



# 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

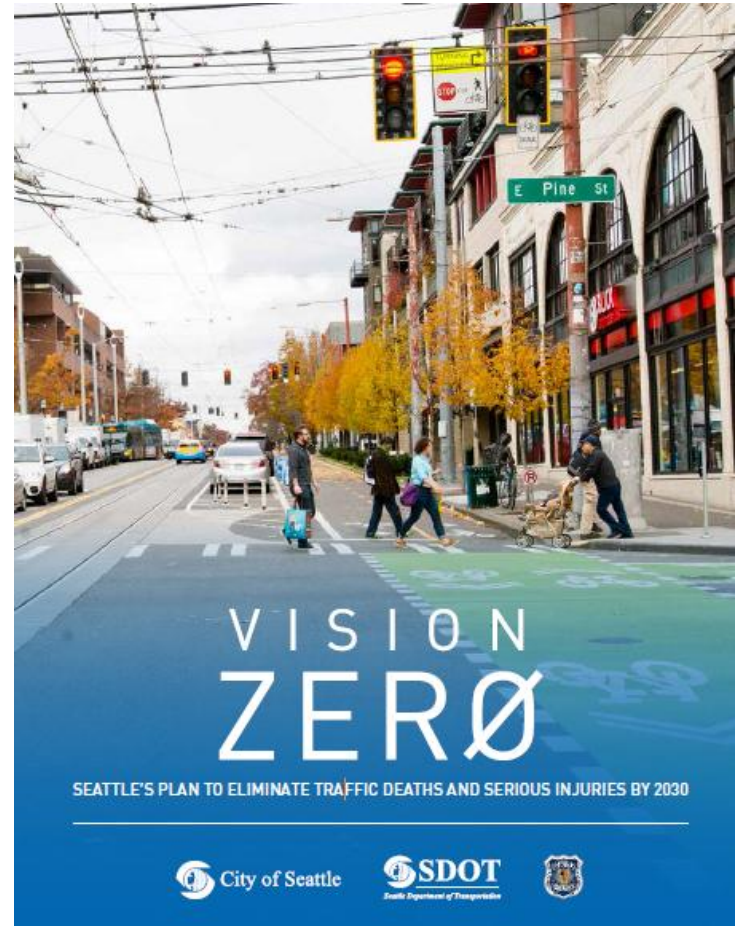
## Make Rainier Avenue South safer for everyone

- 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](http://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

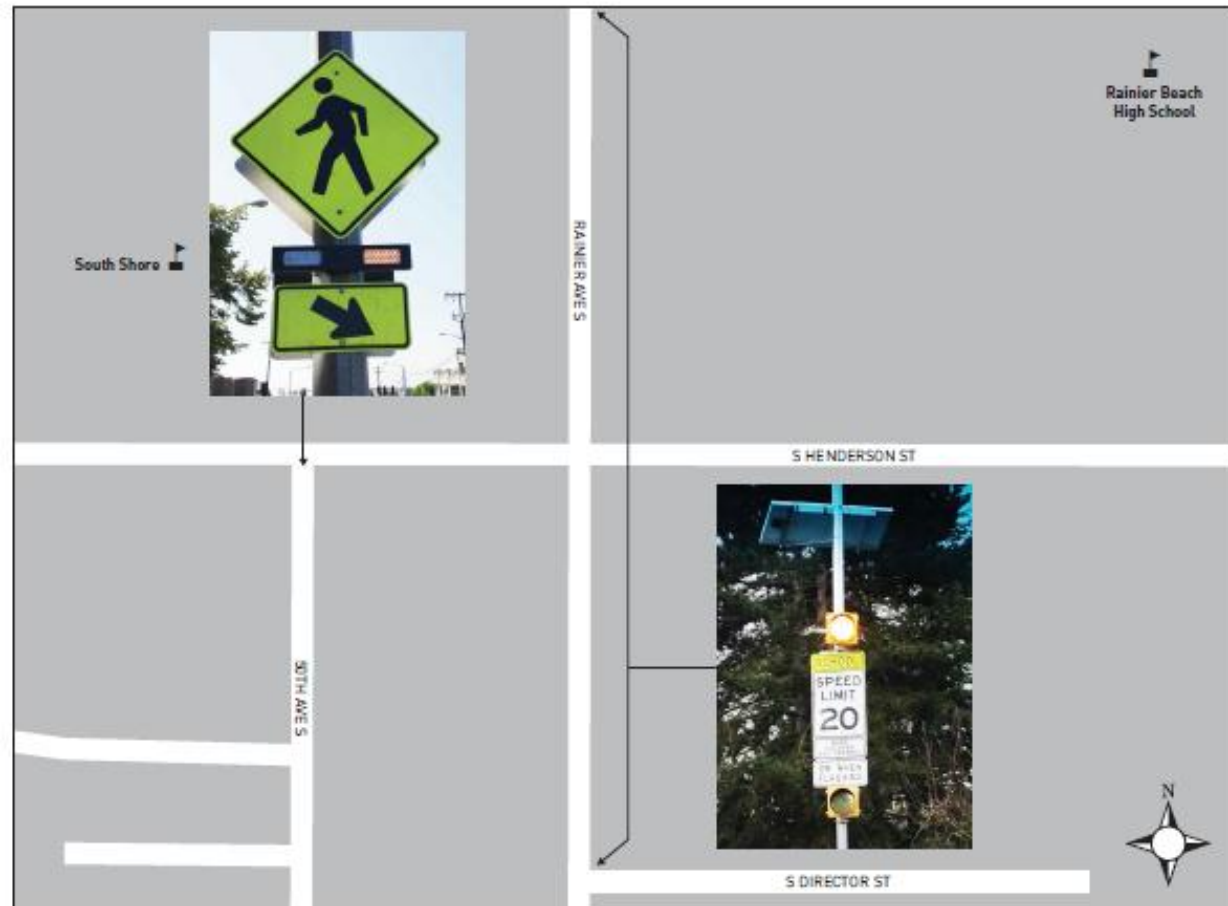


# Rainier Beach Safety Improvements

## Rainier and S Henderson Street

### Benefits

- Reduce speeding during school arrival and dismissal
- Improve crosswalk visibility
- Increase driver compliance at school crosswalk

