,910 vehicles and 4,150 persons in the general-purpose lanes, and 910 vehicles and 2,000 persons in the HOV lanes.

In the study area, only SR 167 has an off-peak travel direction. Southbound SR 167 is the off-peak travel direction in the morning peak period, and northbound SR 167 is the off-peak travel direction in the afternoon peak period.

Exhibits 4-1 and 4-2 show the existing 2005 morning and afternoon peak-hour vehicles trips, person trips, and average travel speeds. Truck traffic makes up a smaller percentage of the total traffic volumes during the peak hours compared to the daily volumes. Truck traffic comprises approximately 8 percent of the morning peak-hour volumes and 5 percent of the afternoon peak-hour volumes.

Exhibit 4-1: 2005 Existing Conditions Morning Peak-Hour Vehicle and Person Trips, and Average Travel Speed

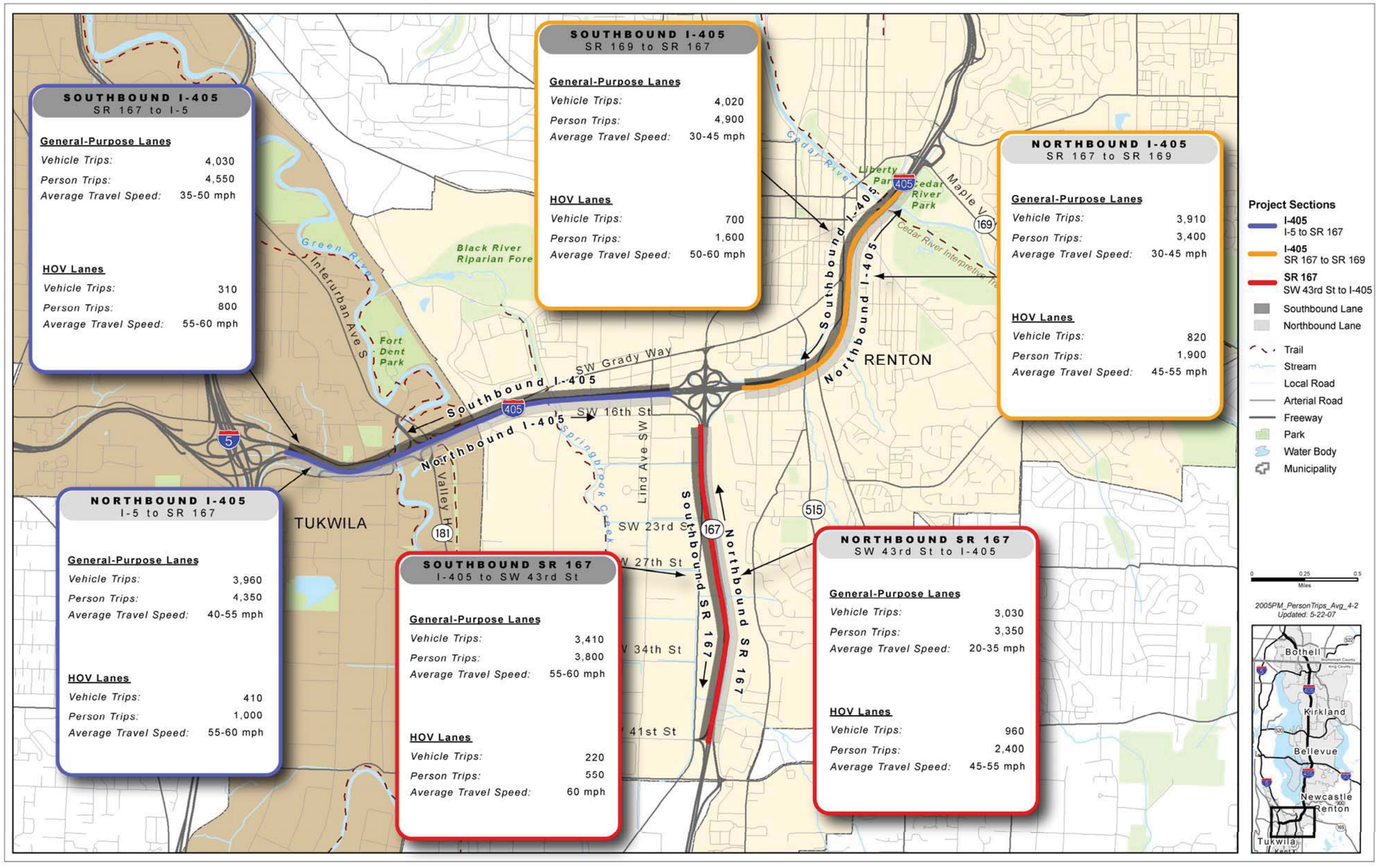
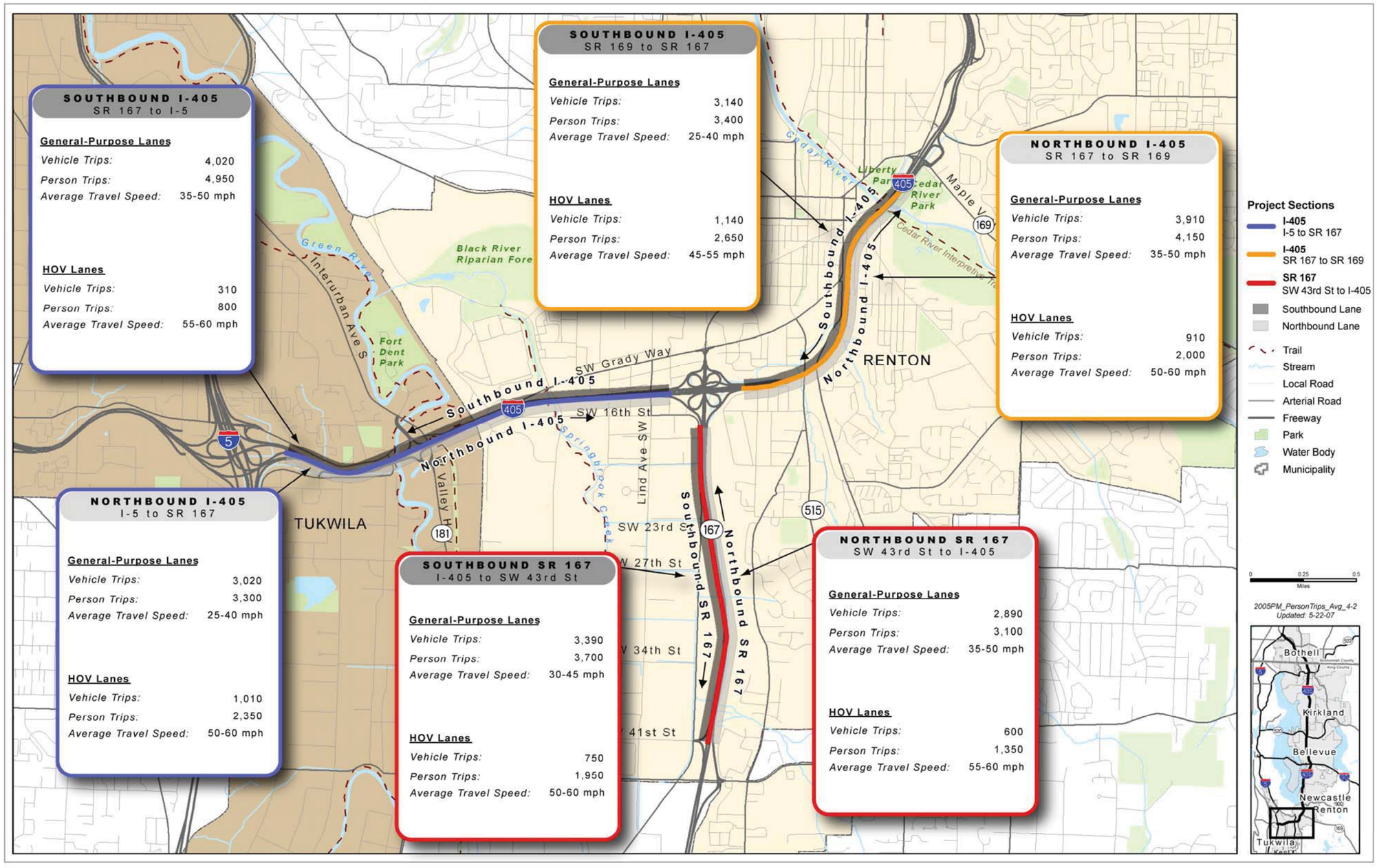


Exhibit 4-2: 2005 Existing Conditions Afternoon Peak-Hour Vehicle and Person Trips, and Average Travel Speed



SECTION 5 PROJECT EFFECTS

How will the project affect freeway traffic volumes in the study area?

The Build Alternative will add capacity and allow more people to use I-405 and SR 167 in the study area compared to the No Build Alternative. The project will rebuild and improve the efficiency of the I-405/SR 167 interchange by removing a bottleneck in the center of the study area. The Build Alternative will also improve the surface streets at the I-405 interchanges with SR 181, SR 167 and SR 169 to allow more vehicles to access I-405.

Compared to the Build Alternative, the flow of traffic with the No Build Alternative would become constrained and fewer drivers would be able to use I-405 and SR 167. Freeway delays would force drivers to seek alternate routes on local and regional roadways, choose to travel by different means or different time, or forego their desired trips altogether.

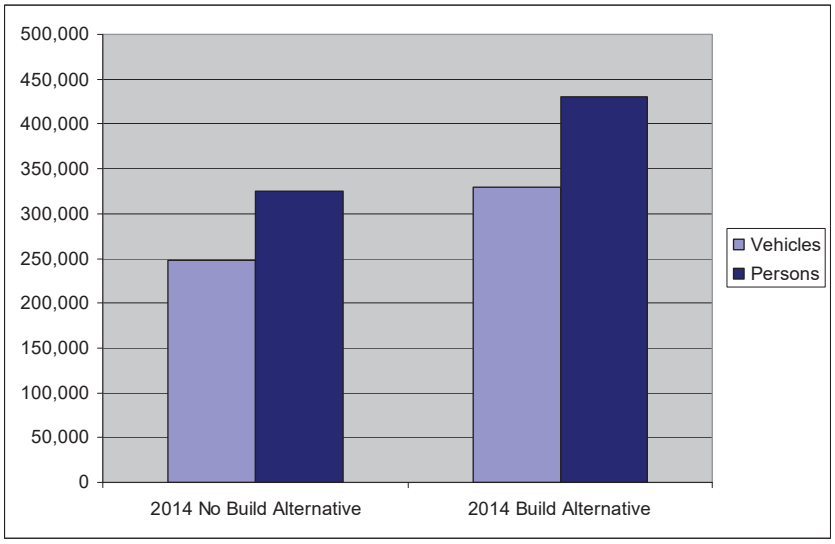
Daily Traffic

Traffic analysts define weekday traffic volumes as two-directional totals with northbound and southbound traffic added together. In 2014, for the section of I-405 between I-5 and SR 167, we forecast that the Build Alternative will carry 192,000 vehicles during an average weekday. This will be 15 percent more than the 167,000 daily vehicles predicted with the No Build Alternative. For the section of I-405 between SR 167 and SR 169, we forecast that in 2014 the Build Alternative will carry 209,000 vehicles. When compared to the 166,000 vehicles with the No Build Alternative, this is a 26-percent increase. In 2014, average weekday traffic volumes for SR 167 will be 170,000 vehicles with the Build Alternative and 143,000 vehicles with the No Build Alternative, a 19 percent increase. Of these 2014 daily traffic volumes, 9 percent is expected to be truck traffic.

The Build Alternative will rebuild the I-405/SR 167 interchange, adding capacity and improving the efficiency of the freeway system. Exhibit 5-1 shows the total number of vehicles and people traveling through the I-405/ SR 167 interchange in 2014 for the hours between 6:00 to 11:00 AM, and between 2:00 to 7:00 PM. For the combined 10 hours, the 2014 Build Alternative will carry 330,100 vehicles and 430,500

persons through the I-405/SR 167 interchange, 33 percent more than the 248,000 vehicles and 324,500 people forecasted for the 2014 No Build Alternative.

Exhibit 5-1: 2014 Build and No Build Alternative Total Number of Vehicles and Persons Traveling through the I-405/SR 167 Interchange for the 10 Hours from 6:00 to 11:00 AM and from 2:00 to 7:00 PM



Peak-Hour Traffic

The Build Alternative will increase the morning and afternoon peak-hour traffic volumes for most locations in the study area when compared to the No Build Alternative.

During the 2014 morning peak hour, the Build Alternative will carry higher traffic volumes than the No Build Alternative for all but one location. The highest increase will be for southbound I-405 from SR 169 to SR 167, where the Build Alternative is estimated to carry 6,220 vehicles in the general-purpose lanes. When compared to the No Build Alternative, which would carry 4,510 vehicles in the general-purpose lanes, this is a 38 percent increase. Northbound SR 167 traffic is forecasted to be 50 vehicles higher with the No Build Alternative than the Build Alternative. This slight increase results from the northbound SR 167 to southbound I-405 merge being more difficult due to higher southbound I-405 traffic volumes.

In the 2014 afternoon peak hour, the highest increase in traffic volumes for the Build Alternative will be for northbound I-405 compared to the No Build Alternative. For the section of northbound I-405 from I-5 to SR 167, we estimate the Build

Alternative will carry 4,380 vehicles in the general-purpose lanes. When compared to the No Build Alternative, which would carry 2,010 vehicles in the general-purpose lanes, this is a 118 percent increase. For the next section of northbound I-405 from SR 167 to SR 169, we estimate the Build Alternative will carry 5,990 vehicles in the general-purpose lanes. When compared to the No Build Alternative carrying 3,570 vehicles in the general-purpose lanes, this is a 68 percent increase.

