

Bicycle and Pedestrian Toolbox

Tool	Advantages	Disadvantages	Crash Reduction Factor*	Example
PEDESTRIAN CROSSING TOOLS				
High Visibility Crosswalks (IDOT DISTRICT 1 STANDARD PRACTICE)				
<p>Pavement markings indicate a safe place for pedestrian crossing along a roadway.</p> <p>Typically shown as painted transverse striping on the pavement, highly visible to approaching traffic.</p>	<p>Provides pedestrians with a suitable place to cross a roadway.</p> <p>Helps control pedestrian traffic by guiding pedestrians to cross at specific locations along a traveled way.</p> <p>Warns drivers that pedestrian traffic is expected.</p>	<p>Pedestrians may not adhere to using crosswalk.</p>	<p>18% (ITE Pedestrian Safety Toolbox)</p>	
Pedestrian Countdown Signals (IDOT DISTRICT 1 STANDARD PRACTICE)				
<p>Pedestrian countdown signals indicate the amount of time remaining for pedestrians to safely cross the street. A numeric countdown and conventional pedestrian signal indications are used.</p>	<p>Easily understood by most people. After the "Walk" phase, the signal provides pedestrians with the amount of time in seconds remaining in the flashing "Don't Walk" period.</p> <p>Offers the pedestrian certainty of the duration of the flashing "Don't Walk" phase. Reduces the number of pedestrians in crosswalk when traffic signal changes from green to yellow.</p>	<p>May not be easily understood by school children with limited counting ability.</p> <p>Does not benefit pedestrians with impaired vision.</p>	<p>25% (CMF Clearinghouse)</p>	
Pedestrian Pushbutton Treatments (IDOT DISTRICT 1 STANDARD PRACTICE)				
<p>Pedestrian pushbuttons allow pedestrians to request a pedestrian signal phase by pushing a button. Signals pedestrian intent to cross the street.</p>	<p>Allows a pedestrian to have an active role in whether a pedestrian signal phase is needed.</p> <p>Minimizes delay to vehicles when pedestrians are not present.</p>	<p>Faulty equipment can frustrate pedestrians and promote them to rely less upon pushbuttons in the future.</p> <p>Pedestrians may choose to cross the roadway without activating the phase.</p>	<p>This tool would be used in conjunction with high visibility crosswalks and pedestrian countdown signals.</p> <p>There is no separate CRF for this tool.</p>	

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Grade-Separated Crossing (Local)*				
<p>The separation of pedestrian traffic by either an overpass or underpass.</p>	<p>Eliminates pedestrian conflicts with vehicular traffic, improving pedestrian safety.</p> <p>Reduces potential for vehicular delay.</p>	<p>Some pedestrians may cross the roadway at-grade.</p> <p>Construction often requires extensive right-of-way and modifications to adjacent properties.</p>	<p>Variable (CMF Clearinghouse)</p>	
In-Roadway Warning Lights at Crosswalks (Local)*				
<p>Flashers installed in the pavement along each side of a crosswalk that are activated by push button or automatic detection to notify motorists that a crosswalk is in use. The local agency would be responsible for maintaining the warning lights.</p>	<p>Provides a visual cue to motorists that a crosswalk is in use.</p> <p>May increase visibility in adverse weather, such as rain or fog.</p>	<p>Frequent false calls to the flasher system may result in motorists disregarding this device.</p>	<p>CRF is not available.</p> <p>This tool would be used in conjunction with pedestrian crossing improvements such as countdown signals and high visibility crosswalks.</p>	
Passive Pedestrian Sensor (Local)*				
<p>Detects the presence of pedestrians approaching the curb prior to crossing the street, and then "calls" the Walk signal without any action required by the pedestrian.</p> <p>The local agency would be responsible for maintaining the sensor.</p>	<p>Pedestrians are not responsible for pushing a button to call the Walk signal.</p> <p>Will start or extend a pedestrian phase without pedestrian interaction at a crossing.</p>	<p>Potential for false calls or activation.</p>	<p>CRF is not available.</p> <p>This tool would be used in conjunction with pedestrian crossing improvements such as countdown signals and high visibility crosswalks.</p>	

