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Acknowledgments

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Working Group Individuals:
Barb Alberson – CA Department of Public Health – Injury Section Chief
Wendy Alfsen – California WALKS – Executive Director
Jill Cooper - UC Berkeley Traffic Safety Center – Assistant Director
Peter Eun – FHWA Resource Center – Safety Engineer
Ed Gebing – Office of Traffic Safety – Law Enforcement Liaison
Richard Haggstrom – Caltrans – Pedestrian Program Manager
Ken Kochevar – FHWA California Division – Safety Engineer
Peter Lagerwey – Consultant to FHWA
Tom Mattson – Humboldt County Department of Public Works – Director
Bob Planthold – CA Pedestrian Advisory Committee (CalPED) – Co-Chair
Rudy Umbs – FHWA Resource Center – Safety Engineer

Support From:
Tamara Redmon – FHWA HQ – Pedestrian Bicycle Program Manager
Charlie Zegeer – Consultant to FHWA

Primary Authors
Peter Eun – FHWA Resource Center – Safety Engineer
Ken Kochevar – FHWA California Division – Safety Engineer
Peter Lagerwey – Consultant to FHWA

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Introduction

First it’s very important agencies understand not everything in this template may be applicable to them. N/A may be a common response to many of the sections. So please do not be intimidated by the length of this template when deciding if your agency will want to move forward with this effort.

This template provides local agencies with a simple tool for creating a Pedestrian Safety Action Plan (PSAP) with few resources. The template takes you through a guided process to identify, assess, and develop pedestrian safety policies and practices. It was developed with funding and assistance from the Federal Highway Administration (FHWA) in close cooperation with the University of North Carolina’s Highway Safety Research Center (HSRC), the California State Department of Transportation (Caltrans) and other pedestrian stakeholders including local agencies, research institutions, and pedestrian advocacy organizations.

Why Create a Pedestrian Safety Action Plan (PSAP)

- Safety: Pedestrians make up 11 percent of the fatalities in the United States. To reduce the number of crashes involving pedestrians requires a plan that helps communities focus on countermeasures that have the greatest crash reduction factors. To statistics for your state click this link. [http://safety.fhwa.dot.gov/ped_bike/#facts](http://safety.fhwa.dot.gov/ped_bike/#facts)
- Encourage Walking: Walking saves energy, is good for the environment and promotes public health. To encourage more walking requires a plan that helps communities develop strategies for investing in pedestrian facilities and programs.
- Creating a Great Community: The public is demanding safe, walkable communities. We live in a mobile society where businesses are choosing to locate in the best places to live. Creating a great walking environment is central to economic development and quality of life.

Why Use this Template

- Cost: This template provides communities a way to develop a PSAP at a fraction of the cost of producing a typical, traditional plan. It allows communities with limited resources to move forward without having to wait until they are able to complete a more thorough and comprehensive plan.
- Time: This template can be used to complete a PSAP in a relatively short period of time which will allow communities to quickly move forward with implementation.
- Effectiveness: Because this template focuses on highly effective and proven measures, it allows communities to immediately focus resources on those projects, programs and policies which are most likely to reduce crashes and increase the number of walking trips.

How Items Were Selected and Prioritized For Inclusion in This Template

- Crash Reduction Factors (CRFs): Countermeasures with high CRFs were selected for inclusion in this template. Where available, the CRF is listed for each item included in the template. For more on CRF click the link in the green reference box.

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Cost Effectiveness: The template identifies those high CRF countermeasures that can be universally applied at a reasonable cost.

Public Support: Facilities and programs with high levels of public support were selected for inclusion in this template. Public support for safety programs will only be sustained if we are also creating great communities that encourage walking.

How to Use This Template

To use the template, complete a two step process for each listed item:
1) Identify your current policy, practice or design guideline
2) Assess your current policy, practice or design guideline and then re-write (or write for the first time) as needed. The compilation of the policies then becomes your PSAP.

For each item to be included in the PSAP, aids are provided as appropriate.
1) Picture to illustrate a particular point or countermeasure
2) Crash Reduction Factor (CRF) for countermeasures
3) Proven examples from other communities
4) Web reference for detailed design
5) Cost range

If you already have a PSAP, this template can be used to review, evaluate and update your plan.

Process for Completing the Template

The template was developed with the assumption that some outside assistance will likely (not required) be needed to complete it. Communities may elect to complete the template with their own staff or consultants. In some cases, communities may elect to use the template to make changes to their standard policies and practices without ever completing a formal PSAP.

Typical process for completing a template (includes a one-day training and two-day work session)
1) Prior to the training/work sessions: Identify and write down current policies, practices and design guidelines for each item listed in the template. Technical assistance may be required.
2) Training and work session to complete draft template: Two people are required to lead a guided, three-day training and work session to complete the template. Day one is a workshop on engineering, education and enforcement solutions to reducing pedestrian crashes (may be skipped if participants have already attended another FHWA sponsored course on pedestrian safety). Day two and three are a sit-down session to complete the template. The local agency is expected to provide decision level staff that have a thorough knowledge of their agency and can speak with authority with regard to proposed policy and design changes. The size for the local team should be 7 to 13 people. At a minimum, there should be representation from the following professions: engineering, planning, landscape architecture, public health, law enforcement, and education. Also include a citizen activist and an advocate from the people with disabilities community.
3) After Completion of PSAP: After the two-day work session, the local agency is expected to finalize a draft PSAP from the templates. Upon finalization of the draft, it should receive an outside review prior to adoption.

4) Implementation of PSAP: No plan is successful unless it is carried out into implementation. It is highly recommended that during the work session a discussion takes place on who, how and when the PSAP will be put in-place. Equally important will be to develop a strategy for measuring success over time.

➢ Modification of the template: Local urban, suburban and rural communities may want to modify the template to meet their own particular needs and circumstances. This is welcomed and encouraged as long as the changes meet the basic goals of a PSAP to reduce crashes and encourage more walking.

Color Codes for side boxes

■ = References  ■ = Examples  □ = Fill in response

Technical Assistance

FHWA and the State DOT will have qualified staff and consultants available to assist with the development of PSAPs. Cost to local communities will vary depending on funding availability. Local communities are encouraged to contact their States Local Assistance office, to see about funding availability.
Engineering Countermeasures

This section presents the most commonly used and effective pedestrian crash countermeasures. Each section includes a picture to illustrate a particular point or countermeasure, the crash reduction factor using available information concerning its effectiveness and a web reference for detailed design guidance. The countermeasures follow the outline of Chapter 5 of FHWA’s *How to Develop a Pedestrian Safety Action Plan* manual (order will vary slightly).

There are numerous policy, planning, and design guidelines that transportation planners and engineers can use; however, only a few address pedestrian designs thoroughly. AASHTO has recently published the *Guide for Planning, Design, and Operation of Pedestrian Facilities*. An example of a state pedestrian design guide is Washington Department of Transportation’s *Pedestrian Facilities Guidebook*; one city/regional example is *Planning and Designing for Pedestrians: Model Guidelines for the San Diego Region*. Additionally, FHWA has an excellent publication: *PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System* (FHWA-SA-04-003). The *Manual on Uniform Traffic Control Devices* (MUTCD) should be used for selecting appropriate traffic controls: signs, traffic signals, marked crosswalks, and other pavement markings.

Many of the above-mentioned pedestrian policy, planning, and design guidelines were used to develop the following list of some of the more effective countermeasures in terms of improving pedestrian safety. They should also be used by jurisdictions for guidance to fix spot problems and to update and improve agency design manuals, practices and procedures. The actual countermeasure chosen must fit in the context of a particular roadway.

Design manuals and standard specifications should ensure roadways and intersections are designed to maximize pedestrian safety and access. This includes intersection design, curb radii, marked crosswalks, design speed, number of lanes, signal warrants, transit stop design, sidewalk widths, sidewalk setbacks etc. Updating them can be a fairly big effort but can be done once the crash countermeasures have been identified. To start, it is important to identify existing manuals and specifications.

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**References/Guidance**
- MUTCD
- PEDSAFE
- AASHTO - *Guide for Planning, Design, and Operation of Pedestrian Facilities*
- Washington DOT’s *Pedestrian Facilities Guidebook*
- *Planning and Designing for Pedestrians: Model Guidelines for the San Diego Region*

**Examples**
- Caltrans Deputy Directive 64, 3-26-01

1) Existing transportation-related design manuals and standard specifications
Do you have an inventory of all design manuals, standard specifications, other relevant state and local design guidelines? Yes / No
State existing relevant manuals, standard specifications and other local relevant design guidelines that you use:

2) Proposed
- Assess current design guidelines, policies and requirements in existing relevant manuals, standard specifications and other relevant design guidelines.
- Identify schedule (dates) for routine updating of current manuals, standard specifications and other relevant local design guidelines. In general, pedestrian friendly changes should be made at the same time as other updates.

American Disabilities Act (ADA) transition plans are required in all communities to ensure that all pedestrian facilities will become accessible over time.

