



Moving People With Innovative
Transportation Solutions
Designing Corridors for High-Speed Rail

CASCADIA TRI-CORRIDOR PLAN

New CHSR's C-ICE/CCE Corridor, Vehicle Expressway Corridor, and Freight Train Corridor on the Cascadia Multimodal Bridge and I-5 Bridge Seismic Upgrade

New Cascadia Multimodal Bridge over the Columbia River connecting Oregon and Washington with:

#1 Corridor: Phase 1 of the new Cascadia High Speed Rail (CHSR) corridor includes the C-ICE and CCE train systems between the Portland Rose Quarter and NW 78th Street in Vancouver, WA. This 11.23 mile segment is the first phase of the 169 mile CHSR corridor between Portland and Seattle. (See cascadiahighspeedrail.com).

#2 Corridor: The new 6.48 mile four-lane vehicle expressway between Hwy 30 in Portland and Mill Plain Blvd in Vancouver, WA extends an additional 1.5 miles to the I-5 interchange via the existing Mill Plain Blvd/ W 15th St couplet.

#3 Corridor: The new Burlington Northern-Santa Fe Railroad and Union Pacific Railroad track connection equals 3.15 miles between N Interstate Ave and N Columbia Blvd in Oregon. The Washington segment extends 3.23 miles from the state line in the middle of the Columbia River north to W 39th Street. Both new corridors connect to existing on-ground freight rail corridors.

CHSR Multi-Modal Bridge_09 pdf

Concept Design by RN

Legend



CHSR Station in Tunnel



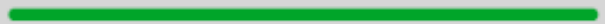
CHSR Station on Flyovers



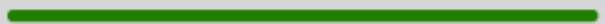
CHSR Station on Ground



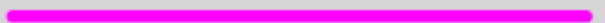
CHSR on ground



CHSR Cuts



CHSR Fills



CHSR Flyovers and Vehicle Expressway



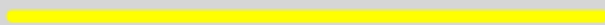
CHSR tunnels



Existing Freight Railroads, other than BNSF and UP RR



Existing Freight Railroads



Existing Vehicle Road Ways

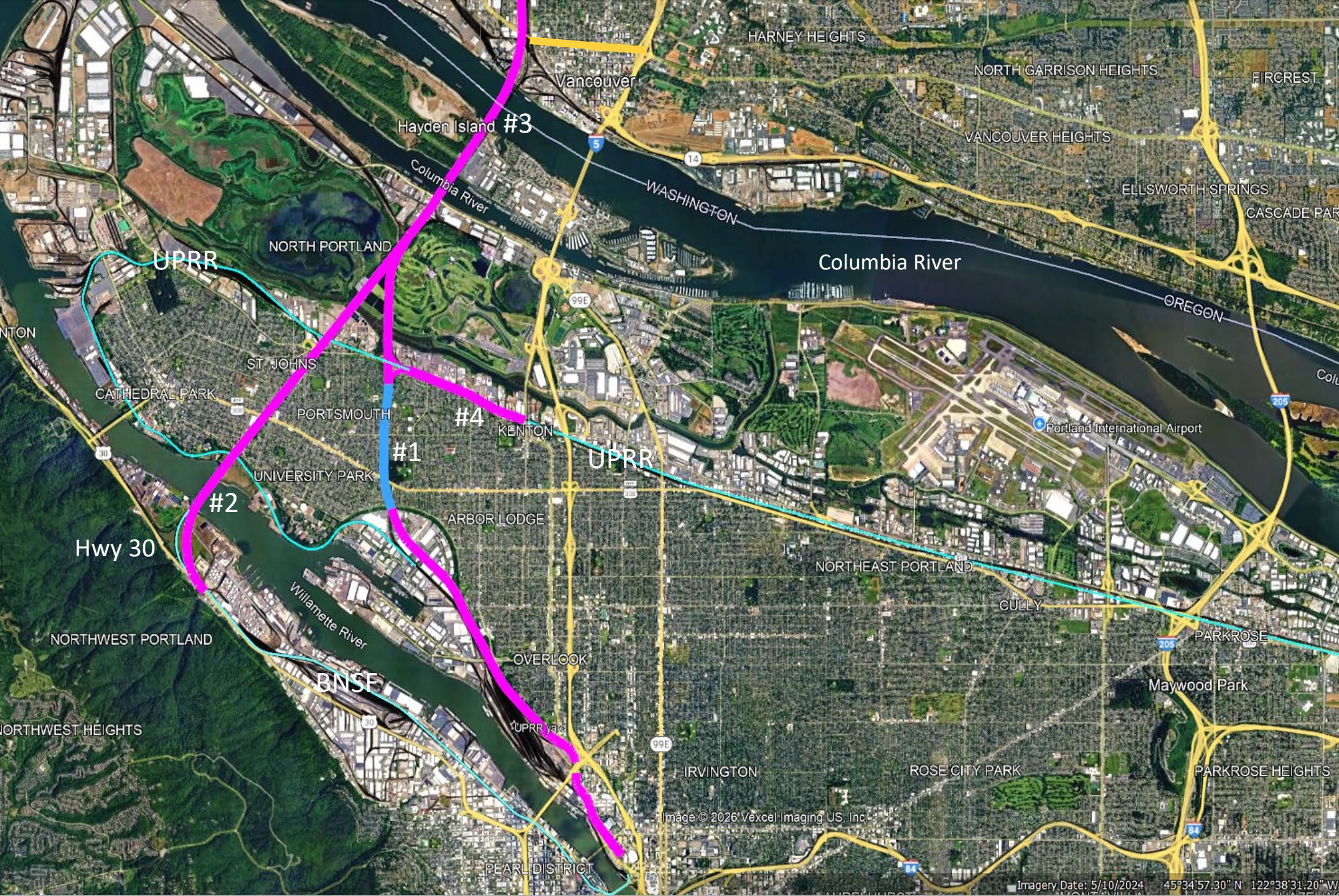
C-ICE: Cascadia Inter-City Express

CCE: Cascadia Commuter Express

EI = Constructed elevation above Sea Level

E = Existing elevation above Sea Level

HSR Legend 08
Des by RN/BCP



Cascadia Tri-Corridor Plan in Oregon and Washington

#1. This segment will transport the CHSR's C-ICE and CCE trains.

#2. This is the proposed new vehicle expressway between Hwy 30 and Mill Plain Blvd/W 15th St, connecting to I-5 in Vancouver.

#3. This segment will transport the BNSF and UPRR freight trains over the Cascadia Multimodal Bridge.

#4 This segment is the UPRR ramp to the Cascadia Multimodal Bridge.



