Vision Zero & ITE

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What is Vision Zero?

Traffic deaths and serious injuries are preventable and unacceptable

Human life takes priority over mobility

Human error is inevitable

Source: The Boston Globe
What is Vision Zero?

Speed is a fundamental predictor of crash survival

Designing for vulnerable users benefits all users

Focus on the “E’s”

Coordinate efforts across agencies—build and strengthen relationships

Source: NYCDOT
Vision Zero Origins

- 1997 policy adopted by Parliament in Sweden as national policy approach to transportation
- Places more responsibility on system design, management and leadership
- Recent policy adoption in U.S. cities: 18 cities as of April 2016
People come first
Speed **really** matters

<table>
<thead>
<tr>
<th>Speed (MPH)</th>
<th>Likelihood of Fatality or Severe Injury</th>
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<tbody>
<tr>
<td>20</td>
<td>18%</td>
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<tr>
<td>30</td>
<td>50%</td>
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<tr>
<td>40</td>
<td>77%</td>
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New York City

• Launched 2014
• Involves many departments:
  • DOT, Police Department, Health, Taxi Commission, etc.
• 2015 was the safest year in NYC history
Boston

- Launched 2015
- Developed Action Plan
- Targeted Areas
- Rapid Responses
Vision Zero Cities

Nationwide, pedestrian and bicyclist injuries and fatalities are on the rise.

2016 could be the first year in more than two decades with 6,000* pedestrian deaths.

*2016 estimate based on preliminary data

Source: GHSA
Why Vision Zero? Why now?

An estimated 5,997* pedestrian fatalities occurred during 2016, compared with 5,376 in 2015 and 4,910 in 2014.

*2016 estimate based on preliminary data

Source: GHSA

The number of pedestrians killed in 2016 is projected to be 11% higher than 2015 and 22% higher than 2014.

*2016 estimate based on preliminary data

Source: GHSA
Vision Zero and Engineering
Focus on Rapid Implementation

Low cost, high impact actions that can be implemented in months rather than years

• Signs
• Markings
• Signals
• Tactical Treatment
• Other Strategies
Markings

• Clarify user space
• Lane diet/road diet
• Bike facilities
• High visibility crosswalks
• Simplify transitions
Signals

• Give pedestrians a head start with LPIs
• Heighten driver awareness with backplates
• Switch to lagging left-turn phases
Leading vs. Lagging Left Turns

Lagging lefts associated with:

• 66% fewer vehicle-pedestrian conflicts
• 84% lower vehicle-pedestrian conflict rate
• Lower collision rates for left-turning vehicles

Source: Study of Collisions with Lead vs Lag & Evaluation of Leading vs Lagging
Tactical Treatments

- Use flexposts, modular curbs, and epoxy (paint)
- Separated bike lanes
- Curb extensions
- Daylighting corners
- Medians

Source: San Francisco Municipal Transportation Agency
Project Summary

- Improve visibility at intersections for all modes
- Improve signal timing for all modes
- Protect bike lanes with parking, flexposts where possible
- Use improved signage, pavement markings to clarify movements
Crashes (2013–2014)

Total
- Cars: 65%
- Bicycles: 20%
- Pedestrians: 15%

- Total crashes: 454

Injury
- Cars: 28%
- Bicycles: 36%
- Pedestrians: 36%

- Injury crashes: 124

Source: BPD, EMS
Injury crashes

Crash types involving pedestrians

Source: BPD, EMS
Injury crashes

Crash types involving bicyclists

- Sideswipe: 9%
- Dooring: 16%
- Side impact: 2%
- Left turn: 13%
- Right turn: 20%
- Other: 40%

Source: BPD, EMS

Vision Zero | City of Boston
While making turns, motorists hit people walking

Signal changes will allow people walking to go first, no turn on red will reduce conflicts, and pavement markings will increase visibility.
Motorists hit people walking because they can’t see them

Daylighting

Add physical elements to restrict parking near intersections

Increases visibility between people walking and people driving
Design at Marlborough Street
Design at Boylston Street
Design for Sidewalk Level
Design at Columbus Avenue
Lessons Learned

- Tried to change/speed up BTD process
- Coordinated with all corridor-wide construction projects
- Issued multiple implementation volumes
- Installed too late in season
What People are Saying?

Leila Quinn
@leiarquinn

Cheers erupt for protected #bikelanes, signs, signals & leading ped intervals #MassAve
VisionZero #ProtectMassAve
What People are Saying?

chris sweeney @cbsweeney · 8 Dec 2016
Laying down some nice green paint on Mass Ave bike lane, just before the symphony. 🙌 #Boston
What People are Saying?

bikeyface @bikeyface · Jan 11
Well that didn't last long. #2017 VisionZero protectmassave

Jonathan Fertig @rightlogpegged · Feb 10
This is the ramp onto the sidewalk-level "cycletrack" across from the Christian Science Center.
100% fail.
Seattle

- Data-driven process
- High risk locations
- Systematic countermeasures
- Speed limit reductions
- Targeted and automatic enforcement
How Do We Prioritize Crash Locations?

• Past crash locations not necessarily indicative of future crashes
  • Regression to the mean
  • Random
  
  …not necessarily less safe than other locations
  
  Exposure critical to understand Context/land use
**Hotspot Analysis**
Explores patterns between crashes
Uses crash-based database

**Systemic Safety Analysis**
• Investigates how combinations of features are associated with crashes
• Uses intersection- or segment-based database
Common Bicycle Crashes

**LEFT HOOK**
- Approximately 1 in 7 total crashes
- 1 in 5 Serious or fatal crashes

**RIGHT HOOK**
- Approximately 1 in 14 total crashes
- 1 in 36 Serious or fatal crashes
Discussion

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