Energize Eastside

Community Advisory Group Meeting #2

Leann Kostek

Senior Project Manager,
Puget Sound Energy

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February 12, 2014

PSE PUGET SOUND ENERGY

Information requested at meeting #1

- Energy split for plug loads
- Capacity increase the project would bring in 2018
- Total population benefit from project
- Points of flexibility in design
- New technology alternatives
- Battery storage
- Integrated Resource Plan (IRP)

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- **Total population benefit from project**
- Points of flexibility in design
- New technology alternatives
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- Integrated Resource Plan (IRP)

Information requested at meeting #1

- **Points of flexibility in design**
  - Span length
  - Pole height
  - Pole diameter
  - Pole configuration
  - Pole spotting/placement
  - Pole material/finish

Information requested at meeting #1

- Energy split for plug loads
- Capacity increase the project would bring in 2018
- Total population benefit from project
- Points of flexibility in design
- **New technology alternatives**
- Battery storage
- Integrated Resource Plan (IRP)

Information requested at meeting #1

- **Battery storage**
- Energy storage pilot projects:
  - 0.5 MW / 1.0 Mwh battery
    - $2.9 Million
    - Target completion Q4 2014
  - 2 MW / 4.4 Mwh battery
    - $12 Million
    - Completion date - TBD

Information requested at meeting #1

- **Integrated Resource Plan (IRP)**
  - Filed most recent IRP in May 2013
  - Evaluates generation to meet customer needs 20 years into future
  - Typically transmission projects to address customer demand aren't mentioned

Questions from meeting #1

- Is the I-90 corridor an option?
- Could existing Seattle City Light (SCL) or Bonneville Power Administration (BPA) lines provide the needed capacity or route for the project?
- If existing/potential industrial users conserve more, will that help meet the need?

PUBLIC COMMENT

PUGET SOUND ENERGY

Energize Eastside

Solution study and route segments

Jens Nedrud

Deputy Project Manager,
Puget Sound Energy

Andy Bury

Tetra Tech

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Presentation overview

1. Review the problem
2. Overview of solution selection process
3. How PSE identified and narrowed the route segments
4. Introduction to project route segments

Why is Energize Eastside needed?

- Growth is straining the Eastside's existing transmission system
- Conservation alone is not enough to meet the challenge
- We need to act now
- Upgrades will power the Eastside's growth into the future

How do we meet the need?

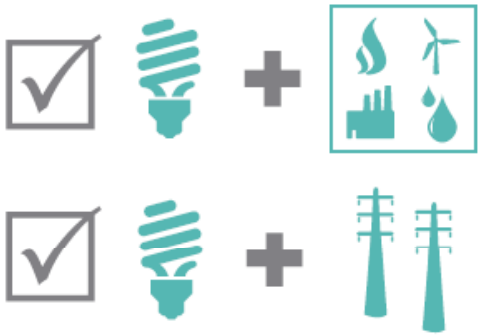
Solution study objective:

Address transmission capacity deficiency on the Eastside that develops in late 2017

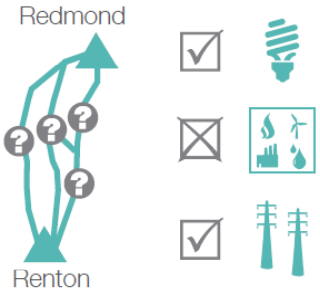
Solution selection process

1 **What are the potential approaches to meet the Eastside's electricity needs?**

2 **What approaches provide enough electricity to meet the Eastside's needs?**



3 **What solutions best deliver electricity to the Eastside?**



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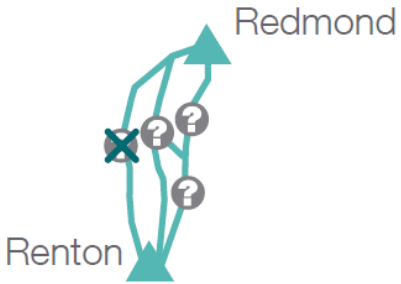
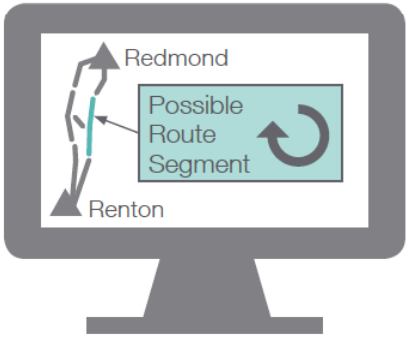
Solution selection process

4 **What solutions can PSE move forward with?**



5 **Where could PSE build a solution?**



6 **What does the public recommend?**

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Solution selection process

1

What are the potential approaches to meet the Eastside's electricity needs?

The team brainstormed four main solution types:

- Conservation (demand-side reduction)
- Local generation
- Transformer-only addition
- Transmission lines plus transformer

