Traffic Engineering is Vision Zero
Jason DeGray, P.E., PTOE
What is Vision Zero?
New Way of Thinking

- Human life and health is paramount
- Safety takes priority over capacity
- No loss of life is acceptable
- Long term goal: no-one shall be killed or seriously injured on road system
What is Vision Zero?

**TRADITIONAL APPROACH**
- Traffic deaths are **INEVITABLE**
- PERFECT human behavior
- Prevent COLLISIONS
- INDIVIDUAL responsibility
- Saving lives is **EXPENSIVE**

**VISION ZERO**
- Traffic deaths are **PREVENTABLE**
- Integrate HUMAN FAILING in approach
- Prevent **FATAL AND SEVERE CRASHES**
- SYSTEMS approach
- Saving lives is **NOT EXPENSIVE**
A Vision Zero City meets the following minimum standards:
- Sets clear goal of eliminating traffic fatalities and severe injuries
- Mayor has publicly, officially committed to Vision Zero
- Vision Zero plan or strategy is in place, or Mayor has committed to doing so in clear time frame
- Key city departments (including Police, Transportation and Public Health) are engaged.
Leading Cause of Death

- In 2016, 2,433 teens in the United States aged 16–19 were killed.
- Another 292,742 were treated for injuries.
- Six teens aged 16–19 died everyday due to motor vehicle crashes.
Leading Cause of Death

Driver killed in Marin County crash was standout teen athlete
The Mercury News - 3 hours ago
The driver killed in a fiery crash early Monday on Highway 101 in Corte Madera has been identified as a 17-year-old from Marin City. Kwentyn ...

16-year-old Tewksbury teen killed in crash on I-93 in Andover
MassLive.com - Jun 9, 2019
A 16-year-old teen from Tewksbury died in a Saturday rollover crash in Andover, the Massachusetts State Police said. The male teen has not ...

An 18-year-old Muskego man was killed in a car crash one week ...
Milwaukee Journal Sentinel - 11 hours ago
"Trevor was a well-liked young man and athlete who will be greatly missed by many classmates, teachers, coaches and close friends," she ...

One week short of graduation, Wind Lake teen killed in car crash
Journal Times - 18 hours ago

Teen killed in car crash in Morgan County
WTAP-TV - Jun 9, 2019
MORGAN COUNTY, Ohio (WTAP) - A teenager is dead after a single vehicle accident in Morgan County Sunday morning. The Marietta Post of ...
Leading Cause of Death

From 2008-2017, pedestrian fatalities increased by 35%. When combined, all other traffic deaths decreased 6% over the same period.

More than one third (35%) of pedestrian fatalities occur on local streets.

Source: NHTSA Fatality Analysis Reporting System
Speed Really Does Matter

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
Vision Zero Boston

- Reducing Speeds and Building Safer Streets
- Tackling Distracted and Impaired Driving
- Engaging Bostonians with Vision Zero
- Holding Ourselves Accountable for Results
Vision Zero Boston

**Table 1: Yearly Fatalities, by Mode**

<table>
<thead>
<tr>
<th>Year</th>
<th>Pedestrians</th>
<th>Cyclists</th>
<th>Motorists</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>15</td>
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<tr>
<td>2011</td>
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<td>2012</td>
<td>8</td>
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<td>2013</td>
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<td>17</td>
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<tr>
<td>2015</td>
<td>9</td>
<td>3</td>
<td>8</td>
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<td>2016</td>
<td>14</td>
<td>1</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>2017</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>14</td>
</tr>
</tbody>
</table>

**Table 2: Yearly Injury Crashes, by Mode**

<table>
<thead>
<tr>
<th>Year</th>
<th>Pedestrians</th>
<th>Cyclists</th>
<th>Motorists</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>786</td>
<td>503</td>
<td>2,826</td>
<td>4,115</td>
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<tr>
<td>2016</td>
<td>895</td>
<td>426</td>
<td>3,049</td>
<td>4,370</td>
</tr>
<tr>
<td>2017</td>
<td>772</td>
<td>390</td>
<td>3,375</td>
<td>4,537</td>
</tr>
</tbody>
</table>
**BOSTON HIGH CRASH NETWORK**

~7% of streets (~60 miles)
2015 - 2017

**ALL MODES**

Boston High Crash Network

- Pedestrian
- Pedestrian and Bicycle
- Bicycle
- Pedestrian and Motor Vehicle
- Motor Vehicle
- Bicycle and Motor Vehicle
- All Modes

This map shows city-owned streets that have the highest density of injury crashes for the three-year period indicated. About twenty-five miles of streets are included for each mode, representing the top 3% of streets for each mode. Because some major high crash network segments overlap, the combined high crash network shown in this map includes about sixty miles (about 7%) of streets.

Source: Vision Zero Boston

boston.gov/vision-zero-crash-map

**BOSTON HIGH CRASH INTERSECTIONS**

2015 - 2017

This map shows City-owned intersections that had the highest number of injury crashes for the three-year period.