Only southbound I-405 from SR 167 to I-5 is projected to carry fewer vehicles with the Build Alternative. We estimate the No Build Alternative would carry 3,930 vehicles in the general-purpose lanes compared to 3,600 vehicles in the general-purpose lanes with the Build Alternative. The I-405/I-5 interchange will not be improved with the Build Alternative and will continue to act as a bottleneck, limiting traffic volumes west of the study area. The Build Alternative will deliver more traffic to the section of southbound I-405 from SR 167 to I-5. However, with higher traffic volumes congestion will become worse at the I-405/I-5 interchange and fewer vehicles will be able to travel through this section than with the No Build Alternative. Exhibits 5-2 and 5-3 show the Build Alternative 2014 morning and afternoon vehicle and person trips for the general-purpose lanes and the HOV lanes.

By the year 2030, there will be an additional lane in each direction on SR 167 south of the study area because of other planned SR 167 projects. This lane addition will remove the southbound SR 167 bottleneck for vehicles trying to leave the study area during the afternoon peak hour. The new lanes on SR 167, combined with the improved I-405/SR 167 interchange, will significantly increase traffic volumes on southbound SR 167 in the afternoon peak hour. For the section of southbound SR 167 from I-405 to SW 41st Street, we estimate the Build Alternative will carry 5,670 vehicles in the general-purpose lanes as compared to 3,680 vehicles in the general-purpose lanes with the No Build Alternative. See Appendix B for the 2030 Build Alternative and No Build Alternative morning and afternoon vehicle and person trips for the general-purpose lanes and the HOV lanes.

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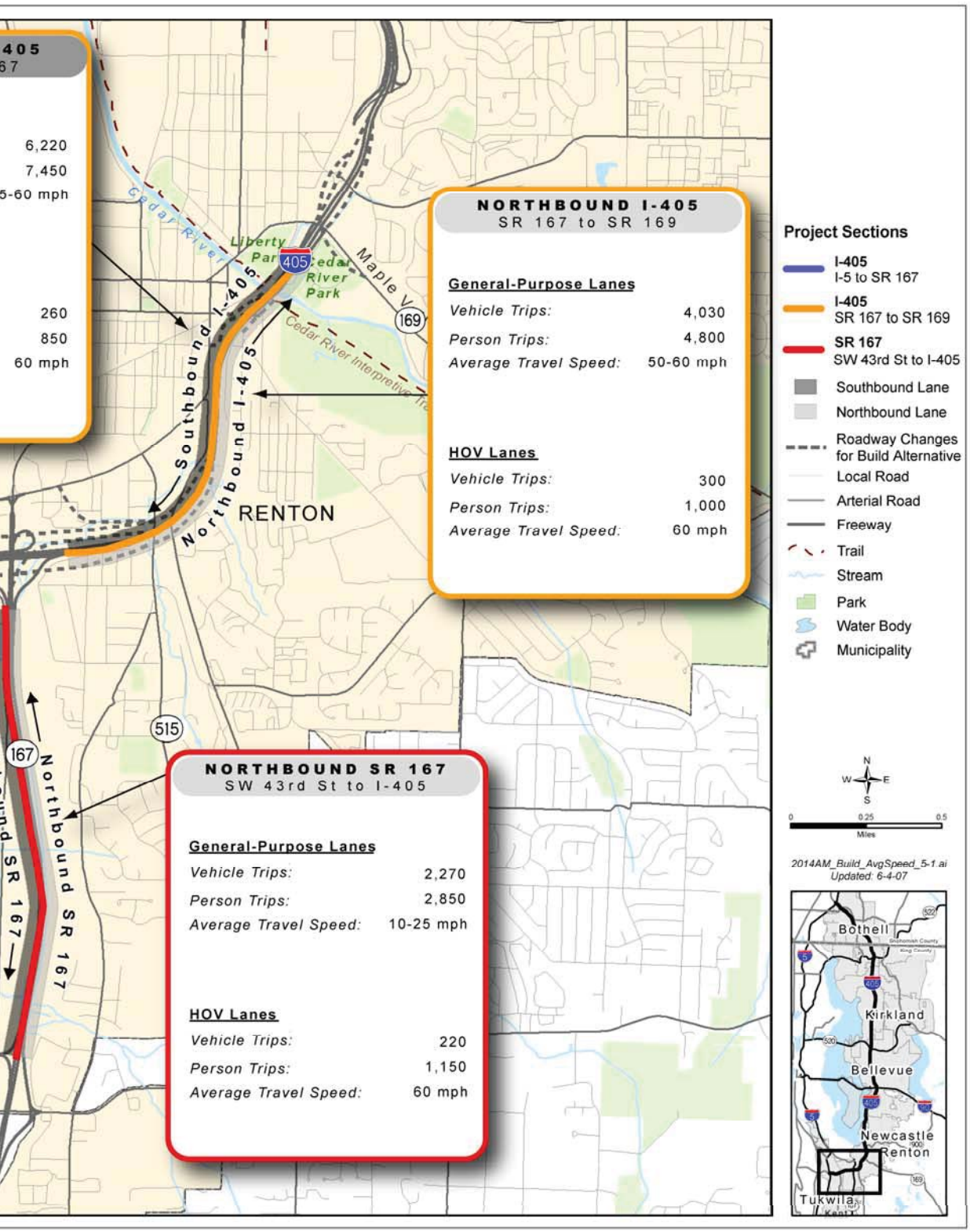
405
67
6,220
7,450
5-60 mph
260
850
60 mph
NORTHBOUND I-405
SR 167 to SR 169
General-Purpose Lanes
Vehicle Trips: 4,030
Person Trips: 4,800
Average Travel Speed: 50-60 mph
HOV Lanes
Vehicle Trips: 300
Person Trips: 1,000
Average Travel Speed: 60 mph
NORTHBOUND SR 167
SW 43rd St to I-405
General-Purpose Lanes
Vehicle Trips: 2,270
Person Trips: 2,850
Average Travel Speed: 10-25 mph
HOV Lanes
Vehicle Trips: 220
Person Trips: 1,150
Average Travel Speed: 60 mph
Liberty Park
Cedar River Park
Cedar River
Cedar River Interpretive Tra
Maple V
Southbound I-405
Northbound I-405
RENTON
Northbound SR 167
Project Sections
I-405
I-5 to SR 167
I-405
SR 167 to SR 169
SR 167
SW 43rd St to I-405
Southbound Lane
Northbound Lane
Roadway Changes for Build Alternative
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Arterial Road
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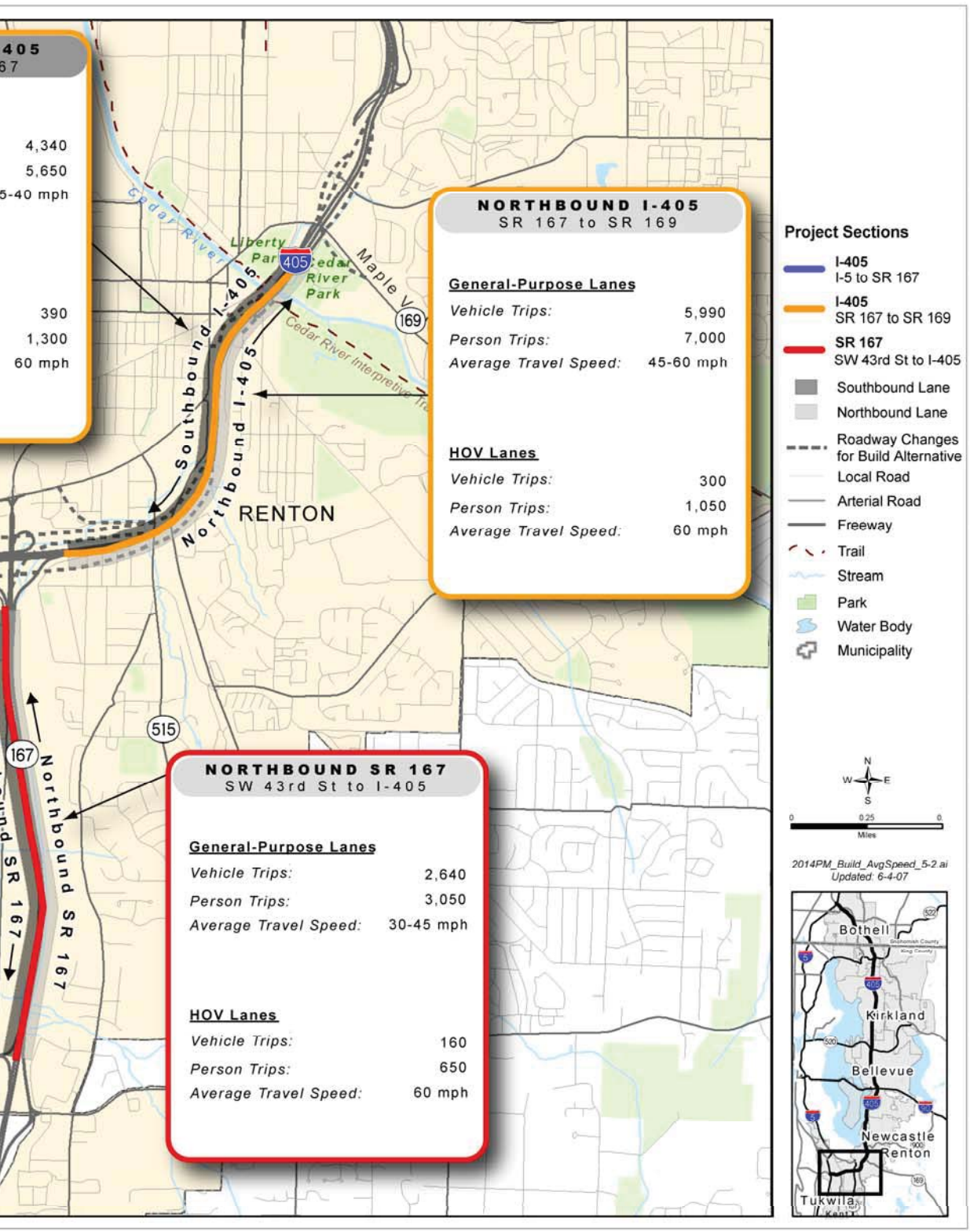
Tukwila


405
67
4,340
5,650
5-40 mph
390
1,300
60 mph
NORTHBOUND I-405
SR 167 to SR 169
General-Purpose Lanes
Vehicle Trips: 5,990
Person Trips: 7,000
Average Travel Speed: 45-60 mph
HOV Lanes
Vehicle Trips: 300
Person Trips: 1,050
Average Travel Speed: 60 mph
NORTHBOUND SR 167
SW 43rd St to I-405
General-Purpose Lanes
Vehicle Trips: 2,640
Person Trips: 3,050
Average Travel Speed: 30-45 mph
HOV Lanes
Vehicle Trips: 160
Person Trips: 650
Average Travel Speed: 60 mph
Southbound I-405
Northbound I-405
Northbound SR 167
RENTON
Cedar River
Liberty Park
Cedar River Park
Maple V
Cedar River Interpretive Tra
405
169
515
167
Project Sections
I-405
I-5 to SR 167
I-405
SR 167 to SR 169
SR 167
SW 43rd St to I-405
Southbound Lane
Northbound Lane
Roadway Changes for Build Alternative
Local Road
Arterial Road
Freeway
Trail
Stream
Park
Water Body
Municipality
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Renton
Tukwila

The Build Alternative carries the same or more traffic in the HOV lanes for all locations in the study area compared to the No Build Alternative. In 2014, the highest increase in HOV traffic volumes for the Build Alternative is for the section of northbound I-405 from I-5 to SR 167 during the afternoon peak hour. For this section of northbound I-405, the Build Alternative will carry 370 vehicles in the HOV lanes and the No Build Alternative would carry 200 vehicles in the HOV lanes.

How will the project affect freeway operations in the study area?

The Tukwila to Renton Project will add capacity to I-405 and will improve traffic operations compared to the No Build Alternative.

No Build Alternative

With the No Build Alternative, peak travel periods would continue to extend to the point that congestion would commonly last for several hours during the morning and afternoon. In the year 2014, the slowest general-purpose lanes average travel speeds would be 10 to 25 miles per hour on northbound SR 167 during the morning peak hour. By the year 2030, we believe the traffic congestion would continue to worsen and travel speeds would continue to decrease. Exhibits 4-7 and 4-8 in the baseline conditions show the No Build Alternative 2014 morning and afternoon peak-hour average travel speeds. Appendix B provides the results for the 2030 average travel speeds for the No Build Alternative and the Build Alternative.

Build Alternative

The Build Alternative will improve travel speeds for most locations in the study area compared to the No Build Alternative. The Build Alternative will rebuild the I-405/SR 167 interchange, adding capacity and improving the efficiency of the freeway system. The project will replace the southbound I-405 to southbound SR 167 loop ramp with a more efficient direct-connector ramp. This new ramp will carry more vehicles with a design speed of 45 miles per hour compared to the loop ramp with the No Build Alternative that has a design speed of 25 miles per hour.

The highest increases in freeway average travel speeds will be for northbound I-405. Compared to the No Build Alternative, the Build Alternative will increase northbound I-405 average travel speeds by 15 to 30 miles per hour during the 2014 morning peak hour, and by 20 to 30 miles per hour during the 2014 afternoon peak hour.

The Build Alternative shows lower average travel speeds in some locations because it will improve operations and deliver higher traffic volumes to the bottleneck locations at the edges of the study area. Those locations include southbound I-405 approaching the I-405/I-5 interchange and southbound SR 167 south of SW 41st Street. The higher traffic volumes will likely create more congestion in the bottleneck locations and slow travel speeds in those areas.

In the year 2014, the slowest average travel speeds in the general-purpose lanes will be 10 to 25 miles per hour on northbound SR 167 during the morning peak hour, which is the same condition as forecasted for the No Build Alternative. The high volume of northbound SR 167 vehicles trying to merge onto northbound I-405 will cause the slow travel speeds.

