Item: 2A
Date: 10/05/22

Port of Tacoma: Roadway Infrastructure Priorities

October 5, 2022

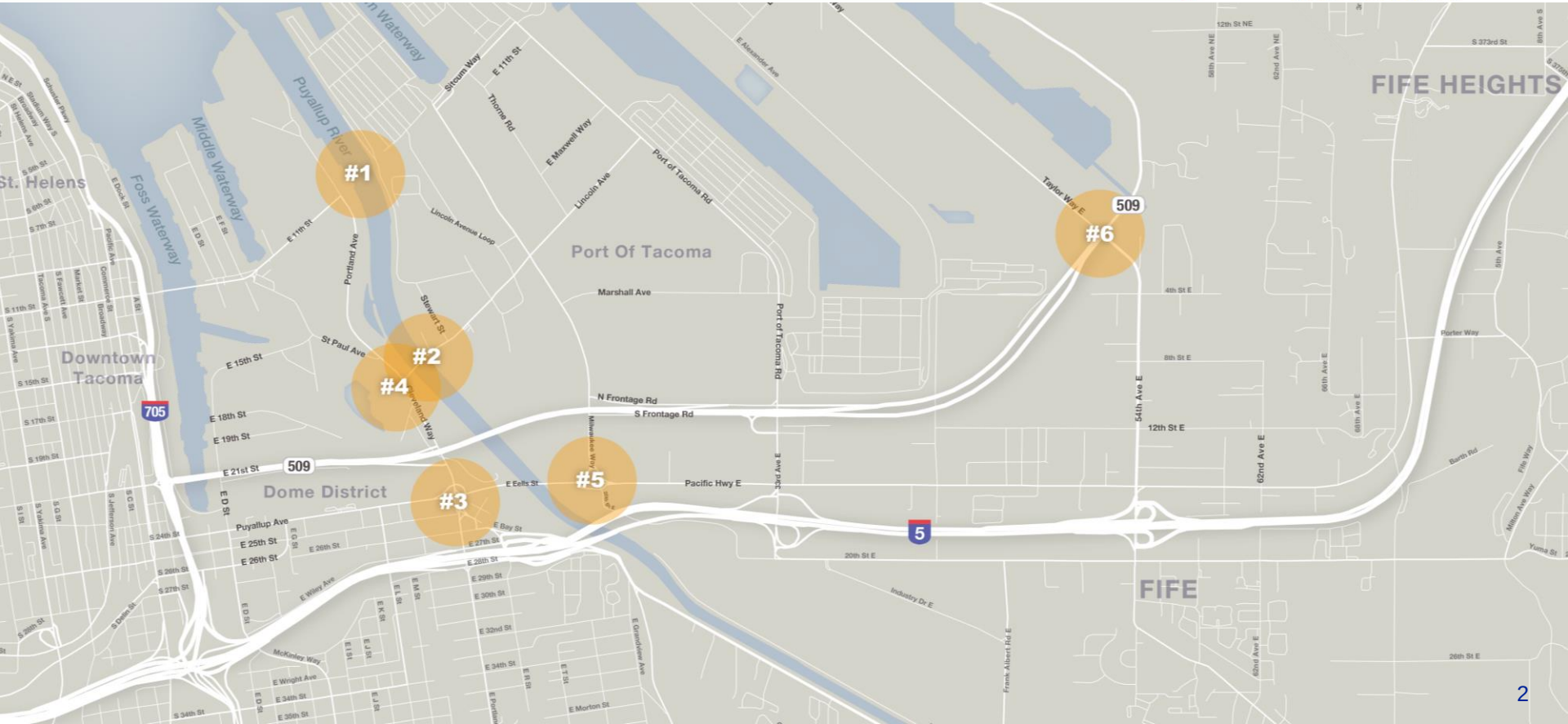
Joint Study Session
Port of Tacoma Commission
City of Fife Council

Christine Wolf, Senior Planner

Port of Tacoma
People. Partnership. Performance.

Project Locations

Port Roadway Infrastructure Priorities



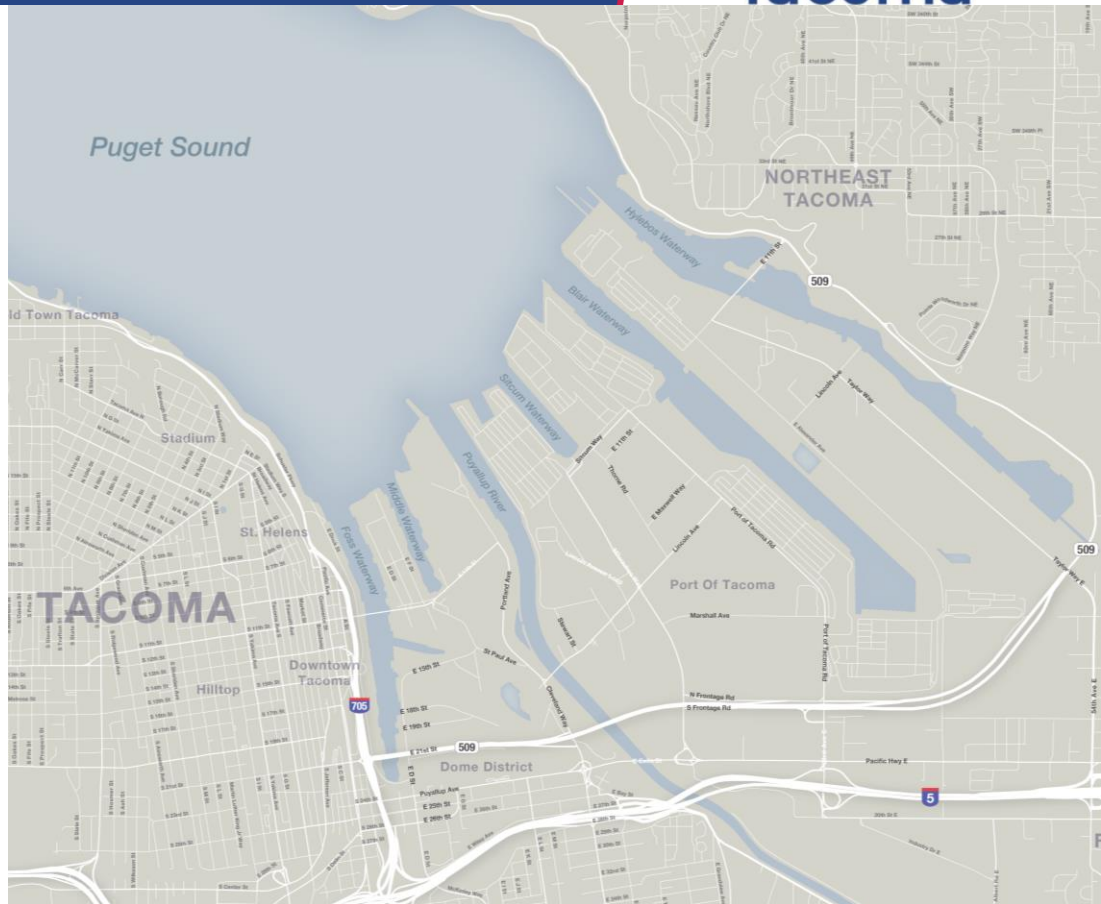
Agenda
Port Roadway Infrastructure Priorities

- Analysis tools and approach
- Projects
- Evaluation criteria and methodology
- Project evaluation results

