

# MAGNOLIA BRIDGE PLANNING STUDY



STAKEHOLDER MEETING  
MAY 1, 2018



# PROJECT PHASES

## 1) EMERGENCY BRIDGE CLOSURE TRANSPORTATION PLAN

- ✓ Guide the **movement of people and goods** between the Magnolia neighborhood and the 15th Ave W corridor **immediately following a catastrophic event** if one or more of the bridges serving Magnolia are closed.

## 2) SHORT-TERM CLOSURE TRANSPORTATION PLAN

- ✓ **Improve the resilience of the transportation system in advance of a catastrophic or closure event**, and help with recovery after an event. The plan focuses on the potential that the Magnolia Bridge—the most vulnerable of the bridges serving Magnolia—could be closed to all traffic until a permanent facility can be constructed.

## Magnolia Bridge - Traffic Maintenance During Bridge Closure

Figure A – Potential Surface Routes for Emergency Responders



X = Railroad crossing that will need temporary surface to allow a vehicle to cross.

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## 2) SHORT-TERM CLOSURE TRANSPORTATION PLAN

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## 3) LONG-TERM PLANNING STUDY

- Develop a financially feasible permanent alternative replacing the functional needs served by existing Magnolia Bridge structure

MAGNOLIA BRIDGE  
PLANNING STUDY  
FUNDED THROUGH THE  
2015 MOVE SEATTLE LEVY

# LONG-TERM PLANNING STUDY PURPOSE & GOALS

## **Mission:**

*Develop an alternative that provides safe and efficient access to the Magnolia area that has stakeholder support and is financially feasible.*

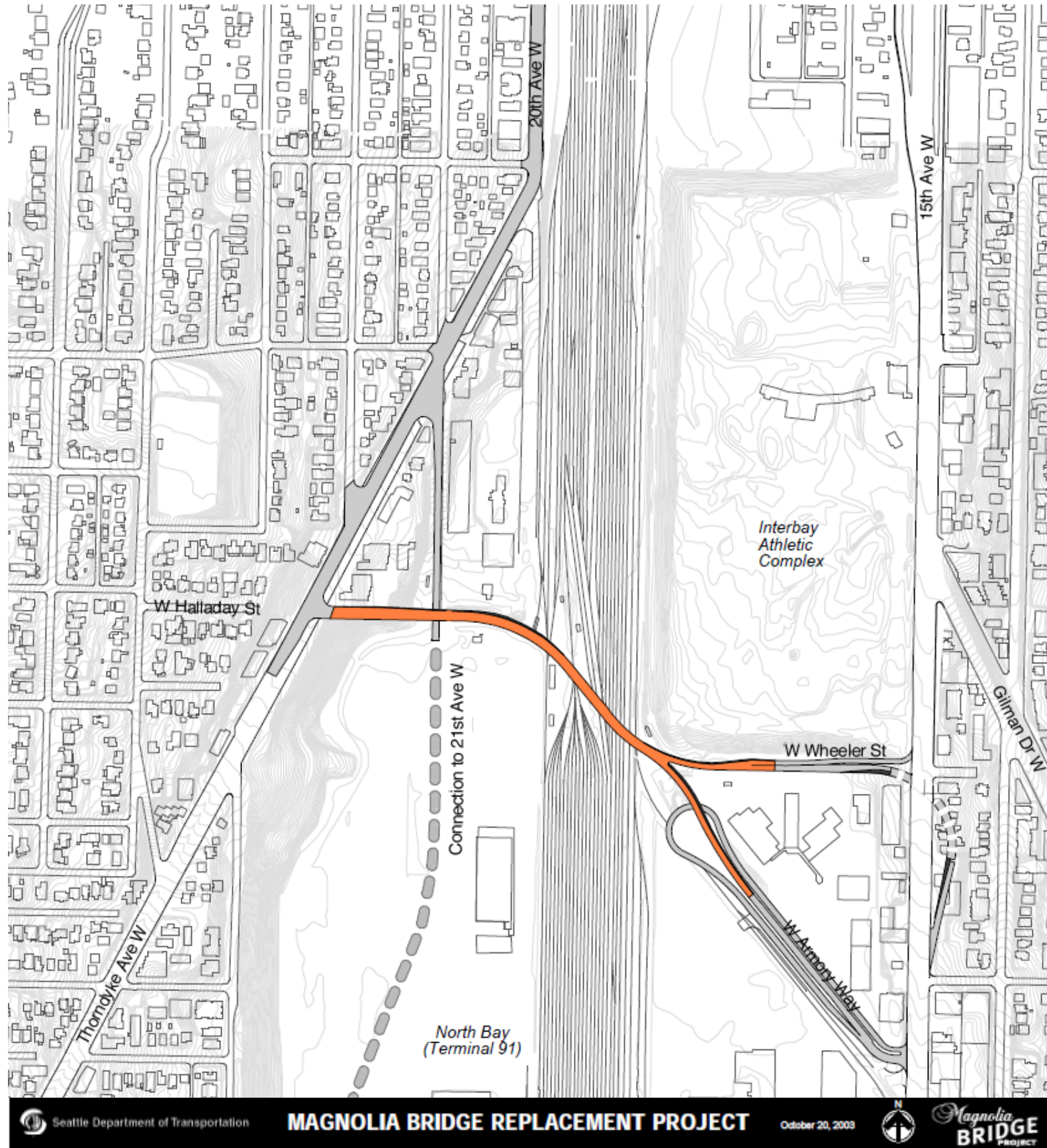
## **Project Goals:**

- *Provide a safe route(s) to Magnolia.*
- *Provide reliable and redundant access to and from Magnolia.*
- *Any new route must be grade separated from the BNSF Mainline railroad tracks.*
- *Provide a route that will support Magnolia Village.*
- *Maintain or improve traffic flow on, and connections to, the 15th Avenue W corridor.*
- *Maintain access to the Smith Cove waterfront and improve connection between Magnolia and the Smith Cove waterfront.*
- *Maintain or improve access to Terminal 91.*
- *Improve the level of bicycle and pedestrian connections within and beyond the project area.*
- *Consider future ST3 light rail project when evaluating alternatives.*
- *Design an alternative that is financially feasible.*
- *Minimize or mitigate environmental impacts.*
- *Minimize disruption during construction.*



