



**THE NORTHWEST  
SEAPORT ALLIANCE**  
*Gateway to Solutions*

# Ten Year Road and Rail Study

## For a Six Million TEU Gateway

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## Question:

**Beyond capital expenses for making terminals “big ship ready,” what off-terminal road and rail infrastructure investment will be needed to support our Strategic Vision for the container business?**

**To answer this question, this study identified:**

- **Off-terminal infrastructure needs**
- **Priority projects addressing these needs**
- **High level project cost estimates**

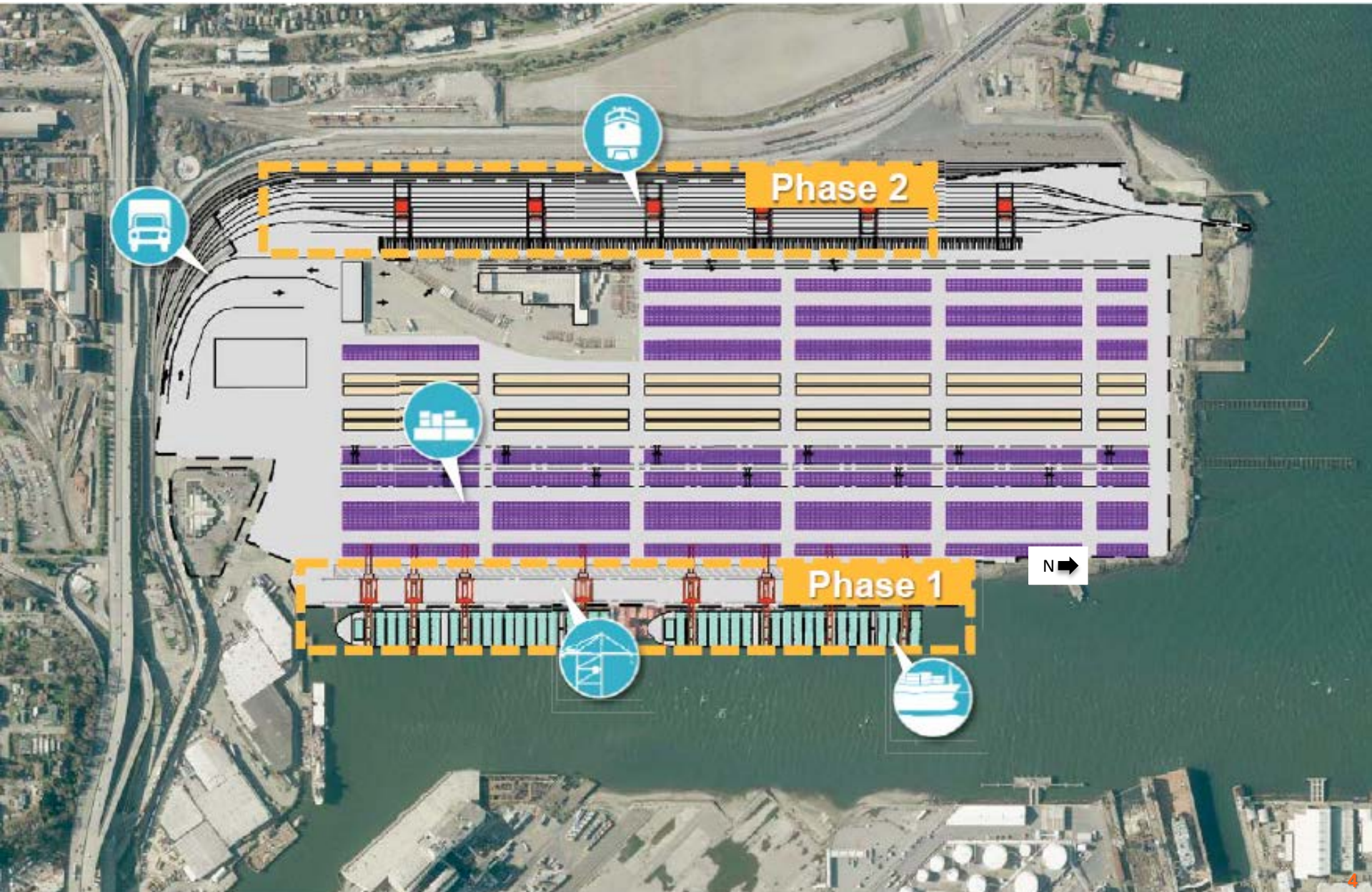


# Base Conditions and Assumptions

- **Total NWSA container volume = 6 million TEUs / Year 2026**
  - Basically a doubling of volume from 2015
- **3 million TEUs each Port area – North and South Harbors**
  - 1.8 million TEUs intermodal each harbor (on & near-dock)
  - 1.2 million TEUs trucks each harbor
- ***“Big Ship Ready”* terminals in each harbor**