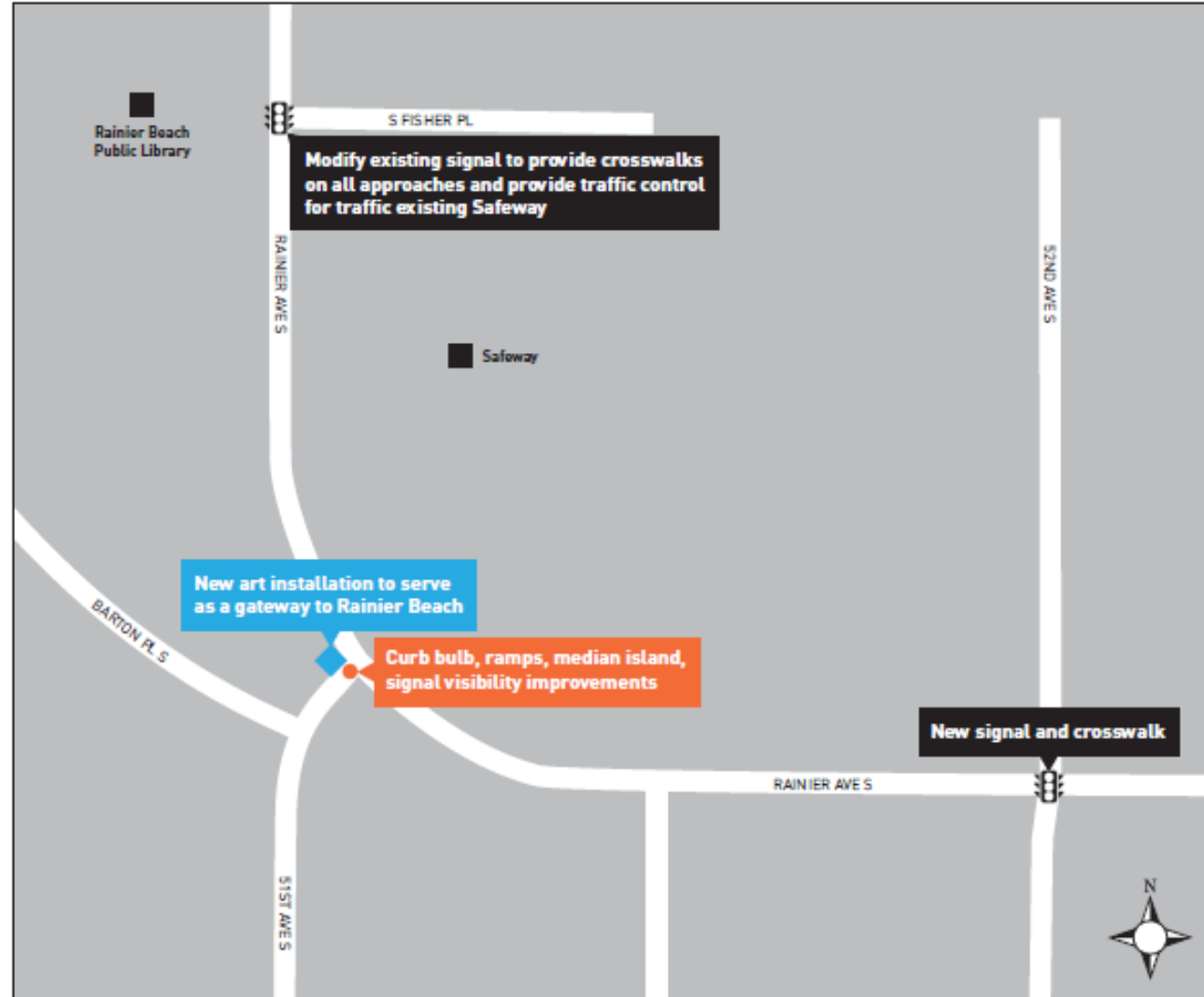


# Rainier Beach Safety Improvements

S Fisher Place, 51<sup>st</sup> Avenue S, and 52<sup>nd</sup> Avenue S

## Benefits

- Reduce speed of vehicles turning onto Rainier from 51<sup>st</sup>
- Makes it easier for people walking to cross the street
- Improve access to the library and Mapes Creek Walkway



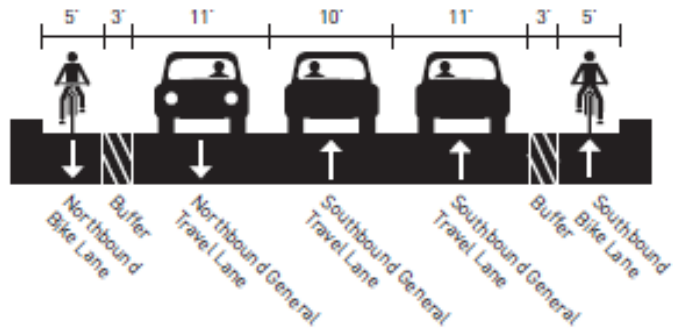
# Rainier Beach Safety Improvements

Seward Park Avenue S to City Limits

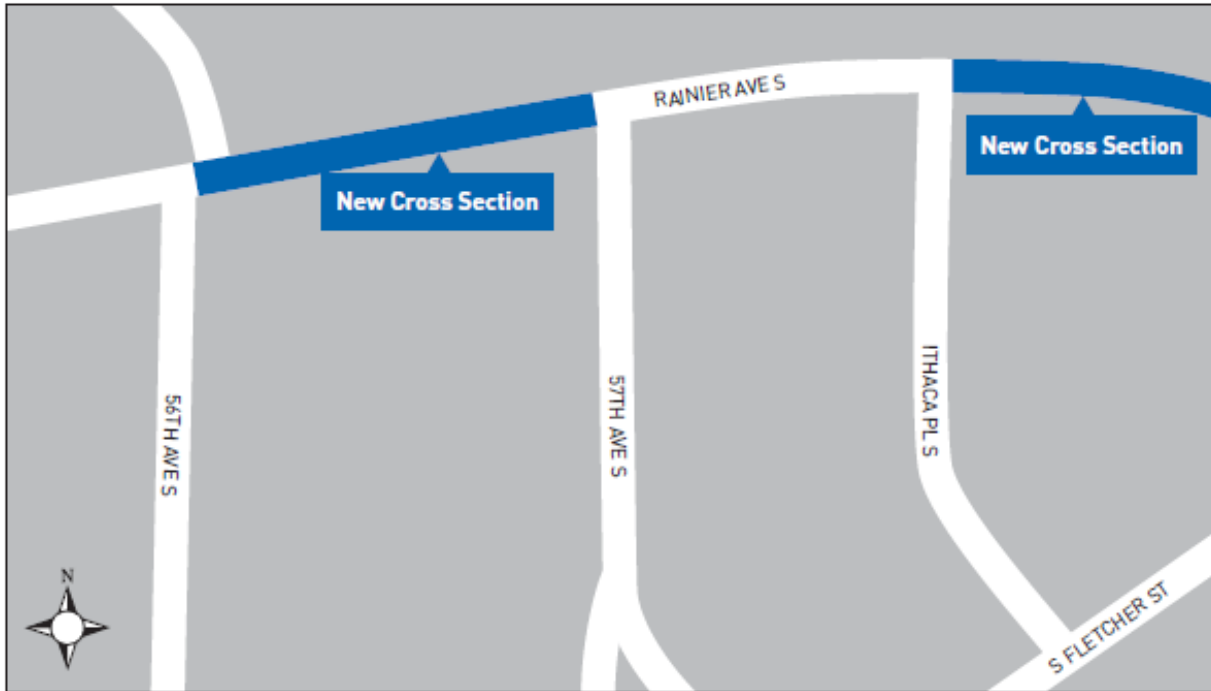
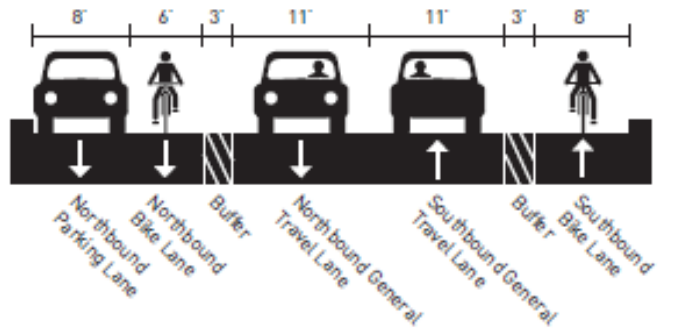
## Benefits

