



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

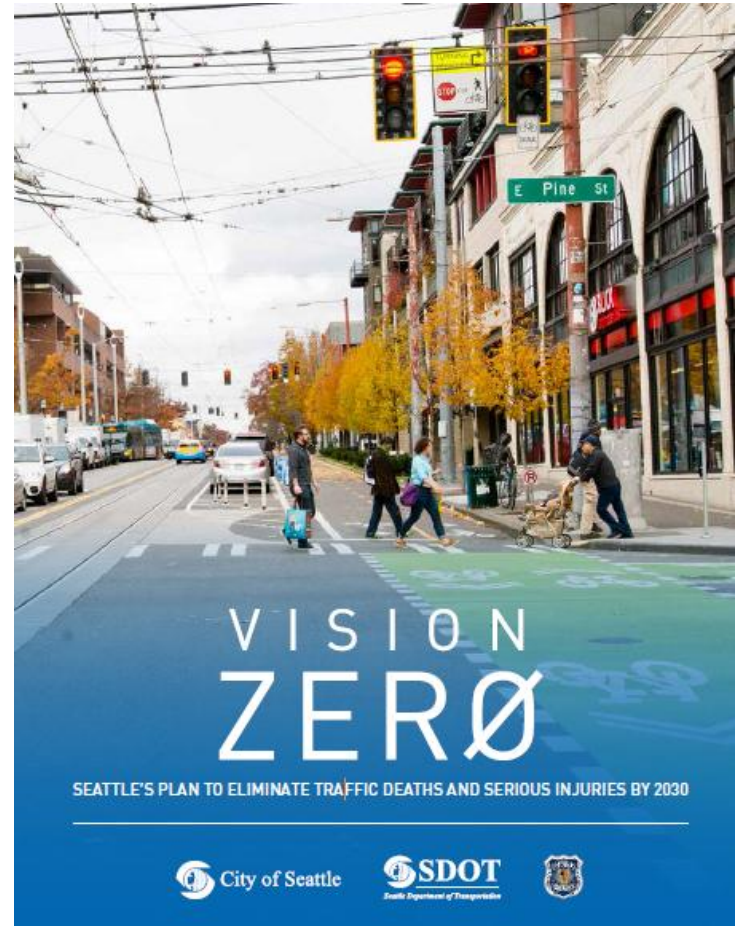
Make Rainier Avenue South safer for everyone

- 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

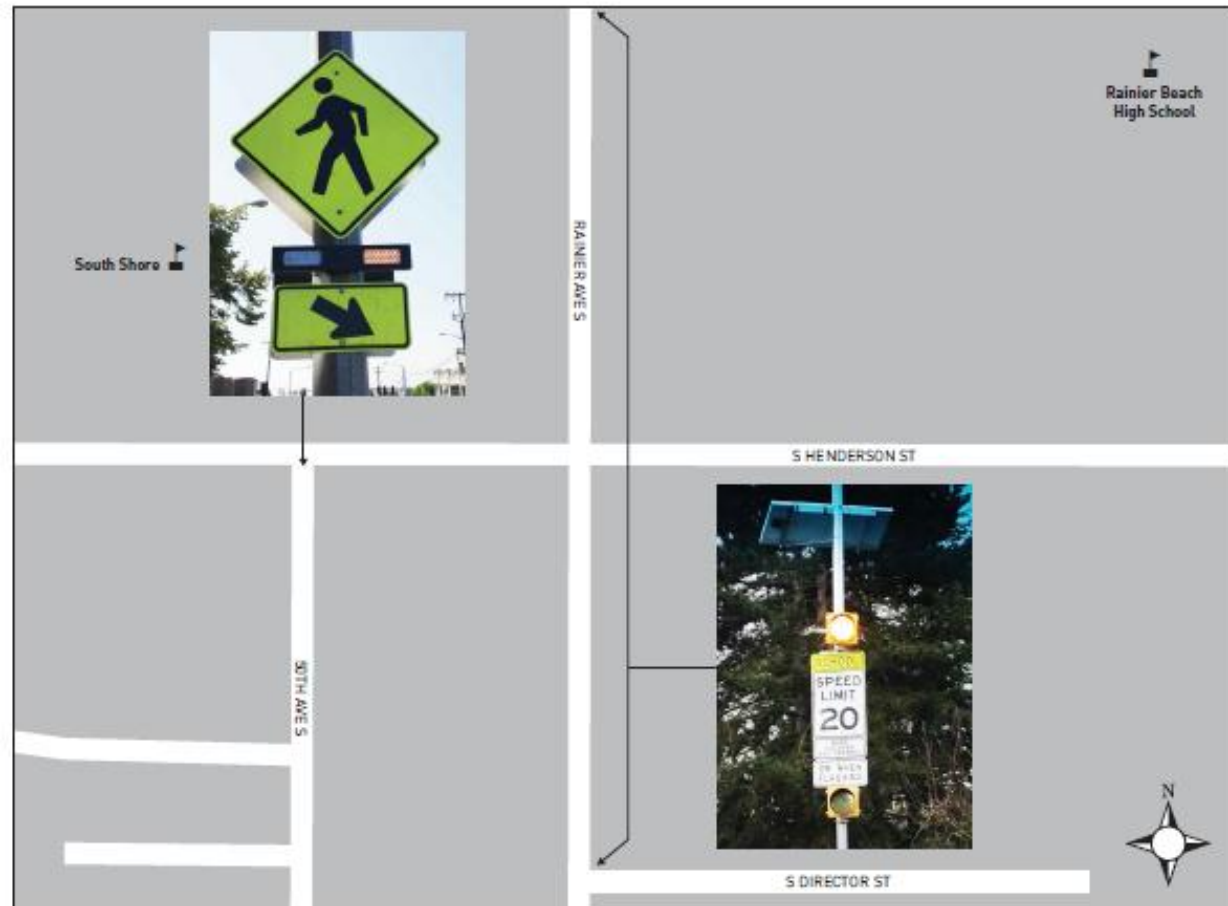


Rainier Beach Safety Improvements

Rainier and S Henderson Street

Benefits

- Speed reduction during school arrival and dismissal
- Improvement crosswalk visibility
- Increases driver compliance at school crosswalk

