

An aerial photograph of Seattle, Washington, showing a dense urban area with a grid of streets and numerous buildings. In the foreground, there is a large industrial area with several large, rectangular structures, likely warehouses or manufacturing plants. To the left, a body of water is visible, with a bridge crossing it. The sky is clear and blue.

Seattle Industrial Areas Freight Access Project

Needs Assessment and Project Evaluation



Image Credit: Port of Seattle

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Freight Advisory Board
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Outline

1. Where we are
2. Scoring performance
3. Mapping conditions
4. Review of toolbox treatments
5. Moving toward a freight project list
6. Next steps



FAB workshops

| | |
|---|-------------|
| Issues, concerns, solutions | ✓ |
| Performance Measures | ✓ |
| Summary of Existing Conditions | ✓ |
| Future Conditions I & II | ✓ ✓ |
| Identification of freight needs Preliminary list of projects | We are here |
| Recommended project list | □ |

Methodology

- Process to evaluate freight needs and develop project list

1. Evaluate freight needs

- Performance measures



2. Review assumed projects

- Projects identified through other planning efforts



3. Apply toolbox treatments

- Identify gaps
- Consider possible solutions



e.g. ITS applications

4. Develop project list

- Cost, schedule, location, etc.



Performance measures

| Goal | FAP Objective | Performance Measure | Metric or Indicator |
|---|--|---|---|
|  <p>Safety</p> | Increase safety for all modes | <ul style="list-style-type: none"> Truck safety Safety for other modes | <ol style="list-style-type: none"> Truck collision rates Collision history |
|  <p>Truck Mobility, Reliability, & Throughput</p> | Maintain and improve freight-truck mobility and access | <ul style="list-style-type: none"> Volumes & vehicle classifications Speed Travel time Buffer index | <ol style="list-style-type: none"> Daily total, truck volumes and truck percent Average speed as percent of the posted speed limit Point-to-point travel time (selected corridors) Percent travel time to arrive on time w/ 95% certainty |
|  <p>Connectivity</p> | Ensure network connectivity, especially for major freight inter-modal facilities | <ul style="list-style-type: none"> Mobility constraints | <ol style="list-style-type: none"> Operational & geometric constraints Weight and height restrictions Delay from RR and bridge closure (hours per day) Improved lane-miles of Last Mile connections |
|  <p>Environment</p> | Reduce environmental impacts | <ul style="list-style-type: none"> Congestion/delay- from speed & travel time Stormwater management | <ol style="list-style-type: none"> Qualitative assessment of environmental benefits of congestion relief and drainage improvements |

Preliminary performance scores

| | Component | Points | Maximum |
|-----------------------|--|---------|---------|
| Safety | Truck-Bike Collision | 15 | 40 |
| | Truck-Pedestrian Collision | 15 | |
| | Other truck-involved collisions | | |
| | Fatality | 15 | |
| | Injury Only | 10 | |
| | PDO Only | 5 | |
| Mobility | Travel Speed | 1 to 25 | 35 |
| | Daily Truck Volumes | 1 to 5 | |
| | Truck Percentage | 1 to 5 | |
| Connectivity | Railroad Crossings | | 25 |
| | Mainline | 15 | |
| | Tail Track | 10 | |
| | Spur | 5 | |
| | Geometric Constraints | 10 | |
| | Intersection Operations | 10 | |
| | Infrastructure Limitations (weight & height rest.) | 5 | |
| Total Possible Points | | | 100 |