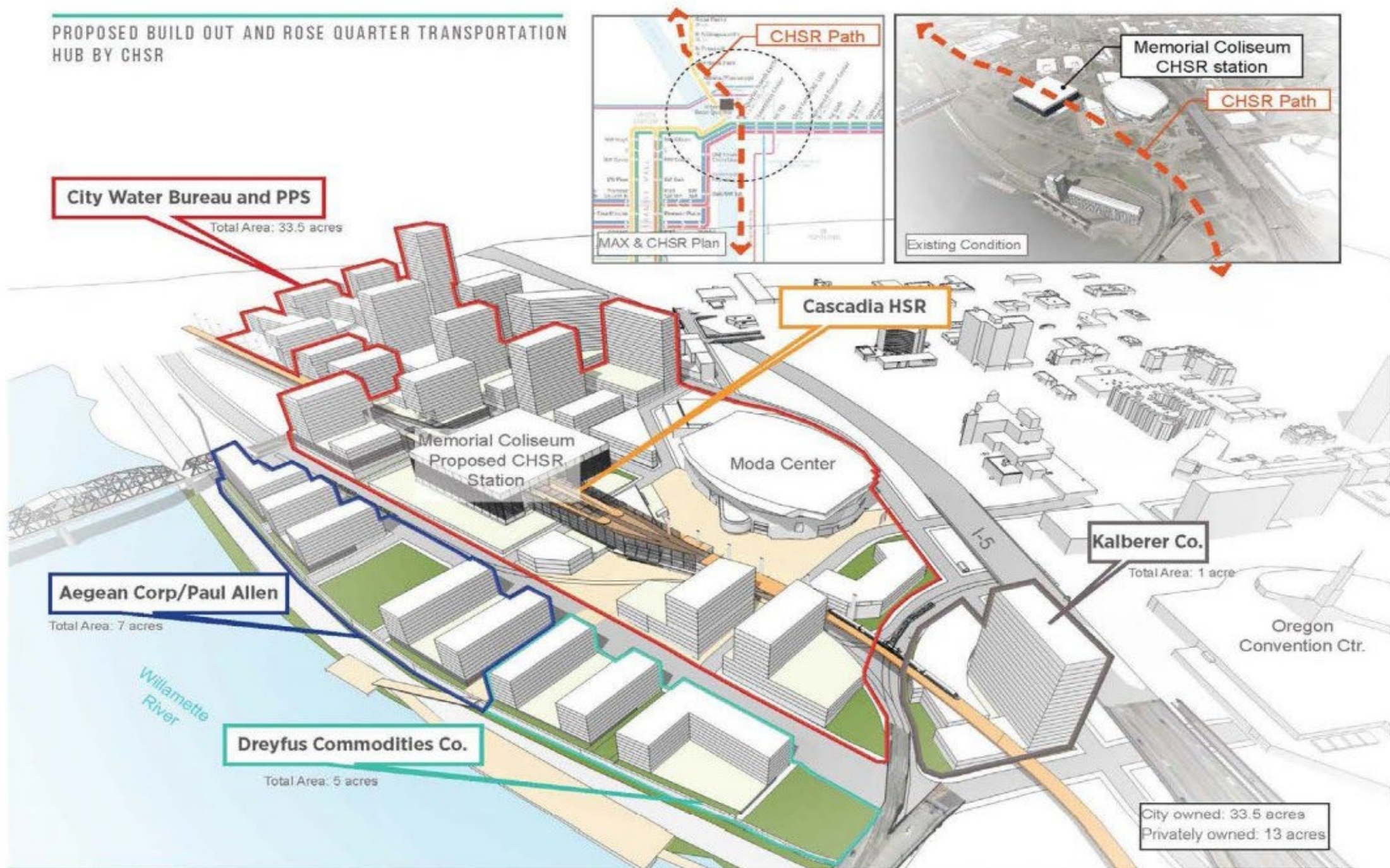
Rose Quarter Transportation Hub with CHSR Station

The CHSR Station has five rail tracks for Cascadia Inter-City Express (C-ICE) trains and Cascadia Commuter Express (CCE) trains.

The station platform is 1300 feet long and 146 feet wide.

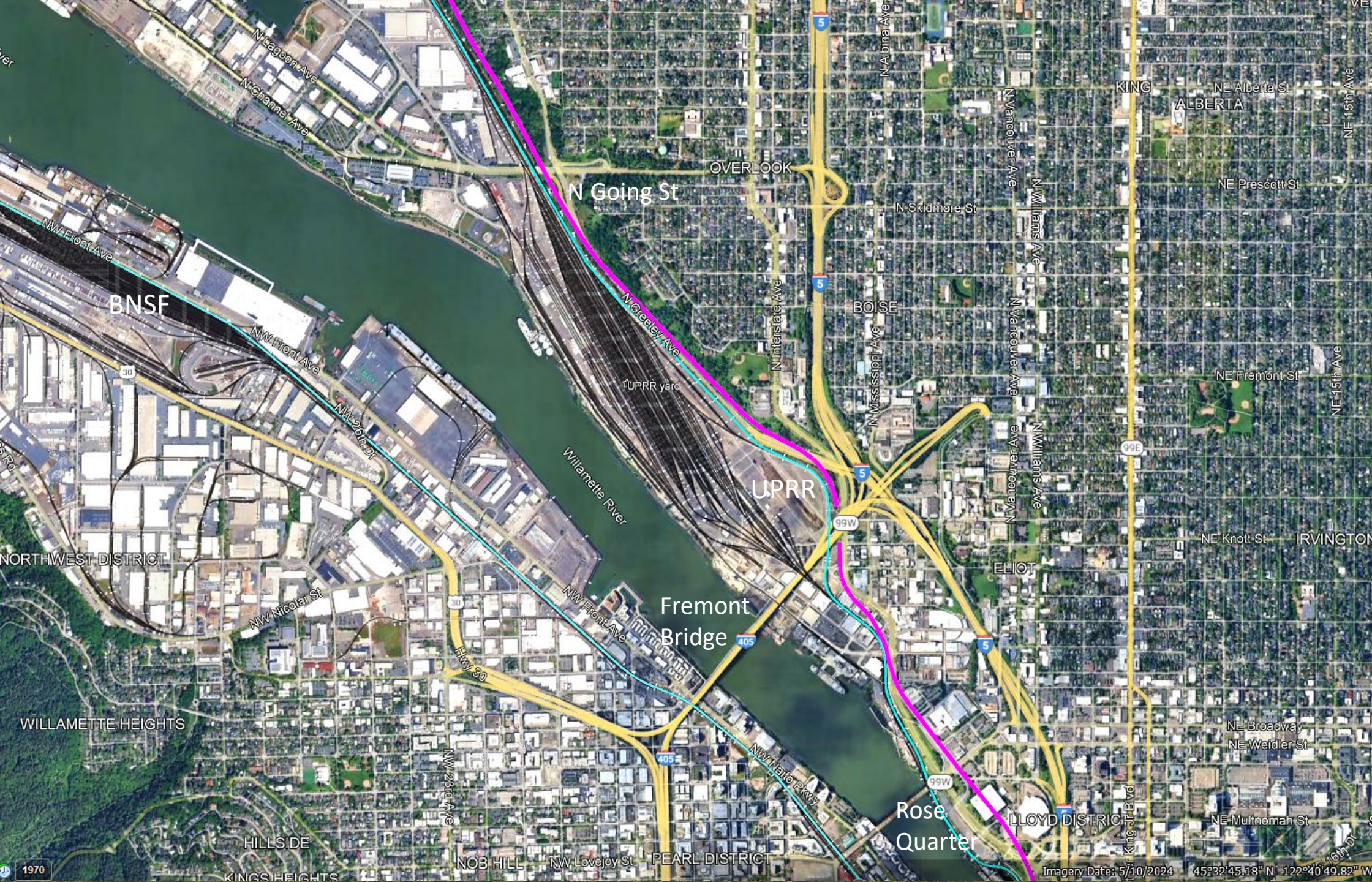
Tracks 1 and 2 are C-ICE. Tracks 3 and 4 are CCE. Track 5 is the Troutdale route.

