VE in transit, the early phases, Sound Transit, Seattle

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Agenda

- How early is too early?
- Types of Projects
- Benefits and Challenges
- Project Examples
- Lessons Learned

How early is to early?

- Earlier the better
- Scope of the project
- Goal of the VE

Types of Projects?

- Large versus small
- Complex versus simple
- Project Phase
  - Environmental
  - Conceptual Design
  - Interim Preliminary Design

Benefits

- Fewer constraints
- More options
- Reduces impacts to project
- VE makes bigger impact

Challenges

- Less information
- Less defined scope
- Many options

Federal Way Link Extension

- Project: Total Project Costs $1.5 Billion
  - 7.6 mile light rail extension
  - Conceptual design after Alternative Analysis prior to DEIS
- VE Study Objectives: November 2013
  - Review ideas that would be precluded at 30% or 60% but are potentially great ideas
  - Reviewed two alignments, along I-5 and SR-99

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Federal Way Link Extension

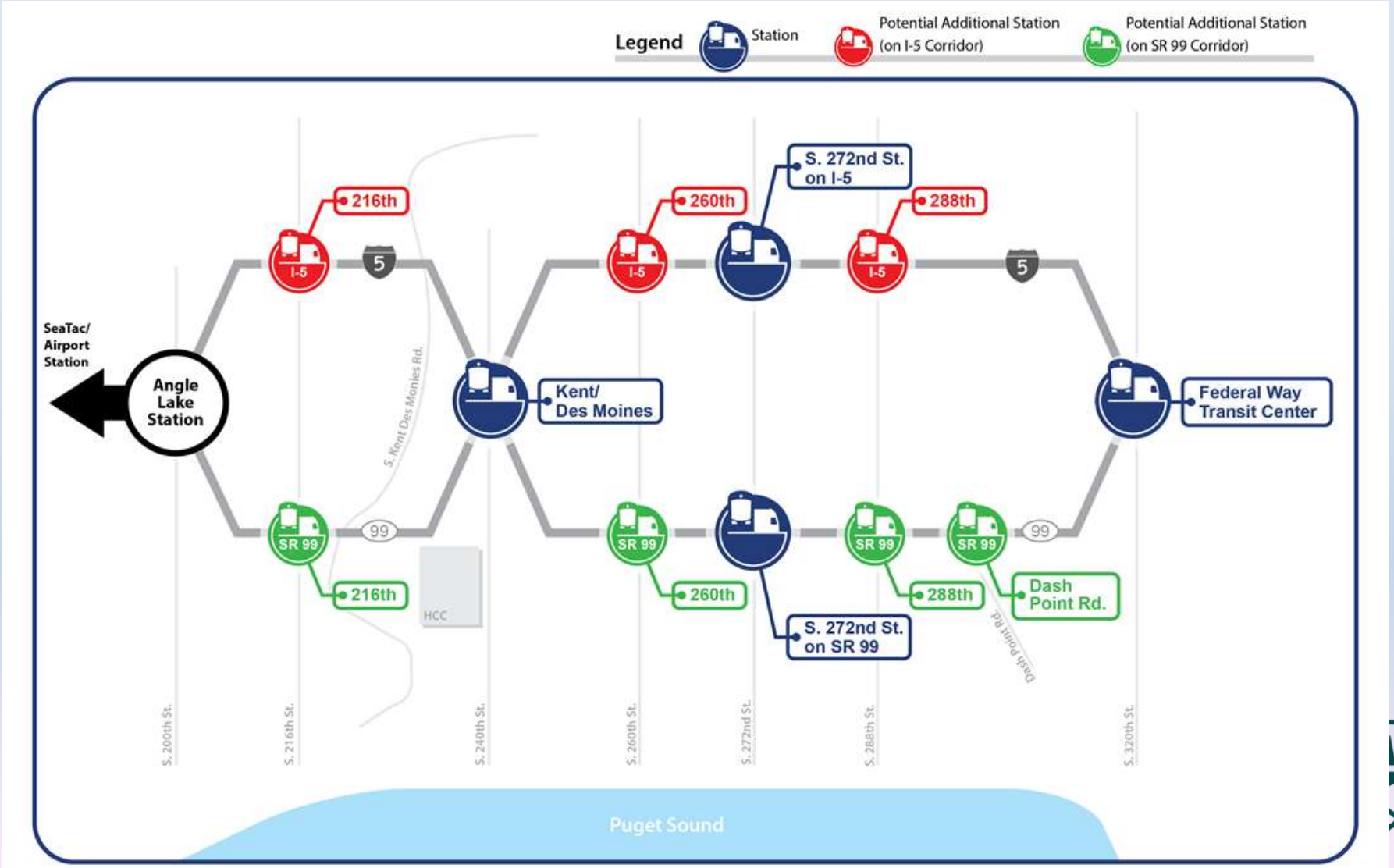
- VE Study Items
  - Reviewed two alignments, along I-5 and SR-99
  - Identified potential Project Risks with mitigation ideas