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

**New Cross Section Between 56th and 57th Avenue S**

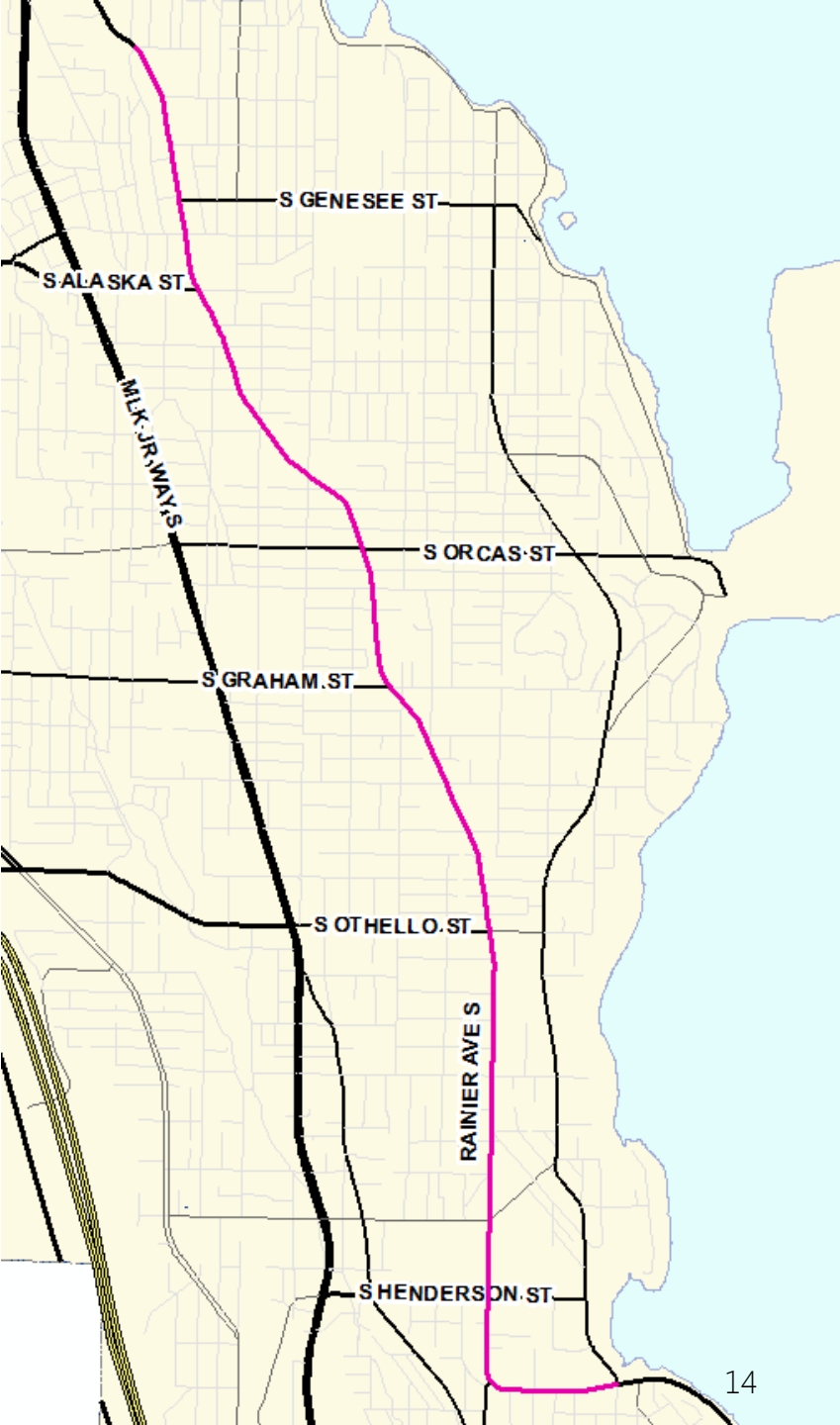


**New Cross Section South of Ithaca Place S**



# Project area

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



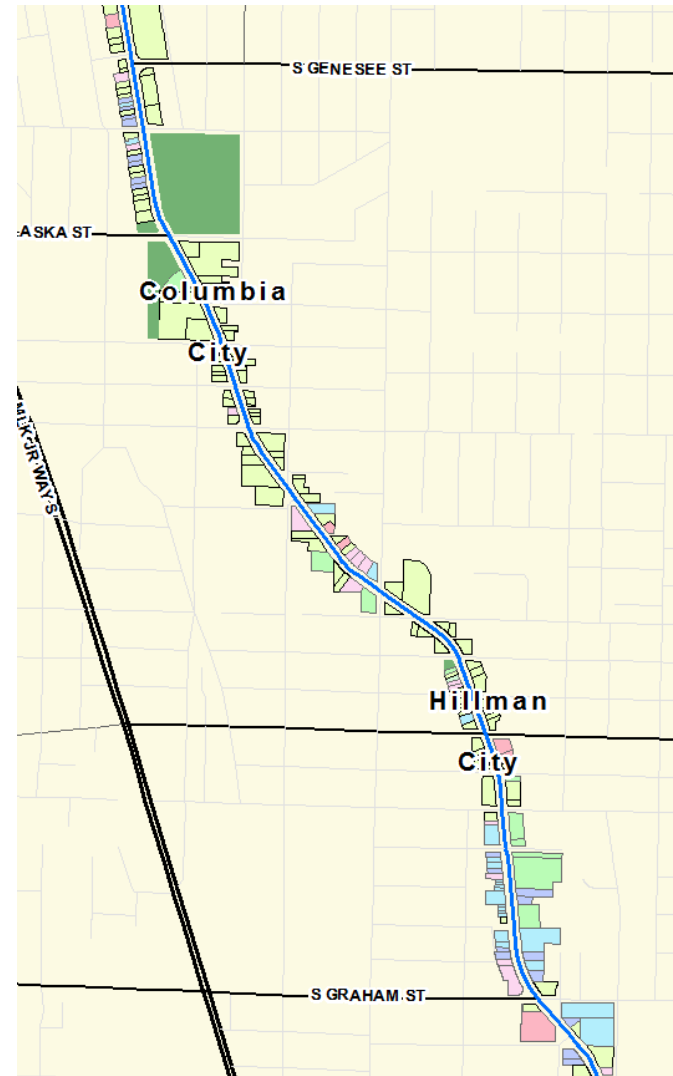
