

The Alaskan Way Viaduct & Seawall Replacement Program



Program Update

Joint King County Council – Seattle City Council Meeting
April 7, 2008

Overview of Presentation

- Central Waterfront Process
- Surface Building Block Elements
- I-5 Building Block Elements
- Transit Building Block Elements

Program Overview

The Path Forward: Central Waterfront Planning



2007

Winter: Begin central waterfront planning



2008

December:
Recommendation made
on final alternative for
central waterfront



2009

Begin design on central waterfront alternative



2012

Remaining viaduct
begins to come down



Central Waterfront

The Path Forward: Central Waterfront

- Old project area addressed SR 99; new project area considers regional transportation network
- Opportunity to improve transportation system as a whole and benefit all modes



Stakeholder Advisory Committee

- 30 individuals representing communities, economic interests and cause-driven organizations
- Meet once a month from December 2007 to October 2008
- Review, deliberate and comment on central waterfront work



Interagency Working Group



- 14 public agencies representing transit, freight and public health
- Meet once a month from February 2008 to October 2008
- Provide technical input

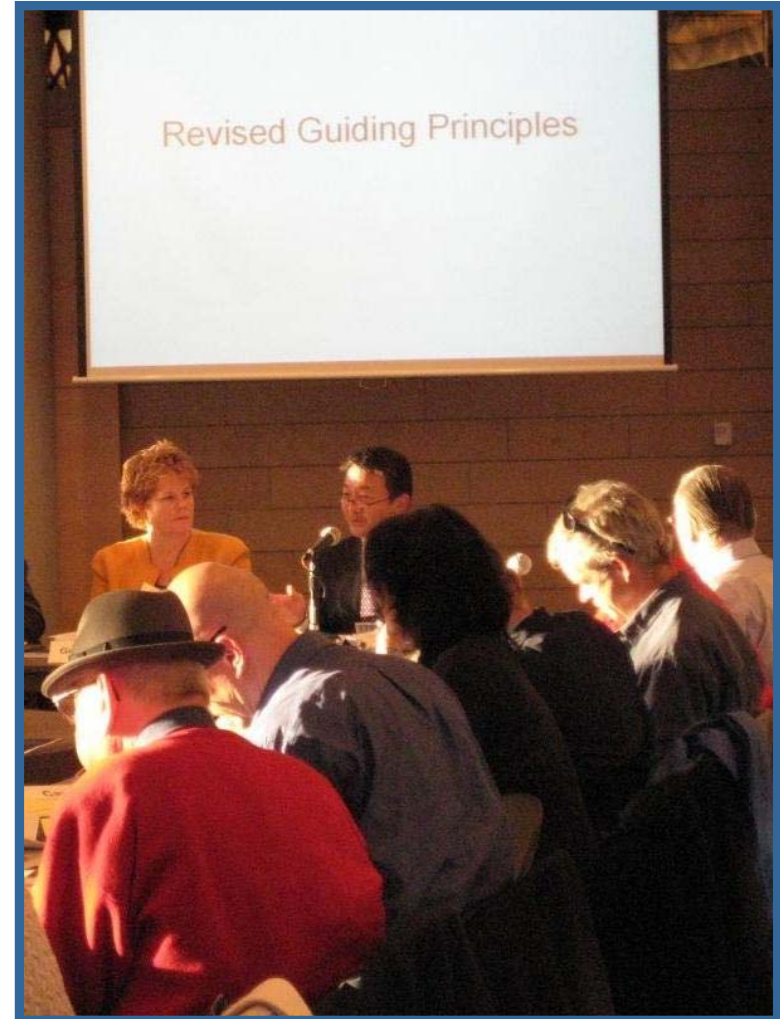
Project Oversight Committee

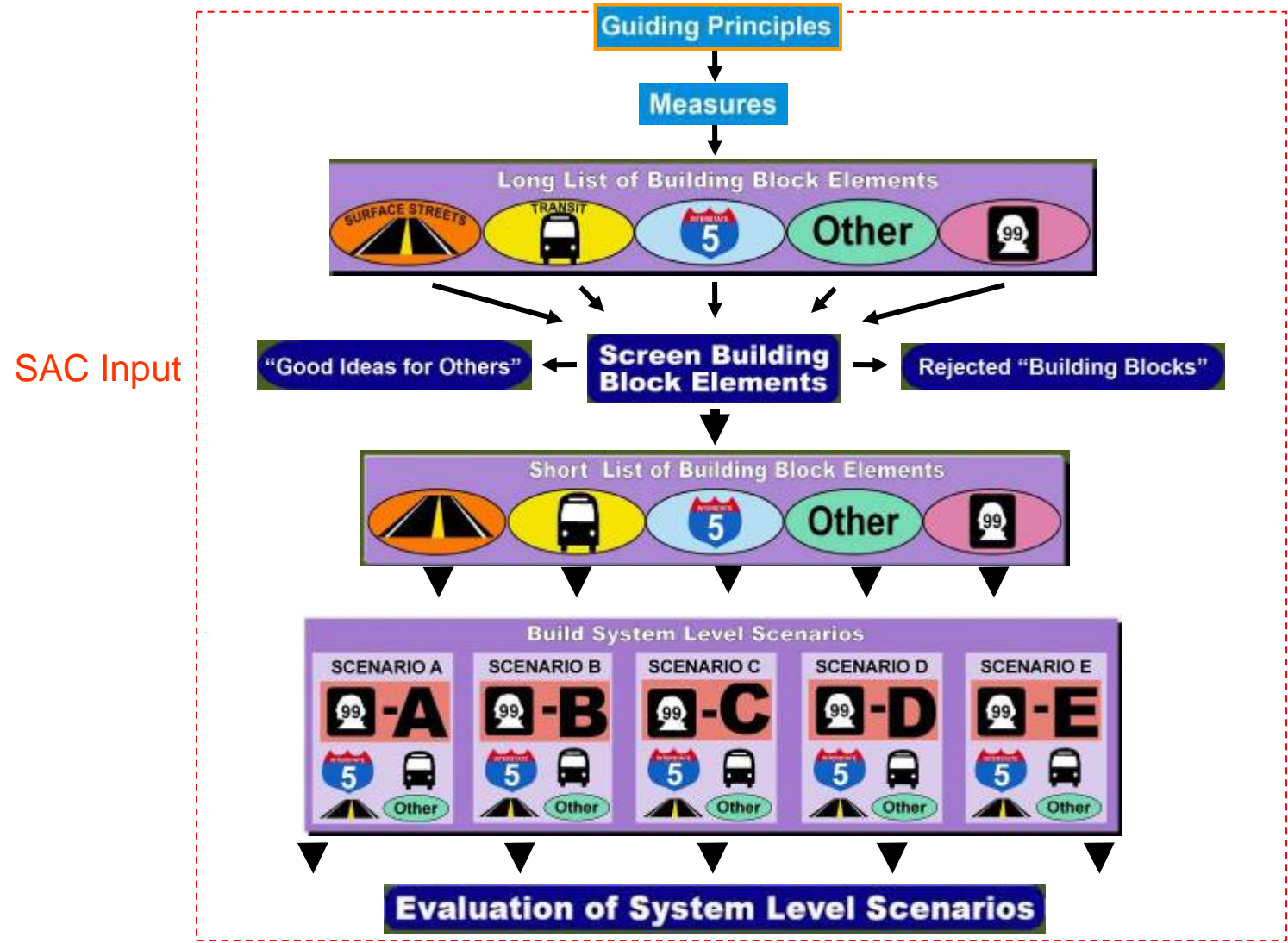
- Washington Governor
- King County Executive
- Seattle Mayor
- State Senate Transportation Chair
- State House Transportation Chair
- King County Council Transportation Chair
- Seattle City Council Transportation Chair

Central Waterfront

Guiding Principles

- Improve public safety
- Provide efficient movement of people and goods
- Maintain or improve downtown Seattle, regional, the port and state economies
- Enhance Seattle's waterfront, downtown and adjacent neighborhoods as a place for people
- Create solutions that are fiscally responsible
- Improve the health of the environment





Tri-Agency Recommendations

Draft System Level Recommendation

Final System Level Recommendation

Alaskan Way Viaduct and Seawall Replacement
Central Waterfront Approach

Urban Mobility Plan



City Council legislation

- ✓ Focus on moving people and goods
- ✓ Improve access to and through Center City
- ✓ Study a range of transportation system investments
- ✓ Pedestrian friendly surface street on Alaskan Way

Urban Mobility Plan

UMP and the Central Waterfront Partnership:



- Single public process and stakeholder advisory committee
- Common schedule, work plan, guiding principles, performance measures
- Shared use of consultant resources
- UMP directed by City, in cooperation with WSDOT and King County

For more information: www.seattle.gov/transportation/ump.htm



The Alaskan Way Viaduct & Seawall Replacement Program



Central Waterfront

Surface Street
Building Block Elements



Surface Street Themes

- *Create strong east-west connections* to move people and vehicles from SR 99 to other streets and I-5
- *Create manifolds* to distribute traffic over multiple pathways into downtown from the north and south
- *Increase north-south capacity* through downtown
- *Enhance the downtown street grid*
- *Provide reliable truck paths* through central Seattle and to Port terminals
- *Keep transit moving fast and reliably*
- *Provide high quality bicycle and pedestrian connections* to and within downtown supporting dense, walkable neighborhoods

Central Waterfront

Create Strong East-West Connections

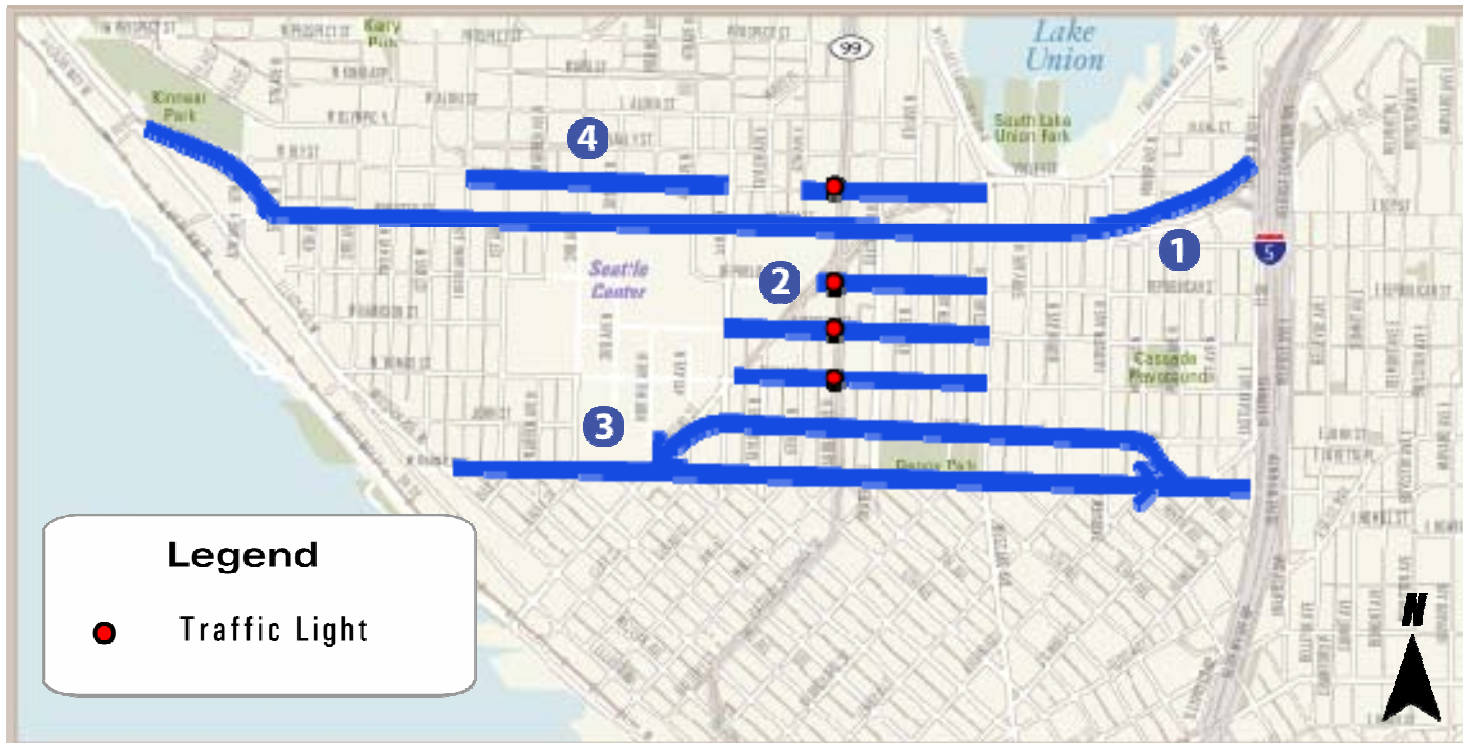
East-West Arterial improvements north of Ship Canal

