Vision Zero

Seattle’s plan to eliminate traffic deaths and serious injuries by 2030

City of Seattle

SDOT

Seattle Department of Transportation

Seattle Police

VISION ZERO

SAFER STREETS FOR SEATTLE
Presentation overview

• Vision Zero-Seattle’s approach
• Trends
• Program elements of VZ
  – Engineering & Evaluation
  – Education
  – Enforcement
  – Data
  – Research
Vision Zero: A Citywide Effort

- 2012: we initiated the Road Safety Action Plan.
- 2015: VZ Launched as Mayor’s Initiative
- 2016: The Levy to Move Seattle: 930 million over 9 years.
More Than 1,000 People Are Moving to Seattle Every Week, Census Report Shows

by Ana Sofia Knauf • Mar 27, 2017 at 2:58 pm

From 2010 to 2016, downtown Seattle added 45,000 jobs. During this time, 95% of the gain in net commute trips has been absorbed by non-drive alone modes.
The trends

- Fatal and serious injury rate continues to decline as population grows
- Annual fatalities increasing in 3-year trend
- Seattle’s 3-year annual average = 20 fatalities
The trends

<table>
<thead>
<tr>
<th></th>
<th>Fatalities per 100,000 population</th>
<th>2015 Fatalities</th>
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</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>2.30</td>
<td>230</td>
</tr>
<tr>
<td><strong>Seattle</strong></td>
<td><strong>3.07</strong></td>
<td><strong>21</strong></td>
</tr>
<tr>
<td>New York City</td>
<td>3.18</td>
<td>272</td>
</tr>
<tr>
<td>Washington State</td>
<td>7.92</td>
<td>568</td>
</tr>
<tr>
<td>United States</td>
<td>10.92</td>
<td>35,092</td>
</tr>
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</table>

**TABLE 1 - FATALITY RATE PER 100,000 POPULATION**
(PRELIMINARY DATA INDICATE 22 FATALITIES IN 2016)
engineering
Program overview

- Corridor safety
- Speed limits
- Bike and Ped spot projects
- Evaluation
Corridor projects

• Three to five corridors per year
  – Low-cost, big impact projects
  – Major street redesigns

Lake City Way at 24th NE
Rainier Corridor

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

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

AVERAGE INCIDENT DURATION/MONTH (6 AM TO 10 PM ONLY)

<table>
<thead>
<tr>
<th>Month</th>
<th>Incidents</th>
<th>Average Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>10</td>
<td>73</td>
</tr>
<tr>
<td>Feb</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>Mar</td>
<td>10</td>
<td>34</td>
</tr>
<tr>
<td>Apr</td>
<td>5</td>
<td>66</td>
</tr>
<tr>
<td>May</td>
<td>3</td>
<td>29</td>
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</table>

Number of Incidents
Average Duration
RAINIER AVE S & S EDMUNDS ST (EXISTING)

13'  9'  9'  14'

Travel Lane  Travel Lane  Travel Lane  Travel Lane

*Parking available at some locations

RAINIER AVE S & S EDMUNDS ST (NEW)

11'  10'  3'  10'  11'

Bus Lane  Travel Lane  Travel Lane  Bus Lane

ONLY

ONLY (except bus)

before

after
Rainier- preliminary data: top end speeding, people driving 40 mph+ decreased by approx. 95%.
Rainier Corridor Evaluation

Results

- One serious injury crash, zero fatalities since August 2015
- Transit travel time improvement
- Slower vehicular speeds

<table>
<thead>
<tr>
<th>2015 Rainier Ave S Pilot Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Collisions</strong></td>
</tr>
<tr>
<td>-15%</td>
</tr>
<tr>
<td>Transit travel times (peak hours)</td>
</tr>
<tr>
<td>SB</td>
</tr>
<tr>
<td>15:34</td>
</tr>
<tr>
<td>NB</td>
</tr>
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</table>
Speed limits

- Urban Village focus
- 20 evaluated by corridors by 2020
- 2016 speed limit legislation:
  - 20 mph on all 2400 miles of non-arterials
  - 25 mph on 75 miles of city center arterials
Spot projects

- BPSA/Vision Zero
- High collision program
- LPIs and signal visibility
- No turn on red
education
In Seattle, 60% of pedestrian fatalities in last 3 years were people age 55+.
DON’T WHILE DRIVING

SLow down
save lives

Hãy chạy chậm lại. An toàn cuộc sống

Một số bạn thêm hay vui: seattle.gov/visionzero

CAN’T REACH IT. CAN’T USE IT.
DON’T WHILE DRIVING
enforcement
Enforcement

- Monthly coordination meetings
- Annual data-driven prioritization
- Quarterly fatal crash reviews
- Year-long focus on top contributing factors
  - Impairment
  - Speeding
  - Distraction
  - Failure to yield to ped
Enforcement

• High visibility enforcements
• Automated enforcement
Data & Research
Data & Research

- Exposure modeling
- Seasonal crash analysis
- Enforcement data evals
- Mobile application data
- Research: Bicycle and Pedestrian Safety Analysis (BPSA)
Purpose of Bicycle and Pedestrian Safety Analysis

