

# Pedestrian Safety Enforcement Operations: A How-To Guide



U.S. Department of Transportation  
**National Highway Traffic Safety  
Administration**



This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic safety Administration. The United States Government assumes no liability for its content or use thereof. If trade or manufacturers' names or products are mentioned, it is because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

# Contents

Introduction and Purpose .....	1
Summary of Promising Practices .....	2
Planning .....	3
Selecting a location .....	3
Training .....	5
Judicial outreach .....	6
Outreach activities .....	7
Budgeting .....	8
Implementation .....	8
Staffing .....	8
Pre-brief .....	9
Supplies .....	10
Set-up .....	10
Operation .....	11
Safety precautions .....	12
Media presence during operation .....	12
Phased enforcement and egregious violations.....	13
Issuing valid citations .....	14
Timing/frequency of operations .....	15
Dealing with complaints.....	15
Considerations/Variations .....	15
Signalized versus non-signalized locations .....	16
Intersections .....	16
Marked versus unmarked crosswalks.....	16
Medians .....	16
Multiple locations .....	16
No decoys or non-officer decoys .....	17
Impaired pedestrians, entertainment districts, and nighttime operations.....	17
Multi-agency operations.....	17
Evaluation .....	18
Outcome evaluation .....	18
Output evaluation.....	19

Next Steps .....	19
Sharing of results and success stories.....	19
Environmental and engineering changes .....	20
Policy change .....	20
Case Studies .....	21
Bethlehem, Pennsylvania – Pedestrian Safety Enforcement.....	21
Hawaii – Walk Wise Hawaii.....	22
New Jersey – Cops in Crosswalks.....	23
Orlando, Florida – Best Foot Forward for Pedestrian Safety.....	24
San Francisco, CA – Pedestrian Safety Enforcement Operations .....	25
Washington, DC – Pedestrian Program.....	26
Acknowledgments.....	28
Delphi Panelists.....	30
Appendices.....	31
Appendix A. Pedestrian Injury and Fatality Statistics .....	31
Appendix B. Location Selection Example: Oakland, California .....	33
Appendix C. Sample Letter to Partners.....	34
Appendix D. Sample Press Releases.....	35
Sample Pre-Enforcement Press Release .....	35
Sample Post-Enforcement Press Release.....	37
Appendix E. Sample Operations Plan.....	38
Appendix F. Sample Educational Materials .....	42
Appendix G. Calculating a Safe Stopping Distance .....	47
Appendix H. Sample Operations Checklist.....	48
Appendix I. Sample Set-Up Diagram .....	49
Appendix J. Sample Forms .....	50
Sample Pedestrian Safety Enforcement Operation Data Collection Form .....	50
Sample Output Evaluation Forms .....	51
Sample Baseline and Post-Test Evaluation Forms .....	52
Appendix K. Sources of Additional Information.....	54
Appendix L. References.....	56

## Introduction and Purpose

Pedestrians are one of the most at-risk groups of roadway users. While they account for only 3 percent of all Americans involved in traffic crashes, they represent 14 percent of all traffic fatalities (National Center for Statistics and Analysis, 2013a). Based on 5-year averages, pedestrian fatalities are declining (see Appendix A for more details). However, pedestrian safety remains a significant traffic safety issue, and in the past three years, pedestrian fatality numbers have been increasing. In 2012, there were 4,743 pedestrians killed and approximately 76,000 pedestrians injured in traffic crashes in the United States (NCSA, 2013b).

Pedestrian fatalities occur more often in urban areas (73%), at non-intersections (70%), and at night (70%) (NCSA, 2013a). They also are more likely to occur among men (70%), and when either the pedestrian or the driver has been drinking (almost half of all crashes involve alcohol, see Appendix A) (NCSA, 2013a). Pedestrian collisions often occur at intersections and crosswalks, where foot traffic and roadway traffic meet and interact. A study by the National Cooperative Highway Research Program (NCHRP) noted that 41% of pedestrian crashes occurred at intersections (National Cooperative Highway Research Program, 2004). Another study found that drivers failing to yield represented 41.5% of pedestrian crashes in marked crosswalks, and 31.7% in unmarked crosswalks (Zegeer, Stewart, Huang, & Lagerwey, 2001). Unsafe pedestrian behaviors also contribute to crashes; the NCHRP study coded two-thirds of pedestrians for at least one contributing factor to both fatal and non-fatal crashes ((National Cooperative Highway Research Program 2004).

Speed is another primary risk factor – the faster a vehicle is travelling, the more likely a pedestrian will be seriously injured or killed in a collision (Tefft, 2011). Table 1 shows the risk of pedestrian injuries and fatalities at different vehicle speeds.

**Table 1. Average Risk of Severe or Fatal Injury for Pedestrians Struck by a Vehicle at Various Speeds**

	10%	25%	50%	75%	90%
Chance of <b>Severe Injury</b> for Pedestrian Struck by a Vehicle	16 mph	23 mph	31 mph	39 mph	46 mph
Chance of <b>Fatal Injury</b> for Pedestrian Struck by a Vehicle	23 mph	32 mph	42 mph	50 mph	58 mph

Source: Tefft, 2011

To reduce pedestrian injuries and fatalities, the National Highway Traffic Safety Administration recommends a three-pronged approach of engineering, education, and enforcement. This guide primarily discusses the enforcement component of this approach, but it also includes information on the related engineering and education components.

Pedestrian safety enforcement operations<sup>1</sup> have been shown to significantly increase driver yielding while also improving pedestrian behavior (Goodwin et al., 2013; Van Houten & Malenfant, 2004; Van

---

<sup>1</sup> These operations may be referred to by other names, including pedestrian crosswalk enforcement operations. This guide refers to them as pedestrian safety enforcement operations to emphasize that their purpose is to promote safety, and to make clear that enforcement actions are not focused on pedestrian behavior.

Houten, Malenfant, & Rolider 1985; Zegeer et al., 2008). Consistent enforcement of the traffic codes and statutes related to crosswalks gives credibility to the laws, reinforcing their importance among drivers and pedestrians (NCHRP, 2004). Benefits of enforcement may be apparent soon after operations begin. A recent study observed an increase in driver yielding with warning based enforcement, and further increases with citations and engineering improvements. This stepwise implementation of a high-visibility program led to a sustained increase in driver yielding over time (Van Houten, Malenfant, Blomberg, Huitema, & Casella, 2013).

Enforcement operations may also reduce crashes, injuries, and fatalities, although these outcomes are harder to track. In addition to their safety benefits, these operations tend to generate positive feedback from citizens, and may reveal related safety issues; for example, many drivers who fail to yield to pedestrians may also be speeding, distracted, or driving while impaired. Overall, pedestrian safety enforcement programs are practical and cost effective (Goodwin et al., 2013).

Enforcement of pedestrian safety laws has typically been minimal, even though compliance with these laws is low; a recent study recorded a driver yield rate of 32 to 45 percent prior to enforcement (Van Houten, Malenfant, Blomberg, Huitema, & Casella, 2013). This trend is changing, however, as jurisdictions of all sizes are adopting pedestrian safety enforcement programs.

As the use of such operations increases, so too does the need for widespread distribution of promising practices and how-to information. To address this need, NHTSA has created this guidance document for law enforcement professionals, policy makers, and other interested groups and organizations. This guide provides strategies and techniques for planning, implementing, and evaluating pedestrian safety enforcement activities. Findings and recommendations are based on a brief review of the professional and scientific literature and interviews with 37 programs working on pedestrian safety enforcement (see Acknowledgements for a list of participating programs). Key input into the guide was also provided by a Delphi panel, which assisted in the review and synthesis of findings using consensus decision-making (see Acknowledgements for a list of Delphi panelists).

The primary objective of this guide is to provide tips and guidance on how States and communities can effectively deploy pedestrian safety enforcement operations to reduce pedestrian injuries and fatalities. The guide includes a summary of promising practices, guidance on planning and implementing an operation, a discussion of several considerations and variations, recommendations regarding the evaluation of pedestrian safety programs, and a series of case studies. The guide also contains an Appendix with sample forms and other useful information.

## Summary of Promising Practices

Effective pedestrian safety enforcement operations tend to:

- Collaborate with partners in business, civic organizations, and government agencies to expand resources and establish community buy-in;
- Coordinate with the judiciary to alert officials to planned operations and to verify that operations comply with local laws;
- Coordinate with engineering representatives to ensure locations are suitable for operations;
- Establish and nurture relationships with the media to increase the likelihood that positive messages will reach the public;

- Use public outreach (via partners wherever possible) to inform the public of program plans, enhancing public acceptance and increasing pedestrian safety awareness;
- Select appropriate locations for operations based on crash data, community input, logistical, and other considerations;
- Train officers in program goals, objectives, and procedures;
- Encourage integration of the procedures in daily operations;
- Brief all participating officers before operations begin on local laws pertaining to crosswalks and pedestrians;
- Begin a new enforcement effort by primarily issue warnings instead of citations;
- Conduct frequent operations and incorporate pedestrian safety into routine enforcement activities;
- Deploy radar/LIDAR units to collect information on speeding in conjunction with pedestrian infractions;
- Consider using video cameras to record infractions and to provide additional evidence;
- Ensure officers have educational materials to distribute which explain the nature and purpose of the operation;
- Cite both drivers and pedestrians, but focus on drivers, as they are the less vulnerable population;
- Prepare officers and key program personnel to anticipate and respond to complaints;
- Develop evaluation procedures that measure outputs (e.g., citations) and outcomes (e.g., reduced crashes, heightened awareness);
- Communicate results widely with partners, the media, and the public;
- Follow-up with the judiciary to make systematic improvements; and
- Follow-up with traffic engineers to make site changes or improvements (e.g., moving signage or painting crosswalks).

More detailed information about promising practices for implementing effective pedestrian safety enforcement operations is found throughout this guide.

## Planning

There are several things to consider when planning a pedestrian safety enforcement operation. Below are helpful tips and effective strategies to assist with planning an operation. Additional information is available in the Appendix.

### Selecting a location

One of the most critical aspects of selecting a location for a safety operation is to identify areas where there are **existing pedestrian safety issues**. This ensures that resources are focused on locations with the greatest need and that the public perceives that the efforts are a safety measure, not a revenue-raising method. These areas can be identified using a combination of any of the following techniques.

- Analyze local crash data. For example, use a Geographic Information System (GIS) to map pedestrian crashes. Crashes can be weighted for severity, and clusters of crashes can be identified. Map data over several years (at least 3) to get a better understanding of potential problem locations (see Appendix B for a sample mapping process to select a location). “Type” local crashes so that communities can select the appropriate countermeasures based on local issues; free software (Pedestrian and Bicycle Crash Analysis Tool, or PBCAT) is available to assist

with typing (see Appendix K). Typing crashes allows coordinators, planners, and engineers to understand the sequence of events and actions that lead to crashes.

- Conduct a Pedestrian Road Safety Audit in cooperation with the State Department of Transportation, the local government, and/or the Federal Highway Administration. In a road safety audit, a multi-disciplinary team (representing fields such as engineering, traffic safety, pedestrian issues, and traffic operations) conducts field reviews of various sites of interest to identify problems and to conduct an analysis. Guidelines on how to conduct such an audit are available from the Federal Highway Administration (see Appendix K for more information).
- Identify locations with frequent flagrant violations. Such locations can be identified by analyzing crash data, by asking local officers to identify where they have most often observed drivers flagrantly violating pedestrian safety laws, or by considering areas where pedestrians are frequent flagrant violators.<sup>2</sup>
- Identify areas with high-risk pedestrians, such as seniors or children; areas with a sizable population of high-risk pedestrians may be effective targets for safety efforts.
- Get input from residents. People's complaints may help identify locations for safety operations. Some jurisdictions specifically solicit suggestions from residents by hotlines and similar means. All complaints should be verified by on-site observations or supported by high crash incidence.
- Ask community partners to help identify locations. Community groups may have valuable insights on possible locations for safety activities.

In addition to a location that has existing pedestrian safety issues, any location for a pedestrian safety operation needs to be **safe and suitable for law enforcement officers and all others that may be involved, such as the media**. The location should have:

- Clear visibility in all directions, with no banks or curves that obstruct the view;
- A suitable location for a spotter (an officer to observe violations);
- A place where officers can safely pull over and cite drivers in violation of the law. Consider officer safety, visibility to violators, ease with which violators can pull over and then safely re-enter the traffic stream, ability to stop violators in all lanes of traffic, and sufficient space for multiple violators if using more than one citing officer (Malenfant ;7 Van Houten, 2011)
- Enough traffic to create a clear need to cross, but not so much traffic that crossing the street is unsafe;
- A moderate speed limit to ensure safety, typically 25-45 mph; and
- Not too many lanes to safely cross, typically a maximum of five traffic lanes.<sup>3</sup>

The location selected should also be **recognizable to a casual observer as an appropriate location** for a pedestrian safety enforcement operation. Factors to keep in mind include:

- A location where there is a clear need to cross the street (because of the location of shops, schools, hospitals, transit stations, public buildings, parks, etc.) and existing pedestrian traffic;
- Locations where current driver yielding/stopping rates for pedestrians is limited – typically less than 50 percent of the time; it may not be cost effective to conduct enforcement operations in areas where yielding is higher than 50 percent (Malenfant & Van Houten, 2011); and

---

<sup>2</sup> If pedestrians are frequently violating, it may be because of excessive wait times and conflicts with turning drivers. Consider if engineering countermeasures are more appropriate before enforcement actions are taken.

<sup>3</sup> The complexity of operations increases as the number of traffic lanes increases. For communities just beginning pedestrian safety operations, it may be advisable to initially conduct these operations on two-lane roads.



- A location where there are clear signs and/or painted markings indicating the presence of a crosswalk – for mid-block locations, there should be a clearly painted crosswalk.<sup>4</sup>

Officers should also be aware of any unique neighborhood issues that may preclude implementation of a safety operation.

These criteria can be used to develop a list of initial sites for consideration. Once such a list has been developed, organizers should visit each site as a part of their final selection process. Approval for final site selections and the operation itself should be obtained according to department procedures.

## Training

Training is essential to the safe conduct of any pedestrian safety enforcement operation, and is therefore a vital component of preparing for the operation. If the officers conducting the operation do not fully understand its objectives, as well as what actually constitutes a violation, the effort can be counterproductive, potentially creating public relations problems in addition to being unsafe. At least one officer conducting the operation should be trained, and all involved officers should participate in a pre-brief before the operation commences. For additional details see the “Implementation” section of the report.

Of foremost importance in training is the emphasis that **pedestrian safety enforcement operations are about saving lives and preventing injuries** – not about citations and enforcing statutes. The goal of these operations is to make roadways safer. Officers may have limited experience conducting this type of police work, and may find enforcing right-of-way legislation to be challenging since at first glance the offense—not yielding to a pedestrian—may appear to be “a more subjective infraction of a shared responsibility” (National Cooperative Highway Research Program, 2004). Training helps officers fully understand the intent of the law, giving them the ability to notice and articulate violations when they occur. Perhaps most importantly, training provides officers with knowledge and tools to improve pedestrian safety both during special operations and in regular duty.

Topics to cover in the training session include:

- Local or regional information on pedestrian safety, with a focus on why pedestrian safety efforts are important in any particular jurisdiction.
- Pertinent laws relating to crosswalks, red lights, and overtaking a stopped vehicle:
  - Example violations for drivers include failure to stop for a pedestrian in a crosswalk, passing a vehicle stopped for a pedestrian in a crosswalk, failure to yield right-of-way to pedestrians crossing on a “walk” signal, failure to stop at a clearly marked stop line, or failure to yield to a pedestrian on a right turn on red.
  - Example violations for pedestrians include failure to obey a “walk” or “don’t walk” signal, failure to yield right-of-way to a vehicle, failure to cross at a signalized intersection, or crossing an intersection diagonally.
  - Other violations officers might encounter include speeding and DWI/DUI, as well as outstanding warrants and impaired pedestrians.

---

<sup>4</sup> In jurisdictions following the Uniform Vehicle Code, pedestrians can legally cross the street mid-block outside a marked crosswalk as long as the two nearest intersections are not signalized; however, they are required to yield the right-of-way. Thus, operations should only be conducted at marked mid-block crosswalks where pedestrians have right-of-way.