1. Two-way Mercer Street

2. New at grade street crossings of Aurora

3. Denny Way improvements

4. Two-way Roy Street



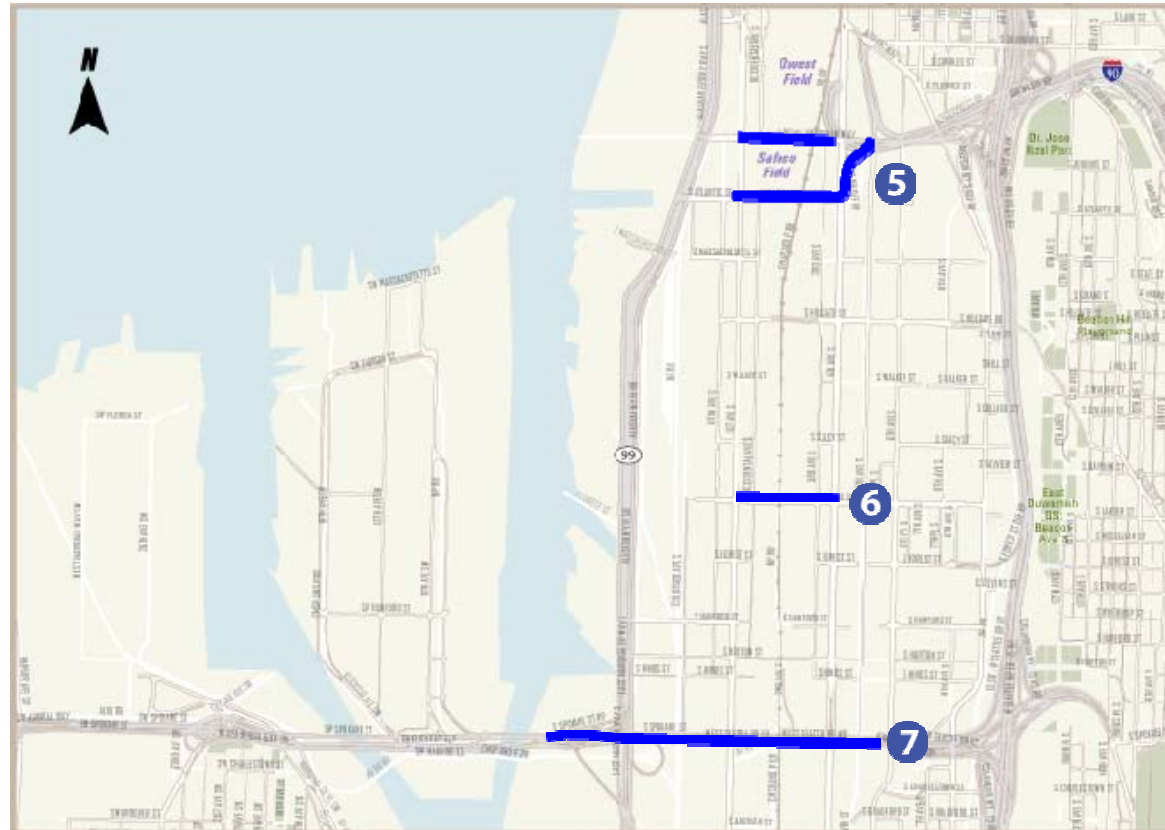
Central Waterfront

Create Strong East-West Connections

5. SR519 Phase II

6. Lander Street overpass

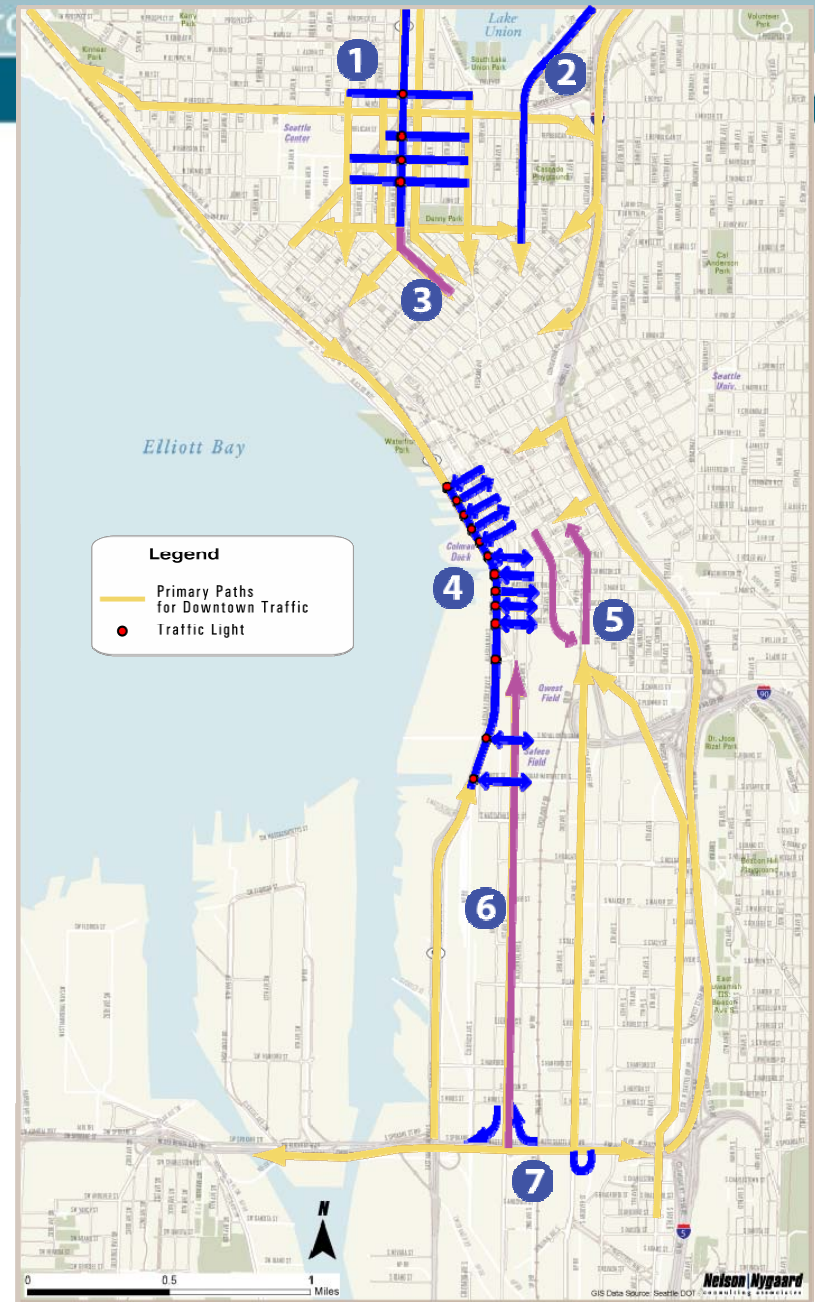
7. Spokane Street Viaduct widening



Central Waterfront

Create Manifolds

1. Signals on Aurora, improved downtown access options
2. Improve downtown access on Fairview
3. Two-way Sixth Avenue south of Denny Way
4. Improved downtown access via new Alaskan Way surface street
5. Second / Fourth one-way couplet, Airport to Washington
6. First Ave South – add lanes
7. Spokane Street Viaduct ramp connections to First and Fourth Ave



Central Waterfront

Increase North-South Capacity Through Downtown

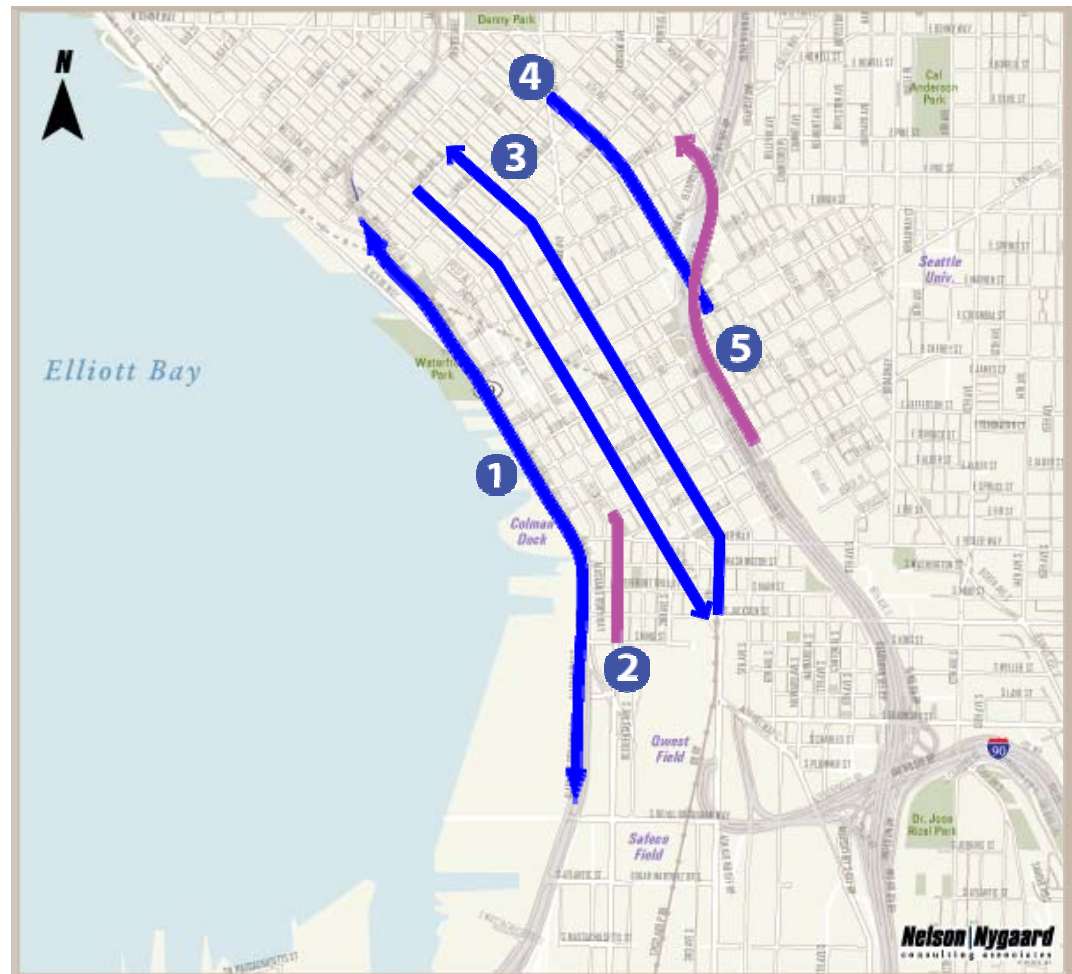
1. Alaskan Way surface street

2. First Ave South
– 2 lanes each direction

3. Second & Fourth Ave – add lane

4. Two-way Eighth Ave connecting
to existing I-5 overpass

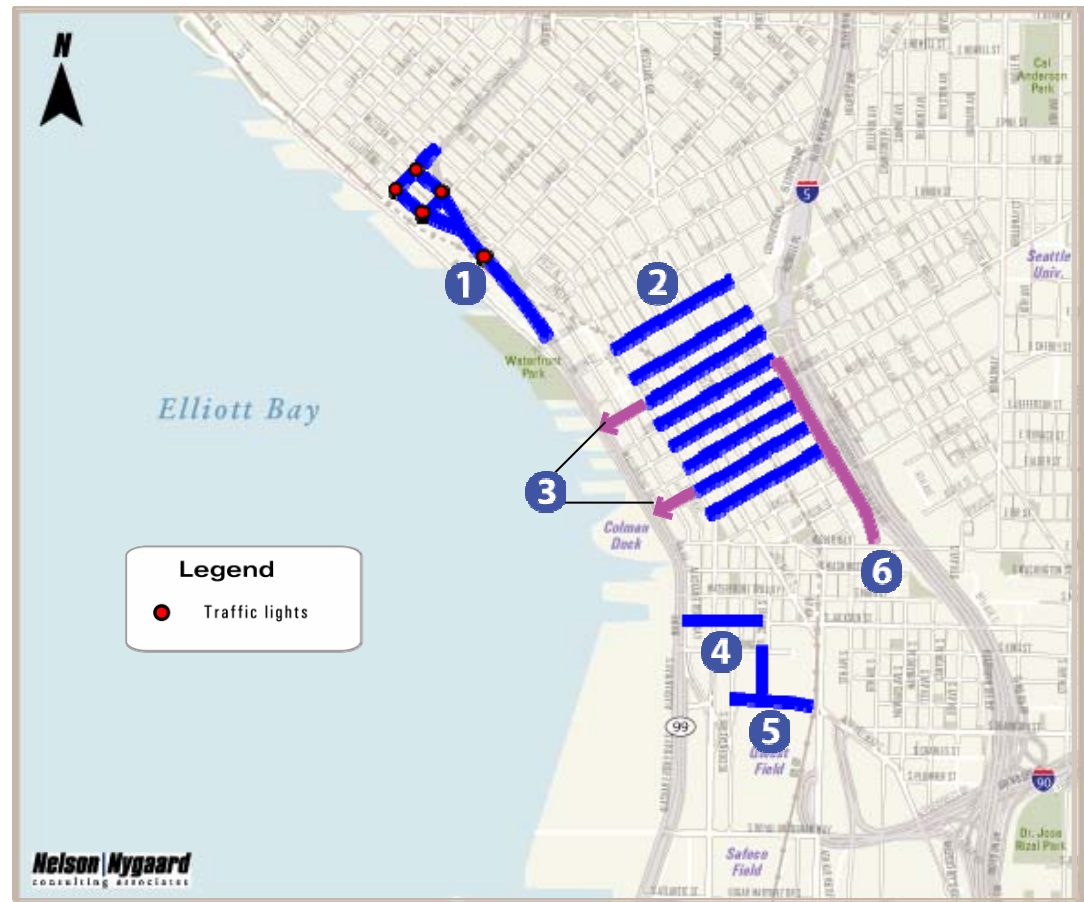
5. Northbound Seventh Ave with
new I-5 overpass at Terry Ave



Central Waterfront

Enhance Downtown Street Grid

1. SR 99 with surface intersections at Elliott / Western
2. Three lanes on east-west streets
3. New connections between First Avenue & Alaskan Way @ Seneca & Columbia streets
4. Jackson – increase to 4 lanes from Alaskan Way to Third Avenue
5. New street connections on north stadium lot
6. Sixth Avenue – convert portion to two-way operation



