Pedestrian Fatalities by Year in US (1997-2009)
Pedestrian Overview in USA

- 73 percent pedestrian fatalities in urban areas.
- 77 percent at non-intersection locations.
- 60 percent Males
- 90 percent in “normal” weather conditions.
- 67 percent at night.
- ½ of all pedestrian fatal crashes happen Fri, Sat, and Sun.
Pedestrians age 70 and older:

- Have the highest fatality rate per 100,000 population
- In 2008 accounted for 17% of all pedestrian fatalities

Source: Fatality Facts: Older People, 2008 (Insurance Institute for Highway Safety, 2002 Data)
The Problem - Physics
The Problem
- cars occupying the same space at the same time as......
Pedestrians
2 BOYS RUN DOWN

B’klyn best pals die under truck wheels

By ELIZABETH HOYS, TONY SCLAGAN and DAVE COLINER

Two boys walking home from school in Brooklyn were struck and killed by a truck yesterday as they crossed a dangerous intersection less than a block from their homes, cops said.

Good Samaritans tried desper-
ately to rescue best friends Victor
Bowen, 11, and Juan (Alegal) Estrada, 10, after the boys were crushed under the wheels of a landscaping truck at Ninth St. and Third Ave. and dragged at least 10 feet.

But the fifth-graders — whose families came from the same town in Mexico and lived across from each other on Ninth St. — had no chance.

"I lost my son, I feel so bad," Angel's father, Juan Estrada, 39, said last night, his face stained with tears. "And I'm angry.

After the crash, Victor's mother, Vicky, who is four months pregnant with twin girls, was treated for abdominal pains. And driver Jan Oton was left unconscious in anguish.

"We're devastated and our hearts go out to the families of the boys," said a relative who refused to identify himself.

The intersection is a perilous spot, trucks often roll through the neighborhood, on the edge of Park Slope, near the Gowanus Expressway.

"This corner is too dangerous," said Jose Tapia, 22, Angel's uncle. "They need to put something there to protect the kids.

Heartbroken relatives recalled the dead boys as inseparable friends who often walked home together and played video games after school.

Angel's parents, Juan and Emma, came from Puebla, Mexico, with the boy's three older sisters 13 years ago.

His mother usually picked him up at school to help him negotiate the dangerous walk home. But
Data

• What types
  – Location and type of crash and severity index
  – Demographics
What resources are available

- Health
- Enforcement
- Engineering
- Education
- Political Engineering and prioritization

Resources don’t always align with the problems or priorities
Drill Down into location information
Must use engineering and enforcement to address known pedestrian crash locations, and use enforcement and public information and education for programmatic issues.

Limited Funding for Enforcement and Education Services

- Limited Staff
- Limited Resources
- Limited Revenue
Demographics are good, but…..

Enforcement and Public Information and Education tend to be very weak. Evaluating effectiveness is difficult.

Enforcement can reinforce laws and regulations, and help compliment educational campaigns.
FHWA Goals

• Reduce pedestrian fatalities
• Reduce pedestrian injuries.
• Improve pedestrian accessibility.

• Update: pedestrian fatalities down 12.54% since goal set in 2004.
How Will FHWA Achieve Success?

• Concentrate efforts on the states and cities with the most pedestrian fatalities (also known as “focus states” and “focus cities”).

• Promote the use of the most promising engineering countermeasures and new technologies.

• Develop tools, resources, and technology to assist states and local transportation agencies.

• Put our money where our mouth is…
Focus States Efforts

• Working with the states/cities to assist them with developing pedestrian safety action plans.
• Offering free technical assistance and training on how to design for pedestrians and how to develop a pedestrian safety action plan.
Courses and Technical Assistance Developed

• Engineering for Pedestrian Safety (2-day).
• Developing a Pedestrian Safety Action Plan (2-day).
• Planning and Designing for Pedestrian Safety (3-day combo).
• Workshop: Developing a Pedestrian Safety Action Plan (2-day).
VOLPE Focus States Evaluation

• Most focus locations have implemented or plan to implement countermeasures and initiatives to improve pedestrian safety.
VOLPE Focus States Evaluation

- Focus States Program has spurred changes in policies, business processes and institutional structures focused on pedestrian safety.
VOLPE Focus States Evaluation

Most focus locations have/will implement countermeasures and initiatives to improve pedestrian safety.

• Small and large countermeasures will be implemented.