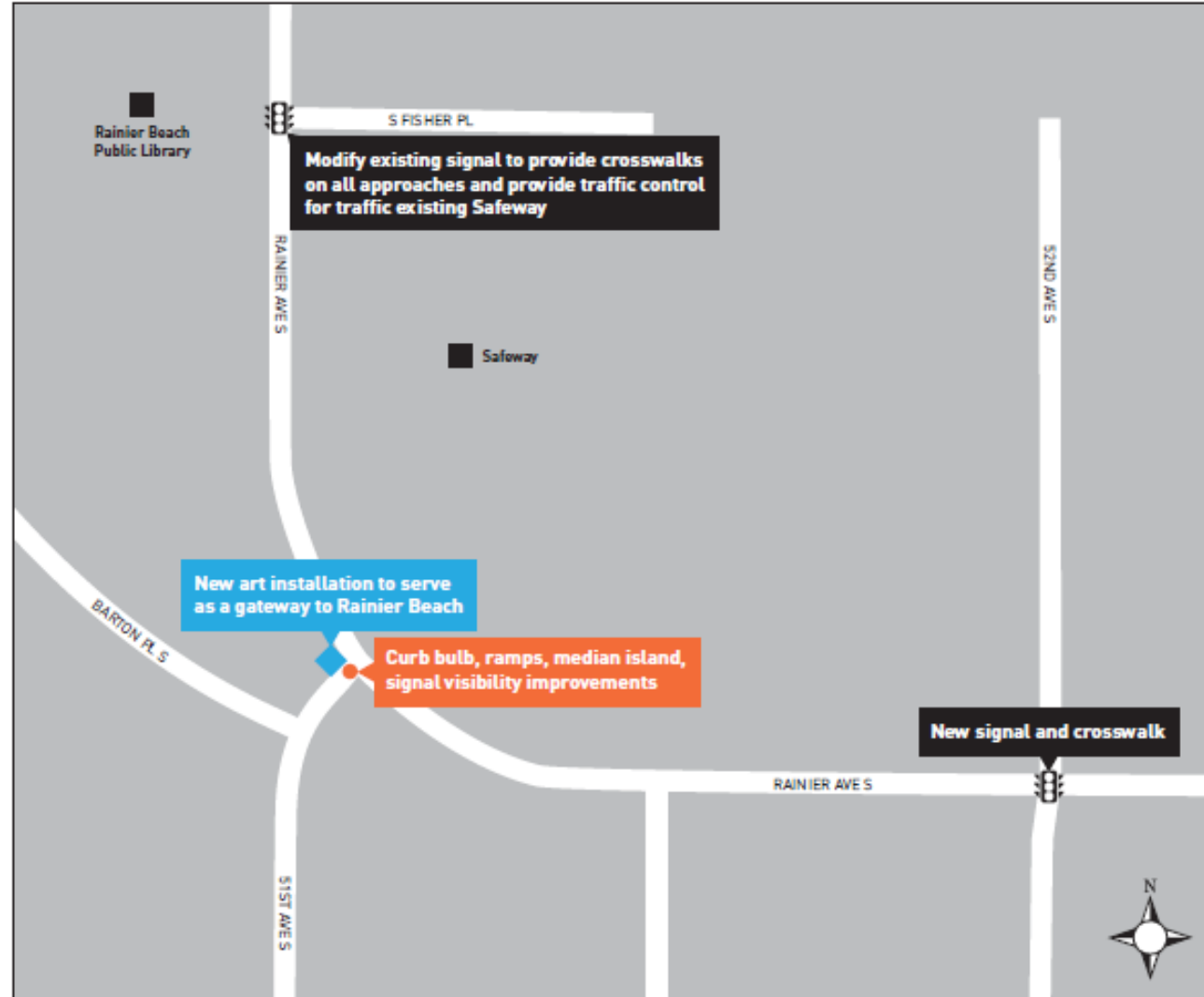


Rainier Beach Safety Improvements

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

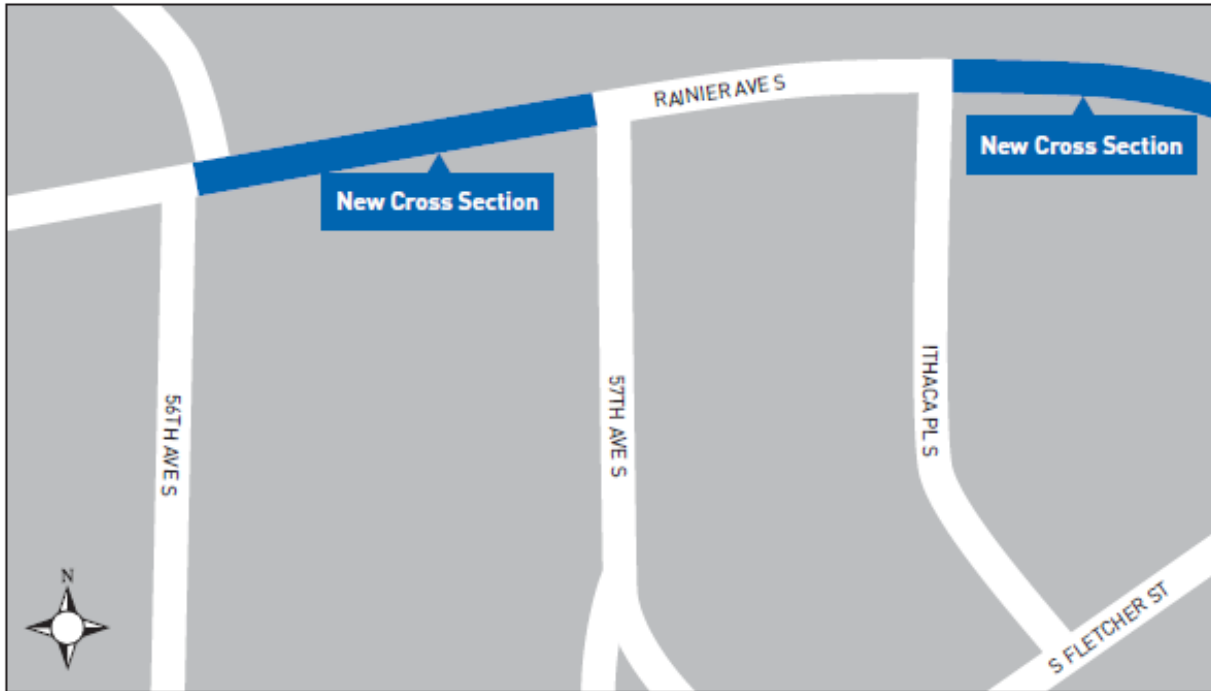


Rainier Beach Safety Improvements

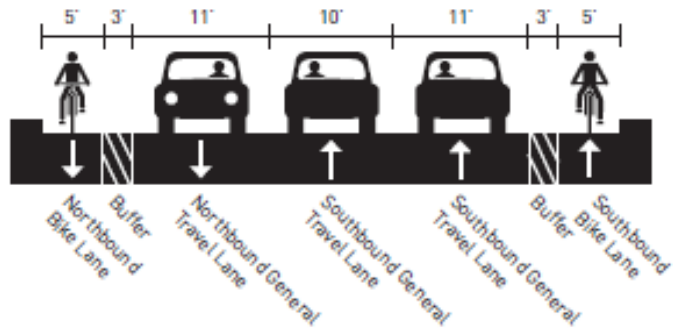
Seward Park Avenue S to City Limits

Benefits

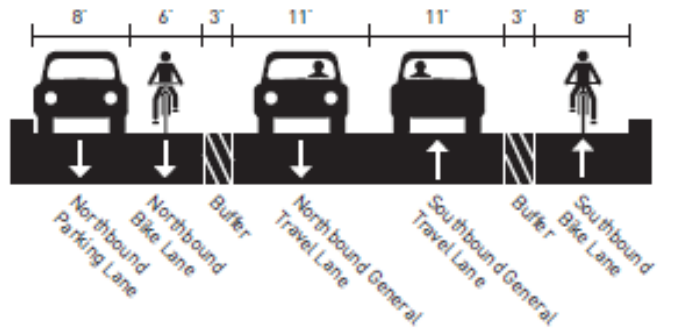
- Reduces speeding
- Provides greater separation between people driving, walking, and biking