Central Waterfront

Reliable Truck Paths

1. Two way Mercer connecting I-5 with Elliott/Western Ave corridor
2. Open Second and Fourth and/or Third Avenues to large trucks
3. Maintain a freight route on surface Alaskan Way
4. Widen Spokane Street Viaduct and provide new access/exits
5. Grade separate trucks over BNSF tail track
6. SR 519 – New westbound connection from I-5/I-90
7. Lander Street Grade Separation
8. Provide truck loading zones



Central Waterfront

Keep Transit Moving

1. Aurora Transit Only Lanes
2. Third Avenue Transit Priority
3. Extend Transit Only Third Ave to all day
4. First Ave Streetcar
5. First Hill Streetcar
6. Two way trolley service on Madison – Colman Dock to First Hill
7. SR 99 Transit HOV Lanes
8. Industrial Way connection between I-5 and E-3 busway
9. Second and Fourth Avenues – add second transit only at peak periods
10. Fourth Avenue South transit only lanes
11. Stewart/Olive/Howell transit only lanes



Central Waterfront

Bicycle Connections

1. Second and Fourth bike lanes or sharrows

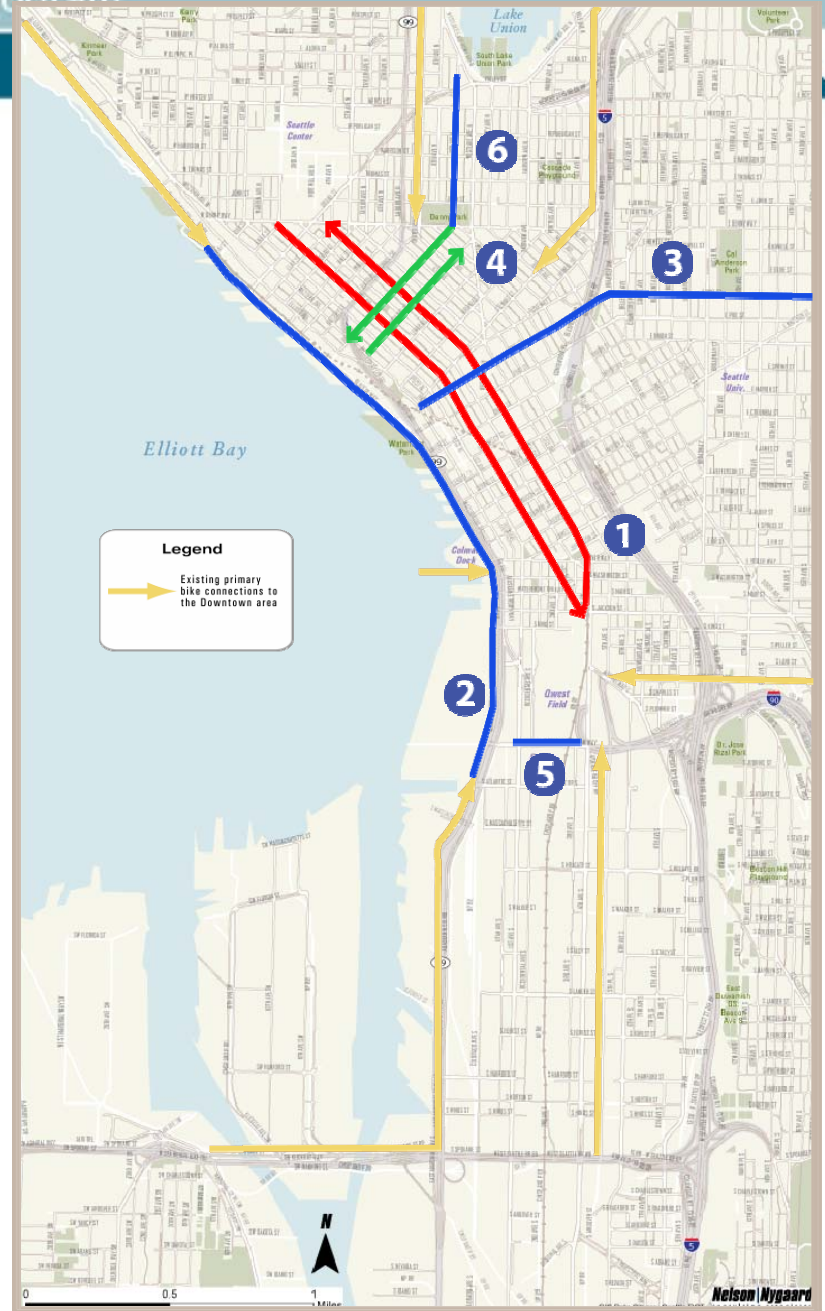
2. Alaskan Way bike lanes

3. Pine Street bike lanes

4. Bell/Blanchard sharrows or bike lanes

5. Royal Brougham bike lanes (railroad crossing)

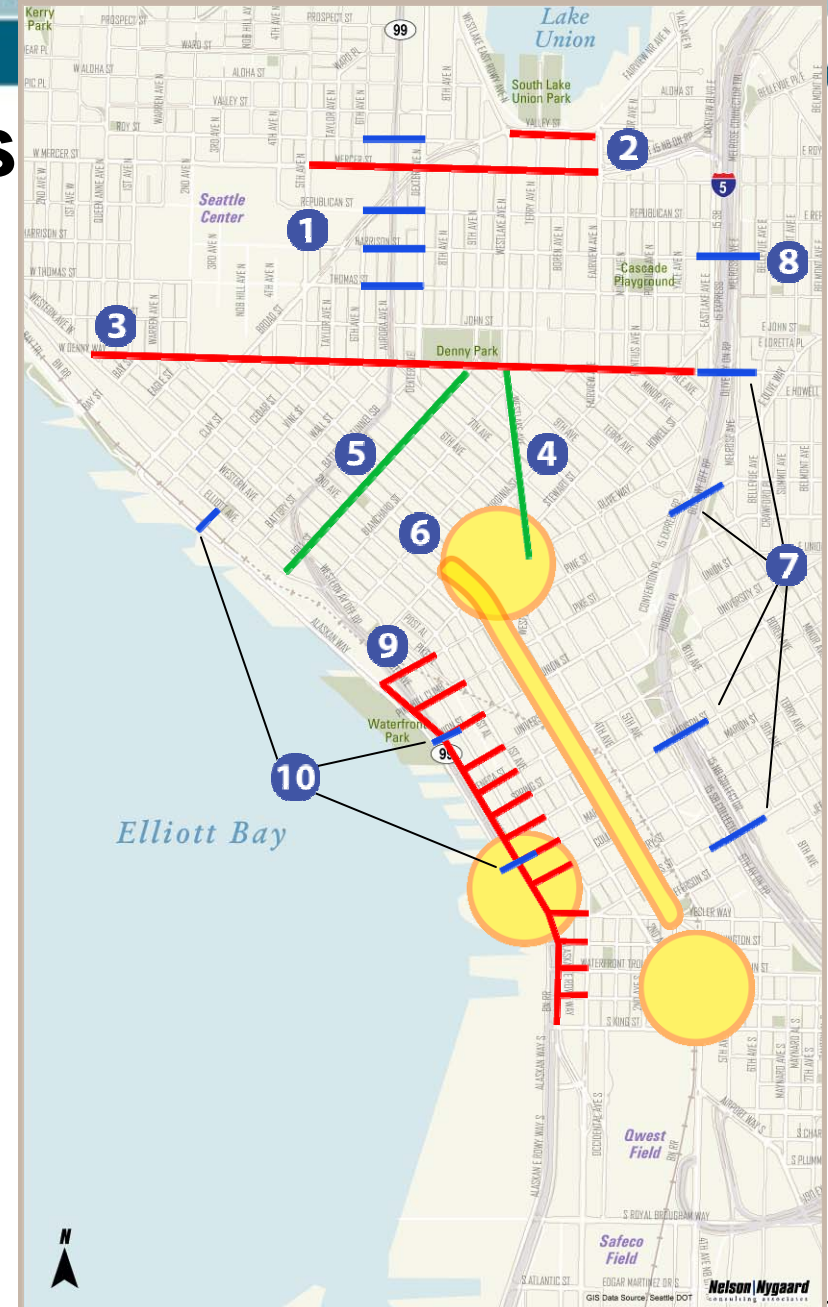
6. Ninth Avenue bike lanes (Valley to Denny)



Central Waterfront

Pedestrian Improvements

1. Aurora – New At-Grade Pedestrian Crossings
2. Mercer/Valley – Pedestrian Improvements
3. Denny – Improved Pedestrian Crossings
4. Westlake – Improved Pedestrian Crossings
5. Bell – Pedestrian Improvements
6. Pedestrian Improvements in Transit Hubs and Spine
7. Improve/Add Sidewalks Over/Under I-5
8. New I-5 Pedestrian Bridge
9. Alaskan Way – Wider promenade and improved east-west connections to the water
10. New Alaskan Way pedestrian bridges



The Alaskan Way Viaduct & Seawall Replacement Program



Central Waterfront

I-5 Reconstruction
Building Block Elements

Central Waterfront

Boeing Access to Northgate

- **Preserve existing pavements**

A series of projects will remove and replace the original deteriorating concrete.

- **Reduce congestion and improve safety by strategically improving chokepoints**

I-5 is a series of long standing bottlenecks caused by lanes that disappear, closely spaced ramps and high volumes.



40+ Year Old Pavement Conditions

The concrete is cracking and panel corners are breaking resulting in frequent and unpredictable emergency repairs that are disruptive to the traveling public and increase safety risks.



Remove and Replace Original Concrete To “Get In, Get Out, and Stay Out”

Likely over \$2 billion
\$21 million repair work in
2009
\$113 million funding in
2017 and beyond



Central Waterfront

Background

Served over 3 billion trips since 1970
280,000 trips are made daily through
Seattle

Daily traffic volumes have leveled off since
the 1990's because of chokepoints and
inefficiencies

Congestion occurs for up to nine hours a
day

Over 50,000 transit trips are made daily on
I-5

Over 12,000 trucks use I-5 to haul
international, interstate, regional and
local cargo worth \$200 million on a daily
basis



Central Waterfront

I-5 is a series of chokepoints and constraints

Chokepoints:

- Lanes disappear
- Closely spaced ramps
- Major weaves
- High volumes
- Left hand ramps

Constraints:

- Ship Canal Bridge
- Convention Center
- Freeway Park
- Capital and Beacon Hills retaining walls
- Left hand ramps



I-5 Themes

- Manage or close ramps to downtown Seattle
- Operate the system more efficiently
- Keep transit moving fast and reliably
- Add capacity for vehicles and freight



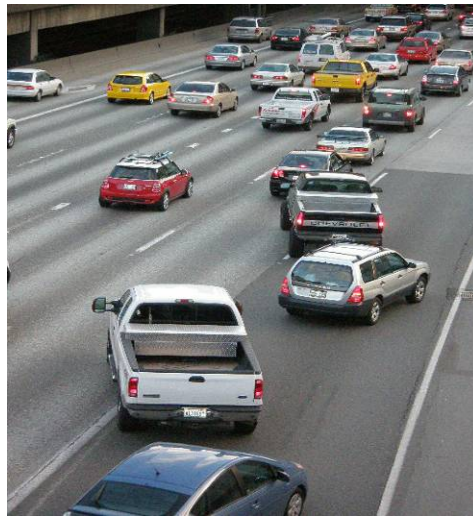
Manage or Close Ramps to Downtown

Consider closing and/or meter ramps individually and as set of projects.

- Southbound – Yale, Union
- Northbound – Madison, Cherry, Seneca



I-5 Reconstruction



Operate the system more efficiently

New Technologies on the Horizon (2009)

- **Build off current ITS**

Active traffic management is the next generation of intelligent transportation system.

- **Overhead gantries**

Variable speed limit and lane-control signs over each lane with message signs.

- **Speed harmonization**

Maintain flow and reduce collision risk and provide queue warning.

- **Variable lane control**

Signals divert traffic away from trouble spots and improve emergency vehicle access.

- **Travel time signs**

Allow for better reroute decisions by travelers.