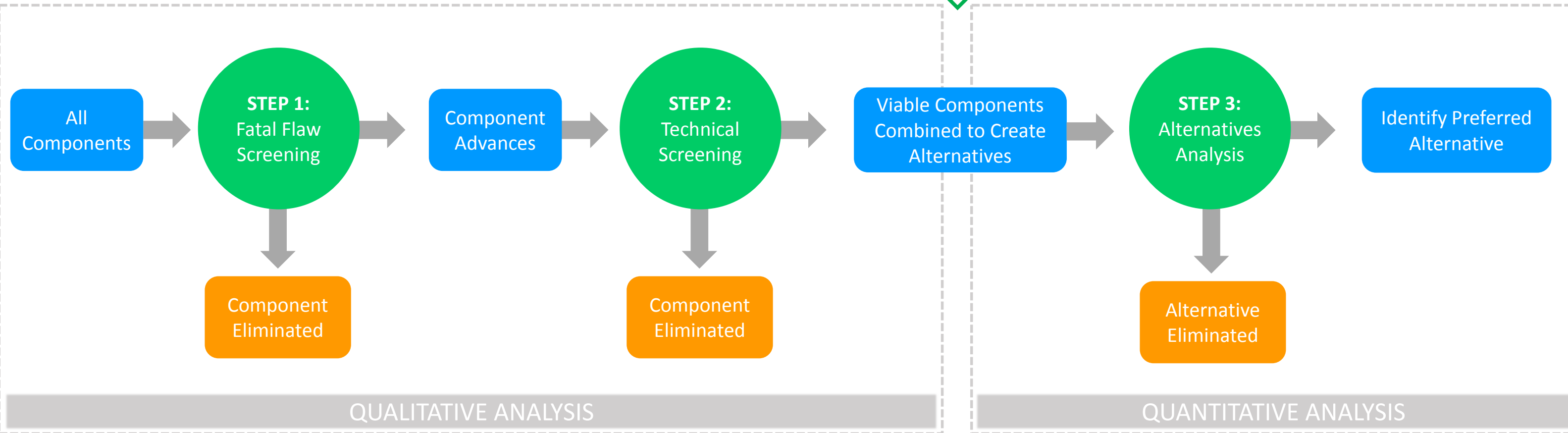
# BUILDING OFF PAST WORK

# Magnolia BRIDGE PROJECT



# EVALUATION PROCESS

WE ARE HERE



### Fatal Flaw Criteria:

- *Maintain access to the Smith Cove waterfront and improve connection between Magnolia and the Smith Cove waterfront*
- *Must be grade separated from the BNSF Mainline railroad tracks*
- *Maintain or improve access to Terminal 91 (T91)*
- *Must be financially feasible*



Component to replace the existing Magnolia Bridge was considered financially infeasible.

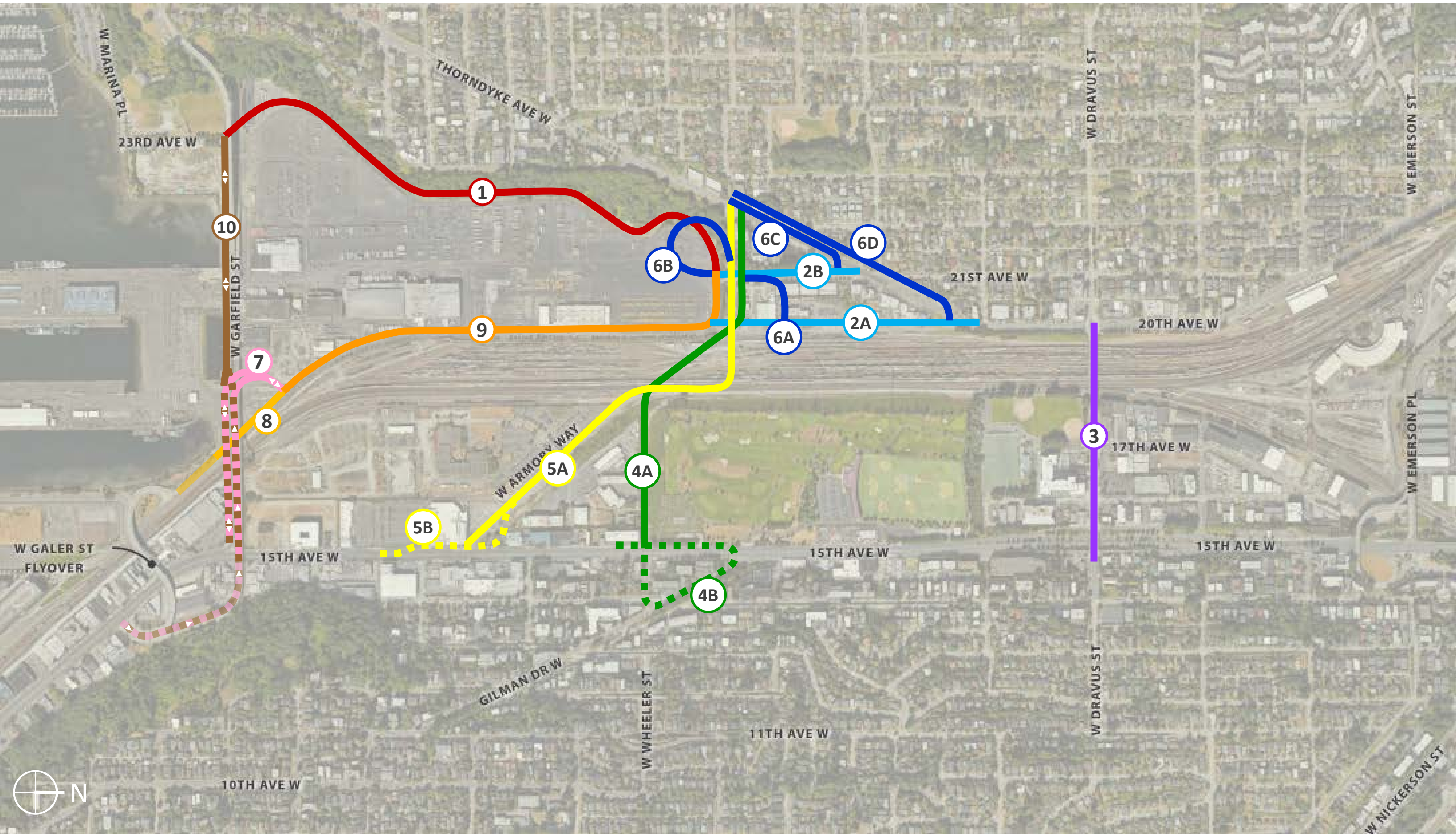
### Technical Screening includes:

- *Traffic operational need*
- *Geometric feasibility*

### Alternative Analysis include:

- *Traffic operations metrics (travel time, intersection delay, etc.)*
- *Cost Estimates*
- *Right-of-Way Impacts*
- *Construction Disruption and Duration*