Analysis Approach

Port Roadway Infrastructure Priorities

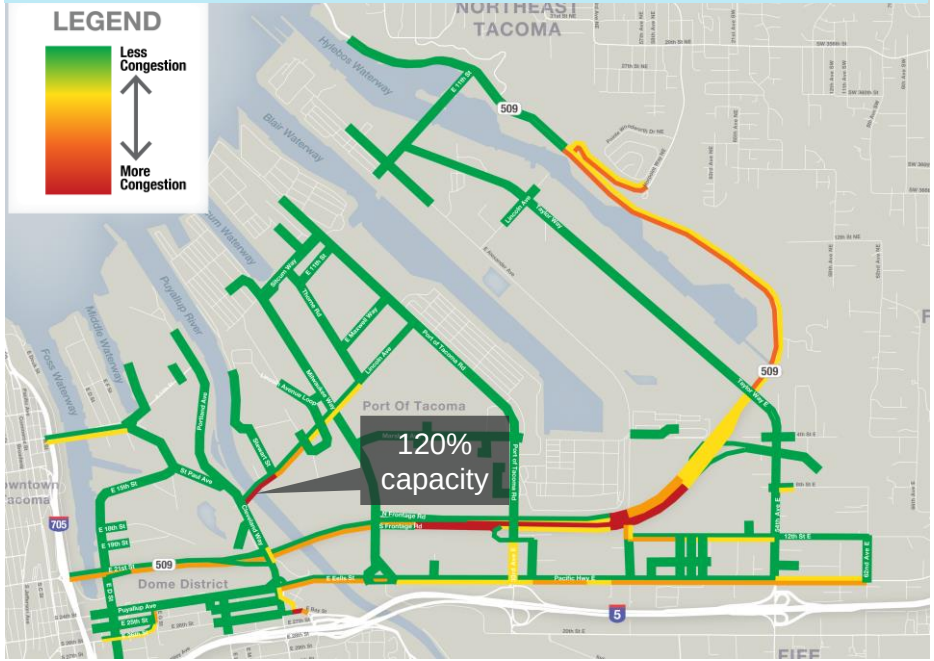
- Analyze current and future demand on the system
- Review partner agency projects
- Identify projects that improve truck access and reliability within the Tideflats
- 10-year timeframe
- Assume completion of:
  - Gateway Program Phases 1B and 2
  - Port of Tacoma Road I-5 Interchange Phases 2 & 2B



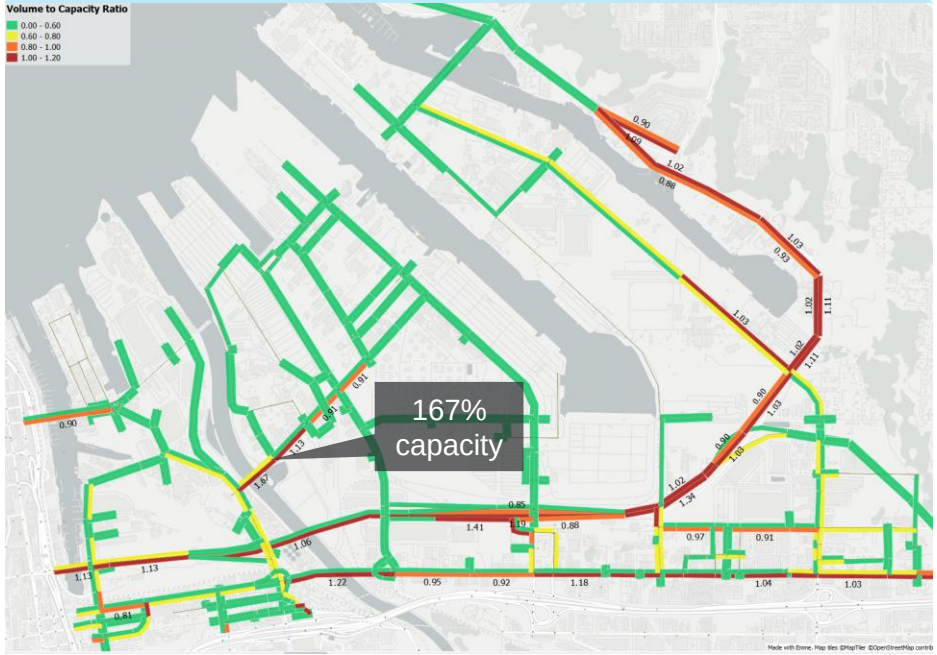
Change in Demand: Morning Congestion (6 to 9 AM)

Port Roadway Infrastructure Priorities

Existing (2018)



Future (2040) Baseline with Funded Projects

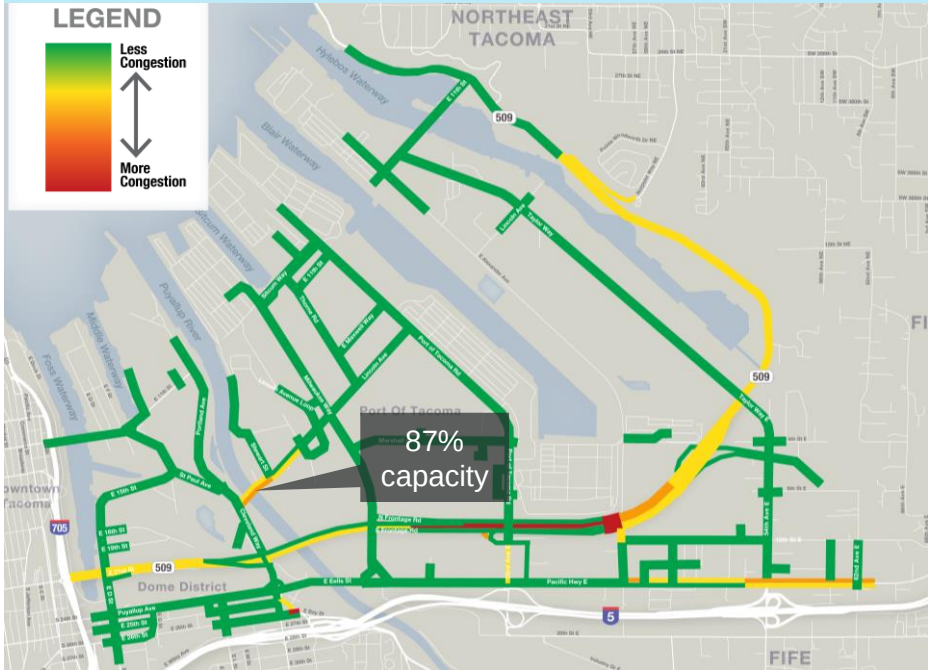


Existing and future congestion caused by demand on the system expressed as Volume to Capacity Ratio