Gantry concept for WSDOT

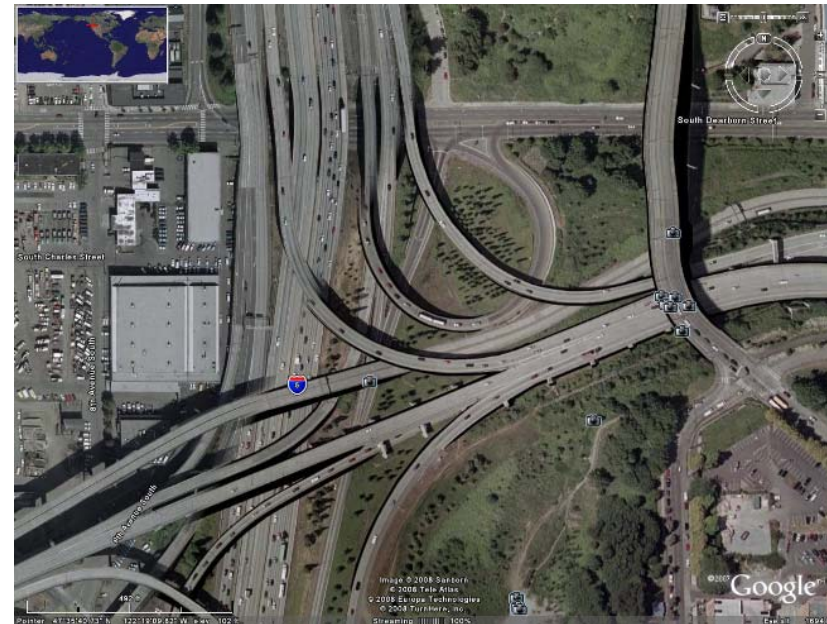
Keep transit moving fast and reliably

- Northbound peak period transit-only shoulder - Olive Way to SR 520
- Industrial Way direct access
- Modify reversible ramp designations



Potential capacity improvements for vehicles and freight

- Extend the northbound I-5 collector-distributor road south to Spokane Street/Columbian Way exit
- Add a northbound lane between Seneca and SR 520
- Add a southbound lane between SR 520 and Spokane Street





The Alaskan Way Viaduct & Seawall Replacement Program



Central Waterfront

Transit Strategies
Building Block Elements

Challenges and Opportunities for Increasing Transit Ridership

- Provide capacity to convert a significant number of daily trips by auto to transit
- Improve the attractiveness of transit for people traveling to and/or through the Center City
- Make transit a better option at all times of day

Central Waterfront

Transit Ridership is Significant and Growing

Transit use to Center City
increased by 34,300 boardings from
2004 to 2007

New Trips From Outside of Seattle

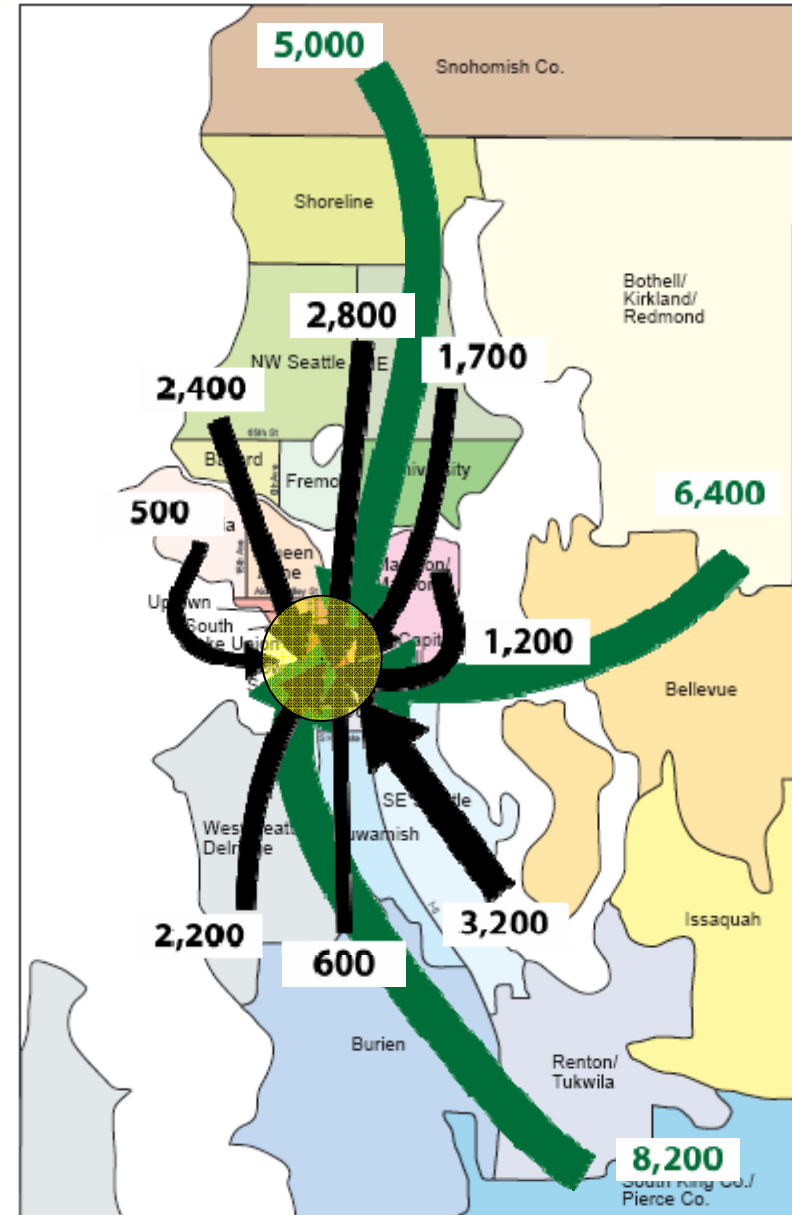
19,600 boardings per weekday

New Trips From Within Seattle

14,700 boardings per weekday

3 Year Total Growth 17%

231,000+ riders to and from
Center City each weekday.



Central Waterfront

Building Blocks Committed

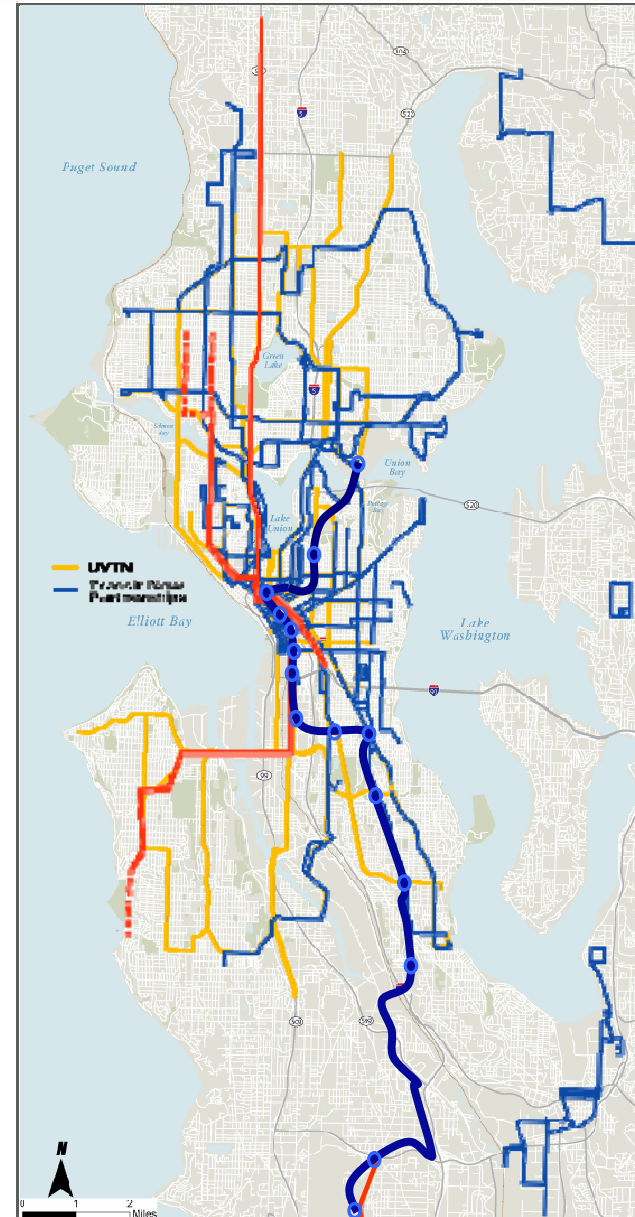
Transit Now's partnership agreements will add new service to downtown and will enhance Seattle's Urban Village Transit Network

Transit Now's RapidRide bus rapid transit includes five new routes, three operate to/from downtown Seattle

- West Seattle – 2011
- Ballard/Uptown – 2012
- Aurora Avenue – 2013
- Pacific Highway South – 2010
- Bellevue – Redmond – 2011

Sound Transit Link Light Rail

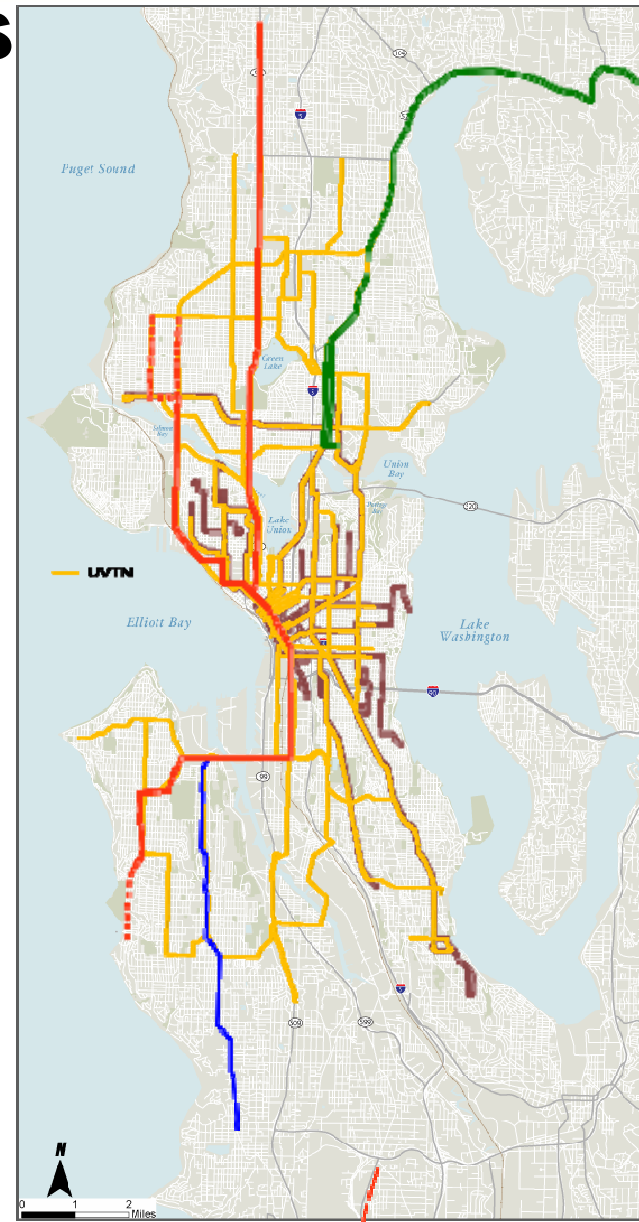
- Central Link operations begin in 2009
- University of Washington by 2016



Central Waterfront

Urban Area Transit Options

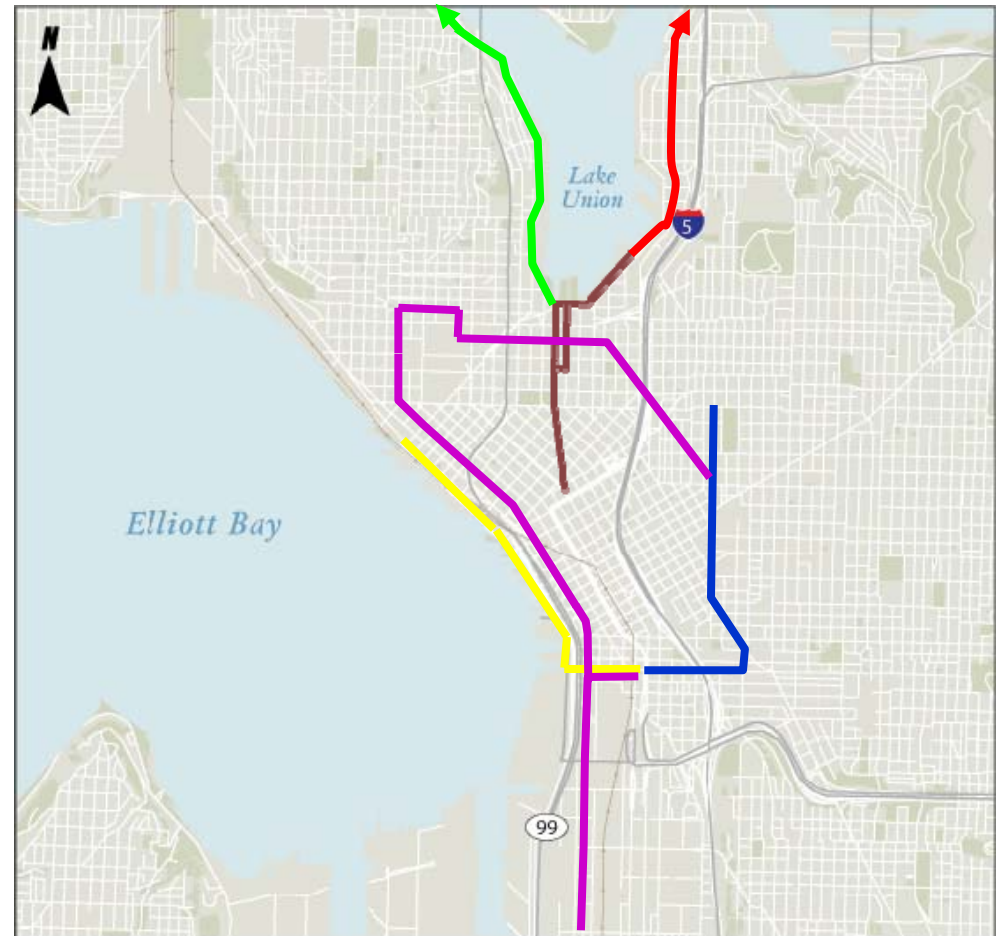
- Increase service levels and speed of **RapidRide** already planned
- Future development of light rail in West Seattle and Ballard corridors
- Future development of **RapidRide** corridors
 - Delridge Way
 - Lake City Way
- Improve speed and reliability of high ridership routes, with emphasis on electric trolley “rapid service network”
- Enhance the full Urban Village Transit Network (UVTN) with frequent, fast and reliable service and capacity to connect all Seattle’s activity centers at peak and off-peak times seven days a week



Central Waterfront

Streetcar Network Concept

- South Lake Union Streetcar
- Waterfront Streetcar
- Extend current lines
 - South Lake Union along Eastlake to University of Washington
 - South Lake Union along Westlake to Fremont
- New lines to support circulation in Center City
 - International District to Capital Hill
 - First Ave SODO to Uptown
 - Uptown to South Lake Union and Capital Hill