PROPOSED BUILD OUT AND ROSE QUARTER TRANSPORTATION HUB BY CHSR



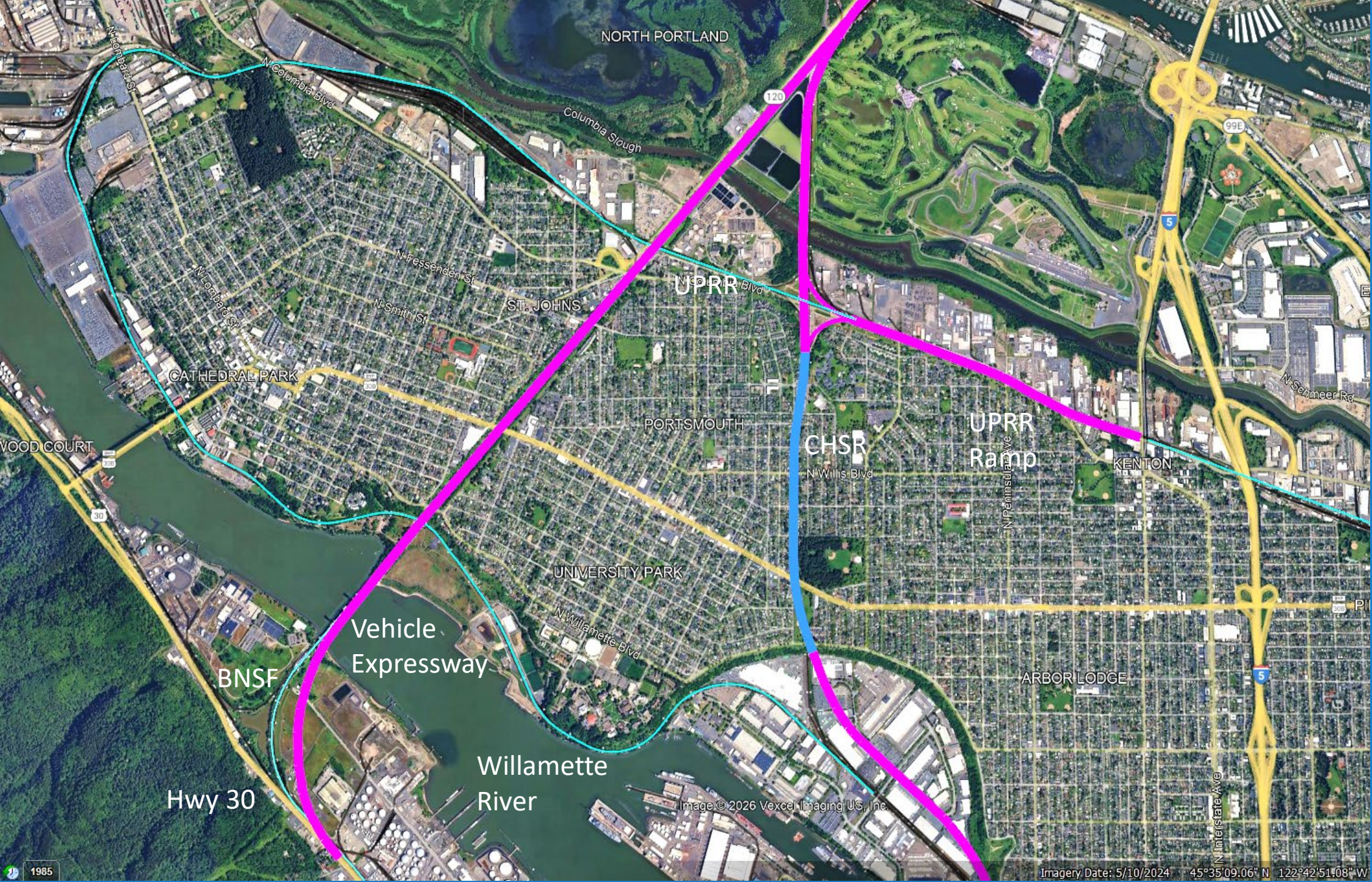
The Rose Quarter Transportation Hub

The proposed phased development is to coincide with the CHSR station and mixed-use opportunities



CHSR between
Rose Quarter
and Swan Island

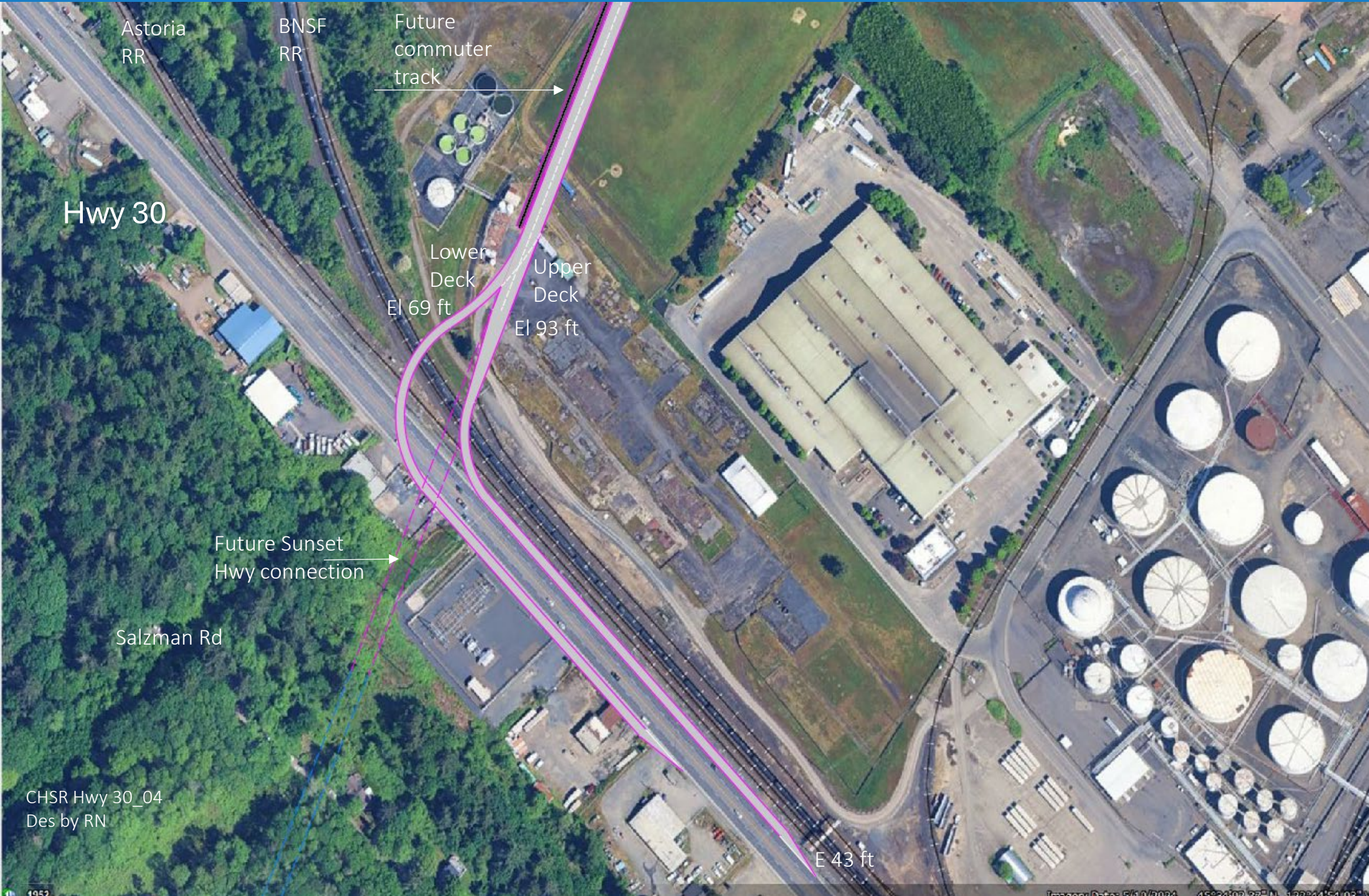
The HSR flyover is
located below the
Fremont Bridge
and above
N Going Street.