# PROJECT COMPONENTS



# PROJECT COMPONENTS



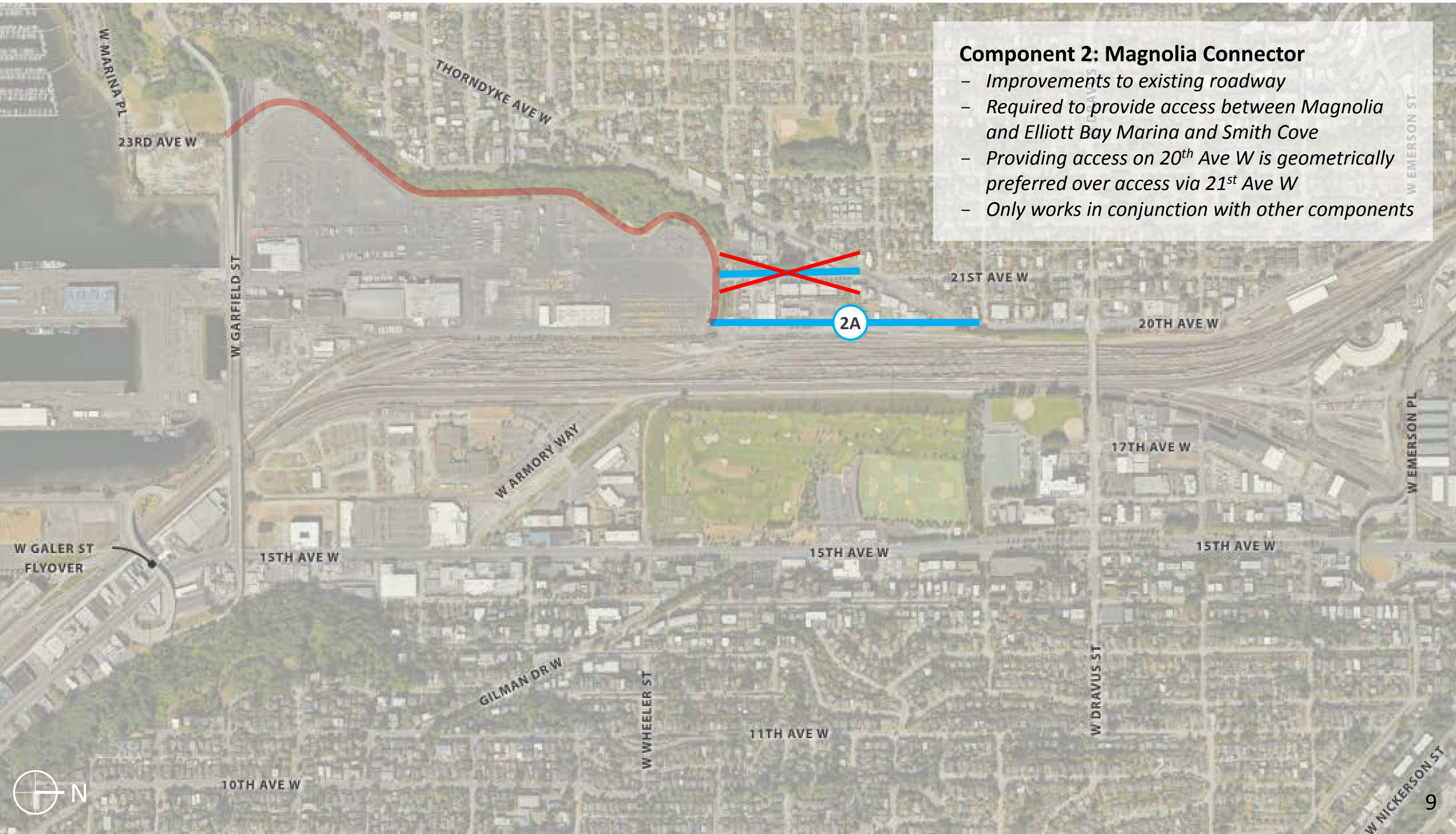
## Component 1: West Uplands Perimeter Road

- New roadway parallel to existing Elliott Bay Trail
- Provides access to/from Elliott Bay Marina and Smith Cove Waterfront
- Improves access between Magnolia and Elliott Bay Marina and Smith Cove
- Only works in conjunction with other components





# PROJECT COMPONENTS

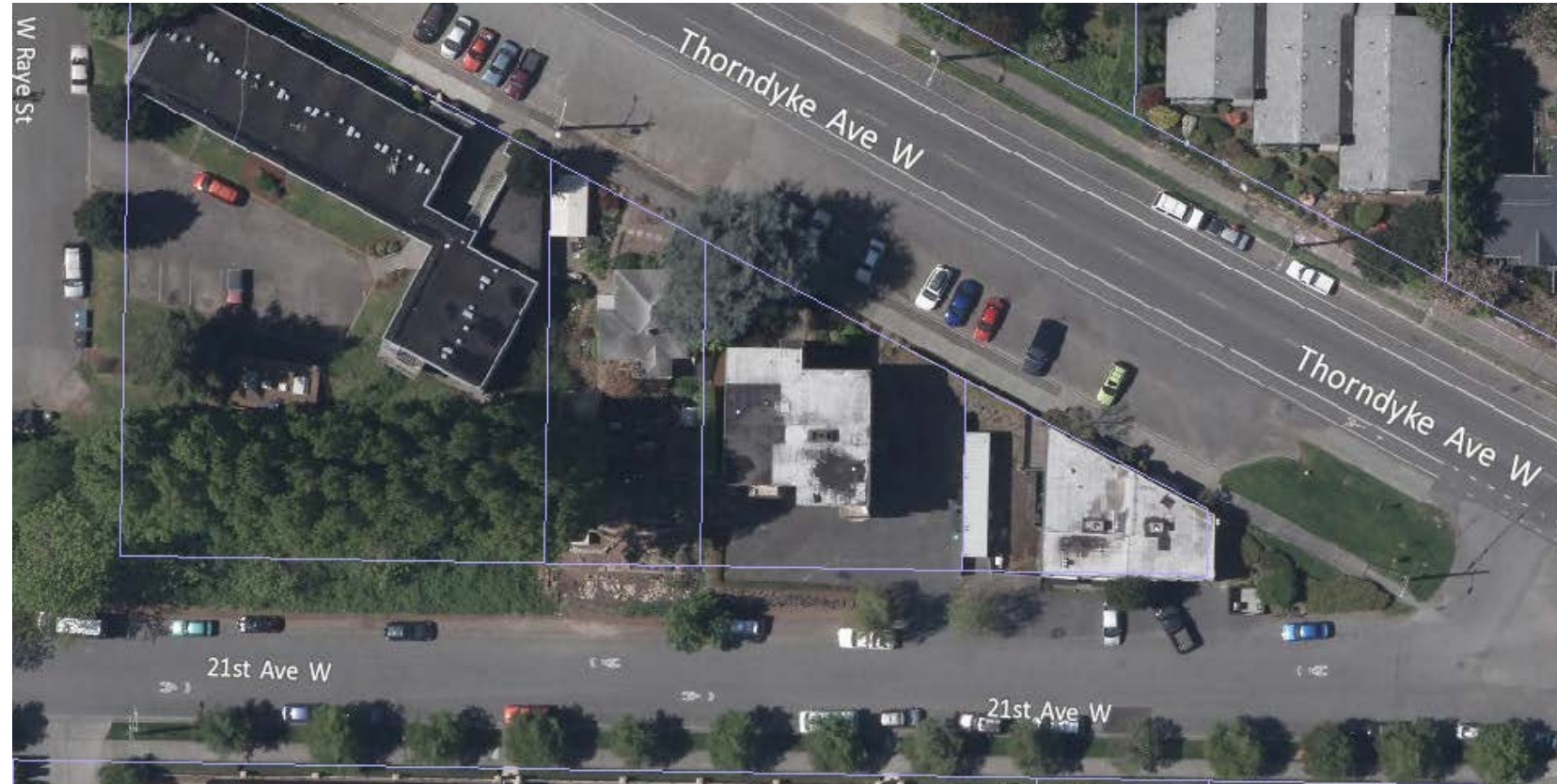


## Component 2: Magnolia Connector

- Improvements to existing roadway
- Required to provide access between Magnolia and Elliott Bay Marina and Smith Cove
- Providing access on 20<sup>th</sup> Ave W is geometrically preferred over access via 21<sup>st</sup> Ave W
- Only works in conjunction with other components