# Along Rainier

## People

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

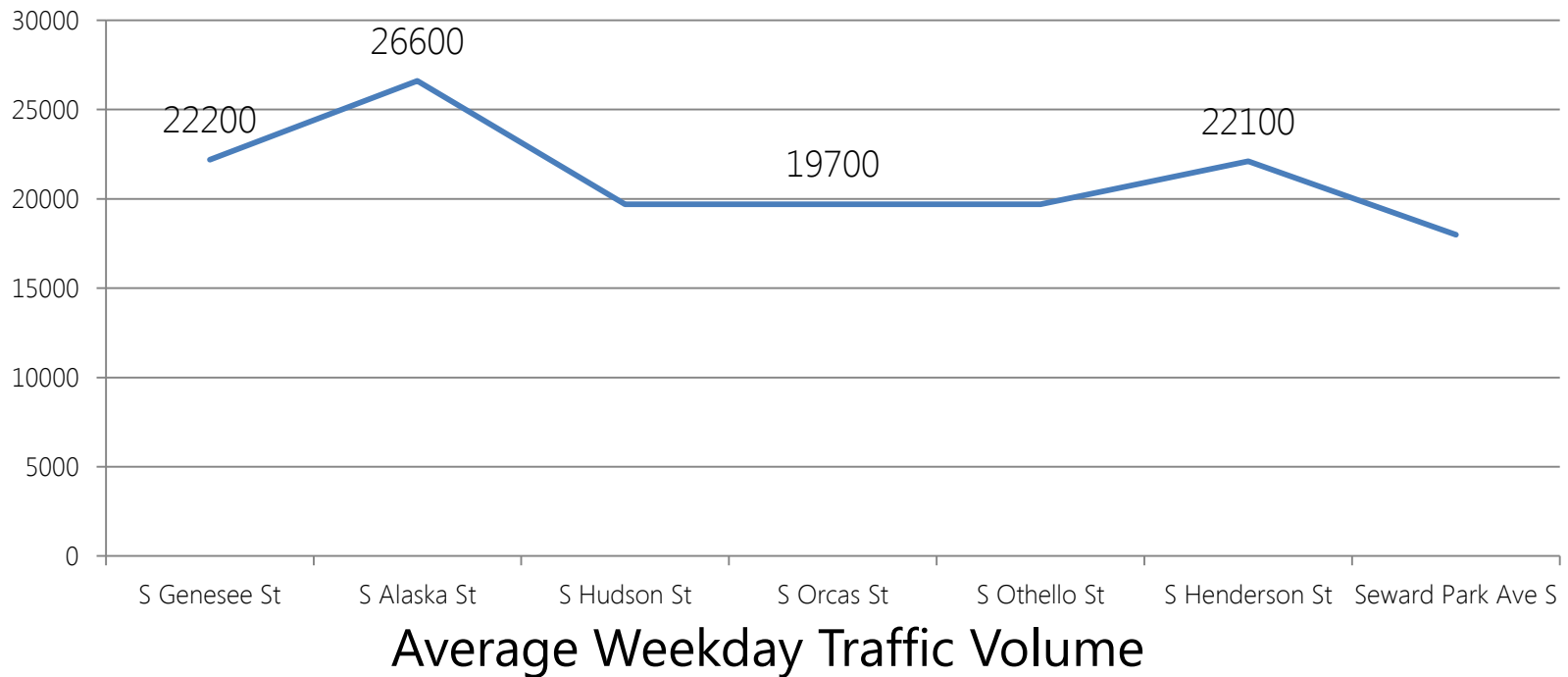
## Land uses

- 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

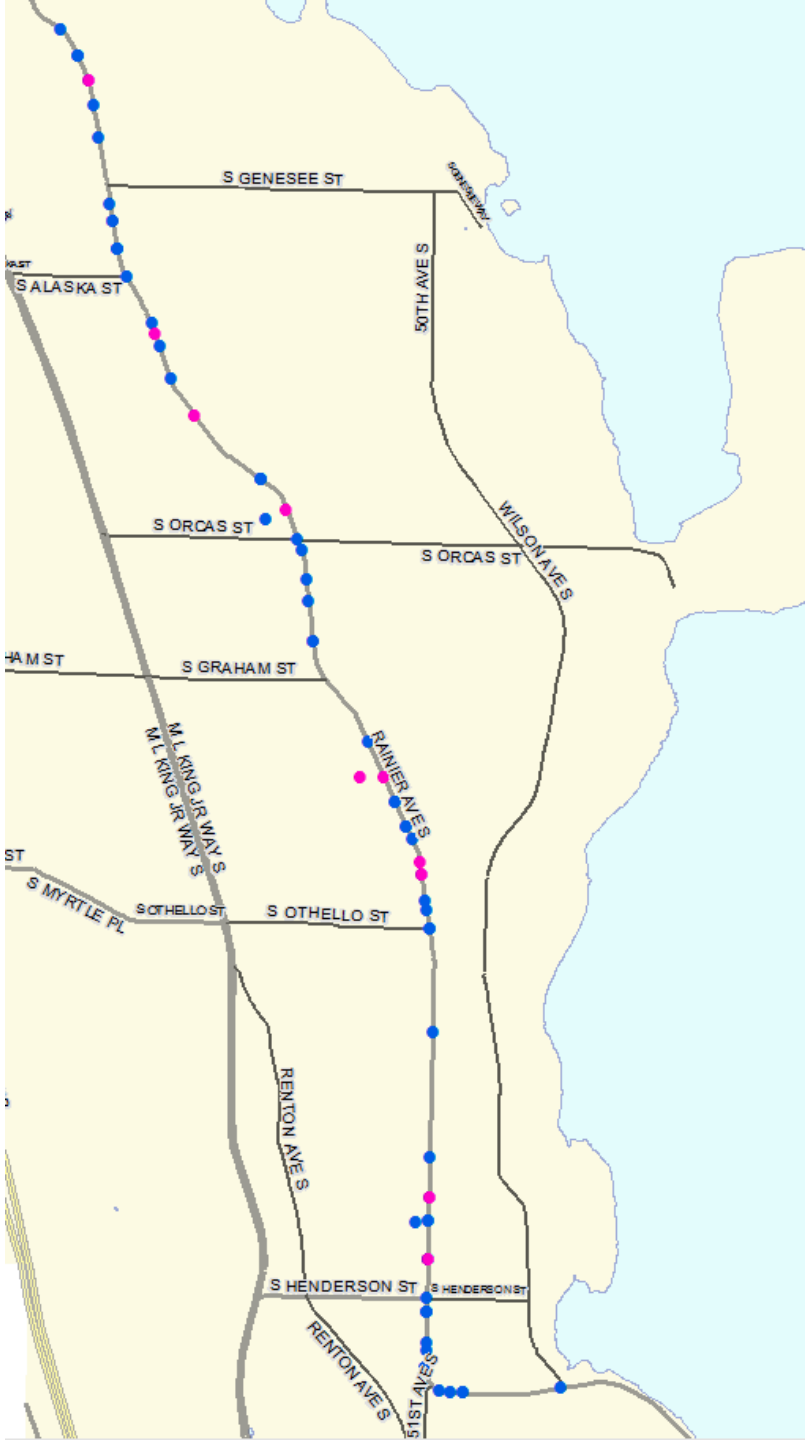
- Nearly 3600 total collisions
- 1700+ injuries
- 11 fatalities