Source: Vision Zero Boston

boston.gov/vision-zero-crash-map
Vision Zero Boston
APWA Public Policy Priorities (2019 - 2021)

- **POLICY:** APWA is committed to improving the safety for travelers on our nation’s roadways. In 2017, traffic fatalities reached 40,100 - up 23% since 2011. About 15% of those killed were pedestrians. When added to the 4.57 million people seriously injured in motor vehicle crashes, the human and economic impact of traffic collisions is staggering and unacceptable.

- **ACTION:** Increase funding for safety projects to reduce collisions, injuries and fatalities on all public roads, sidewalks and bikeways.
Our Roads

- From APWA:
  Local governments own and maintain approximately 75 percent of the nearly four million-mile roadway network.

Nearly every trip begins and ends on a local road, street, or sidewalk.

The vast majority of roadways in New Hampshire is under municipal control, highlighting the need for interjurisdictional cooperation.
On average, one person in Massachusetts dies everyday on our roads. 24% of those deaths are pedestrians and bicyclists.
Police investigating fatal pedestrian accident in Manchester

Victim's identity not released

Manchester, NH — Police are investigating after a man was hit and killed by a car Friday.

First responders arrived to the scene just before midnight after authorities say the man was struck near the...
Police investigating deadly pedestrian crash in Seabrook, New Hampshire
Pedestrian hit by SUV, seriously injured in Meredith

By BEA LEWIS Union Leader Correspondent  Jun 13, 2019

MEREDITH — A pedestrian using a crosswalk on Main Street was hit and seriously injured by an SUV late Thursday afternoon, according to authorities.
Low-cost safety improvements

- Protected left turn phasing/split intersection phasing
- Leading pedestrian intervals and other signal improvements
- Updated pavement markings
- Intersection daylighting
- Retroreflective backplates on signals
- Road Diets
Protected left turn phasing/Split phasing

- Protected Left Turn phasing can:
  - Reduce injury crashes by 59%
  - Reduce conflicts between left-turning vehicles and crossing pedestrians.
- Drivers focusing on on-coming traffic may not pay attention to pedestrians.
Leading pedestrian intervals and other signal improvements

- LPIs have been found to reduce collisions involving pedestrians between 46 - 73%
- Converting signalized intersections to four-way stops
- Adding pedestrian signal heads and accessible pedestrian signals
- Area-wide NTOR
Retroreflective backplates

- Traffic signal backplates enhanced with retroreflective material around the border improve visibility at intersections.

- Associated with a 15% reduction in all crash types.
Crosswalk visibility enhancements

- Evaluate other high crash locations for high-visibility crosswalks, stop bars, advance stop or yield markings
- Crosswalk visibility enhancements can reduce crashes by 23–48%
- Maintenance and lighting are also issues

Source: City of Minneapolis
Rapid-Flash Beacons

- Pedestrian-actuated (active or passive)
- Can reduce pedestrian crashes by 47%
- Use with care - not for every location.
Intersection daylighting

- Daylighting restricts parking near intersections to improve visibility for drivers and pedestrians.

- A 30% reduction in pedestrian crashes is expected after daylighting is implemented.

Source: SFMTA
Bollard Medians

- Low cost measure to create a neckdown/gateway
- Reduces speeds on wide roads
- Combined with a crosswalk, provides a place for pedestrians to make a two-stage crossing
- Especially needed on four lane roads where ADT’s are higher than 9,000
- Can reduce ped crashes by 32% (when combined with a ped crossing)

Source: City of Minneapolis
Road Diets

- Road Diets reduce speeds by an average of 2-5 mph
- 2010 FHWA study saw 19 – 47% reduction in overall crashes due to fewer conflict points.
Transportation Language Reform

- Our words matter
- Unknowingly (or intentionally) perpetuating biases, attitudes, and public opinion
- Ultimately influencing policies, culture, and the world around us
Transportation Language Reform Has Started

ACCIDENT
Event that happens by chance without cause

CRASH
Collision with an obstacle, vehicle, person
IMPROVED / UPGRADE
To make or become better;
Raise to higher standard

CHANGED or WIDENED
To make different
To make wider
DELAY
To make late or slow
Time that something is late

TRAVEL TIME FOR
- MOTORISTS
- BICYCLISTS
- PEDESTRIANS
EFFICIENT

Maximum productivity, preventing wasteful use of a resource

FASTER FOR MOTORISTS or LESS TRAVEL TIME

Not helpful to perpetuate the myth that ‘faster’ is synonymous with ‘efficient’
STANDARDS OF PROFESSIONAL CONDUCT
FOR THE MEMBERS OF THE
AMERICAN PUBLIC WORKS ASSOCIATION

As a member of the American Public Works Association I am dedicated and committed to maintaining the following standards of professional conduct.

- I will keep the public trust and will not take personal advantage of privileged information or relationships.
- I will put public interest above individual, group or societal interest and consider my chosen occupation as an opportunity to serve society.
- I will encourage sustainability through wise use of resources; whether they are natural resources, financial resources or human resources.
- I will consider public health and safety in every aspect of my work.
- I will conduct myself with personal integrity in a manner that enhances and honors the reputation of the profession, my employer, my community and the Association.
- I will ensure that the work for which I am responsible complies with all legal requirements of the local, state, province, or federal governments.
- I will strive to plan, design, build, maintain and operate public infrastructure in a manner that respects the environment and the ability of government to adequately preserve these assets for succeeding generations.

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