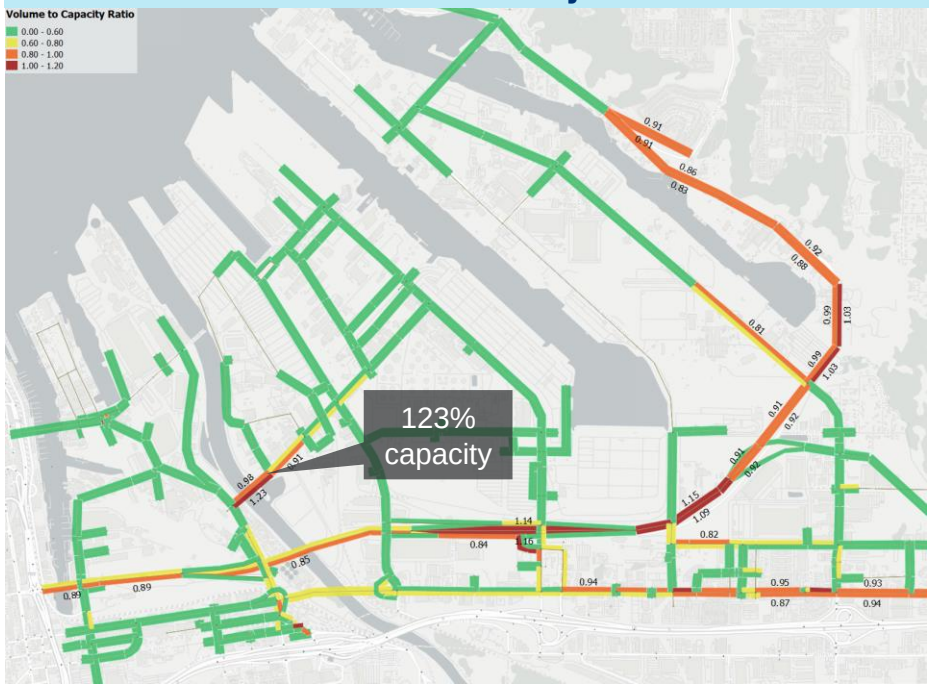
Change in Demand: Mid-day Congestion (9 AM to 3 PM)

Port Roadway Infrastructure Priorities

Existing (2018)



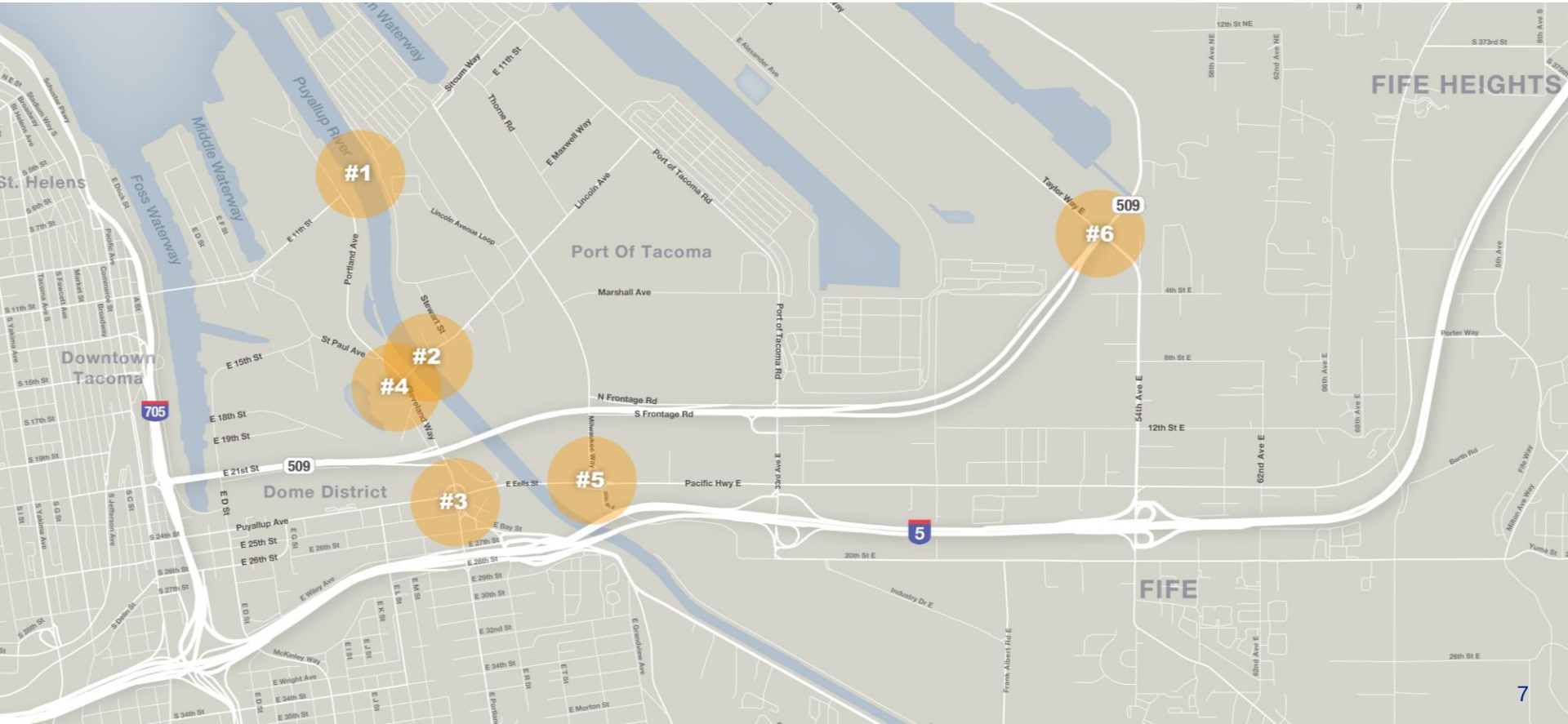
Future (2040) with Funded Projects



Existing and future congestion caused by demand on the system expressed as Volume to Capacity Ratio

Project Locations

Port Roadway Infrastructure Priorities



Projects

Port Roadway Infrastructure Priorities

1. Replace East 11th Street Bridge
2. Widen Lincoln Avenue Bridge
3. Make Portland Avenue Freight and Access Improvements
4. Improve Lincoln Avenue / Portland Avenue Intersection
5. Replace Fishing Wars Memorial Bridge and improve Pacific Hwy / Milwaukee Way / 20th St Intersection
6. Improve 54th Avenue (Taylor Way) / SR 509 Intersection

PROJECT #1

Replace East 11th Street Bridge

Project #1 - Replace East 11th Street Bridge

Description

Rebuild bridge that has been closed since 2014 due to safety concerns

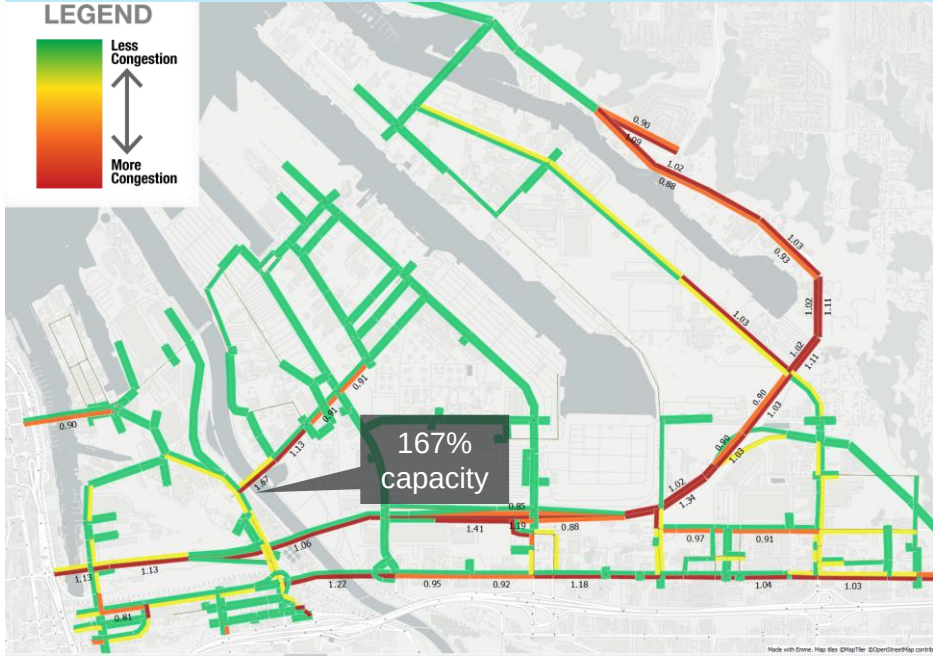
Intended Results

- Additional truck route across the Puyallup River
- Reduced truck volumes on adjoining facilities
- Increased system resiliency
- Improved emergency access, egress and response

