Rainier Avenue South Road Safety Corridor

Design Alternative Meetings
Project Manager Jim Curtin
February 26 and March 3, 2015
SDOT’s mission & vision

Mission: delivering a high-quality transportation system for Seattle.

Vision: a vibrant Seattle with connected people, places, and products.
Our core values

Through transportation, we contribute to a city that is:

- **Safe** – we eliminate serious and fatal crashes
- **Affordable** – we give all people high-quality, low-cost travel options
- **Vibrant** – we use our streets and sidewalks to improve health, prosperity, and happiness
- **Interconnected** – we provide an easy-to-use, reliable system that gives you the options you want when you need them
- **Innovative** – we understand and plan for the changes of tomorrow, while delivering great service today
Presentation overview

- Meeting purpose
- Project review
- Design process and alternatives
- General Q & A
- Feedback session
Meeting purpose

• Present design alternatives
• Gather community input
Background

- Safety improvements requested by local community
- Issue Identification Meetings – November 2014
- Hundreds of public comments
Project goals

Make Rainier Avenue South safer for everyone

- Reduce speeds
- Provide new and enhance existing pedestrian crossings
- Maintain efficient transit service
- Improve intersection safety
- Reduce injuries
Vision Zero

Seattle’s plan to eliminate traffic deaths and serious injuries

• Street designs that prioritize safety
• Public education and engagement
• Targeted enforcement patrols

www.seattle.gov/visionzero
Other SDOT projects

Rainier & Dearborn Safety Improvements

Accessible Mt. Baker

Rainier Ave S Road Safety Corridor

Rainier Beach Safety Improvements
Rainier Beach Safety Improvements

• Overview
Rainier Beach Safety Improvements

Rainier and S Henderson Street

Benefits

- Speed reduction during school arrival and dismissal
- Improvement crosswalk visibility
- Increases driver compliance at school crosswalk
Rainier Beach Safety Improvements

S Fisher Place, 51st Avenue S, and 52nd Avenue S

Benefits

• Reduce speed of vehicles turning onto Rainier from 51st
• Makes it easier for people walking to cross the street
• Improve access to the library and Mapes Creek Walkway
Rainier Beach Safety Improvements

Seward Park Avenue S to City Limits

Benefits

• Reduces speeding
• Provides greater separation between people driving, walking, and biking
Project area

Rainier Avenue S, between Letitia Avenue S and Seward Park Avenue S
Along Rainier

People
- More than 70,000 live in zip codes 98118 and 98144
- 15 percent of households car-less

Land uses
- 431 parcels
  - 45% Commercial/Mixed Use (195)
  - 30% Single/Multi-Family (128)
  - 16% Vacant (70)
- 18 major institutions
- 10+ schools and daycare centers within three blocks
- 10 industrial uses
- 5 parks
- Senior housing and community centers
- 2 libraries
Traffic data

- 19,700 to 26,600 vehicles per weekday
- More than 11,000 daily transit trips, transit service every 10 minutes
- Thousands of pedestrian crossings daily
- Primary emergency response route
- Commercial vehicle route
Current street design

Rainier Avenue South

- Principal arterial
- 4 to 5 lanes
- 50-54 feet wide
- Curves and skewed intersections
Collision data

Average of 1 crash/day on Rainier

Last 3 years
• 1243 total collisions
• 630 injuries
• 2 fatalities

Last 10 years
• Nearly 3600 total collisions
• 1700+ injuries
• 11 fatalities
Collision data

Fatal and serious injury crashes
Last 10 years within project area

- Fatal collisions
- Serious injury collisions
Collision data

Pedestrian and bicycle collisions last 3 years:
• 46 pedestrian-vehicle
• 10 bicycle-vehicle