- Statutes pertaining to crosswalks and locations where pedestrians can legally cross the street, including a thorough review of both State statutes and local ordinances to identify “unmarked” crosswalks and other locations where pedestrians can legally cross the street. For example:
  - Locations with traffic control signals, points where streets meet at right angles or anywhere a sidewalk would continue may be considered “unmarked” crosswalks in many localities, and pedestrians typically have right-of-way in these crossings. Pedestrians may also be able to legally cross the street (although not with the right-of-way) anywhere the two nearest intersections are not signalized.
- “Due care” laws, which require motorists to avoid striking pedestrians, even if the vehicle has the right-of-way.
- The role of speed in pedestrian collisions, and the relationship between higher speeds and increased pedestrian injuries and fatalities (see Table 1).
- Appropriate stopping distances—including reaction times—at various speeds.
- Vulnerable pedestrians, including young, elderly, inebriated, and hearing- and vision-impaired pedestrians.
- The special cognitive and behavioral limitations of children, including impulse control, and a less-accurate ability to judge an object’s speed and distance and the direction a sound is coming from.

While classroom training on how to conduct a pedestrian safety operation is helpful, it should be combined with hands-on training whenever possible. Hands-on training is typically more informative and enjoyable for participants (Malenfant & Van Houten, 2011). If hands-on training is not possible, the use of visual aids in traditional classroom training may be helpful. For example, video of enforcement operations in action allows officers to visualize the activity prior to implementing the enforcement operation. One such video, developed by the city of Portland, Oregon, is available at: [www.streetfilms.org/portland-or-crosswalk-enforcement-actions/](http://www.streetfilms.org/portland-or-crosswalk-enforcement-actions/).

This guide can also be used as a part of officer training. Links to additional training materials are available in Appendix K, including several free, online training courses and presentations, as well as information about courses that require a fee.

### **Judicial outreach**

The local judiciary should be notified in advance of any enforcement operations that are expected to result in an influx of pedestrian safety citations. These notifications to the courts are important to avoid disruption of workflow, allowing adequate time to plan for an increased number of cases resulting from enforcement activity.

It might also be helpful to coordinate with courts to establish specific days when citation appeals will be heard to increase efficiency for the court, as well as the law enforcement agency. This may reduce the number of times officers need to explain the operation, minimizes the number of days that officers would need to appear in court.

### **Working with local prosecutors**

Before initiating operations, consider meeting with local prosecutors to discuss the enforcement plan and get feedback to enhance the effort. Input and guidance from prosecutors may help prevent confusion in how cases are presented, and clarify what is necessary for appropriate and professional presentation in court.

Key questions to consider:

- Do all parties agree on the interpretation of local laws and statutes?
- Who will be required to testify if a citation is appealed?
- Does the testifying officer need to have personally observed the violation?
- Can the operation be set-up so that only one officer needs to testify?
- Is a warning phase required?
- What kind of advance notice should be provided to the community through press releases, media engagement, community outreach, etc.?

Working through these issues ahead of time makes operations more productive and helps to ensure that initial citations are upheld. It also fosters positive relationships among law enforcement and the judiciary and underscores the importance of working collaboratively with the community on safety efforts.

## Outreach activities

Pedestrian safety enforcement activities are most effective in combination with outreach efforts. While enforcement helps to ensure compliance, outreach and education help ensure that roadway users fully understand their responsibilities (Mitman & Ragland, 2002; Zegeer et al., 2009).

Given the poor state of driver and pedestrian knowledge, combined with possible public “pushback” if enforcement activities come as a surprise, pedestrian safety activities should include community education. Effective enforcement activities often have a substantial educational component that reaches beyond the drivers and pedestrians who are stopped, adding to the overall deterrence effect and enhancing the effectiveness of enforcement itself as a safety tool. Well-publicized enforcement changes more behavior than enforcement alone because it reaches more people (Monsere & Coffman, 2007).

Part of planning for pedestrian safety efforts is appropriately alerting the public of planned activities, using multiple outreach channels to ensure maximum exposure. Initial outreach provides fair notice to drivers and pedestrians that they could be cited. Advance notice is also important to prevent charges of entrapment following a citation. Outreach materials should reflect the unique needs of the community (e.g., appearing in multiple languages). Potential outreach mechanisms include:

- Community meetings to identify safety concerns and to let citizens know what activities are planned (such meetings may also be useful to identify locations for crosswalk activities)
- A letter to citizens or community partners letting them know of planned activities (see Appendix C for a sample letter)
- Media coverage (see further discussion below)
- The use of social media (e.g., Facebook, Twitter) or community blogs to alert citizens to planned activities
- Mass emails (e.g., on college campuses) to alert residents to planned activities
- Signage to alert drivers and pedestrians that officers are planning a pedestrian safety action

The media is a critical partner. They should be involved prior to, during, and after enforcement actions. Media attention prior to the enforcement activity not only builds interest, but also helps to mitigate the characterization of operations as a “sting” by providing advance notice to the public that enforcement activities are planned. The media can be involved in several ways (Zegeer et al., 2009):

- Law enforcement agencies or community groups can hold a press conference to talk about enforcement efforts and to provide press kits or materials with safety statistics and other information. Press releases (see Appendix D) can be distributed before and after the planned enforcement operation. Initial press releases may also be sent to alert media that an event is planned, and to invite media to attend and cover the event.
- Community leaders and law enforcement officers can also serve as media spokespeople, talking about why pedestrian safety issues are important. Particularly compelling are stories from pedestrians (including vulnerable groups such as children) about the hazards they face attempting to cross the street.

In addition, local news events may serve as a hook to generate interest. High-profile crashes or near misses may generate media interest and community support for enforcement activities.

Initial media activities are most critical for communities just beginning to implement pedestrian safety programs. Once enforcement efforts become well-established or routine, media attention may diminish.

Local decision makers, such as elected officials and community leaders, can also be important partners. Consider briefing these individuals before enforcement begins, giving them the information that they'll need to respond to any citizen concerns that may arise from the enforcement. Local leaders can often be the first to hear public inquiries about police activity, so gaining their understanding, support, and buy-in can be a key component of the program's outreach.

## Budgeting

The cost of these efforts varies substantially, depending on how they are structured. The main cost is the salaries of the officers participating in the operation. Some jurisdictions incorporate these activities into an officer's routine duties and thus incur no additional staffing costs, while others incur extra costs by using officers receiving overtime pay. Other involved staff may include an administrator overseeing the program, as well as a public affairs officer helping to provide advance notice and report results.

Supply costs tend to be minimal (see "Supplies" in the Implementation section), and many of the items used are readily available at no additional charge.

## Implementation

Each jurisdiction has its own unique approach to implementing a pedestrian safety enforcement operation. This part of the guide provides tips and suggestions on various aspects of implementing a pedestrian safety effort.

### Staffing

The staffing required for a pedestrian safety operation varies substantially depending on the site of the operation, the amount of pedestrian traffic at the specified location, and the resources available for the effort.

Many operations employ decoys<sup>5</sup>: one to two officers in plainclothes to act as civilian pedestrians, called decoy officers. These decoy officers attempt to cross the street using specific procedures to ensure

---

<sup>5</sup> Some operations avoid the use of the word "decoy" to make clear that the operation is not an entrapment.

safety, as detailed below under “Operation.” Decoy officers should dress to appear as typical pedestrians, wearing bright-colored clothes to enhance conspicuity, while avoiding the use of reflective vests. Use of decoy officers is recommended for two main reasons: (1) to ensure pedestrian crossing attempts are done in a consistent manner that will not jeopardize the enforceability of citations issued during the operation and (2) to maintain a sufficient rate of driver-pedestrian interactions to justify the presence of additional officers (Malenfant & Van Houten, 2011). One variation on this model is to have decoy officers dress in a disguise – for example, officers may dress as elderly pedestrians. This may be appropriate in an area where a significant portion of the pedestrian traffic constitutes a vulnerable population, and where drivers may be less likely to yield to certain types of pedestrians.

Operations also typically deploy one to two uniformed officers acting as spotters to observe violations and/or record speeding offenses. If two spotting officers are used, each officer typically watches a single direction of traffic for violations.

Additionally, one to two uniformed officers are deployed to issue citations and warnings. These officers are positioned away from the crosswalk, in a position to make traffic stops when violations are observed. Officers in vehicles or on motorcycles may also be used during enforcement.

The roles of spotting officer and citing officer may be combined. The set-up will depend on the site characteristics as well as local requirements pertaining to observing and citing violations.

These suggested configurations are offered as examples. See Figure 1, below for a diagram of a simple configuration. The total number of officers required to safely and effectively manage an enforcement operation should be determined by traffic volume, time of day, and duration. Large operations may also use additional personnel strictly to serve a recording role, assisting citing officers in documenting each violation or stop.

In addition to the officers working the operation, a public information officer or administrator may be present.

### **Pre-brief**

All officers participating in the operation should attend a pre-brief session. This session should be led by officer(s) who have attended the formal training session, and cover some of the same material. Key topics for the pre-brief include:

- The location and timing of the operation,
- Officer roles and assignments,
- The procedures the decoy officers should follow,
- Pedestrian safety issues and why they are important,
- Local statutes and what constitutes a violation,
- Guidelines or directions on issuing citations or warnings (although officers should always rely on their discretion), including the desired ratio of pedestrian to driver citations.

Many jurisdictions have found it helpful to develop an operations plan. If such a plan is being used, officers should be briefed on it at this pre-brief. A sample operations plan appears as Appendix E.

## Supplies

Pedestrian safety enforcement operations can be conducted with minimal supplies, most of which will be readily available to law enforcement agencies. Suggested supplies include:

- A measuring wheel or laser radar to measure distance,
- Traffic cones or other markers to indicate the safe stopping distance (see “Set-up” for more information),
- Hand-held radios, with a predetermined frequency for communications,
- Clipboards and data collection sheets,
- A radar/LIDAR unit to record speeding infractions (optional),
- A video camera to record infractions (optional),
- Signs or other notices to alert drivers (optional), and
- Handouts or material for drivers describing traffic laws and local pedestrian safety issues (optional, see Appendix F for sample material).

## Set-up

Safety is the primary goal of any pedestrian safety enforcement activity – safety for pedestrians, drivers, and officers. Upon arriving at the designated location, officers should conduct a visual inspection to identify any potentially unsafe conditions within the crosswalk or at the location where officers will issue warnings or citations. If the conditions cannot be made safe, if weather creates hazardous conditions or limited visibility, the activity should be postponed or canceled.

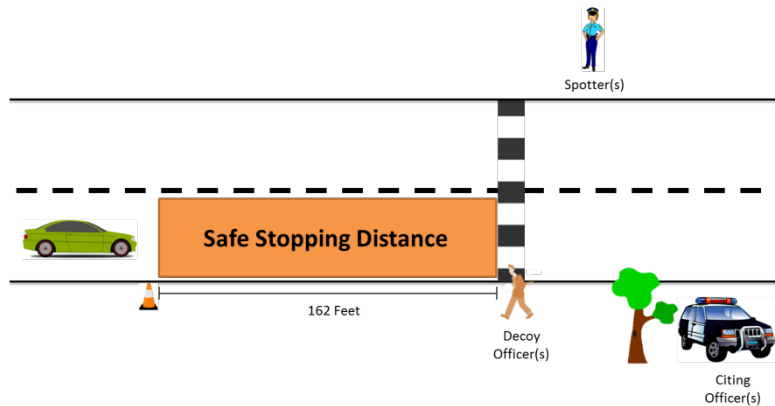
Once officers have verified that the site is safe, they should mark the safe stopping distance. This indicates the point before which cars can safely stop to yield the right-of-way to a pedestrian entering a crosswalk. Once a vehicle has passed this marker, it may not be able to safely stop for a pedestrian; a pedestrian should not enter the crosswalk when a vehicle is past the marker. The safe stopping distance is calculated by determining the appropriate slide-to-stop distance, including a reasonable safety allowance. It is calculated by assuming a car is travelling 10 mph over the posted speed limit, and assuming a 2-second reaction time (1.5 seconds is typical). Thus, ample time is allowed for the driver to see the pedestrian and come to a complete stop well before the crosswalk. See Appendix G for a table that lists the appropriate safe stopping distance for various posted speed limits.

The safe stopping distance is typically marked with a cone, and can be marked in one or both directions from the crosswalk, depending on how many spotting/citing officers are available for the operation.

A sign may also be positioned prior to the cone, alerting drivers that a pedestrian safety enforcement operation is taking place. This also mitigates the risk that drivers will claim the operation is an entrapment.

The set-up of the operation will vary depending on the number of officers involved. Here, we describe a three-officer operation, focusing on traffic traveling in only one direction approaching the crosswalk. If additional staffing is available and traffic is sufficient to justify additional resources, many communities will utilize an operation that employs additional officers so that both directions of traffic are covered; this involves at least one additional citing officer and potentially an additional decoy officer or spotter. Figure 1 shows a three-officer operation.

## Pedestrian Crosswalk Safety Operation Set-Up Diagram for Posted Speed Limit of 25 mph



In this scenario, one officer acts as a decoy and is positioned at the edge of the crosswalk. A second officer acts as a spotter and is positioned in clear view of the crosswalk, the decoy officer, and approaching traffic. The third officer is positioned in a motor vehicle or motorcycle.

All officers should have handheld radios, set to a predetermined frequency to allow for communication. The decoy officer should have educational handouts (if they are being used, see Appendix F for samples) to provide to

pedestrians during the course of the operation. The spotter should have a radar/LIDAR unit to measure the speed of traffic approaching the crosswalk, as well as a clipboard and data collection sheets to record infractions (see Appendix J). The spotter may also use a video camera to record the operation. The citing officer also has educational handouts (if they are being used) to provide to drivers during the course of the operation.

For a quick reminder of relevant supplies and set-up activities, officers can use a checklist to assist in setting-up pedestrian safety operations. A sample operations checklist is provided as Appendix H to this guide.

### Operation

Officers conducting pedestrian enforcement operations should follow defined procedures. Each officer involved has specific roles and responsibilities. Consistent procedures ensure data comparability across the site over time, enhance officer safety, and increase the probability that citations are upheld in a court of law.

The decoy officer stands outside the crosswalk and watches for approaching traffic. The decoy officer should be physically capable of moving quickly out of traffic if needed and must remain alert at all times. As a vehicle approaches the cone indicating the start of the safe stopping zone (but before the vehicle passes the cone), the decoy officer takes one to two steps into the crosswalk, demonstrating a clear intent to cross. At this point, one of three things happens:

- 1) The vehicle correctly yields, and the pedestrian continues to safely cross the street (waiting, as-needed, for additional traffic to yield before continuing to the next lane of traffic).
- 2) The vehicle is travelling too fast, and cannot safely yield.
- 3) The vehicle fails to yield right-of-way or disregards the pedestrian entirely.

For scenario two or three, the spotter observes the violation, recording the speed of the vehicle and/or capturing it on video if possible. The spotter then radios the citing officer, providing information on the vehicle description, the violation committed, and the vehicle lane position. The spotting officer also

records his/her observations to serve as evidence. All effort should be made to sufficiently document violations to allow for successful prosecution. If a speed is recorded, it should be noted.

The **citing officer** makes the stop, issuing a warning or citation and/or providing educational materials.<sup>6</sup> The officer should stop the vehicle at a distance safely away from the crosswalk so as not to interfere with the operation. Guidelines on citations and warnings appear in the section on “Issuing valid citations.”

If more than one citing officer is available, the decoy officer continues to cross the street, and the spotter continues to look for violations. If all citing officers are occupied giving warnings or citations, the decoy officer ceases crossings until such time as officers are available to cite.

Regardless of whether a decoy officer is used, officers are likely to observe violations that occur as a result of the naturally-occurring pedestrian and vehicle traffic at the site. These violations may be cited, although officers should note that some pedestrians may enter a crosswalk when a vehicle is already within the safe stopping zone. In such a situation, the driver should not be cited, and the pedestrian may be cited or warned (the officer will need to use his/her discretion); depending on how close the vehicle was when the pedestrian entered the crosswalk.

## Safety precautions

Safety is a primary consideration at all times for officers, pedestrians, and drivers. The following safety precautions are recommended:

- Never undertake pedestrian safety operations in inclement weather conditions, when roadway surfaces are wet, or when visibility is limited.
- Daytime operations are recommended.
- Properly train decoy officers so that they do not unduly put themselves at risk while attempting to cross.
- Decoy officers should wear bright clothes (but not reflective vests) to maximize their visibility to approaching traffic.
- Decoy officers should have an unobstructed view of traffic in both directions to ensure they can cross safely. Do not conduct operations on roads that are curved or banked.
- Citing officers should have vehicles pull over at a suitable distance from the crosswalk so as not to interfere with the operation, following standard safety guidelines.
- Pedestrian safety operations should not be undertaken on roadways where high speed limits or a large number of lanes make it unsafe for officers to cross.
- Officers may wish to avoid crossing in front of large trucks or busses which require additional stopping distance.
- Jurisdictions should have a plan in place for what to do if an officer is struck by a vehicle during the conduct of a safety operation.