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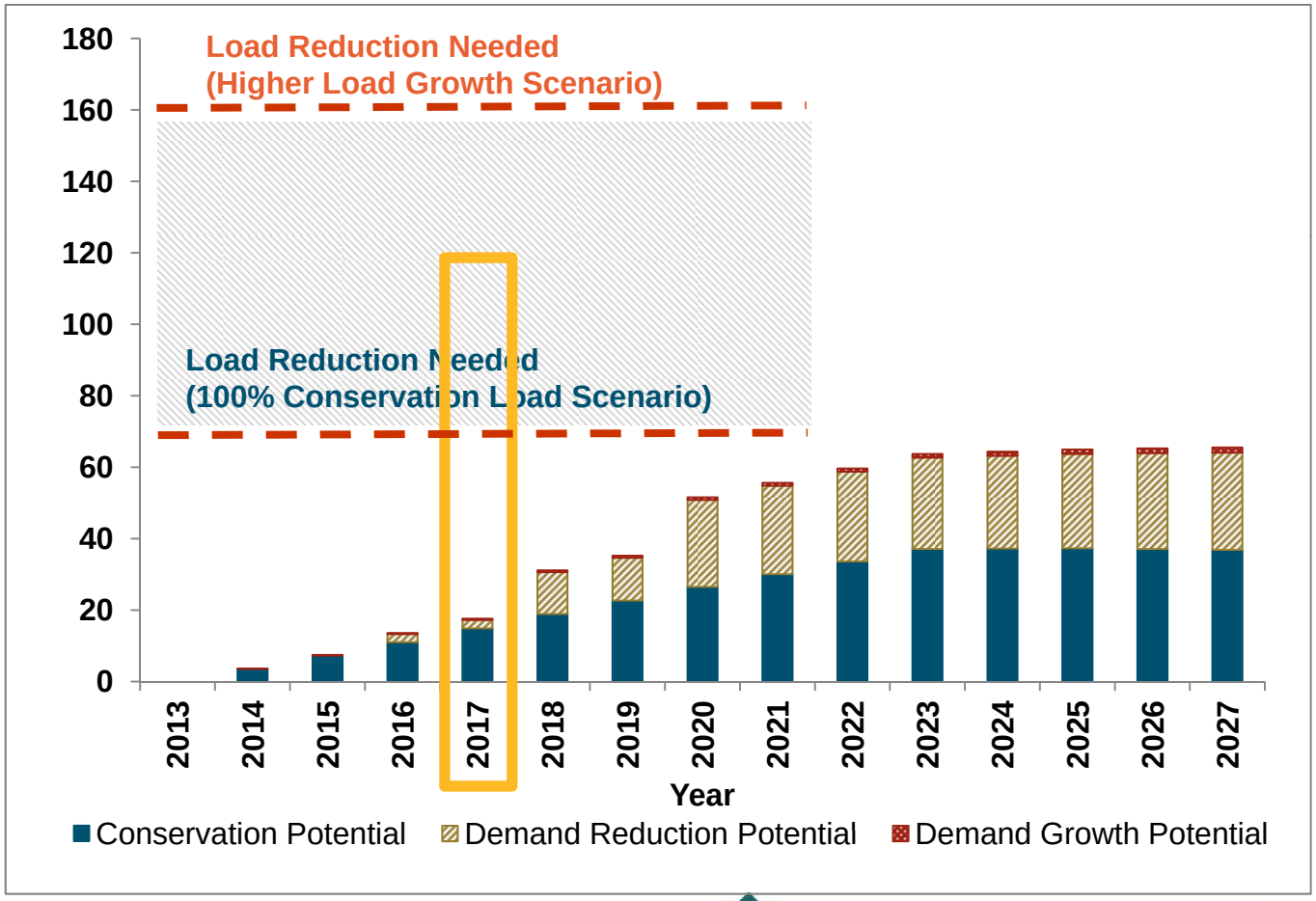
Solution selection process

2

conservation

What approaches provide enough electricity to meet the Eastside's needs?



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Solution selection process

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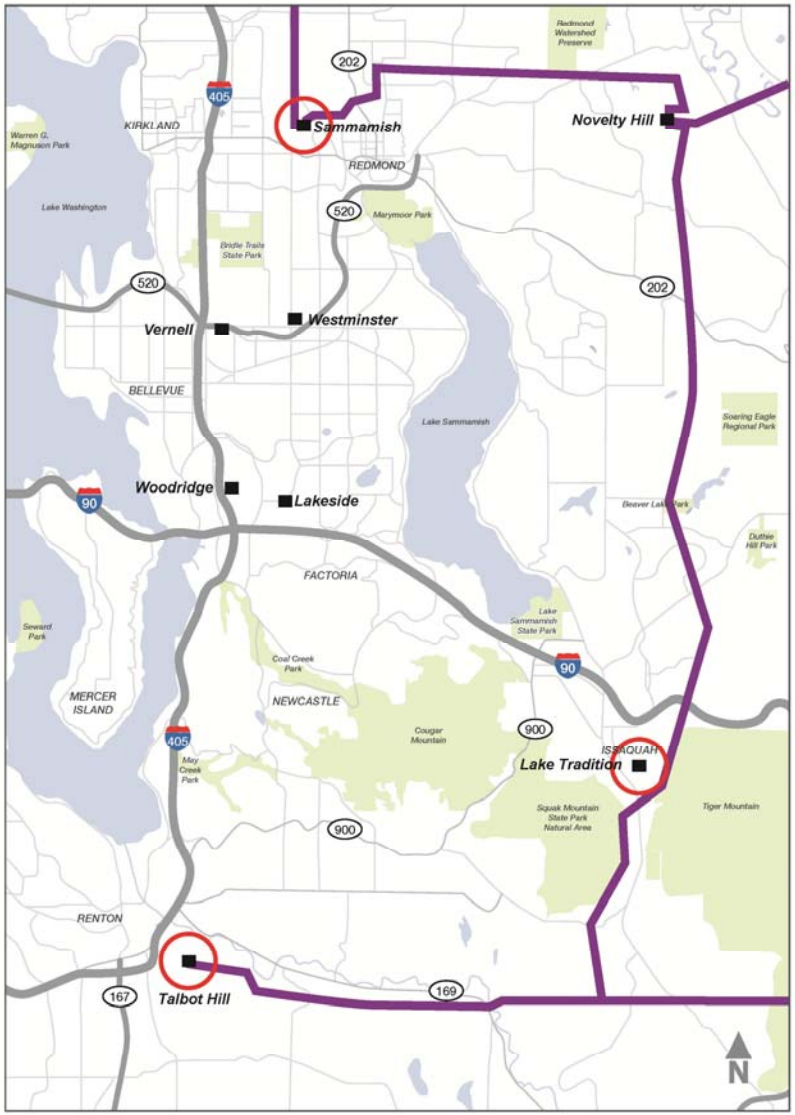
Solution selection process

2

infrastructure

What approaches provide enough electricity to meet the Eastside's needs?



Legend

Existing bulk power lines (230 kV)