• Practical strategies being implemented based on course content.
Questions?
Pedestrians
Emerging Technologies

Count Down Signal
Animated Eyes Display
In-Pavement Lighting
Text Messaging

- 87% say it’s a “very serious threat”
- Nonetheless, 18% do it
- A dozen states have prohibitions, including NY
- AAA, Ford and wireless industry support state and local bans
- Key issues:
  - Young people love to text
  - So do their parents
TEXT MESSAGING

lol no im nt bsy im only drving
Automated Enforcement
Findings

Lack of meaningful coordination/respect between DOT’s and Law Enforcement. Must overcome personality and institutional issues.
General Findings

Must have a champion

Authority

Charisma
General Findings

Must Treat Pedestrians as a Form of Traffic
Findings

All Successful Pedestrian Programs Successfully Calm Traffic
Speed – Injury/fatal Relationship

![Graph showing the relationship between speed and injury/fatal accidents.](image-url)
Findings

Any Successful Program Uses a Cooperative, Coordinated, and Collaborative Approach to Promote the Importance of Pedestrian Programs

1. Planning and Zoning
2. Enforcement
3. Department of Public Works
4. Traffic
5. Design
6. Transit
7. Etc.
Engineering

Accessibility

Obstructions / Sight Distance

Timing/LPI
Engineering

• Know what and where your problems are
  – Work with hospitals to catch unreported crashes
  – GIS coding of complaints and crashes on same map
Engineering

- Physical improvements can have BIG payoff – only affect specific areas
  - Cambridge considers ped in everything they do (ie, construction, maintenance, utility, permits)
  - ODOT – SWiP Program (Sidewalk with Preservation)
  - WZTC should accommodate peds
    - Govt, Maintenance, work permits
Engineering

- Traffic Calming can work in northern climates
An “effective radius” is created by a parking lane or bike lane.
...the space between the curb and the extension of the property lines to the curb
Engineering

- Design and Operations must consider peds
  - Signal timing and phase length
  - Ped Phase – no RTOR
  - LPI
  - Intersection design and curb Radii
  - Road Diets
Safety Audit: Successful Tools Engineering

- **Pedestrian Islands** -- 40% reduction in pedestrian accidents *(National)*

- **Traffic Calming** -- 29% average reduction in 85% speed *(Portland)*
Engineering

- Maintenance Matters
  - Snow and Ice Control
    - Training to snow plow drivers
    - Dedicated maintenance for ped access points and major bus stops
    - Shoveling for handicapped – community service
  - Design with plows sweep
  - Adopt a transit stop
  - TCD maintenance
Sidewalk Snow Removal
Enactment

- ISTEA/TEA-21 instrumental in improving pedestrian safety across the country
- Safety-LU strengthens pedestrian safety and provides significant funding for capital improvements
Enactment

- State laws and regulations differ governing speed limits, traffic laws, specifically when and where motorists must stop for pedestrians. Most is not linked directly to pedestrian safety.
Enactment

- State sponsored land use and growth management laws/strategies often provide the foundation for local laws and ordinances
Enactment

- Portland, ME, Cambridge, Mass and Seattle have all adopted traffic calming ordinances that promote the use of neck downs, chicanes, speed humps/bumps/tables, circles, roundabouts, road diets and other traffic calming devices.
Enactment

• Implementation and oversight of legislative controls must be effectively embedded in local administration. Transportation and public works agency directors, engineers and planners must buy into pedestrian programs and be empowered to implement and enforce it.
Enactment

• State DOT-issued directives can mandate reasonable accommodations for pedestrians on all roadways where pedestrians are permitted. Many states and cities adopt street design guidelines favorable to pedestrians and must be met before funding is authorized.
Making it Happen...

- Regulatory - cities and counties must incorporate designs into local plans and codes
- 5,000 copies of Creating Livable Streets printed in 1997 & 2002 for local officials and citizens
Education

City of Portland
Community and School
Traffic Safety Partnership

*Working Together to Achieve Sustainable Traffic Safety Improvements*
Safe Routes to School:
School Walking Routes
Portland Mainland Elementary and Middle Schools
August 2000
Let's Go for a Walk

Let's go for a walk
Where should I walk?
Walk on the sidewalk or path, instead of the street.
If there is not a sidewalk, walk on the left side of the street facing traffic.

Where should I cross the street?
Cross the street on a crosswalk if there is one. If there isn't one, find a place that is safe.

Stop and Look
How should I stop and look?
Stop walking and look both ways before you cross.

Look left, right, then left again and be sure there is no traffic before you cross.
Listen for cars behind you. Some vehicles may be hidden.

People to help you
What do crossing guards do?
Crossing guards carry a stop sign and stop the cars so you can cross the street safely.