1) Existing
- What is the status of your ADA transition plan – date adopted, date revised?
- Are you implementing your ADA transition plan into all your projects and programs as required by ADA? Yes / No
- Do you have clearly defined policies that spell out when maintenance activities trigger ADA requirements? Yes / No
- Do you have a pro-active strategy to make all your facilities ADA compliant over time? Yes / No
- State existing status of your ADA plan; address each of the above questions.

2) Proposed
- Assess each of the following:
  - Status of your ADA transition plan – date adopted, date revised.
  - Implementation of ADA requirements into all your projects and programs.
  - Policies that spell out when maintenance activities trigger ADA requirements.
  - Pro-active strategy to make all your facilities ADA compliant over time.
- State policy for each of the above (at a minimum, a time-line for completing each of the above):

References/Guidance
- Title 28 Part 35.150 Existing facilities (d)
- Transition Plan
- Clarification of FHWA’s Oversight Role in Accessibility

Examples
- City of San Diego, CA ADA Transition Plan
- County of Sacramento, CA ADA Transition Plan
Walking-along-the-road crashes

Paved shoulders provide room for pedestrians to walk away from traffic; they also provide room for bicyclists and increase safety for motor vehicle operators. To be effective paved shoulders should be 6 ft wide or more; 4 ft is considered the minimum acceptable width. Where parking is expected shoulders should be 8 to 10 ft. A painted (thermoplastic preferred) edge line should define the edge of the travel lane next to the shoulder.


References/Guidance/Cost Range
- AASHTO – A Policy on Geometric Design of Highways and Streets Ch. 4 Cross Section Elements - Width of Shoulders
- Pedsafe – Table 1. Recommended Guidelines for New Sidewalk/Walkway Installation

Example
- Allegheny County, PA

1) Existing
   - Do you routinely provide paved shoulders on rural highways and trunk roads? Yes / No
   - If yes, state your existing policy (include width):

2) Proposed
   - Assess your current shoulder installation policies.
   - State proposed shoulder installation policies:
Sidewalks reduce walk-along-the-road crashes by providing positive separation from traffic. Continuous and connected sidewalks are needed along both sides of roadways to prevent unnecessary roadway crossings. Sidewalks should be buffered with a planter strip to increase pedestrian safety and comfort; separation makes it easier to meet ADA requirements for a continuous level passage and for a clear passage around obstacles.

<table>
<thead>
<tr>
<th>Crash Reduction Factor 88% - An Analysis of Factors Contributing to “Walking Along Roadway” Crashes: Research Study and Guidelines for Sideways and Walkways</th>
<th>Examples</th>
</tr>
</thead>
</table>
| References/Guidance/Cost Range | • Boulder, CO  
• University Place, WA  
• Grand Junction, CO |
| • PEDSAFE – Sidewalks and Walkways;  
• PEDSAFE Table 1 Recommended Guidelines  
• City of Seattle – Sidewalk Prioritization _ Policy  
• AASHTO – Guide for the Planning, Design, and Operation of Pedestrian Facilities – Section 3.2 Sidewalk Design | |

1) Existing
   - Do you routinely provide sidewalks on urban and suburban arterials? Yes / No
   - If yes, please state your policy:

   - If so, what is the standard width?

   - Are your sidewalks adjacent to the curb or separated by a planting strip (furniture zone)?

2) Proposed
   - Assess your current sidewalk installation policies.
   - State proposed sidewalk installation policies:
Access management can be achieved through the installation of medians and a reduction in the number of driveways. Both countermeasures limit the number of left turns across sidewalks where pedestrians are vulnerable.

<table>
<thead>
<tr>
<th>Access management policy that is being implemented?</th>
<th>Yes / No</th>
</tr>
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<tbody>
<tr>
<td>If yes, please state your policy:</td>
<td></td>
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</tbody>
</table>

1) Proposed
   ➢ Assess your current access management policies.
   ➢ State proposed access management policies:
Driveways should be designed to look like driveways, not roadway intersections: sidewalks should continue through the driveway, the level of the sidewalk should be maintained, and the driveway should be sloped so that the driver goes up and over the sidewalk (picture on right). Driveways should be away from intersections. The number and width of driveways should be minimized.

1) Existing
- Do you routinely require that driveways be located away from intersections and designed to look like driveways, not intersections? Yes/No
- If yes, please state your policy:

2) Proposed
- Assess your current standard plans for the design of driveways.
- State proposed driveway design guidelines:

References/Guidance/Cost Range
- **PEDSAFE – Driveway Improvements**

Crash Reduction Factor – TBD Research incomplete

Examples
- **Portland, OR**
Illumination greatly increases the driver’s ability to see pedestrians walking along the road at night. Double-sided lighting should be provided along wide arterial roadways; this enables drivers to see pedestrians along the road, who may decide to cross anywhere, anytime.

<table>
<thead>
<tr>
<th>Crash Reduction Factor:</th>
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<tbody>
<tr>
<td>TBD Research incomplete</td>
</tr>
<tr>
<td>Examples</td>
</tr>
<tr>
<td>Santa Monica, CA</td>
</tr>
</tbody>
</table>

Reference/Guidance/Cost Range
- PEDSAFE - Roadway Lighting
- AASHTO Roadway Lighting Design Guide
- Roadway Lighting Revisited – Public Road article

1) Existing
- Do you routinely provide illumination on both sides of the roadway? Yes / No
- If yes, please state your policy:

2) Proposed
- Assess your current standard plans and procedures for providing illumination.
- State proposed design guidelines and installation procedures for illumination for pedestrians walking along the road:

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Crossing the road crashes

Mid-Block Pedestrian accessible crossing islands reduce crashes substantially at uncontrolled locations, especially on busy multi-lane roadways where gaps are difficult to find. A properly designed island breaks an otherwise complex crossing maneuver into two easier steps: a pedestrian looks left, finds an acceptable gap in one direction, crosses to the island, then looks right and finds a second gap.

1) Existing
   ➢ Do you routinely provide pedestrian accessible crossing islands at identified crossing points? Yes / No
   ➢ If yes, please state your policy:

2) Proposed
   ➢ Assess your current policies for installing crossing islands.
   ➢ State proposed crossing island installation policies:

Crash Reduction Factor: 25% to 46%
- Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations

Examples:
- Cathedral City, CA
- Las Vegas, NV

Reference/Guidance/Cost Range
- PEDSAFE – Raised Medians
- Investigation of the Impact of Medians on Road Users
Curb extensions reduce the total crossing distance on roadways with on-roadway parking and increase visibility: the waiting pedestrian can better see approaching traffic and drivers can better see pedestrians’ waiting to cross the road, as their view is no longer blocked by parked cars.

1) Existing
   - Do you routinely provide curb extensions at identified crossing points? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing curb extensions.
   - State proposed curb extension policies:

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**Crash Reduction Factor – TBD Research incomplete**

**Examples:**
- Fort Plain, NY;
- Bellevue, WA;
- Links to projects across country

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**Reference/Guidance/Cost Range**
- The Effects of Traffic Calming Measures on Pedestrian and Motorist Behavior
- Pedestrian Safety Impacts of Curb Extensions: A Case Study
- Walkinginfo.org – Curb Extensions
- FHWA-HRT-04-091: 9.1.2 Provide Curb Extensions
Illumination greatly increases the driver’s ability to see pedestrians crossing the road. Increased lighting should be provided at identified primary crossing points.

### Crash Reduction Factor:
- 42% at midblock locations
- 54% at intersections

### Crossing Locations, Light Conditions, and Pedestrian Injury Severity” by Naved A. Siddiqui, Xuehao Cho, and Martin Guttenplan

### Examples:

1) Existing
   - Do you routinely provide illumination at primary crossing points? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing illumination at primary crossing points.
   - State proposed illumination installation policies:

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**Reference/ Guidance/ Cost Range**

- Informational Report on Lighting Design for Midblock Crosswalks - FHWA-HRT-08-053
- The Influence of Vertical Illuminance on Pedestrian Visibility in Crosswalk

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Popular crossing countermeasures and how to improve them

The public often responds to a tragic pedestrian crash with a call for an immediate solution. Commonly requested solutions include traffic signals, flashers, overcrossings or undercrossings, or marked crosswalks. While these can be effective solutions in certain places, in some instances they are not appropriate or effective.

Traffic signals

The primary purpose of a traffic signal is to assign right-of-way and create gaps in traffic that otherwise would be hard to find. The MUTCD warns against the overuse of signals for a variety of reasons. Inappropriate traffic signals may increase crashes. Traffic signals are expensive, from $70,000 to $300,000 for one intersection, not including any associated road widening.

But in some cases, the only solution to crossing a busy roadway is to install a pedestrian crossing signal. This is especially true in locations where there is no other signal for a quarter of a mile or more in an area with lots of pedestrian activity.

Traffic signals at intersections may be the only way to create a gap for pedestrians to cross busy multi-lane highways with significant volumes. Since it’s difficult to meet MUTCD warrants for a pedestrian signal based solely on existing pedestrian counts, it may be necessary to anticipate how many pedestrians might cross once a signal is installed.