The Build Alternative will improve freight travel speeds and travel time reliability compared to the No Build Alternative. Exhibits 5-2 and 5-3 show the Build Alternative 2014 morning and afternoon peak-hour average travel speeds.

How will the project affect freeway safety?

Historically, the majority of crashes on I-405 have been rear-end collisions related to congestion. The Build Alternative will add capacity to I-405 and SR 167, and reduce stop-and-go traffic compared to the No Build Alternative. The reduced congestion should decrease the overall crash rate in the study area, in particular the frequency of rear-end crashes on I-405 and SR 167.

Consistent with the I-405 Corridor Program, the Build Alternative will limit access to the HOV lanes to designated locations, and add a four-foot-wide striped buffer separating the HOV lane from the general-purpose lanes. The Build Alternative will have a buffer on I-405 between SR 181 and SR 169, and on SR 167 between SW 43rd Street and I-405. This wider separation distance will reduce the frequency and

severity of accidents compared to the No Build HOV lane configuration.

The limited entry and exit points, along with a designed merging area to enter the HOV lane, will reduce the number of sideswipe and rear-end accidents between the HOV lane and the general-purpose lanes. The Build Alternative will increase safety by defining problem weaving areas and by providing a specific lane where the weaving will occur.

The Build Alternative improves the I-405 interchanges at SR 181, SR 167, and SR 169, and the nearby surface streets. These improvements will rebuild the following four High Accident Locations (HALs) on I-405:

- I-405 southbound off-ramp to southbound SR 167;
- I-405 southbound off-ramp to northbound SR 167 (Rainier Avenue S);
- I-405 northbound collector-distributor lane at SR 167; and
- I-405 northbound off-ramp to southbound SR 169.

The Build Alternative will construct the Tukwila Parkway extension, which will divert traffic from the SR 181 interchange. This extension will lower traffic volumes and improve operations at these two HALs:

- SR 181 within the I-405 interchange; and
- I-405 northbound off-ramp to SR 181.

All of the HAL ramps should experience a reduction in rear-end crashes due to reduced congestion on the I-405 mainline and surface streets near the interchanges.

The Build Alternative will remove the northbound I-405 on-ramp from Tukwila Parkway, a High Accident Location, thereby increasing safety on the freeway by eliminating the vehicles merging on the ramp. This new ramp, combined with the added lanes on I-405 between I-5 and SR 167, will increase safety. Additionally, once these improvements are made, we anticipate that this section of I-405 will no longer be classified as a HAC.

How will the project affect transit service and HOV trips?

The Build Alternative will add HOV lane direct-connector ramps at the I-405/SR 167 interchange. The new HOV ramps will be built from the northbound SR 167 HOV lane to the northbound I-405 HOV lane, and from the southbound I-405 HOV lane to southbound SR 167 HOV lane. The new ramps will make the freeway system more efficient and save transit and HOV time because they will no longer need to weave across the general-purpose lanes to enter and exit the freeway.

With the current No Build configuration, HOVs traveling in the southbound I-405 HOV lane must move out of the HOV lane to the right lane to exit to southbound SR 167. At that point, HOVs must queue with the general-purpose traffic to get to the southbound SR 167 loop ramp. Then, HOVs enter southbound SR 167 via the right lane and merge across the general-purpose lanes to the HOV lane on the left side of the freeway.

The HOV lane direct-ramp connections will operate at free-flow conditions during the morning and afternoon peak periods.

The Build Alternative will allow access to the HOV lanes at designated locations, and add a four-foot-wide striped buffer separating the HOV lane from the general-purpose lanes. The HOV lane buffers, and limited entry and exit points will prevent random access to the lanes. Drivers will be less concerned with vehicles merging into the HOV lane from the slower, general-purpose lanes, thereby enabling traffic to flow more smoothly as drivers are better able to maintain their travel speeds.

We anticipate the HOV lane will operate at 60 miles per hour for locations with the buffer. The Build Alternative will have a buffer for most of the study area, on I-405 between SR 181 and SR 169, and on SR 167 between SW 43rd Street and I-405. The No Build Alternative will have slower HOV lane speeds when there is congestion in the general-purpose lanes.

For both the 2014 Build and No Build Alternatives, the HOV lane designation is assumed to change from HOV 2+ to HOV 3+. The HOV lane volumes and travel speeds for the 2014 No Build Alternative morning and afternoon peak hours are shown in Exhibits 4-7 and 4-8, respectively. The same

information for the Build Alternative is shown in Exhibits 5-2 and 5-3.

How will the project affect local traffic operations?

We calculated intersection level of service with CORSIM microsimulation software. Refer to Exhibit 3-1 on page 3-4 for a definition of intersection level of service (LOS) and delay. The level of service at most study intersections will stay the same or improve with the Build Alternative compared to the No Build Alternative. The Build Alternative will increase freeway volumes and, in turn, more vehicles will use the local streets to enter and exit the freeway. The Build Alternative will construct local street improvements to accommodate the higher traffic volumes. While the increased freeway traffic volumes will increase traffic near the interchanges, it will also mean a decrease in volumes on local streets used to bypass the freeway.

The 2014 No Build Alternative local street traffic conditions are described on pages 4-15 and 4-16 in Section 4, Baseline Conditions, and the intersection level of service is shown in Exhibits 4-9 and 4-10. The Build Alternative intersection LOS for the morning and afternoon peak hour is shown in Exhibits 5-4 and 5-5, respectively. The dashed lines on the Build Alternative exhibits indicate the new roadways that will be built with the Build Alternative. The forecasted 2030 intersection traffic volumes for the No Build and Build Alternatives morning and afternoon peak hours are shown in Appendix B.

The total number of intersections studied for the No Build Alternative and the Build Alternative differ. With the No Build Alternative, 47 intersections were studied. The Build Alternative adds four intersections and removes one intersection as part of the reconstruction of the SR 181, SR 167, and SR 169 interchanges, for a total of 50 intersections studied. In the 2014 morning peak hour, the No Build Alternative would have no intersections performing at LOS F. However, four intersections would perform at LOS E, and the remaining study intersections would perform at LOS D or better. The Build Alternative will have no intersections performing at LOS F. However, two intersections will perform at LOS E, and the remaining study intersections will perform at LOS D or better.

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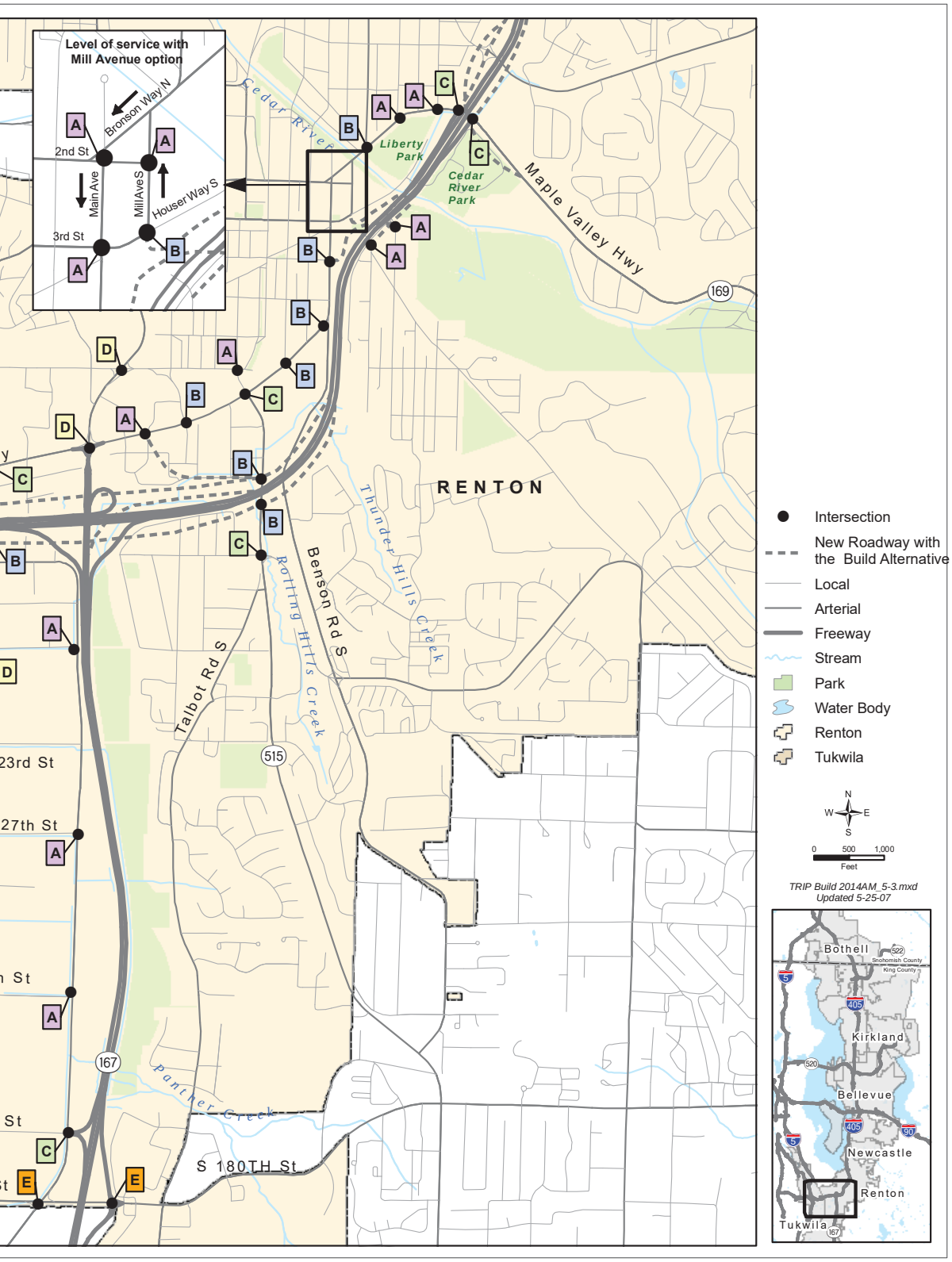
Level of service with Mill Avenue option
Bronson Way N
2nd St
Main Ave
Mill Ave S
Houser Way S
3rd St
Cedar River
Liberty Park
Cedar River Park
Maple Valley Hwy
169
RENTON
Thunder Hills Creek
Benson Rd S
Talbot Rd S
Rotting Hills Creek
515
23rd St
27th St
167
Panther Creek
S 180TH St
Intersection
New Roadway with the Build Alternative
Local
Arterial
Freeway
Stream
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Water Body
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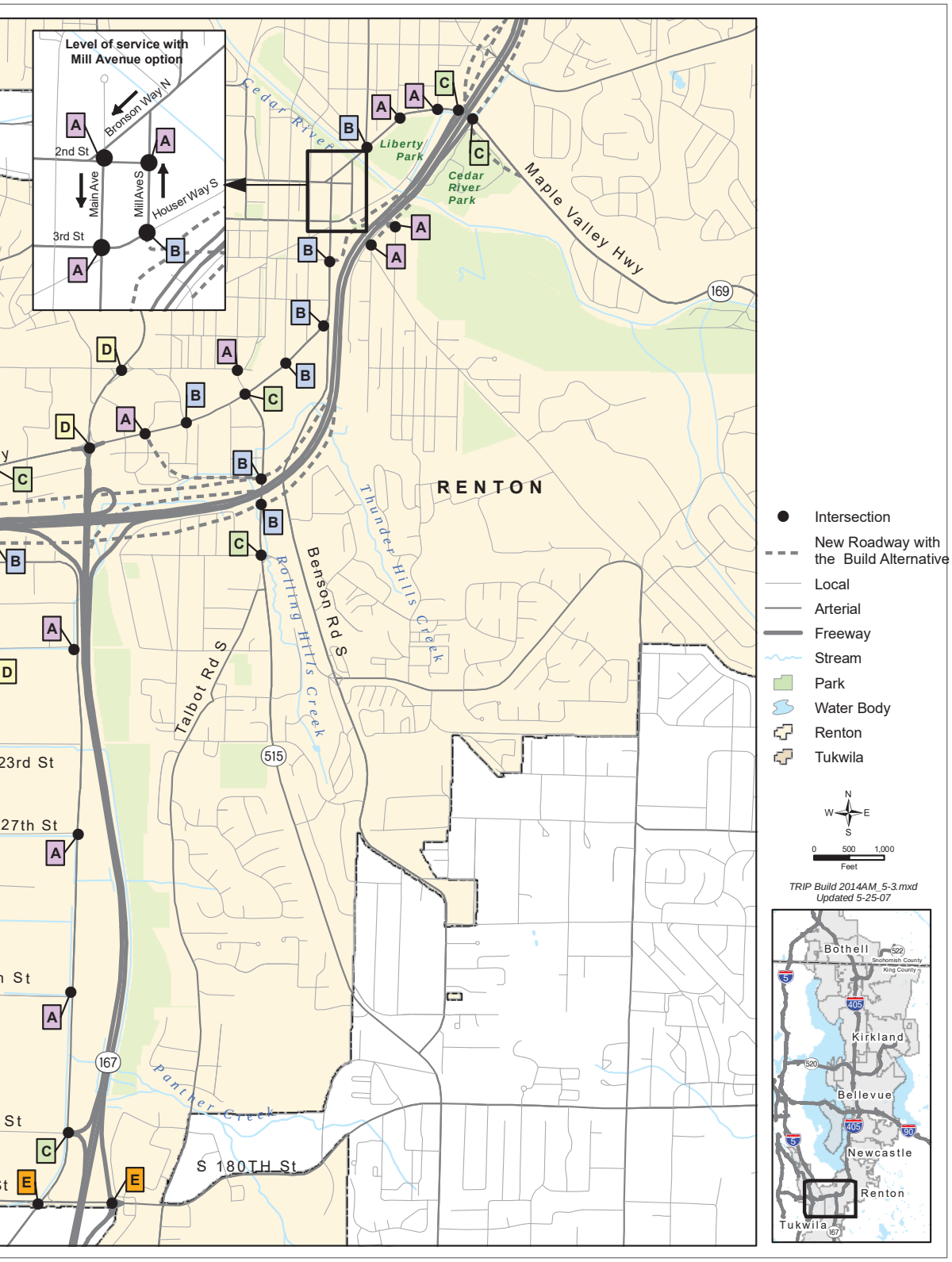
Tukwila


Level of service with Mill Avenue option
Bronson Way N
2nd St
Main Ave
Mill Ave S
Houser Way S
3rd St
Cedar River
Liberty Park
Cedar River Park
Maple Valley Hwy
169
RENTON
Thunder Hills Creek
Benson Rd S
Talbot Rd S
Rotting Hills Creek
515
23rd St
27th St
167
Panther Creek
S 180TH St
Intersection
New Roadway with the Build Alternative
Local
Arterial
Freeway
Stream
Park
Water Body
Renton
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Bellevue
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Renton
Tukwila

In the 2014 afternoon peak hour, the Build Alternative will improve intersection LOS compared to the No Build Alternative. The No Build Alternative would have five intersections performing at LOS F, three intersections performing at LOS E, and the remaining study intersections would perform at LOS D or better. The Build Alternative will have no intersections performing at LOS F. However, two intersections will perform at LOS E, and the remaining study intersections will perform at LOS D or better.