Central Waterfront

Regional High Capacity Transit

Sounder Commuter Rail

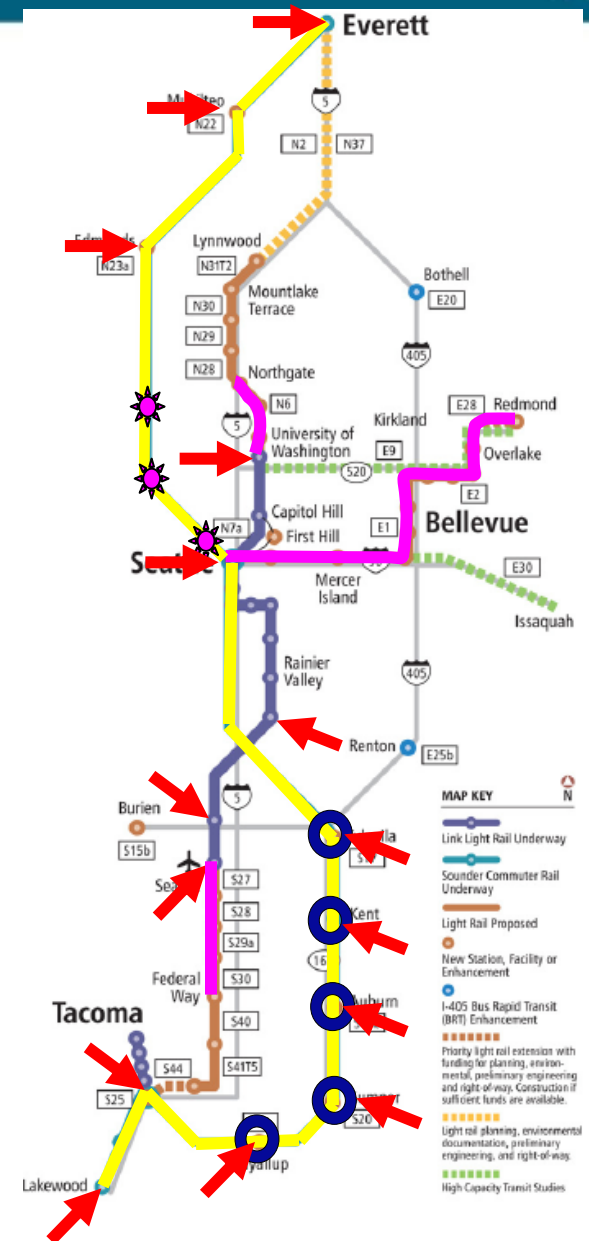
- Upgrade south corridor to all-day service
- Add two-way peak service with more cars per train
- Increase park and ride capacity where possible
- Enhance feeder bus services
- Enhance direct connections for popular destinations in Seattle, example King Street to First Hill
- ✳ Add new station locations on north line within Seattle examples: Broad St., Interbay, Shilshole

LINK Light Rail

- Expand towards Sound Transit long range plan, with priority extensions to Northgate, Bellevue/Redmond, and Federal Way

LINK feeder network

- Add connecting services at 2016 key station locations
 - SeaTac
 - International Blvd/Tukwila
 - Rainier Valley
 - University of Washington



Central Waterfront

Ferries

Passenger Ferries:

Year-around service to West Seattle by 2010

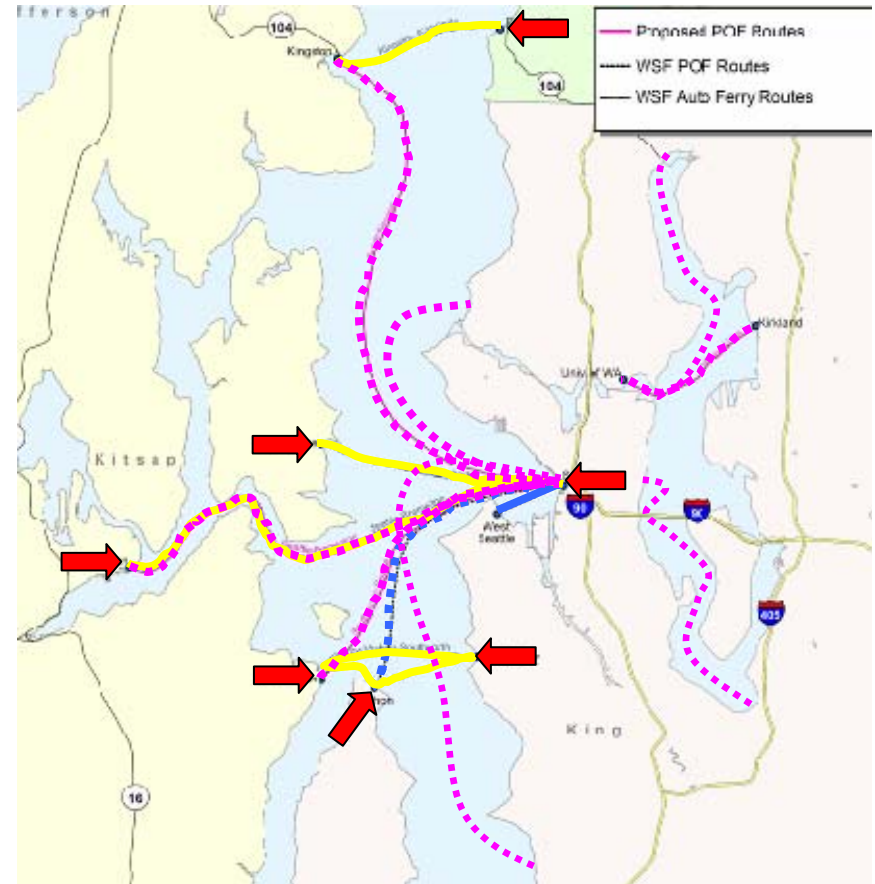
Sustained passenger ferry services for Vashon Island in 2009

Five other demonstration routes are planned

Auto-Passenger Ferries:

Support efforts to utilize people capability of the auto-passenger services

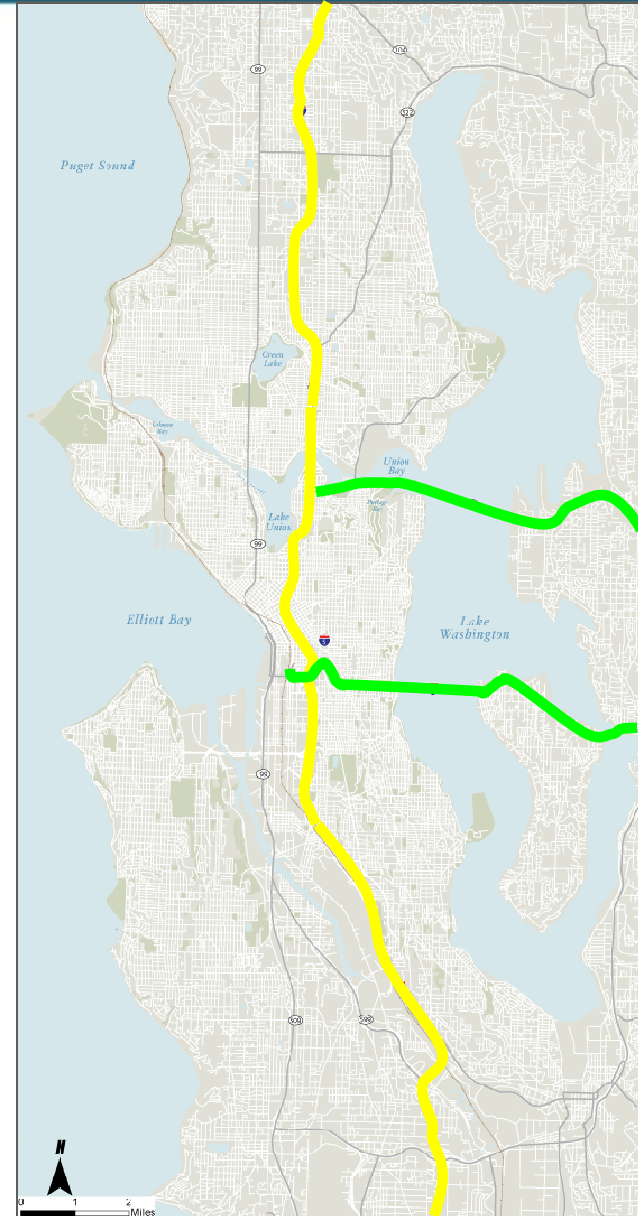
Improve transit connectivity at key locations



Central Waterfront

Create Priority Transit Pathways into Center City

- Options to better manage freeway HOV system:
 - 3+ HOV operation
 - HOT lanes using variable tolling to maintain travel speed
 - Use Active Traffic management to modify occupancy requirements as needed
- Complete two-way transit priority on I-90 and SR-520



Central Waterfront

Create Priority Transit Pathways within Center City

Aurora and 15th Avenue W/NW Transit Only Lanes

Third Avenue Transit Priority to Denny

Operate Third Avenue Transit Priority all day

Fourth Avenue S. Transit Only Lanes

SR 99 Transit HOV Lanes

Second and Fourth Avenues – add second Transit Only Lane at peak periods

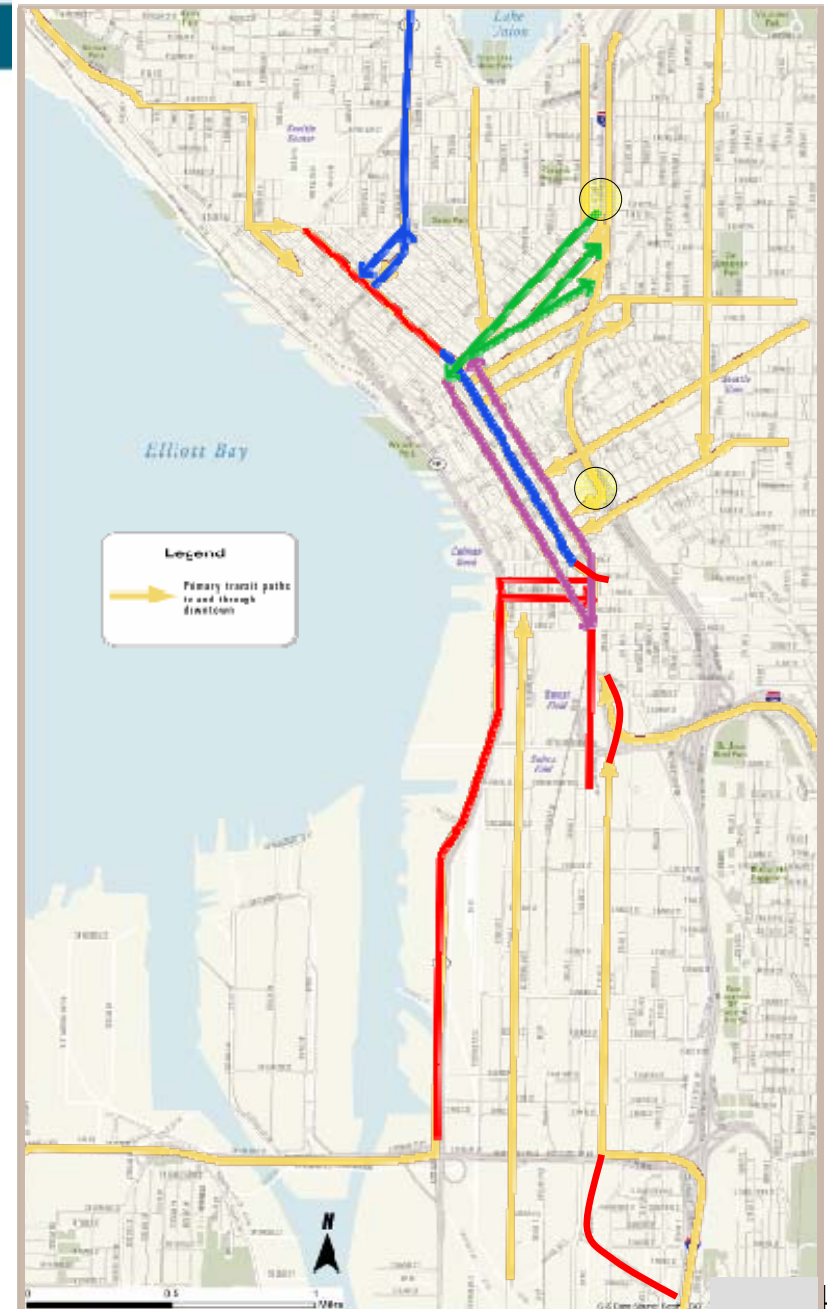
Stewart/Olive/Howell Transit Only Lanes

Two-Way Prefontaine and Extend to Fifth Avenue

Direct Connection SODO Busway to Airport Way and Fifth Avenue

Industrial Way Transit Only Ramp

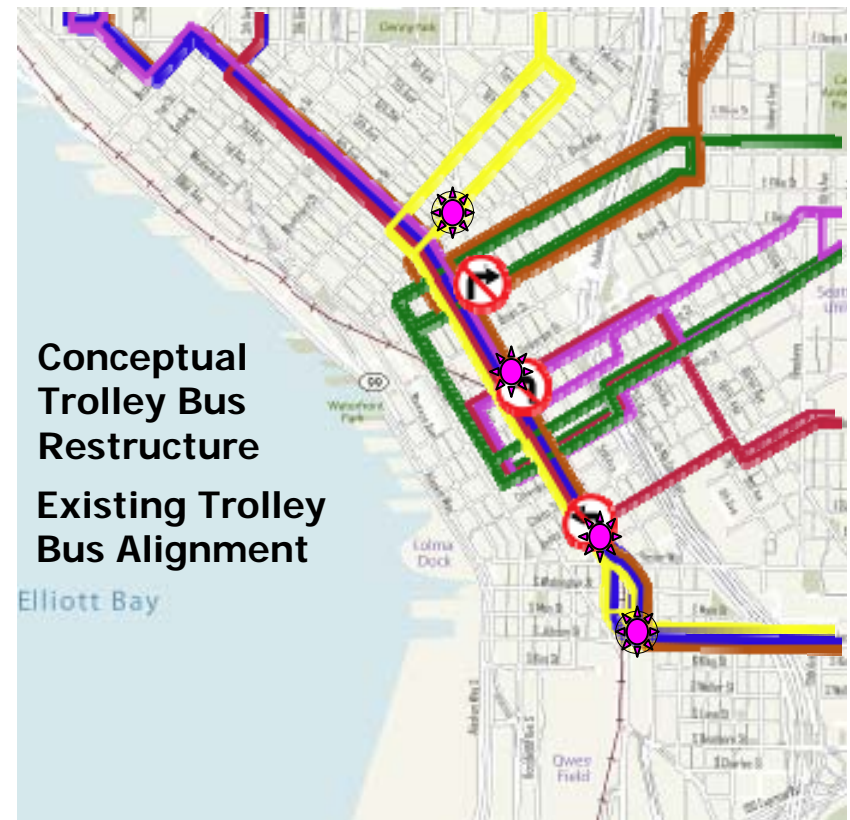
Switch HOV Priority on Cherry and Stewart Street Ramps