Cascadia
Tri-Corridors
North of Swan
Island

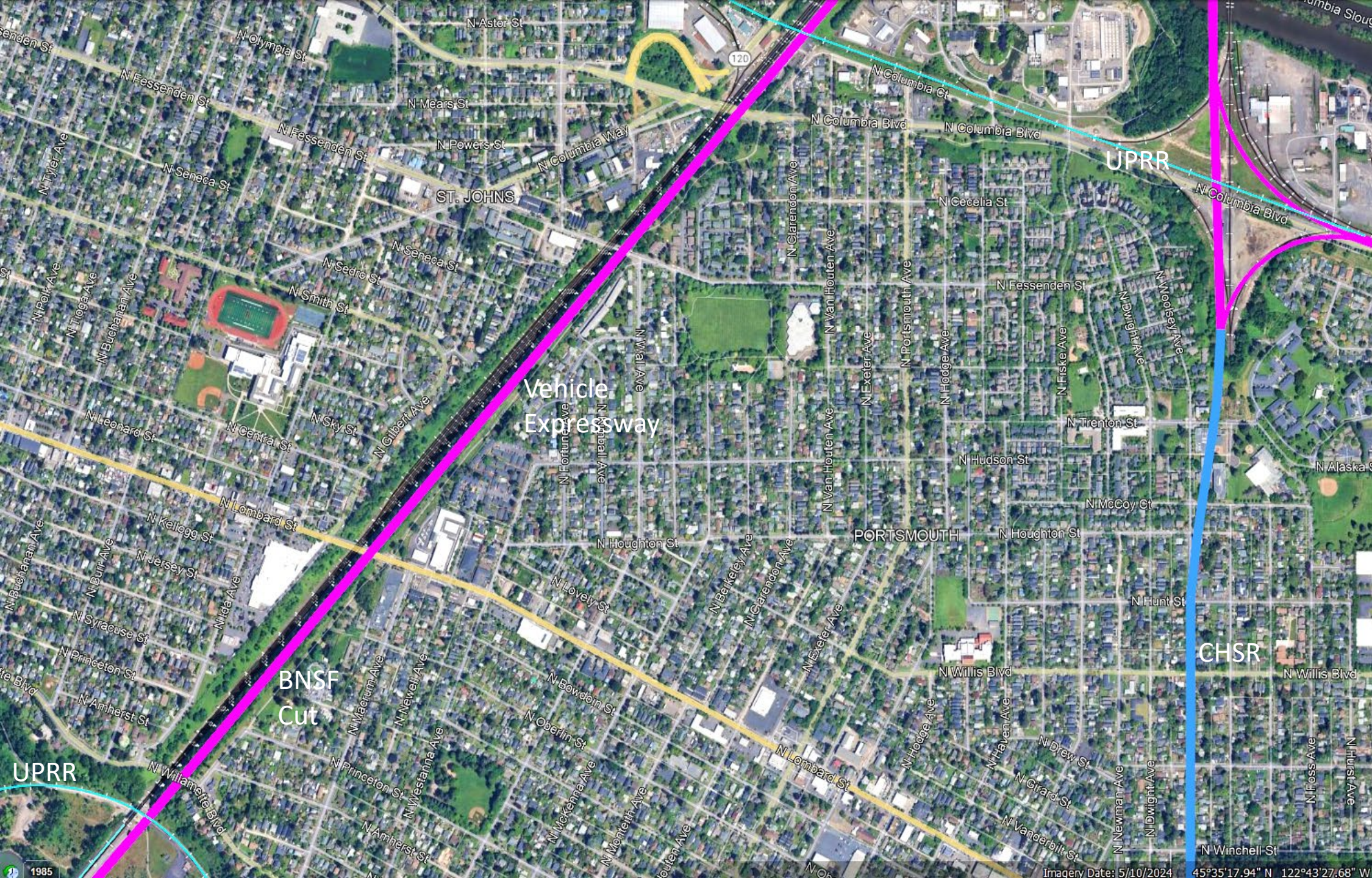
Freight rail will
intersect to gain
access to the
Cascadia
Multimodal
Bridge.

The CHSR tunnel
is below N.
Woolsey Avenue.



New Vehicle Expressway Interchange from Hwy 30 to New Double Deck Bridge over the Willamette River to Vancouver

This new vehicle expressway will relieve traffic congestion on the I-5 corridor.

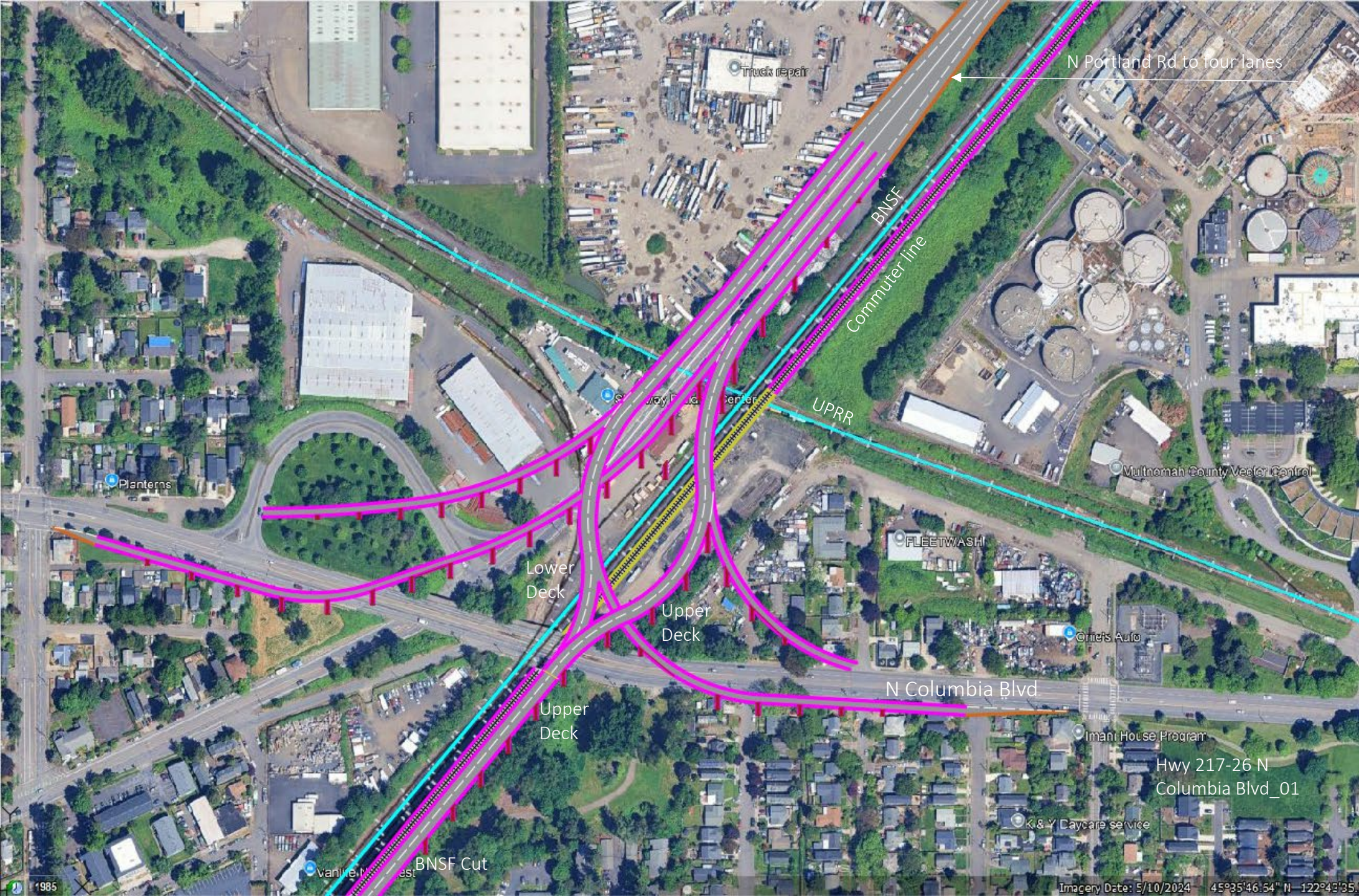


Vehicle Expressway Through the BNSF Cut between the Willamette and Columbia River