1) Existing
   - Do you install traffic signals based on anticipated pedestrian volumes? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing traffic signals. Determine if there are locations that should have signals but don’t due to current policies.
   - State proposed traffic signal installation policies for pedestrians:

Reference/Guidance/Cost Range
- PEDSAFE – Traffic Signal
- PEDSAFE – Pedestrian signals
- Signalized Intersection – An information Guide
A mid-block, two-stage traffic signal at a crossing island helps reduce impacts on motor vehicle flow while helping the pedestrian cross multi-lane roadways. The pedestrian stops one direction of traffic at a time, and the two crossings are separated with a fenced-in median island.

1) Existing
   - Do you install mid-block, two-stage traffic signals on multi-lane roadways? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing mid-block traffic signals.
   - State proposed mid-block traffic signal installation policies for pedestrians:

Crash Reduction Factor:
TBD Research incomplete

Examples:

Reference/Guidance/Cost Range

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**Overcrossing or undercrossing**

These solutions are appealing because they create complete separation of pedestrians from motor vehicle traffic. However, in practice this rarely occurs because:

a) Overcrossings and undercrossings are expensive and cannot be provided at most locations where pedestrians want to cross

b) Undercrossing are often prone to security problems due to low visibility

c) The out-of-distance travel is so inconvenient many pedestrians will refuse to walk this extra distance and cross at-grade

d) Overcrossings or undercrossings are seldom used, and drivers are frustrated when they see pedestrians crossing in the vicinity of an overcrossing or undercrossing; this in turn increases the risk to pedestrians crossing at-grade

The high cost of an overcrossing or undercrossing makes them impractical for all but a few locations. Overcrossings and undercrossings should only be considered at locations where there are high pedestrian volumes, no other alternatives and topography allows easy access. (river crossings, depressed highway/railways).

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**Crash Reduction Factor:**

- Install pedestrian overpass/underpass: 90%-Fatal/Injury - All crashes – 86%
- Install pedestrian overpass/underpass (unsignalized intersection) All crashes – 13%
- Reference: Toolbox of Countermeasures and Their Potential Effectiveness for Pedestrian Crashes CRF-FHWA-SA-014 May 2008

---

**Reference/Guidance/Cost Range**

- Walkinginfo.org – overpass/underpasses
- PEDSAFE – Overpasses/Underpasses
- FHWA-HRT-04-091: 9.1.6 Grade-Separate Pedestrian Movements

**Examples**

- San Diego, CA
- Boulder, CO
- Phoenix, AZ

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1) Existing

- Do you install separated crossings based on well-defined criteria? Yes / No
- If yes, please state your policy:

2) Proposed

- Assess your current policies for installing over and undercrossings.
- State proposed over and undercrossing installation policies:

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Marked crosswalks alone

It is important to create safe places for pedestrians to cross roadways at regular intervals. Marked crosswalks should only be installed where there is an expectation of a significant (where most people cross may differ on rural, suburban, and rural environments) number of pedestrians such as near a school, park or other generator. Without the associated features mentioned so far (signage, islands, curb extensions, illumination etc.), marked crosswalks on their own do not necessarily increase or decrease the security of a pedestrian crossing the roadway, if placed with the following criteria.

- Two-lane roads: No significant difference in crashes
- Multilane roads (3 or more lanes):
  - Under 12,000 ADT: no significant difference in crashes
  - Over 12,000 ADT without median: crashes marked > crashes unmarked
  - Over 15,000 ADT and with median: crashes marked > crashes unmarked

The study also made the following observations
- Medians reduce crashes by 40 percent
- Pedestrians over 65 are over-represented in crashes relative to crossing volumes
- No evidence was found to indicate that pedestrians are less vigilant in marked crosswalks.

Crash Reduction Factor: Varies from no significant difference to 40% with medians
Examples
- City of Seattle Marked Crosswalk Policy
Reference/Guidance/Cost Range
- Safety Effects of Mark vs. Unmarked Crosswalks at Uncontrolled Locations
- Pedestrian Crosswalk Case Studies

1) Existing
- Do you have a program for evaluating, upgrading and installing marked crosswalks at unsignalized locations? Yes / No
- If yes, please state your policy:

2) Proposed
- Assess your current policies for evaluating, upgrading and installing marked crosswalks at uncontrolled locations.
- State proposed crosswalk policies:
**Textured, Stamped, Colored Crosswalks**

Textured and/or colored crosswalks are another popular request. Things to consider: they are less visible to drivers than white marked crosswalks, they may create maintenance problems, and they are difficult for pedestrians with disabilities to negotiate.

They should only be used at signalized locations and should always include white paint as required in the MUTCD (two-parallel lines, ladder etc).

1) Existing

- Do you have an existing policy on installing textured, colored crosswalks? Yes / No
- If yes, please state your policy:

2) Proposed

- Assess your current policies for installing textured, colored crosswalks
- State proposed policies for installing textured, colored crosswalks:

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**Improving marked crosswalks:** As previously mentioned, marked crosswalks on their own do not necessarily increase or decrease the security of a pedestrian crossing the roadway. However, their safety can be increased with high visibility pavement markings, advanced stop bars and proper signing.

**Using high visibility markings:** This ensures that drivers see the crosswalk, not just the pedestrian. Two parallel lines indicating a marked crosswalk can be almost invisible to the motorist. Ladder style (piano keys) markings should always be used at locations without positive traffic control and are advised at locations with positive traffic control (signals, stop signs).

<table>
<thead>
<tr>
<th>Crash Reduction Factor: TBD Research incomplete</th>
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</thead>
<tbody>
<tr>
<td><strong>Reference/Guidance/Cost Range</strong></td>
</tr>
<tr>
<td>- MUTCD- Section 3B.17 Crosswalk Markings</td>
</tr>
<tr>
<td>- PEDSAFE-Marked Crosswalks and Enhancements</td>
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<tr>
<td><strong>Examples:</strong></td>
</tr>
<tr>
<td>- Fort Plain, NY</td>
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<tr>
<td>- Cambridge, MA</td>
</tr>
<tr>
<td>- Salt Lake City, UT (double ladder)</td>
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<tr>
<td>- New York, NY (Zebra)</td>
</tr>
</tbody>
</table>

1) Existing

- Do you routinely install high-visibility crosswalks? Yes / No
- If yes, please state your policy:

2) Proposed

- Assess your current policies for installing high visibility marked crosswalks.
- State proposed high visibility crosswalk installation and design guidelines:
High visibility crosswalk markings with advance stop bar (or yield line) and signs at uncontrolled intersections help prevent “multiple-threat” crashes on multi-lane roadways: a driver in the curb lane (Car A) stops to let a pedestrian cross, but so close to the crosswalk as to mask a driver in the adjacent lane (Car B) who is not slowing down. Car B does not have time to react and the pedestrian is struck at high speed. The advance stop bar (or yield line) requires Car A to stop back 30 feet (+/-) so the pedestrian can see if Car B is not stopping. This enables the pedestrian to wait, or even pull back if he has started to proceed into Car B’s lane.

1) Existing
   - Do you routinely install advance stop (or yield) bars with signs at crosswalks on multi-lane roadways? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing advanced stop (or yield) bars with signs at crosswalks on multi-lane roadways.
   - State proposed stop (or yield) bar and sign installation and design guidelines:

References/Guidance/Cost Range
- MUTCD Sec. 3B.16 Stop and Yield Lines
- PEDSAFE – Advanced Stop Lines
- FHWA-HRT-04-091: 9.1.3 Modify Stop Bar Location
- Advance Stop Line research
- See also signing in MUTCD

Examples
- Halifax, Nova Scotia

Crash Reduction Factor: TBD Research incomplete

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Stop bars at controlled intersections help keep motor vehicles from encroaching into the marked crosswalk. When combined with ladder style marked crosswalks, they also make it clear that the pedestrian is to walk in the ladder area, not between the stop bar and a parallel line.

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<tr>
<th>Crash Reduction Factor: TBD Research incomplete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference/Guidance/Cost Range</td>
</tr>
<tr>
<td>Examples</td>
</tr>
</tbody>
</table>

1) Existing
   - Do you routinely install stop bars at controlled locations? Yes / No
   - If yes, please state your policy: 

2) Proposed
   - Assess your current policies for installing stop bars at controlled locations.
   - State proposed stop bar installation and design guidelines for signalized locations:

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Proper signing at uncontrolled marked crosswalks increases the driver’s awareness of a pedestrian crossing. Best practice includes an advanced warning sign and a sign with an arrow at the marked crosswalk using MUTCD compliant fluorescent green walking pedestrian signs.

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1) Existing
   - Do you routinely provide MUTCD compliant advanced warning signs and crosswalk signs at pedestrian crossings? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing crosswalk signs.
   - State proposed pedestrian signing installation guidelines:

Crash Reduction Factor: TBD Research incomplete

Reference/Guidance/Cost Range
- PEDSAFE - Signing
- MUTCD Chapter 2 Signs

Examples:
- Bellevue, WA
- Multiple Cities, NY
- Baltimore/Washington International Airport, Maryland
In Street Pedestrian Crossing (flop over), mid-road yield or stop signs at uncontrolled marked crosswalks increase the driver’s awareness of a pedestrian crossing. They are often used at school crossings and other locations with vulnerable populations.