The Build Alternative will change local travel patterns at four locations in the study area:

- I-405/SR 181 interchange area;
- I-405/SR 167 interchange area, and on Lind Avenue SW and Talbot Road S (SR 515);
- Renton Hill crossings of I-405; and
- Mill Avenue S and Main Avenue S options, and Houser Way S closure south of Bronson Way N.

I-405/SR 181 Interchange Improvements

The Build Alternative will extend Tukwila Parkway to cross the Green River and connect to SR 181 (West Valley Highway) at Longacres Way. This new crossing will divert traffic from Southcenter Boulevard. The I-405 northbound on-ramp from Tukwila Parkway will be closed. We anticipate that vehicles using this ramp will shift to the I-405 northbound on-ramp from SR 181, which will be relocated to the new section of Tukwila Parkway west of SR 181. The interchange improvements will lower traffic volumes and improve operations at the two intersections of Southcenter Boulevard and SR 181 (Interurban Avenue S), and the northbound I-405 off-ramp and SR 181. See Exhibits 2-2 and 2-3 for illustrations of the interchange improvements.

New Lind Avenue SW/Talbot Road S (SR 515) Interchange

The Build Alternative will rebuild the majority of the I-405/ SR 167 interchange. Access to and from I-405 will be shifted from Rainier Avenue S to Lind Avenue SW and Talbot Road S (SR 515) through a split-diamond interchange. The interchange will have frontage roads connecting Lind Avenue

SW and Talbot Road S (SR 515). See Exhibits 2-7 and 2-10 for illustrations of the split-diamond interchange.

The new interchange will reduce traffic on S Grady Way and Rainier Avenue S. Today, these roads feed all traffic to and from I-405 and SR 167 through the I-405/SR 167 (Rainier Avenue S) interchange. The Build Alternative will improve operations of the Rainier Avenue S and S Grady Way intersection from LOS F to LOS D during the 2014 afternoon peak hour. Additionally, all local traffic entering or exiting I-405 will use Lind Avenue SW or Talbot Road S instead, which will result in increased traffic volumes on these roads; however, other improvements at these locations will accommodate the increase. Local traffic traveling to or from SR 167 will continue to use Rainier Avenue S.

The Build Alternative will reconstruct the west leg of the intersection of S Renton Village Place and Talbot Road S to be westbound-only for several hundred feet. Currently, both westbound and eastbound traffic use this leg of the intersection. With the Build Alternative, eastbound traffic will use either the northern driveway accesses on Talbot Road S, S Grady Way, or the new city street that will be built between S Renton Village Place and the intersection of S Grady Way and Lake Avenue S.

Realigned Renton Hill crossings of I-405

The Renton Hill access points across I-405 will change with the Build Alternative. We will retain two crossings of I-405 to Renton Hill.

Currently, Renton Avenue S, the northern access road to Renton Hill, crosses over I-405 and connects to the intersection of Houser Way S and Mill Avenue S. With the project, Renton Avenue S will cross over I-405 and be relocated to connect at the intersection of S 4th Street and Main Avenue S.

The southern Renton Hill connection currently crosses I-405 at Cedar Avenue S and connects to the intersection of S 4th Street and Main Avenue S. With the project, the connection on Renton Hill will be relocated to the rebuilt intersection of S 4th Street and Mill Avenue S, and the crossing will be modified to travel under I-405 to the intersection of Houser Way S and Mill Avenue S. With this revised access under I-405, the Cedar Avenue S bridge will be removed. See Exhibits 2-12 and 2-15 for illustrations of these access points to Renton Hill. All of

the intersection LOS associated with Renton Hill will either improve or remain the same when compared to the No Build Alternative.

Mill Avenue and Main Avenue Options, and Houser Way S closure south of Bronson Way N

The Build Alternative will improve operations of the I-405/SR 169 (Bronson Way N) interchange by removing the nearby signalized intersection of Bronson Way N and Houser Way S. The Build Alternative will cul-de-sac Houser Way S just south of the Cedar River; Houser Way S will no longer connect to Bronson Way N. Northbound traffic will shift onto either Mill Avenue S or Main Avenue S. This traffic will arrive at the same location (I-405/SR 169 interchange), but via Mill Avenue S or Main Avenue S, and Bronson Way N instead of Houser Way S. Two options are being considered to route northbound traffic between S 3rd Street and Bronson Way N. One option is to shift northbound traffic to Mill Avenue S. This option will include adding a traffic signal to the intersection of Mill Avenue S and S 2nd Street. The second option will be to route northbound traffic to Main Avenue S. This option will necessitate additional right-of-way along Main Avenue S to accommodate the widening to make the street accommodate two-way traffic between S 3rd Street and Bronson Way N. We anticipate no change in travel demand with either option, and travel patterns will only change within the two-block area. Exhibits 2-13 and 2-14 illustrate the Mill Avenue S and Main Avenue S options.

Intersection LOS in the area will either improve or remain the same with this change compared to the No Build Alternative. The intersection LOS for both options is shown in callout boxes on Exhibits 5-4 and 5-5.

How will the project affect bicycle and pedestrian travel?

The project will construct a new trail connecting the Renton Hill neighborhood with the Cedar River Trail. The new Tukwila Parkway extension will have sidewalks providing a new pedestrian crossing of the Green River. Currently, the Interurban Trail crosses underneath I-405 at SR 181. To provide a more direct connection, the Interurban Trail will be relocated to the east to travel underneath I-405 at the same

location as the Union Pacific and Burlington Northern Santa Fe Railway tracks.

The Duwamish-Green River Trail, Interurban Trail, Springbrook Trail, and Cedar River Trail are regional pedestrian trails that travel through the study area. The project will rebuild I-405 where the Duwamish-Green River Trail, Interurban Trail, and Cedar River Trail travel underneath I-405. When there is overhead construction on I-405, these three trails will be closed for public safety reasons. The project will also replace the Cedar River Trail pedestrian bridge across the Cedar River. A signed detour will be provided during these closures and notices will be posted and provided to bicycle clubs to keep the public informed about construction. See the *Social, Public Services, and Utilities Technical Memorandum* and the *Section 4(f) Evaluation* for more details on these trails.

How will transportation be affected during construction?

Construction crews adding lanes to I-405.

The majority of the project construction will involve widening I-405 and northbound SR 167 in the study area, and rebuilding the I-405 interchanges at SR 181, SR 167 and SR 169.

Effect of construction traffic on the transportation network

Construction vehicles carrying dirt to and from excavation sites will affect Tukwila and Renton city streets. The primary excavation sites will be:

- Talbot Hill for realigned northbound I-405 mainline and new northbound I-405 frontage road;
- Renton Hill and Steeplechase Hill for the new I-405 ramps at Talbot Road S;
- Renton Hill for the reconstructed accesses; and
- stormwater pond sites.

The primary fill sites will be:

- Tukwila Parkway extension;
- new I-405 northbound on-ramp from Tukwila Parkway extension;
- I-405/SR 167 interchange flyover ramps;

- new I-405 ramps at Lind Avenue SW; and
- northbound I-405 frontage road and northbound I-405 mainline west of SR 167.

The construction vehicles will increase traffic delay in the cities of Renton and Tukwila during the construction period. The truck routes will not be known until a construction contract is signed. WSDOT will try to minimize the construction effects as outlined in Section 6 of this report.

Effect of construction activities on freeway traffic

During the widening of I-405 and northbound SR 167, WSDOT will shift and/or realign the mainline lanes through the construction area. We anticipate no weekday, daytime lane closures for project construction. Temporary night and weekend lane closures may be required for mainline widening. Full freeway closures will be required at limited times to shift traffic between phases of construction or during the replacement of the overhead bridges on I-405 at 66th Avenue S, Lind Avenue SW, and Renton Avenue S. SR 167 will be closed temporarily for the replacement of the I-405 bridge and the northbound I-405 frontage road. Full closures of I-405 and SR 167 will also be required during the construction of the flyover ramps between I-405 and SR 167. The traffic effects of these closures are anticipated to be temporary and localized in the immediate Tukwila/south Renton area and not likely to affect neighboring jurisdictions such as Seattle, SeaTac, Kent, Auburn, or Bellevue.

Effect of construction activities on local arterial travel

The project will construct local street improvements within the vicinity of the reconstructed interchanges at SR 181, Lind Avenue SW, Talbot Road S, SR 169, and the Tukwila Parkway extension across the Green River to SR 181. The following streets are anticipated to be closed at some time during construction:

- Andover Park E/66th Avenue S;
- Southcenter Boulevard;
- Tukwila Parkway;
- Lind Avenue SW;

- SW 12th Street;
- SW 16th Street;
- Mill Avenue S (on Renton Hill); and
- Renton Avenue S.

The following arterials will experience short-term, night closures while the overhead I-405 mainline and ramps are replaced:

- Southcenter Boulevard;
- SR 181 (West Valley Highway);
- Longacres Drive SW;
- Talbot Road S (SR 515);
- Main Avenue S; and
- SR 169 (Maple Valley Highway.)

The project will also reconstruct the two accesses to Renton Hill, but at least one access will be maintained during the construction period.

Does the project have other effects that may be delayed or distant from the project?

It is not anticipated that the Tukwila to Renton Project by itself will have any effects that are delayed or distant from the project area. The Tukwila to Renton Project is a phase of the I-405 Corridor Program Master Plan that will add capacity to the whole I-405 corridor. Adding capacity to the whole I-405 corridor will divert traffic from I-5 as documented in the I-405 Corridor Program EIS.

What are cumulative effects?

The effect on the environment that results from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions. Cumulative effects can result from individually minor but collectively noticeable actions taking place over a period of time.

Were potential cumulative effects to transportation considered?

The Tukwila to Renton Project will be constructed as a phase of the I-405 Corridor Program Master Plan. The Tukwila to Renton Project will improve the transportation system and contribute to the cumulative benefits realized under the Corridor Program.

The I-405 Corridor Program Final Environmental Impact Statement (EIS) describes and evaluates the long-term plan (Master Plan) for the I-405 corridor and provides the appropriate background to address the transportation

cumulative effects of the Tukwila to Renton Project. The Federal Highway Administration (FHWA) does not require a cumulative effects report for every National Environmental Policy Act (NEPA) discipline studied. Rather, the disciplines subject to a cumulative effects analysis are determined on a case-by-case basis early in the NEPA process. The Transportation Discipline Report for this project was selected to include a cumulative effects review because of this project's close association with other corridor projects.

Specific improvements to the study area that will be realized by the Tukwila to Renton Project and the I-405 Corridor Program Master Plan are shown below.

The Tukwila to Renton Project Build Alternative provides the following benefits:

- Improves travel speeds on I-405 and SR 167 by an average speed of 10 to 15 miles per hour.
- Increases the vehicle throughput on I-405 and SR 167 in the study area.
- Adds HOV lane direct-connector ramps at the I-405/SR 167 interchange.
- Reduces congestion-related accidents compared to the No Build Alternative.
- Improves local traffic operations by adding capacity to several locations in the study area.

What is throughput?

Throughput is the number of vehicles being carried on a facility. This is usually measured at a specific point on the roadway for a predetermined period of time.

In addition, the Tukwila to Renton Project will result in other transportation benefits when the I-405 Corridor Program Master Plan is complete. Combined, these projects will:

- Reduce peak traffic congestion periods.
- Substantially improve travel speeds on I-405 and SR 167.
- Substantially increase the vehicle throughput on I-405 and SR 167.
- Reduce congestion-related accidents compared to the No Build Alternative.

These benefits will be realized through the year 2030. Other projects in the area will also contribute to overall improved transportation. See Appendix C for information on other area projects.

Assuming neither this project nor the Master Plan are constructed, the cumulative effects will remain the same as the current conditions. Traffic demand on I-405 would increase, and travel speeds and the number of vehicles using I-405 would be reduced. Additionally, the peak periods of traffic congestion would become longer than they are today. The specific 2014 morning and afternoon peak hour freeway performance of the No Build Alternative is reported in Exhibits 4-7 and 4-8. The No Build Alternative would not result in any cumulative transportation effects.

SECTION 6 MEASURES TO AVOID OR MINIMIZE EFFECTS

What measures will be taken to mitigate effects during construction?

WSDOT will coordinate with the local agencies and other projects to prepare a Traffic Management Plan prior to making any changes to the traffic flow or lane closures. Local agencies, the public, school districts, emergency service providers, and transit agencies will be informed of the changes in advance through a public information process. Pedestrian and bicycle circulation will be maintained as much as possible during construction.