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Pedestrian Refuge/Pork Chop Island				
<p>Raised barrier median areas or corner "pork chop" islands located between two vehicular travel lanes that provide a place for pedestrians to wait for a safe time to cross or until a pedestrian "Walk" phase.</p>	<p>Allows pedestrians to cross one portion of a roadway at a time.</p> <p>Divides crossing distance into shorter lengths.</p> <p>Turning traffic is more visible to pedestrians.</p> <p>Pedestrians are more visible to motorists.</p>	<p>Proper snow removal may be impacted by islands.</p> <p>Visually impaired pedestrians may be unaware of refuge islands.</p> <p>May require additional right-of-way.</p>	<p>56%</p> <ul style="list-style-type: none"> (CMF Clearinghouse use) 	 <p style="font-size: small; text-align: right;">Photo: Tamara Redmon, FHWA</p>
SCHOOL ROUTE IMPROVEMENTS				
Sidewalks and Walkways (IDOT DISTRICT 1 STANDARD PRACTICE)				
<p>Pathways intended specifically for use by pedestrians.</p>	<p>Defines a suitable location for pedestrian activity near roadways.</p> <p>Motorists note sidewalks and walkways and consider the potential for pedestrians.</p>	<p>Pedestrians may not use sidewalks.</p> <p>Construction may require additional right-of-way or other roadside modifications.</p> <p>Requires maintenance to prevent trip hazards as pavement settles.</p> <p>Gaps in sidewalks and lack of continuity and connectivity may frustrate pedestrians, discouraging use.</p>	<p>65%-89% (CMF Clearinghouse)</p> <p>Applies only to pedestrian and bicycle crashes.</p>	
BICYCLE IMPROVEMENTS				
Bicycle Path/Shared-Use Path (IDOT DISTRICT 1 STANDARD PRACTICE)				
<p>Shared-use paths are off-road facilities designed to accommodate bicycles and pedestrians. Bicycle paths are intended for bicycle use only.</p> <p>The local agency would be responsible for maintaining the bicycle/shared-use path.</p>	<p>Defines a suitable location for bicycle and pedestrian activity near roadways.</p> <p>Motorists note bicycle and shared-use paths and consider the potential for pedestrians and cyclists.</p>	<p>People may choose to not use the paths.</p> <p>Construction may require additional right-of-way or other roadside modifications.</p> <p>Gaps in paths and lack of continuity and connectivity may frustrate users, discouraging use.</p>	<p>65%-89% (CMF Clearinghouse)</p> <p>Applies only to pedestrian and bicycle crashes.</p>	

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SIGNAGE				
Signs to Prompt Motorists (IDOT DISTRICT 1 STANDARD PRACTICE)				
<p>Signs that visually alert motorists of the potential for pedestrians.</p> <p>The local agency may be responsible for maintaining signs.</p>	<p>Notifies motorists to operate their vehicles with caution and accommodate pedestrian traffic as necessary.</p>	<p>Overuse of signage may negate long-term effectiveness.</p>	<p>These signs are used in conjunction with crosswalks and pedestrian crossing signals.</p> <p>A separate CRF is not available.</p>	
Double-Sided Pedestrian Crossing Signs				
<p>Signs on both sides of the roadway provide additional notice to motorists of a pedestrian crossing.</p>	<p>Provides motorists with greater opportunity to see warning signs indicating the potential for pedestrian traffic.</p> <p>Signage on both sides of the roadway increase visibility for motorists following large vehicles.</p>	<p>Not effective if installed in a location saturated with roadway signage.</p>	<p>CRF is not available.</p>	
Signs to Prompt Pedestrians (Local)*				
<p>Signs instruct pedestrians to use proper techniques to safely cross a roadway.</p> <p>The local agency would be responsible for maintaining this type of signage.</p>	<p>Reminds pedestrians to cross a roadway as safely as possible.</p> <p>Minimizes the potential for pedestrian related crashes by cautioning pedestrians to be mindful of motorists.</p>	<p>Overuse of this sign treatment may decrease its long-term effectiveness.</p> <p>Not effective for visually impaired pedestrians.</p>	<p>CRF is not available.</p> <p>This tool would be used in conjunction with pedestrian crosswalks and signals.</p>	

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AMERICANS WITH DISABILITIES ACT (ADA) IMPROVEMENTS				
Detectable Warning Tiles and Wheelchair Ramps (IDOT DISTRICT 1 STANDARD PRACTICE)				
<p>Textured surfaces that notify visually impaired pedestrians that they are entering or leaving a roadway or driveway crossing.</p> <p>Wheelchair ramps include a smooth transition from a sidewalk to the roadway by sloping the sidewalk until it meets the road elevation. Curbs are depressed to allow for the ramp to meet the roadway.</p>	<p>Detectable warning tiles provide visually impaired pedestrians with tactile information regarding the location of the roadway or driveway.</p> <p>Wheelchair ramps remove the height difference between the top of curb and the roadway.</p>	<p>Wheelchair users may find discomfort driving over the patterned detectable warning tiles.</p> <p>It may be difficult to completely remove snow and ice from the detectable warning tiles.</p> <p>Construction of wheelchair ramps may require additional right-of-way or other roadway or roadside modifications.</p>	<p>These tools are used with other pedestrian crossing treatments.</p> <p>A separate CRF is not available.</p>	
Accessible Pedestrian Signals				
<p>In conjunction with pedestrian signals, Accessible Pedestrian Signals supply audible or vibrotactile information to pedestrians. These are allowed by IDOT only if a need for this treatment can be demonstrated.</p>	<p>Reinforces the visual indications at a pedestrian crossing, ensuring that pedestrians know when it is safe to cross the roadway.</p> <p>Provides information to visually impaired pedestrians.</p>	<p>Ambient noise may decrease the ability to hear audible equipment. Audible signals may become intrusive to surrounding residences or businesses.</p>	<p>CRF is not available.</p> <p>This tool would be used if warranted by visually impaired pedestrians living near the crossing.</p>	