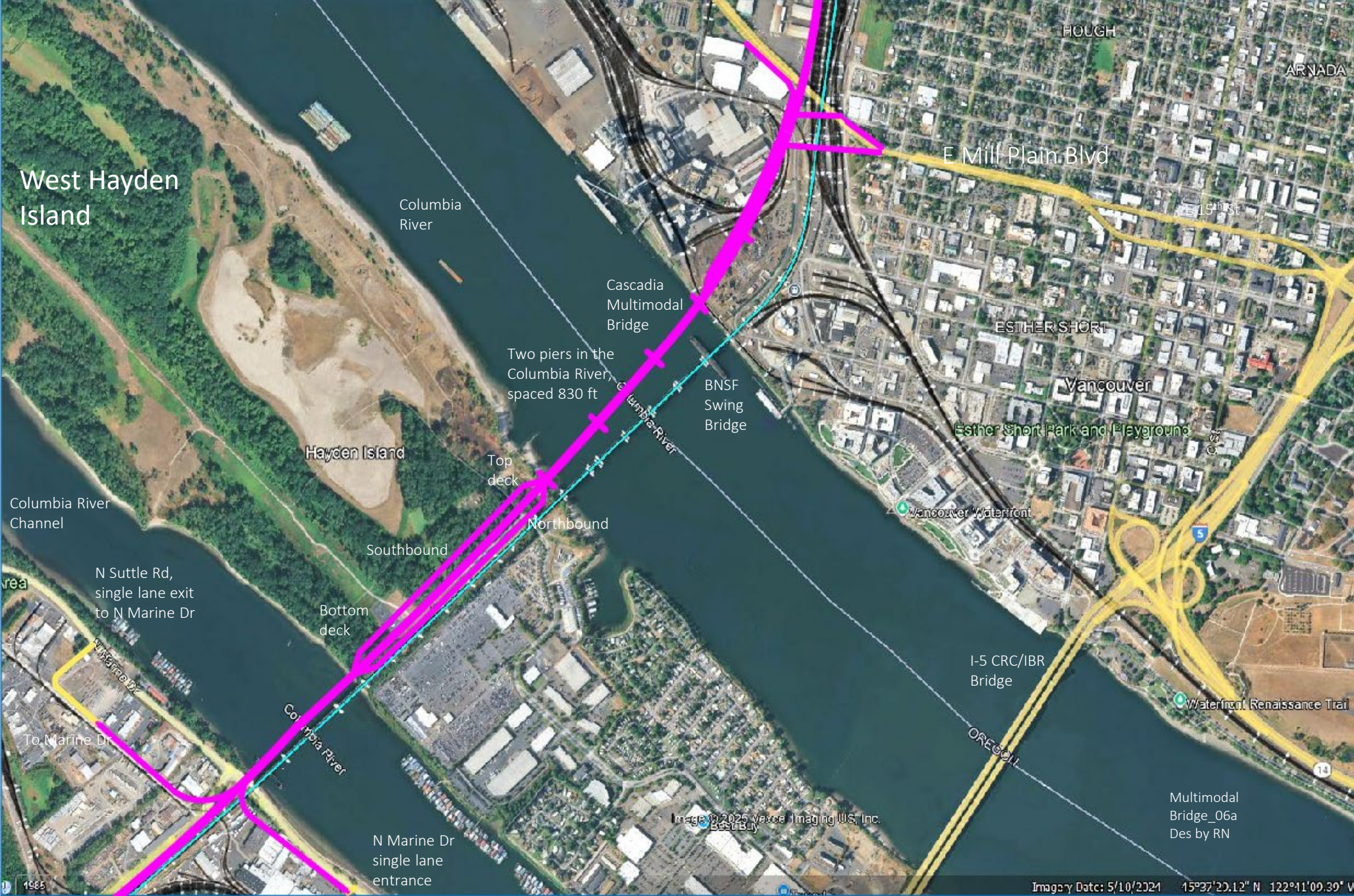
The flyover has two lanes per deck between Hwy 30 and N Columbia Boulevard.

The existing Willamette Blvd, N Lombard St, and the N Fessenden St Bridges will require replacement.

A commuter station below the Willamette Blvd Bridge is possible



N Columbia Blvd
Interchange with
the CHSR/Cascadia
Commuter Express
Corridor and
Vehicle
Expressway