New Cross Section Between 56th and 57th Avenue S

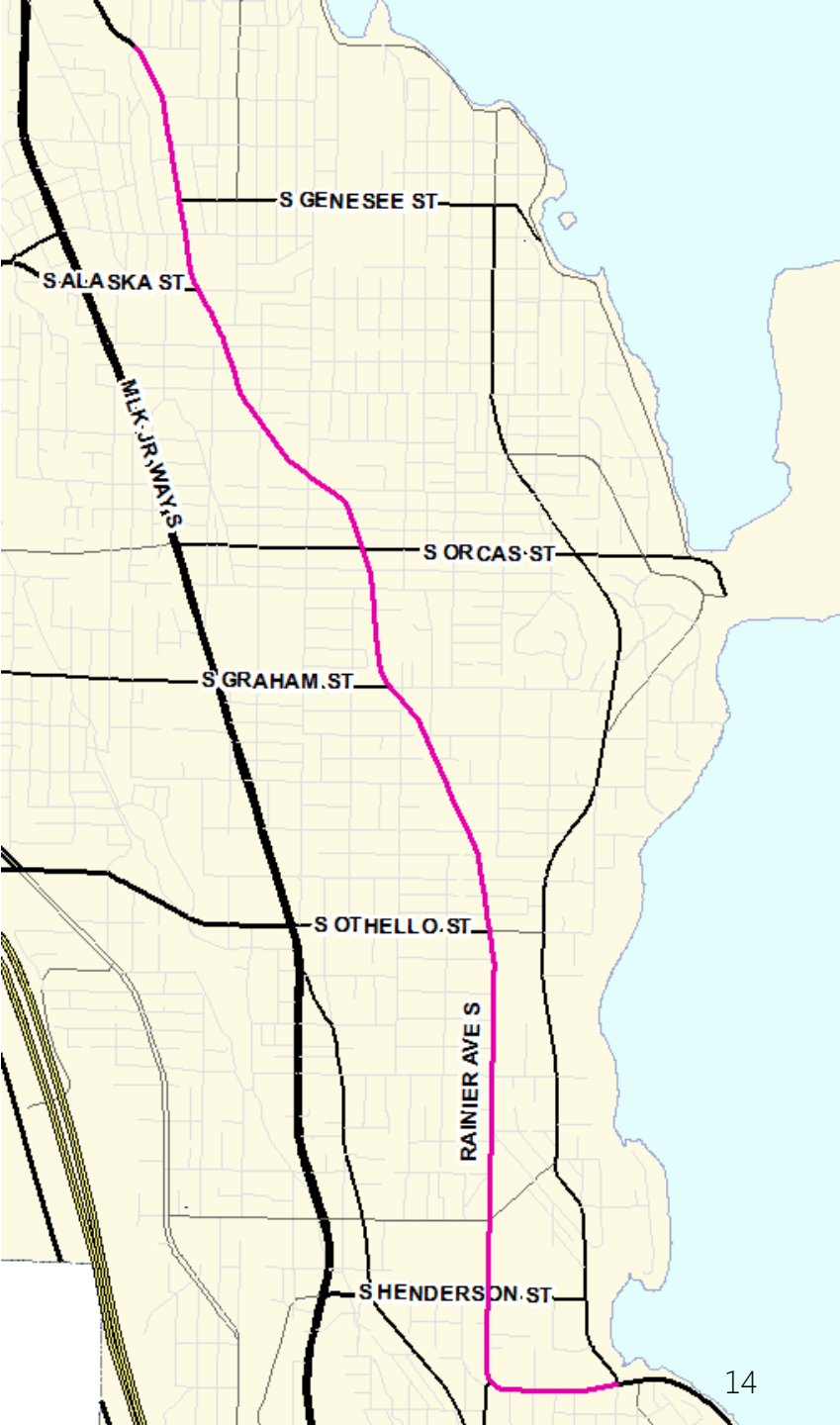


New Cross Section South of Ithaca Place S



Project area

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



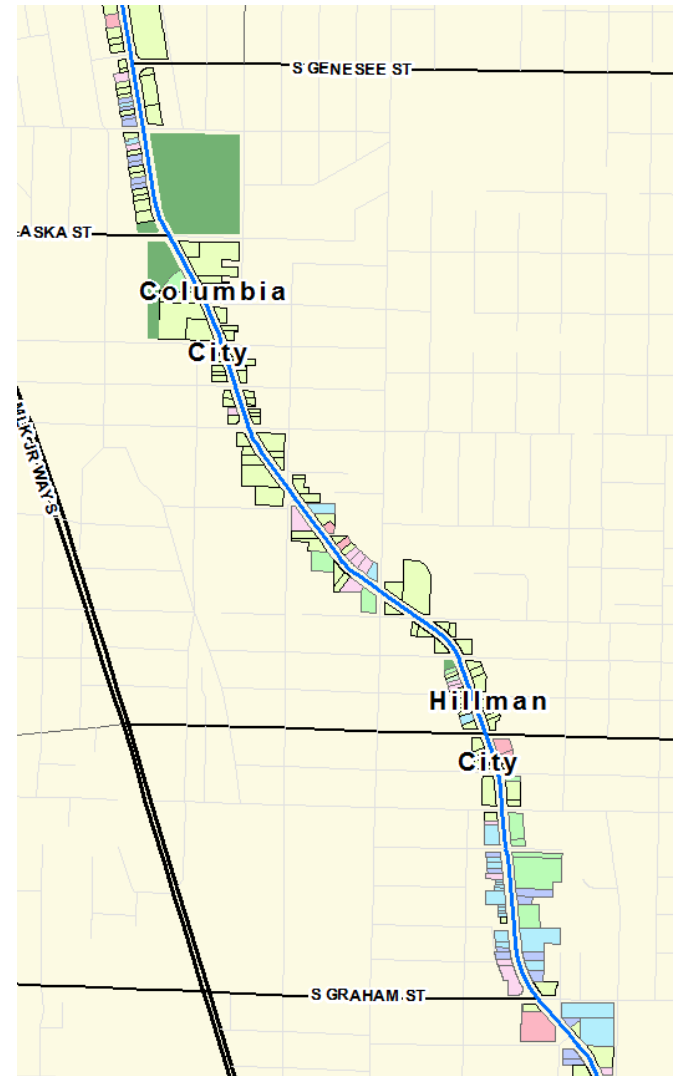
Along Rainier

People