# COMPONENT #2 – Geometric Feasibility

21<sup>st</sup> Ave W –  
Neighborhood Yield



20<sup>th</sup> Ave W –  
Minor Industrial Access



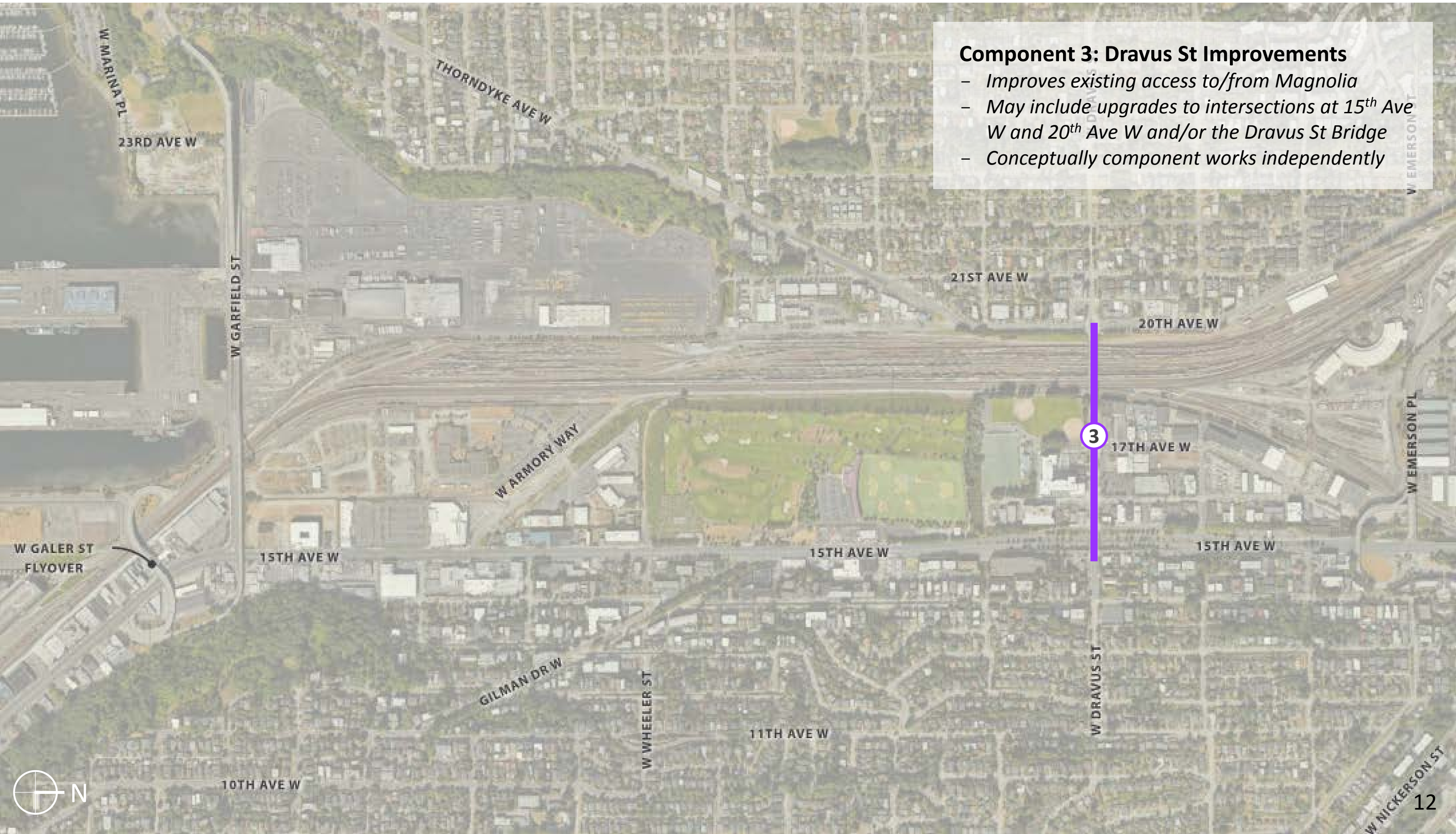
## Considerations

- *Existing Street Type*
- *Freight Vehicle Turns*
- *Current use by BNSF*
- *Adjacent Land Use*

# COMPONENT #2 – Geometric Feasibility



# PROJECT COMPONENTS



## Component 3: Dravus St Improvements

- Improves existing access to/from Magnolia
- May include upgrades to intersections at 15<sup>th</sup> Ave W and 20<sup>th</sup> Ave W and/or the Dravus St Bridge
- Conceptually component works independently

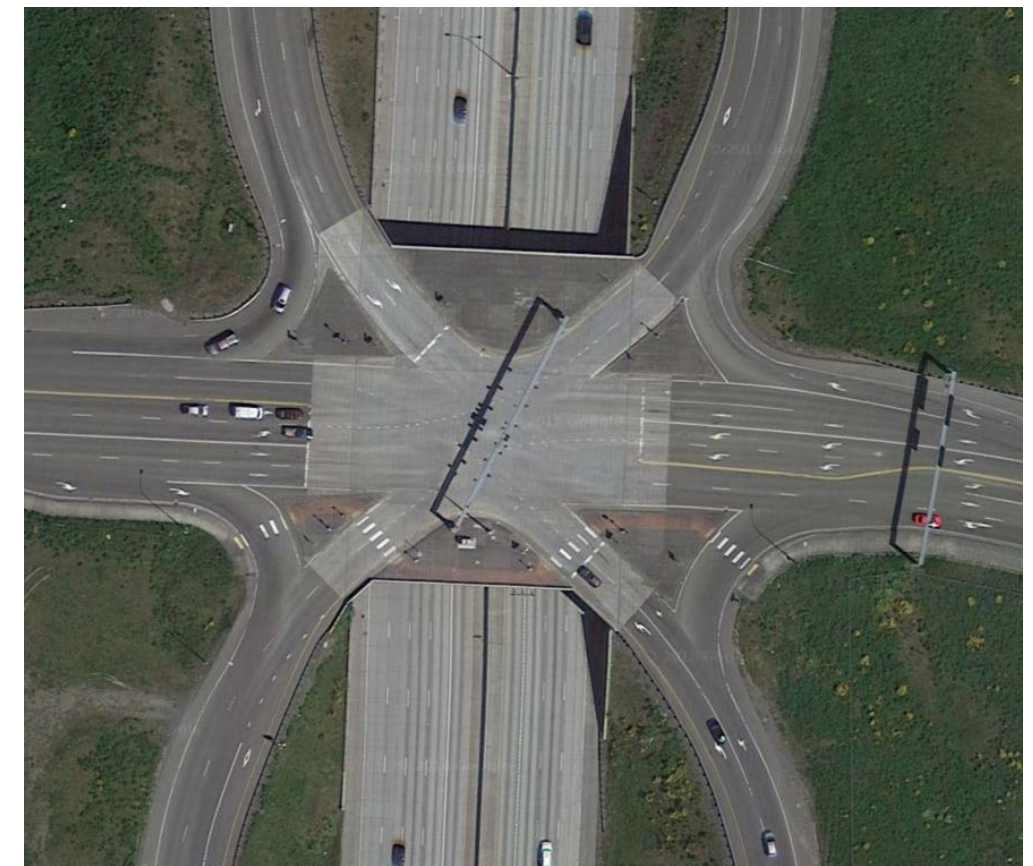
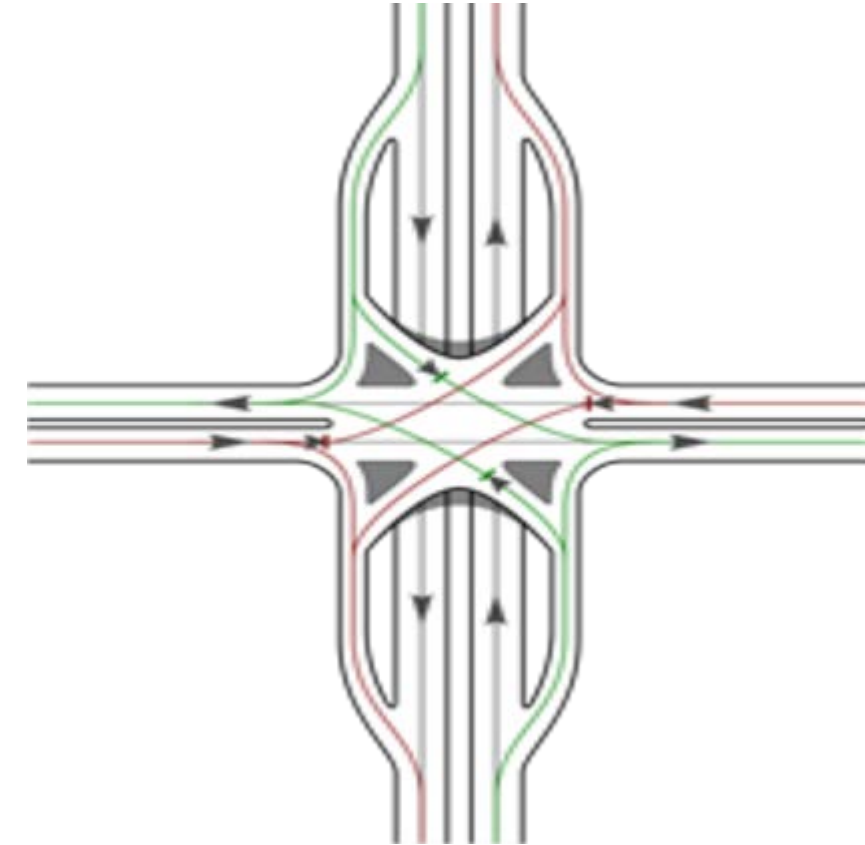