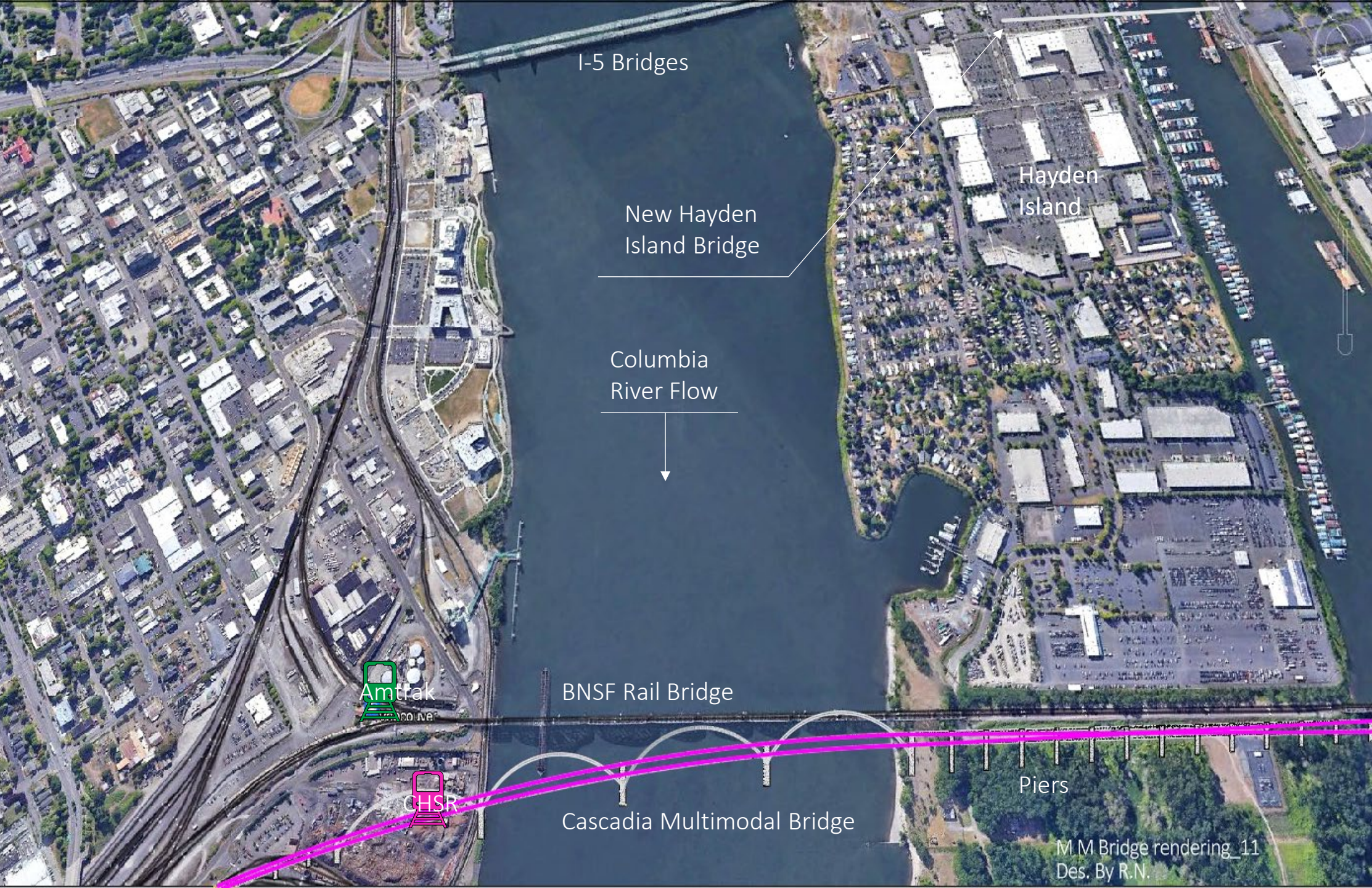


CHSR Corridor and the Cascadia Multimodal Bridge Over the Columbia River

The proposed Cascadia Multimodal Bridge has a clearance between the river and the bridge bottom of up to 170 ft.

Vehicle lanes at Hayden Island will switch from the bottom deck to the top deck. Corridor grade is 1.3%.

This bridge is a safe distance from PDX Airport and will not interfere with air traffic.



Proposed Cascadia Multimodal Bridge, Hayden Island Bridge, and Existing I-5 and BNSF Railroad Bridge

The possible CCE Waterfront Station is on the west side of the existing BNSF tracks. The Amtrak Station is on the east side. A pedestrian bridge over the BNSF tracks will provide a connection to the Vancouver Waterfront.

M M Bridge rendering_11
Des. By R.N.

