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

- Slow speeding vehicles
- New and safer crossings
- Improve safety for all
- Greater separation between cars, people walking and biking
- Improve access to transit
Rainier Beach Safety Improvements

Rainier and S Henderson Street

Benefits

• Reduce speeding during school arrival and dismissal
• Improve crosswalk visibility
• Increase 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

![Average Weekday Traffic Volume Graph](image-url)

- 22200 at S Genesee St
- 26600 at S Alaska St
- 19700 at S Hudson St
- 22100 at S Othello St
- 22100 at S Henderson St
- 19700 at S Orcas St
- 22100 at Seward Park Ave S
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>
</tr>
</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 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>
<td>1083/day</td>
</tr>
</tbody>
</table>

High-end speeders = 10+ miles per hour over the speed limit
Design process

**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

Vehicle waiting to turn left blocks visibility

47% of left turn collisions occur in this scenario

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

<table>
<thead>
<tr>
<th>Street</th>
<th>Collisions</th>
<th>85% speed</th>
<th>10+ mph speeders</th>
<th>Volume change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickerson St</td>
<td>-23%</td>
<td>-21%</td>
<td>-94%</td>
<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>
<td>-13%</td>
<td>-90%</td>
<td>+0.3%</td>
</tr>
</tbody>
</table>
Design alternatives

Safety benefits

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

<table>
<thead>
<tr>
<th>Street</th>
<th>Collisions</th>
<th>85% speed</th>
<th>10+ mph speeders</th>
<th>Volume change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickerson St</td>
<td>-23%</td>
<td>-21%</td>
<td>-94%</td>
<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>
<td>-13%</td>
<td>-90%</td>
<td>+0.3%</td>
</tr>
</tbody>
</table>
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

30 MPH
5 out of 10 pedestrians survive

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

jim.curtin@seattle.gov | (206) 684-8874

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

http://www.seattle.gov/transportation