230-115 kV transformation sites considered

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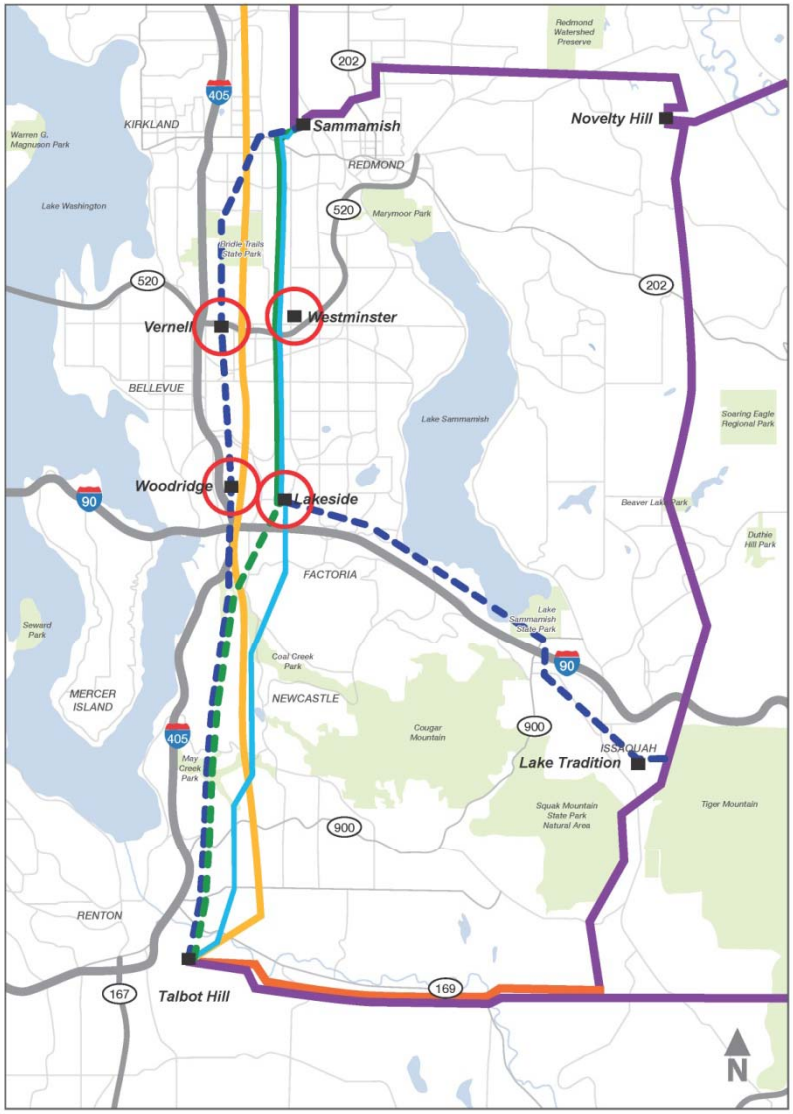
Solution selection process

2

infrastructure

What approaches provide enough electricity to meet the Eastside's needs?



Legend

- Existing bulk power lines (230 kV)

230 kV corridors considered

- BPA corridor
- PSE corridor
- SCL corridor
- New corridor
- Existing/New corridor

- 230-115 kV transformation sites considered

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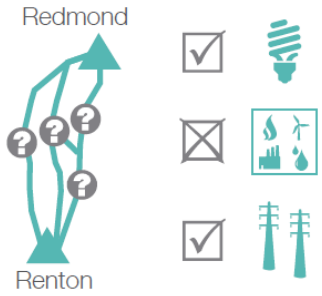
Solution selection process

3

What solutions best deliver electricity to the Eastside?



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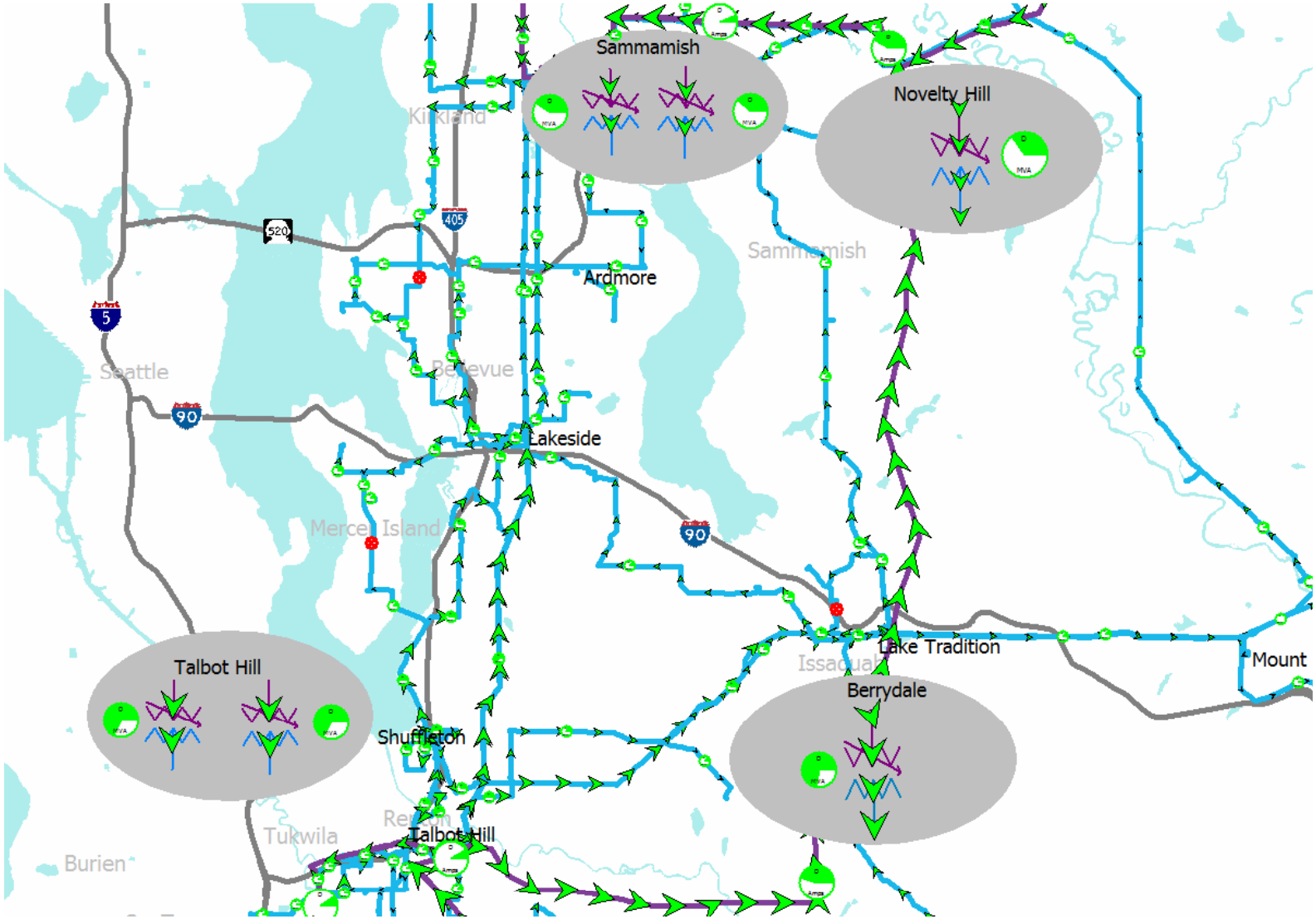
Powerflow analysis

3



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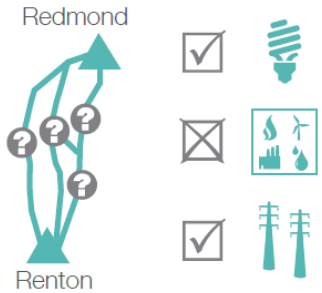
Solution selection process

3

What solutions best deliver electricity to the Eastside?