Central Waterfront

Manage Center City Transit Operations to Improve Capacity

- On major transit streets use intermediate bus stop pattern similar to spacing of transit tunnel stations
- Stop some routes at edge of CBD terminals with frequent, CBD circulator services
- Use LINK as a downtown circulator by interfacing buses at stations outside the CBD
- Simplify bus routes in downtown. Example: Reorganize trolley routes in downtown to an east/west and north/south orientation
 - Eliminate trolley turns on Third Avenue transit spine
 - Simplify service pattern:
 - Enable increased frequencies on core segments
 - Improve speed and reliability of priority paths



Central Waterfront

Encourage use of Complementary Services to Support or Replace Fixed Route Transit

- *ACCESS* Transportation provides mobility to those not able to use regular transit
- Vanpooling, vansharing and carpooling provide options to complement transit or serve markets not well served by transit
- Improved pedestrian connections, especially at transit hubs and throughout downtown, where walking environment supports transit access
- Complete and integrated bike network that complements and integrates with transit network



Central Waterfront

System Requirements for Service Expansion

- Electric trolley and streetcar infrastructure
- Right-of-way needed to create attractive transit services
- Passenger and route terminals and bus staging areas must fit into the urban fabric while providing convenient access for transit riders
- Maintenance facilities – Current base capacity limits growth of services

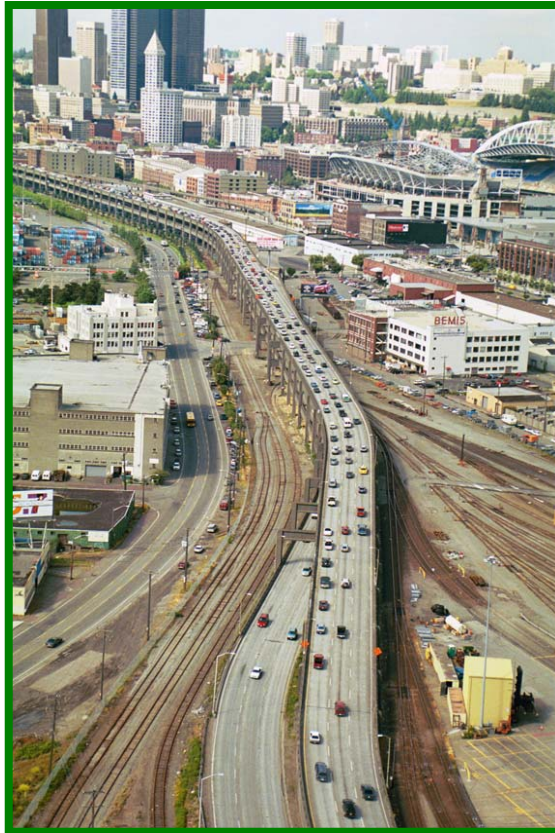


Central Waterfront

Upcoming Meetings

- April 24, 2008: Fifth Stakeholder Advisory Committee meeting
- April 28, 2008: South End Open House
- May 8, 2008: Sixth Stakeholder Advisory Committee meeting
- May 8, 2008: Central Waterfront Planning Open Houses in Downtown Seattle
- May 13, 2008: Central Waterfront Planning Open Houses in West Seattle
- May 15, 2008: Central Waterfront Planning Open Houses in Ballard

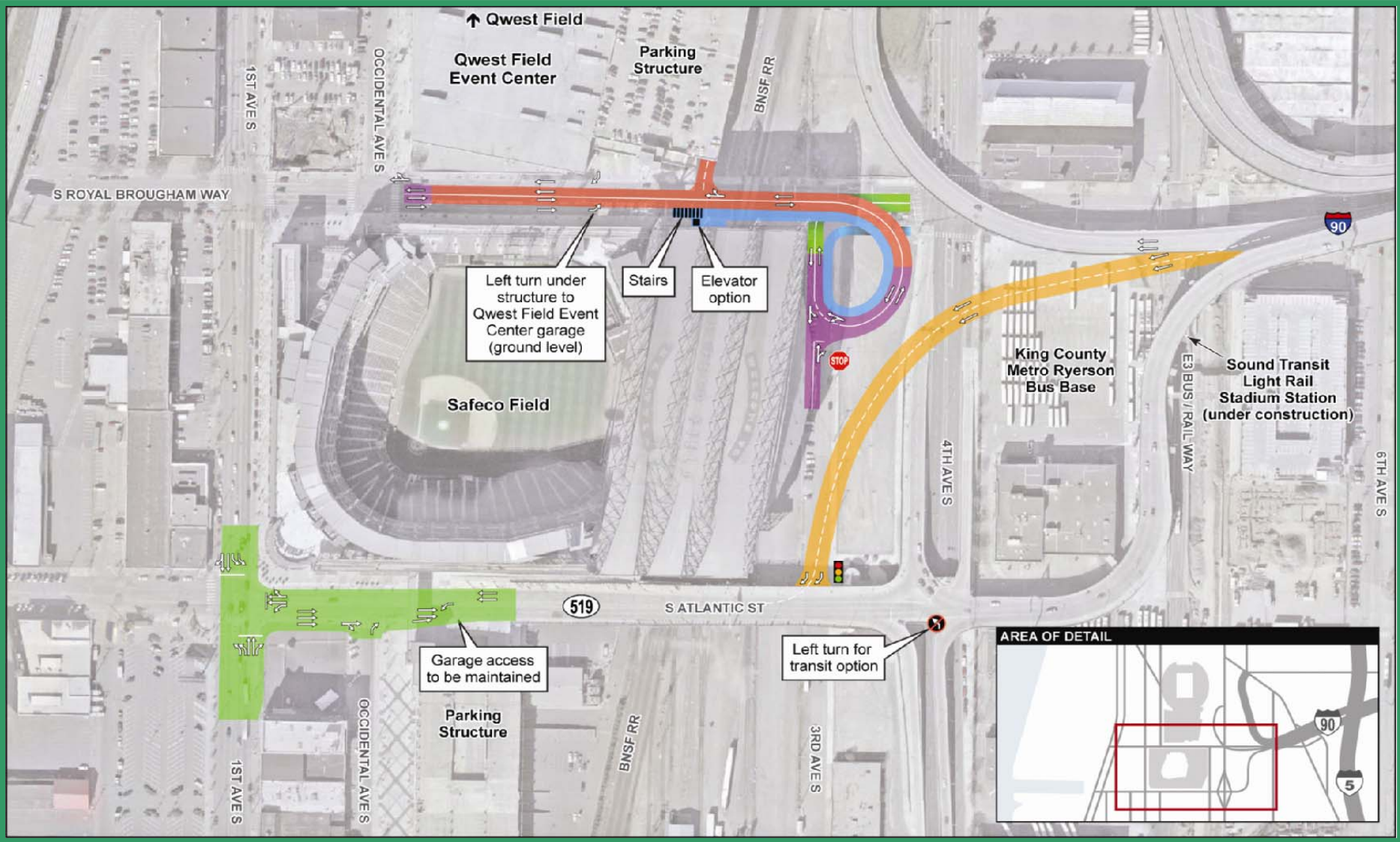
Alaskan Way Viaduct and Seawall Replacement Program