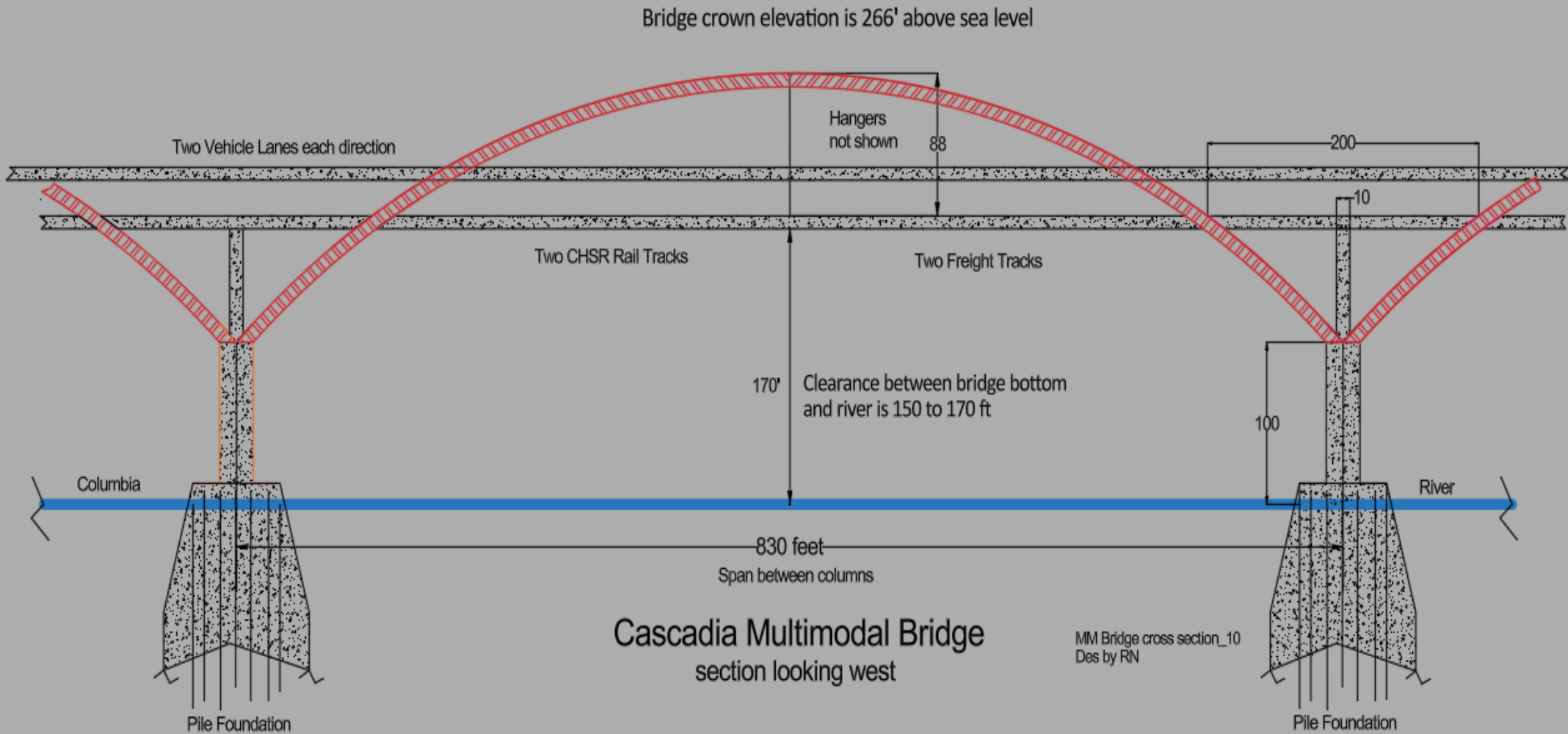


BNSF RR Bridge

Columbia River

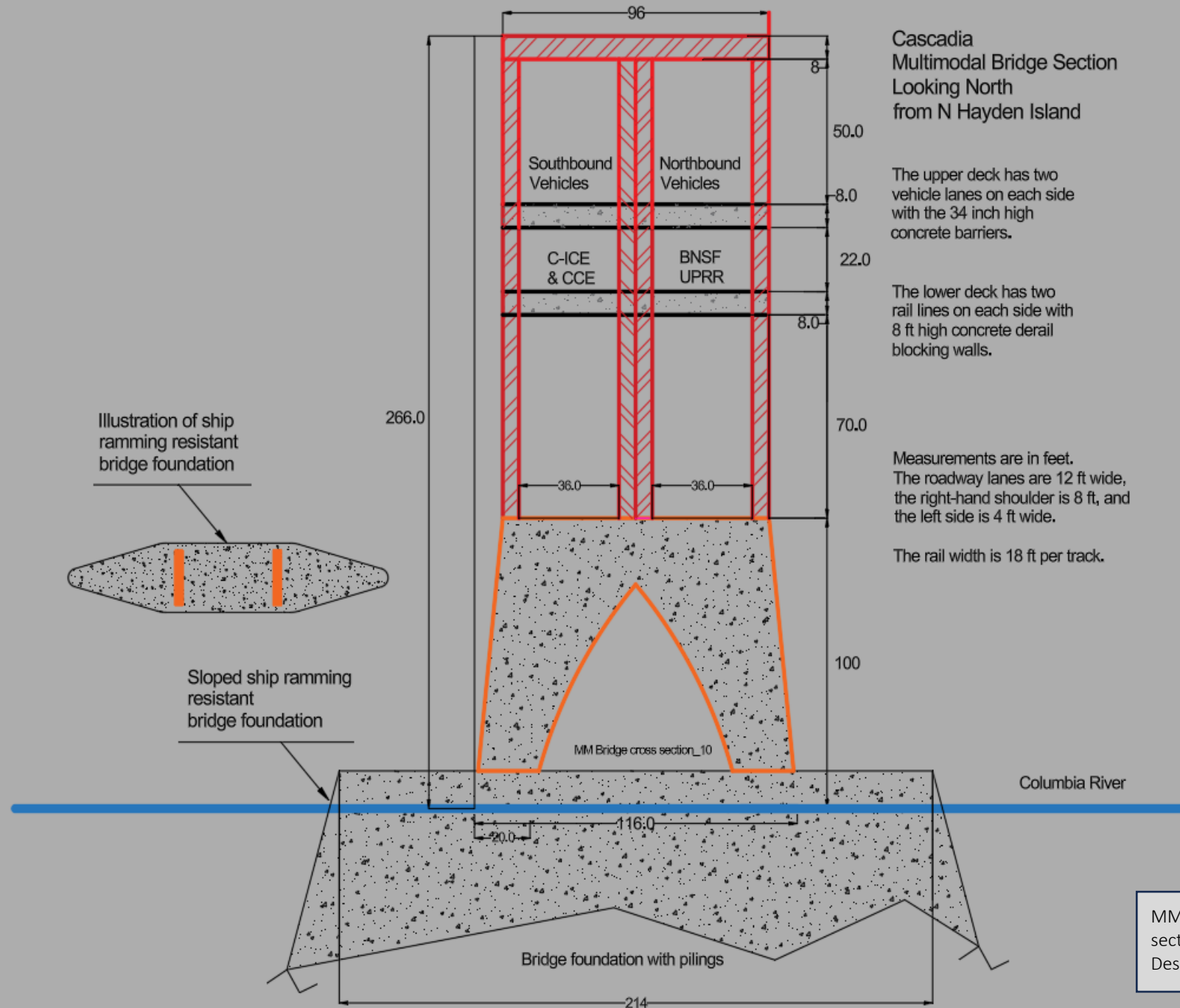
The Proposed Cascadia Multimodal Bridge's Lower Deck is for CHSR and Freight Rail Corridors and the Upper Deck is for Vehicles

The existing BNSF Bridge is an average of 230 ft east of the Cascadia Multimodal Bridge.



Cascadia Multimodal Bridge Concept

The Cascadia Multimodal Bridge has two foundations in the Columbia River, and three foundations on land.



MM Bridge cross section_10
Des by RN

Proposed Cross-Section of the Arched Bridge with Two Decks for CHSR and Freight Rail on the Lower Deck and Vehicles on the Upper Deck

This cross-section depicts the rail and vehicle expressway decks.

The freight rail approach grades are 1.2% or less. The vehicle interchange grades are 6% or less.



MILL PLAIN BLVD

LINCOLN AVE

CASCADIA COMMUTER
EXPRESS STATION

TIERED GREEN
PARKING
STRUCTURE

W 11TH STREET

WATERFRONT PARK CONNECTION

COLUMBIA RIVER

PROPOSED DEVELOPMENT BOUNDARY

MAX GSF (5:1 FAR)= 9.0 mil. SF

RECOMMENDED GSF (3:1 FAR)= 5.4 mil. SF

EXISTING MAX FAR (1:1) = 1.8 mil. SF

VANCOUVER
WATERFRONT



CHSR and Vehicle Expressway at E Mill Plain Boulevard Area

This is the end of the vehicle expressway between Hwy 30, Columbia Blvd, Marine Drive, and Mill Plain Blvd.

Traffic signals are needed to allow safe interchanges.

The CHSR and BNSF/UPRR are above the vehicle expressway.

- #1 Traffic signals to allow vehicle interchanges.
- #2 Push button for pedestrians and bicycle riders to allow safe crossings.



Vehicle Expressway
Connection to and
from I-5 via E Mill
Plain Blvd and
E 15th St

The northbound Fruit
Valley vehicles turn left
onto Columbia St, then
left onto E 15 St, and
then go west to
intersect with Fruit
Valley Rd.