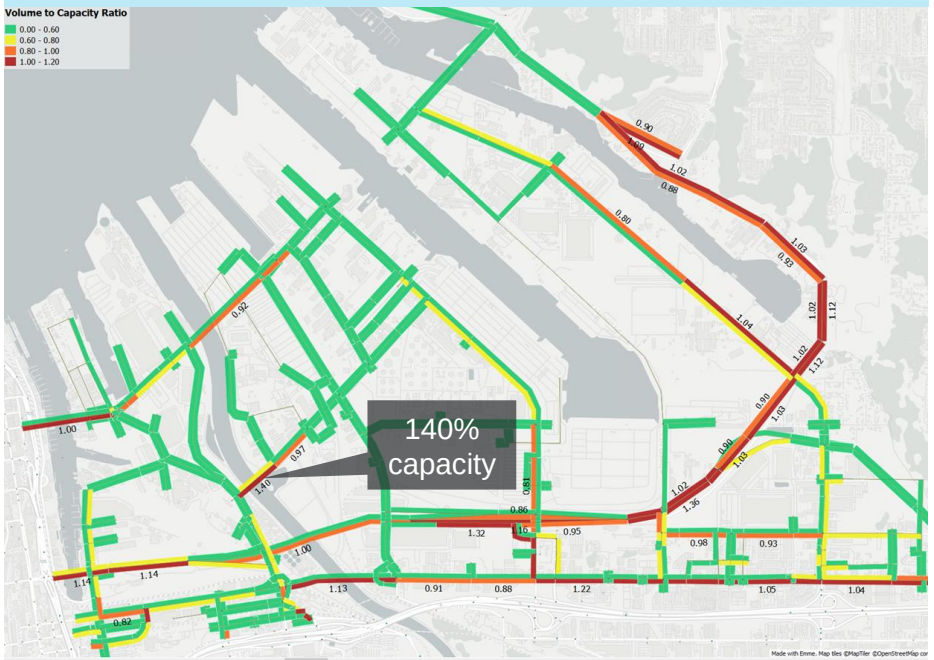
Project #1 – Replace East 11th Street Bridge

AM Congestion (6 to 9 AM) Comparison

2040 Baseline with Funded Projects



2040 Baseline plus East 11th Street Bridge

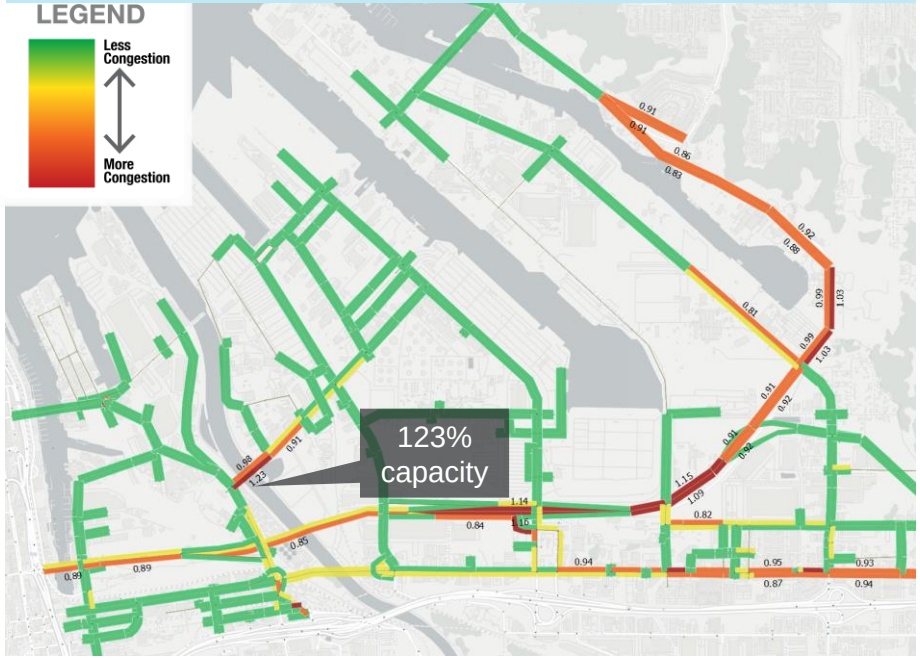


Congestion expressed as Volume to Capacity Ratio

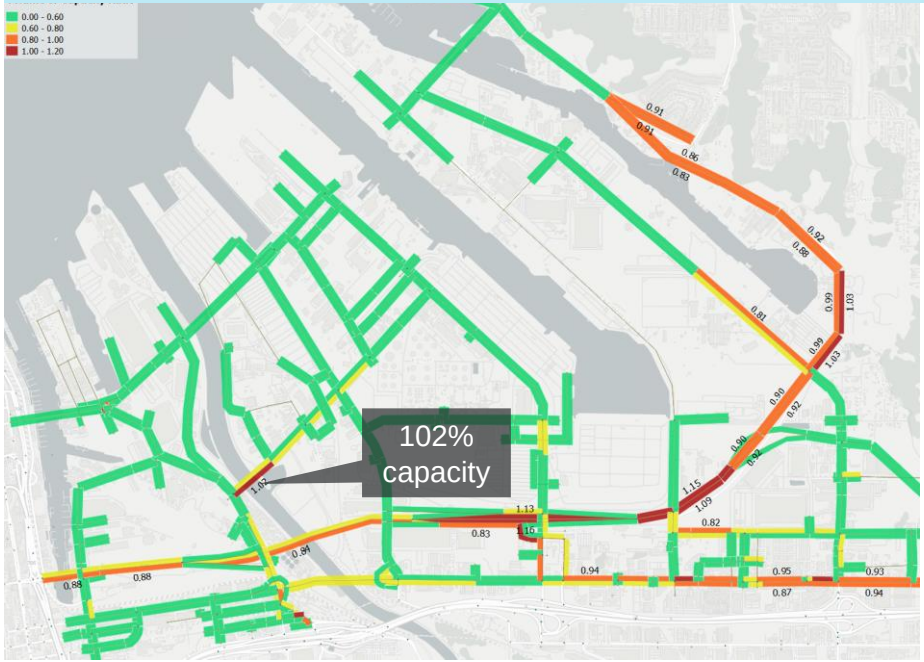
Project 1 – Replace East 11th Street Bridge