- Follow our progress:
www.wsdot.wa.gov/projects/viaduct

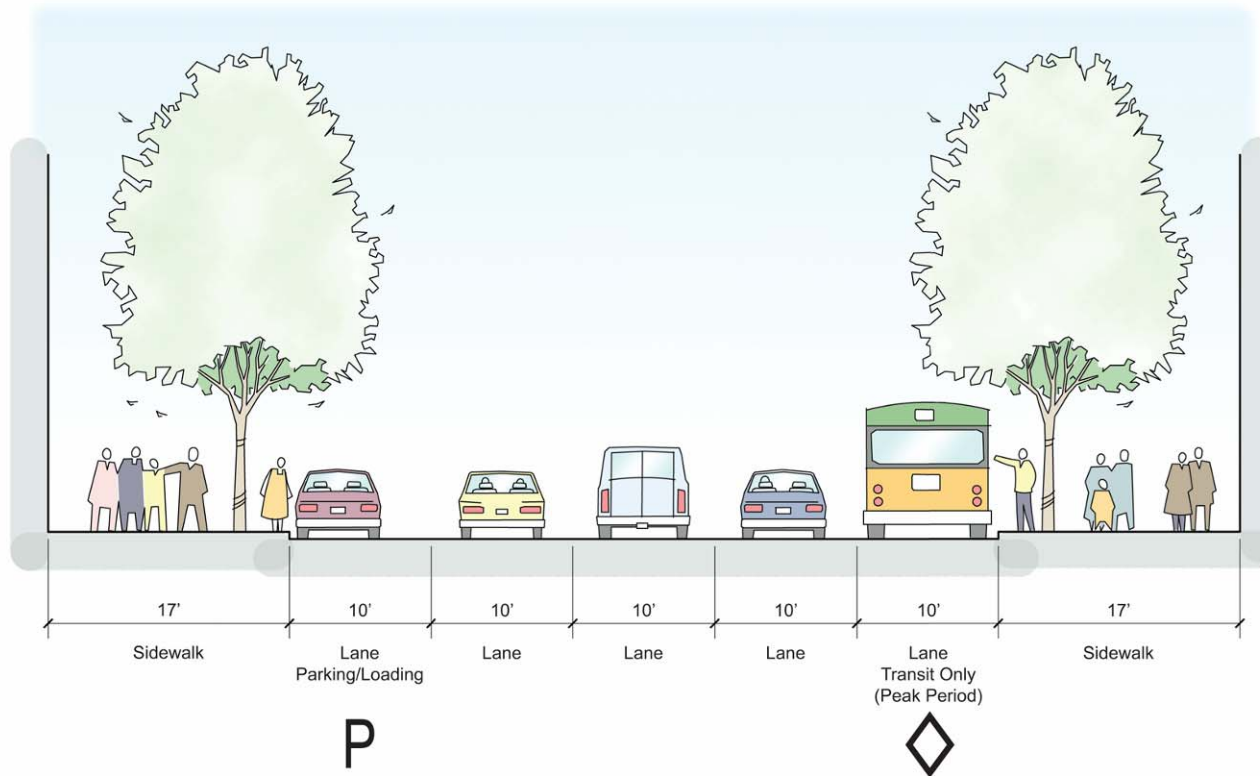
- Back Pocket

SR 519 Intermodal Access Project Map



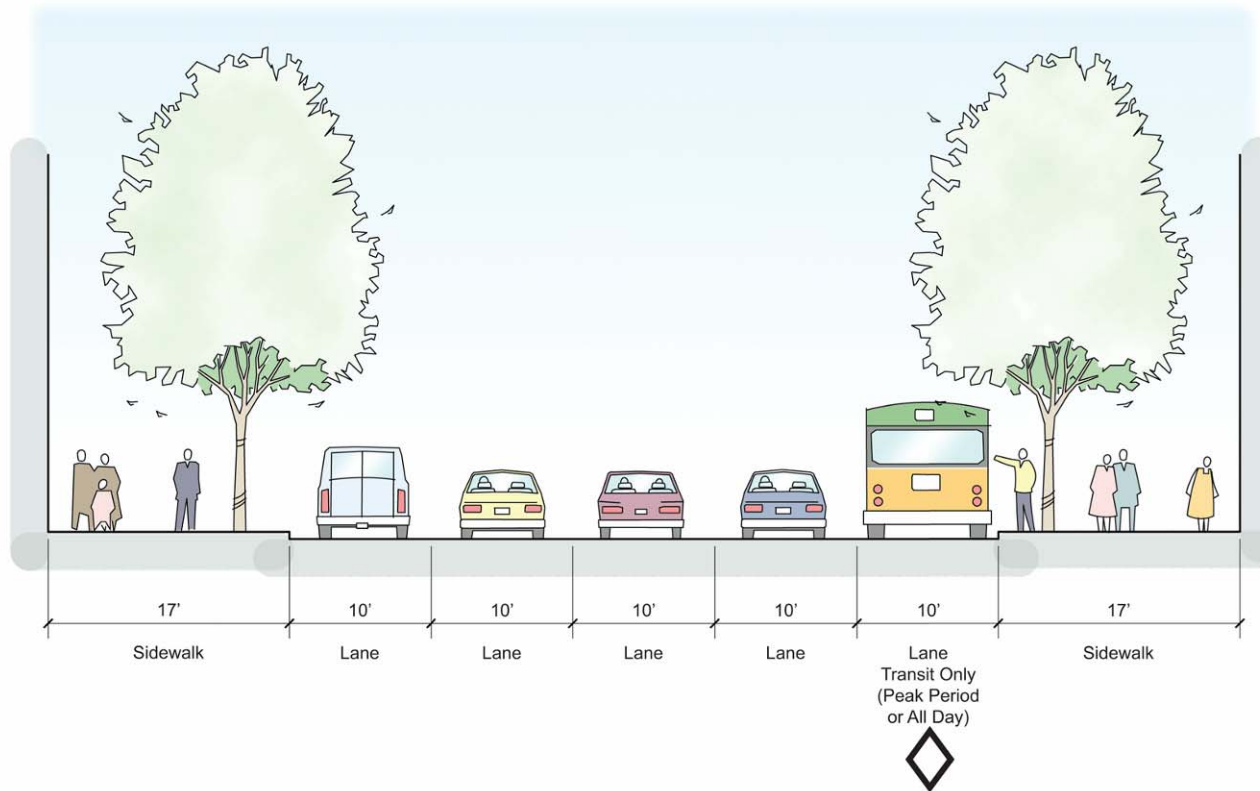
Fourth Avenue Alternatives

Existing Section @ Fourth & Seneca – Looking North



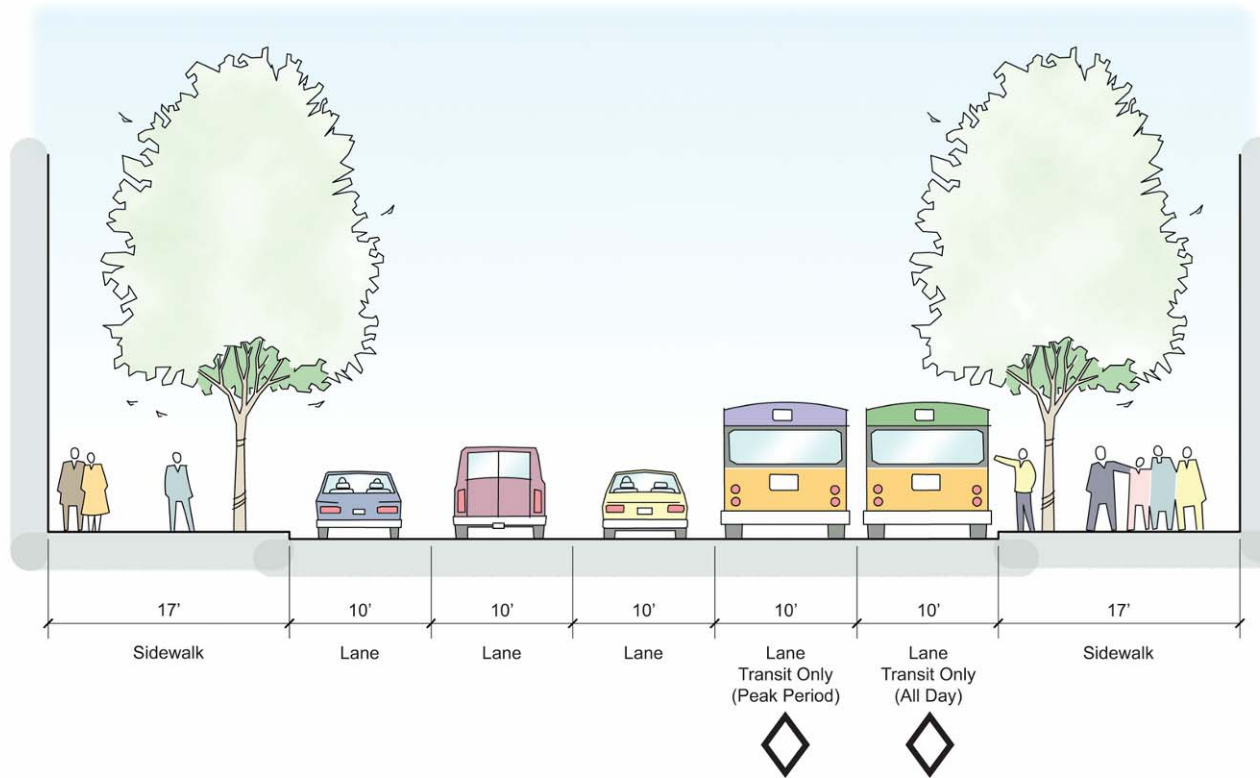
Fourth Avenue Alternatives

Maximize Vehicle Capacity



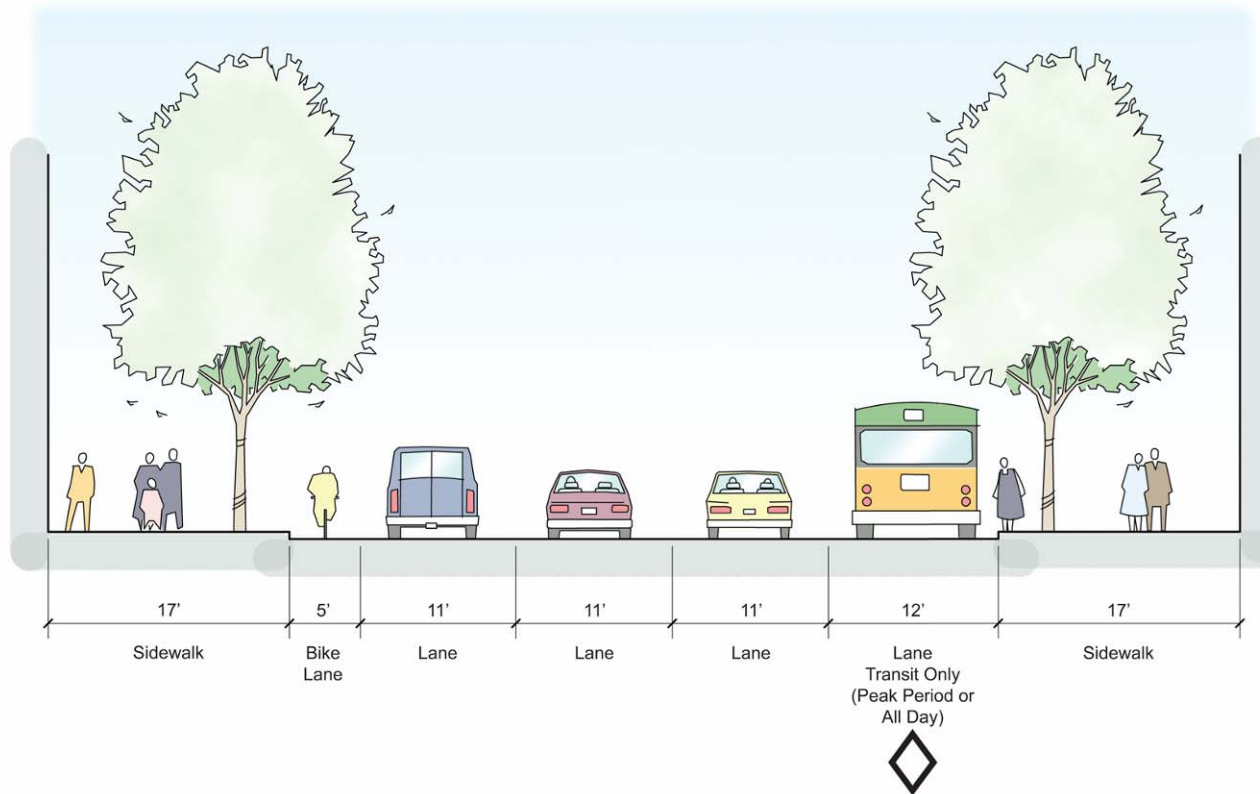
Fourth Avenue Alternatives

Improve Transit Capacity



Fourth Avenue Alternatives

Provide Dedicated Bicycle Lane and Wider Travel Lanes



Urban Mobility Plan Consulting Team:



ARCHITECTS + DESIGNERS + PLANNERS

Urban Mobility Plan

Major Tasks:

Goals & Objectives

- Guided by UMP ordinance, City Policies
- Guiding Principles for AWW Partnership

Identify Strategies

- Transit enhancements
- Surface street improvements
- Travel demand and transportation system management
- I-5, SR 99 and Alaskan Way improvements

Assess and Refine Alternatives

- Assess across goals and objectives
- Address shortcomings
- Improve where possible

Background Research

- Existing travel patterns
- Freeway removal examples
- Best practices

Develop Alternatives

- Package promising strategies
- Systematic approach

UMP Recommendation

- Plan for 2015 and 2030
- Cost estimates / funding
- Implementation strategy

Urban Mobility Plan

Building Blocks:

- Surface Streets
- Transit
- SR-99
- I-5
- Transportation Demand Management (TDM)
- Transportation System Management (TSM)



Urban Mobility Plan Final Recommendation:

- Description of plan elements
- Evaluation against goals & objectives
- Design concept for Central Waterfront
- Planning level cost estimates
- Funding plan
- Phased Implementation Strategy



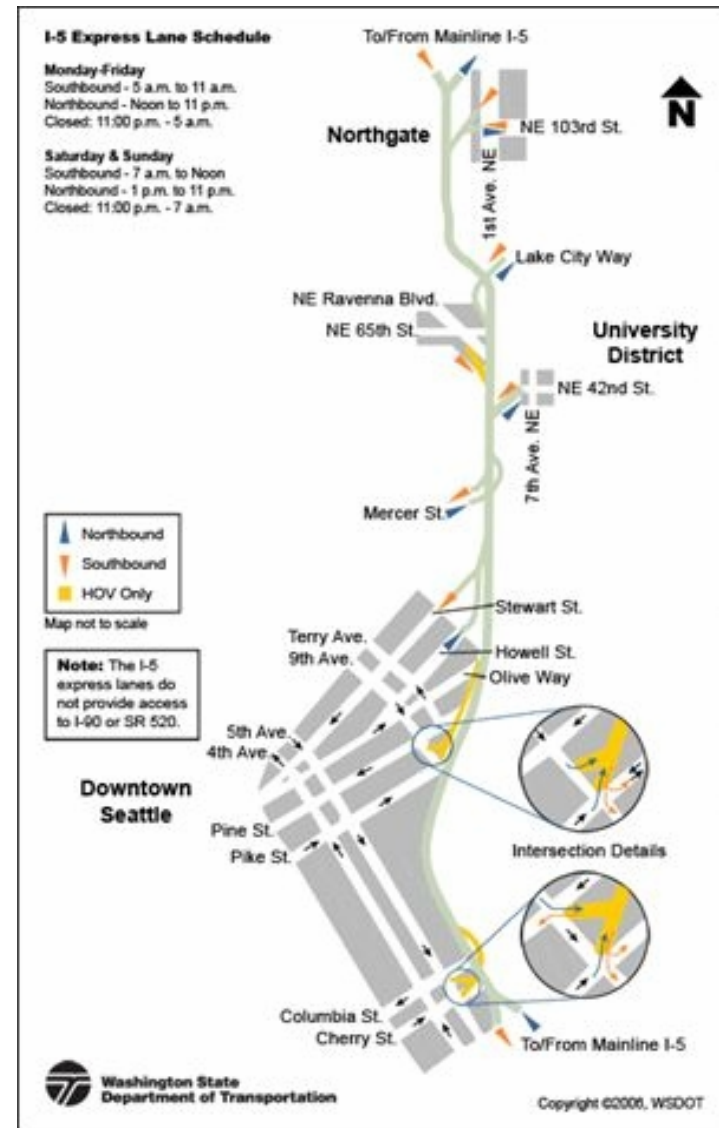
Central Waterfront

Operate the system more efficiently

Automate reversible express lanes switch over to reduce the time of “lost capacity”

Two-way HOV operations to provide reliable two way operations

Modify the north end of the reversible express lanes by separating HOV and general purpose lanes that merge into the mainline



The Alaskan Way Viaduct & Seawall Replacement Program

Moving Forward Projects

1 Viaduct Safety Repair Project between Yesler and Columbia

2 Electrical Line Relocation Project

3 Battery Street Tunnel Fire and Life Safety Upgrade Project



4 Earthquake Upgrade Project from Lenora to Battery Street Tunnel

5 Viaduct Removal from Holgate to King Street Project

6 Initial Transit Enhancements and Other Improvements

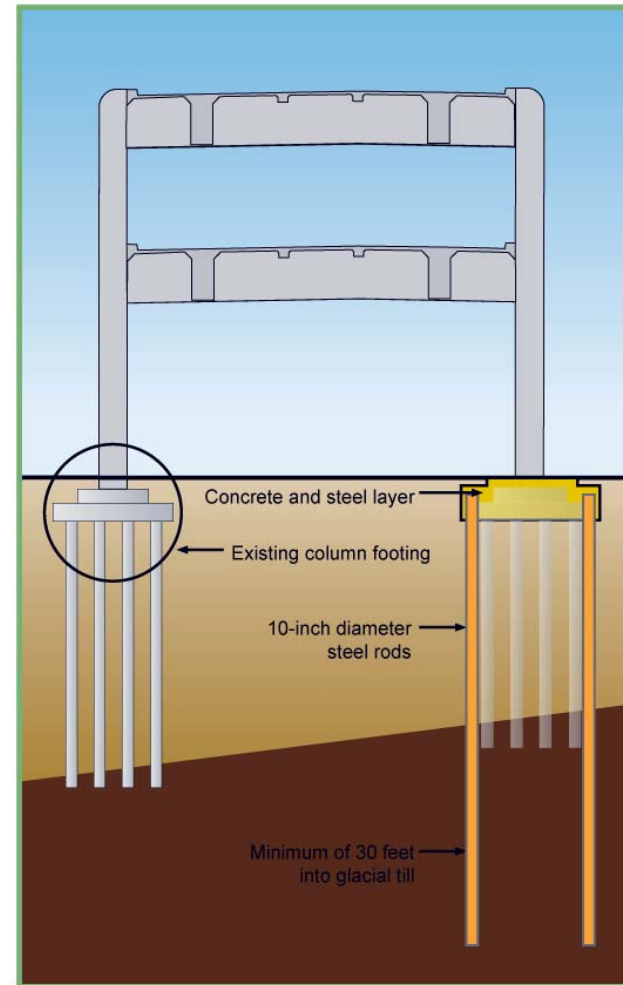
Moving Forward Projects

#1 - Repair Viaduct Between Columbia and Yesler

- Construction started in October to stabilize four footings
- Work includes:
 - Drilling a series of steel rods into stable soil
 - Placing a reinforcing layer of steel and concrete around existing footings
- All lanes are open on viaduct and Alaskan Way