Performance: Mapping conditions



Safety Evaluation - Existing Condition

FIGURE 1



Safety



Mobility Evaluation - Existing Condition

FIGURE 2



Mobility



Connectivity Evaluation - Existing Condition

FIGURE 3



Connectivity

Composite Score

- Sum of the safety, mobility, and connectivity scores

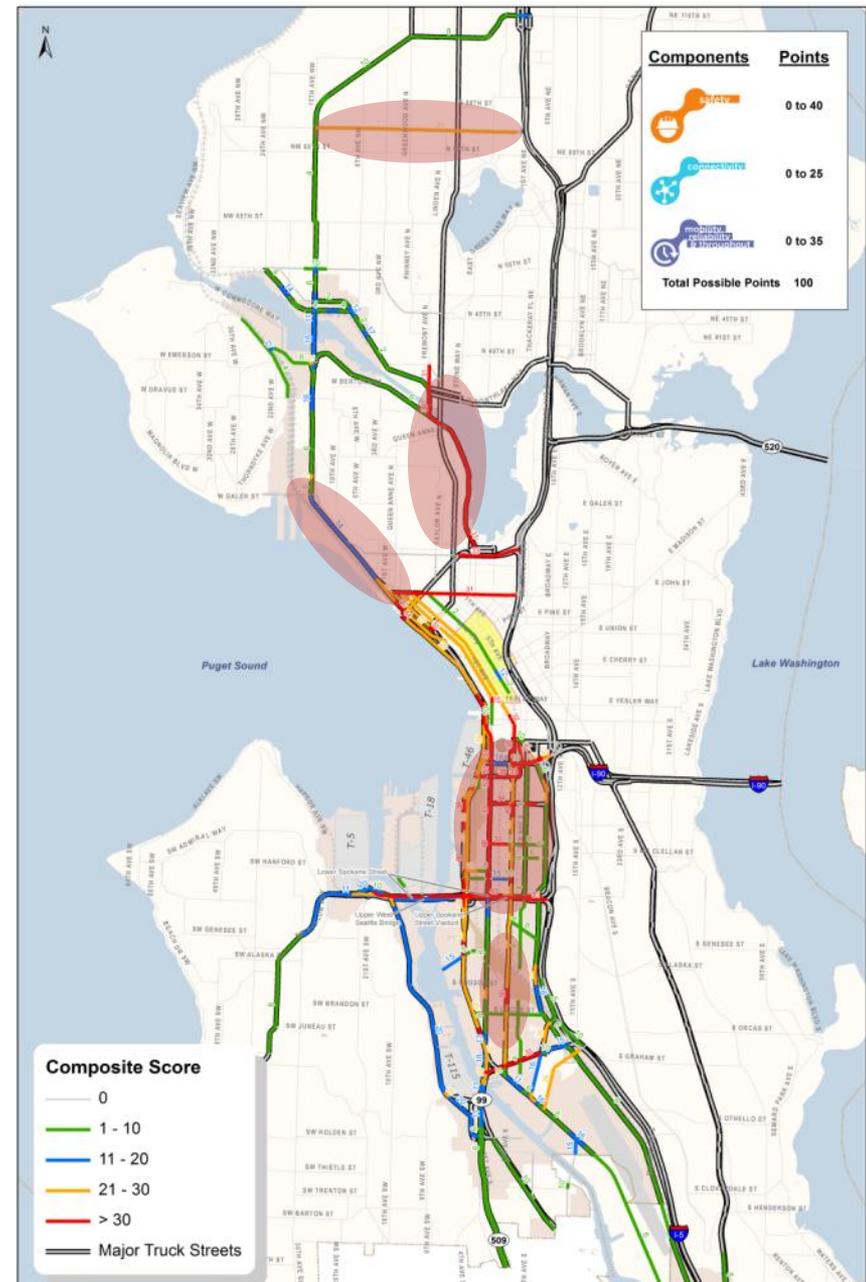
| Components | Points |
|---|------------|
|  Safety Score | 0 to 40 |
|  Mobility Score | 0 to 35 |
|  Connectivity Score | 0 to 25 |
| Total Possible Points | 100 |



Composite Score

- Sum of the safety, mobility, and connectivity scores

| Components | Points |
|---|------------|
|  Safety Score | 0 to 40 |
|  Mobility Score | 0 to 35 |
|  Connectivity Score | 0 to 25 |
| Total Possible Points | 100 |



Future conditions

Determine project needs

- Review results from condition assessment
- Determine data or analysis gaps due to data or analysis limitations