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<th>Crash Reduction Factor: TBD Research incomplete</th>
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<tbody>
<tr>
<td>Reference/Guidance/Cost Range</td>
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<tr>
<td>• MUTCD Section 2B.12 In-Street Pedestrian Crossing Signs (R1-6, R1-6a)</td>
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<tr>
<td>• What effect do in-street crosswalk signs have on drivers?</td>
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<tr>
<td>• Field Evaluation of Experimental “In-Street” Yield to Pedestrian Signs in Madison, Wisconsin</td>
</tr>
<tr>
<td>Examples:</td>
</tr>
<tr>
<td>• Multiple cities NY</td>
</tr>
</tbody>
</table>

1) Existing
   - Do you use removable (flop-over), mid-road yield or stop signs at pedestrian crossings?
     Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing removable signs.
   - State proposed removable installation guidelines:
The **High Intensity Activated Crosswalk (HAWK)** signal uses traditional traffic and pedestrian signal heads but in a different configuration. It includes a sign instructing motorists to "stop on red" and a "pedestrian crossing" overhead sign. When not activated, the signal is blanked out. The HAWK signal is activated by a pedestrian push button or passive pedestrian sensor. The overhead signal begins flashing yellow and then solid yellow, advising drivers to prepare to stop. The signal then displays a solid red and shows the pedestrian a "Walk" indication. Finally, an alternating flashing red signal indicates that motorists may proceed when safe, after coming to a full stop. The pedestrian is shown a flashing "Don't Walk" with a countdown indicating the time left to cross.

### Crash Reduction Factor: TBD Research incomplete

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<thead>
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<th>Reference/Guidance/Cost Range</th>
<th>Examples:</th>
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<tbody>
<tr>
<td>City of Tucson DOT</td>
<td>RSA Case Study Tucson AZ</td>
</tr>
</tbody>
</table>

1) Existing
- Do you use the HAWK signal at pedestrian crossings? Yes / No
- If yes, please state your policy:

2) Proposed
- Assess your current policies for installing the HAWK.
- State proposed HAWK guidelines:
**Intersection geometry:**

Intersection geometry has a profound effect on pedestrian safety as it determines to a large extent whether or not drivers will perceive pedestrians, the length of crosswalks, and the speed of approaching and turning vehicles. Intersection design will determine whether best practices for meeting ADA requirements can be applied. For example, tight curb radii will usually allow for two ramps at each corner as opposed to just one. A tight, square intersection is particularly important for the older driver who may find it impossible to turn his/her head to see motorists coming into the intersection at an obtuse angle.

**Tighter curb radii** benefit pedestrians by shortening the crossing distance, bringing crosswalks closer to the intersection, increasing visibility of pedestrians, and slowing right-turning vehicles. The appropriate radius must be calculated for each corner of an intersection; difficult turns for occasionally occur (for example a large moving truck turning onto a local roadway using a part of another lane).

---

**1) Existing**

- Do you routinely encourage tight radii at urban/suburban intersections? Yes / No
- If yes, please state your policy for arterial to arterial, arterial to non-arterial, residential to residential roadways. Also state design speed:

  ![Existing Diagram](image)

**2) Proposed**

- Assess your current curb radii design guidelines.
- State proposed curb radii design guidelines:

---

**Reference/Guidance/Cost Range**

- **PEDSAFE Curb Radius Reduction**
- **FHWA-HRT-04-091 9.1.1 curb radius**

**Examples:**

- **Bethesda, Montgomery County, MD:**
- **City of Seattle 4.8.2 Design Criteria:**

---

**Crash Reduction Factor:**

TBD Research incomplete
“Lamb/pork-chop” shaped islands between an exclusive right-turn lane and through lanes shorten the crossing distance, reduce pedestrian exposure and improve signal timing. The island enables pedestrians and drivers to negotiate one conflict separately from the others. The island should have the longer tail pointing upstream to the approaching right-turn driver; so drivers approach at close to 90º and are looking at the crosswalk. The crosswalk is placed one car length back from the intersecting roadway so the driver can move forward once the pedestrian conflict has been resolved. The right-turning driver can focus on cross traffic and the pedestrian can focus on cross or through traffic.

![Diagram of Lamb/pork-chop island](image)

1) Existing
   - Do you routinely provide pedestrian-friendly lamb/pork-chop shaped islands (long tail design) at right-turn lanes? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing “lamb/pork-chop” island.
   - State proposed “lamb/pork chop” design guidelines:

---

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Median islands at controlled intersections channelize and slow down left-turning vehicles. However, signalized intersections should be designed to allow pedestrians to cross the entire roadway during a single signal cycle.

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<tr>
<th>Crash Reduction Factor: 25% to 46%</th>
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<tr>
<td>See Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations</td>
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</table>

Reference/Guidance/Cost Range
- PEDSAFE - Raised Medians

Examples
- Cathedral City, CA
- Naples, FL
- University Place, WA
- Tucson, AZ

1) Existing
- Do you routinely provide pedestrian accessible median islands at controlled intersections and are the signals timed so pedestrians can cross in one cycle? Yes / No
- If yes, please state your policy: 

2) Proposed
- Assess your current policies for signal timing and installing median islands at controlled intersections.
- State proposed median installation and design guidelines
Proper curb ramp placement and design ensures that pedestrians cross in crosswalks, close to the intersection, where drivers can see them, and without undue delay. Curb ramps should be aligned with the crosswalk direction of travel which can only be achieved with two ramps at a corner. Ramps (wings not included) must be wholly contained within the marked crosswalk. Poorly placed or oriented ramps force wheelchair users to make long detours and they may not cross in the allotted time at a signalized intersection or they may be crossing outside the crosswalk lines where drivers don’t expect them.

1) Existing
   - Do you routinely provide two curb ramps at all corners of all signalized intersections?
     Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing curb ramps at signalized intersections.
   - State proposed curb ramp guidelines at signalized intersections.

Crash Reduction Factor: TBD Research incomplete

Reference/Guidance/Cost Range
- PEDSAFE – Curb Ramps
- FHWA – ADA memo
- Access Board Public Rights of Way

Examples:
- Austin, TX
- Albany, NY
**Signalized Intersections:**

All signalized intersections where pedestrians are reasonably expected to cross should have the following characteristics.

Pedestrian signal indications ensure pedestrians will know when the signal phasing allows them to cross, and when they should not be crossing. On one-way roadways a pedestrian approaching from the opposite direction cannot see the vehicle signal heads and may not realize an intersection is signalized, nor know when it is safe to cross. Left turn arrows are not visible to the pedestrian.

1) Existing
   ➢ Do you routinely provide pedestrian signal indicators at signalized intersections? Yes / No
   ➢ If yes, please state your policy:

2) Proposed
   ➢ Assess your current policy for installing pedestrian signal indicators.
   ➢ State proposed policy for installing pedestrian signal indicators:

**Crash Reduction Factor:** TBD
Research incomplete

**Reference/Guidance/Cost Range**
- MUTCD – Sec. 4B.03 Advantages and Disadvantages of Traffic Control Signals
- MUTCD – Sec. 4E.03 Application of Pedestrian Signal Heads
- PEDSAFE – Pedestrian Signals

**Examples:**
- Portland, OR

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Marked crosswalks at signalized intersections indicate to the driver where to expect pedestrians and help keep the crossing area clear of vehicles. All legs of a signalized intersection should be marked though considerations should be made where there are no facilities or destinations.

1) Existing
   - Do you routinely provide marked crosswalks on all legs of signalized intersections? Yes / No
   - Please state your policy:

2) Proposed
   - Assess your current policies for marking crosswalks at signalized intersections.
   - State proposed marked crosswalk installation policies for signalized intersections:
A WALK signal long enough to get pedestrians started and a clearance interval long enough to ensure a pedestrian can fully cross the roadway is required by the MUTCD. The new MUTCD is proposing an assumed pedestrian speed of 3.5 feet/second (formerly 4 feet/second). In some states, such as California, 2.8 feet/second is approved for use at locations where there are vulnerable populations.

1) Existing
   - What is your standard? Do you use the variability allowed by the MUTCD based on the characterization of your pedestrians? Yes / No
   - Please state your policy:

2) Proposed
   - Assess your current standards assumed pedestrian walking speed.
   - State proposed signal “walk time” standards:
Location of push buttons placed where a pedestrian who is in a wheelchair or is visually impaired can easily reach them, and that clearly indicate which crosswalk the button regulates. Where a preset cycle operates, push buttons are not needed. Typically, this will be in downtown/central business districts and other areas of high pedestrian use where pedestrians can be expected at every signal cycle.