## Media presence during operation

Some communities have found that local media want to cover operations in real-time. Raising public awareness of pedestrian-safety-related issues and behaviors is a central goal of the operation. Safety messages can reach far more citizens via the news media than through the operation directly. Media

---

<sup>6</sup> In some jurisdictions, officers must personally observe the violation to issue a citation. Many municipalities have found it helpful to meet with judicial officials prior to the commencement of a pedestrian safety operation to review planned methods to ensure they will withstand judicial scrutiny.



presence will need to be carefully managed, however, so that it does not interfere with operations or negatively impact safety. If media are expected, NHTSA recommends inviting a public information officer (or other agency spokesperson or community partner) to attend the event. That representative can work with media to ensure they get the materials they need without compromising safety. Media should be advised to stay well back of the crosswalk, and should be assigned a designated area, if possible. A substantial media presence may attract attention, so officers should be alert for that potential hazard. Media presence could also serve as a distraction to some drivers and could be used as a defense to invalidate a citation; officers should take that into consideration when deciding whether to issue warnings or citations.

### **Phased enforcement and egregious violations**

Many communities will initially begin a pedestrian safety enforcement program by primarily issuing warnings. This helps to build community goodwill about the operations, and provides fair notice to drivers that enforcement activity is occurring. After this initial period, operations focus more heavily on issuing citations.

Warnings can typically be issued more quickly than citations, allowing officers to contact significantly more drivers (Van Houten & Malenfant, 2004). Warnings also reduce the initial burden on the judicial system (Blomberg & Cleven, 2006). This initial warning period can be thought of as a progressive ticketing approach, beginning with education, followed by warnings, and then culminating with citations. It's important that warning periods not be extended indefinitely; this may inadvertently signal that agencies are not taking pedestrian safety seriously. Moreover, for long-term behavior change, citations may be more effective than warnings, since drivers take citations more seriously and may be more likely to alter their behavior to avoid receiving a citation versus a warning.

Even during the warning period, officers should issue citations if either drivers or pedestrians commit egregious violations. These most often include:

For drivers:

- Excessive speeding (e.g., 10 or more mph over the posted speed limit),
- Driving while intoxicated,
- Distracted driving (e.g., texting while driving),
- Improperly passing a car which is stopped to yield to a pedestrian (this places the pedestrian at great risk),
- Failure to yield the right-of-way:
  - When turning left or right, or
  - When entering the roadway;
- Aggressive, inattentive, or indifferent driving,
- Flagrant violations that endanger a pedestrian by passing too close, swerving, or honking at the pedestrian, and
- Any driver action that causes a pedestrian to flee.

For pedestrians:

- Suddenly entering the roadway (e.g., entering while the approaching vehicle is already in the safe stopping zone and when the driver does not have adequate time to safely stop to avoid a collision – this is a matter of officer discretion),
- Interfering with traffic at controlled intersections by crossing at an inappropriate time,
- Crossing against a “don’t walk” signal, and
- Crossing at mid-block (non-intersection/jaywalking).

*Note:* Especially in a warning period, pedestrians should only be cited for behaviors that are egregious and have a high potential for injury or death.

### Issuing valid citations

To reinforce overall norms related to traffic safety, officers should cite egregious pedestrian violations that they observe during the course of a pedestrian safety operation. However, because pedestrians are the more vulnerable road users, they are typically not the primary focus of enforcement efforts. As licensed roadway users, drivers should also be held to a higher standard than pedestrians sharing the roadway (Malenfant & Van Houten, 2011). With this in mind, some jurisdictions set informal guidelines on citation ratios during such efforts, establishing, for example, that no more than a quarter to a third of all citations should be given to pedestrians. However, officers should always consider their department’s policies and use their discretion when issuing citations.

Any citations issued during a pedestrian safety operation (for both drivers and pedestrians) should be able to withstand judicial scrutiny. The following recommendations are offered:

- Provide adequate notice to the community that a pedestrian safety operation will be taking place; at least one week’s advance notice for a first-time operation is recommended (see Appendix D for a sample press release).
- Use appropriate and consistent language when referring to safety operations – never refer to operations as “entrapment” or a “sting.” Some operations also do not use the word “decoy.”
- Brief judicial officials and prosecutors on the planned operation ahead of time and review local requirements. Determine who will be required to testify if a citation is appealed. Determine if the testifying officer needs to have personally observed the violation.
- Have official materials available to explain the purpose of the operation (see samples in Appendix F).
- Clearly define procedures for decoy officers and review them against local code. What constitutes a red-light violation? Failure to stop? Failure to yield? What is the legal definition of a crosswalk? Ensure that all officers are familiar with these requirements.
- Fully document all violations via written notes from the spotter and citing officer. Additionally, use a radar/LIDAR unit to record speeding infractions and a video camera to record violations for additional evidence. Some communities that use video give violating drivers the opportunity to watch the video before going to court; this has the effect of reducing court appearances.

Some jurisdictions also give offenders the opportunity to take a pedestrian safety course in lieu of a citation and fine. These classes may be sponsored by the local police agency or court. Such a class gives drivers the opportunity to learn (or relearn) pedestrian safety laws, while also avoiding certain penalties.

## Timing/frequency of operations

Most operations last two to three hours and are conducted during the daytime, although the timing and length of the operations may range from 30 minutes to a full day.

### **A one-time pedestrian safety enforcement activity is unlikely to change long-term driver behavior.**

Instead, pedestrian safety efforts need to be repeated and, ideally, incorporated into the normal operating culture of law enforcement agencies. Some locations conduct such operations every day, others on a weekly basis, and still others conduct operations every four to six weeks. Some localities also take a seasonal approach – conducting operations at the start of spring, as warmer weather brings more pedestrians to the roadways, and again in August/September as children return to school.

As jurisdictions incorporate pedestrian safety enforcement operations into their culture, the practice has the effect of changing officer behavior, making it more likely that officers will issue citations for pedestrian safety violations during their routine enforcement activities.

## Dealing with complaints

Officers conducting pedestrian safety operations should be prepared to respond to public complaints. The most common complaints about these operations include:

- Agencies are only trying to make money or reach a “quota,”
- Pedestrians (not drivers) cause most crashes at crosswalks – and thus drivers should not be the target of an enforcement operation,
- The operation constitutes entrapment or a sting, and
- Pedestrians or drivers were unaware that their actions were illegal.

To respond adequately to these complaints, jurisdictions should take the following steps:

- Train or brief all officers on safe procedures.
- Train or brief all officers on the purpose of the operation and local pedestrian safety issues.
- Be prepared with data and information on local pedestrian injuries and fatalities, as well as explanations for why certain locations have been selected for pedestrian safety activities.
- Provide initial notice via news media and community groups before commencing enforcement activities.
- Develop educational materials and handouts that explain crosswalk laws and regulations.
- Begin operations with a warning and educational phase, citing only egregious violations.
- Fully document violations, including use of radar/LIDAR and video cameras.
- Refer appropriately to operations, with an emphasis on their safety effects; do not use terminology such as “sting” to refer to operations.
- Cite both pedestrians and drivers in operations; be prepared to explain to drivers that pedestrians constitute the more vulnerable user group, and that drivers can be held to higher standards as roadway users because they are licensed.
- Foster relationships with the media, community partners, and the judiciary and prosecutors to explain operations.

## Considerations/Variations

This guide thus far has described a three-officer operation at a marked, non-intersection crosswalk. Here, we discuss several variations and additional considerations.

## Signalized versus non-signalized locations

Pedestrian safety operations can take place at both signalized and non-signalized locations. Frequently, drivers are less attentive to pedestrians at non-signalized locations. Locations such as these are frequently targeted for such operations as they may pose the greatest opportunity to change driver behavior. However, any particular community will target locations based on traffic and crash patterns, and some signalized locations will be critical targets for safety efforts.

There is no need for marking the safety zone at a signalized crosswalk. At a signalized location, decoy officers will always begin to cross on the “walk” sign or on a green light if there are no pedestrian signals. Decoy officers should always complete their cross before the solid “don’t walk” signal is shown.

## Intersections

At intersection crosswalks, officers should be alert for the following violations:

- Drivers failing to appropriately yield right-of-way to pedestrians (e.g., by attempting to turn right or left when pedestrians have the walk sign). Left turning vehicles pose the greater hazard, because they are travelling at higher speeds and will sometimes accelerate in order to get in front of pedestrian; this may cause pedestrians to be stranded at the center line.
- Drivers that block the crosswalk, forcing pedestrians to go around the crosswalk.
- Pedestrians attempting to cross without a walk sign and interfering with traffic.
- Pedestrians crossing diagonally.

Depending on the availability of officers, the operation may focus only on certain “legs” of the intersection, especially those with the greatest number of turning vehicles (National Cooperative Highway Research Program, 2004). This affords officers the opportunity to observe the greatest number of violations.

## Marked versus unmarked crosswalks

Typically, pedestrian safety operations are conducted at marked crosswalks. However, in most communities, there is a legal crosswalk at every intersection, whether marked or unmarked. Pedestrian safety operations can be conducted in these intersections, although officers should be prepared with educational materials (see Appendix F) to discuss that these are legal crosswalks.

## Medians

Depending on local ordinances, roadways with medians may require special consideration. In some locations, divided roads with medians and multiple lanes (i.e., more than four) should be considered two separate one-way roads. Crosswalk laws may consider medians neither adjacent lanes nor part of the roadway. Thus, as the decoy officer begins to cross the road, only vehicles on the near side may be required to stop or yield. When the median is reached, the decoy officer must treat the second half of the road separately (assuming citing and spotting officers are available to cover both directions of traffic), not entering until an approaching car is just outside the appropriate safety zone. Warnings and citations should be given accordingly. This may also entail additional safety considerations. Operations that include a median may also require additional driver and pedestrian education; likewise, officers may require additional training to ensure the law is correctly and consistently upheld.

## Multiple locations

Some communities conduct pedestrian safety operations in more than one crosswalk on a given day. This most often occurs when an extended operation is taking place (e.g., an operation over a full eight hour shift). In such a situation, moving the team to multiple locations during the course of the operation

(e.g., every two to three hours) can keep the entire team fresh and engaged. Using multiple locations also increases awareness of the operation within the community.

### **No decoys or non-officer decoys**

When officer staffing resources are limited and when pedestrian traffic is high, a jurisdiction may conduct a pedestrian safety operation without the use of a decoy officer. This is a viable option in locations where pedestrian traffic is almost continuous throughout the planned operations time.<sup>7</sup> If a decoy officer is not used, the operation can be conducted with fewer officers, or more officers may be used as either a spotter or citing officer. However, spotters should note that naturally-occurring pedestrians may enter the safe stopping zone after a vehicle has already passed the entry cone. In such a situation, the driver should not be cited, and the pedestrian may be cited, at the officer's discretion. The officer will consider how far past the cone the vehicle was, and whether the driver had to engage in unsafe behaviors to avoid the pedestrian and/or a collision.

Occasionally, a non-officer volunteer may be used as a decoy. However, this is not recommended for liability and safety reasons. Any decoy should have worker's compensation insurance, health insurance, and other insurance, as appropriate.

### **Impaired pedestrians, entertainment districts, and night-time operations**

Impaired pedestrians are a key causal factor for pedestrian collisions. More information regarding impaired pedestrians can be found in Appendix A. Many collisions happen in the evening hours around entertainment districts. However, NHTSA does not recommend that pedestrian safety activities be conducted during nighttime hours, since decreased visibility dramatically reduces the safety of decoy officers and the ability of spotters to properly spot violations. Citations may also be less likely to be upheld if visibility is poor.

Daytime operations in entertainment districts are viable, and several jurisdictions do conduct such activities, as warranted by traffic patterns and pedestrian crash histories. If officers encounter impaired pedestrians engaged in dangerous behaviors (e.g., suddenly entering the roadway or interfering with traffic), these pedestrians should be cited and in some cases detained until they are sober.

### **Multi-agency operations**

Pedestrian safety operations have been conducted successfully across multiple jurisdictions. For example, neighboring cities may conduct joint operations, or coalitions may be formed between State, county, and municipal partners. Agencies can share resources and work collectively on pedestrian safety operations. In some areas, partners work together and rotate where they conduct the operations. Another approach is for one partner to take the lead on targeting the efforts (e.g., analyzing local data) while the other takes the lead on operations. Such operations require careful coordination and planning; however, if successful, they can reach a larger audience and also garner additional media attention.

---

<sup>7</sup> Locations with almost no pedestrian traffic are not good sites for pedestrian safety enforcement operations because they are not credible locations for such activity. See "Selecting a location" section of this guide. Locations with moderate pedestrian traffic may be credible locations, but typically require the use of a decoy officer to make efficient use of the spotting officer and citing officer's time.

# Evaluation

Evaluation activities are an important component of the overall safety program.

## Outcome evaluation

Pedestrian safety operations should be formally evaluated. Outcome evaluations may be used to justify the need for funding as well as assist in fine-tuning activities to ensure they have maximum impact. Often, community partners such as colleges, universities, and non-profit organizations may be able to assist with an outcome evaluation.

While crash reduction is the ultimate objective of these efforts, crashes are low-frequency events and cannot be used to measure the effectiveness of particular operations (although for wide-scale and sustained efforts, it may be appropriate to look at city-wide crash data on a year-to-year basis). Instead, several proxy measures are typically used, each of which relates closely to pedestrian safety (NCHRP, 2004):

- Driver yielding to pedestrians at crosswalks,
- Speeding by drivers at crosswalks,
- Drivers stopping too close to (or in) crosswalks,
- Pedestrians stepping into traffic without warning, and
- Pedestrians crossing against the walk signal.

To conduct an outcome evaluation, baseline data collection is essential. Two to three weeks before an operation is to occur, planners should visit the site(s) and measure current driver behaviors. For example, the driver yield rate may be measured over a set time period (e.g., one hour). Ideally, this measurement is repeated at several times of day and on several days of the week. Yielding behavior is scored using a sheet such as that found in Appendix J, following specific procedures noted on the data collection sheet. Following specific procedures helps to ensure the validity and reliability of data. Pedestrian behaviors may also be measured at baseline.

Four to six weeks after the operation the same procedures should be repeated to determine whether any change has occurred from the baseline measure. Typically, such efforts have found an improvement in driver yielding behavior (the behavior most often measured). However, this effect tends to diminish over time, which is why it is essential to repeat these operations to maintain lasting safety improvements.

When resources are limited, evaluation funding may be minimal. However, some level of evaluation is suggested. Outcome evaluation helps to:

- Show the public that enforcement efforts are working to protect pedestrians,
- Garner more media attention,
- Determine if there are issues that need to be improved/changes that should be made, and
- Justify continued or increased funding.

The number of sites selected, and the length of time observations take place can vary according to available project resources. Measures must be taken before and after the enforcement action in order to determine success rates.

Baseline data collection also serves as an opportunity for officers to become familiar with the procedures for the eventual pedestrian safety enforcement operation. Partners may also be able to assist with baseline and post-test evaluation activities.

## Output evaluation

In addition to outcome evaluation efforts, output evaluations are important. Any law enforcement agency conducting pedestrian safety enforcement operations should collect and track data on:

- The number of warnings issued,
- The number of citations issued,
- The number of educational contacts made, and
- The number of drivers who correctly yielded to the decoy officer.

These numbers may be presented as a percentage of the total so that progress can be tracked over time. See Appendix J for a sample output evaluation form.

Many agencies also find it helpful to maintain a list of all the locations where they have conducted pedestrian safety operations.

## Next Steps

Pedestrian safety enforcement operations do not end when the operation is over. After enforcement has ended, there are opportunities to share results, make environmental and engineering changes, and consider policy changes.

### Sharing of results and success stories

After the operation has concluded, it's important to share the results with the media and the community at-large. Distributing a press release after the event is one way to generate media coverage of results (see Appendix D for sample press releases). In addition, agencies with a media relations or public information office may be able to distribute video of the operation to news outlets to help generate coverage of the events.

Media releases can be used immediately after the event to share informal results, as well as several weeks after the event to present the results of outcome evaluations. When preparing information for the media, it is important to include information on the broad safety purposes of these operations – often, media coverage may focus only on the number of motorists cited and not include key educational messages (Beeber, 2011). If this is the case, law enforcement officers may wish to meet with media representatives to discuss how this larger context can be included.

In addition to media outreach, it may be helpful for law enforcement agencies to engage in discussions with various community groups about the operation and its results. These include neighborhood associations, schools, elected officials, planners, engineers, public interest groups, pedestrian safety groups, and local health organizations.