Mid-day Congestion (9am to 3 pm) Comparison

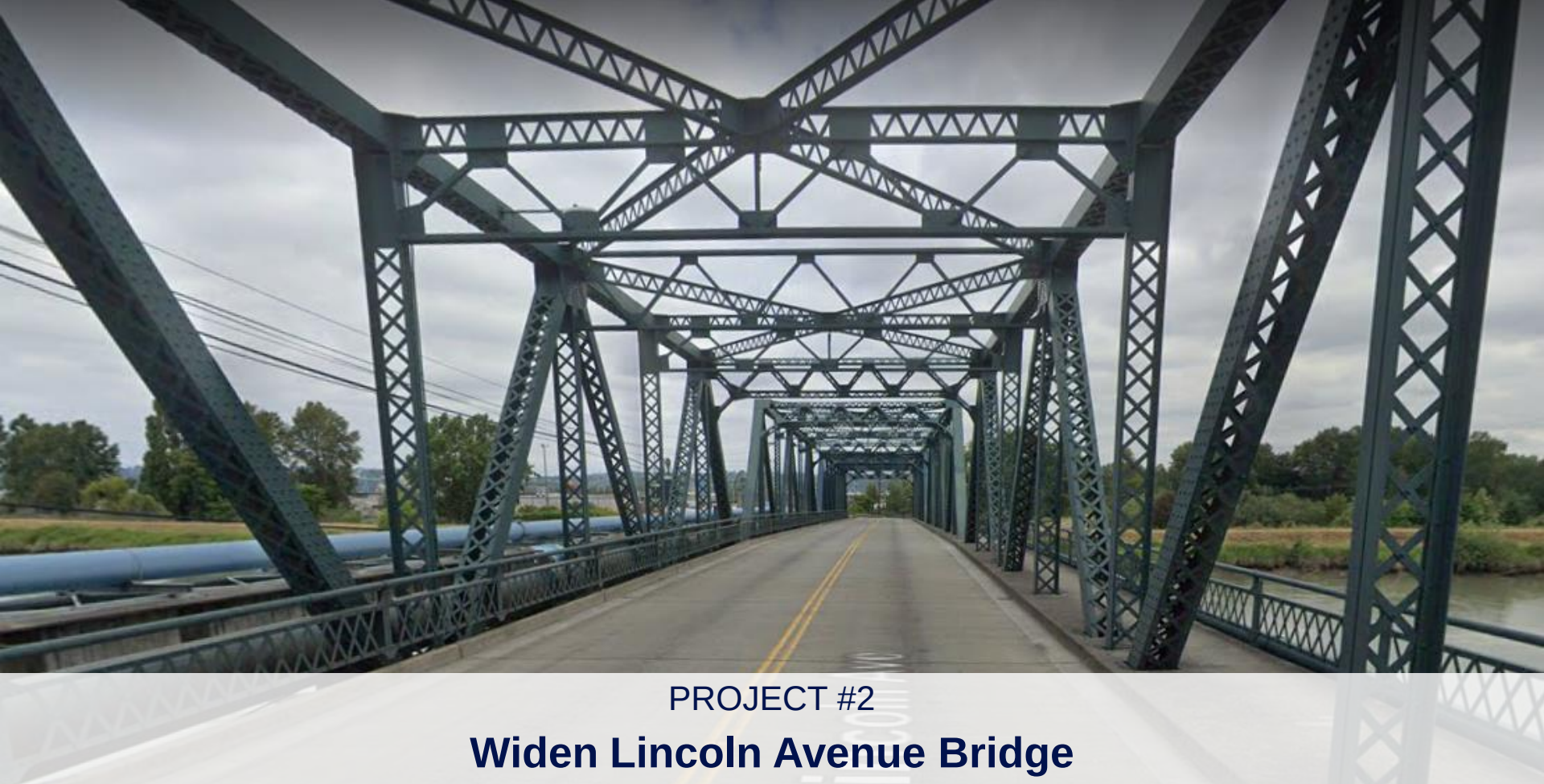
2040 Baseline with Funded Projects



2040 Baseline plus East 11th Street Bridge



Congestion expressed as Volume to Capacity Ratio



PROJECT #2

Widen Lincoln Avenue Bridge

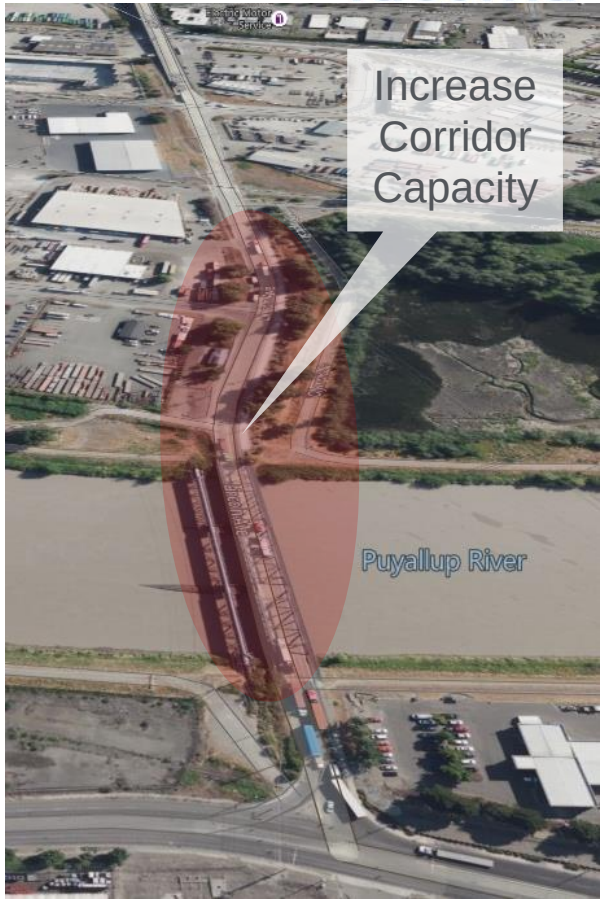
Project #2 – Widen Lincoln Avenue Bridge Corridor

Description

Widen corridor from Portland Ave to Lincoln Ave Loop to 4 lanes

Intended Results

- Reduced queuing along the corridor, due to capacity constraints of Lincoln Ave bridge
- Improved emergency access and egress