Federal Way Link Extension

Legend

- I-5 Corridor
- SR 99 Corridor
- 30th Avenue S. Corridor
- 24th Avenue S. Corridor
- Station
- Half Mile Radius from Station
- ST2 Authorized for Construction
- Currently Funded for Construction

Federal Way Link Extension



Federal Way Link Extension

Federal Way Link Extension

- VE Study I-5 Alignment:
  - 58 ideas
  - 12 VE proposals
  - 2 Design Suggestions
  - Results:
    - 5 Accept Potential Savings: $16,005,000
    - 2 Partial Accept Potential Savings: $71,670,000
    - 6 Decline
    - 1 Further Study

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Federal Way Link Extension

- VE Study SR-99 Alignment:
  - 50 ideas
  - 3 VE proposals
  - 6 Design Suggestions
  - Results:
    - 8 Accept Potential Savings: $60,323,000
    - 1 Partial Accept No Cost Impact
    - Decline – None
    - Further Study – None

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Federal Way Link Extension

- VE Study Ideas
  - Alternate alignments
  - Station configuration, at-grade versus trench
  - Station location
  - Station type
  - Track configuration
  - Track type

Lynnwood Link Extension

- Project: Total Project Costs $1.5 to 1.7 Billion
  - 8.5 mile light rail extension north of Seattle
  - Interim preliminary design
- VE Study Objectives: July 2014
  - Identify and evaluate opportunities to realize significant cost savings in major structures, alignment horizontal/vertical alignment changes, width of structures, lengths of tunnels and specific property takes versus alignment adjustments

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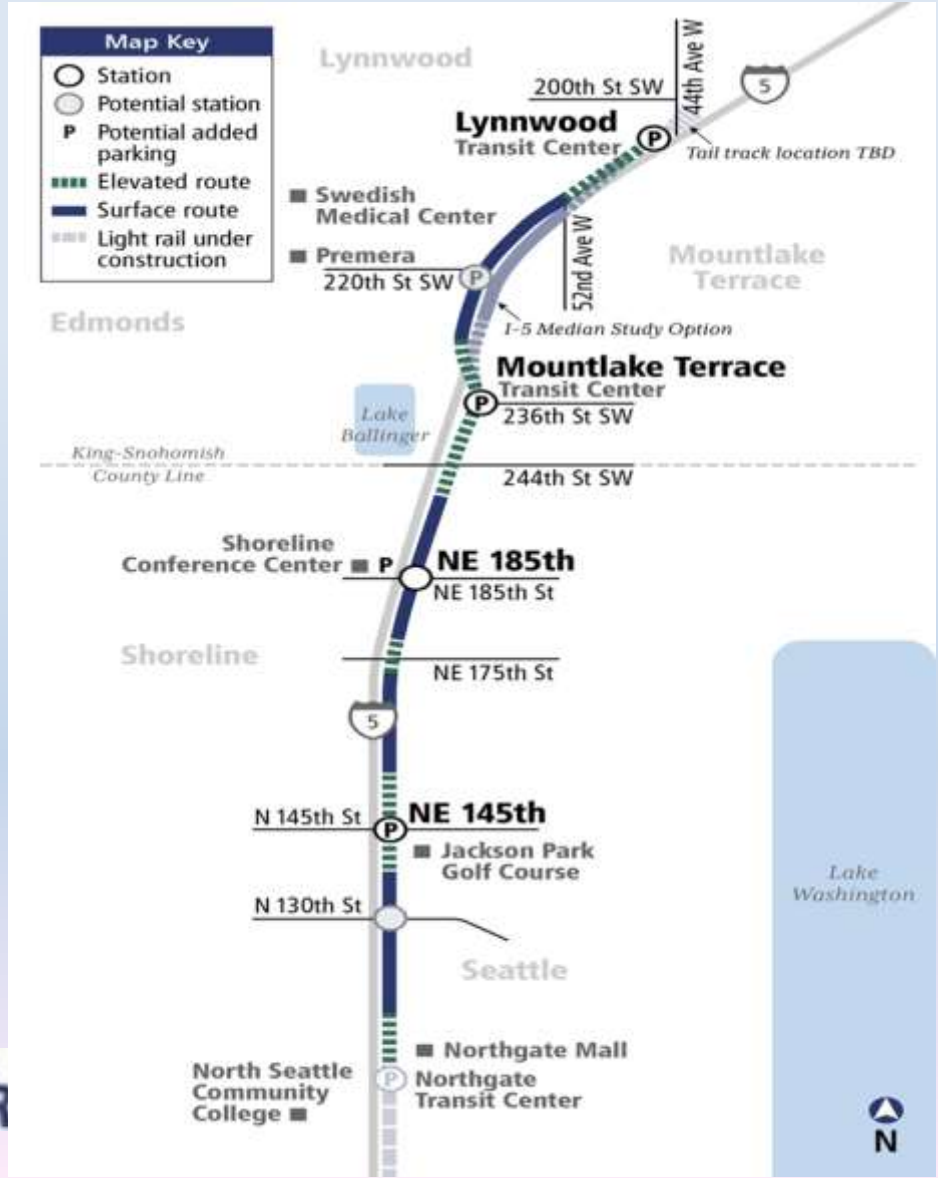
Lynnwood Link Extension