# Collision data

Fatal and serious injury crashes  
Last 10 years within project area

- Fatal collisions
- Serious injury collisions



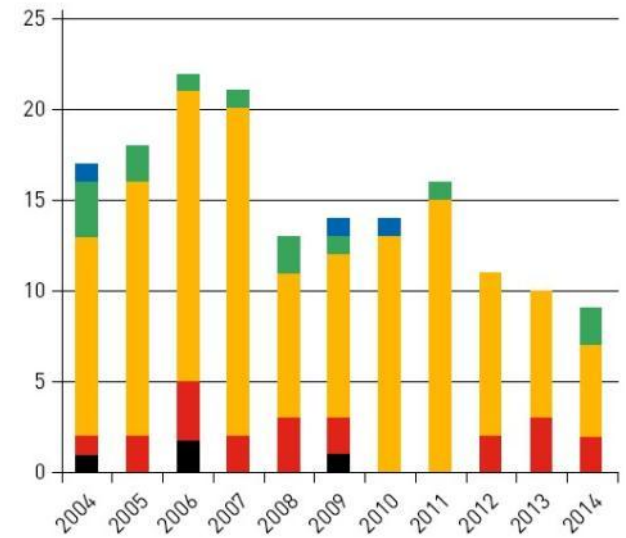
# Collision data

## Pedestrian and bicycle collisions last 3 years:

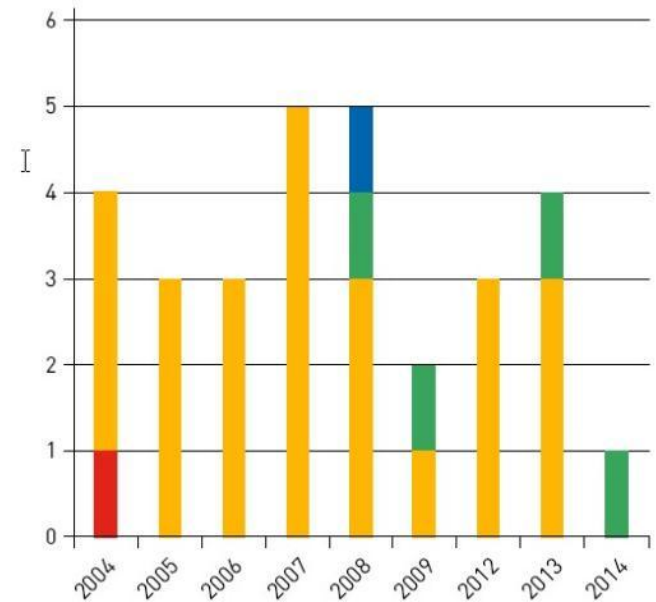
- 46 pedestrian-vehicle
- 10 bicycle-vehicle