**Reference/Guidance/Cost Range**
- MUTCD - Section 4E.09 Accessible Pedestrian Signal Detectors

1) **Existing**
   - How do you ensure that pedestrian push buttons are placed where they can be reached?
   - Please state your policy:

   - Do you routinely avoid using pedestrian push buttons in downtown/central business districts and other areas of high pedestrian use? Yes/No
   - Please state your policy:

2) **Proposed**
   - Assess your current policies for installing and locating pedestrian push buttons.
   - State proposed push button installation guidelines:
**Signal timing techniques** to reduce the incidence of crashes that occur while the pedestrian is crossing with the WALK signal include protected left-turn phases, lead pedestrian intervals and pedestrian countdown signals.

Protected left-turn phases that allow pedestrians to cross without interference from left-turning drivers; red (then green) left turn arrows make it clear to drivers they must wait before turning (especially important where there are double right or double left turns).

1) Existing
   - Do you routinely provide protected left turns at signalized intersections? Yes / No
   - Please state your policy:

2) Proposed
   - Assess your current policies for provided protected left turns at intersections.
   - State proposed protected left turn guidelines:

---

**Crash Reduction Factor:**
- 99% for Left turn crashes for vehicles
- TBD Research incomplete for Pedestrians

**Examples**

**Reference/Guidance/Cost Range**
- MUTCD - Section 4D.06 Application of Steady Signal Indications for Left Turns
- FHWA-HRT-04-091: 4.2.2 “Protected-Only” Left-Turn phasing
Lead Pedestrian Interval (LPI) reduces conflicts between turning vehicles and pedestrians when turning vehicles encroach into the crosswalk before pedestrians leave the curb. The LPI releases pedestrians 3-5 seconds prior to the green light for vehicles so pedestrians can enter and occupy the crosswalk before turning drivers enter it.

1) Existing
   - Do you provide a LPI at signalized intersections with known turning conflicts? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing LPIs.
   - State proposed LPI installation guidelines:

Crash Reduction Factor: 5%
Reference Toolbox of Countermeasures and their Potential Effectiveness for Pedestrian Crashes

Reference/Guidance/Cost Range
• PEDSAFE – Pedestrian Signal Timing

Examples:
• Orlando, FL
• St. Petersburg, FL
Pedestrian countdown signals tell the pedestrians how much time is left in the pedestrian clearance interval and encourages pedestrians to finish crossing before the crossing time runs out. It also reduces the number of pedestrians who initiate a crossing too late in the cycle.

Crash Reduction Factor: 25% Reference Toolbox of Countermeasures and their Potential Effectiveness for Pedestrian Crashes

Reference/Guidance/Cost Range
- MUTCD - Section 4E.07 Countdown Pedestrian Signals
  - Proposed for 2009 MUTCD all new installations be countdowns – page 313 item 331

Examples:
- Monterey, CA
- San Francisco, CA

1) Existing
   - Do you provide countdowns at signalized intersections where it would help? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing countdowns at signalized intersections.
   - State proposed countdown signal guidelines:
Other techniques to slow traffic:

Road diets: reducing the number of travel lanes a pedestrian has to cross can be beneficial to all users. A well-documented technique takes a 4-lane undivided roadway (2 lanes in each direction) and reconfigures it to 2 travel lanes, a center-turn lane and 2 bike lanes (without changing the curb lines). The benefits for pedestrians include fewer lanes to cross and slower traffic speeds. The center-turn lane also creates space for pedestrian crossing islands. The bike lanes add a buffer for pedestrians as well as a place for bicyclists to ride. Variations include reducing a multi-lane one-way roadway by one lane; narrowing the travel lanes to slow traffic and create space for bike lanes; or moving the curbs in to narrow the roadway.

<table>
<thead>
<tr>
<th>Crash Reduction Factor - 29% for all types of crashes. Unknown specifically for pedestrians. Ref Toolbox of Countermeasures &amp; Potential Effectiveness</th>
<th>Examples</th>
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<tbody>
<tr>
<td>References/Guidance/Cost Range</td>
<td>El Cajon, CA</td>
</tr>
<tr>
<td>• PEDSAFE – Lane Reduction</td>
<td>• El Cajon, CA</td>
</tr>
<tr>
<td>• Evaluation of Lane Reduction &quot;Road Diet&quot; Measures and Their Effects on Crashes and Injuries</td>
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<tr>
<td>• Road Diets: Fixing the Big Roads</td>
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<tr>
<td>• Road Diet Handbook: Setting Trends for Livable Streets</td>
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</table>

1) Existing
   - Do you routinely consider reducing the number of travel lanes where practical? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for reducing the number of travel lanes.
   - State proposed road diet installation guidelines:
Speed Management Policy - Arterial Roadway Design: high speeds make it harder to avoid a crash, and increase the severity of a crash and the likelihood of a fatality. Speed reduction should be a primary tool in reducing pedestrian crashes. Simply lowering speed limits is usually ineffective. Roadways must be redesigned to encourage lower speeds.

1) Existing
   - Do you have a speed management policy? Are your design standards predicated on slow speeds in urban environments? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current speed management policies.
   - State proposed speed management policies to slow speeds in urban environments:

Crash Reduction Factor:
- See Desktop Reference for Crash Reduction Factors

Reference/Guidance/Cost Range
- FHWA Speed Management Speed Management Strategic Initiative

Examples
-
Speed Limits: Reducing speed is critical to reducing the frequency and severity of pedestrian crashes. While many of the countermeasures suggested in this document will have the effect of managing speed, it is also important to have policies in place that articulate optimal speed limits and objectives for reducing speed. This includes articulating how speeds limits are established.

1) Existing
   ➢ Do you have clearly articulated optimal speed limits; and do you have policies for how speed limits are established? Yes / No
   ➢ If yes, state existing optimal speed limits and policies for how speed limits are established:

2) Proposed
   ➢ Assess your current, stated optimal speed limits and policies for how speed limits are established – are you satisfied with them – are they what you want?

   ➢ State proposed optimal speed limits and policies for how speed limits should be established – could be completely new, a revision of current practices and policies:
Residential Roadway Design: Residential roadways built in the last few decades are often wide and barren, encouraging speeds higher than appropriate such as roadways where children can be expected. Good residential roadway designs are narrow and have on-roadway parking, tight curb radii, short block lengths, buffered sidewalks with roadway trees, short building setbacks, and roadway lights (also see “V. Land Use and Site Design”).

Crash Reduction Factor: TBD Research incomplete

Reference/Guidance/Cost Range
- How to Develop a Pedestrian Safety Action Plan
  - See chapter 1: Planning & Designing for Pedestrian Safety – The Big Picture

Examples

1) Existing
   - Have you adopted pedestrian-oriented residential roadway design guidelines? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current residential roadway design guidelines.
   - State proposed residential roadway design guidelines:
Traffic calming slows traffic inside neighborhoods. Common techniques include mini traffic circles, speed humps, diverters, chokers, and chicanes to break up long straight roadways. In general, traffic calming treatments which require road users to go side to side (chicanes and mini traffic circles) are preferred over treatments which require motorists to go up and down (speed humps). It is critical that traffic calming treatments be properly located and designed especially for emergency vehicles.

1) Existing
   - Do you routinely consider traffic calming on neighborhood roadways? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for installing traffic calming measures.
   - State proposed traffic calming and design guidelines:

---

**Crash Reduction Factor:** varies by countermeasure
See Desktop Reference for Crash Reduction Factors

**Reference/Guidance/Cost Range**
- PEDSAFE – Traffic Calming

**Examples**
- Sacramento, California
- Clark County, WA (traffic calming and emergency vehicles)
- Village of Great Neck Plaza, New York
**Work-zone related pedestrian crashes:**

Work zones for public and private development must provide for safe and accessible pedestrian routes. Pedestrians should not be forced out into the roadway and detours should not be unreasonably long or inconvenient.

---

1) Existing
   - Do you have policies for providing for pedestrian safety and access in work zones (public and private projects)? Yes / No
   - If yes, please state your policy:

2) Proposed
   - Assess your current policies for pedestrian access in and around work zones.
   - State proposed policies for pedestrians access in and around work zones:

---

**Crash Reduction Factor:**
TBD Research incomplete

**Reference/Guidance/Cost Range**
- Accommodating Pedestrians in Work Zone
- MUTCD Chapter 6D Pedestrian and Worker Safety
- Checklist for Accommodating Pedestrians in Temporary Traffic Control Areas

**Examples**
- Albany, NY
Transit-Related Countermeasures:

Many crashes involve a pedestrian crossing the roadway to access transit. Since pedestrian roadway-crossing solutions are applicable to transit stops, transportation agencies should collaborate with transit agencies to facilitate access and crossing. This is especially important if changes need to be made to the transit system. For example, transportation agencies can provide input on pedestrian patterns (counts) to help transit authorities decide where to place stops for adequate and efficient service, and cooperate in consolidating or adding transit stops as needed. While marking a crosswalk may not be necessarily at all locations; rather, locating stops where it is possible for a pedestrian to cross safely is recommended. This requires coordination between the transit agency and the transportation authority which manages the roadway. This is particularly important in situations where school children use public transport.