- VE Study Items
  - Reviewed preferred alignment plus I-5 option
  - Conducted Constructability Review Workshop prior to the VE Study to identify issues for VE Study
  - Added CAD team member to understand vertical and horizontal alignment (Lessons Learned from FWLE VE)
  - Identified potential Project Risks with mitigation ideas

Lynnwood Link Extension



Lynnwood Link Extension

- VE Study Preferred Alignment:
  - 84 ideas
  - 27 VE proposals
  - 9 Design Suggestions
- VE Study I-5 Option Alignment:
  - 10 ideas
  - 2 VE proposals
  - 1 Design Suggestions

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Lynnwood Link Extension

- VE Ideas:
  - Station locations
  - Eliminate stations
  - Side versus center platform
  - Alignment adjustments
  - Structure types
  - Elevated versus on-grade

Tacoma Link Extension

- Project: Total Project Costs $144 Million
  - 2.4 mile existing light rail extension “Streetcar” in Tacoma
  - 5 Stations
  - Conceptual design
- VE Study Objectives: October 2014
  - Review features and amenities for the operations and maintenance facility (OMF)
  - Traffic concerns
  - Traction power substation configuration
  - Review for value added features adjustments

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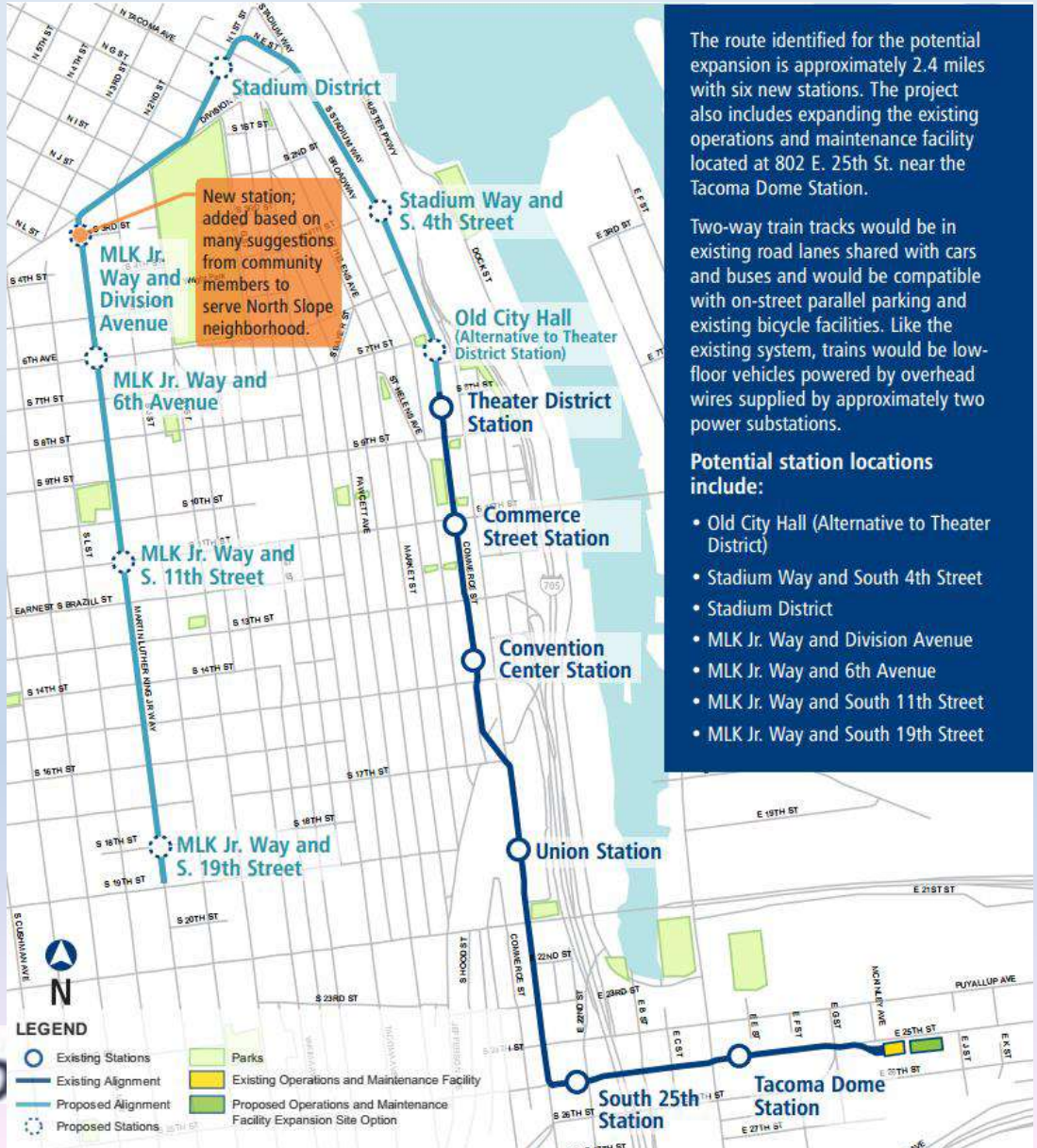
Tacoma Link Extension

- VE Study Items
  - Reviewed vehicle options
  - Reviewed design criteria; light rail versus streetcar
  - Included Cities of Seattle and Tacoma as participants
  - Identified potential Project Risks with mitigation ideas

Tacoma Link Extension