Assumed improvements

- Transportation projects identified in previous planning efforts
- Major projects include:
 - Alaskan Way Viaduct Replacement
 - Mercer Street Improvements
 - Seattle Waterfront / Alaskan Way
 - Lander Street Grade Separation

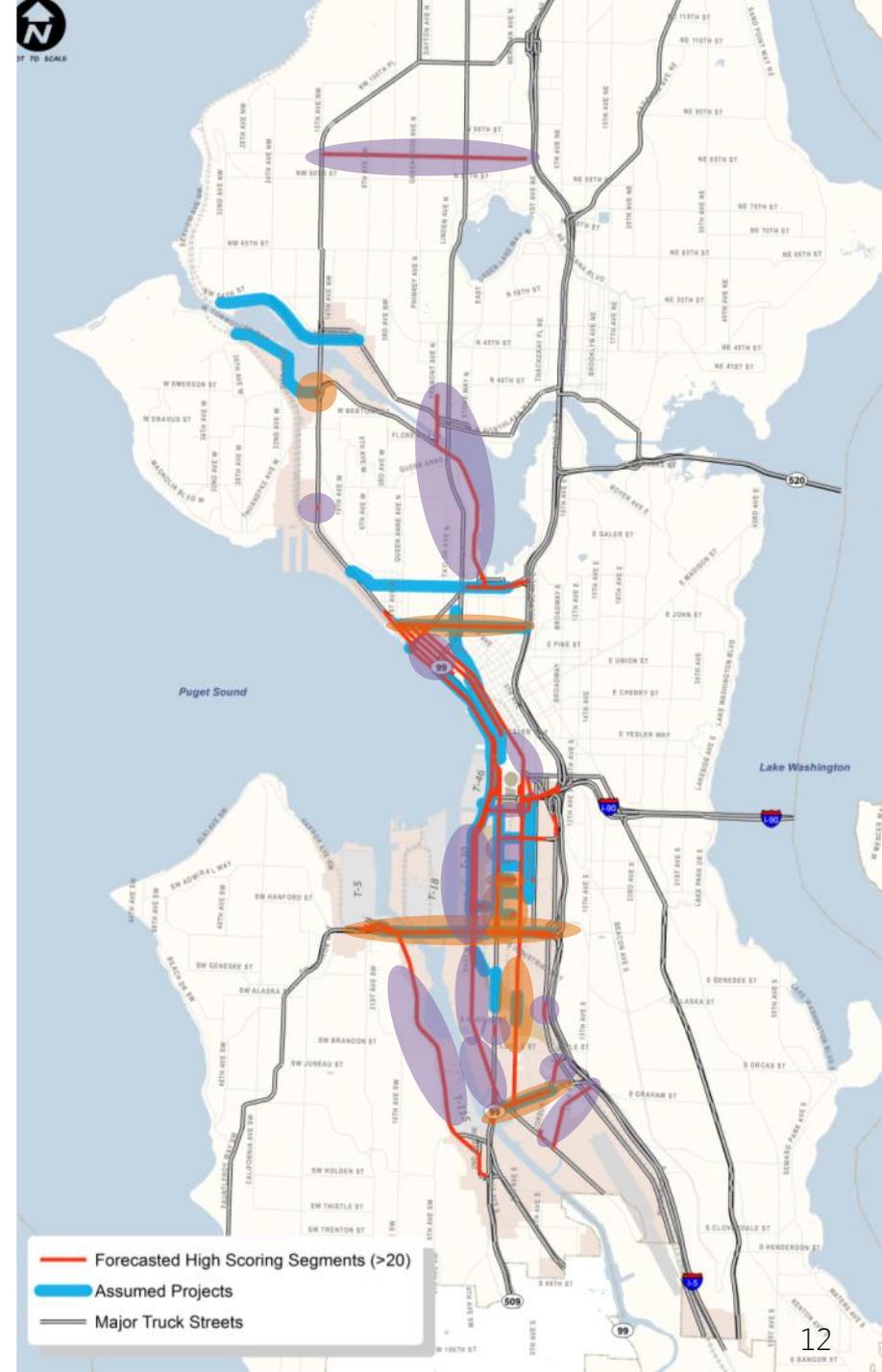


Identify needs

- Identify gaps not covered by existing project definitions

Options to address gaps

1. Refine/expand previously identified project
2. Identify new projects and programs



Freight toolbox treatments

- Freight-specific tools for developing the project list

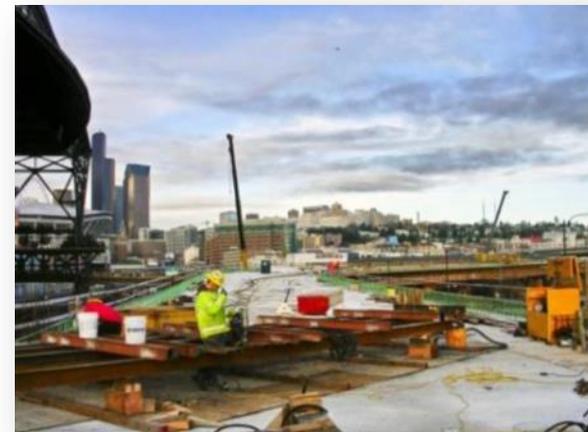


Freight toolbox elements

- Maintenance and repair
- Capital investments
- ITS applications
- Intersection operational changes
- Wayfinding for trucks
- Geometric improvements
- Freight management



Maintenance and repair



Capital investments

Freight toolbox elements



ITS applications



Intersection operational changes



Wayfinding for trucks



Geometric improvements



Freight management

Apply toolbox treatments

- Verify condition assessment and determine project need.
- Analysis didn't pick up locations we know need attention.
- Scale or granularity not addressed—yet.
- Technology can only do so much, still need humans.
- Next slides are a smorgasbord of concepts.
- What makes sense, what doesn't, what's missing?

Maintenance and repair

Preliminary Projects

E Marginal Way S Rebuild

NW Market St / Leary Way / N 36th St

S Atlantic Street Rebuild

S Hanford Street Rebuild

Northgate Way / Holman Rd / 15th Ave / Elliott Ave Rebuild

S Lucile Street Rebuild

Colorado Avenue (access road) Rebuild

Diagonal Avenue S / S Oregon St / Denver Avenue S Rebuild



Capital investments

Preliminary Projects

Hanford & Main SIG's Entry Gate Improvements

South Lander Street Grade Separation

1st Avenue South Viaduct over UPRR Yard