Transportation demand management (TDM) strategies will form an important part of the construction management program. TDM strategies in the Tukwila to Renton Project area will be implemented prior to construction to increase public awareness and participation in HOV travel. The major focus will be on expanding vanpooling and vanshare opportunities.

What is transportation demand management (TDM)?

A varied collection of methods to reduce or modify travel demand and encourage more efficient use of the transportation system.

What measures will be taken to avoid or minimize effects of operation?

We foresee no adverse effects related to operation that will require separate mitigation.

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SECTION 7 UNAVOIDABLE ADVERSE EFFECTS

Does the project cause any substantial adverse effects that cannot be avoided?

We do not foresee the project causing any substantial adverse effects to traffic or transportation.

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SECTION 8 REFERENCES

GIS data sources

Exhibit 4-1, 4-2, 4-7, 4-8, B-1, B-2

Washington State Department of Transportation (WSDOT).

2006 – 2007. I-405 Staff; project section, northbound and southbound lanes.

Exhibit 4-5, 4-6, 4-9, 4-10, B-5, B-6

WSDOT

2006 – 2007. I-405 Staff; intersection, level of service.

Exhibit 5-1, 5-2, B-3, B-4,

WSDOT

2006 – 2007. I-405 Staff; project section, northbound and southbound lanes, build alternative road.

Exhibit 5-3, 5-4, B-7, B-8

WSDOT

2006 – 2007. I-405 Staff; intersection, level of service, build alternative road.

Base Data

All GIS exhibits contain one or more of the following as base layers:

Geographic Data Technology, Inc. (GDT).

2005 GDT – Dynamap Transportation. April 2005.

King County Standard GIS Data Disk, extract June 2006:

2004 Cities with annexations.

2005 Open Water.

2006 Parks in King County. Data updated by I-405 staff to match data from cities of Renton and Tukwila.

2005 Streams and Rivers. Data updated by I-405 staff to match fieldwork, 2002 LiDAR, and orthorectified aerial photography.

2005 Trails in King County. Data updated by I-405 staff to match fieldwork, 2002 LiDAR and orthorectified aerial photography.

United States Geological Survey (USGS).

2002 Color Aerial Photography. June 2002. http://edc.usgs.gov/products/aerial/hiresortho.html

WSDOT.

2001 Aerial photography program. March 2001.

1997 Spatial Data Catalog, Railroads.

Text references and verbal communications

HNTB, Mirai Associates, McGowan Environmental.

2003 Traffic Analysis White Paper: I-405 Congestion Relief and Bus Rapid Transit Projects. Prepared for the Washington State Department of Transportation.

King County Metro

2006 Online, Transit Schedules. Available at: www.transit.metrokc.gov Accessed on: September, 2006

Sound Transit.

2003 Sound Transit Express. Service Implementation Plan.

2005 Transit Schedules. Available at: www.soundtransit.org Accessed on: September, 2006

Washington State Department of Transportation (WSDOT)

2006 I-405, Renton to Bellevue Project, SR 169 to I-90, Transportation Discipline Report. March 2006.

2006 The Gray Notebook for the quarter ending September 30th, 2006.

2005 I-405, Renton Nickel Improvement Project Transportation Discipline Report. September 2005.

2003 Average Travel Times for the Top 22 Commutes.

APPENDIX A EXISTING TRANSIT SERVICE IN THE STUDY AREA

Existing Transit Service in the Study Area

Route	Service Area	Service Type
101	Downtown Seattle, SODO, South Renton P&R, Renton Transit Center, Fairwood	Weekdays, Saturday, Sunday
105	Renton Transit Center, Renton Technical College, Renton Highlands	Weekdays, Saturday, Sunday
106	Downtown Seattle, SODO, Rainier Beach, Skyway, Renton Transit Center	Weekdays, Saturday, Sunday
107	Rainier Beach, Lake Ridge, Renton Transit Center	Weekdays, Saturday, Sunday
110	SW Renton, Renton Transit Center, PACCAR/Kenworth, Renton Boeing	Weekdays
126	Rainier Beach, Southcenter Mall, Tukwila Train Station	Weekdays
128	West Seattle, White Center, Southcenter Mall	Weekdays, Saturday, Sunday
140	Burien Transit Center, Sea-Tac Airport, McMicken Heights, Southcenter Mall, South Renton P&R, Renton Transit Center	Weekdays, Saturday, Sunday
143	Downtown Seattle, Renton, Maple Valley, Black Diamond	Weekdays
148	Renton Transit Center, South Renton P&R, Royal Hills, Fairwood	Weekdays, Saturday, Sunday
149	Renton Transit Center, Maple Valley, Black Diamond	Weekdays
150	Downtown Seattle, Southcenter Mall, Kent Boeing, Kent Transit Center, Auburn Commuter Rail, Auburn	Weekdays, Saturday, Sunday
153	Kent Transit Center, East Valley Road, South Renton P&R, Renton Transit Center	Weekdays
155	Fairwood, Cascade Vista, Valley Medical Center, Southcenter Mall	Weekdays, Saturday
160	Downtown Seattle, Tukwila, Kent East Hill	Weekdays
163	Downtown Seattle, SODO, Tukwila, Valley Medical Center, Kent East Hill	Weekdays
167	University District, Bellevue Transit Center, Wilburton P&R, Newport Hills P&R, Kennydale, Renton Boeing, South Renton P&R, Kent Transit Center, Auburn P&R	Weekdays
169	Renton Transit Center, South Renton P&R, Valley Medical Center, Kent East Hill, Kent Transit Center	Weekdays, Saturday, Sunday
240	Clyde Hill, Bellevue Transit Center, Factoria, Newcastle, Renton Highlands, Renton Boeing, Renton Transit Center, South Renton P&R	Weekdays, Saturday, Sunday
247	Redmond, Overlake, Overlake Transit Center, Overlake P&R, Eastgate P&R, Factoria, Newport Hills P&R, Renton Boeing, Renton, South Renton P&R, Kent, Kent Boeing	Weekdays
280	Night Owl Service, South Renton P&R, Tukwila, Downtown Seattle, Bellevue Transit Center, Kennydale, Renton	Nightly
342	Shoreline P&R, Lake Forest Park, Kenmore, Bothell P&R, Bellevue Transit Center, Wilburton P&R, Newport Hills, Kennydale, Renton Boeing, Renton Transit Center	Weekdays
ST 560	Bellevue Transit Center, South Bellevue P&R, Newport Hills P&R, Kennydale, Renton Boeing, Renton Transit Center, Burien Transit Center, Sea-Tac Airport, West Seattle	Weekdays, Saturday, Sunday
ST 564	Auburn Transit Center, Auburn Commuter Rail Station, Kent Transit Center, Renton Transit Center, Boeing Renton, Bellevue Transit Center	Weekdays

Existing Transit Service in the Study Area

Route	Service Area	Service Type
ST 565	Federal Way Transit Center, Auburn Transit Center, Auburn Commuter Rail Station, Kent Transit Center, Renton Transit Center, Boeing Renton, Bellevue Transit Center	Weekdays
908	Renton DART Service, Maplewood, Renton Highlands, Renton Technical College, Renton Transit Center	Weekdays, Saturday
909	Renton DART Service, Kennydale, Renton Highlands, Renton Transit Center	Weekdays, Saturday
952	Auburn P&R, Kent P&R, Renton Boeing, Kennydale, Brickyard, Everett Boeing	Weekdays

Source: King County Metro webpage and Sound Transit webpage

APPENDIX B 2030 TRAFFIC OPERATIONS

Exhibit B-1: 2030 No Build Morning Peak-Hour Vehicle and Person Trips, and Average Travel Speed

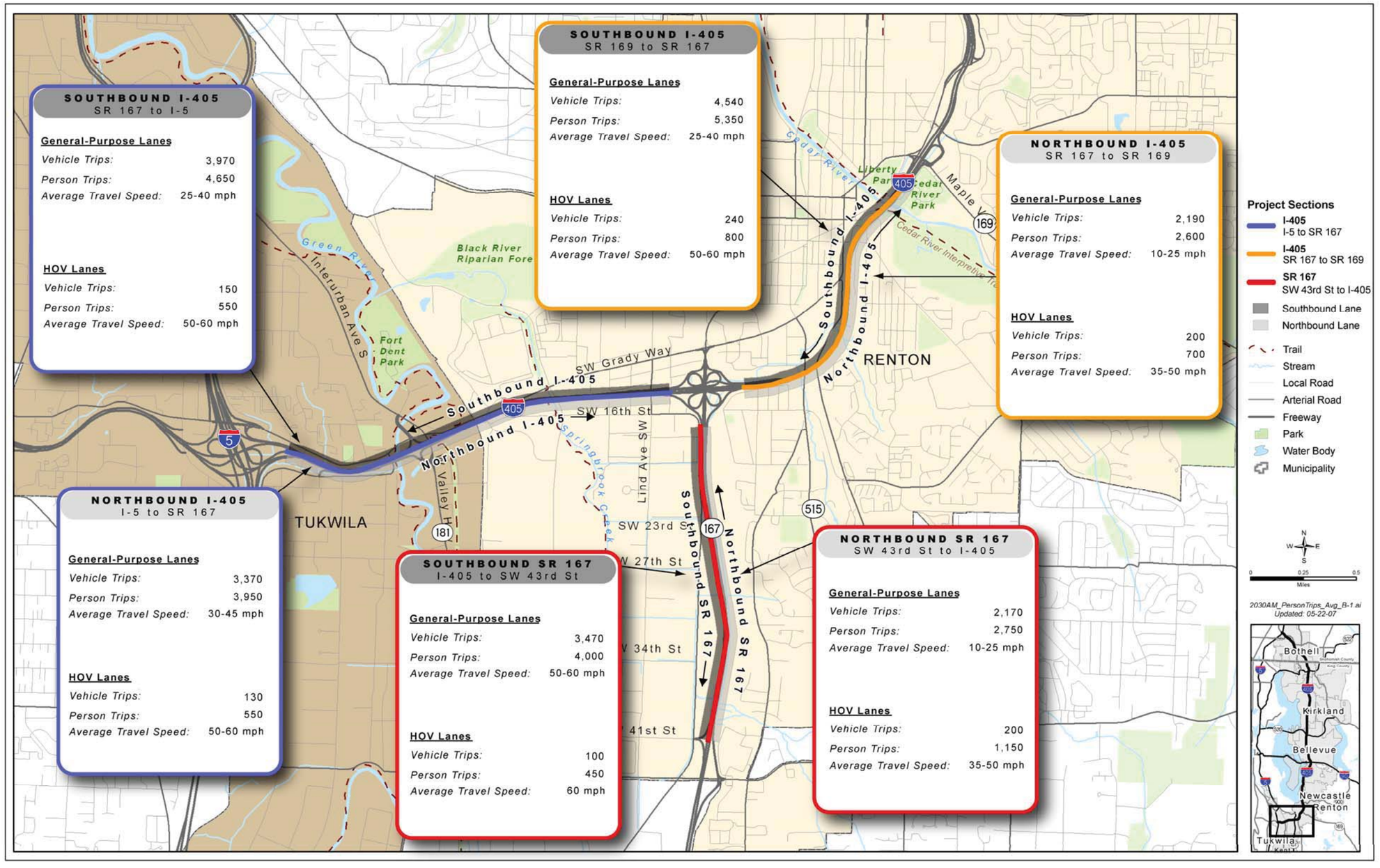


Exhibit B-2: 2030 No Build Afternoon Peak-Hour Vehicle and Person Trips, and Average Travel Speed

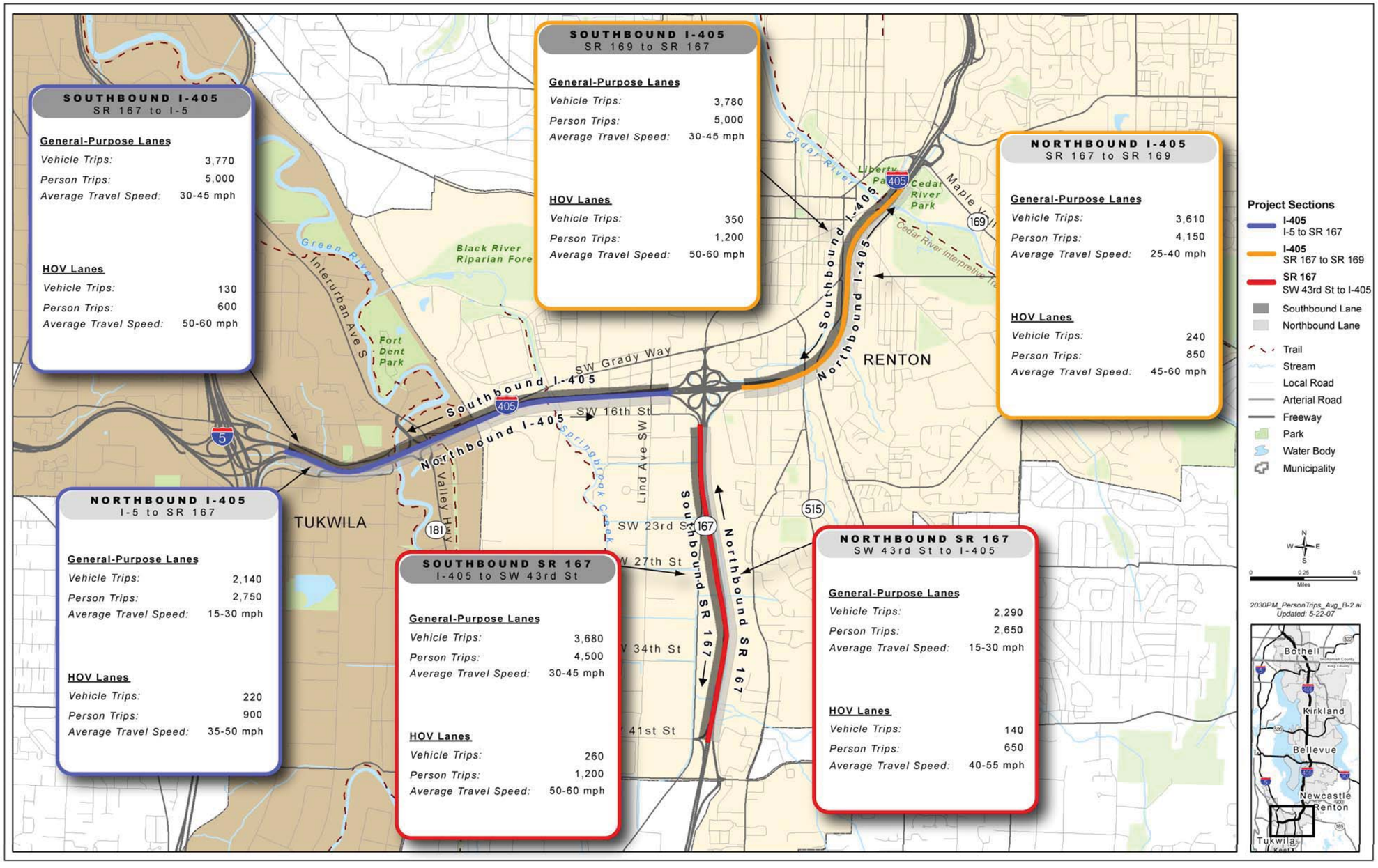


Exhibit B-3: 2030 Build Alternative Morning Peak-Hour Vehicle and Person Trips, and Average Travel Speed