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

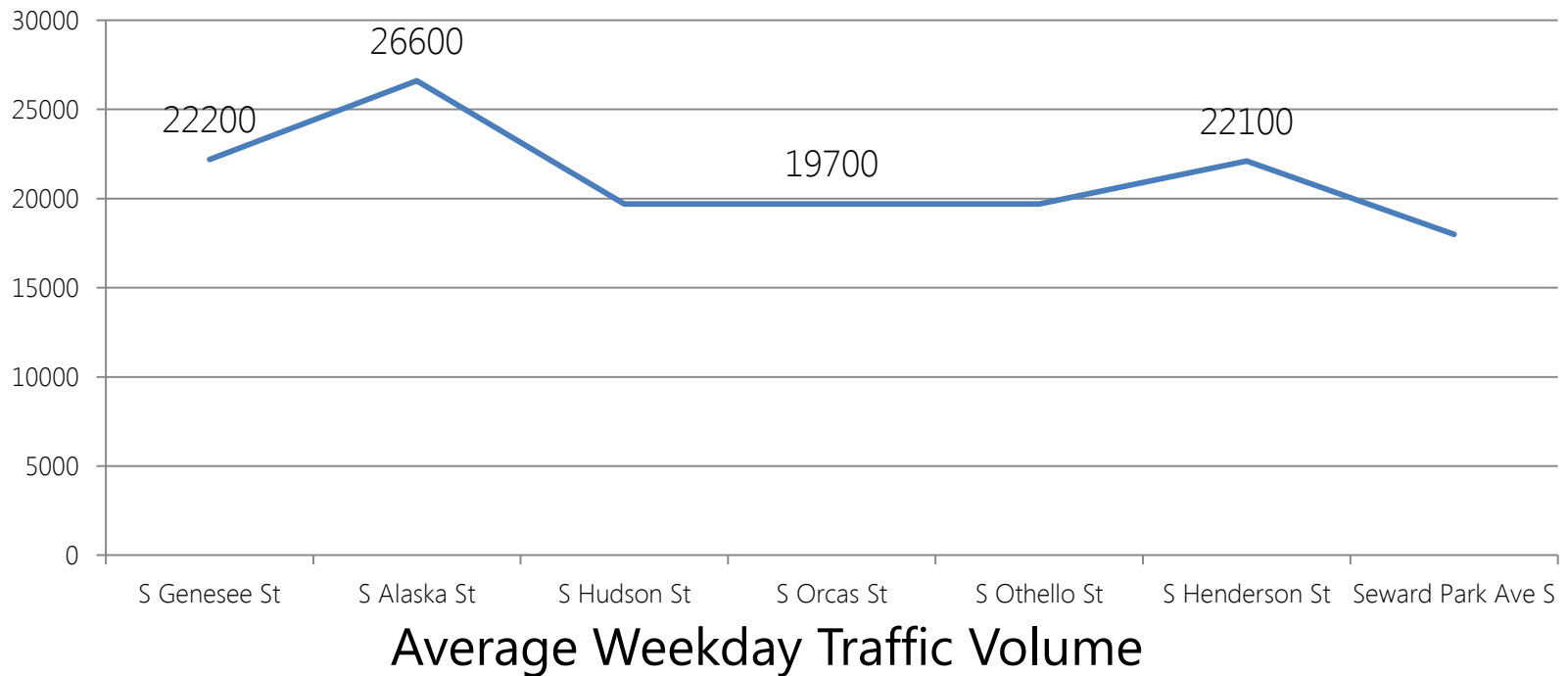
Land uses

- 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

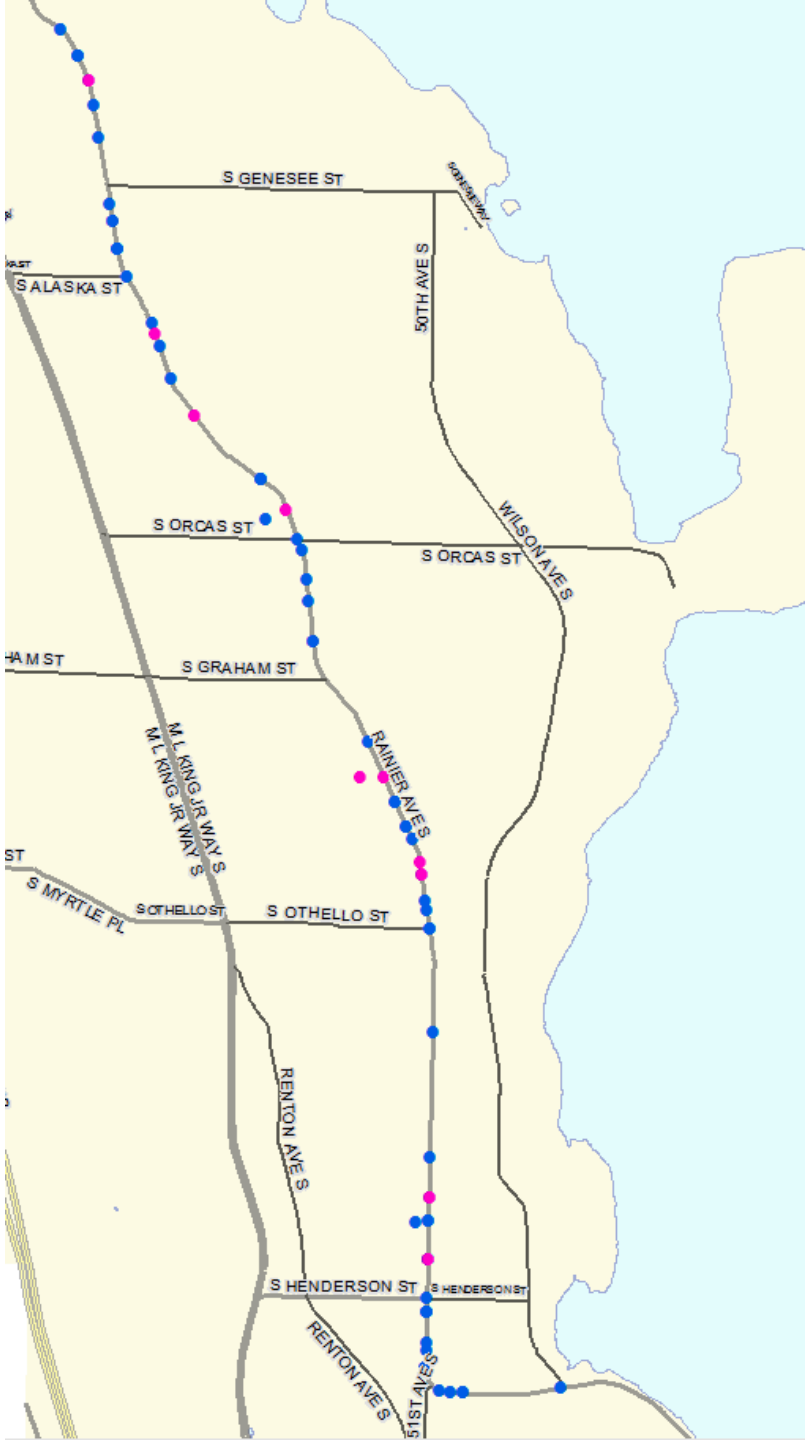
- Nearly 3600 total collisions
- 1700+ injuries
- 11 fatalities



Collision data

Fatal and serious injury crashes