4th Avenue South Viaduct over UPRR Yard

West Emerson Street / 21st Avenue West / West Commodore Way



ITS applications

Preliminary Projects

Next Generation ITS Improvements

Railroad Crossing ITS implementation

City Center Dynamic Signal Timing

Railroad Crossing Information Signs

Access Seattle Mobile App

1st Ave S ITS

Denny Way ITS

South Spokane Street ITS

SODO Phase 1 ITS

I-5 Connector ITS

S Michigan Street ITS

1st Ave S Bridge

Freight Position within TMC



Intersection operations

Preliminary Projects

16th Ave S and E Marginal Way S
Intersection

NW Leary Way / 46th Street

Airport Way S / Edmunds Street

1st Avenue and Atlantic



Geometric improvements

Preliminary Projects

West Marginal Way / Chelan Street

W Dravus St and 15th Ave Intersection

15th Av NW and NW Market St Intersection

15th Ave W and Emerson St Intersection Improvement

Airport Way S and Edmunds St Intersection

E Marginal Way S and Corson St Intersection

S Cloverdale on-ramp to SR 99

S Dallas St and 14th Av S Intersection



Freight management

- Possible programmatic approaches to address on-going freight needs:
 - Truck operational problems
 - Freight signal priority at intersections
 - Turn-radii and maintenance program
 - Include freight design standards in SDOT ROW Improvements Manual
 - Utilize improved truck data

Develop project list

- Identify relevant projects assumed from other planning efforts which address corridor and intersection problems in the study area
- Identify new projects that address corridor and intersection problems in the study area

Prioritize projects

- Factors for consideration in prioritization process:
 - Freight conditions score
 - Location on Major Truck Street, Heavy Haul Route, or First/Last Mile Connection
 - Environmental concerns
 - Cost estimate
 - Timing of need
 - Others?