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ROADWAY TREATMENTS				
Driveway Improvements (IDOT DISTRICT 1 STANDARD PRACTICE)				
Improvements include closing driveways, restricting driveway access, reducing driveway radii, narrowing driveways, and providing medians on wide driveways.	Driveways are easier and safer for pedestrians to cross.	Roadway design may need to accommodate increased traffic at specific points due to driveway consolidation or limited access points.	The CRF for number of access points (closing driveways) is included in the Highway Safety Manual. CRF's for the other treatments listed here are not available.	
Narrow Lanes/Reduce Crossing Width				
Narrowed lane widths result in shorter crosswalk length and crossing distance.	Reduces travel distance for pedestrians, shortening travel time and exposure to moving traffic.	Trucks and large vehicles may have a more difficult time traveling.	CRF is not available.	
BEYOND THE ROADWAY				
Eliminate Screening by Physical Objects (IDOT DISTRICT 1 STANDARD PRACTICE)				
Adequate sight distance is maintained so that roadside objects do not block the view of either a motorist or a pedestrian.	<p>Pedestrians are more visible to motorists, and motorists can see pedestrians better.</p> <p>Reduces the likelihood of some crashes.</p>	Proper placement may require additional right-of-way.	CRF is not available.	

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Transit Stop Treatments (IDOT DISTRICT 1 STANDARD PRACTICE)				
<p>Transit stop treatments, such as shelters, provide safe, convenient access to transit users.</p> <p>Shelters placed adequate distances from intersections allow for an adequate sight triangle.</p>	<p>Provides a specific designated location for the loading and unloading of transit passengers along a roadway.</p>	<p>Misplaced transit locations may block pedestrian access on sidewalks and increase the potential for pedestrians to enter the traveled way to avoid a congested transit stop.</p>	<p>The Highway Safety Manual accounts for the number of transit stops in its calculation of predicted crash frequency (Table 12-28). This CRF only affects vehicle-pedestrian crashes.</p>	
Bollards and Protective Barriers (Local)*				
<p>Structures physically separate the sidewalk and roadway.</p>	<p>Defines a suitable location for pedestrian activity near roadways.</p> <p>Physically prevents a motorist from inadvertently confusing a sidewalk with a roadway.</p> <p>Fencing can prevent pedestrians from crossing the street at unsuitable locations.</p>	<p>Can present a roadside hazard to motorists.</p>	<p>CRF is not available.</p>	

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TRAFFIC CONTROL				
Turn Restrictions/Right-Turn-on-Red Restrictions (IDOT DISTRICT 1 STANDARD PRACTICE)				
<p>Signage prohibits certain movements by motorists at intersections and driveways.</p>	<p>Reduces conflicts between motorists and pedestrians.</p> <p>Certain traffic movements may be regulated or controlled at the intersection.</p>	<p>Increases vehicle delay at intersections and driveways.</p> <p>May divert traffic to other intersections because of the restrictions, impacting other roadways.</p>	<p>CRF is based on Table 12-35 from the Highway Safety Manual.</p>	
PAVEMENT MARKINGS				
Pavement Legends for Pedestrians				
<p>Words, legends, and/or symbols placed on the pavement at either end of a crossing providing pedestrians with proper techniques to safely cross a roadway.</p> <p>The local agency would be responsible for maintaining the pavement legend for pedestrians.</p>	<p>Reminds pedestrians to cross a roadway as safely as possible.</p> <p>Cautions pedestrians to be mindful of motorists, minimizing potential pedestrian accidents.</p>	<p>Overuse of this sign treatment may decrease its long-term effectiveness.</p> <p>People with limited reading ability may not understand the language or symbology.</p>	<p>CRF is not available.</p>	

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FOUR E'S: EDUCATION – ENGINEERING – ENFORCEMENT – EMERGENCY RESPONSE				
Education, Outreach, and Training				
<p>Provides citizens with the tools and resources needed to better understand pedestrian safety issues.</p>	<p>Engages the community in promoting pedestrian safety.</p>	<p>Obtaining community support may be challenging.</p>	<p>CRF is not available.</p>	
Enforcement Campaigns				
<p>Campaigns help reinforce positive attitudes about pedestrian safety and encourage people to get involved with education and training initiatives.</p>	<p>Engages the community in promoting pedestrian safety.</p>	<p>Identifying the best strategy for delivering the messages may be difficult and costly if multiple approaches are needed or are proven to be unsuccessful.</p> <p>Negative attitudes toward the campaign message may also present a challenge.</p>	<p>CRF is not available.</p>	
Radar Speed Display Sign (Local Permit)*				
<p>Radar updates a changeable message sign to display the speed of an approaching vehicle.</p> <p>The local agency would be responsible for installing and maintaining a radar speed display sign.</p>	<p>May prompt motorists to reduce their speed upon seeing the sign, providing safer conditions for pedestrian traffic to cross a roadway.</p>	<p>May increase the likelihood for rear-end crashes.</p> <p>Installations would need to be monitored to ensure the radar system is working properly.</p>	<p>46% (CMF Clearinghouse)</p>	

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