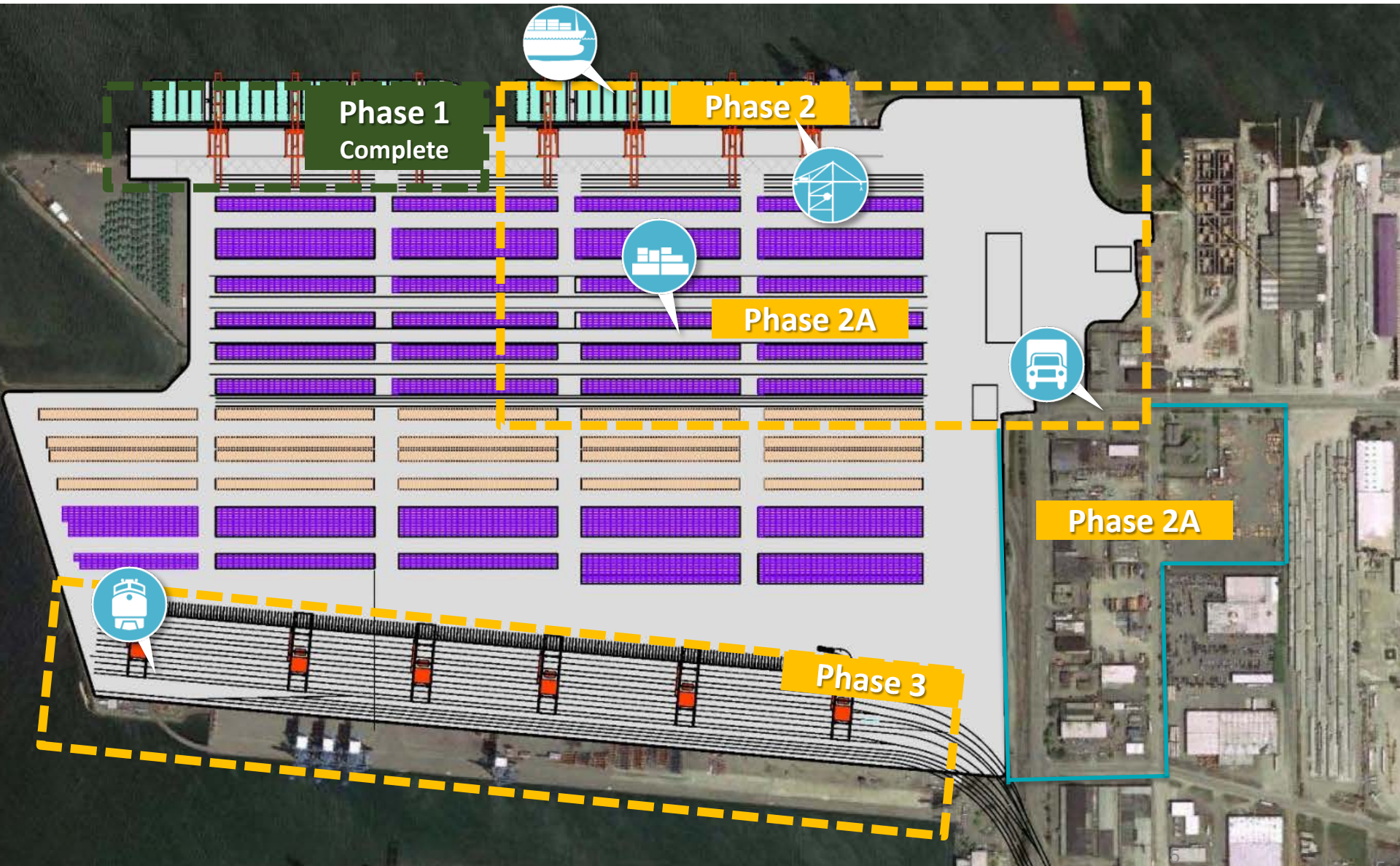


# T-5 “Big Ship” Phases



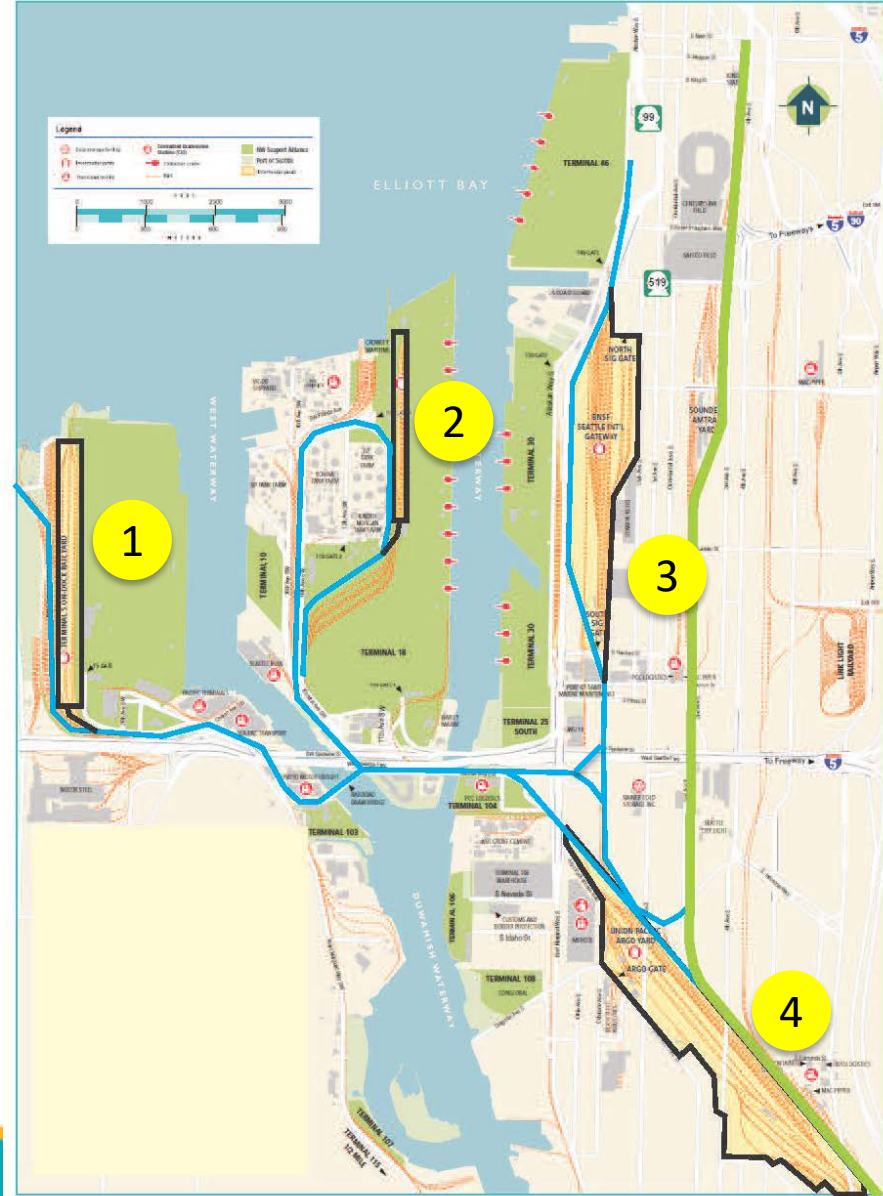


# GCP “Big Ship” Phases



# Rail – North Harbor Intermodal Yards

- 1. Terminal 5 On-Dock**
- 2. Terminal 18 On-Dock**
- 3. BNSF SIG Near Dock**
- 4. UPRR ARGO Near Dock**