# COMPONENT #3 – Traffic Operations

## Single Point Urban Interchange (SPUI)



Source: DallasNews



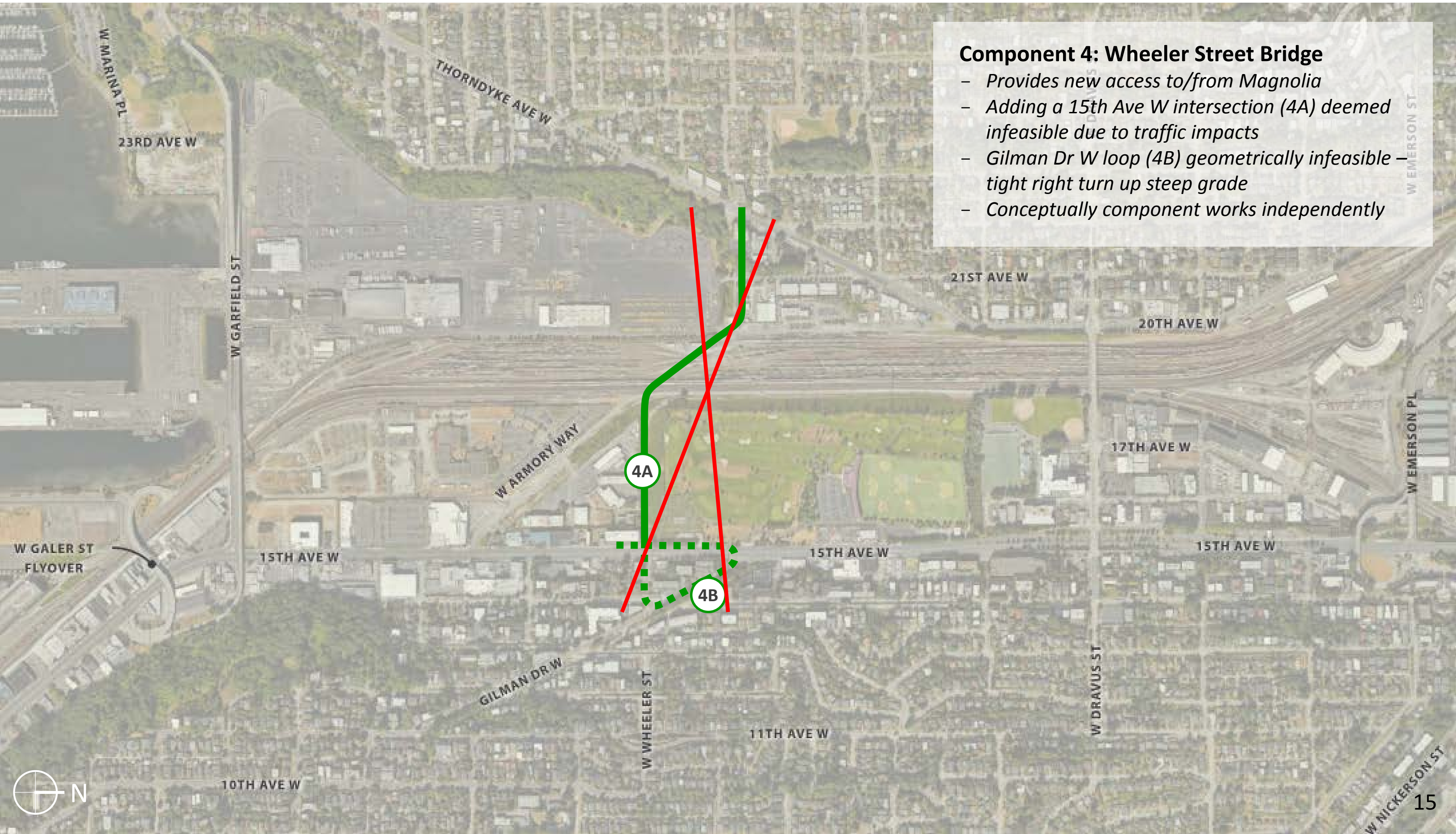
Example: I-5 & 41<sup>st</sup> St – Everett, WA

# COMPONENT #3 – Geometric Feasibility



Preliminary Component Layout  
Component 3 Dravus/15th

# PROJECT COMPONENTS



## Component 4: Wheeler Street Bridge

- Provides new access to/from Magnolia
- Adding a 15th Ave W intersection (4A) deemed infeasible due to traffic impacts
- Gilman Dr W loop (4B) geometrically infeasible – tight right turn up steep grade
- Conceptually component works independently



# COMPONENT #4 – Geometric Feasibility & Traffic Operations





# COMPONENT #4 – Geometric Feasibility



# COMPONENT #4 – Geometric Feasibility



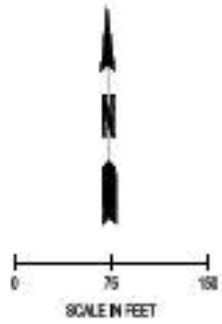
# PROJECT COMPONENTS



## Component 5: Armory Way Bridge

- Provides new access to/from Magnolia
- Braided fly-over ramp (5B) provide grade-separated access from 15<sup>th</sup> Ave W
- Adding a 15th Ave W intersection (5A) deemed infeasible due to traffic impacts
- Conceptually component works independently

# COMPONENT #5 – Geometric Feasibility



DATE PLOTTED: 04/11/2018 10:58:11 AM



SOUTH TOWER: 506 1ND AVE, SUITE 1400, SEATTLE, WASHINGTON 98104  
P: 206.739.5454 F: 206.852.1909  
SCJALLIANCE.COM

FORBIDDEN SCALE
1" = 150'
DATE
APRIL 03, 2018
BY
STG/ST
CHECKED
7/10/2018

Preliminary Component Layout  
Component 5A & 5B Army Way Bridge

DATE PLOTTED: 04/11/2018 10:58:11 AM  
DRAWING NO. EX-5A & 5B

# PROJECT COMPONENTS

## Component 6: New Bridge Port Connector

- Provides access between new bridge and Port property, Elliott Bay Marina, and Smith Cove
- Designed to accommodate freight traffic
- Option remaining Thorndyke Ave W/ 20<sup>th</sup> Ave W
- Only works in conjunction with other components