## Last 10 years:

- 165 pedestrian-vehicle
- 30 bicycle-vehicle



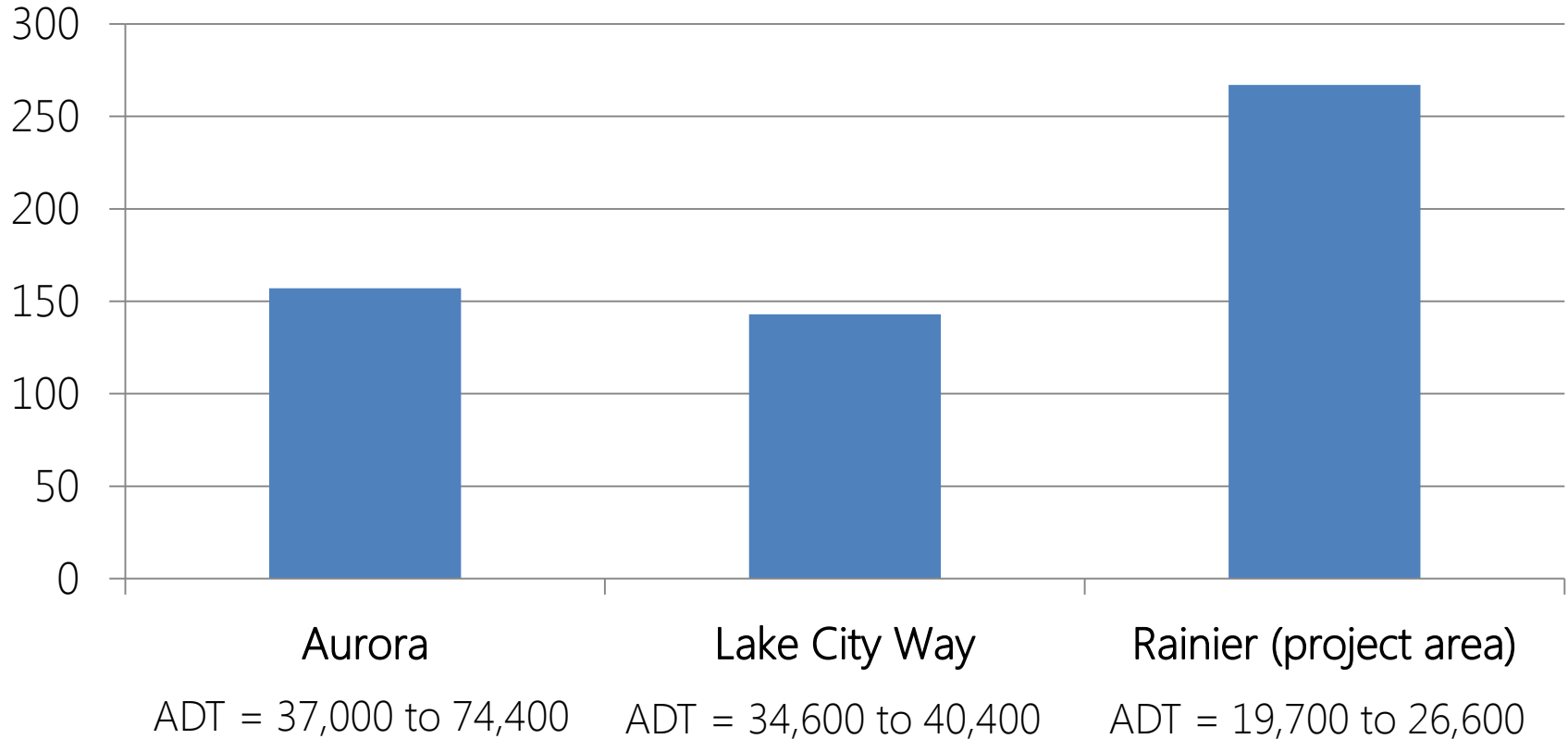
Annual Pedestrian Collisions



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

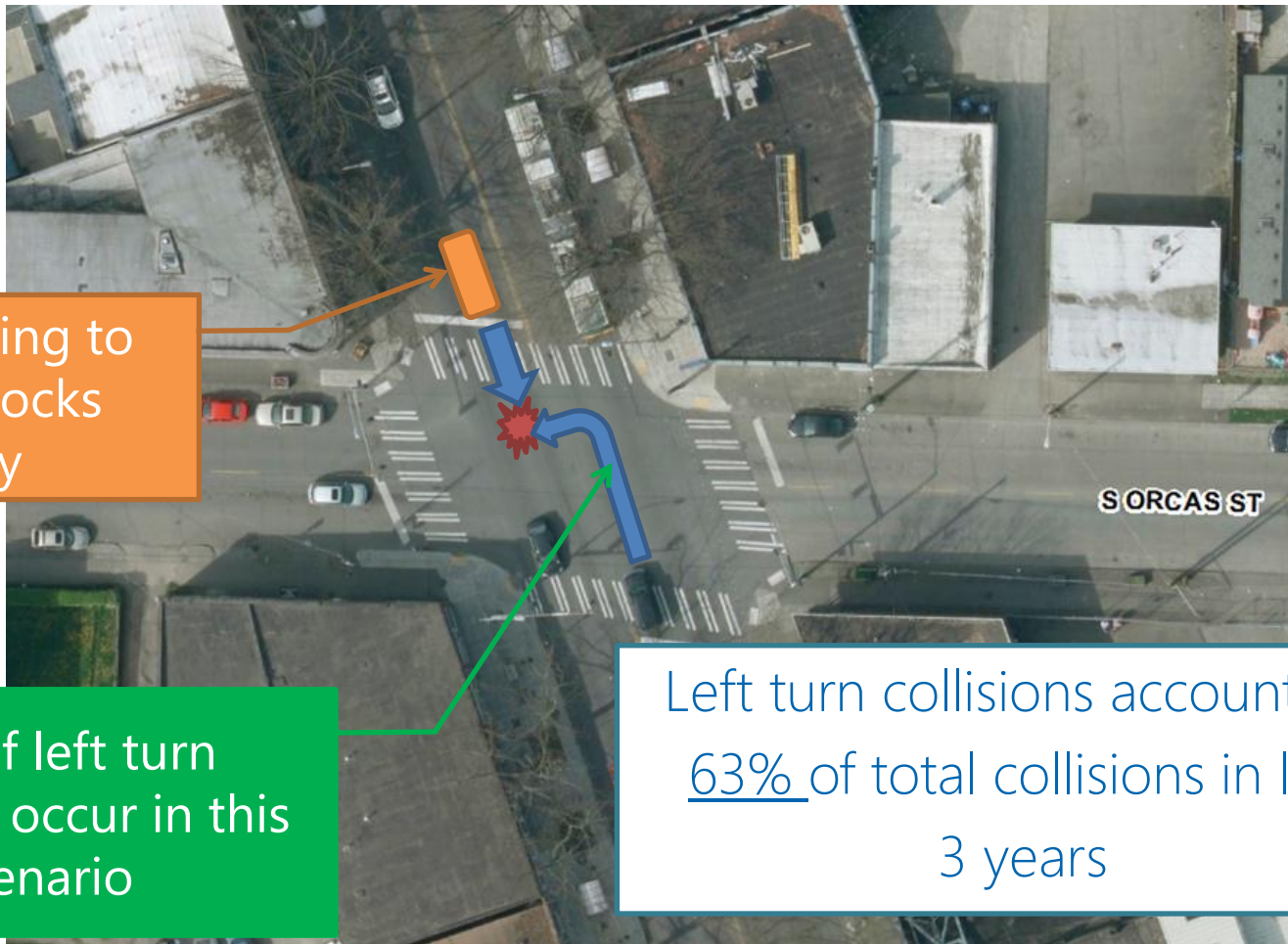
Similar conditions at:

- 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

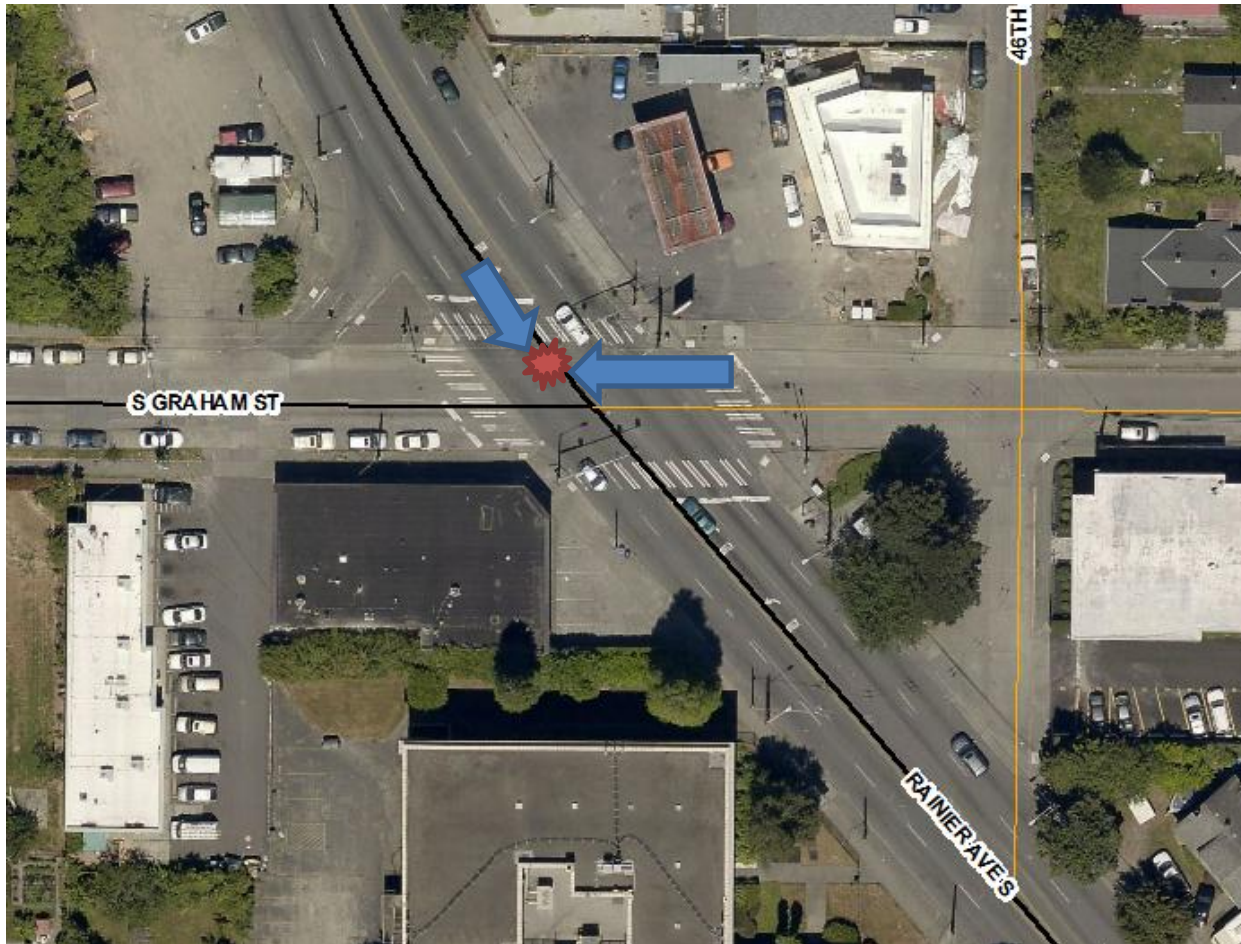


Left turn collisions account for 50 % of total collisions within last 3 years

# Design process

## Rainier and Graham

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



# Design alternatives

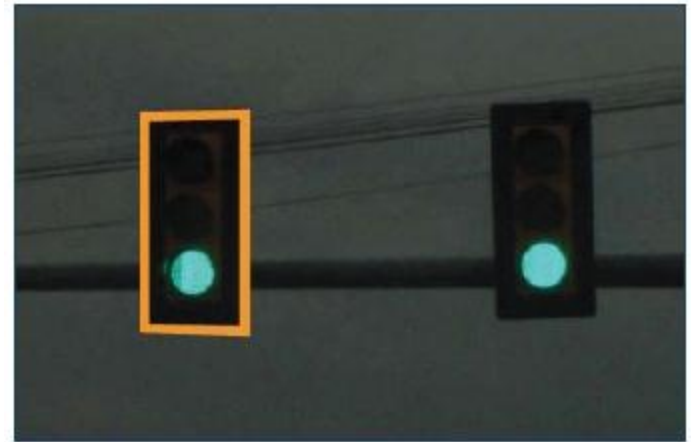
## Lower speed limit

- 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
    - 51<sup>st</sup> 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

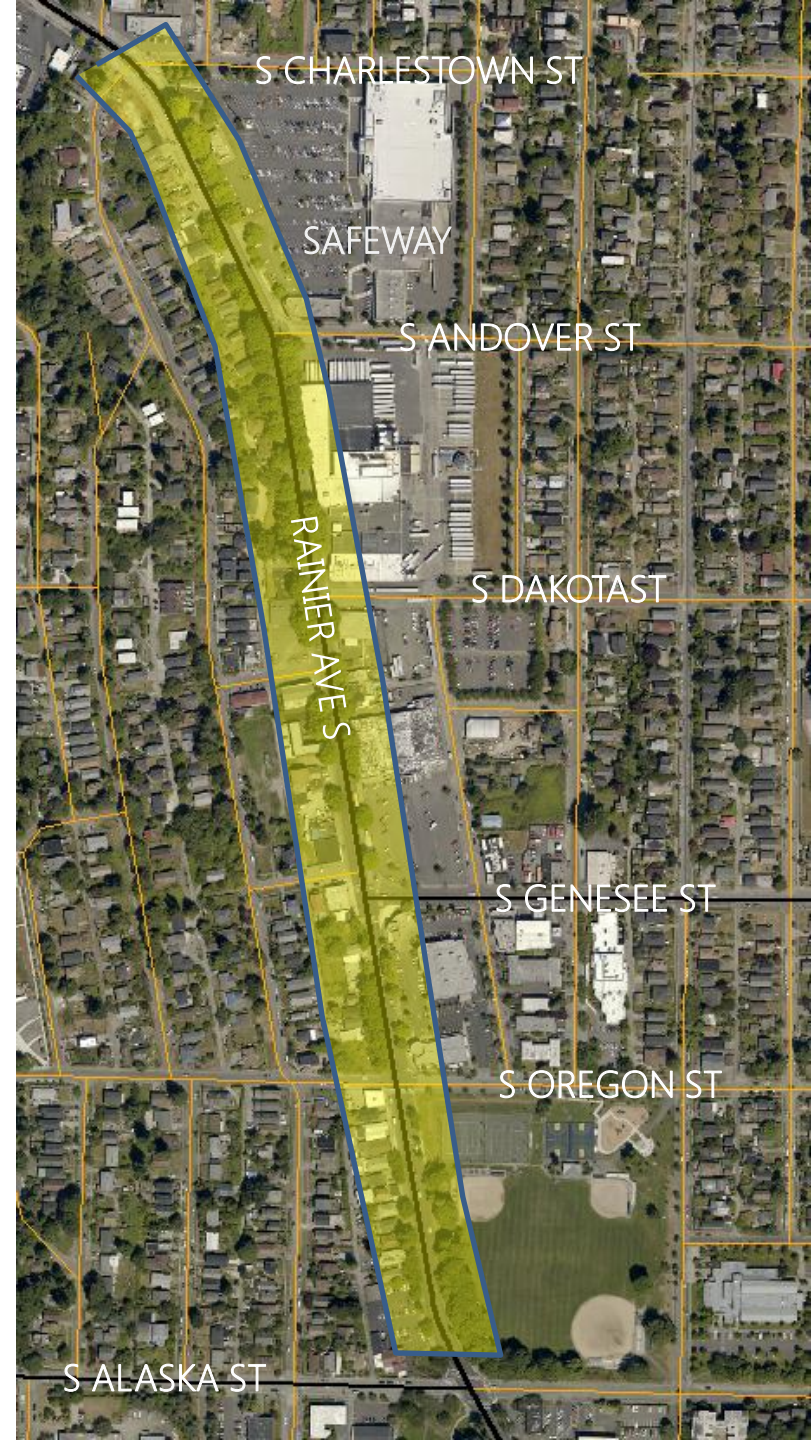
## Public engagement

- 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 <sup>th</sup> St	-10%	-8%	-69%	+4%
NE 75 <sup>th</sup> St	-50%	-13%	-90%	+0.3%