Project #2 – Widen Lincoln Avenue Bridge
AM Congestion (6 to 9 AM) Comparison

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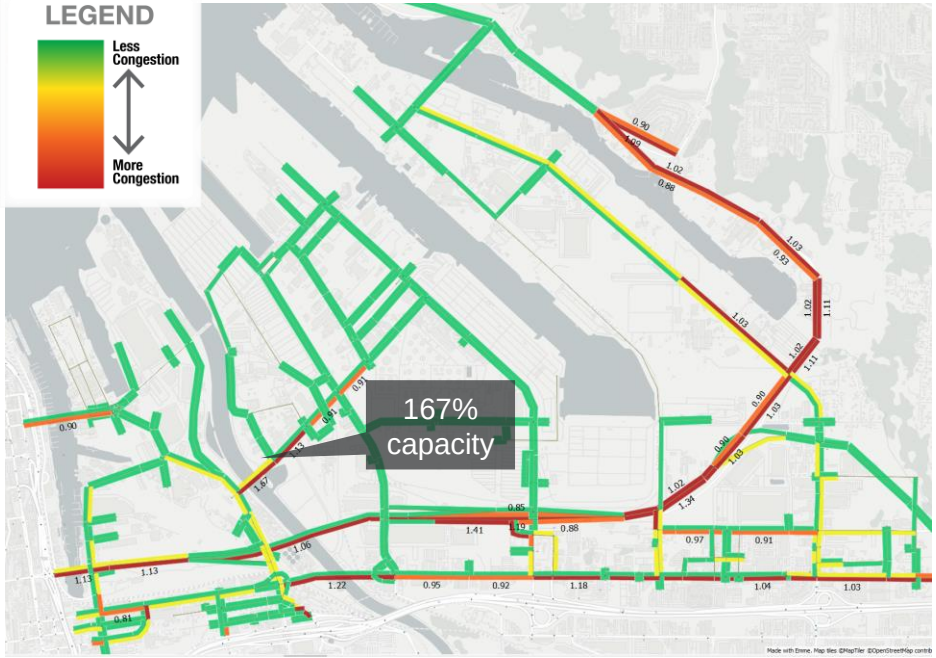
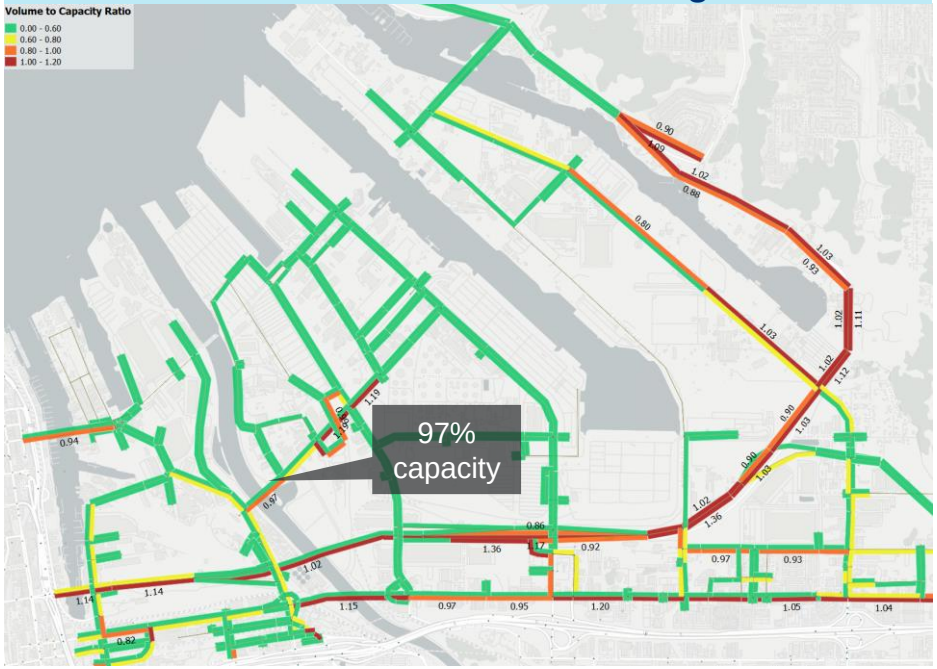
2040 Baseline with Funded Projects



2040 Baseline Plus Widen Lincoln Avenue Bridge



Congestion expressed as Volume to Capacity Ratio

Project 2 - Wide Lincoln Avenue Bridge
Mid-day Congestion (9 AM to 3 PM) Comparison

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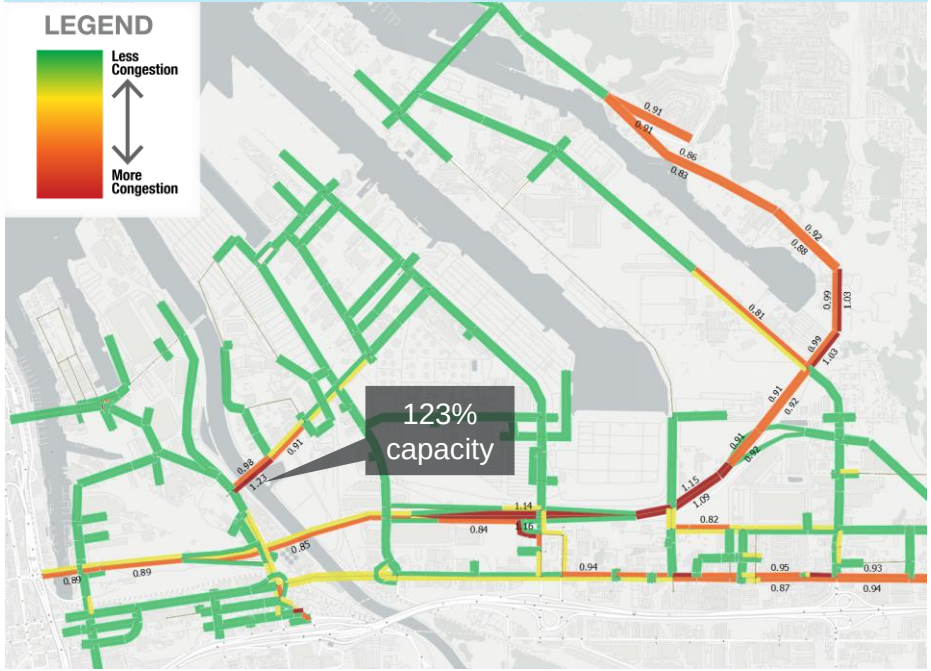
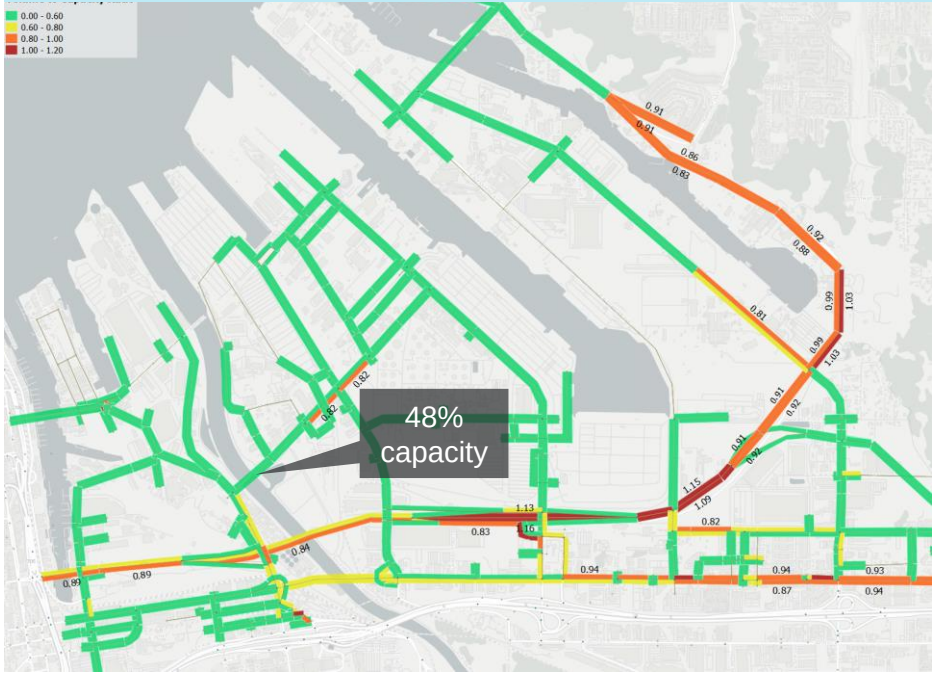
2040 with Funded Network Improvements