## Environmental and engineering changes

Pedestrian safety operations give law enforcement officers an up-close view of local crosswalks and traffic conditions. Often after these operations, officers have insights into key needs related to environmental or engineering changes that would improve public safety. Possible changes include:

- Repainting crosswalks,
- Adding traffic signs to alert drivers to the presence of a crosswalk, or moving such signs to a more appropriate location (e.g., further back from the crosswalk),
- Installing speed limit signs,
- Installing flashing beacons to alert drivers,
- Installing 3-dimensional road markings (not MUTCD compliant),
- Installing raised medians and refuge islands,
- Installing walkways and shoulders,
- Installing or upgrading pedestrian signals,
- Enhancing lighting or visibility at crosswalks, and
- Trimming trees to increase visibility.

**Many communities have found it beneficial to establish a committee of interested parties working on pedestrian safety and associated issues.** These committees consist of law enforcement officers, public officials at the city and county level, engineering departments, neighborhood associations, and pedestrian safety groups, among others. They can work together to support the effort and to decide what changes, if any, are needed. Groups like this can meet on a regular basis (e.g., monthly) and have been very effective at implementing improvements.

## Policy change

Jurisdictions may differ in terms of whether their local statutes require drivers to yield for pedestrians or come to a complete stop. Many municipalities have found that it is easier to enforce crosswalk regulations if drivers are required to stop. Some pedestrian safety programs have successfully advocated for changes to local laws.

Communities may also find it helpful to clarify existing laws so that all parties know exactly what is required. For example, communities have made an effort to ensure that pedestrians, drivers, officers, the judiciary, and the media all understand local ordinances related to pedestrian and crosswalk safety.



## Case Studies

The following brief cases are presented as examples of pedestrian safety enforcement programs in action.

### Bethlehem, Pennsylvania – Pedestrian Safety Enforcement

**Contact Info:** Sherri Penchishen  
610-997-7914  
[spenchishen@bethlehem-pa.gov](mailto:spenchishen@bethlehem-pa.gov)

**Setting:** Urban  
*Intersection types:* All marked, non-signalized

**Statute:** Stop for pedestrians

**Budget:** \$10,000 used for educational material only; no officer overtime

From its inception, the Bethlehem program worked closely with the judiciary, law enforcement, and engineers to build a strong, defensible program. With many tourists attending festivals and large education complexes, the city contends with a number of challenging crosswalks.

#### Partnerships

The district magistrate played an integral part in the program's design and implementation. Program planners met with the magistrate during the

program's design phase to discuss the legal requirements and planned responses.

#### Promising Practices

The district magistrate required the program to include a two-week warning phase. Once the warning phase was completed, offending drivers and pedestrians still received two warnings, with citations being issued on their third offence. Warnings were tracked using special warning cards which recorded the violator's name and license plate. A press conference was held two weeks before the warning phase of the program. After selecting potential locations for operations based on crash data, program managers worked with police officers to make final selections, a crucial step given that the locations were not signalized. Officers established the sight distance and stopping distance requirements, which helped to ensure a defensible court process. Operations were designed to give as much visibility, and thus credibility, to court cases as possible.

Operations focused particularly on crosswalks near the large city high school. Students were informed about the program with announcements, and it was included in the annual, mandatory code of conduct class.

Based on recommendations from the engineers, in-pavement flashers and signs were installed at a crosswalk next to a college.

#### Lessons Learned

In future efforts, program planners will work more closely with the media before operations to provide more awareness and information to the public. Officers found that motorists simply did not know they needed to stop, even with sufficient distance to do so safely. Planners also learned that those involved with the program need to anticipate questions about the program's motives and techniques.

## Results

To measure results, the program counted citations. The program has become more visible and has gained acceptance in the community. For example, one district judge contacted the program to see if it could conduct a crosswalk operation at two locations that have become problematic.

## Hawaii – Walk Wise Hawaii

**Contact Info:** Lee Nagano  
808-587-6013  
[lee.nagano@hi.gov](mailto:lee.nagano@hi.gov)

**Setting:** Urban  
*Intersection types:* Marked; non-signalized

**Statute:** Hawaii requires drivers to stop and yield to pedestrians in a crosswalk

**Budget:** \$286,712, plus approximately \$12,000 in paid media, in 2011

Walk Wise Hawaii leverages numerous partners to reach several different audiences in order to change pedestrian and driver behaviors. The program takes into consideration a number of unique local challenges, such as a large number of tourists, a large numbers of residents for whom English is a not a primary language, and a culture of elders that opens an opportunity for cross-generational communication and program engagement.

The program began as a pedestrian education effort. It was informed by research on why pedestrians engage in illegal behaviors. This research discovered a number of contributing factors, including engineering issues such as curbs without ramps at crosswalks. The program evolved to incorporate drivers.

## Partnerships

The central organizing component of the program is to bring together many partners. This includes a grant with a public relations firm to conduct research and outreach activities, a grant with the police department to cover expenses and overtime, and a grant with the highway department to handle such matters as multi-lingual signage. Additionally, partnerships with the local chapters of AARP (formerly known as the American Association of Retired Persons), AAA (formerly known as the American Automobile Association), and the Hawaii Department of Health assist in spreading the messages. A key player is a consortium of local McDonald's restaurants that sponsors an annual fall poster contest in which all participating children receive a free Happy Meal; winners are displayed in numerous restaurants.

## Promising Practices

Each August is "Pedestrian Safety Month," during which a special activity is conducted nearly every day, accompanied by a large media buy. Booths are rented at community fairs where campaign videos are shown, games with questions about pedestrian safety are played, and giveaways such as bright yellow shopping bags, flashlights, and blinking lights are distributed.

"Pedestrian Safety Month" includes the placement of signs in all McDonald's restaurants in the State showing the contest's winning poster, an event that by itself garners earned media. McDonald's pays for all of the development of the collateral.

A speaker's bureau, composed of several senior volunteers, has brought the campaign's message and materials to elementary schools, hotel employees, senior groups, neighborhood boards, and community events.

Through the "Kupuna" program, schoolchildren bring home a pledge card to sign with their grandparents, each promising to cross the street carefully and according to the law, an approach that reaches two vulnerable audiences while overcoming significant cultural challenges.

Program staff works closely with the visitor industry by educating concierges at all local hotels and providing materials about pedestrian laws to give to guests, as well as at cruise ship docks. The program has been given free space in the “Drive Guide” that is offered for free to all car renters.

With a large number of non-native residents as well as a wide range of traditional languages spoken at home, program materials have been translated into twelve languages and relationships with local community agencies, vendors, and churches help to disseminate these specialized program message and information.

For Halloween season, the program distributes retro-style reflective stickers to schools to give to children, an activity that is kicked off each year with a mayor’s proclamation-signing event.

### Lessons Learned

The program initially focused only on pedestrians. Later, it became apparent that drivers must be involved as well.

Data analysis showed that most of the crashes were occurring at non-signalized crosswalks in the middle of blocks. Many cases involved senior citizens; a subsequent campaign focused on educating these citizens about the importance of using marked crosswalks.

### Results

The data review team meets at least every other month to look at trends in the FARS and Hawaii DOT database to determine locations for activities. Based on successes, the program has branched to three other islands.

## New Jersey – Cops in Crosswalks

**Contact Info:** Ranjit Walia  
908-403-5688  
[ranjit@civiceyecollaborative.com](mailto:ranjit@civiceyecollaborative.com)

**Setting:** Suburban  
*Intersection types:* Marked; non-signalized

**Statute:** New Jersey requires drivers to stop for pedestrians in a crosswalk

**Budget:** Approximately \$60,000/year (Grant funds from the New Jersey Division of Traffic Safety)

Civic Eye Collaborative, an urban planning and multi-media studio, is working to improve pedestrian safety in New Jersey through education and training. Funded by the New Jersey Division of Highway Traffic Safety, Cops in Crosswalks trains law enforcement agencies on how to safely and efficiently conduct pedestrian safety operations. The program provides agencies with effective tactics and procedures to conduct operations as well as valuable support materials.

The program has trained hundreds of law enforcement officers in New Jersey. The training

emphasizes conducting operations at non-signalized, marked crosswalks—especially at “credible” locations where there are high volumes of pedestrians or motorists should expect pedestrians, places like schools and downtown areas. These are seen as the locations where drivers most need to be “trained” to stop for pedestrians. The program aims for an impact beyond simply issuing citations. Operations are designed primarily for education with a goal of positive behavioral change. While initial training has focused on motorist behavior, operations are expanding to include issues related to pedestrian behavior.

### Promising Practices

Civic Eye partners with law enforcement agencies statewide to provide training and supplemental resources. Civic Eye developed a training film used statewide which reinforces the principles of the operations. This film has been adopted by other states as a prime training resource and is available upon request. Next steps in the program may include the development of a program media packet that jurisdictions can use in their own outreach efforts, an enhanced trackable warning program, informational videos, and a Web site that will allow information sharing within the State. Partnerships with local judiciaries are also encouraged in order to explain the methodology and legality of enforcement operations.

### Lessons Learned

One of the main messages of the program is that continuous enforcement—at least six weeks or more—is more effective than spot enforcement, especially when program goals include increased awareness and behavior change.

### Results

The program recently sent a survey to 400 officers who had received the training. Of the 165 respondents, 42 percent had conducted operations, and 71 percent of those felt that operations were easy to conduct.

## Orlando, Florida – Best Foot Forward for Pedestrian Safety

**Contact Info:** Brad Kuhn

321-287-7243

[brad@bikewalkcentralflorida.org](mailto:brad@bikewalkcentralflorida.org)

**Setting:** Urban area, daytime

*Intersection types:* Marked; signalized and non-signalized

**Statute:** Florida State law requires drivers to yield to pedestrians in a crosswalk, unless otherwise marked

**Budget:** 1st year: \$150,000 (supplemented with \$60,000 in-kind partner services)  
2<sup>nd</sup> and following: \$260,000-270,000 (supplemented with \$30,000-40,000 in-kind)

Orlando has experienced a high rate of pedestrian-involved crashes, based on the size of its population. Best Foot Forward for Pedestrian Safety, an initiative of Bike/Walk Central Florida, aims to cut pedestrian deaths in the Orlando/Kissimmee area by 50 percent over 5 years via an innovative partnership with local law enforcement to plan and conduct pedestrian safety operations.

The effort began with a 3-month warning period in 2012, initially targeting non-signalized, marked crosswalks on streets with speeds limits of 35 mph or less. The operation conducted 2 weeks of enforcement, followed by 6 weeks to measure results. Enforcement operations were conducted during the

daytime (10 a.m. to 1 p.m.) and in early evening (4:30 p.m. to 5:30 p.m.). Because a primary focus of the program is to teach behavior, enforcement operations were timed to educate the greatest number of both drivers and pedestrians.

### Promising Practices

The program relies on a strong relationship between Best Foot Forward and local law enforcement. Best Foot Forward provides training to law enforcement officers involved in operations, and helps to subsidize the overtime costs incurred by the department via a 50/50 funding match.

Additionally, Best Foot Forward met with the local magistrate to demonstrate the ticketing methodology; almost all tickets issued under the program have been upheld in court.

Several low-cost engineering improvements were also implemented, including moving advance yield markings 30 feet back from the crosswalk to increase visibility. Additional planned engineering improvements include medians, refuge islands, and rectangular rapid-flashing beacons (RRFBs) for roads with speed limits 40 mph and above.

The initial warning phase was beneficial. Warnings are better received by individuals than citations and can help start dialogue within the community. Each person warned typically talks to several others. The program also conducted extensive outreach, reaching half of all county households directly, placing articles in newsletters/magazines, establishing a speaker's bureau, and developing a school curriculum.

### Lessons Learned

The program's accountability to the community is extremely important. Accountability helps to overcome initial resistance and skepticism. Getting different agencies and community groups to work together requires good science, clear and measurable objectives, and a clear "end game"—a project-specific structure to turn the program over to the community once initial goals are met.

### Results

Evaluation data showed that following two rounds of enforcement and engineering, yield rates increased from five to twenty-eight percent.

## San Francisco, CA – Pedestrian Safety Enforcement Operations

**Contact Info:** Captain Tim Oberzeir  
415-553-9601  
tim.oberzeir@sfgov.org

**Setting:** Urban, daytime and early evening hours  
*Intersection types:* Marked or unmarked, controlled or uncontrolled

**Statute:** All related, unlawful driving, bicycling and walking behaviors that contribute to or directly cause pedestrian collisions are enforced

**Budget:** The program uses a combination of on-duty officers and grant funded officers

In a continuous effort to reduce collisions between vehicles and pedestrians, San Francisco Police conduct three types of pedestrian safety enforcement operations:

- 1. Pedestrian decoys** – targeting motorists who fail to yield to pedestrians in crosswalks,
- 2. LIDAR speed enforcement** – targeting motorists who operate vehicles at unsafe speeds through pedestrian zones, and
- 3. Saturation patrol** - targeting primary collision factors and violations related to distracted driving.

These high-visibility operations target unlawful driving behaviors that contribute to or directly cause pedestrian collisions, and are conducted at locations where serious or fatal collisions have occurred. Sites are selected based on complaints and incident occurrence. Operations are conducted at least four times weekly and are sometimes filmed by local media, drawing attention to traffic safety.

Prior to an operation, officers are briefed at lineup, ensuring that they are aware of and understand the laws they will be enforcing. Decoy operations can involve one or more decoy officers and between four and six citing officers, LIDAR speed enforcement operations utilize up to six officers, and motor-officer saturation patrol operations can involve eight or more motor-officers.

### Partnerships

The San Francisco Police Department works with a variety of partners. They have embarked as a partner in "Vision Zero," a program with the goal to reduce pedestrian fatalities to zero in ten years. Enforcement, engineering, and education are key components of this campaign. The San Francisco

Police Department is primarily responsible for enforcement, while the San Francisco Metropolitan Transportation Agency and the San Francisco Department of Public Health assist with other aspects of the campaign and data analysis.

As a part of the Metropolitan Transportation Agency, they work with other personnel within the agency to collect and review collision data to make recommendations for traffic engineering improvements. They also work with the California Highway Patrol to conduct regular joint traffic safety operations, and with district (precinct) station staff to plan and conduct pedestrian safety enforcement operations within each district.

Other partners include participating schools from the San Francisco Unified School District, the California State Automobile Association, and WalkSF, a local pedestrian advocacy group.

### Promising Practices

District Captains apprise local community groups of pedestrian enforcement operations within their individual districts via newsletters and at community meetings. Announcing operations in advance helps raise awareness in the community. Use of social media (e.g., Twitter, blogs) is also an extremely useful and cost-effective way to spread messaging. Announcements also attract the attention of the media, both before and after operations. Program planners suggest that it is important to know the results of an operation, providing media partners with measureable accomplishments to report.

### Lessons Learned

Giving the citing officer the discretion to take action is extremely important. For pedestrian decoy operations, local laws require the citing officer—not the decoy officer—to give testimony in court. Therefore, citations should be based on the citing officer’s judgment.

### Results

Traffic citation issuance totals, by specific violation, are reviewed after operations. Results are measured by the number of traffic collisions that follow enforcement operations.

## Washington, DC – Pedestrian Program

**Contact Info:** George Branyan  
202-671-2561  
[george.branyan@dc.gov](mailto:george.branyan@dc.gov)

**Setting:** Urban, Daytime hours  
*Intersection types:* Marked; signalized and non-signalized

**Statute:** Statutes require drivers to stop for pedestrians in uncontrolled crosswalks and when turning at signalized intersections

**Budget:** The program receives Federal grant money for regional campaigns, contributions from local jurisdictions, and a grant to cover officer overtime; other costs are covered within normal operating budgets

As part of the regional Street Smart media and enforcement safety campaign, DDOT worked with police from 2005 to 2011, to provide training and education to law enforcement officers, equipping them to use effective enforcement to reduce the number of pedestrian fatalities and injuries. These materials described the laws and best-practice techniques for effective enforcement. The program continues to provide subject matter expertise to Washington, DC’s Metropolitan Police Department (MPD) and crash data analysis to MPD to assist in targeting enforcement operations during the spring and fall Street Smart Campaigns.

Additionally, the program works closely with DDOT’s engineering administrations toward the goal of making the city more livable, friendlier to bikes and

pedestrians, and more accessible via public transit. Overall, the mayor's goal is for three-quarters of all trips to be non-automobile trips by 2025.