# Rail Capacity – North Harbor

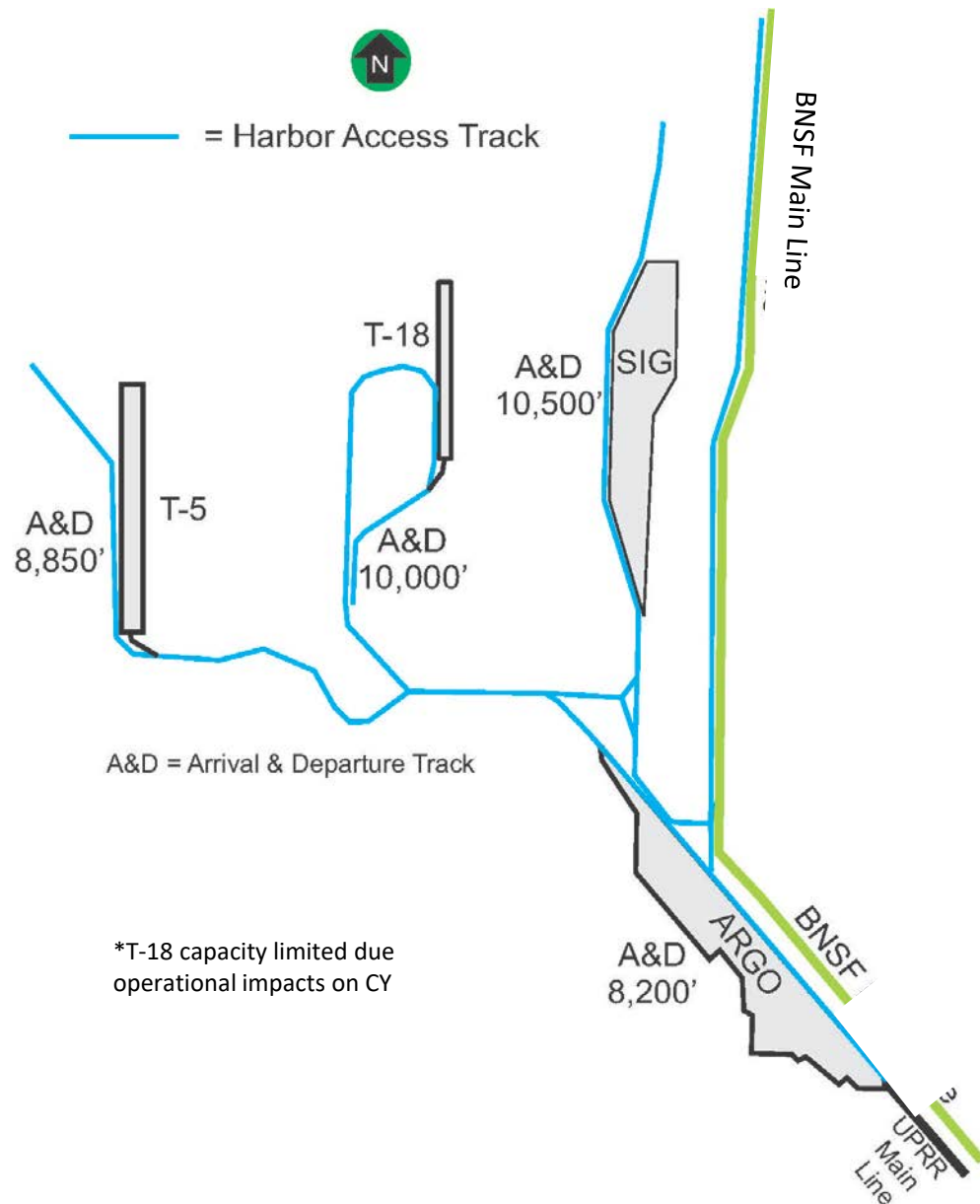
## Intermodal Yard & Train Staging

Intermodal yard capacity target = 1.8 million TEUs.  
Train length target = 8,000'

- **Future IY capacity exceeds future target by 32%**
- **Can handle multiple 8,000' trains**

Intermodal Yards	Current Capacity (Annual TEUs)	Future Capacity (Annual TEUs)
BNSF SIG Yard	525,000	1,000,000
UPRR ARGO Yard	380,000	380,000
Terminal 5	380,000	(Strategic Terminal) 850,000
Terminal 18*	140,000	140,000
Totals	1,425,000	2,370,000