Last 10 years:
• 165 pedestrian-vehicle
• 30 bicycle-vehicle
Collision data

Crashes per mile

Aurora
ADT = 37,000 to 74,400

Lake City Way
ADT = 34,600 to 40,400

Rainier (project area)
ADT = 19,700 to 26,600
Recent speed studies

Posted speed limit is 30 miles per hour

<table>
<thead>
<tr>
<th>Location</th>
<th>85th Percentile Speed</th>
<th>Percent Speeding (3+ mph over the speed limit)</th>
<th>Average number of high-end speeders per weekday</th>
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</thead>
<tbody>
<tr>
<td>S Hudson Street</td>
<td>35 mph</td>
<td>20%</td>
<td>611/day</td>
</tr>
<tr>
<td>42nd Avenue South</td>
<td>38 mph</td>
<td>55%</td>
<td>1812/day</td>
</tr>
<tr>
<td>S Holly Street</td>
<td>37 mph</td>
<td>56%</td>
<td>1083/day</td>
</tr>
<tr>
<td>S Cloverdale Street</td>
<td>36 mph</td>
<td>38%</td>
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High-end speeders = 10+ miles per hour over the speed limit
Design options developed to:

- Balance the need to move people and goods with the function of the nearby land uses
- Eliminate correctable collision patterns

Modeling:
- Synchro 8 and SimTraffic 8
- Vissim
- Full report at Spring meeting
Design process

Performance monitoring:

• Collect baseline data and update traffic data regularly for locations on nearby streets including:
  – Seward Park
  – Lake Washington Blvd
  – MLK

• Vehicle and transit travel times

• Business tracking
Design process

Implementation

• Signal and signage improvements Spring 2015
• Additional work in summer 2015 and 2016
Design process

S Charlestown Street to S Alaska Street

Data

• 51 crashes, 24 injuries last three years
• Collision types:
  – 14 angle/driveway related
  – 11 rear end
  – 8 sideswipe
– 26,600 vehicles/day
Design process

Rainier and Orcas

• 38 crashes last three years
• 25 left turn collisions
• 25 injuries
• 4 pedestrian-vehicle collisions
  – 1 serious injury

Similar conditions at:
• S Edmunds St
• S Ferdinand St
Design process
Rainier and Orcas

Left turn collisions account for 63% of total collisions in last 3 years

47% of left turn collisions occur in this scenario

Vehicle waiting to turn left blocks visibility
Design process

Rainier and Holly

- 18 crashes, 18 injuries last three years
- 9 left turn collisions

Left turn collisions account for 50% of total collisions within last 3 years
Design process

Rainier and Graham

- 15 crashes, 10 injuries last three years
- 6 **angle crashes** related to speeding and disobeying signal
Design alternatives

Lower speed limit
• S Alaska Street to S Kenny Street (Columbia City to Hillman City)
• 30 mph to 25 mph
• 0.9 miles
Design alternatives

• Signal improvements
  – Longer pedestrian crossing times
  – Reflectorized signals at:
    • Charleston
    • Andover
    • Genesee
    • Oregon
    • 51st Ave S

• Lane line markers (buttons) throughout the corridor

• Rainer Valley Neighborhood Greenway
Design alternatives

Enforcement
• Grant funds secured for extra patrols
• Data-driven deployment
• Pedestrian safety emphasis

Public engagement
• Travel demand management (TDM)
• Impairment-related programs and outreach
Design alternatives

S Charlestown St to S Alaska St

• Access management
  – Incremental implementation
  – Signs → physical changes

• Pedestrian safety emphasis patrols
Design alternatives

**Option 1a: S Alaska St to S Henderson St**

**Rechannelization**
- 4 lanes to 3 lanes
- 2 general purpose lanes
- Center left turn lane

**Key features**
- Reduce top collision types (left turns, sideswipe, parked car)
- Lower vehicle speeds
- Better conditions for people walking
- Opportunities for new crossings
- Improved efficiency
- Easier turning movements – especially for large vehicles

**Limitations**
- Initial modeling shows vehicle delays of +/- 2 minutes during peak hour traffic
Design alternatives

**Option 1b:** S Alaska St to S Henderson St
Rechannelization with protected bike lanes

- 2 general purpose lanes
- Center left turn lane
- Protected bike lanes from S Alaska Street to S Kenny Street (Columbia City to Hillman City)