DDOT's Pedestrian Program also works on a variety of engineering and planning issues. Recommendations from the 2009 Pedestrian Master Plan look for opportunities to implement a variety of traffic calming and pedestrian safety countermeasures, such as curb extensions and pedestrian refuge islands, rectangular rapid flashing crosswalk beacons, and HAWK/Pedestrian Hybrid Beacons. Additionally, "Livability Studies" were conducted that looked at larger areas of residential neighborhoods and proposed engineering measures to calm traffic and increase the use of bicycling and transit.

The program works in tandem with MPD's Automated Enforcement Program which recently added automated crosswalk and stop sign running enforcement to its already robust automated speed and red light running program. Sixteen marked, uncontrolled crosswalks and 32 stop-controlled intersections (mostly near schools) are in operation as of 2014. At uncontrolled crosswalks, the presence of both a pedestrian and a vehicle automatically triggers a camera which records an interaction. Each recording is reviewed by three people, and if conclusive evidence of a violation is found, a ticket is sent. This can help with enforcement related to failing to stop for pedestrians and running stop signs.

### **Promising Practices**

Getting buy-in from law enforcement is seen as a critical element of success. It's essential that law enforcement leadership recognizes the importance of pedestrian safety. The program has established good relationships with lieutenants and sergeants who are eager to get involved in enforcement exercises. The program also believes it is equally important to have an effective training program that combines subject matter experts with police department officials who are supportive of the program.

### **Lessons Learned**

Working through the proper chain of command to get support from within police departments is viewed as essential. There may not be a centralized authority for pedestrian safety-specific enforcement, so it can be a long process to build rapport and connect with the right people. The program aims to make law enforcement an active participant in the development of education campaigns.

Social media (e.g., Twitter) is used to reach the public. By sharing information about pedestrian enforcement, and pictures of operations, the public can see that police are concerned about pedestrian safety and are working to improve it.

### **Results**

Surveys before and after have found statistically-significant increases in awareness among the general public of the Street Smart Campaign message and the increased police enforcement of pedestrian safety laws. Enforcement operations are also expanding outside of the main spring and fall initiatives, which is an indication of their success. Additionally, DC has seen a significant drop in the number of annual fatalities, both for vehicle occupants and pedestrians over the last decade, indicating that crash severity—and thus speeds—have been reduced through both enforcement and engineering measures. However, because many other factors can be involved, it's difficult to definitively tie those statistics to enforcement operations.

# Acknowledgments

This guide would not have been possible without the help of the people listed below. Their participation and assistance were invaluable in producing this guidance document.

**Arizona Governor’s Office of Highway Safety (AZ)**  
Alberto Gutier

**Best Foot Forward for Pedestrian Safety,  
Bike/Walk Central Florida (Orlando, FL)**  
Brad Kuhn

**Bethlehem Health Bureau (Bethlehem, PA)**  
Sherri Penchishen

**Boulder Police Department (Boulder, CO)**  
Jack Walker

**Bozeman Police Department (Bozeman, MT)**  
Deputy Chief Rich McLane

**Civic Eye Collaboration (NJ)**  
Ranjit Walia

**District Department of Transportation  
(Washington, DC)**  
George Branyan

**Elk Grove Police Department (Elk Grove, CA)**  
Sgt. Audrey Haug

**Fairmont Police Department (Fairmont, MN)**  
Officer Craig Fowler

**Florence Police Department (Florence, OR)**  
Officer Brian Goss

**Gainesville Police Department (Gainesville, FL)**  
Sgt. Joseph Raulerson

**Hillsboro Police Department (Hillsboro, OR)**  
Lt. Steve Vuylsteke

**Howell Township Police Department  
(Howell Township, NJ)**  
Sgt. Joe Markulic

**Lake Oswego Police Department  
(Lake Oswego, OR)**  
Lt. Scott Thran

**Largo Police Department (Largo, FL)**  
Sgt. George Edmiston

**Madison Police Department (Madison, WI)**  
Sgt. Eric Tripke

**Maricopa Association of Governments  
(Mesa, AZ)**  
Michael Ybarra

**Mid-Ohio Regional Planning Commission (OH)**  
Kerstin Carr

**Minnesota Department of Public Safety (MN)**  
Gordy Pehrson

**Missoula City Public Works, Bicycle/Pedestrian  
Program (Missoula, MT)**  
Ben Weiss

**Monmouth Police Department (Monmouth, OR)**  
Jeff Rose

**Nevada Highway Patrol (Reno, NV)**  
Trooper Chuck Allen

**Operation Crosswalk, Marblehead Police  
Department (Marblehead, MA)**  
Chief Robert O. Picariello

**Operation Safe Cross, Worcester Police  
Department (Worcester, MA)**  
Lt. Timothy Walsh

**Pedestrian Decoy Program, (Riverside, CA)**  
Riverside Sherriff Jim Bengston



**Pedestrians Educating Drivers on Safety (PEDS)**  
(Atlanta, GA)  
Sally Flocks and Joanna Pritchard

**Peoria Police Department** (Peoria, AZ)  
Sgt. Russ Scarbourough

**Phoenix Police Department** (Phoenix, AZ)  
Lt. Brian Lee

**Riverside Sherriff's Office** (Jurupa Valley, CA)  
Sgt. James Woodland

**Robbinsdale Police Department**  
(Robbinsdale, MN)  
Chief Steven Smith

**Safe Community Partnership Program**  
(Las Vegas, NV)  
Erin Breen

**San Francisco Police Department**  
(San Francisco, CA)  
Captain Denis O'Leary

**Save Lives...Not Seconds; Louisa Police Department** (Louisa, VA)  
Chief Jessie L. Shupe

**Traveling Responsibility Outreach and Mentoring Project (TROMP)** (Cambridge, MA)  
Rozann Kraus

**Ventura Police Department** (Ventura, CA)  
R. Weeks

**Walk Smart Delaware, Office of Highway Safety**  
(DE)  
Alison Kirk

**Walk Wise Hawaii** (Honolulu, HI)  
Lee Nagano

**WalkSafe, University of Miami** (Miami, FL)  
Katie Swidarski

**West Lafayette Police Department**  
(West Lafayette, IN)  
Deputy Chief Chris Leroux

## Delphi Panelists

<b>George Branyon</b>	Washington, D.C., Department of Transportation Pedestrian Program Coordinator
<b>Erin Breen</b>	Director, University of Nevada Las Vegas Safe Community Partnership
<b>Theresa Cruz, Ph.D.</b>	University of New Mexico Department of Transportation
<b>Keri Gibson</b>	NHTSA Region 8
<b>Carol Gould</b>	Colorado Department of Transportation Occupant Protection Programs Manager
<b>Anne McLaughlin</b>	New Mexico Department of Transportation
<b>John Moffat</b>	NHTSA
<b>Beth Thomas</b>	CALTRANS District 4 Office of Transit and Community Planning
<b>Chief William Valenza</b>	Chief of Police Glens Falls Police Department

# Appendices

## Appendix A. Pedestrian Injury and Fatality Statistics

Annual pedestrian fatalities fluctuate from year-to-year (as shown in Figure A-1), but the overall trend is declining (as shown in Figure A-2).

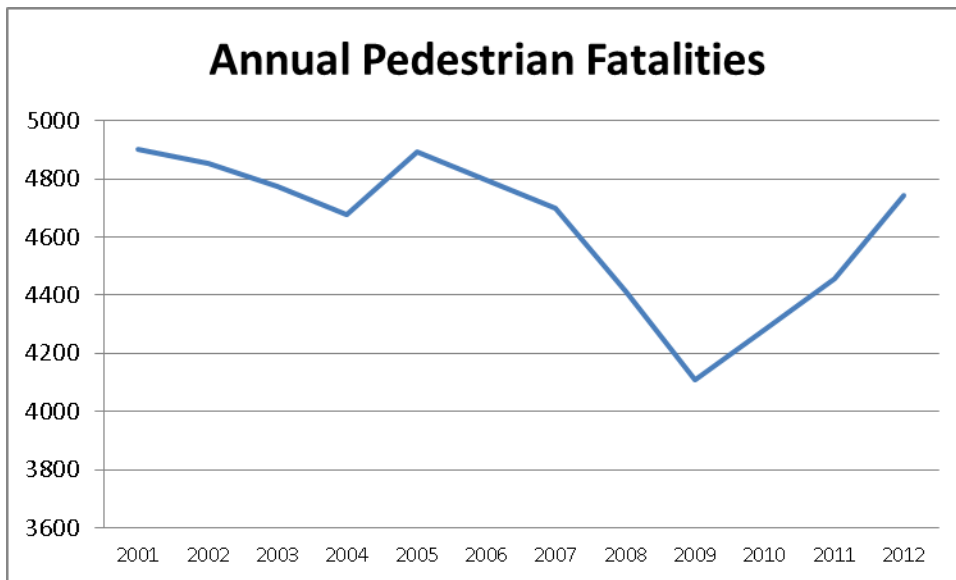


Figure A-1: NHTSA Fatality Analysis Reporting System, 2011 (NHTSA 2013b)

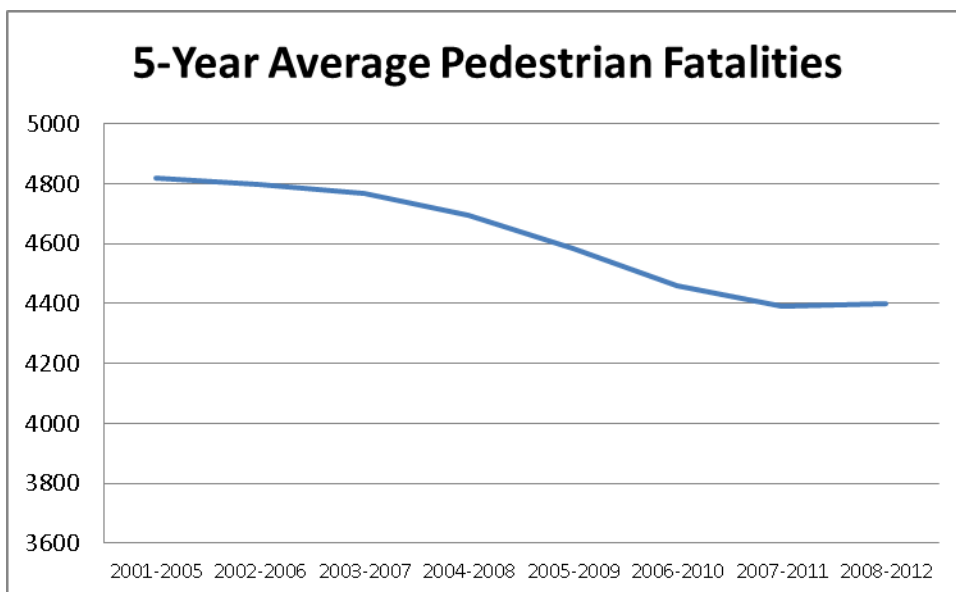


Figure A-2: NHTSA Fatality Analysis Reporting System, 2011 (NHTSA 2013b)

Additional trends related to pedestrian fatalities are shown in Table A-1.

<b>2011 Pedestrian Fatalities</b>	<b>Percentage</b>
<b>Gender:</b>	
• Male	70%
• Female	30%
<b>Land Use:</b>	
• Rural	27%
• Urban	73%
<b>Non-Motorist Location:</b>	
• Intersection	21%
• Non-Intersection	79%
• Other	10%
<b>Weather:</b>	
• Clear/Cloudy	88%
• Rain	9%
• Snow	1%
• Fog	1%
<b>Time of Day:</b>	
• Daytime	30%
• Nighttime	70%
<b>Age:</b>	
• <5	2%
• 5-15	4%
• 16-29	20%
• 30-54	39%
• 55-69	20%
• 70+	14%
<b>Time of Day:</b>	
• Midnight-3:59 a.m.	15%
• 4 a.m.-7:59 a.m.	14%
• 8 a.m.-11:59 a.m.	8%
• Noon-3:59 p.m.	7%
• 4 p.m.-7:59 p.m.	24%
• 8 p.m.-11:59 p.m.	32%
<b>Alcohol Involvement (BAC&gt;.01):</b>	
• Neither pedestrian nor driver	52%
• Pedestrian only	31%
• Driver only	9%
• Both pedestrian and driver	8%

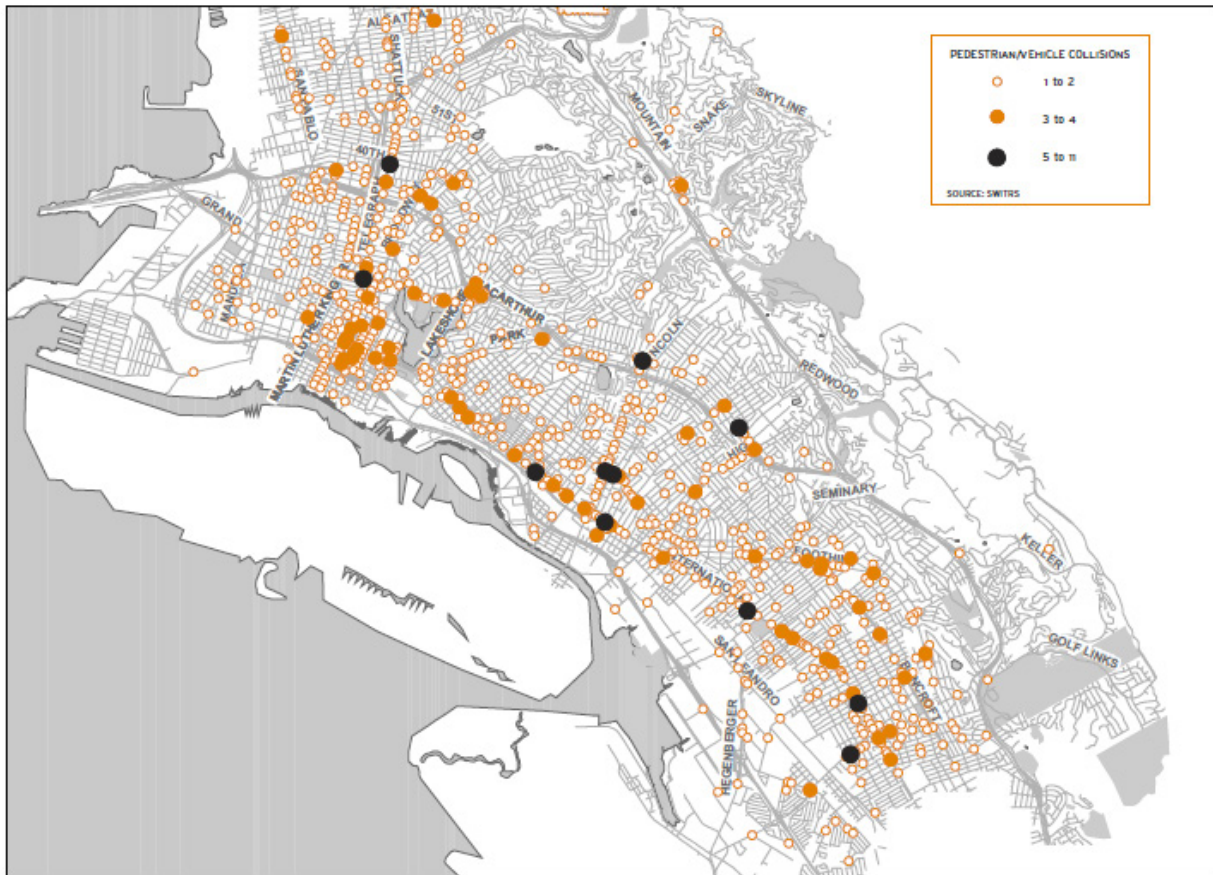
**Table A-1:** NHTSA Fatality Analysis Reporting System, 2011 (NHTSA 2013a)

## Appendix B. Location Selection Example: Oakland, California

Planners can use several approaches to decide where to conduct pedestrian safety enforcement operations. One such approach is to map pedestrian crash incidence.

For example, the City of Oakland developed a Pedestrian Master Plan in 2002 (available at [www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak025012.pdf](http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak025012.pdf)). As a part of this planning process, Oakland mapped available data on pedestrian and vehicle crashes, using data from the Statewide Integrated Traffic Records System (SWITRS), collected by the California Highway Patrol. The map below (see Figure A-3) shows Oakland pedestrian crashes, using a series of colored circles to indicate the number of crashes. A map such as this allows planners to target activities in high-risk areas.

As a part of its analysis, Oakland also looked at the causes of pedestrian crashes, the times of day when crashes are most likely, and where certain populations were most likely to be injured (including children and senior citizens).