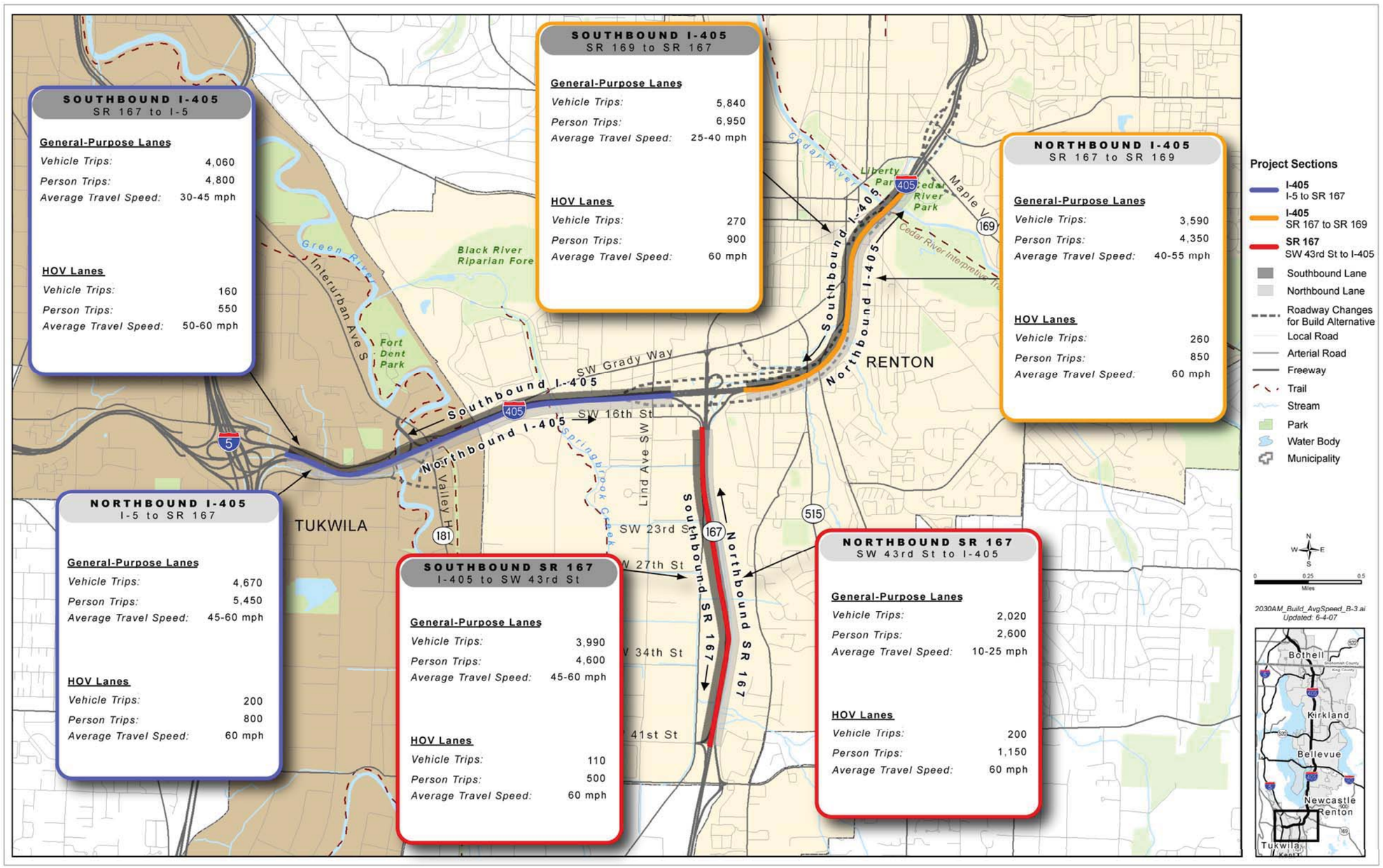


Exhibit B-4: 2030 Build Alternative Afternoon Peak-Hour Vehicle and Person Trips, and Average Travel Speed

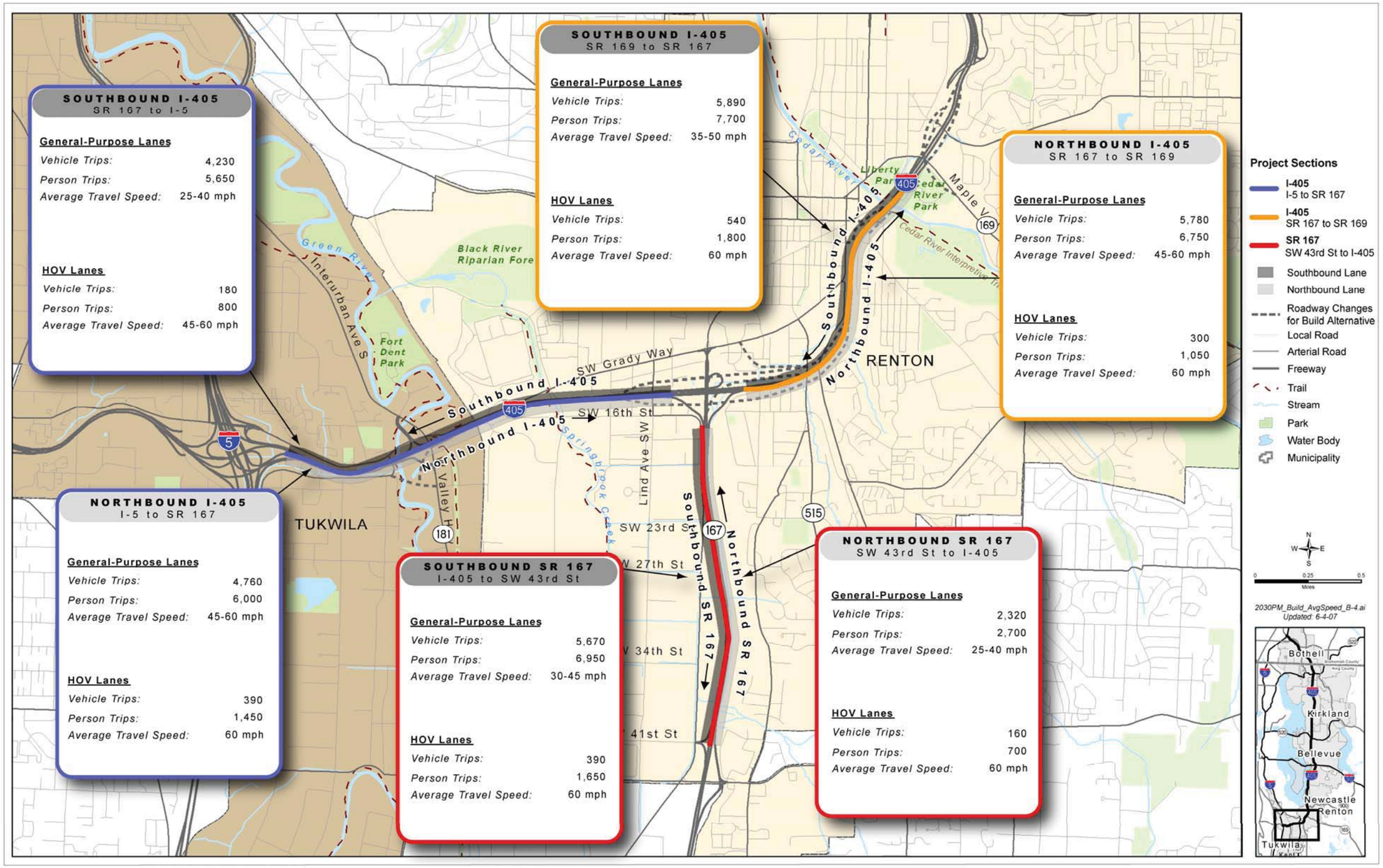
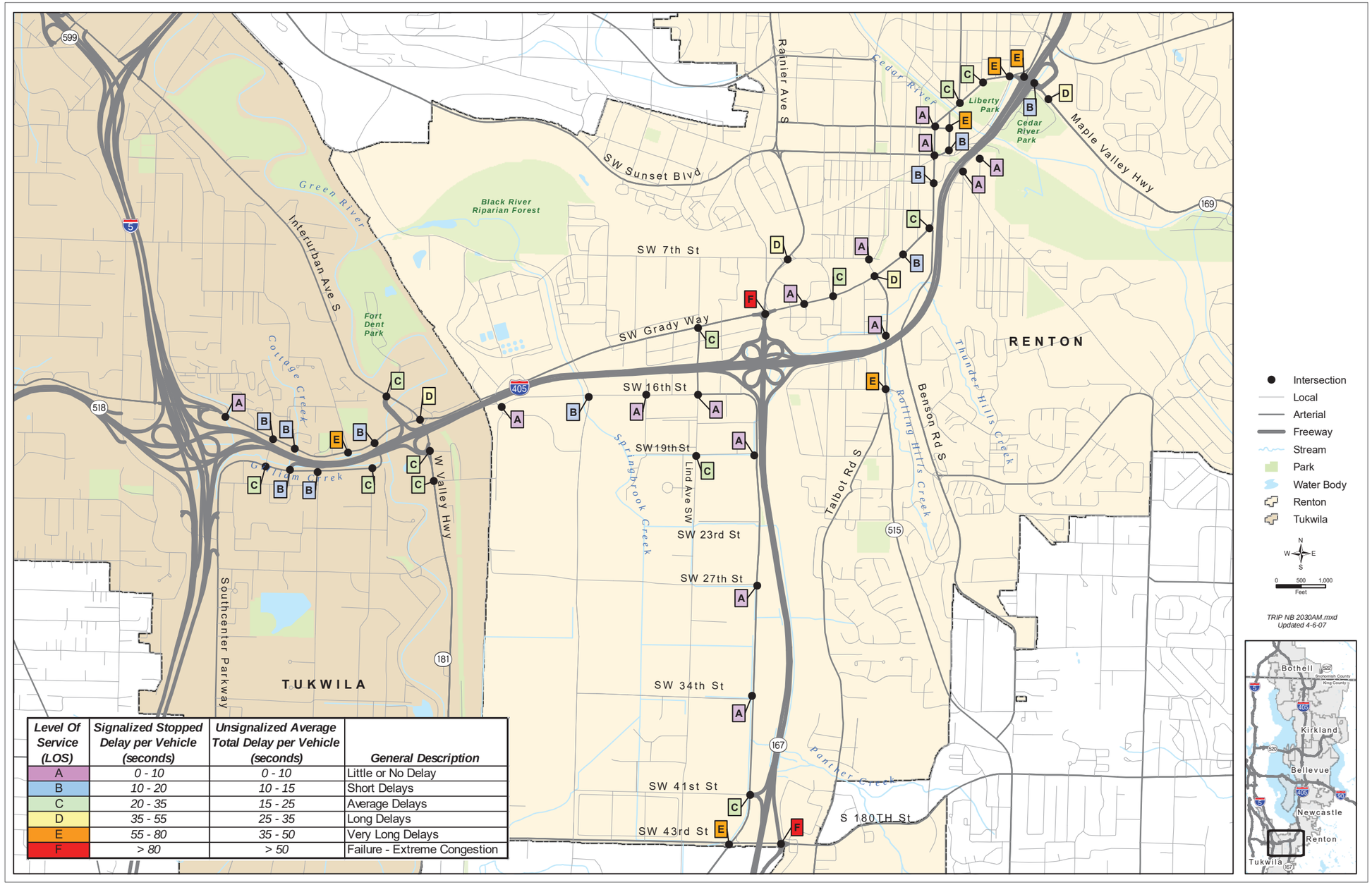
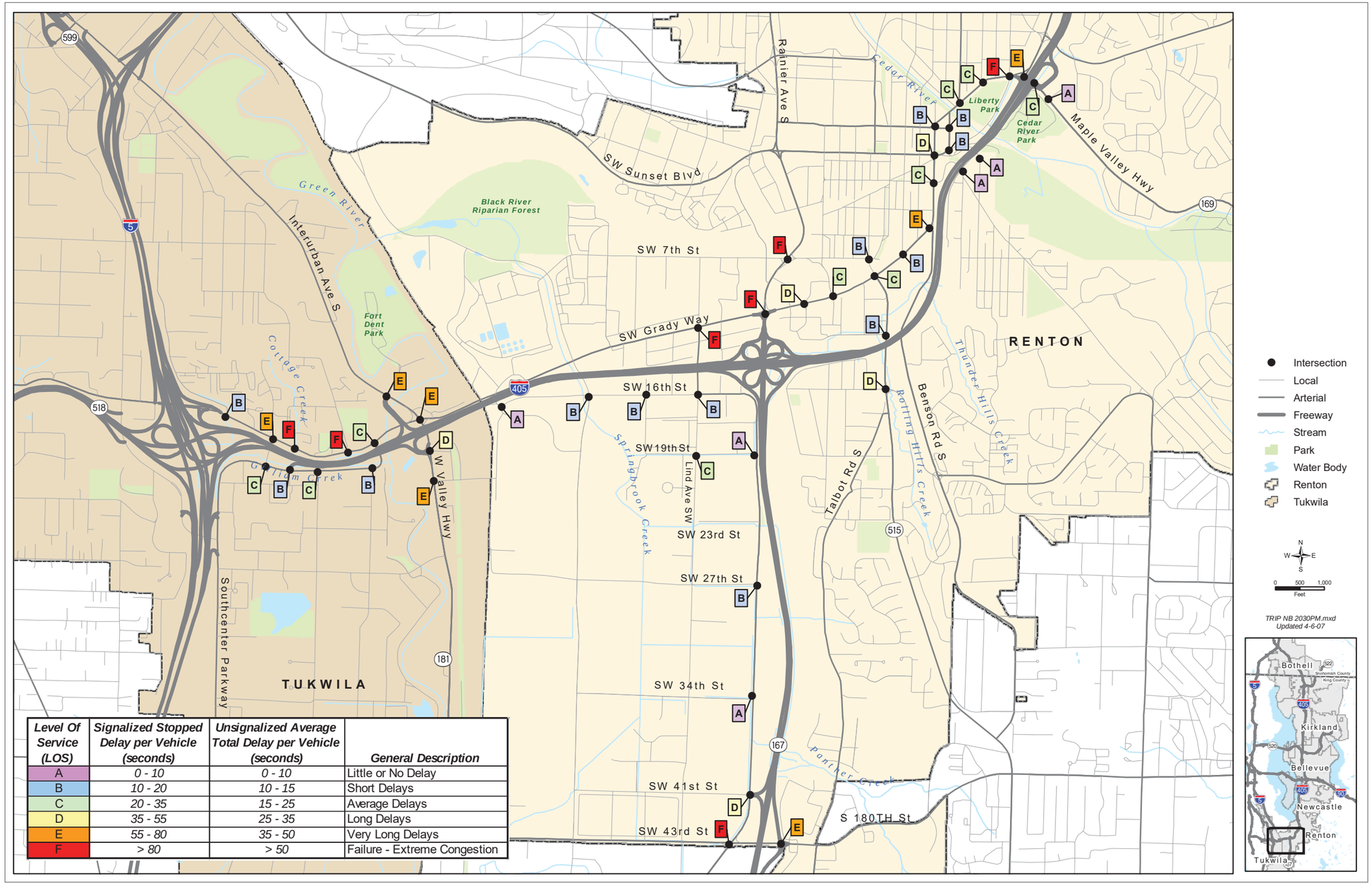