2040 with Lincoln Bridge Widening



Congestion expressed as Volume to Capacity Ratio

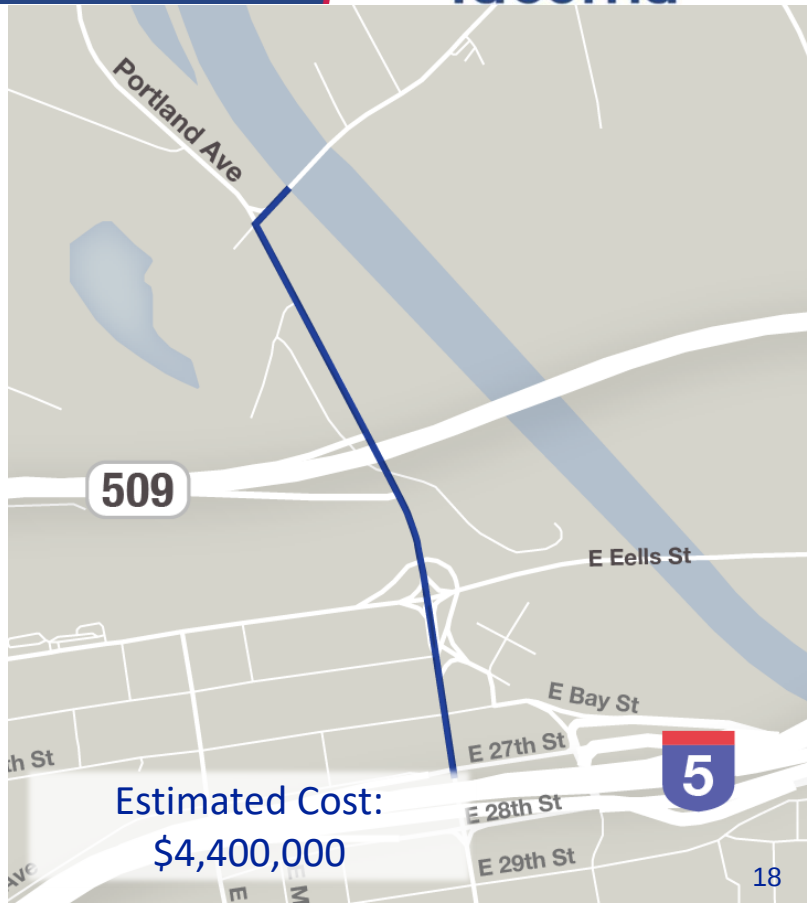
PROJECT #3

Portland Avenue Freight and Access Improvements

Project #3 Portland Ave Freight & Access Improvements

Description

Make pavement, signal and fiber improvements, carry out needed bridge repairs between Lincoln Ave and 27th



Project #3
Portland Avenue Freight and Access Improvements

Intended Results

- Long-lasting, smoother, safer concrete roadway and bridge
- Optimized traffic flow based on real time conditions by connecting all four signals along the corridor to each other and the city's traffic control center
- Improved safety with new signal at the SR-509 east-bound off-ramp
- New signal preemption at Lincoln will decrease emergency response times
- Managed speeds and reduced idling, fuel consumption and emissions through signal optimization

PROJECT #4

Lincoln Avenue / Portland Avenue Intersection Improvements

Project #4 - Portland Avenue / Lincoln Avenue Intersection Improvements

Description

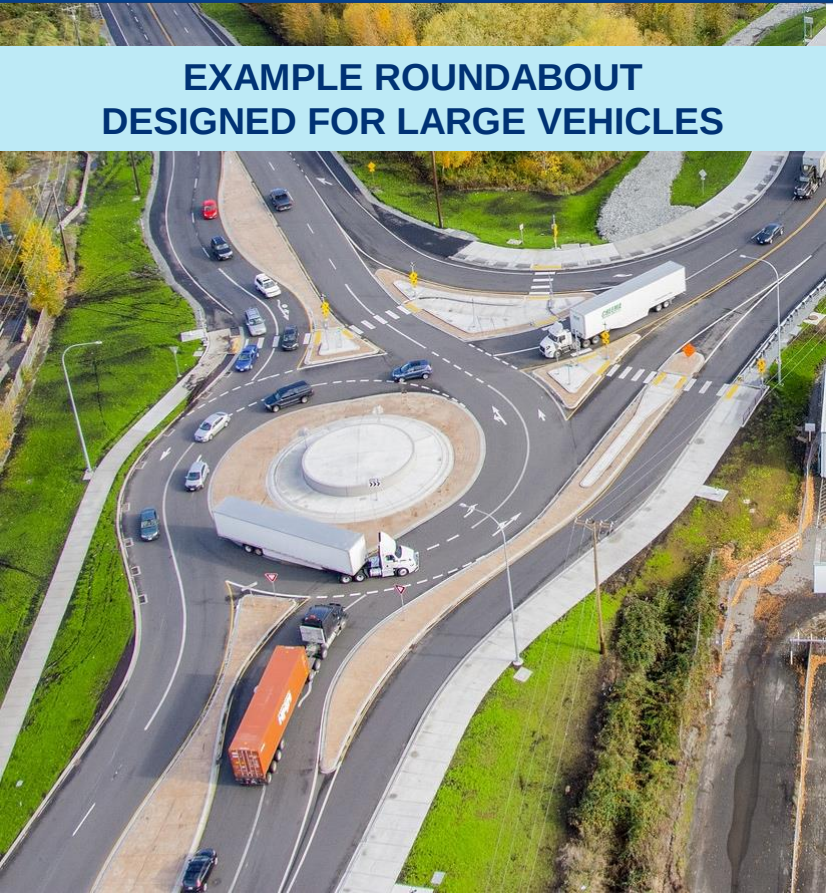
- Current intersection design is difficult for truck turning movements
- Investigate a roundabout option

Intended Results

- Improved truck maneuverability
- Reduced intersection delays
- Comparable benefits for less cost than the bridge widening concept

Project #4 – Portland & Lincoln Ave Intersection Improvements

EXAMPLE ROUNDABOUT DESIGNED FOR LARGE VEHICLES



Operational Evaluation

Future (2040) – Existing 2-Lane Bridge

Intersection Type	Peak Period					
	AM			MD		
	LOS	Delay	V/C	LOS	Delay	V/C
Signalized	E	57	-	E	73	-
Roundabout	B	14	0.77	C	24	0.88

- Improves long-term operations and capacity

PROJECT #5

Improve Pacific Hwy / Milwaukee Way / 20th St Intersection and Fishing Wars Memorial Bridge

Project # 5/1 – Fishing Wars Memorial Bridge Replacement

Description

Replacement of remaining bridge elements

Intended Results

Removes 20-ton weight restriction

- Access to south-bound I-5 for fully loaded trucks
- More system resiliency for heavy vehicles
- Improved emergency response
- Bus line can be re-established

Project # 5 - Pacific Hwy/Milwaukee Way/ 20th St Intersection Improvement—Element 2

Description

Enable south-to-west bound large truck turns from Milwaukee to Pac Highway

Intended Results

- Improved mobility, resiliency and truck access across the Puyallup River
- Additional access to south-bound I-5

Project #5/2 – Pacific Hwy / Milwaukee Way / 20th St Access Improvements

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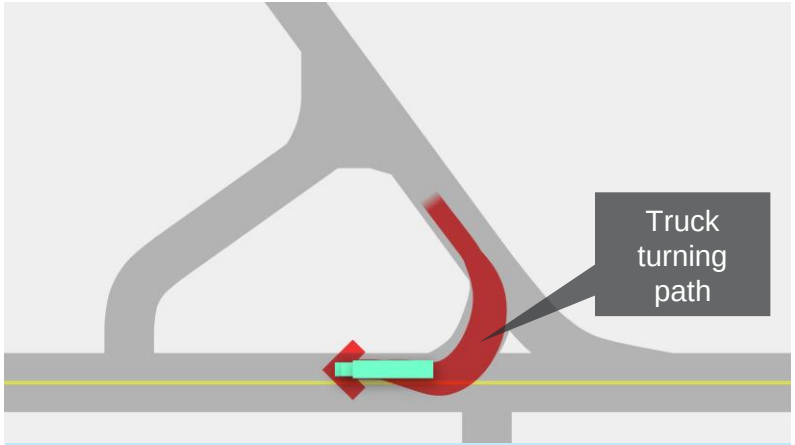
Problem?