Lift to TEU conversion: 1 Lift = 1 TEU x 1.75

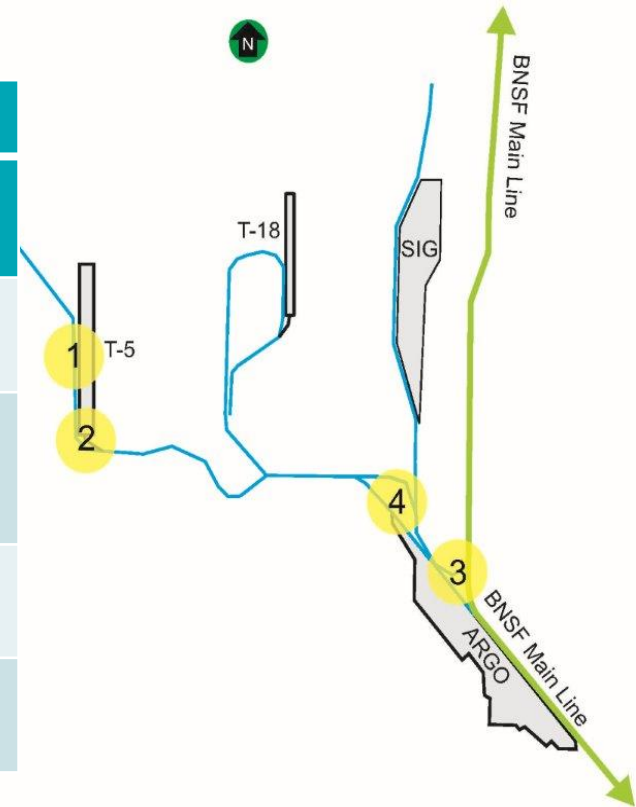




# Rail Capacity – North Harbor

Minor recommended capacity improvements

Project Name	Project Lead	Estimated Project Cost		
		Total	POS / NWSA	Other
1. 8,000' storage track	NWSA	\$7 million	\$7 million	\$0
2. Additional switch	NWSA	\$1 million	\$1 million	\$0
3.* 900' track extension	Railroads	\$1 million	TBD	\$2 million
4.* Double track ARGO to Harbor Island	Railroads	\$7 Million	TBD	\$7 million

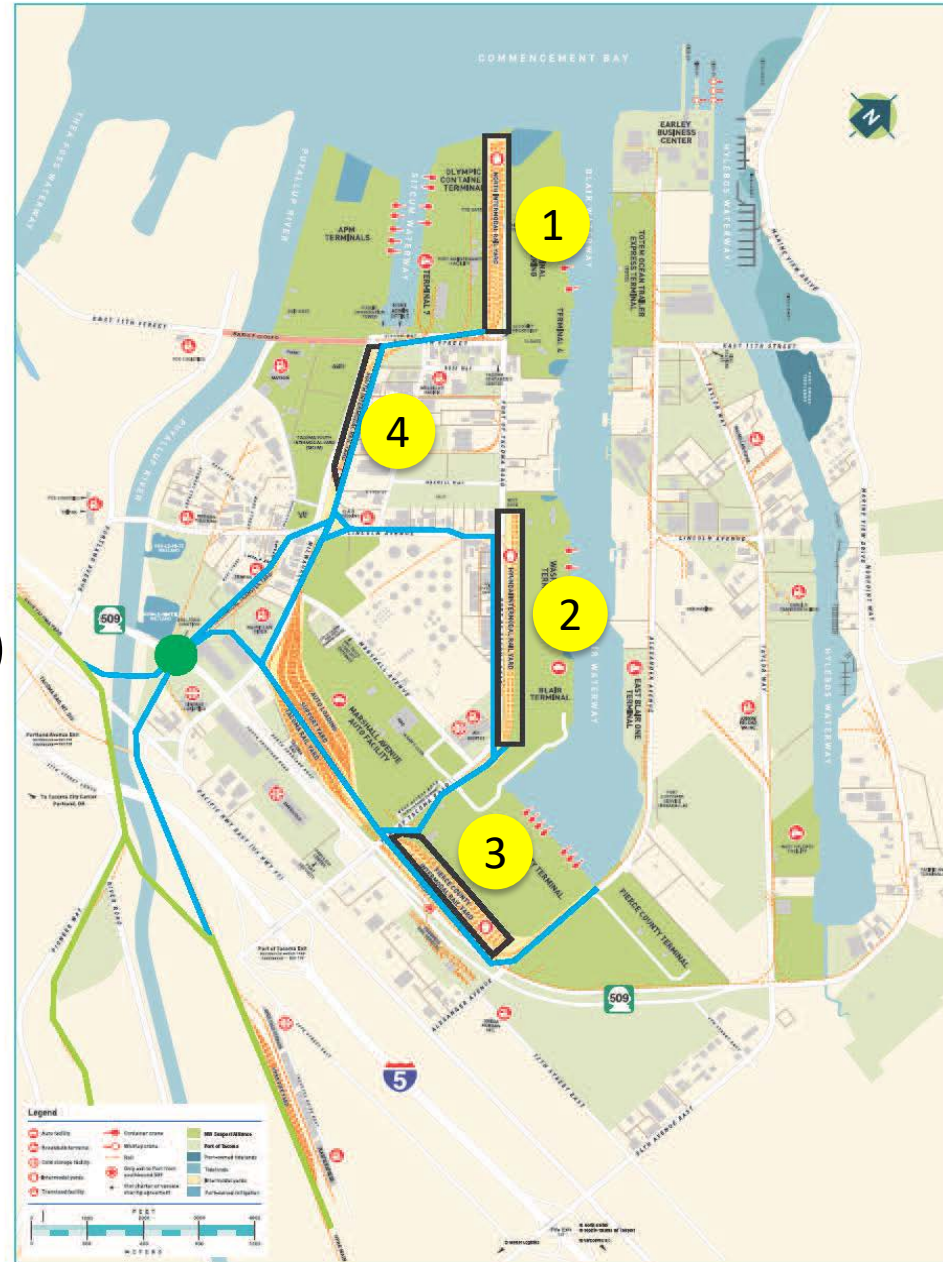


\* Projects #3 and #4 require joint use UPRR / BNSF track agreements



# Rail – South Harbor Intermodal Yards

1. North Intermodal (NIM)
2. Washington United Terminals (WUT)
3. Pierce County Terminal (PCT)
4. South Intermodal (SIM) (Domestic)