Sidewalks or paved shoulders provide pedestrian access to all transit stops. This is required to make them ADA accessible.

Lighting should be provided at or near all transit stop locations to provide additional personal security.

The following policies are recommended:

Location of transit stops is critical for safety and accessibility. Transportation agencies should work with transit agencies to ensure that:

1. Bus stops are easily accessible: a stop should not be moved to a far side location if this location requires a lot of out-of-direction travel for users.
2. Bus stops are located where the driver can easily stop and move back into traffic.
3. Bus stops are located where passengers with disabilities can board the bus.

1) Existing
   - Do you collaborate with transit providers to ensure stops are properly located? Yes
   - Do you collaborate with transit providers to ensure stops have sidewalks to make them accessible? Yes, but there is an identified need to make sure all stops have sidewalk connections throughout the city.

Crash Reduction Factor: Many already discussed. See desktop reference

Reference/Guidance/Cost Range
- How Far, By Which Route, and Why?
- Pedestrian Safety Guide for Transit Agencies
- PEDSAFE - Transit Stop Treatments
- Guidebook for Mitigating Fixed-Route Bus-and-Pedestrian Collisions

Examples

Table of Content
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- Do you collaborate with transit providers to ensure pedestrians can cross the roadway wherever there is a transit stop? Yes
- Do you collaborate with transit providers to provide adequate lighting at transit stops? No

1) Existing
- If yes to any of the above, please state your policy:

2) Proposed
- State proposed guidelines at transit stops for locating, accessing, crossing, and lighting:

Transportation agencies should collaborate with transit agencies to facilitate access and crossing. The collaborating is critical since transit agencies need transportation agency support to make changes to their system. Transportation agencies should:

1. Provide input on pedestrian patterns (counts) to transit agencies for their consideration as they decide where to place stops for adequate and efficient service. Provide cooperation in consolidating or adding transit stops as needed. Transit agencies typically try to improve transit efficiency by minimizing the number of stops while recognizing that stops too far apart may deter pedestrian usage
2. Cooperate with transit agencies to move stops to locations where it is easier to cross the roadway. In general, far side locations are preferred for pedestrian safety, as pedestrians cross behind the bus, and the bus can leave without having to wait for pedestrians to cross. However, there are locations where a nearside stop is safer for operational reasons.
3. At mid-block locations, coordinate with transit agencies to place crosswalks (where warranted) behind the bus stop so pedestrians cross behind the bus, where they can see oncoming traffic; it also enables the bus driver to pull away without endangering pedestrians.
Land Use and Site Design

Land use patterns impact pedestrian crashes. Pedestrian crash severity is higher in suburban, auto-oriented locations where speeds are faster and drivers don’t expect pedestrians. Pedestrian crashes are less severe in established, traditional urban areas where drivers are more aware of pedestrians. Sample land use and site design techniques that encourage more walking and help manage speed and therefore affect crash rates include:

1) **Buildings that define roadways.** Buildings located at the back of the sidewalk give the driver sense of enclosure; buildings set back with large parking lots in front can give the impression of wide high-speed roads.
2) **Mixed-use development:** Buildings with retail on the bottom and housing on the top encourage pedestrian activity.
3) **Roadway connectivity** encourages walking because of the reduced travel distance to reach destinations (cul-de-sacs without connector paths reduce pedestrian connectivity).
4) **Parking** should not be placed between the sidewalk and buildings; on-roadway parking is a very effective way to slow traffic and encourage pedestrian-oriented development.
5) **Access management** principles should be extended to parking: single lots serving multiple stores are preferred over single stores each with its own parking and driveway(s).
6) **School siting** and space requirements should ensure that schools are placed in neighborhoods, have pedestrian access and allow for shared facilities with parks and community centers.

1) **Existing**
   - Have you adopted city codes for future development that create a pedestrian-friendly environment for each of the following?
     - Buildings that define roadways. Yes - focused within the downtown commercial area
     - Mixed-use development. No. City does allow multi-family in commercial districts with a conditional use permit. Typically done on a project by project basis.
     - Roadway connectivity. Yes. Proposed in new subdivision ordinance that every 600 ft there must be a cut through along a sound wall to allow for through traffic. Both internally and externally. Connecting between subdivisions. Also proposed is that culs-de-sac are discouraged.
     - Access management and parking. No formal policy. Looking at it on a case by case basis.
     - School siting. Yes/No. School district trending towards larger schools, K-8 schools, requiring larger acreage and longer distances for students to travel. School district considering expanding new schools based on future development. City and School district have improved communication and are now better coordinating.
   - State your existing policies for each of the above (may need additional sheets):

References/Guidance
- See How to Develop a Pedestrian Safety Action Plan - Chapter 1: Planning and Designing for Pedestrian Safety—The Big Picture
  - Appendix G: Pedestrian-Related Land Use Planning Resources

Examples
-
2) Proposed

- Assess current land-use codes and requirements for each of the above.
- Identify schedule (dates) for routine updating of current codes and requirements listed above. In general, pedestrian friendly changes should be made at the same time as other updates:

**Education and Enforcement**

**Education**

Public education is essential to reduce pedestrian crashes. It also builds public support for programs, projects and policies to reduce pedestrian crashes. To be effective, it must target those behaviors within selected age groups that will most likely result in fewer pedestrian crashes.

**References/Guidance**

- See How to Develop a Pedestrian Safety Action Plan Chapter 5 Education solutions
- Evaluation of the Miami-Dade Pedestrian Safety Demonstration Project
- Traffic Education of Children 4-12 Years Old
- Guidelines for Developing Traffic Safety Educational Materials for Spanish-Speaking Audiences

**Examples**

- Comprehensive School-Age Pedestrian Safety Program Orange County, FL
- Walk Safe Program Miami-Dade County, FL
- Law Enforcement Pedestrian Safety – San Diego, CA

1) Existing

- What are your current education projects and programs for reducing pedestrian crashes?
- Please describe:

2) Proposed

- Assess your current education projects and programs. Are you able to demonstrate that it is reducing crash rates with any age groups?
- State details for proposed changes (if needed).

Partnerships with non-profit groups, the private sector, and other local governmental agencies is an excellent way to get the entire community involved in safety education projects and programs. This includes schools, neighborhood groups, advocacy organizations and local businesses, as well as local health departments, hospitals and public safety officials such as firefighters and other first responders.

*Table of Content*
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1) Existing
   ➢ What are your current partnerships with public and non-profit groups and the private sector to promote education projects and programs for reducing pedestrian crashes?
   ➢ Please describe:

2) Proposed
   ➢ Assess your current partnerships. Are you able to demonstrate that it is reducing crash rates with any age groups?
   ➢ State details for proposed changes:

Enforcement

Enforcement is an essential element of an overall program to reduce pedestrian crashes. To be effective, in must be done in partnership with the community and law enforcement while targeting motorist and pedestrian behaviors that will most likely result in fewer pedestrian crashes.

References/Guidance

• See How to Develop a Pedestrian Safety Action Plan Chapter 5 Enforcement solutions
• Evaluation of the Miami-Dade Pedestrian Safety Demonstration Project
• Law Enforcement Pedestrian Safety - NHTSA
• The Center for Education and Research in Safety (CERS) Enforcement Program
• SRTS “Pedestrian Decoy” Operations

Examples

• Red Light Photo Enforcement, West Hollywood, CA
• Neighborhood Speed Watch Programs, Phoenix, AZ
2) Proposed

- Assess your current enforcement programs. Are you able to demonstrate that it is reducing crash rates with any age groups?
- State details for proposed changes (if needed):

Collaboration with local law enforcement is an essential element of an enforcement program to reduce pedestrian crashes. To be effective, it must be done in partnership with schools and other community leaders.

References/Guidance
- Safe Routes to School - Enforcement

Examples
- Comprehensive Traffic Safety Program for All Age Groups - Solano County, California
- Cross Safely Drive Safely - University of Massachusetts, Amherst, MA

1) Existing

- Do you have a safety committee or other organizational structure that provides a forum for regular and ongoing communication between law enforcement officers, local schools and other community leaders?
- Please describe:

2) Proposed

- Assess your current communication structures. Is there ongoing communication that helps law enforcement focus enforcement on motorist and pedestrian behaviors that reduce pedestrian crashes
- State details for proposed changes (if needed):
Data Collection, Analysis and Prioritization

Identifying where crashes occur can be an inexpensive easy way to identify high crash locations, corridors and neighborhoods. It can be done electronically or on a simple pin map that is done by hand. Typically, five years of crash data should be displayed. In rapidly changing areas, three years might be appropriate. In older areas that are not changing, seven years may be appropriate. Once completed, it should be used as a baseline to focus resources and select counter measures.

1) Existing
   - Do you routinely collect pedestrian crash location data and display this on a map? Yes / No; do you use data to focus resources and select counter measures? Yes / No.
   - If yes, state existing practice:

2) Proposed
   - Assess your current practice for collecting and displaying pedestrian crash location data – are you satisfied with them – are they providing you with what you need to identify high crash locations, corridors and neighborhoods? Assess how you use the data.
   - State proposed practice – could be completely new, a revision of current practice or a restating of existing practices.