The route identified for the potential expansion is approximately 2.4 miles with six new stations. The project also includes expanding the existing operations and maintenance facility located at 802 E. 25th St. near the Tacoma Dome Station.

Two-way train tracks would be in existing road lanes shared with cars and buses and would be compatible with on-street parallel parking and existing bicycle facilities. Like the existing system, trains would be low-floor vehicles powered by overhead wires supplied by approximately two power substations.

Potential station locations include:

- Old City Hall (Alternative to Theater District)
- Stadium Way and South 4th Street
- Stadium District
- MLK Jr. Way and Division Avenue
- MLK Jr. Way and 6th Avenue
- MLK Jr. Way and South 11th Street
- MLK Jr. Way and South 19th Street

Tacoma Link Extension

- VE Study:
  - 184 ideas
  - 38 VE proposals
  - 18 Design Suggestions
  - 48 Design Comments

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Tacoma Link Extension

- VE Ideas:
  - New versus used vehicles
  - Operations and maintenance facility (OMF) configuration
  - Adjacent land use for parking and storage
  - Construction maintenance of traffic
  - Lessons learned First Hill Streetcar, City of Seattle

Lessons Learned

- Define the scope of VE
- Need experienced team members
- Team members able to work with little information or definition
- Number of options can be overwhelming
- Define the “baseline” for VE
- ST PMs experience and involvement

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Questions?