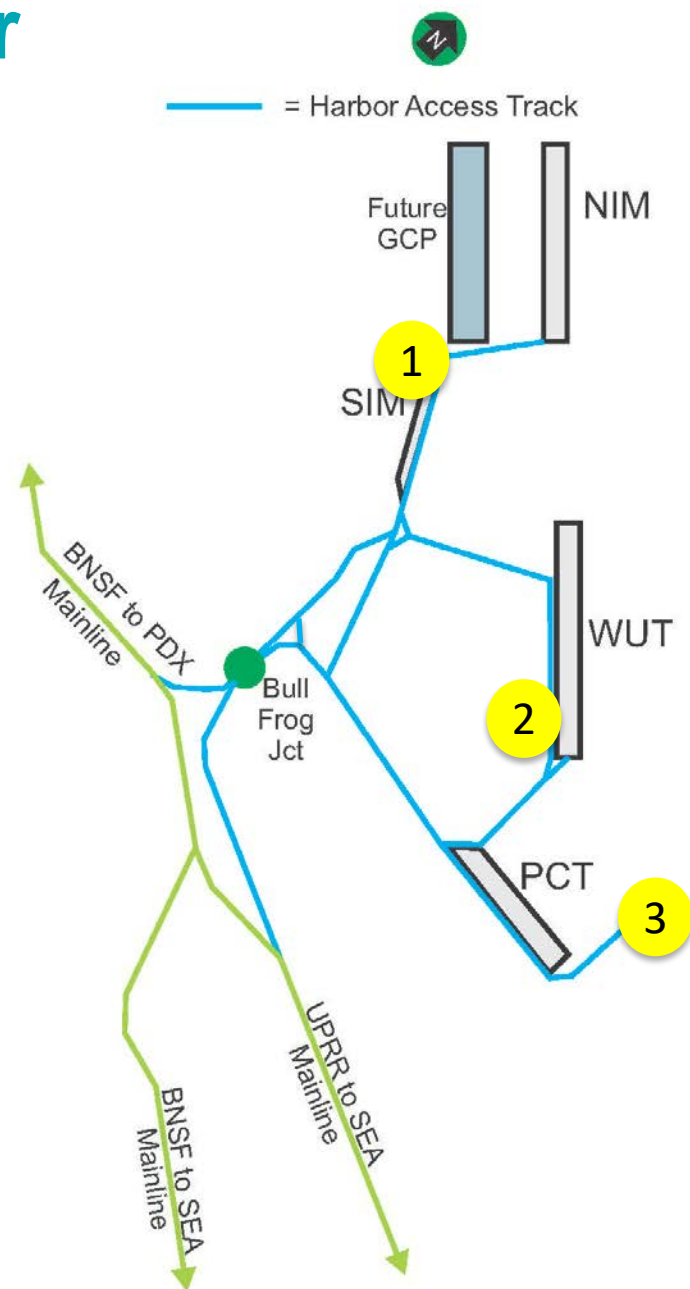
# Rail Capacity – South Harbor Intermodal Yard

Intermodal Yard capacity target = 1.8 million TEUs.

➤ **Future IY capacity exceeds future target by 29%**

Intermodal Yards	Current Capacity (Annual TEUs)	Future Capacity (Annual TEUs)
1. North Intermodal Yard	700,000	(Strategic Terminal, Future GCP IY) 1,300,000
2. Washington United Terminals	350,000	350,000
3. Pierce County Terminal	675,000	675,000
Totals (w/o SIM)	1,725,000	2,325,000

Lift to TEU conversion: 1 Lift = 1 TEU x 1.75



# Rail Capacity – South Harbor

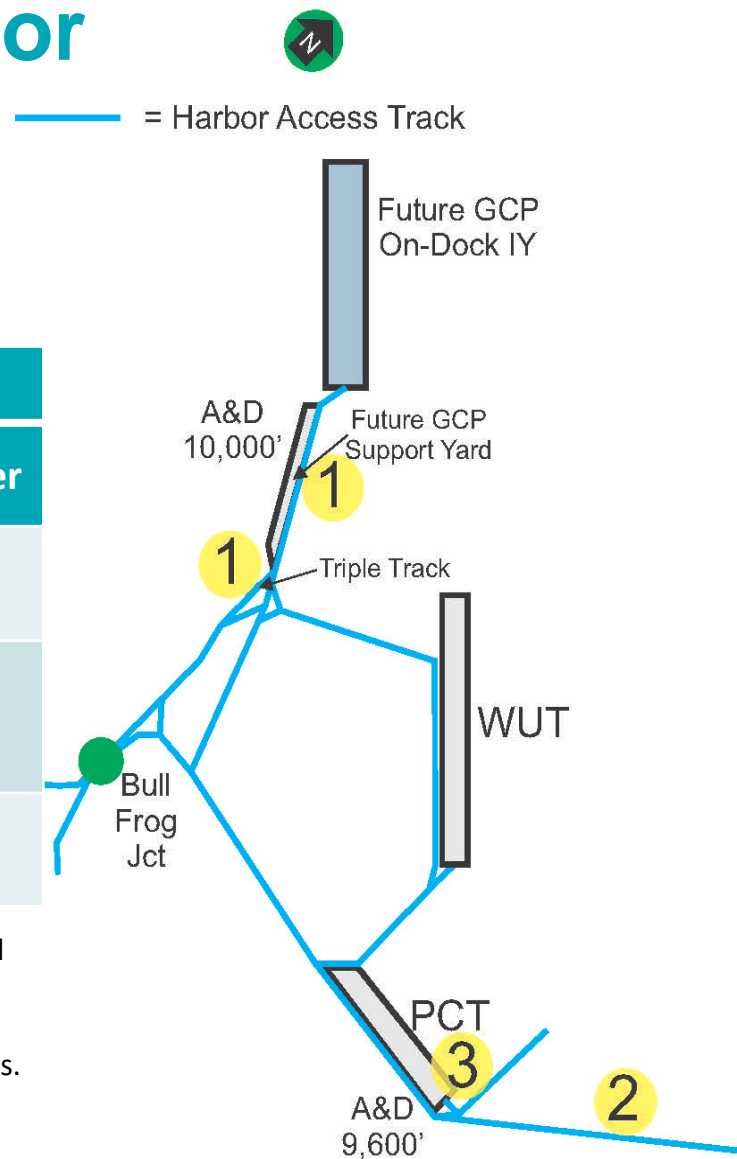
## Train staging

**Recommended improvements inside Tideflats needed to handle multiple 8,000' trains**

Project Name	Project Lead	Estimated Project Cost		
		Total	POT / NWSA	Other
1.* New GCP IY Support Infrastructure	NWSA	\$45 million	\$45 million	TBD
2. New Long Lead Tracks	NWSA	\$20 million	\$20 million	TBD
3.** Double end PCT IY	NWSA	\$50 million	\$50 million	TBD

\* Does not include costs to modify NIM (on-terminal cost) of \$70 million + potential disposal costs for contaminated soils

\*\* Needs further cost benefits analysis. Cost estimate not included in Slide #22 totals.