Exhibit B-5: 2030 No Build Morning Peak-Hour Intersection Level of Service



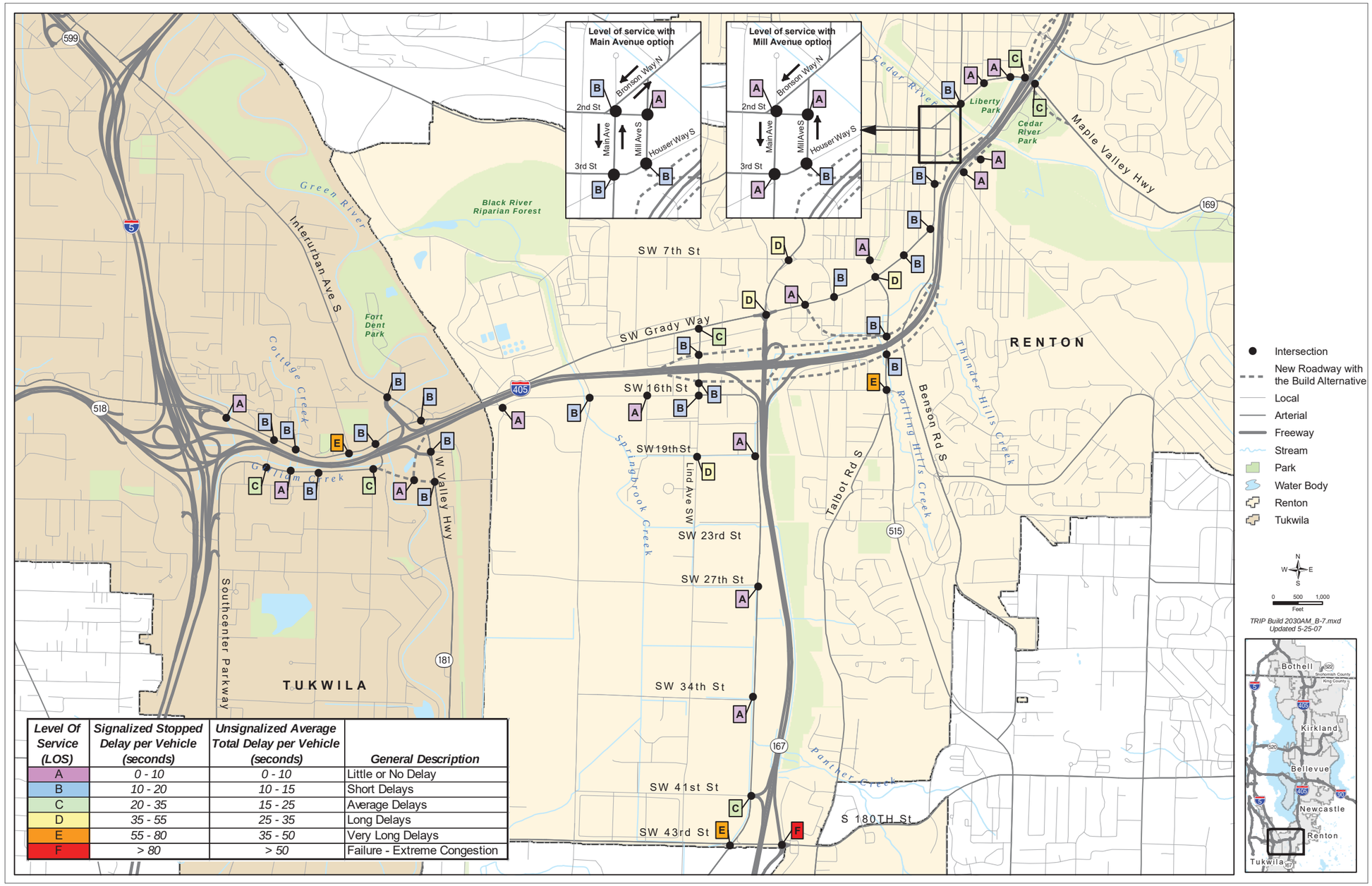
Level Of Service (LOS)	Signalized Stopped Delay per Vehicle (seconds)	Unsignalized Average Total Delay per Vehicle (seconds)	General Description
A	0 - 10	0 - 10	Little or No Delay
B	10 - 20	10 - 15	Short Delays
C	20 - 35	15 - 25	Average Delays
D	35 - 55	25 - 35	Long Delays
E	55 - 80	35 - 50	Very Long Delays
F	> 80	> 50	Failure - Extreme Congestion

Exhibit B-6: 2030 No Build Afternoon Peak-Hour Intersection Level of Service



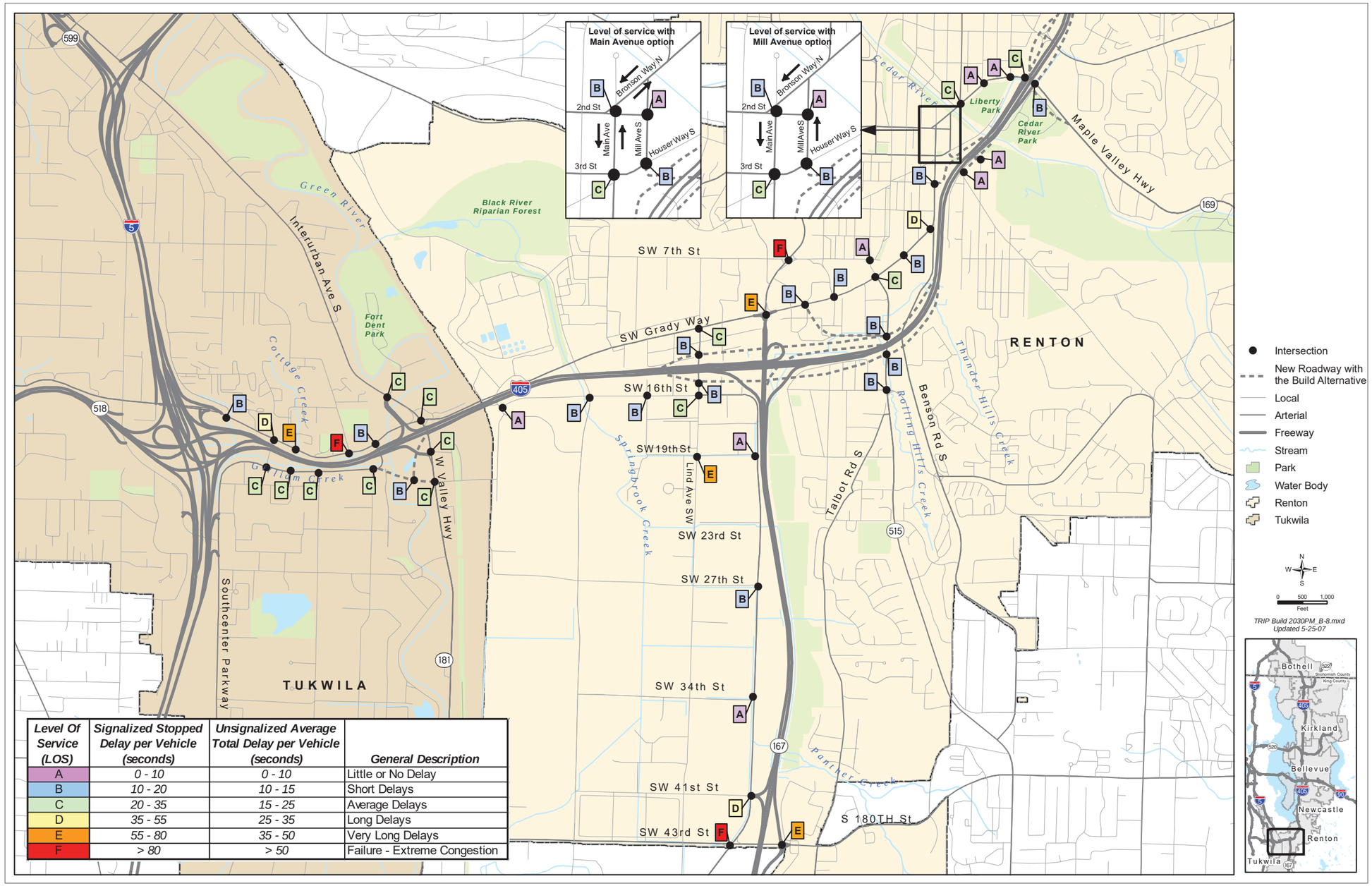
Level Of Service (LOS)	Signalized Stopped Delay per Vehicle (seconds)	Unsignalized Average Total Delay per Vehicle (seconds)	General Description
A	0 - 10	0 - 10	Little or No Delay
B	10 - 20	10 - 15	Short Delays
C	20 - 35	15 - 25	Average Delays
D	35 - 55	25 - 35	Long Delays
E	55 - 80	35 - 50	Very Long Delays
F	> 80	> 50	Failure - Extreme Congestion

Exhibit B-7: 2030 Build Morning Peak-Hour Intersection Level of Service



Level Of Service (LOS)	Signalized Stopped Delay per Vehicle (seconds)	Unsignalized Average Total Delay per Vehicle (seconds)	General Description
A	0 - 10	0 - 10	Little or No Delay
B	10 - 20	10 - 15	Short Delays
C	20 - 35	15 - 25	Average Delays
D	35 - 55	25 - 35	Long Delays
E	55 - 80	35 - 50	Very Long Delays
F	> 80	> 50	Failure - Extreme Congestion

Exhibit B-8: 2030 Build Afternoon Peak-Hour Intersection Level of Service



Level Of Service (LOS)	Signalized Stopped Delay per Vehicle (seconds)	Unsignalized Average Total Delay per Vehicle (seconds)	General Description
A	0 - 10	0 - 10	Little or No Delay
B	10 - 20	10 - 15	Short Delays
C	20 - 35	15 - 25	Average Delays
D	35 - 55	25 - 35	Long Delays
E	55 - 80	35 - 50	Very Long Delays
F	> 80	> 50	Failure - Extreme Congestion

APPENDIX C PROJECTS INCLUDED IN TRAFFIC MODELING

Within the I-405 corridor, there are four improvement projects that are fully funded and assumed to be constructed in the 2014 baseline conditions and No Build Alternative. Exhibit C-1 shows the four projects assumed to be operational by 2014.