How should I cross with a crossing guard?
First, stop, look, and listen,

Tricky Situations

Cars crossing the sidewalk
Sometimes walking on sidewalks can be tricky.

What are some things I should watch out for?
Look for cars crossing the sidewalk when they enter or leave driveways. They often drive across the sidewalk and might not see you.

Watch the rear lights on cars. Red brake lights or white back-up lights mean the

Parked cars
What should I know about parked cars?
Parked cars also block you from a driver’s view. When drivers cannot see you, they won’t slow down to let you cross. Always cross at a crosswalk or corner instead.

Snow Banks
What should I know about snow banks?
Snow banks block you from a driver’s view, just like parked cars. Even at a crosswalk, you have to be extra careful when there are piles of snow.
use educational placards with warning message to watch for turning vehicles

MUTCD Version (R10-3b)
Parks and Recreation
Notice to homeowners

City of Portland
Neighbor Helping Neighbor

The winter season brings many challenges for us all—particularly for those individuals using our sidewalks throughout the City.

Please do your part to help emergency personnel, mail carriers and pedestrians—young and old alike—by removing ice and snow from your sidewalks and walkways as soon as possible after a storm.

Portland City ordinance requires this and more importantly, the people in your community are counting on your cooperation. Know of someone who needs some assistance with the challenges of winter? Do your part to lend a helping hand!

Do your part to help keep your community moving.
Pedestrians
Emerging Technologies

Count Down Signal

Animated Eyes Display

In-Pavement Lighting
Safety Audit: Successful Tools
Education

- **Safe Routes to School Route Identification** -- 29% Reduction in Vehicle Trips to School (*Marin County*)

- **Safe Routes to School In-class Education** -- 81% Increase in Kids Walking or Biking to
• Training
• Location

Crossing Guards
Portland, ME

City has crosswalk committee where council members initiate crosswalk stripping and address other issues such as:

- Snow removal and striping priorities, i.e., school routes, intersections, long lines, 70 miles of sidewalks,

- Mobility of disabled residents, a large number in which are in wheelchairs.

- Midblock crossing – believed to have increased due to multilane streets.
Portland, Maine
Portland, Maine   Road
Right
Pedestrian Cross Bucks at Rail Crossings
School Crossings are Given Attention
Durham, NH

- College Town – University of New Hampshire
- Abandoned Rail Corridor to become multi-use trail was stopped by adjacent residents
- Many Advanced Traffic Calming Techniques in use in Durham
Durham, NH  Stamped Concrete
Visual separation, Bike lane, and PM’s for Peds
Stamped Asphalt and Tennis Court Paint
Durham, NH  Pedestrian Bridge
See Through Signing
Cambridge, MA

- Zip Car
- Cambridge Walks Program
- High walk to work rate
- Approximately one pedestrian fatality per year
- Older city, built pedestrian friendly
- Peds have equal access/rights as motor vehicles
7’ Parking lanes, 5’ bike lanes, 10’ – 11’ Travel Lanes
Seattle, WA

- Neighborhood Revitalization – Mixed use is the key, % of walking trips increased
- 53% of residents now live in multi family homes
- In 1984 they decided to no longer investment in projects that increase SOV
- Safe Routes to School Program,
  - Walking Route Maps for each school
  - Show preferred routes
- When dealing with consultants in RFP’s, require a non-motorized “expert” in their design team
- Standard 10’ and 11” lanes, even with truck traffic
Curb Bulbs

- You must look at your city's snow removal equipment.
- Can snowplow or street sweeper make this turn?
- 1st try painting the curb bulb and use it as a test.
Back-in Parking
Ped Signs in Attentional Window
Traffic Calming – Speed versus Fatality Rate
Seattle, WA Bicycle Lanes
Portland, OR

- Local Study found Pedestrian Islands reduce 40% of pedestrian fatalities
- Portland (160) schools, maps for each school, walking maps, pick up / drop off map, metro maps, and bike map
- Adopt a stop – businesses or neighborhoods receive a free bus pass for changing garbage, cleaning bus stops
- City Codes
  - Sidewalks on all arterials and collectors
  - Walkways from Building to bus stops
  - No parking lot between the building and street
  - Separate ped accident report form
Portland, Oregon
Light Rail Rapid Transit
Portland, OR
Independent Ped Crossing and Warrants
RTOR prohibition where high ped volumes exist
FHWA Final Report

- Completion Date June 1, 2004
- Statewide Use, National Distribution
Tight curb radius means a shorter crosswalk.

Wide curb radius means a longer crosswalk.