# Rail Capacity – South Harbor

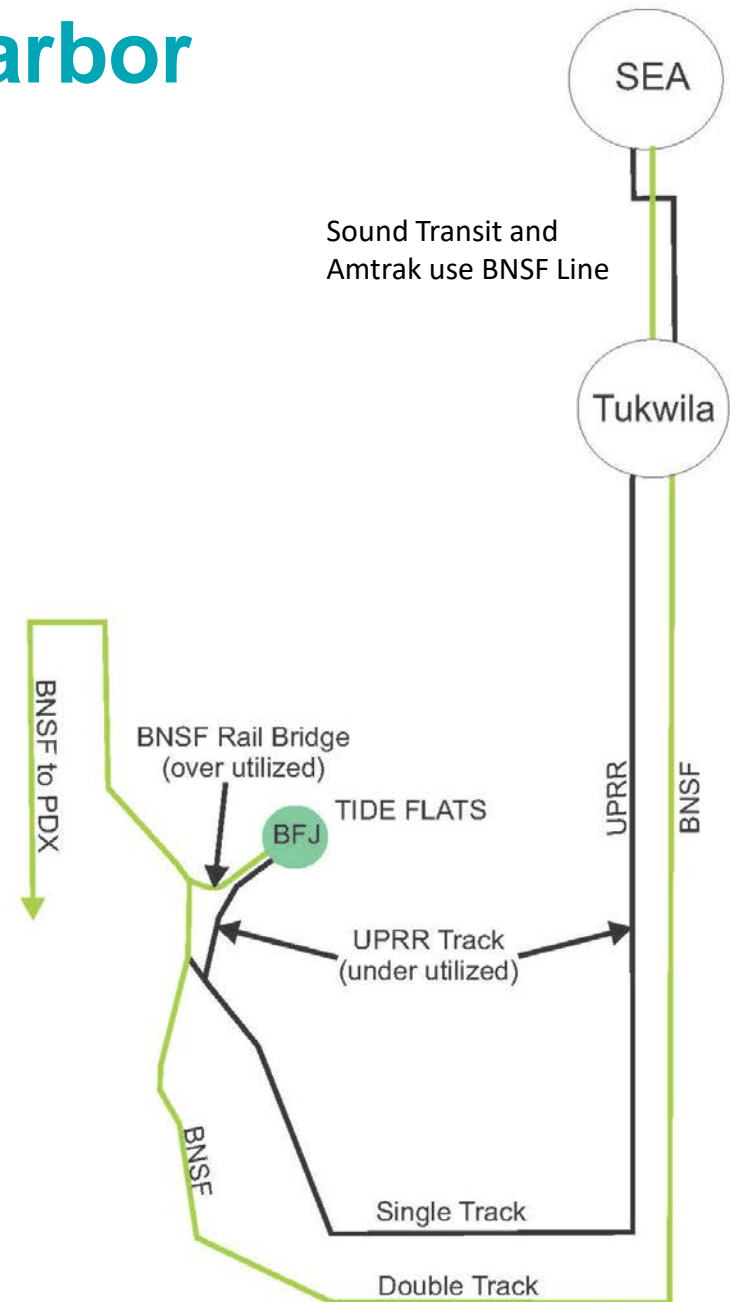
## Mainline Access

2026 Train Forecast @ 3 Million TEUs

TEU	1,800,000
lifts	1,028,571
<b>train size</b>	<b>8,000</b>
<b>total CNTR trains/day</b>	<b>14</b>
SIM	0
Autos	2
Oil	2
Other Commercial	1
Subtotal	19
Peak Factor	10%
<b>Total (rounded)</b>	<b>21</b>

Does not include 13-20 daily moves for equipment repositioning and other ancillary moves

- BNSF Rail Bridge Daily Capacity = 22-24 trains
- 2026 train forecast likely to exceeds capacity of bridge
- UPRR track underutilized for Tideflats access