Tight turn radius requires trucks to turn into the oncoming eastbound lanes, which is a significant safety issue



PROBLEM ILLUSTRATION

Is this an important truck connection?

- Data shows demand for westbound truck movements; and
- Pacific Highway is underutilized due in part to this problem and the bridge weight restriction

All Truck Traffic			
Bridge Location	←	→	Remarks
	Westbound	Eastbound	
Lincoln Street	249	342	
SR 509	287	496	
Pacific Ave.	112	293	Blocked for heavy trucks

PROJECT #6

Improve 54th Avenue (Taylor Way) / SR 509 Intersection

Project #6 – 54th Ave (Taylor Way) / SR 509 Intersection Improvements

Description

Add 2nd north-to-west turn lane on north-bound 54th

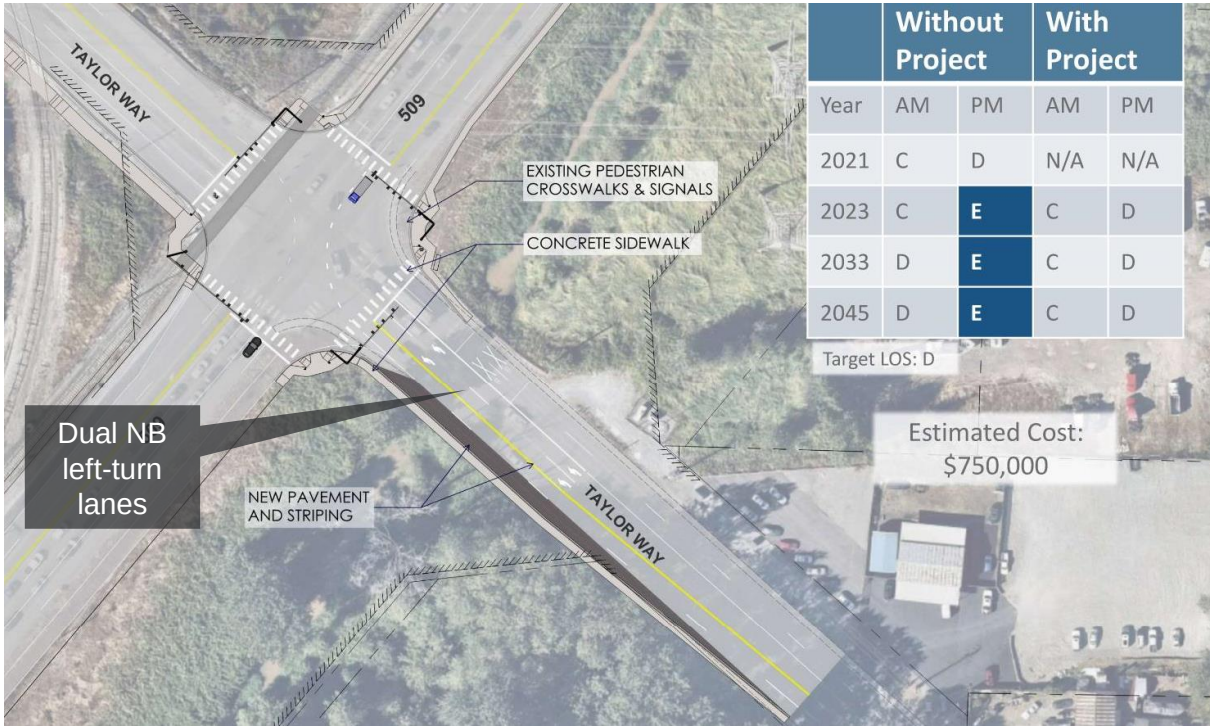
Intended Results

- Improved northbound left-turn operations, particularly in the morning
- Improved intersection LOS overall

Project #6 – 54th Ave/Taylor Way/SR 509 Intersection Improvements

- Adding another northbound turn lane improves operations and reduces queuing

Operational Evaluation



	Without Project		With Project	
Year	AM	PM	AM	PM
2021	C	D	N/A	N/A
2023	C	**E**	C	D
2033	D	**E**	C	D
2045	D	**E**	C	D

Target LOS: D

Estimated Cost: $750,000

Evaluation Criteria – Used for Scoring Projects

Port Roadway Infrastructure Priorities

Criterion		Measurement	Rating Methodology
	Mobility, Access & Reliability	How does the project improve freight mobility and access to the Tideflats?	Decrease Travel Time (Some; Little; None)
		Does it improve reliability?	Increases options for routing to/from major POT/NWSA destinations (Yes; No)
	Safety & Resiliency	Does it improve a potential safety issue?	Eliminate; Reduce; Neutral
		Does it improve resiliency of the system?	High; Medium; Low
	State of Good Repair	Does the project repair/rehabilitate a road or bridge in way that makes it last?	Yes; No
	Sustainability	Will the project reduce greenhouse gas emissions or support Zero Emissions infrastructure?	Average potential; Low potential; Not likely

Evaluation Criteria – Used for Scoring Projects

Port Roadway Infrastructure Priorities

Criterion		Measurement	Rating Methodology
	Implementation Timeframe	What is the timeframe for implementation?	< 3 years; 3 to 6 years; 6+ years
	Cost Analysis	What is its relative cost?	General Magnitude (High, Med, Low)
		How many truck trips does it carry?	Number of Port Trucks (High, Med, Low)
		What is the opportunity cost? What other project(s) could be funded instead?	Degree of Impact on Other Projects (High, Med, Low)
	Partnership Opportunities	How important is the project to our partners?	Directly benefits partners; Does not directly benefit partners

Evaluation Results

Port Roadway Infrastructure Priorities

	PROJECT								TOTAL
1	11th St Bridge Replacement	◒	◒	●	◒	○	○	○	○
2	Lincoln Avenue Corridor Widening	●	◒	●	●	○	◒	◒	◒
3	Portland Ave Freight Access	○	○	●	◒	●	●	●	●
4	Lincoln/Portland Ave Intersection	●	◒	○	◒	◒	●	●	●
5	Fishing Wars Memorial Bridge Milwaukee Way/Pacific Hwy	◒	●	●	◒	◒	◒	●	◒
6	54th Ave/SR 509 Intersection	◒	○	○	◒	●	●	●	●

● High ◒ Average ○ Low

Thank you.

Questions?

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