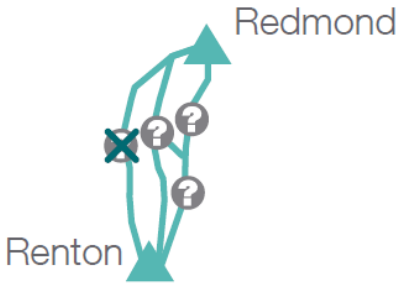


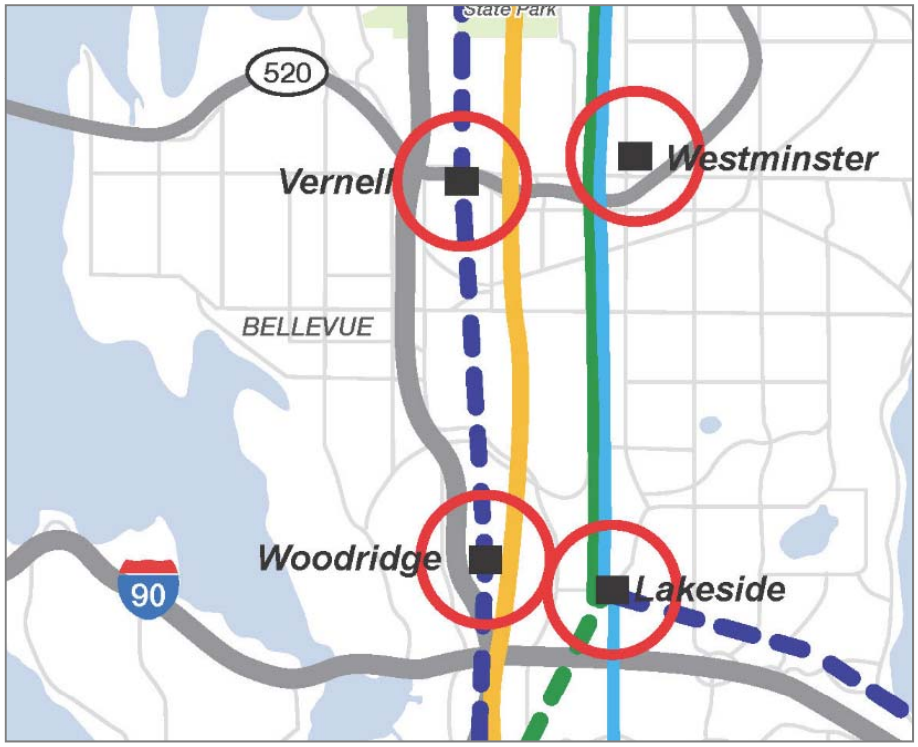
- Studies were performed on 27 alternatives
- PSE evaluated each alternative for:
  - System performance
  - Flexibility
  - Longevity
- Reduced 27 alternatives down to 12 solutions

Route selection process

4

What solutions can PSE move forward with?





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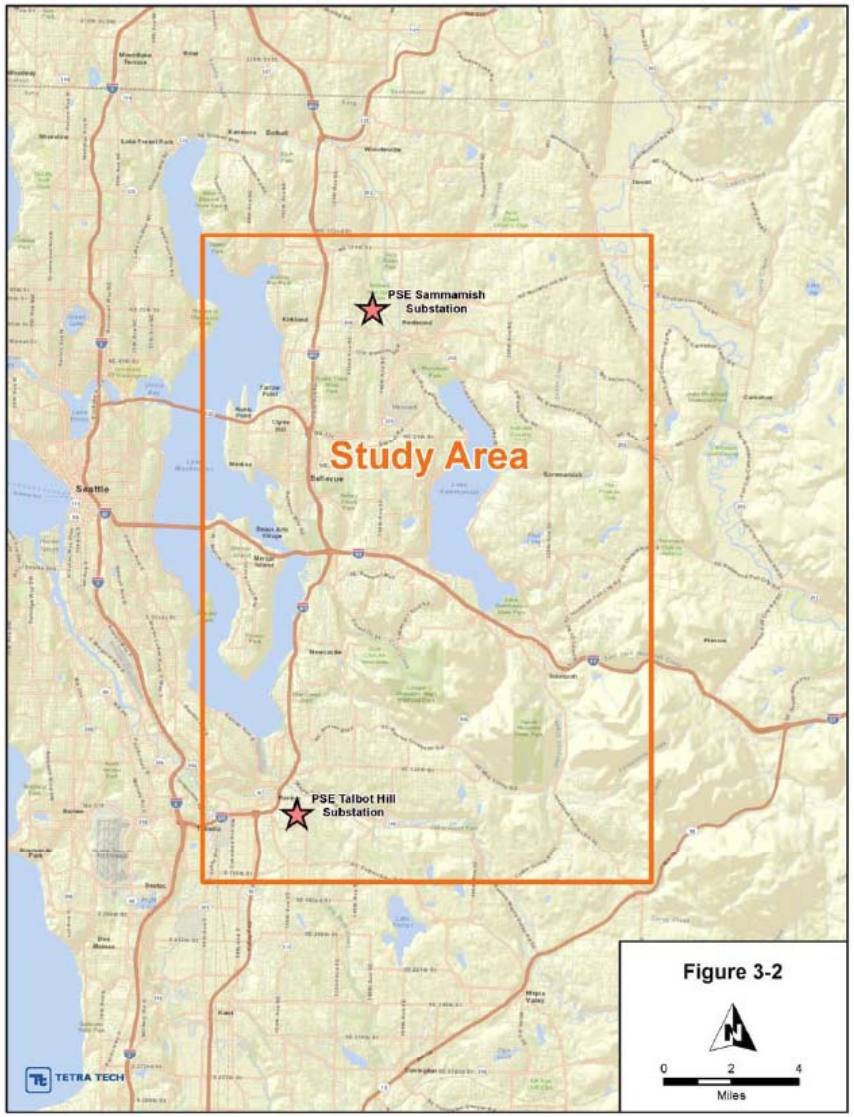
Solution selection process

5

Where could PSE build a solution?