MAP 1 PEDESTRIAN/VEHICLE COLLISIONS—OAKLAND (1996-2000)

Figure A-3: Map of Pedestrian Crashes in Oakland (Mayne et al., 2002)

## Appendix C. Sample Letter to Partners

Dear Public Safety Partner:

We are writing to encourage you to join our efforts to improve pedestrian safety in our community. Pedestrians are one of the most at-risk groups of roadway users. According to a 2014 National Highway Traffic Safety Administration (NHTSA) report, pedestrians accounted for 14 percent of all traffic fatalities, making pedestrian safety a significant traffic safety issue. NHTSA also reported that in 2012 alone, 4,743 pedestrians were killed and approximately 76,000 pedestrians were injured in traffic crashes in the United States.

Many serious collisions involving pedestrians occur at crosswalks, and a driver's failure to yield the right-of-way is one of the main contributing factors, while illegal and unsafe pedestrian behaviors also contribute.

Enforcement of pedestrian safety laws has typically been modest, even though compliance with these laws is low. This is changing, however, as jurisdictions of all sizes are adopting pedestrian safety enforcement programs as an effective technique to enhance pedestrian safety.

Now, we are bringing this change to our community. To do so, we are partnering and collaborating with a range of agencies and organizations. Our program's design is based upon NHTSA recommendations for a three-pronged approach of engineering, education, and enforcement.

Our program will include a range of activities, including:

- Crash data analysis and site selections,
- Judicial input,
- Partnering agency and organization input,
- Engineering input and activities, as appropriate,
- Public education and outreach,
- Special law enforcement operations, and
- Program evaluations.

We are looking for collaborating partners to:

- Assist with the design and implementation of various aspects of the program,
- Raise awareness across the community through public outreach, and
- Increase public education about pedestrian safety laws.

I will call you in the next few days to see how we might best work together on this exciting new effort.

Sincerely,

[Program Lead Contact, title, organization]

P.S.: Your organization's special skills and expertise are greatly needed to improve safety and the quality of life in our community. I look forward to working with you!

## Appendix D. Sample Press Releases

### *Sample Pre-Enforcement Press Release*

[AGENCY NAME]  
Press Release

[CONTACT NAME, TITLE]  
[PHONE NUMBER]

FOR IMMEDIATE RELEASE

[DATE]

#### **PEDESTRIAN SAFETY ENFORCEMENT OPERATION BEGINS [DATE]**

[AGENCY JURISDICTION] – As part of its ongoing efforts to improve pedestrian safety in [LOCATION], [AGENCY NAME] will be conducting a [LENGTH OF ENFORCMENT OPERATION] pedestrian safety enforcement operation that will focus on motorists who fail to yield the right-of-way to pedestrians.

Regrettably, since [DATE], [JURISDICTION] has experienced [NUMBER] fatal traffic collisions involving pedestrians. The most recent tragedy occurred on [DATE] when a [GENDER] was struck by an [VEHICLE TYPE] on [ROAD NAME] while crossing the street between intersections. [AGENCY NAME] is committed to preventing these tragic deaths, and is leading the effort with proactive enforcement and education programs.

The Department is conducting this public awareness and enforcement program to educate and encourage members of the community to develop and maintain safe practices while driving, walking and cycling throughout [JURISDICTION].

The [LENGTH OF ENFORCMENT OPERATION] operation will take place on [DATES] at [CROSSWALKS] within [JURISDICTION].

Officers from [AGENCY] will be conducting the enforcement operation at heavily traveled crosswalks. Officers dressed in plain clothes will be crossing the street while uniformed officers monitor the crosswalk for motorists and pedestrians who fail to yield the right-of-way or who take unsafe and illegal actions. Drivers and pedestrians stopped during this safety operation will be issued warnings or citations.

Crosswalk enforcement actions are an effective way to communicate pedestrian right-of-way laws to both drivers and pedestrians. The transportation and police bureaus do enforcement actions in response to community requests and to educate the general public on the rules at marked and unmarked crossings. They are conducted approximately [FREQUENCY].

“This pedestrian safety operation is another tool our department can utilize to improve traffic safety and educate motorists,” said [AGENCY] Chief [CHIEF’S NAME]. “When approaching a crosswalk where

pedestrians are present, drivers must yield the right-of-way. This operation will serve as a reminder of this responsibility and we expect that voluntary compliance will be improved as a result. Those who choose to ignore the law and the message, however, will be deterred from future violations through enforcement. As is the case with any other traffic law, it is easy to avoid a ticket – in this case, simply yield the right-of-way to pedestrians who are in a crosswalk.”

For additional information, please contact [TITLE, such as “Public Information Officer] [NAME] at [TELEPHONE NUMBER].

###



## *Sample Post-Enforcement Press Release*

[AGENCY NAME]  
Press Release

[CONTACT NAME, TITLE]  
[PHONE NUMBER]

FOR IMMEDIATE RELEASE

[DATE]

### **PEDESTRIAN SAFETY ENFORCEMENT OPERATIONS YIELD SAFETY IMPROVEMENTS**

[AGENCY JURISDICTION] – As part of its ongoing efforts to improve pedestrian safety in [LOCATION], [AGENCY NAME] has conducted a [LENGTH OF ENFORCMENT OPERATION] pedestrian safety enforcement operation that focused on motorists who failed to yield the right-of-way to pedestrians.

Pedestrian safety is a key issue in our community, and [AGENCY NAME] is committed to upholding pedestrian safety laws to protect our citizens.

Most recently, on [DATE], a pedestrian enforcement and education program was conducted which specifically focused on drivers and pedestrians who were violating right-of-way laws. As a result of this program, [NUMBER] citations were issued, [NUMBER] vehicles were towed, [NUMBER] arrest warrants were served, and an untold number of citizens were educated.

[AGENCY] strongly encourages members of the community to follow basic safe practices:

- Drivers should be on the lookout for and stop for pedestrians.
- Drivers should stop for pedestrians in a crosswalk and stay stopped until the pedestrian is two traffic lanes away or has reached the sidewalk.
- Pedestrians should use a crosswalk when crossing the street and obey pedestrian signals.
- Pedestrians should look both ways for traffic before crossing and ensure cars are yielding before crossing. Remember that having the right-of-way does not prevent you from being seriously injured by a driver who is not paying attention. Traffic safety is everyone's personal responsibility.
- Pedestrians should wear bright colored, reflective clothing and use a flashlight when walking during hours of darkness. Be visible!

[AGENCY NAME] is committed to doing our part to keep the community safe. We urge every member of the community to help by keeping themselves safe and following basic rules of the road.

For additional information, please contact the [AGENCY NAME]'s [TITLE] [NAME] at [TELEPHONE NUMBER].

###

## Appendix E. Sample Operations Plan

**EVENT:** [NAME OF EVENT]  
**LOCATION:** [LOCATION]  
**DATE AND TIME:** [DATE AND TIME]

### I. OPERATION PURPOSE

The purpose of this operation is to reduce the number of pedestrians struck by vehicles in crosswalks as well as to reduce the severity of crashes involving pedestrians. To accomplish this, we will be educating the public, enforcing statutes, and partnering with the local media.

The Motor Vehicle Code that corresponds to this effort is \_\_\_\_\_, which states:

---



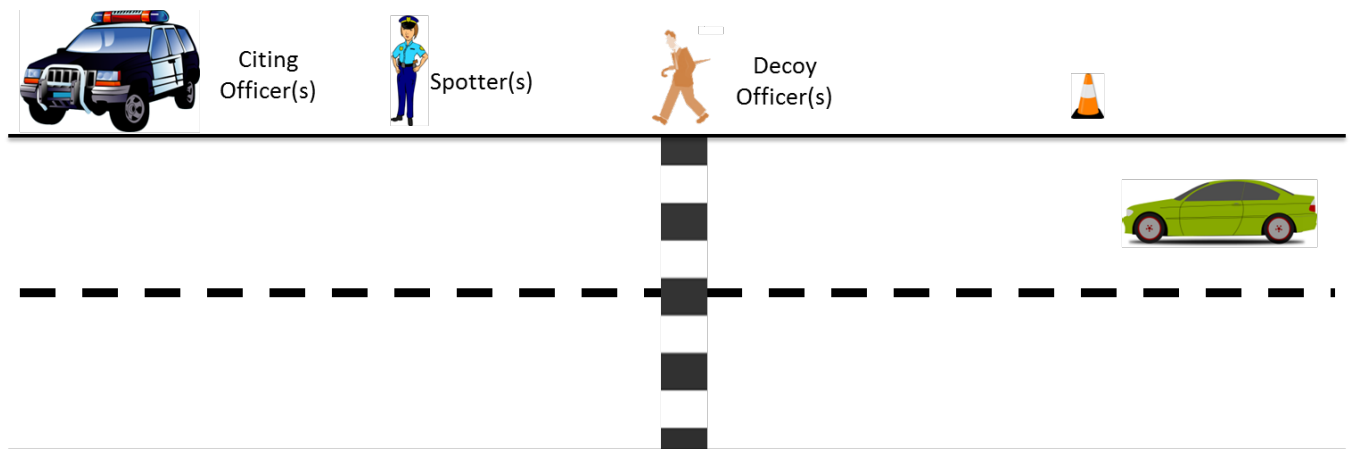
---

### II. LOGISTICAL INFORMATION AND OPERATION

A cone is placed along the edge of the road at a pre-determined distance from the crosswalk. The distance from the cone to the crosswalk allows for a safe stopping distance, calculated by assuming a vehicle is traveling 10 mph above the posted speed limit, and assuming a 2 second driver reaction time. The chart below contains the calculated safe stopping distance for cars based on posted speed limit.

Posted Speed Limit	Safe Stopping Distance
Posted 20 mph speed limit	131 Feet
Posted 25 mph speed limit	162 Feet
Posted 30 mph speed limit	193 Feet
Posted 35 mph speed limit	229 Feet

An example of the crosswalk layout is pictured below:



The decoy officer will enter the crosswalk when an approaching motor vehicle's front bumper reaches the cone. The distance from the cone to the crosswalk is a distance that should allow the motorist ample time to easily see the pedestrian and to stop safely in order to yield the right-of-way to the pedestrian in the crosswalk.

Patrol units must be in a position to see the crosswalk and monitor the target vehicles' speed by radar or LIDAR, if possible. Spotters may be used (where permissible) to observe and call-in violations, in which case, patrol units may be positioned further down the roadway.

Violators should be stopped by the citing officer and given a citation, verbal warning or written warning. Citing officers should take into account the violator's speed, the proximity of the pedestrian to the violator's vehicle, and the violator's driving history. Pedestrians engaged in unsafe behaviors may be cited at the officer's discretion.

### **III. DETAILED ENFORCEMENT INFORMATION**

- A. Officer in Charge: \_\_\_\_\_
- B. Number of officers involved: \_\_\_\_\_
- C. Placement of enforcement officers:
  - a. Decoy officer: to decoy as a pedestrian in the crosswalk
  - b. Citing officer: for traffic stops
  - c. Spotters: to observe violations
- D. Communications: Spotters will have a radio, to help identify any violating drivers to officers in vehicles. Officers will use channel \_\_\_\_ through the course of the operation.
- E. How officers are dressed:
  - a. Decoy officers: brightly-colored plain clothes that do not restrict movement or an appropriate disguise (e.g., to make the officer appear elderly)
  - b. Citing officers in patrol units: in uniform
  - c. Spotting officers: in uniform
- F. Equipment needed:
  - a. A measuring wheel or laser radar to measure distance from crosswalk to cone
  - b. Traffic cones or other markers to indicate the safe stopping distance
  - c. Hand-held radios, with a predetermined frequency for communications
  - d. Clipboards and data collection sheets
  - e. A radar/LIDAR unit to record speeding infractions (optional)
  - f. A video camera to record infractions (optional)
  - g. Signs or other notices to alert drivers (optional)
  - h. Handouts or materials for drivers describing traffic laws and local pedestrian safety issues (optional)
  - i. Signs (optional)

Signs (if used) will be posted at this location: \_\_\_\_\_

- G. Considerations for issuing citations vs. warnings:**
  - a. For motor vehicles operators
    - i. Violator’s speed
    - ii. Proximity of pedestrian to the violator’s vehicle
    - iii. Violator’s driving history
  - b. For pedestrians
    - i. Egregious violations with a high potential for injury or death such as entering the roadway when an approaching vehicle does not have adequate time to safely stop or interfering with traffic at a controlled intersection by crossing at an inappropriate time or crossing against a “don’t walk” signal

**IV. ADDITIONAL SAFETY CONSIDERATIONS**

The Department should not perform this operation in inclement weather.

The safety of the decoy officer and the public must remain the focus throughout the course of the operation.

The conduct of the operation may draw the attention of the media and/or the public. The Officer in Charge must ensure that the presence of media or the public does not compromise the safety of the operation. The media may be directed to observe the operation from a designated location. The Officer in Charge may elect to terminate the operation.

The Department may choose to not test the stopping distance of certain large trucks or buses.

[Where state law allows] The Department may choose to position a video camera to monitor the crosswalk during the enforcement operation. This video camera would be functionally identical to a patrol car’s dashboard camera.

**V. EVALUATION, MEASUREMENT, AND CRITIQUE**

Information which profiles the crosswalk will be recorded and retained:

- A.** Speed Limit: \_\_\_\_
- B.** Signalized or unsignalized intersection? \_\_\_\_
- C.** Mid-block crossing? \_\_\_\_
- D.** Is there a marked crosswalk? \_\_\_\_
- E.** Is this a high-risk location? \_\_\_\_
- F.** Is this a high-volume location? \_\_\_\_
- G.** History of pedestrian collisions? \_\_\_\_\_
- H.** Number of violating/non-violating drivers: \_\_\_\_\_

Statistical data will be compiled by \_\_\_\_\_.

**VI. TARGET LOCATION**

The targeted location will provide an unobstructed view of the crosswalk from both directions of travel.

Specific locations are selected based on community input and history of violations and/or pedestrian crashes.

**VII. EDUCATIONAL COMPONENT (OPTIONAL)**

The Department will prepare educational brochures for the public. These brochures will remind drivers of the need to yield to pedestrians in crosswalks. Citing officers will provide these brochures to drivers who are stopped. Copies will be provided to the media.

The brochures will mention local children and adults who were struck in crosswalks, highlighting the need for drivers’ cooperation in keeping our streets safe.

Officers should be provided with talking points at the pre-operation briefing to educate violators and passersby.

**VIII. PUBLIC AFFAIRS (OPTIONAL)**

The Department will partner with local media to educate the public about this operation, and to remind the public about safety issues with crosswalks. For example: “Last year, our jurisdiction saw \_\_\_ pedestrians struck by vehicles in crosswalks. Of those, \_\_\_ people were severely injured and \_\_\_ died.”

The Department will conduct a pre-operations press event to inform the public of an upcoming operation and its purpose.

The Department will work with the media to ensure they can observe and report on the operations in a safe manner.

The Department will conduct a post-operation press event to document the warnings and citations, remind the public about the important safety issue, and indicate operations will repeat in the near future.

The Department will leverage its efforts by publicizing the operations in social media outlets.

**IX. LEGAL PRECEDENT**

This protocol has been authorized by \_\_\_\_\_

Judicial Point of Contact for this operation: \_\_\_\_\_

-and/or-

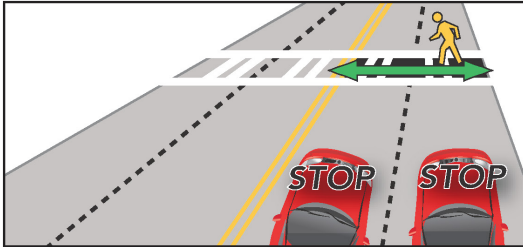
This protocol has been previously used by \_\_\_\_\_

## Appendix F. Sample Educational Material

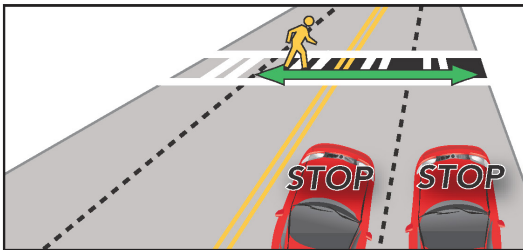
The following samples have been distributed to alert pedestrians and drivers to crosswalks safety laws.

### WHAT GEORGIA DRIVERS MUST KNOW ABOUT PEDESTRIANS

**PEDESTRIAN + CROSSWALK = STOP**, even if the pedestrian is not in your lane.

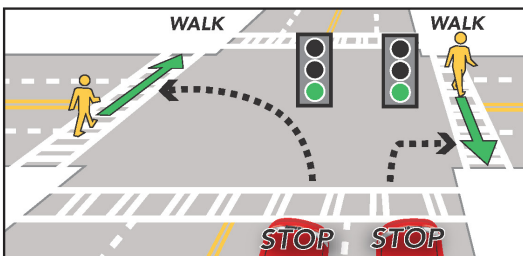


**STOP for a pedestrian** in a crosswalk when the pedestrian is anywhere on your side of the road. **Side of the road** means all lanes of traffic going in one direction.