Construction: Oct. 2007 – Spring 2008

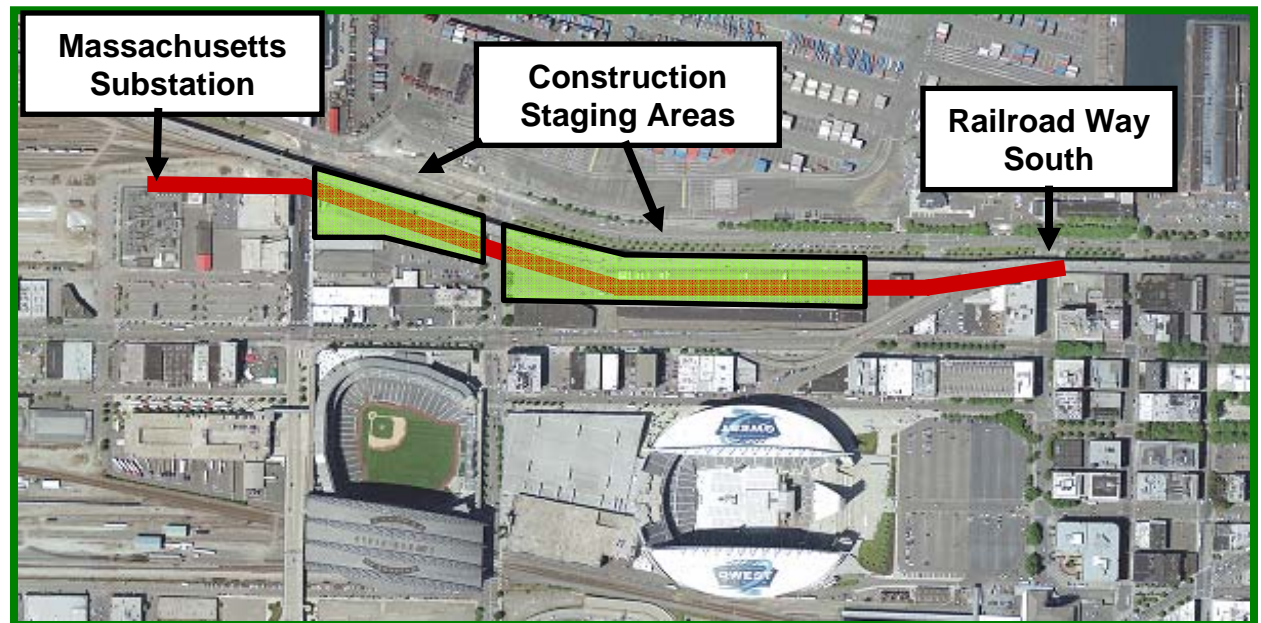
Status: In construction



Moving Forward Projects

#2 – Relocate Electrical Lines from South Massachusetts to Railroad Way South

- Relocate electrical lines east of the viaduct
- Majority of work will take place on private property west of First Avenue South



Construction: 2008 - 2009

Status: Design completed

Moving Forward Projects

#3 - Upgrade Battery Street Tunnel

- Install new sprinkler pipes, fire alarm system, ventilation fan controls and lighting
- Reinforce roof beams and add second emergency exit stairwell
- Close short on- and off-ramps just south of tunnel
- Primarily night and weekend closures

Construction: 2009 - 2010

Status: In design



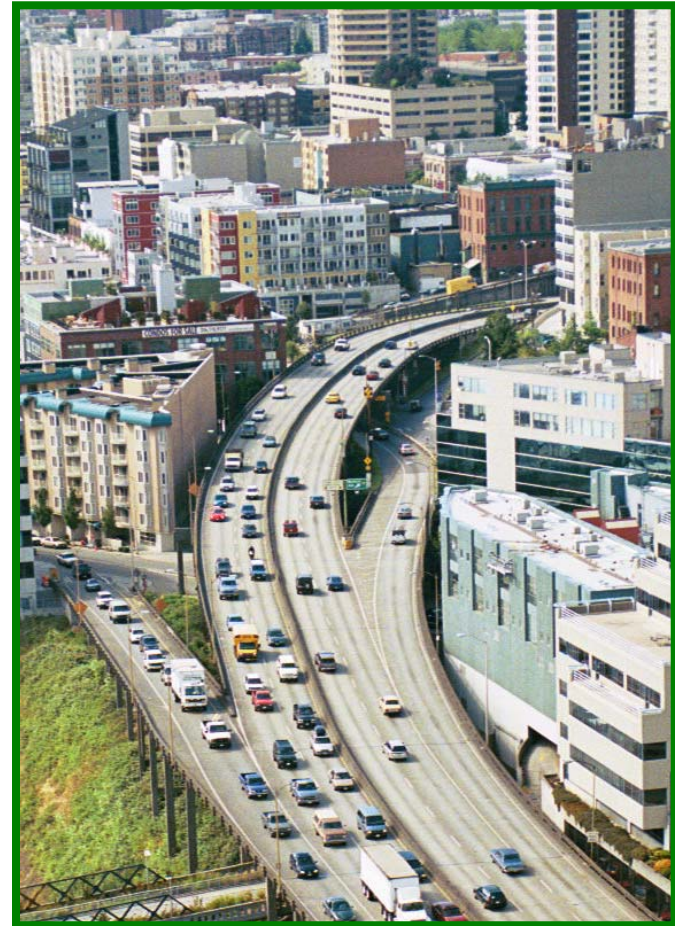
Moving Forward Projects

#4 - Stabilize Viaduct from Lenora to Battery Street Tunnel

- On hold until more is known about central waterfront

Construction: TBD

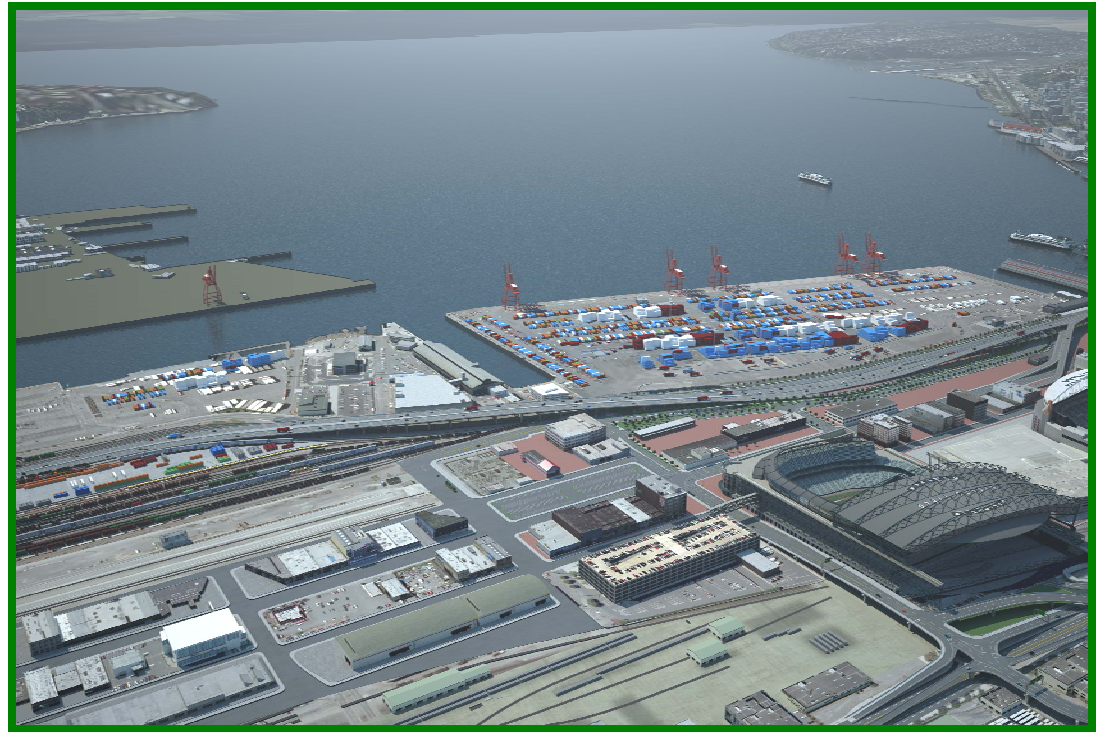
Status: 60 percent design completed



Moving Forward Projects

#5 - Replace Viaduct from South Holgate to South King

- Remove viaduct between South Holgate and South King streets
- Build new section of SR 99
- This work will:
 - Improve local mobility for pedestrians, bicyclists, vehicles and freight
 - Improve access to downtown Seattle



Construction: Fall 2009 - 2012

Status: In design





Moving Forward Projects

#6 - Transit Enhancements and Other Improvements

WSDOT, King County and the City of Seattle have agreed upon a list of projects to keep people and goods moving during SR 99 construction. These projects include:

- I-5 active travel management
- SR 519 freight connections
- S. Spokane St. improvements
- Increased bus service
- Real-time traveler information
- Commuter incentives



Construction: 2008 - 2012

Status: In design

Moving Forward Projects

#6 – Transit and Capital Improvements

WSDOT, King County and the City of Seattle have agreed upon a list of projects to keep people and goods moving during SR 99 construction. These projects include:

No	Project Name	Travel Market	Functional Goals
1	SR 519 Phase II	<ul style="list-style-type: none"> • Freight to/from Port • SODO 	<ul style="list-style-type: none"> • Highway and street system reliability • Freight connectivity
2	S. Spokane St. Widening	<ul style="list-style-type: none"> • West Seattle • SODO • Duwamish 	<ul style="list-style-type: none"> • Highway and street system reliability • Freight connectivity • Traffic redistribution
3	Elliott Ave. W. / 15 th Ave. W Corridor Improvements (ITS and transit support)	<ul style="list-style-type: none"> • Ballard • Magnolia / Interbay 	<ul style="list-style-type: none"> • Highway and street system reliability • Traveler information • ITS infrastructure to support transit signal priority and real-time transit information

Moving Forward Projects

#6 – Transit and Capital Improvements

No	Project Name	Travel Market	Functional Goals
4	West Seattle Corridor Improvements (ITS and transit support)	<ul style="list-style-type: none"> • West Seattle 	<ul style="list-style-type: none"> • Highway and street system reliability • Traveler information • ITS infrastructure to support transit signal priority and real-time transit information
5	SODO / Integrated Corridor Management Improvements (ITS and transit support)	<ul style="list-style-type: none"> • SODO • Georgetown • I-5 	<ul style="list-style-type: none"> • Highway and street system reliability • Traveler information • ITS infrastructure to support transit signal priority and real-time transit information
6	I-5 Travel Time Signs	<ul style="list-style-type: none"> • Regional thru trips on I-5 	<ul style="list-style-type: none"> • Traveler information

Moving Forward Projects

#6 – Transit and Capital Improvements

No	Project Name	Travel Market	Functional Goals
7	Secure use of new buses and transit service hours	<ul style="list-style-type: none"> • West Seattle • Burien • White Center • Ballard • Aurora • I-5 corridor 	<ul style="list-style-type: none"> • Transit capacity • Transit frequency • System reliability
8	Bus Travel Time Monitoring System	<ul style="list-style-type: none"> • Transit system 	<ul style="list-style-type: none"> • Transit system reliability
9	I-5 Active Traffic Management	<ul style="list-style-type: none"> • I-5 corridor 	<ul style="list-style-type: none"> • Freeway system reliability • Incident reduction • Severity reduction
10	Ballard and SODO Arterial Travel Time System	<ul style="list-style-type: none"> • Ballard / Magnolia / Interbay • SODO 	<ul style="list-style-type: none"> • Traveler information • Street system reliability

Moving Forward Projects

#6 – Transit and Capital Improvements

No	Project Name	Travel Market	Functional Goals
11	Denny Way Corridor ITS Improvements	<ul style="list-style-type: none"> Ballard / South Lake Union / Queen Anne 	<ul style="list-style-type: none"> Street system reliability Traveler information
12	South End Transportation Demand Management (TDM)	<ul style="list-style-type: none"> West Seattle SODO Burien / Tukwila 	<ul style="list-style-type: none"> Traveler information SOV trip reduction
13	Downtown TDM	<ul style="list-style-type: none"> Downtown Seattle Retail / Commercial 	<ul style="list-style-type: none"> Traveler information SOV trip reduction Parking management
14	In-construction Adaptation Project	<ul style="list-style-type: none"> All 	<ul style="list-style-type: none"> Project flexibility



South Spokane Street Viaduct Widening Project