Computerized, timely, geo-coded pedestrian crash data are extremely useful to determine whether pedestrian crashes are occurring at a) spot locations, b) along corridors, c) in a neighborhood area, d) throughout an entire jurisdiction (poor standard practice such as failing to install pedestrian indicators at signals), or e) among certain populations (e.g., children, older adults). Typically, five years of crash data should be displayed. In rapidly changing areas, three years might be appropriate. In older areas that are not changing, seven years may be appropriate. In addition to crash reports agencies should look at other sources of data such as hospitals. See the references to hospital data in the green reference box.

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Once categorized, this information can be used to select countermeasures, focus resources, and set priorities for engineering, education and enforcement programs.

The data can also be used in crash typing (see web reference to PedSafe Guide). Crash typing categorizes all crashes based on situational and behavioral circumstances and is a way to target countermeasures in engineering, education and enforcement programs at very specific types of crashes.

1) Existing
   - Do you routinely collect and geo-code pedestrian crash data? Yes / No
   - If yes, state existing practice:

2) Proposed
   - Assess your current practices for collecting, geo-coding and analyzing pedestrian crash data. Are you satisfied with them – are they providing complete, reliable information that allows you to make good choices about where focus your resources?
   - State proposed crash data collection and geo-coding procedures – could be completely new, a revision of current practice or a restating of existing practices.

Pedestrian counts along with field observations (e.g., driver yielding, conflicts, and pedestrian assertiveness) can be very useful in understanding pedestrian behavior and in considering the need for facilities. Counts and behavior studies, when combined with crash data, can also provide insights into specific crash causes and potential countermeasures. On-site observations will often reveal behavior patterns that lead to design changes. Before and after counts can be used to measure success which in turn can be used to help secure funding. Pedestrian counts are also important to assess when and where signals, stop signs and marked crosswalks should be installed.

1) Existing
   - Do you routinely collect pedestrian counts and complete crossing observations? Yes / No
   - State existing practice:

2) Proposed
   - Assess your current practices for collecting pedestrian data and how you use pedestrian data. Are you satisfied with them – are they providing good information that is then being used to make design decisions and prioritize projects?
State proposed pedestrian count and observation procedures along with a statement on how the data will be used – could be completely new, a revision of current practice or a restating of existing practices.

Sidewalk inventories help identify system gaps and unsafe conditions. Sidewalk inventories can simply identify where sidewalks do or do not exist. More extensive sidewalk inventories assess the condition of existing sidewalks (frequently done for ADA purposes). When combined with crash data, pedestrian counts, behavior studies and traffic characteristics, they can be very useful in prioritizing locations for improving existing sidewalks, filling in short gaps between existing sidewalks and installing new sidewalks.

It is recognized that completing comprehensive sidewalk inventories can be expensive. When resources are scarce, an alternative approach is to inventory smaller areas focused around schools, neighborhood commercial areas, neighborhood centers and facilities that serve people with special needs.

1) Existing
   - Do you have an inventory of your sidewalks? Yes / No
   - Do you have an inventory of the condition (e.g., width and surface if available) of your sidewalks? Yes / No:
   - State existing practice:

2) Proposed
   - Assess your current practices for inventorying sidewalks. Are you satisfied with them – are they providing information that is then being used to make decisions about where to make sidewalk improvements and install new sidewalks?
   - State proposed sidewalk inventory procedures

Examples
- City of Seattle
- City of Seattle – Policy
- WSDOT Design Manual Ch. 1025 – Pedestrian Design

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Marked crosswalk inventories at controlled, uncontrolled, intersections and midblock locations are needed to establish annual re-marking programs and to work with local transit agencies (wherever there is a transit stop, there needs to be a location to cross the roadway). When combined with crash data, pedestrian counts, behavior studies and traffic characteristics, they can be very useful in prioritizing locations for evaluating the crosswalk and then identifying measures to upgrade and improve the crosswalk. Maintaining an up-to-date inventory of marked crosswalks is particularly important since the majority of pedestrian crashes involve crossing the roadway. ADT (Average Daily Traffic), road widths (number of lanes) and speeds are three of the most important factors to consider when evaluating crosswalks. When combined with actual crash data and pedestrian counts, this information can be very useful in prioritizing locations for making crossing improvements and determining where to install new marked crosswalks.

### Safety Effects of Mark vs. Unmarked Crosswalks at Uncontrolled Locations

**Table 11. Recommendations for installing marked crosswalks and other needed pedestrian improvements at uncontrolled locations.**

<table>
<thead>
<tr>
<th>Roadway Type (Number of Travel Lanes and Median Type)</th>
<th>Vehicle ADT ≤ 9,000</th>
<th>Vehicle ADT &gt;9,000 to 12,000</th>
<th>Vehicle ADT &gt;12,000-15,000</th>
<th>Vehicle ADT &gt;15,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed Limit**</td>
<td>≤ 48.3 km/h (30 mi/h)</td>
<td>56.4 km/h (35 mi/h)</td>
<td>≤ 48.3 km/h (30 mi/h)</td>
<td>56.4 km/h (35 mi/h)</td>
</tr>
<tr>
<td>Two lanes</td>
<td>C</td>
<td>C</td>
<td>P</td>
<td>C</td>
</tr>
<tr>
<td>Three lanes</td>
<td>C</td>
<td>C</td>
<td>P</td>
<td>C</td>
</tr>
<tr>
<td>Multilane (four or more lanes) with raised median***</td>
<td>C</td>
<td>C</td>
<td>P</td>
<td>C</td>
</tr>
<tr>
<td>Multilane (four or more lanes) without raised median</td>
<td>C</td>
<td>P</td>
<td>N</td>
<td>P</td>
</tr>
</tbody>
</table>

C = Candidate sites for marked crosswalks  
P = Possible increase in pedestrian crash risk may occur if crosswalks are added without other pedestrian facility enhancements.  
N = Marked crosswalks alone are insufficient, since pedestrian crash risk may be increased by providing marked crosswalks alone

1) **Existing**  
- Do you have an inventory of your marked crosswalks? Yes / No  
- Do you have ADT, number of lanes and speed information for your roadways? Yes / No  
- State existing practice:

2) **Proposed**  
- Assess your current practices for inventorying marked crosswalks. Are you satisfied with them – are they providing information that is being used to make decision about where to re-mark crosswalks – make other crosswalk improvements? What change(s), if any, need to be instituted to ensure inventories of marked crosswalks are routinely completed and used?  
- Assess your current practices for collecting and using ADT/number of lanes/speed information. Are you satisfied with them – do you have the information and is it being
Lighting Inventory: Providing appropriate lighting at pedestrian crossing locations is one of the most important factors to consider when evaluating and improving crosswalks. A disproportion of pedestrian crashes occurs at night. When combined with actual crash data and pedestrian counts, information about lighting can be very useful in prioritizing locations for making lighting improvements.

1) Existing
   - Do you have lighting information where there are roadway crossings? Yes / No
   - Do you use it to evaluate crosswalks, existing/proposed marked crosswalks? Yes / No.
   - State existing practice:

2) Proposed
   - Assess your current practices for collecting and using lighting information. Are you satisfied with them – do you have the information and is it being used to make decisions about making lighting improvements at crossing locations?
   - State proposed lighting information collection procedures and how the information will be used to make decisions on lighting improvements at crossing locations:

Existing projects and programs should be a listed and described in one place to allow for overall agency coordination and to avoid duplication. Examples include programs to repair sidewalks, install new sidewalks, install new curb ramps, install countdown signals, upgrade crosswalks, implement safe routes to school programs and implement enforcement and education programs.
1) Existing
   - Do you have an inventory of all pedestrian related programs and projects? Yes / No
   - State existing projects and programs (include scope, budget and products):

2) Proposed
   - What change(s), if any, need to be instituted to ensure that you have an updated inventory of current projects and programs?
   - State proposed project and program tracking procedures:

Pedestrian crash data along with other data (described earlier) should always be considered when prioritizing agency projects and programs. This will help ensure that all projects and programs make pedestrian improvements where appropriate. Since most pedestrian infrastructure is built in conjunction with other projects, inclusion of pedestrian crash data when prioritizing projects is of particular importance.

1) Existing
   - Do you routinely consider (include) pedestrian crash data, along with other data, when prioritizing projects and programs? Yes / No
   - If yes, state existing practice:

2) Proposed
   - State proposed practice along with changes needed to make sure that all projects and programs are routinely prioritized based, in part, on addressing pedestrian crashes (could be completely new, a revision of current practice or a restating of existing practices):

Prioritizing pedestrian safety improvements is the final step once all appropriate data has been collected. Priorities should be established based on a variety of factors including safety consequences, cost, travel demand, availability of right-of-way, federal and / or state mandates and public support. Countermeasures can be phased and divided into temporary or permanent improvements. (Note: Many pedestrian improvements can be made in conjunction with other projects regardless of their priority. See section on funding)

1) Existing

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Do you routinely prioritize (rank) pedestrian safety improvements based on crash data, along with other data? Yes / No
If yes, state existing practice:

2) Proposed
Assess your current prioritization practices – are you satisfied with them – are they giving you prioritized lists that you believe will reduce crashes and increase use?
State proposed prioritization criteria:
Public Involvement

Public involvement is another excellent way to get a better product. It also builds public support for programs and policies to reduce pedestrian crashes. To be effective, stakeholders must feel listened to and heard.