Exhibit C-1. I-405 Projects Assumed for 2014 within the I-405 Corridor

I-405 Projects Assumed Completed by 2014	
Location	**Project**
Kirkland	NE 128th Street HOV and Transit Access (Sound Transit Project)
Kirkland/King Co.	Kirkland Nickel Project - SR 520 to SR 522
Tukwila/Renton	Renton Nickel Improvement Project - I-5 to SR 169
Bellevue	Bellevue Nickel Improvement Project - 112th Avenue SE to SE 8th Street

Outside of the I-405 corridor, the 2014 network will consist of projects that are currently planned and programmed by WSDOT and other transportation agencies. For the most part, these projects are fully funded or expected to be funded within the next six years. Exhibit C-2 lists projects which are consistent with the No Build Alternative assumptions used in the EIS.

Exhibit C-2: Transportation Projects Assumed for 2014 Outside of I-405 Corridor

Regional Projects Assumed to be Completed by 2014	
Location	**Project**
Seattle/Tacoma	Sound Transit Link Light Rail (Phase 1)
Tacoma to Seattle Everett to Seattle	Sound Transit Commuter Rail
Regionwide	Sound Transit 2006 Bus Service Concepts
Pierce	SR 7 (SR 507 to SR 512) - Corridor Improvements
Pierce	SR 161 (S 176th to S 234th Street) - Corridor Improvements
Pierce	SR 16 (Olympic View Drive to Union Avenue) - HOV Improvements
King	SR 161 (Jovita Boulevard to S 360th Street) - Widen to 5 Lanes
King	I-5 (Pierce County Line to S 320th) - Stage 4 HOV
King	I-5 Direct HOV/Transit Access at S 317th St and extension of HOV lanes (Federal Way)
King	SR 167 (15th Street SW to 15th Street NW) - HOV Improvement
King	SR 518 Add 1 eastbound GP lane from airport access to I-5 and Interchange Improvements
King	SR 519 - Phase 2
King	I-90 Direct HOV/Transit access Eastgate Park-and-Ride
King	SR 520 (West Lake Sammamish Parkway to SR 202) - Add HOV Lanes
King	SR 522 Access to UW Bothell Campus

Regional Projects Assumed to be Completed by 2014 (Continued)		
Location		**Project**
King		I-5 (NE 175th Street to NE 205th Street) - NB Auxiliary Lane
King		SR 99 (Aurora Avenue to N Corridor) - Transit/HOV Lanes
Snohomish		I-5 Direct HOV/Transit access Lynnwood Transit Center
Snohomish		SR 9 (SR 522 to 176th Street SE) - Stage 1 and 2
Snohomish		SR 525 (SR 99 to Paine Field) - 5 lanes
Snohomish		SR 527 (132nd SE to 112th SE) - Additional Lanes
Snohomish		I-5 (SR 526 to US 2) - HOV Lanes
2014 Committed Arterial Projects (I-405 Corridor Program EIS Project # shown in second column)		
Bothell, Snohomish	R.AC-21	120th NE and 39th SE (NE 195th to Maltby Road) - 4/5 lanes including new connection
Bellevue	R-08	NE 29th Place (148th Avenue NE to NE 24th Street) - Construct new 2 lane road
Snohomish	R-10	SR 524 (24th Street SW to SR 527) - Widen to 4/5 lanes including sidewalks, bicycle lanes
Kirkland	R-21	NE 120th Street (Slater Avenue to 124th Avenue NE) - Construct new 3 lane roadway with pedestrian and bicycle facilities
Redmond/ WSDOT	R-25	SR 202 Corridor Improvements (East Lake Sammamish Parkway to Sahalee Way) - Widen to 3/5 lanes; intersection improvements with bicycle and pedestrian facilities
Redmond	R-26	NE 90th Street (Willows Road to SR 202) - Construct new 4/5 lanes with bicycle facilities
Redmond	R-28	West Lake Sammamish Parkway (Leary Way to Bel-Red Road) - Widen to 4/5 lanes with CGS*, bicycle lanes
Renton	R-36	Oakesdale Avenue SW (SW 31st to SW 16th) - Construct new 5 lane roadway with CGS
KCDOT	R-39 & R.AC-2	140th Avenue SE (SR 169 to SE 208th Street) - Widen to 5 lanes; (SR 169 to SE 196th Street) - Widen for turn channels on SE 196th. Combines 2 King County CIP projects. A major north-south arterial that serves the Soos Creek Plateau and Fairwood
KCDOT	R-40 & R.IC-24	Juanita-Woodinville Way (NE 145th Street to 112th Avenue NE) - Widen to 4/5 lanes with CGS, walkway/pathway
KCDOT	R-47	NE 124th Street (Willows Road to SR 202) - Widen to 3/4 lanes with CGS; bicycle facilities; traffic signal
Woodinville	R-51	Woodinville-Snohomish Road/140th Avenue NE (NE 175th Street to SR 522) - Widen to 4/5 lanes with CGS; bicycle lanes
Bellevue	R-101	150th Avenue SE (SE 36th to SE 38th) - Widen to 7 lanes; add turn lanes
Redmond	R-111 & R.AC-15	Willows Road Corridor Improvements - Channelization of Willows Road and Redmond Way intersection; widening of Willows Road from NE 116th to NE 124th
Snohomish	R-117	39th Avenue SE realignment at SR 524 and York Road - Construct 4-way intersection to replace 2 offset intersections
WSDOT	R.PB-27	SR 520/SR 202 interchange - Complete interchange by constructing a new ramp and thru lane on SR 202 to SR 520 (ETP R-29) NOTE: Part of Nickel Package

* CGS – Curb, gutter, and sidewalks

Outside of the I-405 corridor, the 2030 network will consist of planned, programmed, and reasonably foreseeable projects to be implemented during the next 20 to 25 years. This network includes all of the projects assumed for 2014, plus additional regional and local projects that have been given high priority in recent programming processes. Several of these projects have the potential to affect the travel conditions along the I-405 corridor, so their inclusion in the network is important to establish realistic traffic forecasts for environmental and design purposes. All of the projects are included within the PSRC *Destination 2030* as being important to implement by 2030. While several projects are currently not funded, they have been consistently included in multi-jurisdictional funding forums, such as the RTID and ETP 10-year Mobility Action Priorities. Given the importance of transportation in the Puget Sound Region, it is reasonable to assume that transportation investments will continue throughout the next 30 years. The assumed projects represent only a portion of the overall regional needs.

The projects included in Exhibit C-3 are assumed to be completed by 2030. The selection of these projects met the following rationale:

- Included within *Destination 2030.*
- Included within established funding and prioritization processes (e.g., RTID, ETP, SKATBD, etc.).
- Could potentially affect transportation conditions along the I-405 corridor.
- Environmental processes either complete, in process, or expected to be underway by 2007.

By meeting these tests, the listed projects were considered to have a reasonable likelihood of being implemented prior to 2030.

Exhibit C-3 Regional Projects Assumed for 2030 Outside the I-405 Corridor

Regional Project Assumed to be Completed by 2030	
Location	**Project**
SR 410 (Pierce County)	Additional Lanes - 214th to 234th
SR 509 Extension (Tacoma)	6-lane freeway
I-5 (Tacoma)	New HOV Lanes - Port of Tacoma Road to King and Pierce County Line
SR 167 Extension (Tacoma)	6-lane freeway
SR 167 (I-405 to Puyallup)	Add HOV lanes - 15th Street SW to SR 161 (Puyallup) Add 1 lane each direction - SW 43rd St/S 180th St to SR 18
SR 18 (Auburn to I-90)	4-lane expressway - SR 516 to I-90
Alaskan Way Viaduct	Existing capacity - 4/6-lane expressway
I-90 Two-Way Transit and HOV	Alternative R-8A - no rail across I-90
SR 520 (I-405 to Montlake Boulevard)	4-lane freeway + 1 HOV lane (6-lane option)
SR 522 (Snohomish)	4 Lane Widening - Snohomish River to US 2

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APPENDIX D SR 515 (TALBOT ROAD) INTERCHANGE PROJECT

Introduction

After the Renton Nickel Improvement Project is completed in 2011, the SR 515 (Talbot Road) Project will be the next stage towards building the Tukwila to Renton Project and the I-405 Master Plan. The SR 515 Project is funded through the 2005 Transportation Partnership Account and is scheduled to be completed by 2011. The I-405 Master Plan and Tukwila to Renton projects are very expensive and will be constructed in stages as funding becomes available.

As part of the I-405 Corridor Program, the SR 515 Project will construct a half-diamond interchange on I-405 at SR 515. This limited-movement interchange will allow access from SR 515 to northbound I-405, and from southbound I-405 to SR 515. The new interchange will improve access to and from Renton, and relieve congestion at the I-405 interchanges at SR 167 and SR 169, and the SR 167/SW 43rd Street interchange.

Current Configuration

Currently, there is no access to I-405 via SR 515. Vehicles destined to northbound I-405 from SR 515 must use local streets to travel to the I-405 interchanges at SR 167 and SR 169, or the SR 167/SW 43rd Street interchange. Southbound I-405 vehicles traveling to SR 515 currently exit at one of these three interchanges, and use local streets to travel to SR 515.

At the intersection of SR 515 and S Puget Drive, southbound SR 515 has an exclusive left-turn lane and a shared through and left-turn lane.

Proposed Configuration

The proposed improvements include:

- On SR 515, adding the following I-405 ramp intersections: the southbound I-405 off-ramp will tie into the realigned S Renton Village Place to create a four-legged intersection; the northbound I-405 on-ramp will be a new intersection.
- On SR 515: adding a northbound right-turn lane and a southbound left-turn lane at the new northbound I-405 on-ramp intersection.
- On SR 515: adding a southbound lane, to have two exclusive southbound left-turn lanes at the S Puget Drive intersection.

With the new SR 515 interchange, vehicles originating from neighborhoods along SR 515 will have a direct connection to northbound I-405. Southbound I-405 vehicles traveling to the areas along SR 515 will have a shorter trip with the new off-ramp.

Traffic Analysis

Traffic analyses were conducted to compare future I-405 operations and local street operations with and without the proposed SR 515 half-diamond interchange in 2014 and 2030. These analyses determined that I-405 will perform similarly with and without the SR 515 Project. The

proposed SR 515 interchange will not change the number of drivers on I-405, but will change where some drivers access the freeway. The SR 515 interchange will reduce traffic volumes and improve local street operations at the I-405 interchanges at SR 167 and SR 169, and the SR 167/SW 43rd Street interchange, as well as the local streets around these interchanges. The SR 515 interchange will reduce traffic volumes at the I-405/SR 169 interchange by 350 to 500 vehicles during the 2014 morning and afternoon peak hours. The SR 515 interchange will also reduce traffic at the I-405/SR 167 and SR 167/SW 43rd Street interchanges by 200 to 350 vehicles during the 2014 morning and afternoon peak hours.

The proposed SR 515 interchange will move more traffic through the local streets with little change in intersection delay. With the project, all intersections on SR 515 will operate at level of service (LOS) D or better in both 2014 and 2030. The SR 515 intersection with S Puget Drive will perform better with the SR 515 interchange because of improvements to the intersection. Exhibit D-1 shows the LOS for intersections along SR 515, with and without the interchange project, during the 2014 and 2030 morning and afternoon peak hour.

Exhibit D-1: SR 515 Intersection Peak-Hour Level of Service with and without the SR 515 Interchange

SR 515 Intersections	2014 without SR 515 Interchange		2014 with SR 515 Interchange		2030 without SR 515 Interchange		2030 with SR 515 Interchange	
	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
S Grady Way	C	C	D	C	D	C	D	C
SB I-405 Off-Ramp/ S Renton Village Place	A	B	B	B	A	B	B	B
NB I-405 On-Ramp	N/A	N/A	A	A	N/A	N/A	A	A
S Puget Drive	E	C	C	B	E	D	D	C

Safety Review

A crash analysis was done on I-405 in the vicinity of the proposed SR 515 interchange for the three years from October 1, 2003 to September 30, 2006. A total of 567 crashes were reported on I-405 between SR 167 and SR 169, none of which were fatalities. This section of I-405 has an average crash rate of 2.21 crashes per million vehicle miles of travel, which is higher than the average for the whole I-405 corridor and the northwest region of Washington State. Congestion-related crashes (rear-ends and sideswipes) account for 78% of the total crashes on this section of I-405.

With the SR 515 interchange, an increased possibility of crashes will occur where drivers will need to merge to enter or exit I-405 at SR 515. However, the vehicles making these maneuvers will be shifted from the I-405 interchanges at SR 167 and SR 169, and the SR 167/ SW 43rd Street interchange; no new vehicles will be making these maneuvers. So, while crashes are expected to increase around the new SR 515 interchange, crashes are anticipated to decrease at the I-405 interchanges at SR 167 and SR 169, and the SR 167/SW 43rd Street interchange. Six of the I-405

ramps at the SR 167 and SR 169 interchanges are High Accident Locations (HALs). The SR 515 Project will decrease traffic volumes on three of these ramps and should reduce the crashes at these locations:

- southbound I-405 off-ramp to northbound SR 167;
- northbound I-405 on-ramp from northbound SR 167; and
- northbound I-405 on-ramp from northbound SR 169.

A crash analysis was performed on SR 515 between S Puget Drive and S Grady Way (0.45 miles) and showed a total of 66 crashes in the last three years; 32 were rear-end crashes, and none were fatal accidents. The intersection at SR 515 and S Grady Way had the highest concentration of crashes, with a total of 34 crashes, including 14 rear-end and 12 angle/left-turn crashes. The addition of the I-405 ramps will introduce one new intersection in this area, increasing the possibility of crashes at that location. However, this slight increase should be offset by the likely reduction of crashes at the I-405 interchanges at SR 167 and SR 169, and the SR 167/SW 43rd Street interchange.

Summary

The SR 515 Project is one step in implementing the Tukwila to Renton Project and the I-405 Master Plan for this section of freeway. The SR 515 interchange will improve access to the City of Renton and will divert traffic volumes from the congested I-405 interchanges at SR 167 and SR 169, and the SR 167/SW 43rd Street interchange, improving operations at these three interchanges.

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