**STOP for a pedestrian** in a crosswalk when the pedestrian is approaching and in the lane next to your side of the road.

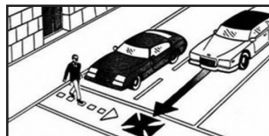
#### TURNING DRIVERS STOP, EVEN ON GREEN



Before turning right or left on a green light, **STOP for pedestrians**. They have the right of way.

#### NEVER PASS A CAR STOPPED AT A CROSSWALK

A pedestrian may be crossing and hidden from your view. When stopping for a pedestrian, stop far behind the crosswalk so that other drivers can see the person crossing.



### COMMON DRIVER VIOLATIONS

#### FAILING TO STOP FOR PEDESTRIANS



Georgia law requires you to stop for a pedestrian in the crosswalk, even when the pedestrian isn't in your lane.

#### TURNING BEHIND OR IN FRONT OF PEDESTRIANS IN A CROSSWALK



You must stay stopped until the pedestrian has finished crossing the side of the road onto which you're turning. Don't bully pedestrians with your vehicle. They have the right of way. Never turn into a crosswalk when pedestrians are still using it.

#### BLOCKING THE CROSSWALK



Always stop behind the crosswalk, not in it. Blocking the crosswalk with your vehicle forces pedestrians into moving traffic.

(Georgia Codes referenced: §40-6-91(a) and §40-6-21(a))



gahighwaysafety.org

Figure A-4: Georgia Highway Safety Crosswalk Brochure

## Everyone is a pedestrian at some point each day!

Pedestrians accounted for an average of 14% of traffic fatalities from 2008 through 2010 in Oregon. For 2008-2010, an average of 660 pedestrians were injured and 51 killed in motor vehicle crashes.

Oregon's streets and highways are busy – roadways that must be shared by drivers and pedestrians alike.

The majority of driver errors in motor vehicle-pedestrian crashes are a failure of drivers to yield to the pedestrian. And half of the pedestrians who are struck by vehicles are hit while they are in a crosswalk.

Pedestrians and motorists both share in the responsibility of pedestrian safety. However, under Oregon law, drivers have specific responsibilities.



## Safety Tips

- Remember, under Oregon law there is a crosswalk at every intersection.
- Do not pass a vehicle stopped at a crosswalk. A stopped car may be a clue that a pedestrian is crossing. When stopping for a crosswalk on a multi-lane road, you should stop about 30 feet before the crosswalk so you don't block visibility to a driver in a second lane.
- When stopping at an intersection, do not block the crosswalk. This forces pedestrians to go around your vehicle and puts them in a dangerous situation.
- Watch for pedestrians, especially children, when exiting driveways or when backing out of parking spaces in parking lots.
- Pedestrians move at different speeds. Be alert for children who may suddenly dart into the street. Be patient with older adults who take extra time to cross the street.
- Around taverns and bars, be alert for people with slowed reaction times or impaired judgment.
- Be alert for people or animals during low-light conditions, especially in areas where they are likely to cross the road, or you might not see them until it is too late to stop.

Transportation Safety – ODOT

<http://www.oregon.gov/ODOT/TTS/>

Form # 737-3424 REV (10-2011)

Stock # 330504

## What you need to know about Oregon Crosswalk Laws



---

**The safety  
of pedestrians is in  
your hands.**

---

Figure A-5: Oregon Department of Transportation Crosswalk Brochure (pg. 1)



### What's the problem?

Oregon's crosswalk laws were written to provide a buffer of safety for pedestrians on the roadway.

In collisions with cars, pedestrians are always the losers. Studies show a pedestrian hit at 40 mph has an 85% chance of dying.

When you choose to drive, you are responsible for a lethal machine.

### What's the law?

A crosswalk<sup>1</sup> exists at any public street intersection, whether marked with paint or unmarked. Crosswalks also exist between intersections (mid-block) only if they are marked with white painted lines.

Under Oregon law<sup>2</sup>, a pedestrian is crossing the roadway in a crosswalk when any part or extension of the pedestrian, including but not limited to any part of the pedestrian's body, wheelchair, cane, crutch or bicycle, moves into the roadway in a crosswalk with the intent to proceed. A driver has specific duties to a pedestrian in a crosswalk.

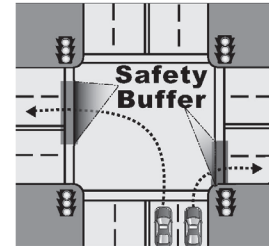
When turning at a traffic signal, drivers must:

- Stop and remain stopped for pedestrians until they have cleared the lane into which your vehicle is turning and at least 6 feet of the next lane.

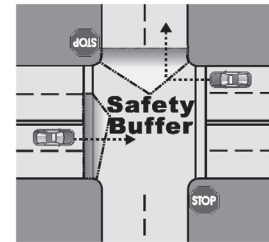
At any other crosswalks - whether marked with paint or unmarked - drivers must:

- Stop and remain stopped for pedestrians until they have cleared the lane in which you are traveling (or into which you are turning) and the next lane.
- Stop and remain stopped for students as you are directed by a crossing guard.
- Stop and remain stopped for a blind pedestrian using a white cane or a guide dog until the pedestrian is completely across the roadway.

If a pedestrian is in a safety buffer when the vehicle enters the crosswalk, the driver may be cited for a fine over \$200.



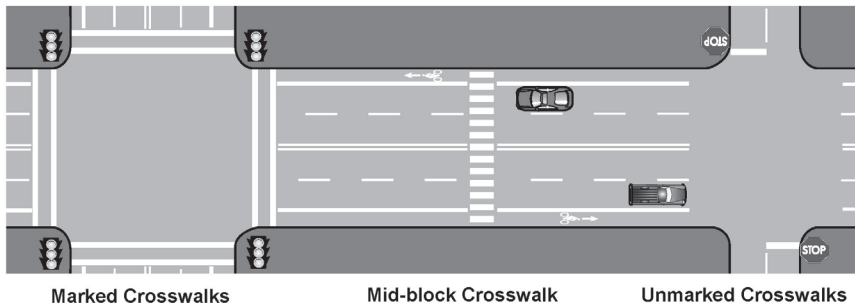
When turning at a signal, it's your lane plus six feet: Stop for the pedestrian, who must clear the lane into which the vehicle is turning and at least 6 feet of the next lane, before you proceed.



At any other crosswalk, it's your lane plus the next lane: Stop for the pedestrian, who must clear the lane in which the vehicle is traveling or turning and at least the next lane, before you proceed.

### Be prepared

Oregon laws<sup>3</sup> affect pedestrians, too. Pedestrians are required to obey traffic signals and walk safely. But, pedestrians are unprotected and vulnerable. You, as the driver, can prevent terrible injury by being prepared to stop and yield no matter who has the right of way. Saving a life is worth your time.



1 - ORS 801.220    2 - ORS 811.005-811.065    3 - ORS 814.010, 814.020, 814.040

Figure A-5: Oregon Department of Transportation Crosswalk Brochure (pg. 2)



Print Name: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Officer Badge # \_\_\_\_\_  
Initials: \_\_\_\_\_

**PEDESTRIAN WARNING!**

## Pedestrian Crossing **WARNING!**

The City of Bethlehem's Health Bureau and Police Department are collaborating to educate and enforce Pennsylvania's pedestrian crossing laws.

### Pedestrian Responsibilities

- X Give drivers enough time and room to stop safely before stepping off the curb.
- X Never step off the curb without looking both ways first.
- X Use the crosswalks. Push the button and wait for the pedestrian walk signal to cross.
- X Crossing in the middle of the block is not recommended, nor is it safe- if you do and the driver has to brake for you **YOU ARE IN VIOLATION!**

*The Pedestrian Must Yield to Vehicular Traffic at All Times  
Unless You are Already Established in the Crosswalk*



## **Right-of-way of Pedestrians on Crosswalk**

- X PA MVC 3542-When traffic control signals are not in place or not in operation, the driver of a vehicle shall yield the right-of-way to a pedestrian crossing the roadway within any marked crosswalk or within any unmarked crosswalk at an intersection.

## **Pedestrians Crossing at other than Crosswalks**

- X PA MVC 3543-Every pedestrian crossing a roadway at any point other than within a crosswalk at an intersection or any marked crosswalk shall yield the right-of-way to all vehicles upon the roadway.

*Persons in violation will be subject to fines.*

Figure A-6: Bethlehem Crosswalk Safety Brochure

## Check your vital signs

Local police are enforcing pedestrian laws

Obey speed limits
Stop for pedestrians
Wait for the walk
Use crosswalks

**▶ Drivers:**  
 Motorists in New Jersey MUST stop for pedestrians in a marked crosswalk. Failure to observe the law may subject you to one or more of the following:

- 2 points
- \$200 fine (plus court costs)
- 15 days community service
- Insurance surcharges

(C.39:4-36)

**▶ Pedestrians:**  
 The law is clear, pedestrians must obey pedestrian signals and use crosswalks at signalized intersections. Both carry a \$54 fine for failure to observe the law.

(C.39:4-32 and 33)

**STREETSMART**  
BeStreetSmartNJ.org

## Check your vital signs

Your life is on the line

- ▶ Cross at corners and intersections. Use marked crosswalks where available.
- ▶ Before crossing look left, right, then left again.
- ▶ Use pedestrian buttons and begin crossing the street on the "Walk" signal.
- ▶ Use sidewalks or walk facing traffic where there are no sidewalks.
- ▶ Watch out for vehicles turning right on red.
- ▶ Be visible at night and in inclement weather.
- ▶ Walk sober.
- ▶ Eliminate all distractions.

CLICK ON THE ICON FROM OUR HOME PAGE

**SAFE PASSAGE**

*moving toward zero fatalities*

WWW.NJSAFEROADS.COM

MPI12013

Figure A-7: New Jersey Crosswalk Safety Brochure

## Appendix G. Calculating a Safe Stopping Distance

The safe stopping distance should be marked a specific number of feet from the crosswalk (in both directions, as appropriate). It is based on two conservative assumptions: (1) that the vehicle is traveling 10 mph above the posted speed limit, and (2) that the driver's reaction time is two seconds. The distance reflects the total time to stop, which includes both reaction time and stopping time.

The chart below shows appropriate safe stopping distances for posted speed limits from 15 to 45 mph.

Posted speed (mph)	Assumed speed (limit + 10 mph)	Feet per second (at assumed speed)	Distance to react (2 seconds) (feet)	Distance to stop (feet)	Total safe stopping distance (feet)
15	25	36	72	30	102
20	30	44	88	43	131
25	35	51.3	103	59	162
30	40	58.7	117	76	193
35	45	66	132	97	229
40	50	73.3	147	119	266
45	55	80.7	161	144	305

*Note:* This assumes a street with no grade.

## Appendix H. Sample Operations Checklist

Checklist for pedestrian safety enforcement operations:

- Visually inspect site and ensure conditions are safe for operation.
- Use a measuring wheel/laser radar to measure the safe stopping distance in one or both directions from the crosswalk.
- Mark the safe stopping distance with a traffic cone or other marker.
- Check all handheld radios to ensure they are set to the same frequency for communication.
- Set-up radar/LIDAR unit(s) to measure speed.
- Set-up video camera(s) to record infractions.
- Set-up sign(s) to alert drivers that a pedestrian safety operation is taking place.
- Review roles and assignments for operation.
- Review safe crossing procedures with decoy officer.
- Ensure that decoy officer and citing officer have educational handouts to give drivers/pedestrians.
- Ensure that spotting officer and citing officer have a clipboard/data collection sheet to record infractions.

## Appendix I. Sample Set-Up Diagram

This diagram shows a three-officer set-up for a marked, uncontrolled crosswalk. In this set-up, one officer acts as a decoy officer, one as a spotter, and one as a citing officer. (The operation can be expanded with additional officers, e.g., by adding additional citing officers or spotters to cover more lanes of traffic).

As shown in the diagram (see Figure A-8), a cone marks the Safe Stopping Distance, which is measured using the table in Appendix H. The decoy officer begins to cross by entering 1-2 steps into the crosswalk as the vehicle approaches (but has not yet entered) the safe stopping zone. The spotter is placed at a location to clearly observe the crosswalk, the decoy officer, and approaching traffic. The citing officer is located further down the road, usually out of site. Note, however, that some jurisdictions require the citing officer to personally observe the violation.

# Pedestrian Crosswalk Safety Operation Set-Up Diagram for Posted Speed Limit of 25 mph

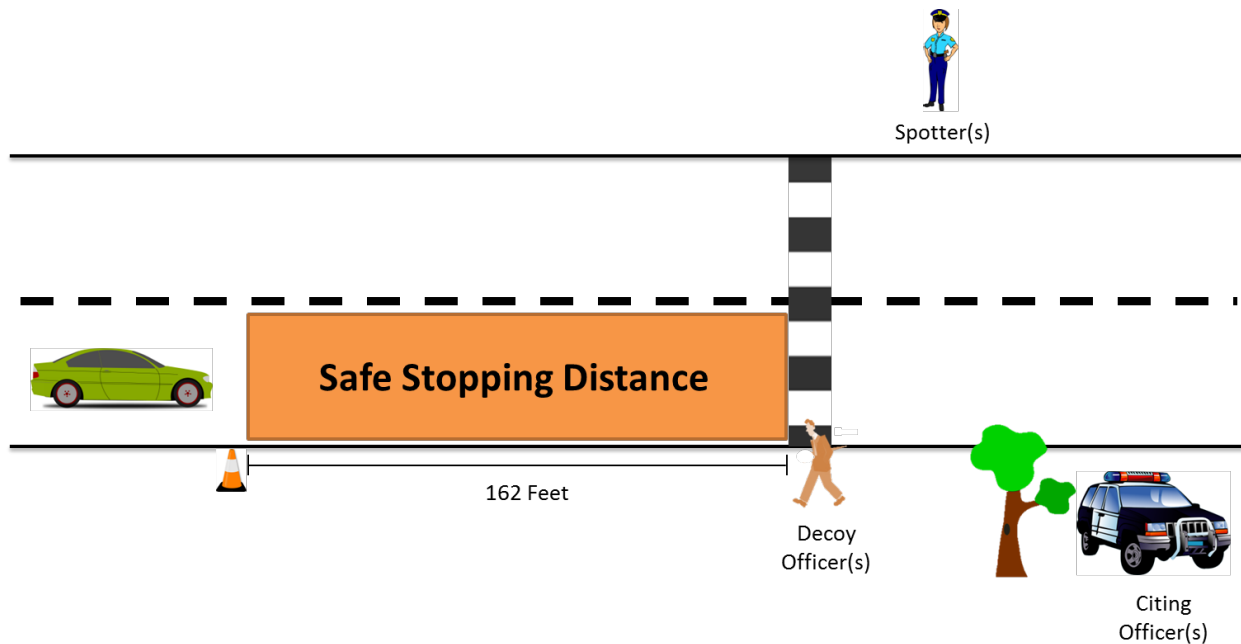


Figure A-8: Set-Up Diagram

## Appendix J. Sample Forms

### *Sample Pedestrian Safety Enforcement Operation Data Collection Form<sup>8</sup>*

#### Pedestrian Safety Enforcement Operation Form

Date of Operation		Crosswalk Marked (y/n)	
Start and Stop Time		Traffic Signal (y/n)	
Location		Pedestrian Controls (y/n)	
Posted Speed Limit		Clear Weather (y/n)	
Citing Officer ID#		Roadway Dry (y/n)	

Time	Direction Travelling	Lane/ Location	Vehicle Description	Violation	Citation Number
<b><i>Driver Violations:</i></b>					
<b><i>Pedestrian Violations:</i></b>					
<b>TOTAL</b>					

**Officer-in-Charge Approval:**

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Comments:**

<sup>8</sup> This sample is based on a form used by the Maryland Highway Safety Office (Maryland Highway Safety Office, 2004).