#1 = E Mill Plain Blvd
#2 = E 15th St
#3 = Columbia St
#4 = Lincoln Ave

I-5 Bridges Seismic Upgrade

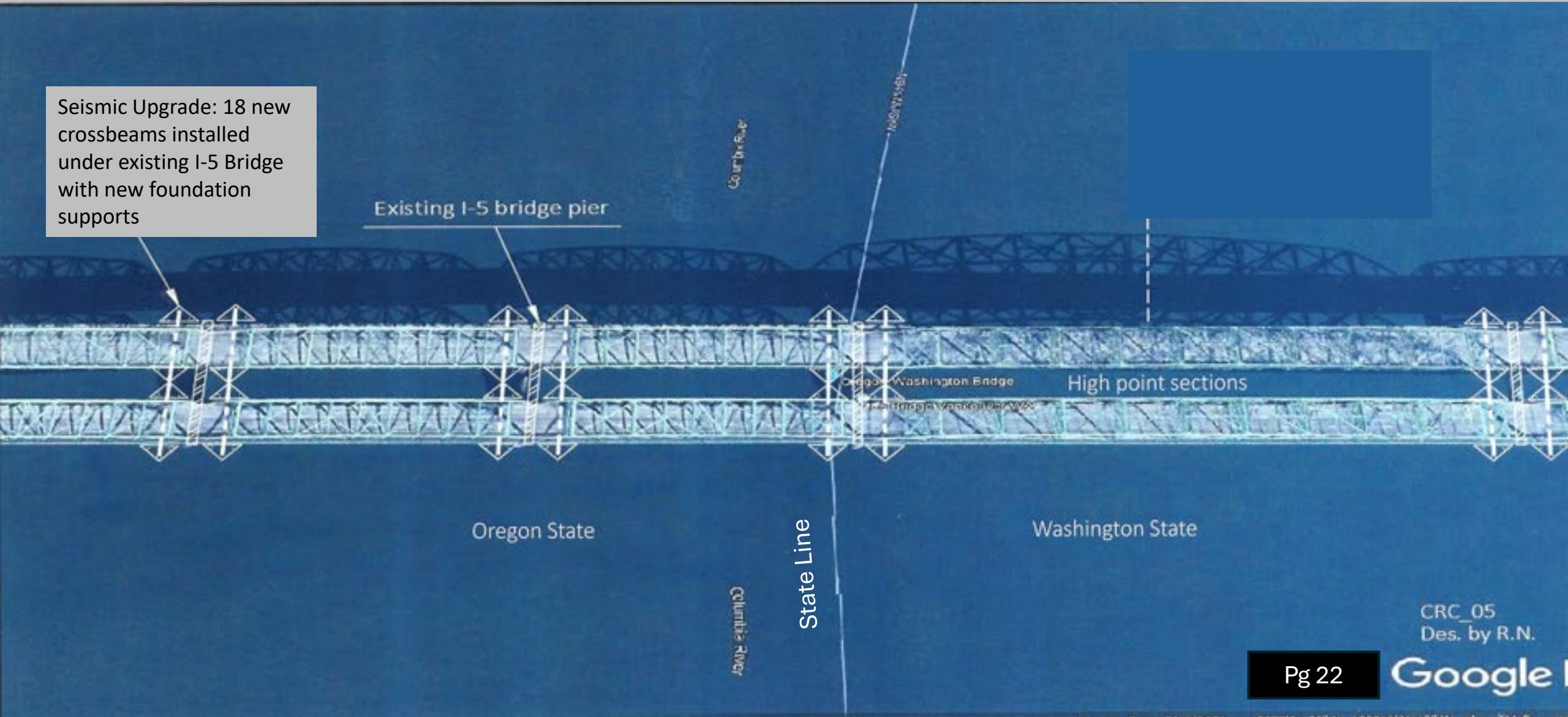
High point section

I-5 bridge undercarriage
with locations for
concrete cross beams

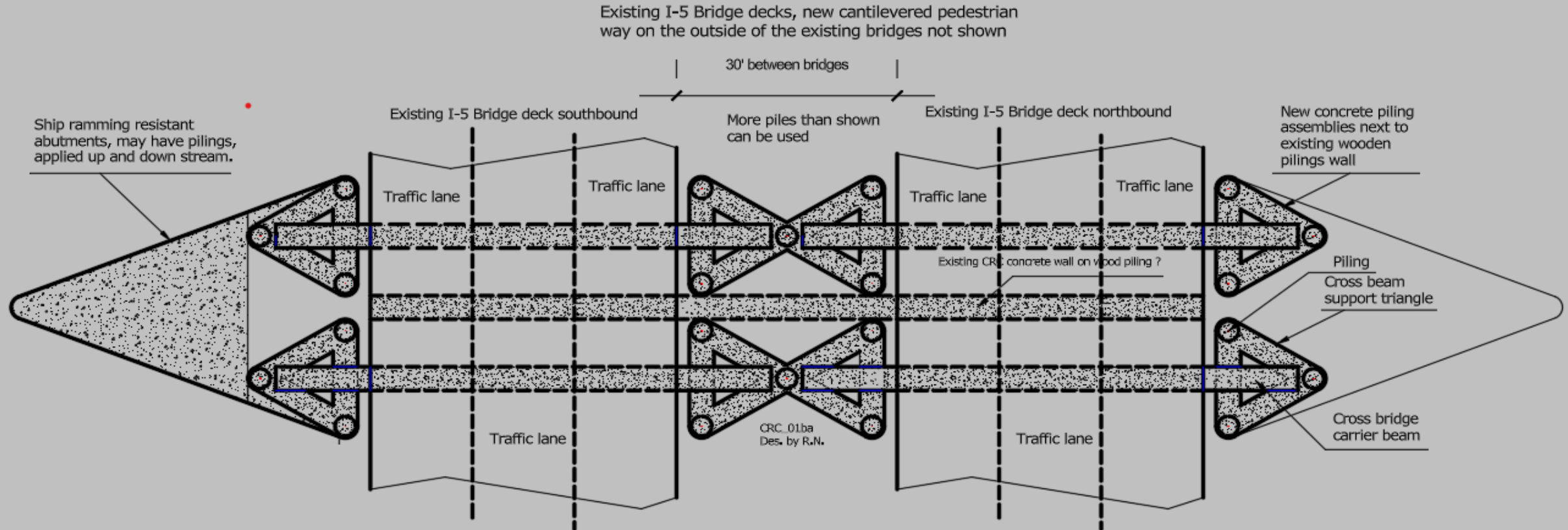
Columbia River Crossing Between Oregon and Washington

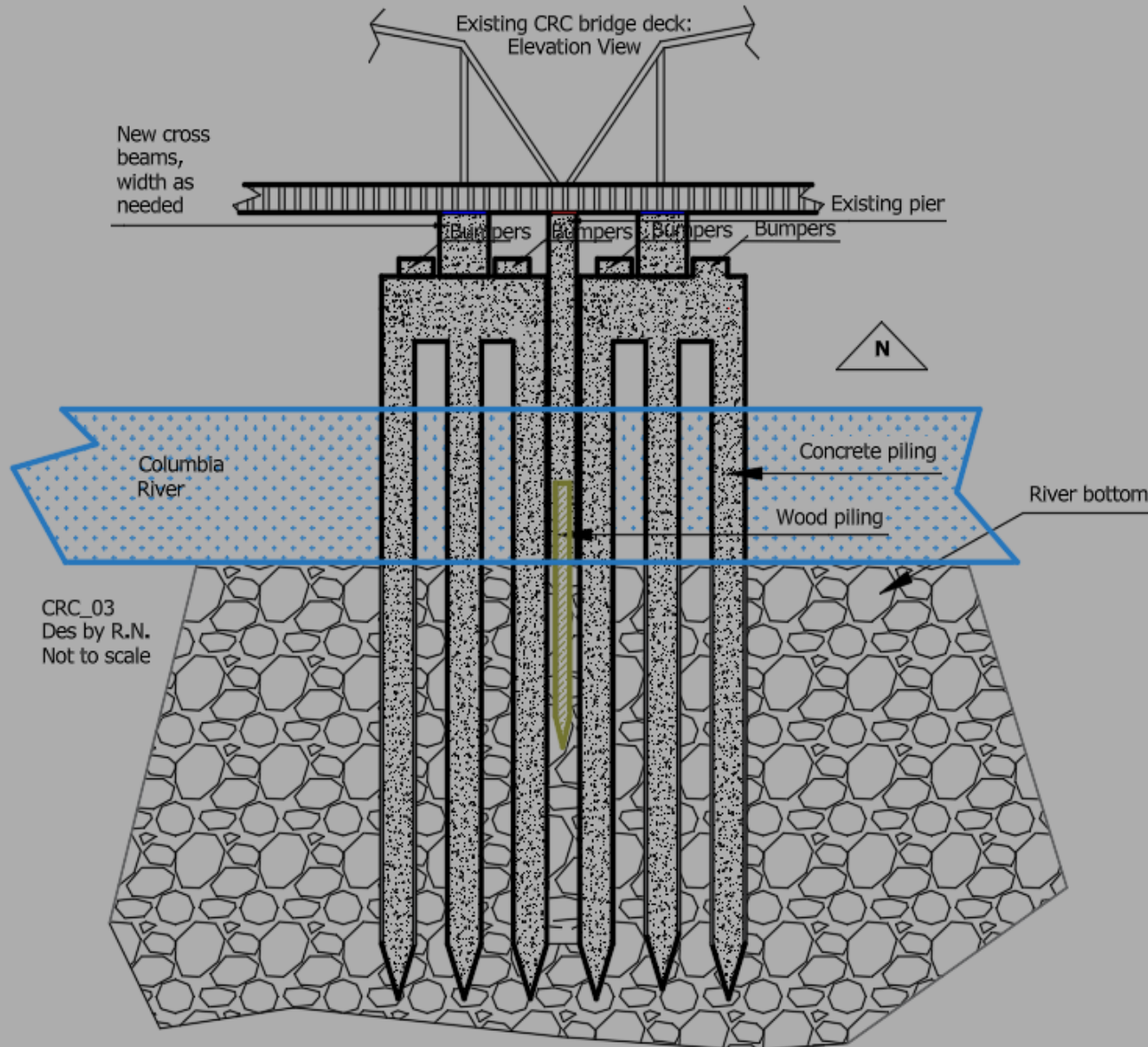
Seismic I-5 Bridge Upgrade Solution and Aerial View of Bridge Sections

Seismic Upgrade: 18 new crossbeams installed under existing I-5 Bridge with new foundation supports



Plan View of Seismically Upgraded I-5 Bridge Support Structure





Cross Section View

Existing center pile is wood.
The prestressed concrete
pilings will be longer and
penetrate deeper into the
riverbed.



Proposed Hayden Island Auxiliary Bridge

The MAX corridor will be between the north and south traffic lanes on the new bridge over the Columbia River Slough at the same elevation as I-5.