Last 10 years within project area

- Fatal collisions
- Serious injury collisions



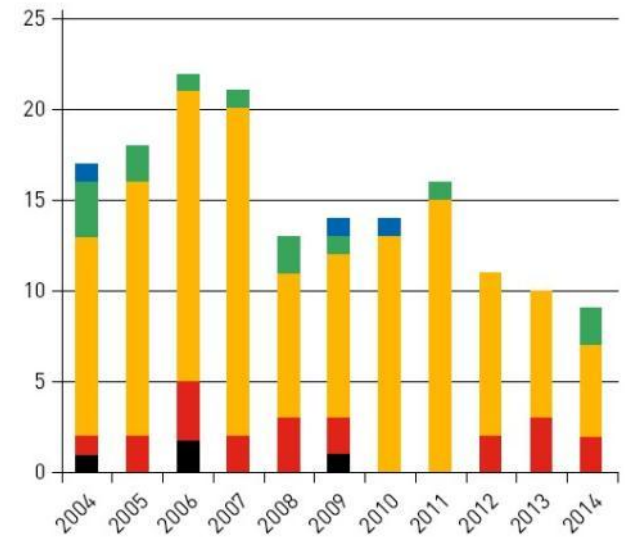
Collision data

Pedestrian and bicycle collisions last 3 years:

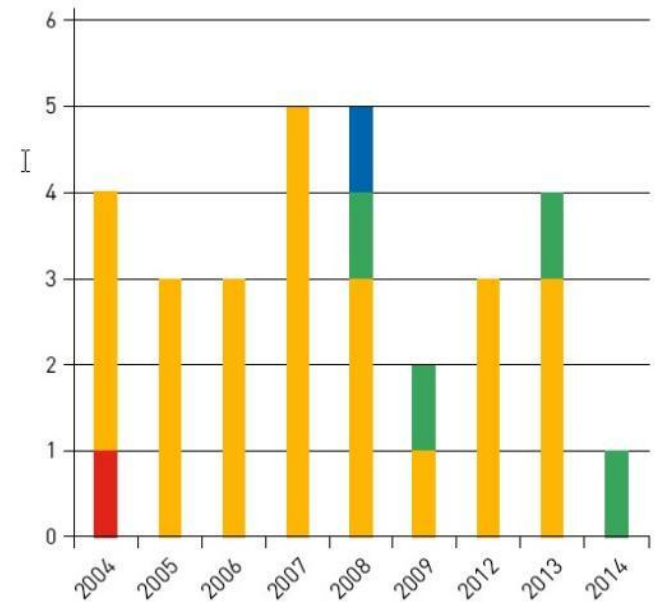
- 46 pedestrian-vehicle
- 10 bicycle-vehicle

Last 10 years:

- 165 pedestrian-vehicle
- 30 bicycle-vehicle



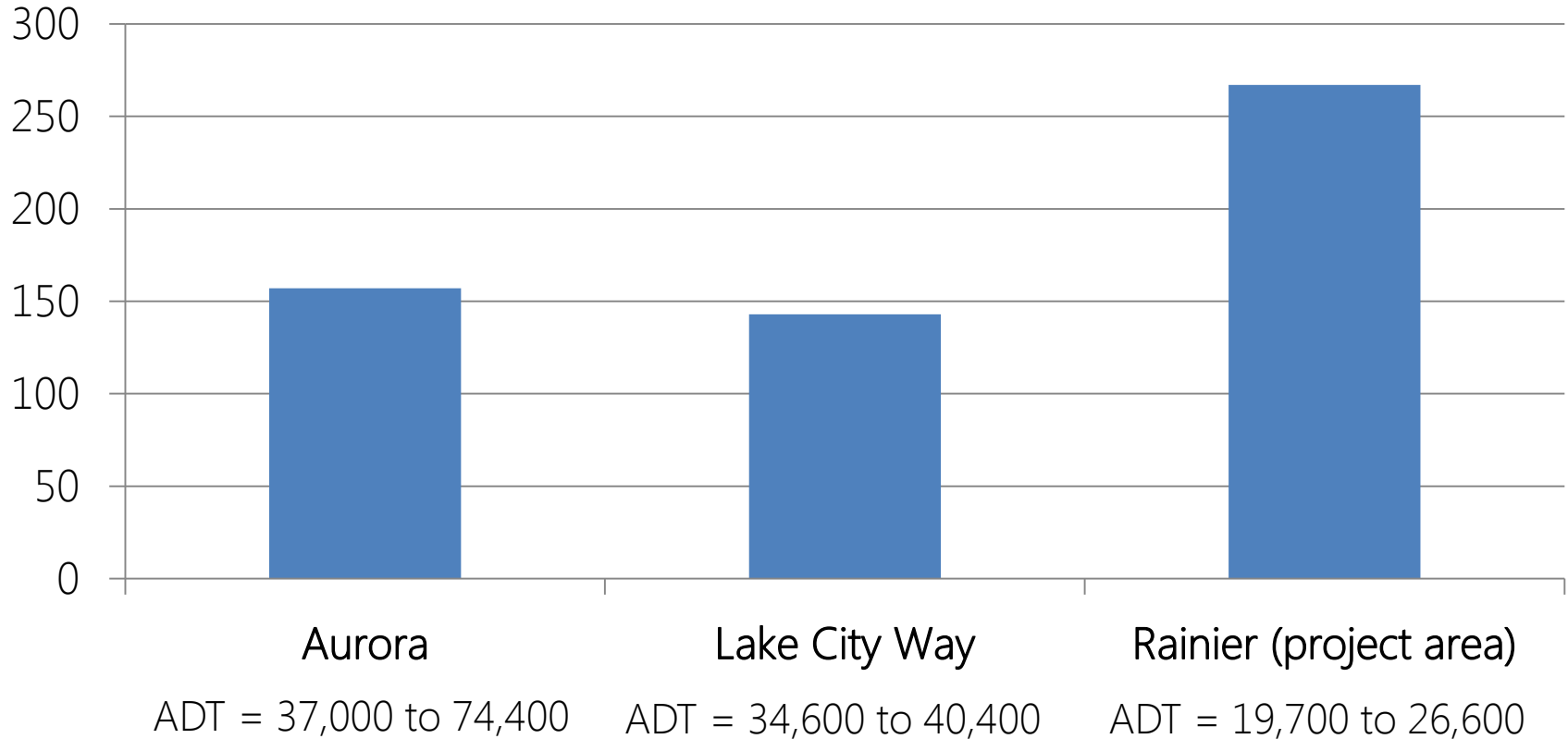
Annual Pedestrian Collisions



Annual Bicycle Collisions

Collision data

Crashes per mile



Recent speed studies

Posted speed limit is 30 miles per hour

Location	85th Percentile Speed	Percent Speeding (3+ mph over the speed limit)	Average number of high-end speeders per weekday
S Hudson Street	35 mph	20%	611/day
42nd Avenue South	38 mph	55%	1812/day
S Holly Street	37 mph	56%	1083/day
S Cloverdale Street	36 mph	38%	1083/day

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

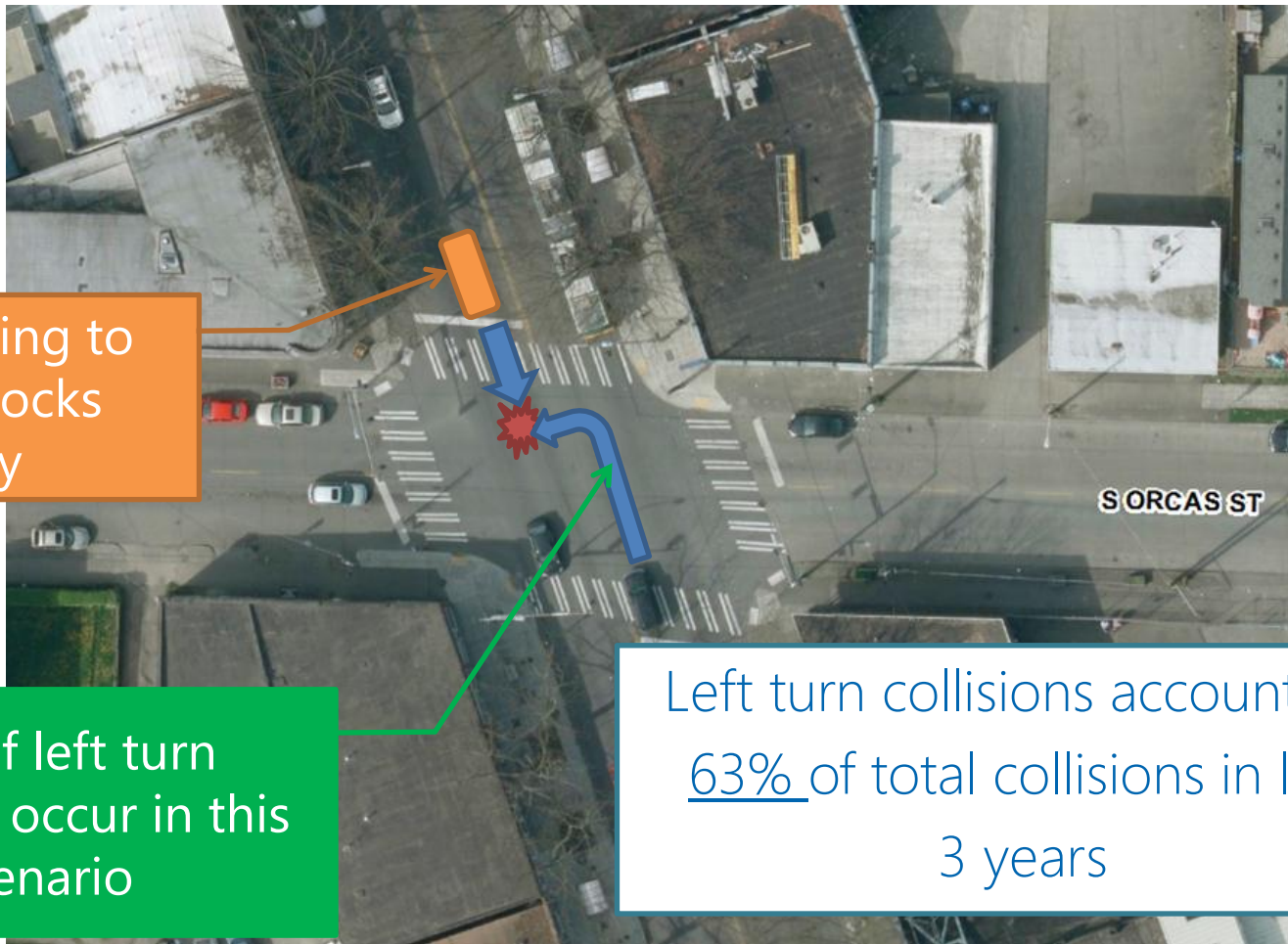
Similar conditions at:

- 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

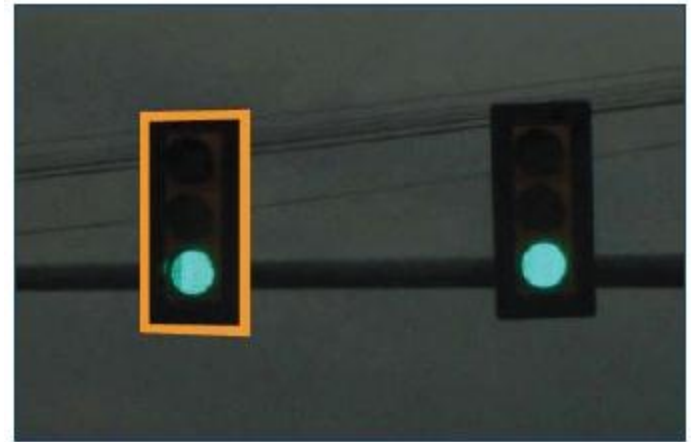
Lower speed limit

- 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

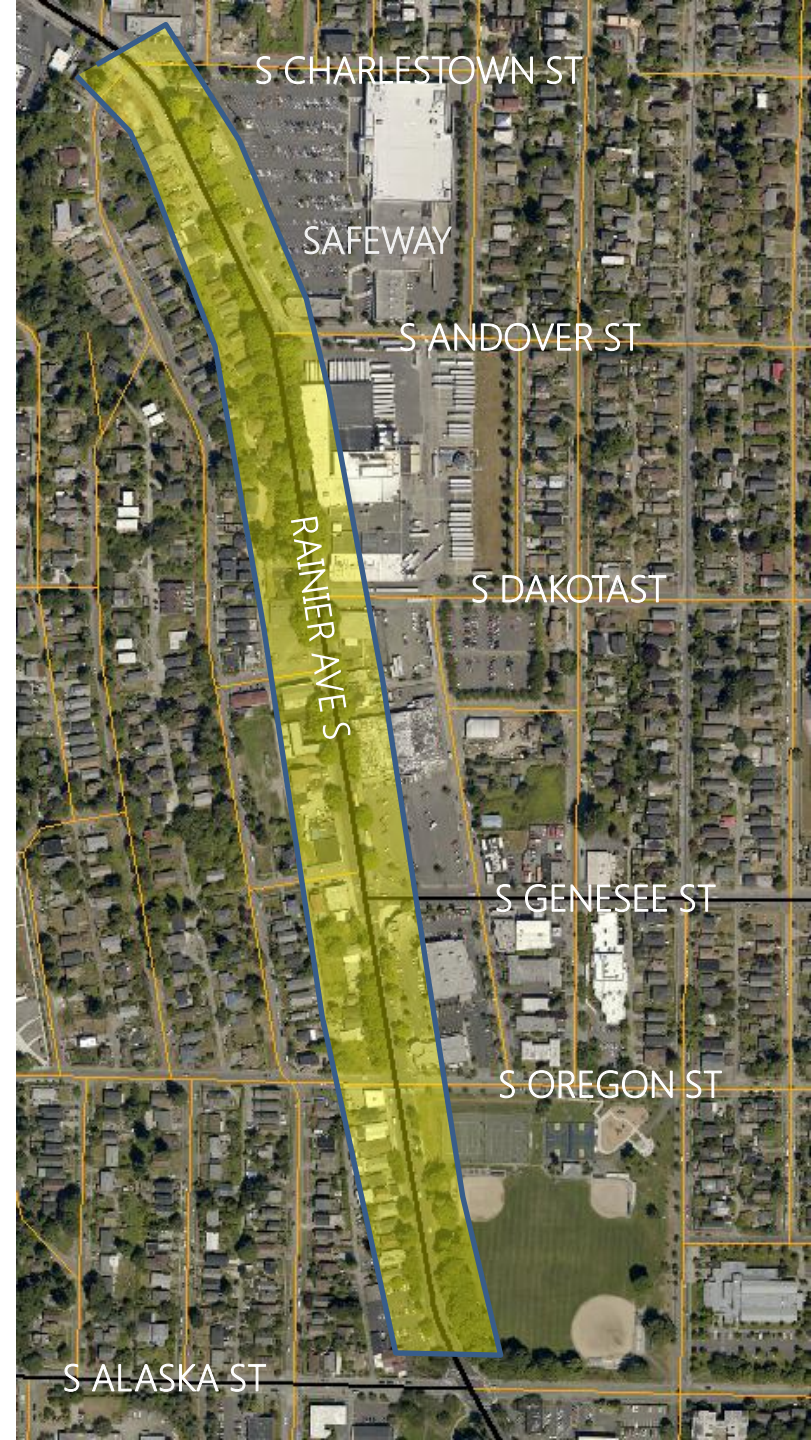
Public engagement

- 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

Street	Collisions	85% speed	10+ mph speeders	Volume change
Nickerson St	-23%	-21%	-94%	-1%
Fauntleroy Way SW	-31%	-1%	-13%	+0.3%
NE 125 th St	-10%	-8%	-69%	+4%
NE 75 th St	-50%	-13%	-90%	+0.3%