# PROJECT COMPONENTS



## Component 7: Magnolia Bridge Segment

- Improvements to existing Magnolia Bridge segment
- Provides direct access to/from Port properties
- Provides partial access to/from Magnolia in combination with other components
- Relieves pressure on Galer Street Flyover
- Designed to accommodate freight traffic
- Conceptually component works independently however, if intended for public use, only works in conjunction with other components



# PROJECT COMPONENTS



## Component 8: Alaskan Way Connector

- Extend portion of Alaskan Way
- Provides access between Port property/Magnolia Bridge segment and Galer St Flyover
- Provides partial access to/from Magnolia in combination with other components and/or the Galer Street Flyover
- Relieves pressure on the Galer St Flyover
- Only works in conjunction with other components

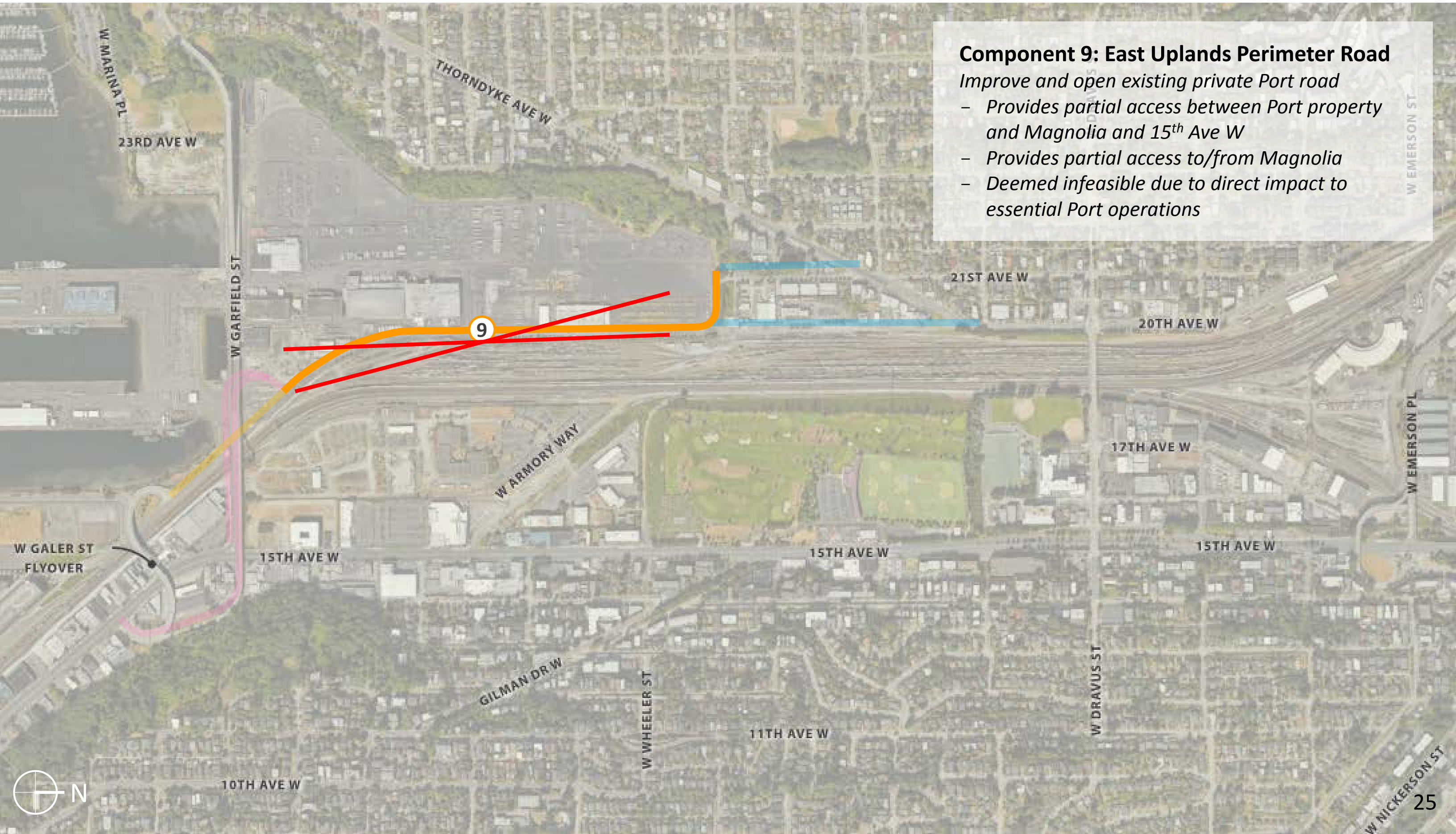
# COMPONENT #7&8 – Geometric Feasibility & Traffic Operations



Preliminary Component Layout  
Component 7 Alaskan Way Connector & 8 Magnolia Bridge Segment (WB)



# PROJECT COMPONENTS



## Component 9: East Uplands Perimeter Road

*Improve and open existing private Port road*

- *Provides partial access between Port property and Magnolia and 15<sup>th</sup> Ave W*
- *Provides partial access to/from Magnolia*
- *Deemed infeasible due to direct impact to essential Port operations*

# COMPONENT #9 – Geometric Feasibility

## Considerations

- *Rail Spur essential to Port operations*
- *Existing pinch points on Elliot Bay Trail*