Sample Output Evaluation Forms<sup>9</sup>

**Pedestrian Safety Output Evaluation Form**

<i>Number of Citations and Warnings</i>	Citations	Warnings	Total
<b>Driver Violations:</b>			
• Failure to stop for pedestrian in crosswalk			
• Passing a vehicle stopped for a pedestrian in a crosswalk			
• Failure to stop at a clearly marked stop line			
• Failure to yield right-of-way on green signal			
• Failure to yield on turn on red			
• Other			
<b>Pedestrian Violations:</b>			
• Failure to obey pedestrian "walk" signal			
• Failure to obey pedestrian "don't walk" signal			
• Failure to yield right-of-way to vehicle			
• Crossing intersection diagonally			
• Other			
<b>Other Violations:</b>			
• Speeding			
• DWI/DUI			
• Impaired pedestrian			
• Outstanding bench warrants			
• Other criminal arrests			
• Other			
<b>TOTAL</b>			

<i>Number of Educational Contacts</i>	Driver	Pedestrian	Total
<b>Contacts:</b>			
• Pedestrian safety brochures distributed			
• Positive reinforcements given			
<b>TOTAL</b>			

<sup>9</sup> This sample is based on a form used by the Maryland Highway Safety Office (2004).

*Sample Baseline and Post-Test Evaluation Forms<sup>10</sup>*

**Pedestrian Safety Baseline and Post-Test Evaluation Form**

<b>Date</b>		<b>Crosswalk Marked (y/n)</b>	
<b>Start and Stop Time</b>		<b>Traffic Signal (y/n)</b>	
<b>Location</b>		<b>Pedestrian Controls (y/n)</b>	
<b>Posted Speed Limit</b>		<b>Clear Weather (y/n)</b>	
<b>Observer(s)</b>		<b>Roadway Dry (y/n)</b>	

Crossing Attempt	# of Peds Crossing (a)	# of Vehicles Yielding (b)	# of Vehicles Not Yielding (c)	Driver Passed Stopped Vehicle (d)	Ped Trapped at Center (e)	Vehicle Braked Hard (f)	Evasive Action Driver (g)	Evasive Action Ped (h)
1								
2								
3								
4								
5								
5								
6								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
<b>TOTAL</b>								

See instructions on next page

**Officer-in-Charge Approval:**

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Comments:**

\_\_\_\_\_

<sup>10</sup> This sample is based on a guide developed by Malenfant and Van Houten (2011) and a form used by the Maryland Highway Safety Office (2004).



## Directions for Completing Form

Begin by marking the safe stopping distance in both directions from the crosswalk, using cones or other markers. If pedestrian traffic at the location is not steady, use a decoy officer to ensure a sufficient number of trials. Use the same procedures (and conduct operations at the same time of day) for the baseline and post-test measure.

Score each unique crossing attempt. A crossing attempt starts when a pedestrian has at least one foot in the crosswalk. If a decoy officer is being used, the decoy should only start to cross when an approaching vehicle is outside the safe crossing zone. If decoy officers are not being used, do not score any trials when the pedestrian enters the crosswalk and a vehicle is within the safe stopping zone. If a vehicle is clearly yielding and the next lane is free, the pedestrian should begin to cross.

For roads with a center line, score only the first two lanes of traffic when the pedestrian enters the crosswalk. Once the pedestrian is within one lane of the center line, begin to score vehicles approaching from the opposite direction. If the road has a center median or refuge island, once the pedestrian has reached this point score it as a new crossing attempt, again only scoring if the pedestrian steps into the crosswalk when vehicles are outside the safe crossing zone.

- a) **# of Peds Crossing:** Record the number of pedestrians attempting to cross the street.
- b) **# of Vehicles Yielding:** Record the number of vehicles that yield for each pedestrian (vehicles that slow or stop to allow the pedestrian to safely cross are scored as yielding). Up to two vehicles can yield on a two-lane road, up to four vehicles can yield on a four-lane road.
- c) **# of Vehicles Not Yielding:** Record the number of vehicles that fail to yield for each pedestrian. There is no limit on the number of vehicles that can fail to yield.
- d) **Driver Passed Stopped Vehicle:** If a vehicle has stopped to yield for a pedestrian, and another vehicle either passes it (or attempts to pass it), check this column.
- e) **Ped Trapped at Center:** For a two-way road with at least four lanes, record if a pedestrian is trapped at the centerline (and unable to cross) for more than five seconds. (Do not score if the pedestrian is waiting at a refuge island or center median.)
- f) **Vehicle Braked Hard:** Check if a vehicle brakes hard to avoid a pedestrian or a vehicle stopped for a pedestrian.
- g) **Evasive Action Driver:** Check column if a driver had to take an evasive action to avoid a pedestrian. For example, if the driver has to suddenly stop or swerve to avoid a pedestrian.
- h) **Evasive Action Ped:** Check column if a pedestrian had to take an evasive action to avoid a vehicle. For example, if the pedestrian had to quickly move out of the way (e.g., running, jumping, or moving backward).

## Appendix K. Sources of Additional Information

The following references may be helpful for communities considering pedestrian safety enforcement operations.

### Center for Education and Research in Safety

- Pedestrian Enforcement Training Program: [cers-safety.com/pep.htm](http://cers-safety.com/pep.htm)

### Complete Streets Coalition

- [www.completestreets.org](http://www.completestreets.org)

### Federal Highway Administration

- Office of Human and Natural Environment, Bicycle and Pedestrian Program: [www.fhwa.dot.gov/environment/bikeped/index.htm](http://www.fhwa.dot.gov/environment/bikeped/index.htm)
- Safety Office, Pedestrian and Bicycle Safety: [www.safety.fhwa.dot.gov/ped\\_bike/ped\\_focus/](http://www.safety.fhwa.dot.gov/ped_bike/ped_focus/)
- Pedestrian Countermeasure Policy Best Practice Report: [safety.fhwa.dot.gov/ped\\_bike/tools\\_solve/fhwasa11017/](http://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwasa11017/)
- How to Develop a Pedestrian Safety Action Plan: [drusilla.hsrc.unc.edu/cms/downloads/howtoguide2006.pdf](http://drusilla.hsrc.unc.edu/cms/downloads/howtoguide2006.pdf)
- How to Conduct a Road Safety Audit: [safety.fhwa.dot.gov/ped\\_bike/tools\\_solve/ped\\_rsa/](http://safety.fhwa.dot.gov/ped_bike/tools_solve/ped_rsa/)

### National Cooperative Highway Research Program

- A Guide for Reducing Collisions Involving Pedestrians: [safety.transportation.org/htmlguides/peds/assets/PEguide.pdf](http://safety.transportation.org/htmlguides/peds/assets/PEguide.pdf)

### National Highway Traffic Safety Administration

- Main Pedestrian page: [www.nhtsa.gov/Pedestrians](http://www.nhtsa.gov/Pedestrians)
- Research and Evaluation page: [www.nhtsa.gov/Driving+Safety/Research+&+Evaluation](http://www.nhtsa.gov/Driving+Safety/Research+&+Evaluation)
- Uniform Guidelines for State Highway Safety Programs: [www.nhtsa.gov/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/PedBikeSafety.pdf](http://www.nhtsa.gov/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/PedBikeSafety.pdf)
- Pedestrian Safety Training for Law Enforcement: <http://mcs.nhtsa.gov/index.cfm/product/786/nhtsa-pedestrian-safety-training-for-lawenforcement-cd-rom.cfm>
- Pedestrian Program Training and Assessment: [www.nhtsa.gov/Driving+Safety/Pedestrians/Pedestrian+Safety+Program+Management+Course](http://www.nhtsa.gov/Driving+Safety/Pedestrians/Pedestrian+Safety+Program+Management+Course)
- Data-Driven Approaches to Crime and Traffic Safety: [www.nhtsa.gov/Driving+Safety/Enforcement+&+Justice+Services/Data-Driven+Approaches+to+Crime+and+Traffic+Safety+%28DDACTS%29](http://www.nhtsa.gov/Driving+Safety/Enforcement+&+Justice+Services/Data-Driven+Approaches+to+Crime+and+Traffic+Safety+%28DDACTS%29)
- Law Enforcement Roll Call Video: [mms://trinilearn.wmod.llnwd.net/a607/o1/NHTSA/PedestrianSafety.wmv](http://mms://trinilearn.wmod.llnwd.net/a607/o1/NHTSA/PedestrianSafety.wmv)

### Pedestrian and Bicycle Information Center

- PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System: [www.walkinginfo.org/pedsafe/index.cfm](http://www.walkinginfo.org/pedsafe/index.cfm)
- PBCAT: Pedestrian and Bicycle Crash Analysis Tool: [www.walkinginfo.org/facts/pbcats/index.cfm](http://www.walkinginfo.org/facts/pbcats/index.cfm)
- Pedestrian Enforcement Training: [www.walkinginfo.org/training/pbic/psap\\_webinar\\_06-16-2011.cfm](http://www.walkinginfo.org/training/pbic/psap_webinar_06-16-2011.cfm)

**Public Policies for Pedestrian and Bicycle Safety and Mobility: An Implementation Project of the Pedestrian and Bicyclist Safety and Mobility International Scan**

- [katana.hsrc.unc.edu/cms/downloads/PBSPolicyReview.pdf](http://katana.hsrc.unc.edu/cms/downloads/PBSPolicyReview.pdf)

**United States Access Board**

- [www.access-board.gov](http://www.access-board.gov)

## Appendix L. References

- Beeber, J. (2011). *Potential Countermeasures for Improved Pedestrian Safety: A Report for the Sherman Oaks Neighborhood Council Public Safety Committee*. Los Angeles: SaferStreets L.A. Available at [http://saferstreetsla.org/wp-content/uploads/reports/POTENTIAL\\_COUNTERMEASURES\\_FOR\\_IMPROVED\\_PEDESTRIAN\\_SAFETY.pdf](http://saferstreetsla.org/wp-content/uploads/reports/POTENTIAL_COUNTERMEASURES_FOR_IMPROVED_PEDESTRIAN_SAFETY.pdf)
- Blomberg, R D., & Cleven, A. M. (2006, August). Pilot Test of Heed The Speed, A Program To Reduce Speeds In Residential Neighborhoods. (Report No. DOT HS 810 648). Washington, DC: National Highway Traffic Safety Administration. Available at [www.nhtsa.gov/staticfiles/nti/pdf/810648.pdf](http://www.nhtsa.gov/staticfiles/nti/pdf/810648.pdf)
- Monsere, C., & Coffman, M. T.. (2007, June). "A Strategy for Enhancing Strategic and Focused Traffic Enforcement in Portland, Oregon."Portland, OR: Portland State University. Available at [www.researchgate.net/publication/242528692\\_A\\_Strategy\\_for\\_Enhancing\\_Strategic\\_and\\_Focused\\_Traffic\\_Enforcement\\_in\\_Portland\\_Oregon](http://www.researchgate.net/publication/242528692_A_Strategy_for_Enhancing_Strategic_and_Focused_Traffic_Enforcement_in_Portland_Oregon)
- Goodwin, A., Kirley, B., Sandt, L., Hall, W., Thomas, L., O'Brien, N., & Summerlin, D. (2013, April). *Countermeasures that work: A highway safety countermeasures guide for State Highway Safety Offices*. 7th edition. (Report No. DOT HS 811 727). Washington, DC: National Highway Traffic Safety Administration. Available at [www.nhtsa.gov/staticfiles/nti/pdf/811727.pdf](http://www.nhtsa.gov/staticfiles/nti/pdf/811727.pdf)
- Malenfant, J.E. L., & Van Houten, R. (in press). A Guide for High-Visibility Enforcement of Pedestrian Right of Way. (Draft report). Washington, DC: National Highway Traffic Safety Administration.
- Maryland Highway Safety Office. (2004. "Maryland Pedestrian Safety Law Enforcement Initiative. Annapolis, MD: Author.
- Mayne, M. L., Chang, H., Wong, J. M., Gurley, E/, Hood, H.,Hughes, K., Martinez, J., Landau, N., Costa, A-C., & Gould, L. (2002). Pedestrian Master Plan: The City of Oakland: 154. Oakland, CA: City of Oakland. Available at [www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak025012.pdf](http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak025012.pdf)
- Mitman, M., & Ragland, R. (2002). Crosswalk Confusion: More Evidence Why Pedestrian and Driver Knowledge of the Vehicle Code Should Not Be Assumed. *Transportation Research Record (1)*: 55–63. Available at <https://trb.metapress.com/content/b1kn25n427865535/resource-secured/?target=fulltext.pdf>
- National Center for Statistics and Analysis. (2013a). Pedestrians. (Traffic Safety Facts, 2011 Data. Report No. DOT HS 811 748). Washington, DC: National Highway Traffic Safety Administration. Available at [www-nrd.nhtsa.dot.gov/Pubs/811748.pdf](http://www-nrd.nhtsa.dot.gov/Pubs/811748.pdf)
- . (2013b). 2012 Motor Vehicle Crashes: Overview.(Traffic Safety Facts Research Note. Report No. DOT HS 811 856). Washington, DC. National Highway Traffic Safety Administration. Available at [www-nrd.nhtsa.dot.gov/Pubs/811856.pdf](http://www-nrd.nhtsa.dot.gov/Pubs/811856.pdf)
- Tefft, B. C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death. Washington, DC: AAA Foundation for Traffic Safety. Available at [www.aaafoundation.org/sites/default/files/2011PedestrianRiskVsSpeed.pdf](http://www.aaafoundation.org/sites/default/files/2011PedestrianRiskVsSpeed.pdf)

- Van Houten, R., & Malenfant, J. E. L. (2004). Effects of a Driver Enforcement Program on Yielding to Pedestrians. *Journal of Applied Behavior Analysis* 37 (3): 351–63. Available at [www.ncbi.nlm.nih.gov/pmc/articles/PMC1284509/pdf/15529891.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1284509/pdf/15529891.pdf)
- Van Houten, R., Malenfant, J. E. L., & Rolider, A. (1985). Increasing Driver Yielding and Pedestrian Signaling with Prompting, Feedback, and Enforcement. *Journal of Applied Behavior Analysis* 18 (2): 103–10. Available at [www.ncbi.nlm.nih.gov/pmc/articles/PMC1307998/pdf/jaba00028-0005.pdf](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1307998/pdf/jaba00028-0005.pdf)
- Van Houten, R., Malenfant, J. E. L., Blomberg, R., Huitema, R. D., & Casella, S. (2013). High-Visibility Enforcement on Driver Compliance With Pedestrian Laws. (Report No. DOT HS 811 786). Washington, DC: National Highway Traffic Safety Administration. Available at [www.nhtsa.gov/staticfiles/nti/pdf/811786.pdf](http://www.nhtsa.gov/staticfiles/nti/pdf/811786.pdf)
- Zegeer, C., Stewart, J. R., Huang, H. H., & Lagerwey, P. A. (2001). Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines. (Report No. FHWA-RD-01-075). McLean, VA: Turner-Fairbank Highway Research Center, Federal Highway Administration. Available at <http://ntl.bts.gov/lib/19000/19000/19031/PB2002104240.pdf>
- Zegeer, C. V., Blomberg, R. D., Henderson, D., Masten, S., Marchetti, L., Levy, M. M., ... & Thomas, L. (2008). Evaluation of Miami-Dade Pedestrian Safety Demonstration Project. (Report No. DOT HS 810 964). Washington, DC: National Highway Traffic Safety Administration. Available at [www.nhtsa.gov/DOT/NHTSA/Traffic Injury Control/Articles/Associated Files/810964.pdf](http://www.nhtsa.gov/DOT/NHTSA/Traffic Injury Control/Articles/Associated Files/810964.pdf)
- Zegeer, C. V., Sandt, L., Scully, M., Ronkin, M., Cynecki, M., & Lagerwey, P. (2009). How to Develop a Pedestrian Safety Action Plan. (Report No. FHWA SA 05-12). Washington, DC: Federal Highway Administration. Available at [http://safety.fhwa.dot.gov/ped\\_bike/ped\\_focus/docs/fhwasa0512.pdf](http://safety.fhwa.dot.gov/ped_bike/ped_focus/docs/fhwasa0512.pdf)
- Zegeer, C. V., Stutts, J., Huang, H., Cynecki, M. J., Van Houten, R., Alberson, ... & Hardy, K.K. (2004). *A Guide for Reducing Collisions Involving Pedestrians*. (Vol. 10, Report 500). Washington, DC: Transportation Research Board. Available at [http://safety.fhwa.dot.gov/intersection/resources/fhwasa09027/resources/NCHRP\\_Report\\_500\\_Vol\\_10\\_A\\_Guide\\_for\\_Reducing\\_Collisions\\_Involving\\_Pedestrians.pdf](http://safety.fhwa.dot.gov/intersection/resources/fhwasa09027/resources/NCHRP_Report_500_Vol_10_A_Guide_for_Reducing_Collisions_Involving_Pedestrians.pdf)

DOT HS 812 059  
November 2014



U.S. Department of Transportation  
**National Highway Traffic Safety  
Administration**



[www.nhtsa.gov](http://www.nhtsa.gov)

10971-111314-v4a