1) Existing
   - What is your current policy for involving the public in policies, projects and programs?
   - Please describe:

2) Proposed
   - Assess your current policies for public involvement. Is the public satisfied with them? Has working with the public been a good experience for your agency? Is it producing better outcomes?
   - State details for proposed changes (if needed):

A Pedestrian Advisory Board (PAB) is another excellent way to get a better product. They also build public support for policies, programs and policies to reduce pedestrian crashes. To be effective, stakeholders must be involved in the review of policies, programs and projects.

References/Guidance
• See How to Develop a Pedestrian Safety Action Plan – Chapter 2 Involving Stakeholders
  - Chapter 2 Involving Stakeholders
  - Appendix A: How to Create and Run an Effective Pedestrian Advisory Board
• include sample Resolutions creating a PAB

Examples
•

1) Existing
   - Do you have a PAB that regularly reviews policies, programs and projects? No
   - Please describe:

2) Proposed
   - Assess the creation of a PAB. If you already have a PAB, is there a good working relationship between the PAB and your agency? Is it producing better outcomes?
   - State details for a new PAB (or changes to if there is an existing PAB):
Other governmental agencies are also stakeholders. Building positive, working relationships is essential for coordination on regional planning issues; it also provides a way to coordinate on solving specific problems such as identifying high crash locations where additional enforcement may be needed, and coordinating transit stops with crossing locations.

References/Guidance
• See How to Develop a Pedestrian Safety Action Plan – Chapter 2 Involving Stakeholders

Examples
•

1) Existing
   ➢ Do you routinely coordinate with other agencies on crash data collection and analysis; and implementation of infrastructure and programs (e.g. corridor enforcement focus areas; education in schools located in high crash neighborhoods etc) Yes / No
   ➢ Please describe:

2) Proposed
   ➢ Assess your current practices for working with other agencies.
   ➢ State proposed practices for working with other agencies:

Special interest groups are also important stakeholders. These include business, advocacy and neighborhood groups as well as more broadly representative community leaders. Building positive, working relationships is essential for building support for solving pedestrian safety issues at the neighborhood level.

References/Guidance
• See How to Develop a Pedestrian Safety Action Plan – Chapter 2 Involving Stakeholders

Examples
•

1) Existing
   ➢ Do you routinely coordinate with special interest groups to solve pedestrian problems? Yes / No
   ➢ Please describe:

2) Proposed
   ➢ Assess your current practices for working with special interest groups.
   ➢ State proposed practices for working with special interest groups:
Individual stakeholder involvement is an excellent way to get a better product. Public stakeholders should be viewed as partners who are the on-the-ground scouts who can identify problems, needs and opportunities. To be effective, stakeholders must be involved in a regular, ongoing and systematic way. Additionally, they must be listened to and responded to when they contact your agency.

References/Guidance
• See How to Develop a Pedestrian Safety Action Plan – Chapter 2 Involving Stakeholders

Examples
•

1) Existing
  ➢ Do you routinely provide for individual stakeholder involvement? Yes / No
  ➢ Please describe:

2) Proposed
  ➢ Assess your policies for involving individual stakeholders.
  ➢ State proposed policy for working with individual stakeholders:
Providing Funding

Complete Streets (also called routine accommodation) is the most cost-effective funding strategy for reducing pedestrian crashes and encouraging more walking by including pedestrian improvements in all projects, programs and maintenance activities. The majority of pedestrian infrastructure (including accessibility improvements) is built in conjunction with other projects. This approach allows for significant improvements over time, even if there is no special funding available for pedestrian safety improvements.

<table>
<thead>
<tr>
<th>References/Guidance</th>
<th>Examples</th>
</tr>
</thead>
</table>
| • See How to Develop a Pedestrian Safety Action Plan  
  o Chapter 6 Funding  
  o Appendix D List of Funding Sources  
• SAFETEA-LU General Funding Requirements for Bicycles and Pedestrians  
• SAFETEA-LU | • California Blueprint for Bicycling and Walking: Report to the Legislature, 5-2002 |

1) Existing

- Do you routinely consider pedestrian safety improvements (counter measures from earlier in document) in all projects, programs (e.g. drunk driving campaigns) and maintenance activities? Yes / No
- Do you have adopted complete roadways (streets) and/or routine accommodation requirements? Yes / No
- State existing requirements:

2) Proposed

- Assess your current practices and requirements for including pedestrian safety improvements in all projects, programs and maintenance activities.
- State proposed requirements:

Dedicated funds and set-asides for pedestrian projects allow for immediate action in addressing high crash locations, corridors, and other targeted areas. They can be federal, state or local funds and are often a percentage of another fund.

<table>
<thead>
<tr>
<th>References/Guidance:</th>
<th>Examples:</th>
</tr>
</thead>
</table>
| • See How to Develop a Pedestrian Safety Action Plan - Chapter 6 Funding  
• Funding Sources for Bicycle and Pedestrian Projects  
• CA SHSP  
• Federal - SHSP | • Contact your Caltrans District Local Assistance contact at http://www.dot.ca.gov/hq/LocalPrograms/dlae.htm – look for examples of developer set asides, sale of development rights, local levies etc.) |

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1) Existing
   - Do you have set aside funds that are dedicated to pedestrian safety projects and programs?
     Yes / No
   - Please describe:

2) Proposed
   - Assess your current set aside funding sources.
   - State proposed dedicated funding sources that your department is willing to pursue.
Goals/Objectives/Commitment

Clear goals are needed for a pedestrian plan to be successful in reducing pedestrian crashes and increasing the number of pedestrian trips. They allow for the development of practical and achievable strategies; they also provide a way to measure progress over time.

1) Existing
   - Do you have clearly stated goals for reducing pedestrian crashes and increasing the number of pedestrian trips? Yes / No
   - If yes, state existing policy:

2) Proposed
   - Assess your current goals – are you satisfied with them – are they what you want?
   - State proposed goals – could be completely new, a revision of current goals or a restating of existing goals:

Each Plan also requires specific and measurable objectives designed to reduce the risk factors that lead to crashes as well as to encourage more walking. If recognized and embraced, they help provide the rationale for allocating resources to implement necessary countermeasures.

1) Existing
   - Do you have clearly articulated objectives that can be accomplished by reducing crashes and encouraging walking? Yes / No
   - If yes, state existing objectives:

2) Proposed
   - Assess your current, stated objectives that can be accomplished by reducing crashes and encouraging walking – are you satisfied with them – are they what you want?
   - State proposed objectives – could be completely new, a revision or restating of existing objectives:
Commitment to safety for all modes including pedestrians (pedestrians are included in the definition of “traffic”) should be a top goal and priority of local transportation agencies. Once this commitment is made, it allows transportation agencies to allocate funds in reducing all crash types, including pedestrian crashes.

1) Existing
   - Do you have a clearly stated commitment to safety for all modes in your agency mission statement? Yes / No
   - State existing policy:

2) Proposed
   - Assess your current agency mission statement.
   - State proposed agency mission statement:
Evaluation/accountability

No plan will be successful unless it is implemented and continually evaluated. The following are some measures to consider:

a) Performance measures (benchmarks) evaluate whether a plan is meeting its goals (e.g. to reduce pedestrian crashes and increase walking). In all cases, performance measures must be measurable. Examples include, number of crashes involving pedestrians, number of injuries, number of fatalities (are they going down); and number of people walking (census, counts etc).

b) Infrastructure accomplishments can also be measured (e.g. miles of shoulders constructed; sidewalks built, crosswalks improved, ramps constructed, systems completed, etc.). Measuring infrastructure accomplishments is important though it is not an end in itself and should not be considered successful unless it reduces pedestrian crashes and increases use.

c) Other measurements include sales and events (e.g. walking shoes sold participation in public runs and walks; use of public transit etc.). While less scientific, these measurements give an indication of whether walking is generally increasing.

Evaluation of results ensures that implemented countermeasures are effective in reducing crashes and improving safety; it also helps ensure future funding opportunities if the plan is perceived as a success. Success should be measured against the objectives set forth in the Pedestrian Safety Action Plan – typically to reduce pedestrian crashes by a certain number and/or percentage.

1) Existing
   ▶ Have you established a baseline that can be used to evaluate your efforts to reduce pedestrian crashes and increase the number of pedestrian trips? Yes / No
   ▶ Do you routinely evaluate results of your efforts to reduce pedestrian crashes? Yes / No
   ▶ Please describe:

2) Proposed
   ▶ State proposed evaluation measures (must be measurable)