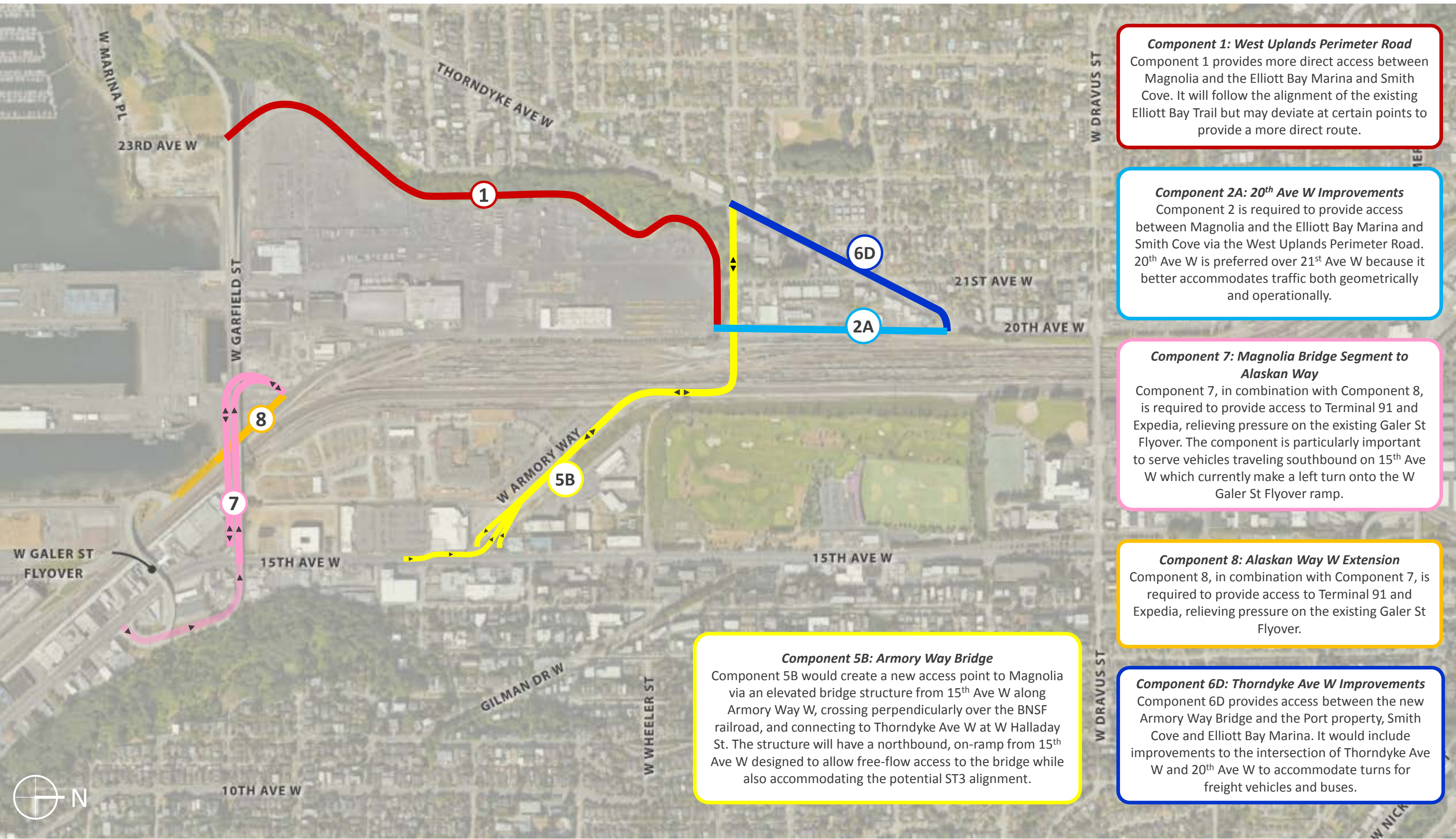
# PROJECT COMPONENTS



## Component 10: Magnolia Bridge Segment to 23<sup>rd</sup> Ave W

- Improvements and replacement of existing Magnolia Bridge segments
- Provides access to/from Elliott Bay Marina and Smith Cove (does not improve access to/from Magnolia)
- Provides direct access to/from Port properties
- Particularly important to freight traffic
- Conceptually component works independently

# DRAFT ALTERNATIVE I



**Component 1: West Uplands Perimeter Road**  
Component 1 provides more direct access between Magnolia and the Elliott Bay Marina and Smith Cove. It will follow the alignment of the existing Elliott Bay Trail but may deviate at certain points to provide a more direct route.

**Component 2A: 20<sup>th</sup> Ave W Improvements**  
Component 2 is required to provide access between Magnolia and the Elliott Bay Marina and Smith Cove via the West Uplands Perimeter Road. 20<sup>th</sup> Ave W is preferred over 21<sup>st</sup> Ave W because it better accommodates traffic both geometrically and operationally.

**Component 7: Magnolia Bridge Segment to Alaskan Way**  
Component 7, in combination with Component 8, is required to provide access to Terminal 91 and Expedia, relieving pressure on the existing Galer St Flyover. The component is particularly important to serve vehicles traveling southbound on 15<sup>th</sup> Ave W which currently make a left turn onto the W Galer St Flyover ramp.

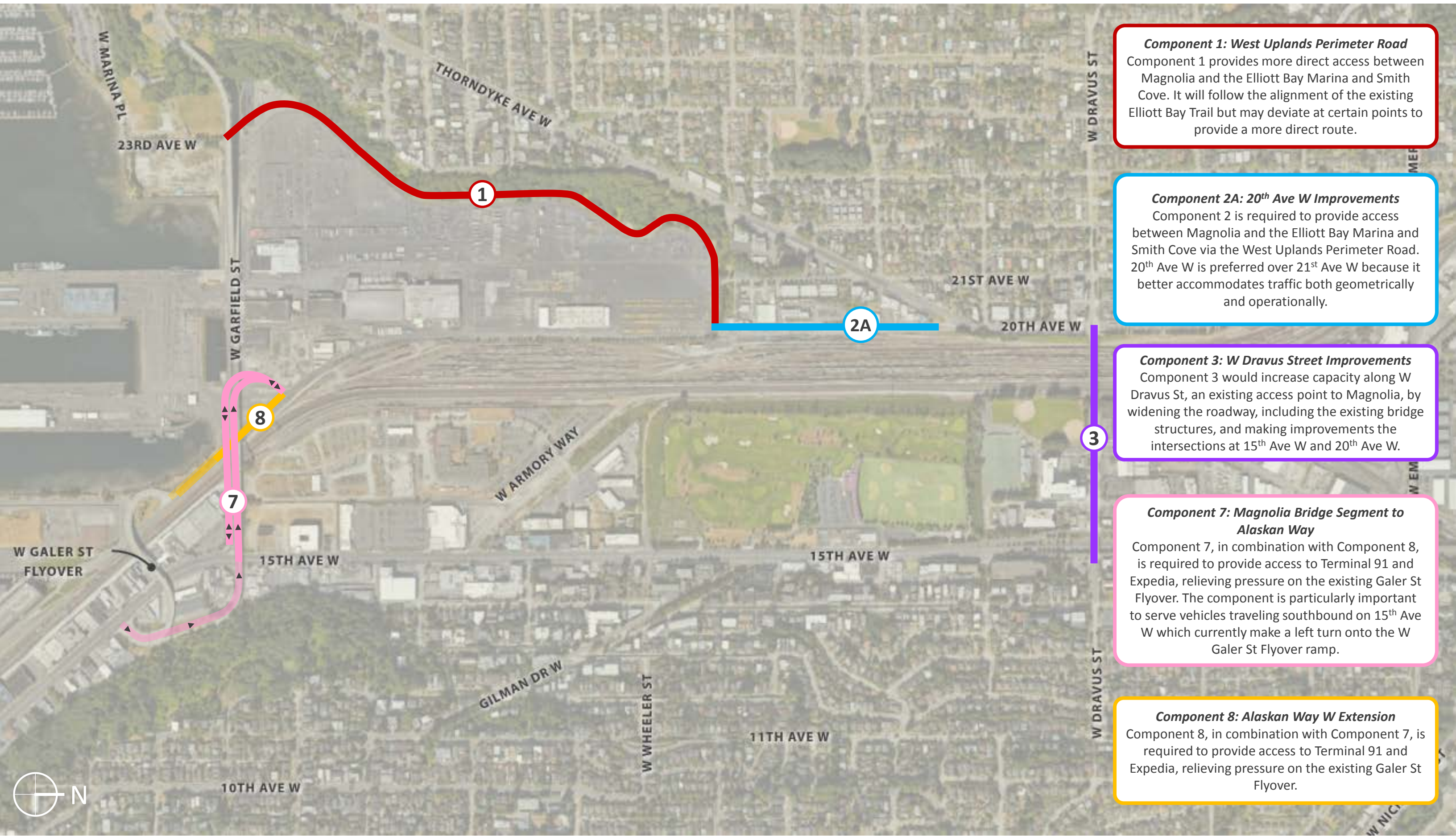
**Component 8: Alaskan Way W Extension**  
Component 8, in combination with Component 7, is required to provide access to Terminal 91 and Expedia, relieving pressure on the existing Galer St Flyover.

**Component 5B: Armory Way Bridge**  
Component 5B would create a new access point to Magnolia via an elevated bridge structure from 15<sup>th</sup> Ave W along Armory Way W, crossing perpendicularly over the BNSF railroad, and connecting to Thorndyke Ave W at W Halladay St. The structure will have a northbound, on-ramp from 15<sup>th</sup> Ave W designed to allow free-flow access to the bridge while also accommodating the potential ST3 alignment.