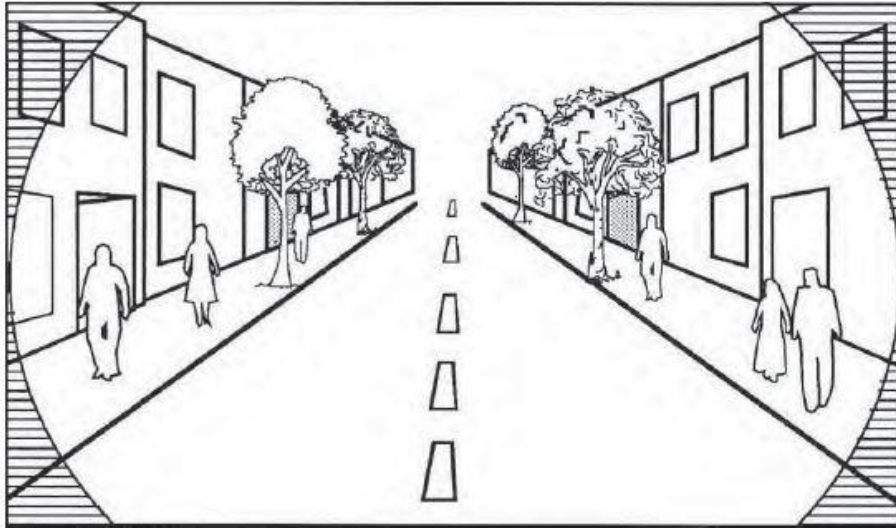
Design alternatives

Safety benefits

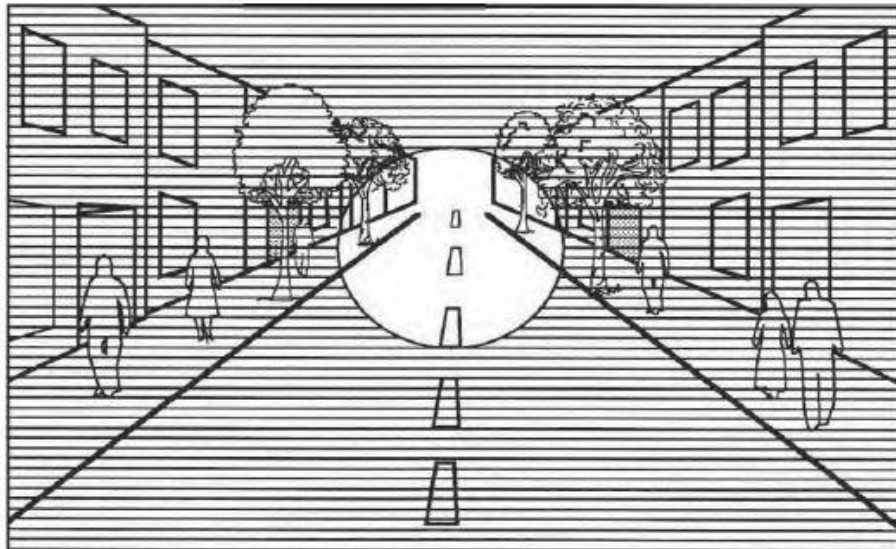
- Lower speeds, less severe crashes
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- Reduction in crash frequency
- Easier turning movements

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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 1a
- 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

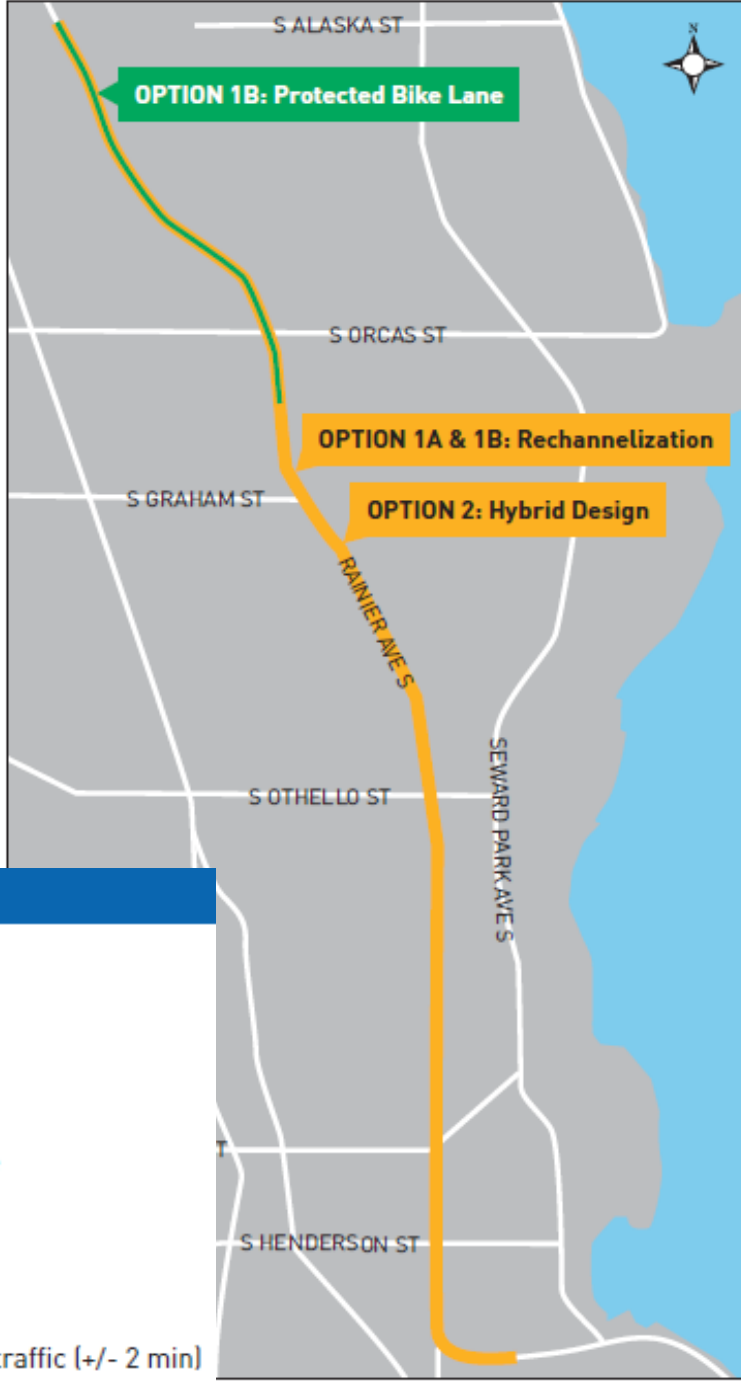
- 2 general purpose lanes
- Center left turn lane
- Intermittent transit lanes

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

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?

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

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