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Solution selection process

5

Overview of route segment selection

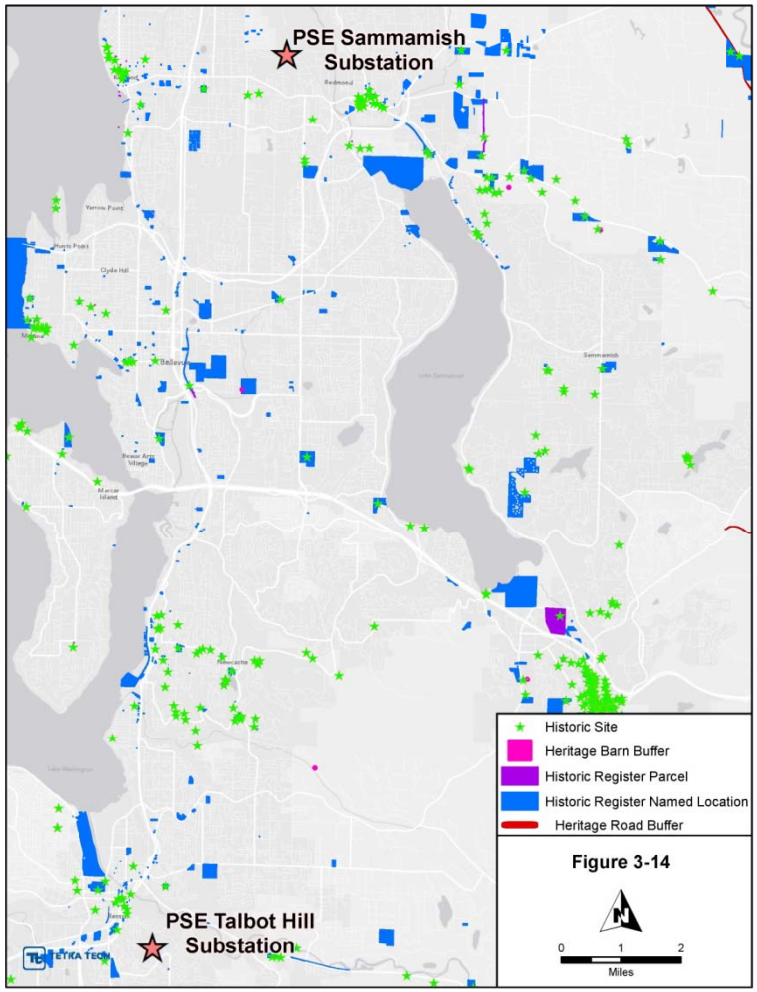
- Define interconnections and study area
- Collect Geographic Information Systems (GIS) data and professional input
- Identify corridors and alternative routes with Linear Routing Tool
- Compare route weightings
- Refine routes interactively
- Discuss routes with the public and agencies

Solution selection process

5

Examples of collected data:

- Public land ownership
- Land use
- Public rights-of-way
- Wildlife
- Protected vegetation
- Threatened and endangered species
- Environmentally critical areas
- Topography
- Historical resources



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Solution selection process

5

Data preparation

- Prepare GIS data for analysis
- Quality control

Solution selection process

5

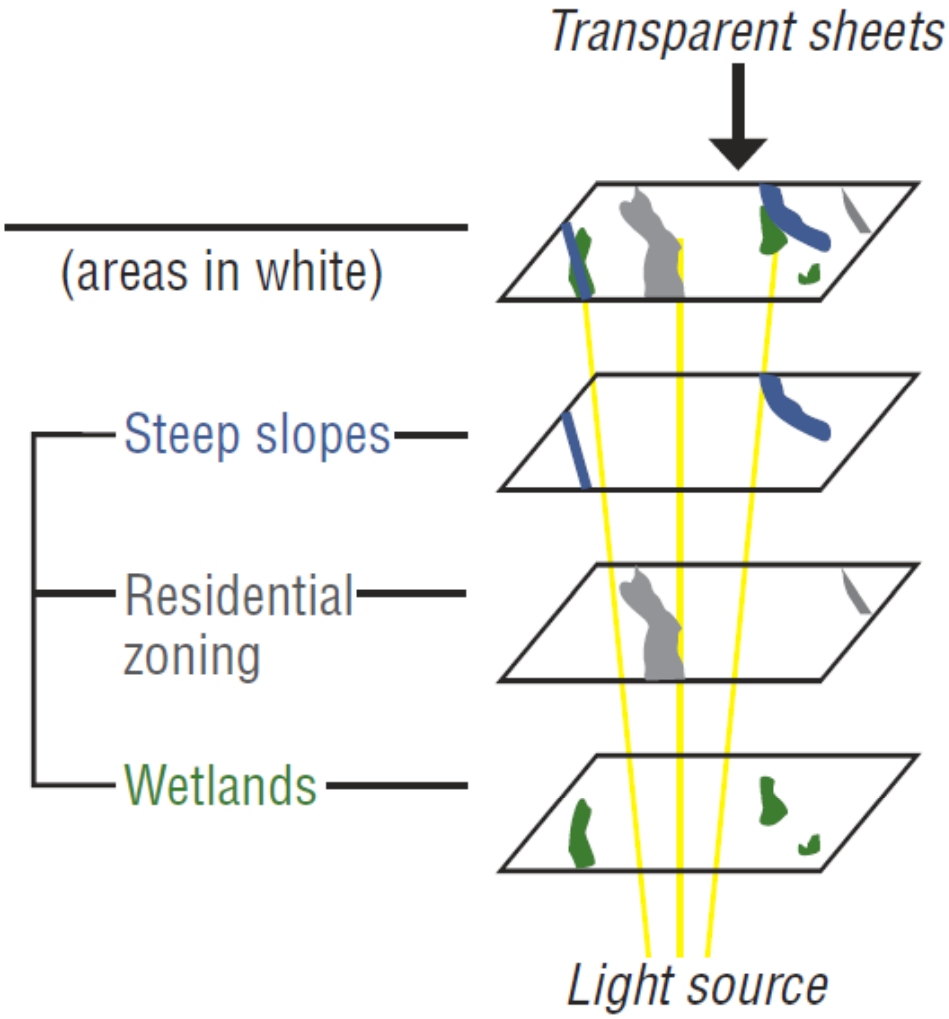
Identifying corridors and routes

- Assign values (weightings) to each data layer
- Linear Routing Tool identifies corridors and routes
  - Create suitability grid
  - Identify linear routes

How the layers work

Opportunity Areas

Constraints (avoidance areas)