**Component 6D: Thorndyke Ave W Improvements**  
Component 6D provides access between the new Armory Way Bridge and the Port property, Smith Cove and Elliott Bay Marina. It would include improvements to the intersection of Thorndyke Ave W and 20<sup>th</sup> Ave W to accommodate turns for freight vehicles and buses.



# DRAFT ALTERNATIVE II



**Component 1: West Uplands Perimeter Road**  
Component 1 provides more direct access between Magnolia and the Elliott Bay Marina and Smith Cove. It will follow the alignment of the existing Elliott Bay Trail but may deviate at certain points to provide a more direct route.

**Component 2A: 20<sup>th</sup> Ave W Improvements**  
Component 2 is required to provide access between Magnolia and the Elliott Bay Marina and Smith Cove via the West Uplands Perimeter Road. 20<sup>th</sup> Ave W is preferred over 21<sup>st</sup> Ave W because it better accommodates traffic both geometrically and operationally.

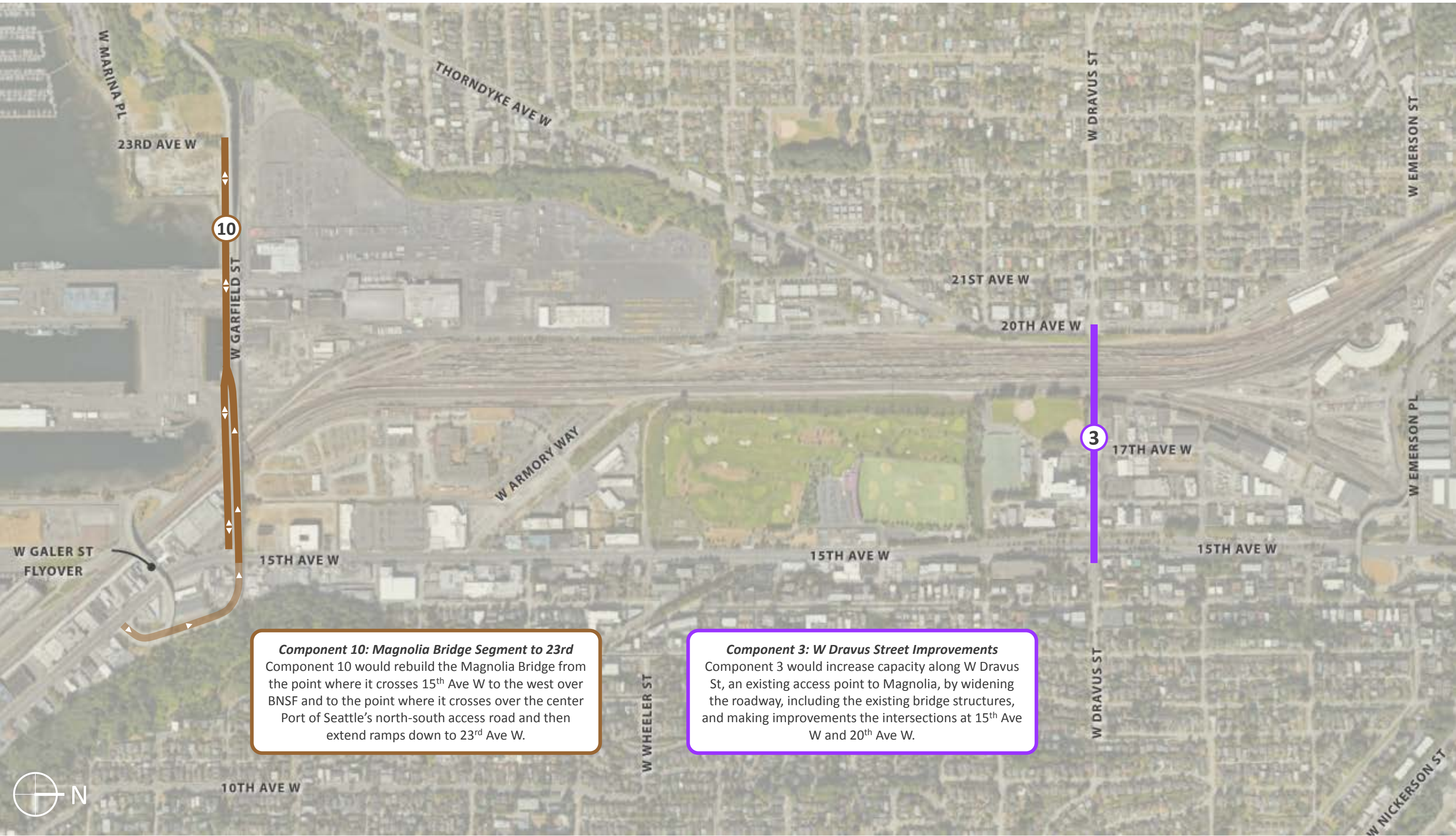
**Component 3: W Dravus Street Improvements**  
Component 3 would increase capacity along W Dravus St, an existing access point to Magnolia, by widening the roadway, including the existing bridge structures, and making improvements the intersections at 15<sup>th</sup> Ave W and 20<sup>th</sup> Ave W.

**Component 7: Magnolia Bridge Segment to Alaskan Way**  
Component 7, in combination with Component 8, is required to provide access to Terminal 91 and Expedia, relieving pressure on the existing Galer St Flyover. The component is particularly important to serve vehicles traveling southbound on 15<sup>th</sup> Ave W which currently make a left turn onto the W Galer St Flyover ramp.

**Component 8: Alaskan Way W Extension**  
Component 8, in combination with Component 7, is required to provide access to Terminal 91 and Expedia, relieving pressure on the existing Galer St Flyover.



# DRAFT ALTERNATIVE III



10

3

**Component 10: Magnolia Bridge Segment to 23rd**

Component 10 would rebuild the Magnolia Bridge from the point where it crosses 15<sup>th</sup> Ave W to the west over BNSF and to the point where it crosses over the center Port of Seattle's north-south access road and then extend ramps down to 23<sup>rd</sup> Ave W.

**Component 3: W Dravus Street Improvements**

Component 3 would increase capacity along W Dravus St, an existing access point to Magnolia, by widening the roadway, including the existing bridge structures, and making improvements the intersections at 15<sup>th</sup> Ave W and 20<sup>th</sup> Ave W.



# ALTERNATIVE ANALYSIS METRICS

## Mobility and Connectivity

- *Vehicular Access to and from:*
  - Magnolia
  - Marina/Waterfront
  - Terminal 91
- *Traffic Flow on 15<sup>th</sup> Avenue*
- *Bicycle and Pedestrian Connections*
- *Transit Access*
  - Compatible with ST3
  - Compatible with KC Metro

## Implementation Characteristics

- *Project Cost*
- *Construction Phasing and Duration*
- *Construction Impact*
- *Stakeholder Support*
- *Public Support*

## Environmental Impact

- *Adjacent Land Use (Acquisition, Noise, and Visual)*
- *Sensitive Areas (Cultural, Historic, and Natural Resources)*
- *Natural Hazards (Steep Slopes and Seismic Susceptibility)*

## Other Considerations:

- *Neighborhood Advisory Committee (NAC) Agreement*
- *Freight access and Port security protocol*
- *WA State Shorelines Elliot Marina Stipulated Order*



# NEXT STEPS