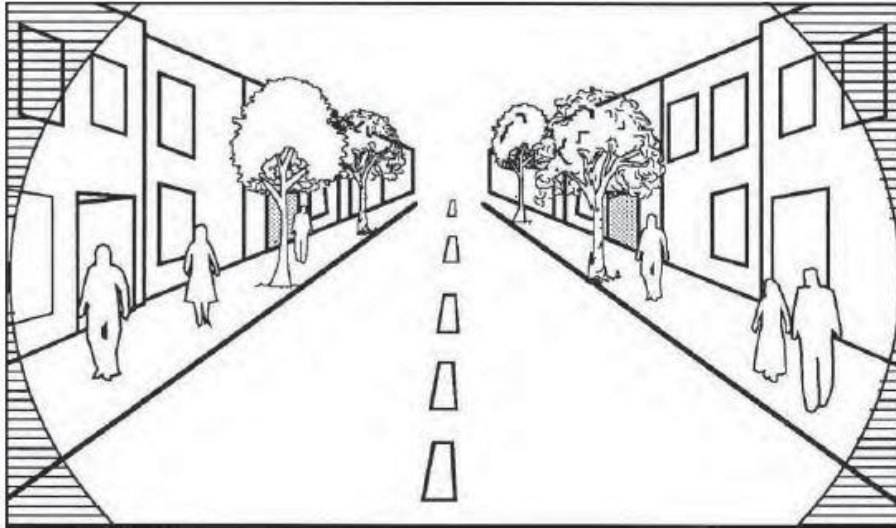
# Design alternatives

## Safety benefits

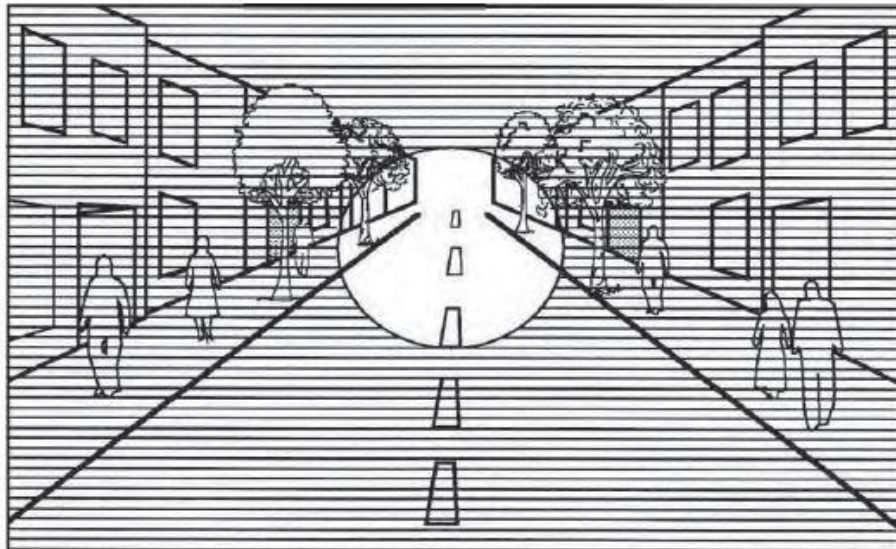
- Lower speeds, less severe crashes
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NE 75 <sup>th</sup> St	-50%	-13%	-90%	+0.3%

# 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

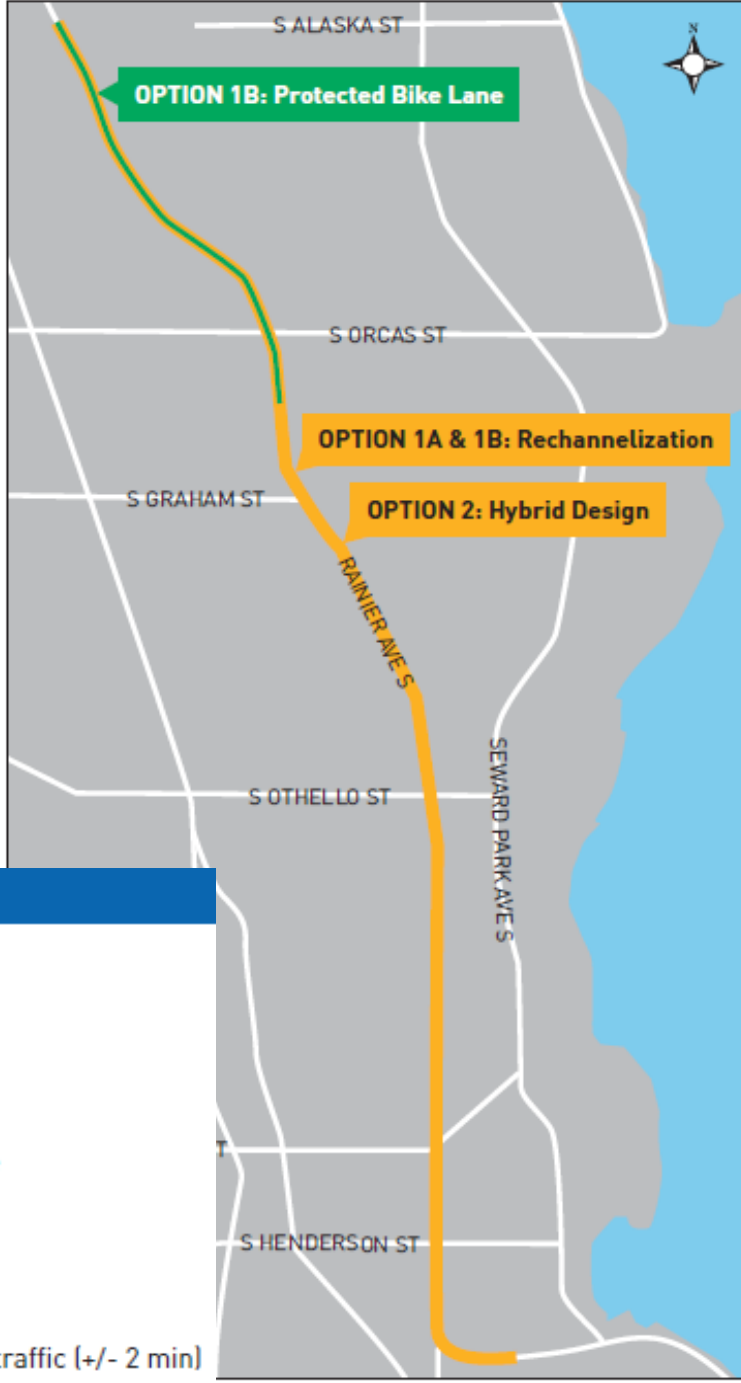
- 2 general purpose lanes
- Center left turn lane
- Intermittent transit lanes

### 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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