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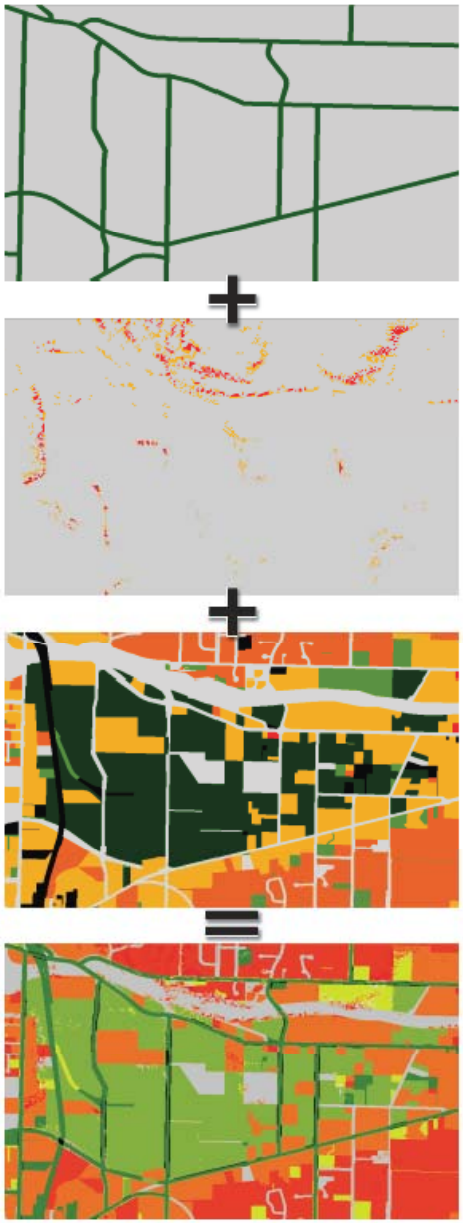
Routing Tool creates suitability grid

5

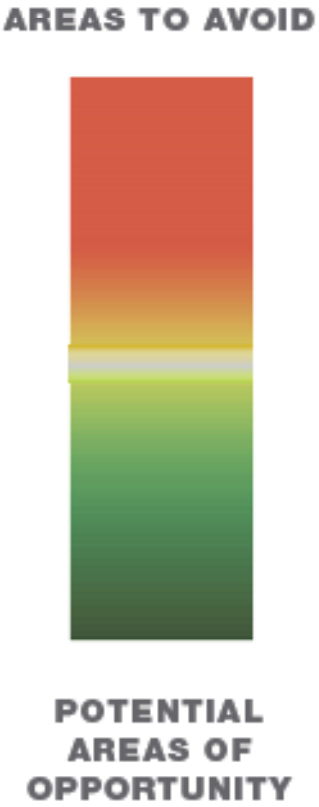


Arterial corridors
Opportunity

Slope stability
Avoid

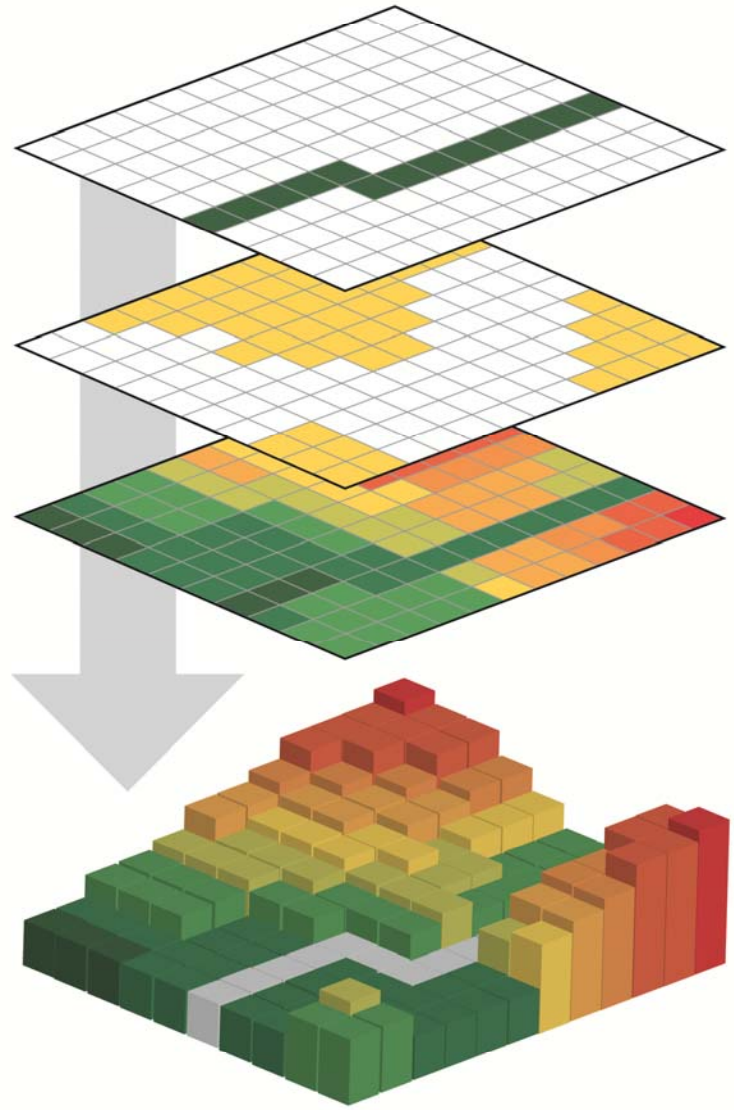
Land use
Areas of opportunity and avoidance