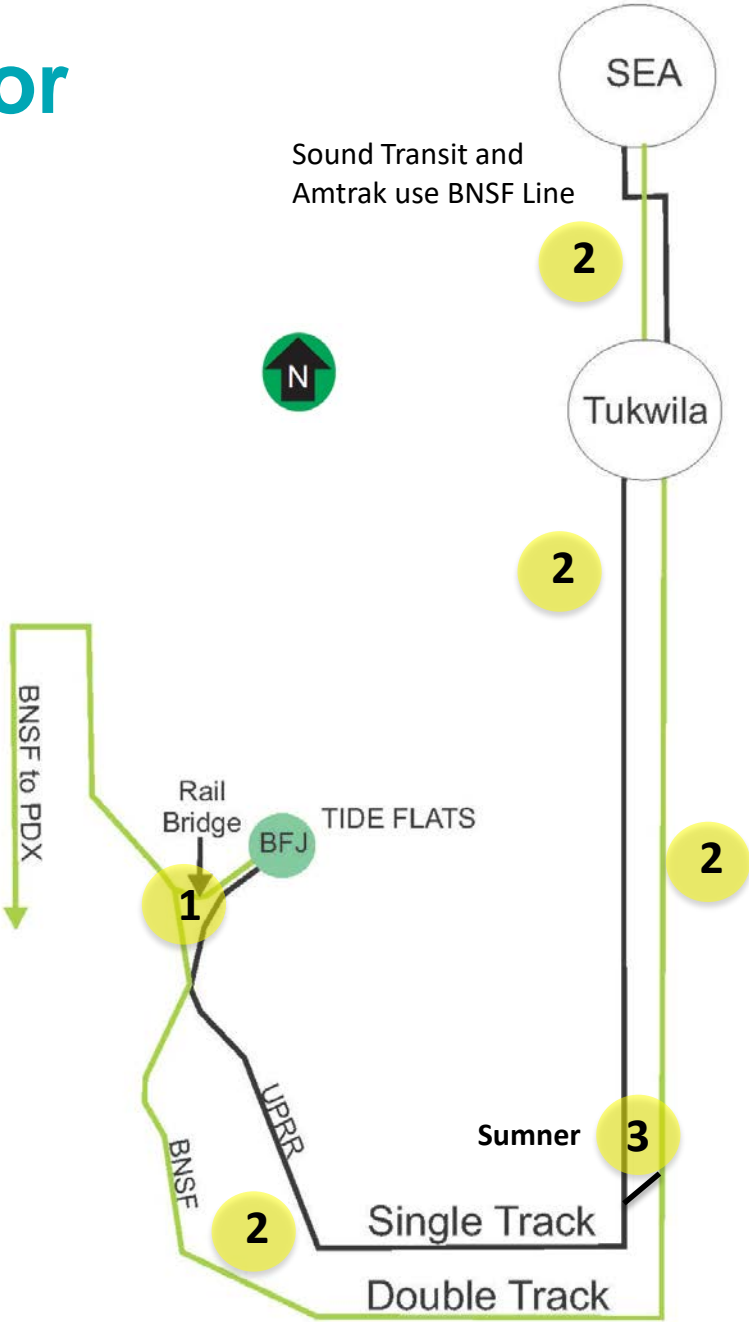


# Rail Capacity – South Harbor




## Mainline Access Recommendations

Project Name	Project Lead			
		Total	NWSA	Other
1. The 2 <sup>nd</sup> BNSF bridge across Puyallup	BNSF	\$55-\$75 m	TBD	TBD
2. Share tracks SEA-TAC	UPRR BNSF	TBD Likely less than project #1	TBD	TBD
3. UPRR to BNSF White River connection	UPRR BNSF	\$25-\$50 m	TBD	TBD

Projects 2 and 3 can significantly improve tide flat access and likely are more cost effective solutions than Project #1



# Roadway Methodology – Both Harbors

- Screened projects for Port-related freight mobility and congestion mitigation
- Defined and assigned three project categories
  -  **Terminal Access**
  -  **Harbor Mobility**
  -  **Freeway Connection**

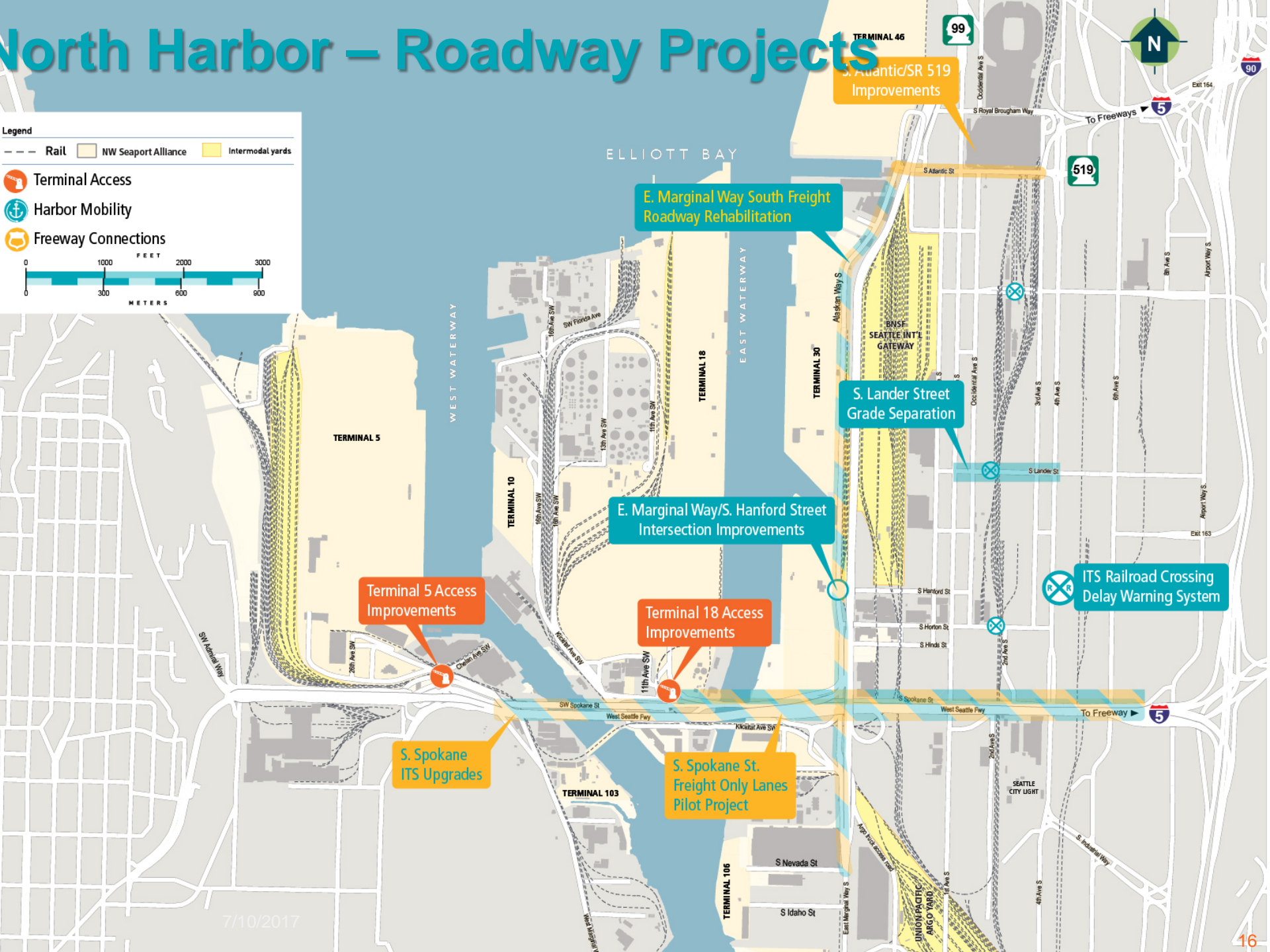
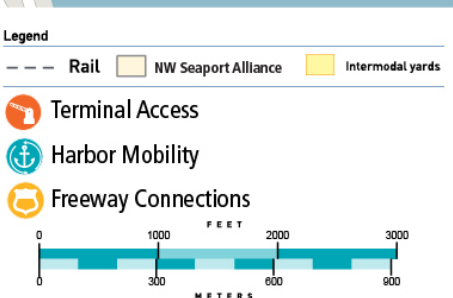