• Better understand risk factors contributing to pedestrian and bicyclist crashes
• Proactively and systemically address risk factors to mitigate potential crashes
• Advance Seattle’s Vision Zero Goals
Leading Edge Analysis

Multivariate Analysis

Identify Risk Factors

Ranked Lists of Locations by Safety Performance Factor
Data Up Close – Roadway Data

Lane Data + Crash Data = Crashes Associated with Lane Data

Crosswalk Data + Crash Data = Crashes Associated with Crosswalks
Exploratory Analysis

THE MAJORITY OF BICYCLE AND PEDESTRIAN CRASHES HAPPEN AT INTERSECTIONS

- 30% Crashes Located Elsewhere
- 70% Crashes Located at Intersections
- 57% Crashes Located at Intersections
- 43% Crashes Located Elsewhere
- 8% of Intersection Crashes were Serious or Fatal
- 10% of Intersection Crashes were Serious or Fatal
Exploratory Analysis

PEDESTRIAN INTERSECTION CRASHES MORE LIKELY TO HAPPEN AT LOCATIONS WITH TRAFFIC SIGNALS
## Exploratory Analysis - Bicycle

<table>
<thead>
<tr>
<th>Collision Type</th>
<th>% of Total</th>
<th>% of Severe/Fatal</th>
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<tbody>
<tr>
<td>Left Hook</td>
<td>13.9</td>
<td>21.5</td>
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<tr>
<td>Angle</td>
<td>9.4</td>
<td>9.9</td>
</tr>
<tr>
<td>Right Hook</td>
<td>7.1</td>
<td>2.7</td>
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<tr>
<td>Dooring</td>
<td>5.0</td>
<td>6.0</td>
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</table>
Exploratory Analysis - Bicycle

5% of all bike crashes were dooring crashes
And accounted for 6% of all serious and fatal crashes

- 19% Bike Lane
- 43% Curb Lane
- 25% Travel Lane with Sharrow
# Exploratory Analysis - Pedestrian

<table>
<thead>
<tr>
<th>Collision Type</th>
<th>% of Total</th>
<th>% of Severe/Fatal</th>
</tr>
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<tbody>
<tr>
<td>Left hook at crossing (controlled)</td>
<td>29.1</td>
<td>20.7</td>
</tr>
<tr>
<td>Angle at crossing (controlled)</td>
<td>23.0</td>
<td>31.0</td>
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<tr>
<td>Angle at midblock (uncontrolled)</td>
<td>21.7</td>
<td>33.8</td>
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Accounting for Exposure

Exposure = level of pedestrian/bicycling activity

Pedestrian Activity
• Annualized count data
• Trip generators

Bicycle Activity
• Annualized count data
• Trip generators
• Strava data
• Bicycle Network
A Proactive, Systemic Approach

Focusing on modeled collision rates at intersection locations based on the 5 following prioritized collision types:

• Total bicycle collisions
• Total pedestrian collisions
• Opposite direction bicycle collisions
• Angle bicycle collisions
• Angle pedestrian collisions
A Proactive, Systemic Approach

Data Analysis

Significant Risk Factors

Ranked list of locations where intervention may be needed

Field Investigations

Identify Safety Improvements

<table>
<thead>
<tr>
<th>INTKEY</th>
<th>Location</th>
<th>BGQ St</th>
<th>Pred</th>
<th>EB Est</th>
<th>Pred Rank</th>
<th>EB Rank</th>
<th>PSI Rank</th>
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<td>Eastlake Ave E &amp; Fuhrman Ave E</td>
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<td>8</td>
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<tr>
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<td>2</td>
<td>140</td>
<td>2</td>
<td>14</td>
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<tr>
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<td>29515</td>
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<td>2</td>
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<td>29795</td>
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<td>29809</td>
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<td>19</td>
<td>8</td>
<td>10</td>
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<td>25949</td>
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<td>3</td>
<td>3</td>
<td>9</td>
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<tr>
<td>29761</td>
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<td>29812</td>
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<td>1</td>
<td>5292</td>
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<td>15</td>
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<tr>
<td>28731</td>
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<td>1</td>
<td>5236</td>
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<td>156</td>
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<td>26688</td>
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<td>1</td>
<td>2</td>
<td>23</td>
<td>18</td>
<td>21</td>
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<tr>
<td>28741</td>
<td>Dexter Ave N &amp; Roy St</td>
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<td>1</td>
<td>1</td>
<td>187</td>
<td>19</td>
<td>56</td>
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<td>27039</td>
<td>Fremont Ave N &amp; N 34th ST</td>
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<td>1</td>
<td>3</td>
<td>7</td>
<td>20</td>
<td>7</td>
</tr>
</tbody>
</table>


Where do we go from here?

- We will track performance over time.
- Validate countermeasure approaches
- Further develop predictive volume models for the entire city
- Rerun BPSA in future with better bicycle data after bicycle network is developed
- Promote education and enforcement
We can reach zero

Seattle is on-track towards meeting our target date.

Source: performance.seattle.gov
Thank You!