Summed suitability grid
Avoid red, use green



Solution selection process

5 Example suitability grid



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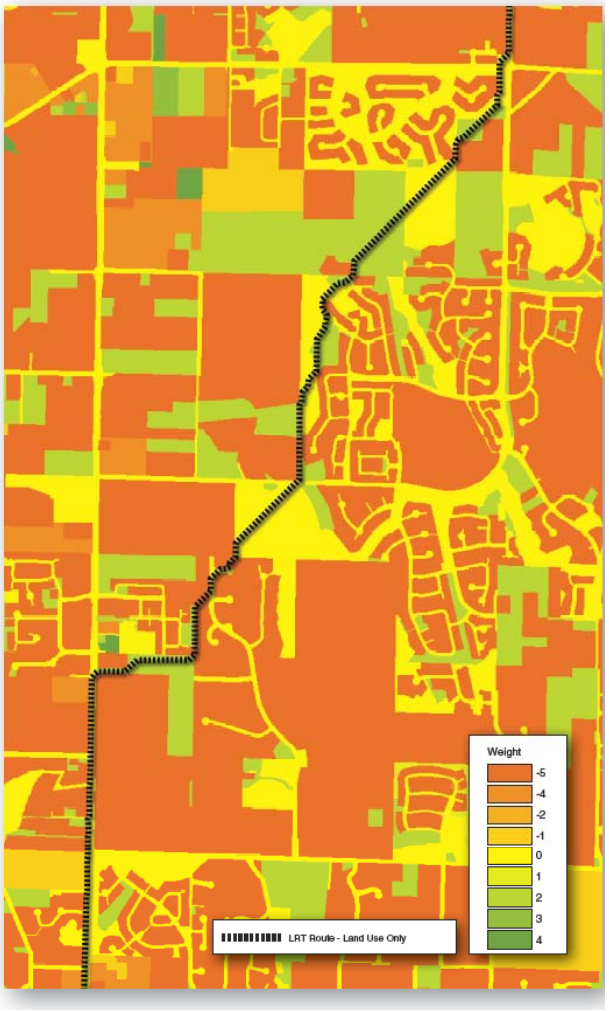
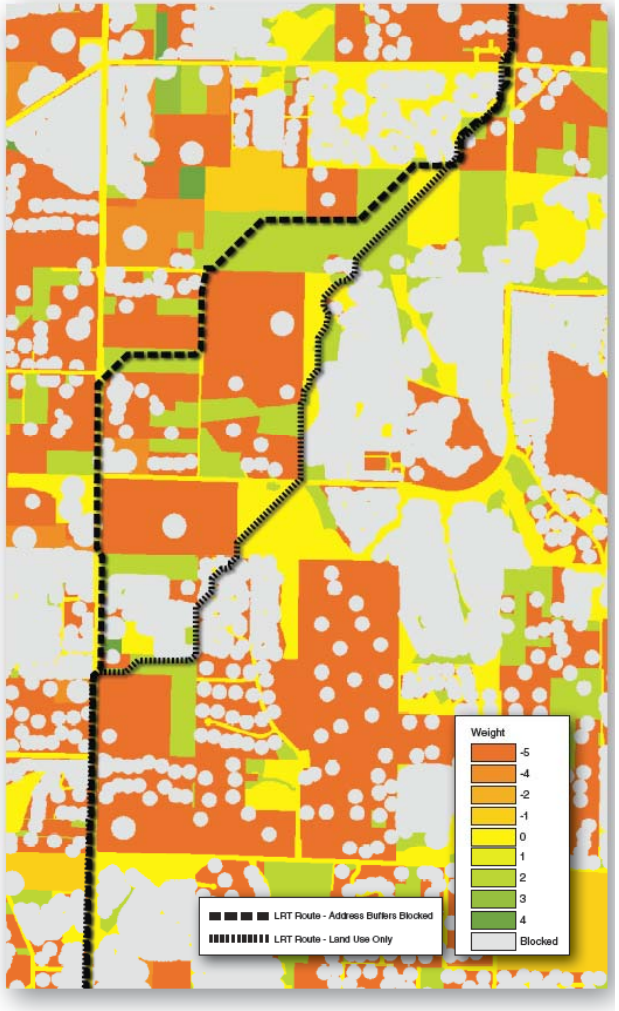
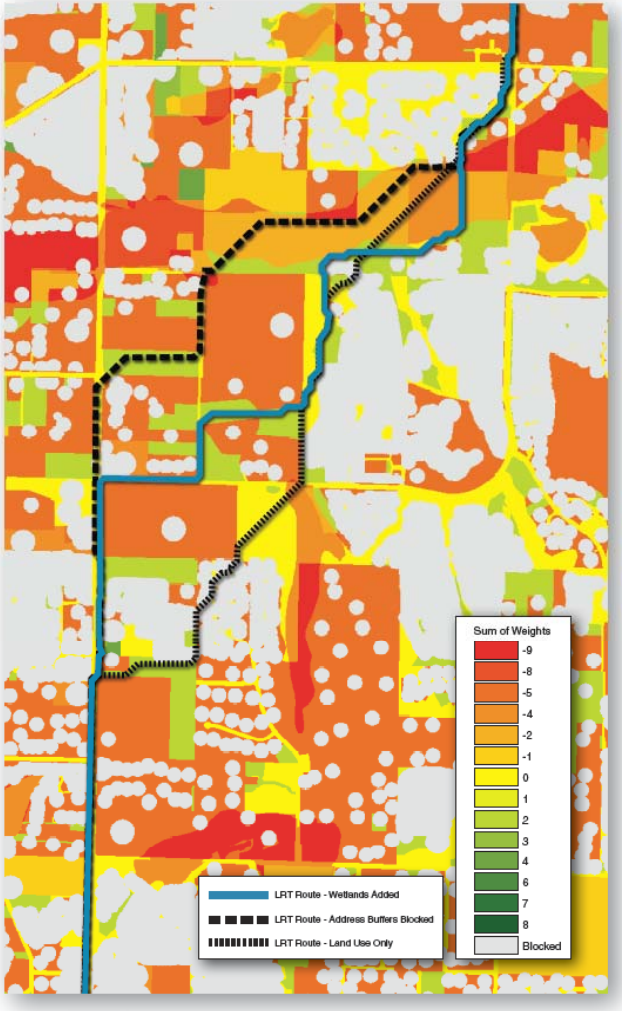
How data changes routes



Land use



Land use +
Barriers around structures



Land use +
Barriers around structures +
Wetlands

Potential route segments

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Route selection process

6

What does the public recommend?

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QUESTIONS?

ROUTE SEGMENT CONVERSATION

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Sub-Area Committee process

Community Advisory Group

- Looks across the entire project area for system-wide issues and concerns
- Relies on Sub-Area Committees for recommendations on geographic, neighborhood-specific issues and concerns
- Uses input to recommend route to PSE

Sub-Area Committee: Redmond/Kirkland

Sub-Area Committee: Bellevue

Sub-Area Committee: Newcastle/Renton

Sub-Area Committees

- Provides recommendations to the Community Advisory Group
- Includes a **representative from each neighborhood affected by a route segment**