# Regional Megaprojects

- Alaskan Way Viaduct Replacement
- Puget Sound Gateway





















# North Harbor – Roadway Projects





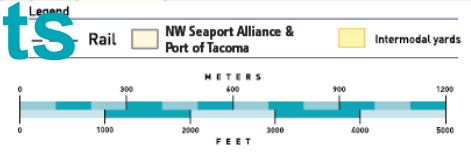
# North Harbor – Roadway Priority List

Project Name	Project Need	Project Type				
		Gate	Intersection	ITS Application	Grade Separation	Pavement
T-5 Access	  	✓	✓			✓
T-18 Access	 	✓	✓			✓
East Marginal Way	 		✓	✓		✓
S. Spokane Truck-Only Lanes	 			✓		
S. Spokane ITS	  			✓		
EMW/Hanford/Main SIG Intersection			✓	✓		✓
Heavy Haul (Not EMW)						✓
RR Crossing Delay Warning System			✓	✓		
S. Atlantic Corridor	 		✓	✓		
S. Lander Grade Separation					✓	17



















# North Harbor – Roadway Priority Cost

Project Name	Lead Agency	Estimated Project Cost		
		Total	POS/NWSA*	Partners
T-5 Access	NWSA	\$3.5-5 m	\$3.5 m	\$1.5 m
<i>T-18 Access (not in budget)</i>	<i>NWSA</i>	<i>\$3-4 m</i>	<i>\$3 m</i>	<i>\$1 m</i>
East Marginal Way	SDOT	\$48 m	\$2 m	\$46 m
S. Spokane Truck Only-Lanes	SDOT	\$4.5 m	TBD	TBD
S. Spokane ITS	SDOT	\$1.5 m	TBD	TBD
EMW/Hanford/SIG Intersection	SDOT	\$13 m	\$2 m	TBD
Heavy Haul System (Not EMW)	SDOT	TBD	\$16 m	TBD
RR Crossing Delay Warning	SDOT	\$0.5 m	TBD	TBD
S. Atlantic Corridor	SDOT	TBD	TBD	TBD
S. Lander Grade Separation	SDOT	\$140 m	\$2-5 m	\$148 m

# South Harbor – Roadway Projects



# South Harbor – Roadway Priority List

Project Name	Project Need	Project Type				
		Gate	Intersection	ITS Application	Bridge or Grade Separation	Pavement
Port of Tacoma Road/I-5 Interchange	 		✓	✓	✓	✓
Tideflats ITS Program	  	✓		✓		
Taylor Way Heavy Haul	  		✓	✓		✓
GCPT Access	 	✓	✓	✓	✓	
SR 167 Extension	 	✓		✓	✓	
Remaining Puyallup Ave Bridge Sections	 		✓	✓	✓	
SR 509/Taylor Way/54th Ave East	 				✓	
<i>Lincoln Ave Corridor/Puyallup River Capacity Improvement</i>	 		✓	✓	✓	





# South Harbor – Roadway Priority Cost

Project Name	Lead Agency	Estimated Project Cost		
		Total	POT/NWSA *	Partners
Port of Tacoma Road/I-5 Interchange	COF	\$60 m	\$0.2 m	\$58.5 m
Tideflats ITS Program	TBD	\$3.5 - 5 m	TBD	TBD
Taylor Way Heavy Haul	COT	\$15 m	\$2.5 m	\$12 m
GCPT Access	NWSA POT	\$2.5 m	TBD	TBD
SR 167 Extension	WSDOT	\$1 - 1.5 b	\$26 m	TBD
SR 509/Taylor Way/54 <sup>th</sup> Ave E	COT	\$5 m	TBD	TBD
Remaining Old Pacific Highway Bridge	COT	\$120-160 m	TBD	TBD
<i>Lincoln Ave Corridor/Puyallup River Capacity Improvement</i>	<i>COT</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>

\* Projected Future Financial Contribution

# Challenges

- **Home Ports**
  - Financial analysis has not been completed for these projects
  - Funding has not been identified for rail projects
  - Roadway costs list currently known project contributions
- **North Harbor** – competing needs in urban setting
- **South Harbor** – physical infrastructure
- **Cargo split forecast** – determines accuracy of identified infrastructure needs



# Historical – Off Terminal Projects

## Capital costs – 2005-2016 road & rail projects

	North Harbor	South Harbor	Total
Road	\$337 million*	\$60 million	\$397 million
Rail	\$0	\$24 million	\$24 million
Total	\$337 million	\$84 million	\$421 million

\* Includes AWW contribution of \$280 m.

## Future estimated costs – essential future projects for 6M TEU gateway

	North Harbor	South Harbor	Total
Road	\$28 million	\$29 million	\$57 million
Rail	\$8 million	\$66 million	\$74 million
Total	\$36 million	\$95 million	\$131 million



## Potential Other Impacts

Project #	Description	High Level Cost Estimate (\$2016)
1	POT headquarters relocation	TBD
2	Retention of domestic intermodal service in Tideflats	TBD
3*	Milwaukee surface street connection to elevated Lincoln Ave overpass	\$25 million
4**	PCT truck gate access relocation to Taylor	\$4 million
5	Emergency access / egress route improvements – Tideflats wide	TBD

- \* Needs further cost benefits analysis. Cost estimate not included in Slide #22 totals.

\*\* Costs included in slide #22 totals.





# Back-pocket Slides