**Key features**

- Same benefits as Option 1b
- Significantly improved environment for people biking

**Limitations**

- Initial modeling shows vehicle delays of +/- 2 minutes during peak hour traffic
- Design challenges for protected bike lanes
Design alternatives

Option 2: S Alaska St to S Henderson St
Hybrid design
- 2 general purpose lanes
- Center left turn lane
- Intermittent transit lanes

Key Features
- Improves transit performance
- Fewer collisions
- Lower vehicular speeds

Limitations
- Some parking removal likely
- Some delay during peak hour traffic (+/- 2 min)
Design alternatives

Safety benefits

- Lower speeds, less severe crashes
- Less exposure for vulnerable users
- Reduction in crash frequency
- Easier turning movements

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<th>Volume change</th>
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<td>-21%</td>
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<td>-1%</td>
</tr>
<tr>
<td>Fauntleroy Way SW</td>
<td>-31%</td>
<td>-1%</td>
<td>-13%</td>
<td>+0.3%</td>
</tr>
<tr>
<td>NE 125th St</td>
<td>-10%</td>
<td>-8%</td>
<td>-69%</td>
<td>+4%</td>
</tr>
<tr>
<td>NE 75th St</td>
<td>-50%</td>
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Design alternatives

Safety benefits

- Lower speeds, less severe crashes
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Why speed matters

Drivers’ Field of Vision
15 mph

Drivers’ Field of Vision
30 mph
Why speed matters

- Hit by a vehicle traveling at 20 MPH: 9 out of 10 pedestrians survive.
- Hit by a vehicle traveling at 30 MPH: 5 out of 10 pedestrians survive.
- Hit by a vehicle traveling at 40 MPH: Only 1 out of 10 pedestrians survives.
Overview

**OPTION 1A**

**Rechannelization**
- 4 lanes to 3 lanes
- 2 general purpose lanes
- Center left turn lane

**Key Features**
- Reduction in top collision types
  - Left turns
  - Sideswipe
  - Parked car
- Lower vehicle speeds
- Better conditions for pedestrians
- Opportunities for new crossings
- Improved efficiency
- Easier turning movements – especially for large vehicles

**Limitations**
- Initial modeling shows vehicle delays of +/- 2 minutes during peak hour traffic

**OPTION 1B**

**Rechannelization with Protected Bike Lanes**
- 2 general purpose lanes
- Center left turn lane
- Protected bike lanes from S Alaska Street to S Kenny Street (Columbia City to Hillman City)

**Key Features**
- Same benefits as Option 1b
- Significantly improved environment for people biking

**Limitations**
- Initial modeling shows vehicle delays of +/- 2 minutes during peak hour traffic
- Design challenges for protected bike lanes

**OPTION 2**

**Hybrid Design**
- 2 general purpose lanes
- Center left turn lane
- Intermittent transit lanes

**Key Features**
- Improves transit performance
- Fewer collisions
- Lower vehicular speeds

**Limitations**
- Some parking removal likely
- Some delay during peak hour traffic (+/- 2 min)
## Next steps

<table>
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<tr>
<th>Date</th>
<th>Event Description</th>
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<tr>
<td>November 18, 4:30 – 6:30 PM</td>
<td>Issue Identification Meeting 2 Ethiopian Community Center 8323 Rainier Ave S</td>
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<tr>
<td>November through January</td>
<td>Outreach and conceptual designs</td>
</tr>
<tr>
<td>February 26, March 3</td>
<td>Design Alternatives Review Meetings</td>
</tr>
<tr>
<td>April/May 2015</td>
<td>Final meeting featuring recommended alternatives, modeling results and timeline</td>
</tr>
<tr>
<td>Spring/Summer 2015</td>
<td>Implementation begins</td>
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Questions?

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http://www.seattle.gov/transportation/rainieraves.htm

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