Public Input

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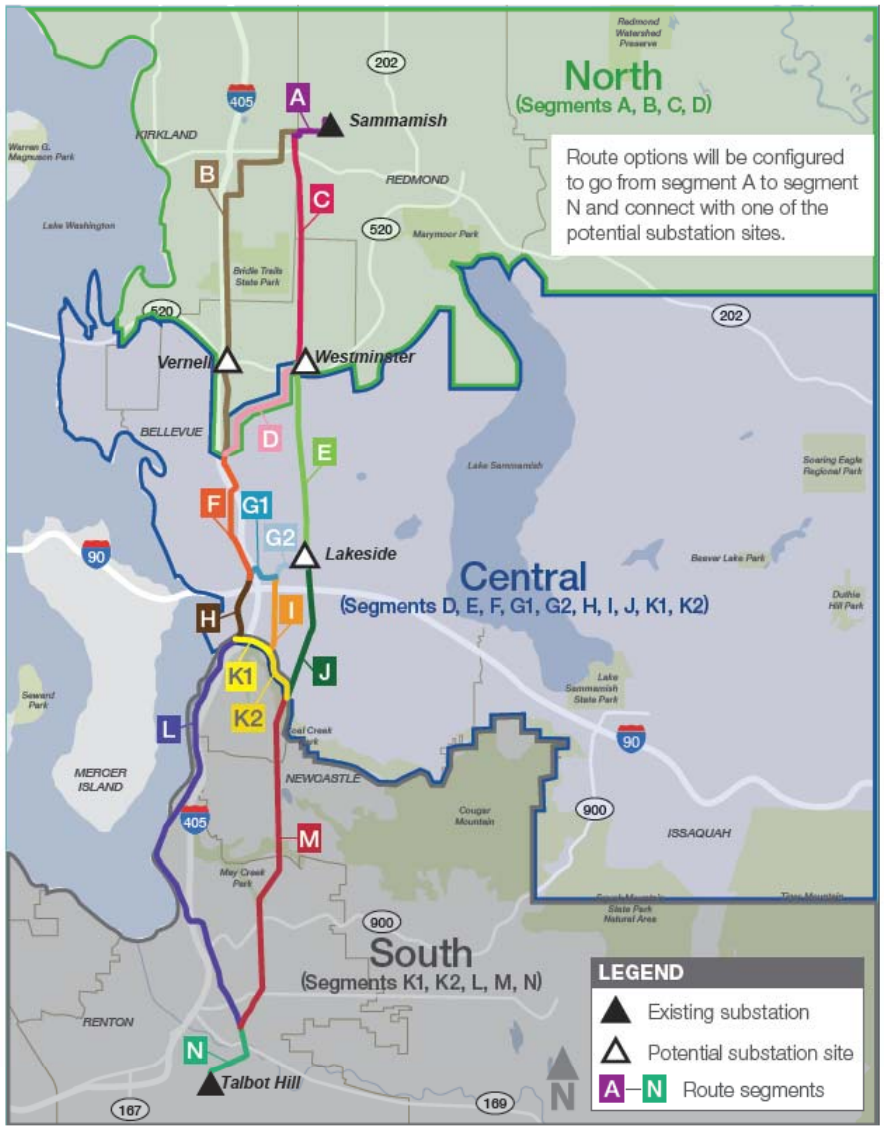
Sub-area boundaries



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EVALUATION PROCESS

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How this process will work

Multi-Objective Decision Analysis

- Step 1: Determine community values for evaluation
- Step 2: Weight community values
- Step 3: Score each option using community values
- Step 4: Discuss and validate numerical results
- Step 5: Consensus recommendation

Next steps for the advisory group

- Participate in Sub-Area Committee workshops to develop sub-area route segment combinations for full advisory group discussion
- Develop potential route options based on input from Sub-Area Committees

Upcoming activities

Sub-Area Committee Meetings

North sub-area:

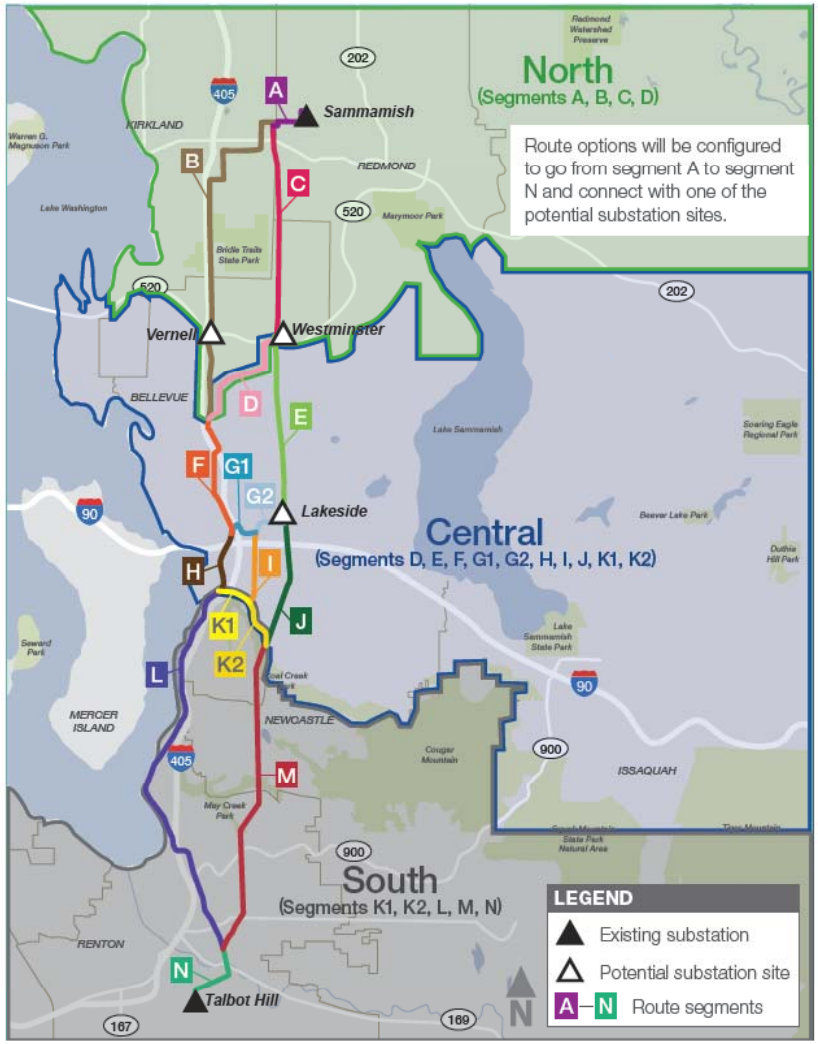
- Workshop #1: Mar. 19, 2014
- Workshop #2: Apr. 2, 2014
- Meeting: Apr. 16, 2014

Central sub-area:

- Workshop #1: Mar. 12, 2014
- Workshop #2: Mar. 26, 2014
- Meeting: Apr. 9, 2014

South sub-area:

- Workshop #1: Mar. 13, 2014
- Workshop #2: Mar. 27, 2014
- Meeting: Apr. 10, 2014



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Upcoming activities

Next Community Advisory Group meeting

- Wednesday, April 30 from 5:30 p.m. to 8:30 p.m., location to be determined

Contact us

PSE Contact:

Leann Kostek, Senior Project Manager

Stay in touch:

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800-548-2614

THANK YOU!

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