Project summary sheets

Project #34
Advanced Traveler Information and Warning Systems at Railroad Crossings

| Freight Need | Description |
|---|---|
|  <p>1. Delay at RR crossings</p> | There are five (5) mainline railroad crossings at Broad Street, Lander Street, Spokane Street, Holgate Street, and that block roadways for extended periods of time. Providing advanced traveler information and warning through early train detection will result in less delay at the crossing. As part of this project, verifying warning signage will also improve safety at these locations. |

| Toolbox Treatment | Project Benefits | Cost Estimate |
|--|--|---------------|
| <ul style="list-style-type: none"> ✓ ITS Improvements | <ul style="list-style-type: none"> ✓ Reduced traveler delay ✓ Improved safety ✓ Fewer idling vehicles | \$XXX,000 |

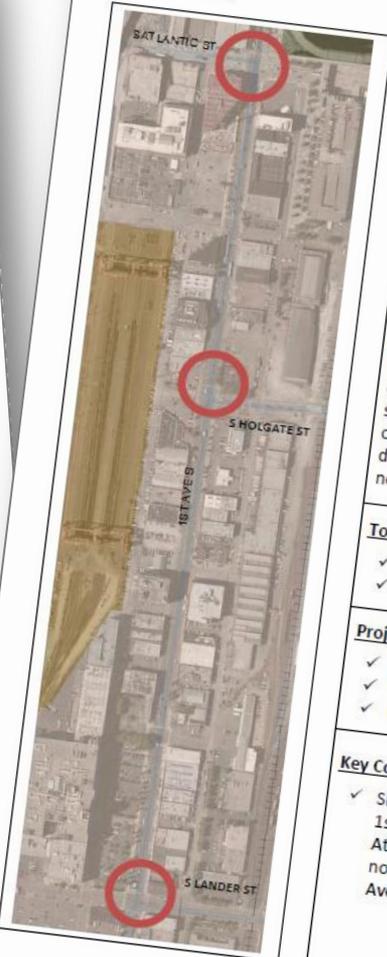
Location



Key Components

- ✓ Add variable message sign displaying information for when train will arrive, and how long
- ✓ Add signage detailing alternate routes for pedestrians

Project #35



1st Avenue S Signal Timing and ITS Updates

| Freight Need | Description |
|---|--|
|  | <ol style="list-style-type: none"> 1. Peak Period Congestion 2. Many truck-vehicle collisions since 2011 3. Multiple Signals require retiming |

Description

Data collected in 2013 shows that multiple intersections along 1st Avenue South are forecasted to operate at an LOS E or F by 2035. By installing ITS equipment that will enable "Freight Priority" as well as signal re-timing, freight vehicles will have to stop less often providing them with faster travel between local destinations and heavy haul routes on the freight network.

| Toolbox Treatments | Cost Estimate |
|---|---------------|
| <ul style="list-style-type: none"> ✓ Intersection operations ✓ ITS Improvements | \$XXX,000 |

Project Benefits

- ✓ Improved Freight Mobility
- ✓ Reduced Greenhouse Gases
- ✓ Low Cost Improvement

Key Components

- ✓ Signal retimings at 1st Ave S / S Holgate Street, 1st Ave S / S Lander Street, and 1st Ave S / S Atlantic Street to add heavy vehicle priority for northbound and southbound movements on 1st Avenue S

Next steps

| | |
|-----------------------|-------------------------------|
| October / November | Prepare Draft Recommendations |
| December | Final report |

Questions?

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www.seattle.gov/transportation/freight_industrialareas.htm

<http://www.seattle.gov/transportation>

