

Roadway Safety Improvements Toolbox

Tool	Advantages	Disadvantages	Example
ROADWAY SAFETY IMPROVEMENTS			
<p>Raised Median</p> <p>Raised barriers used to separate opposing traffic on a divided highway that can also serve as a pedestrian refuge location. Promotes safe travel and reduces occurrence of cross-median crashes.</p>	<p>Raised medians manage vehicular traffic and allow for left-hand turning with fewer or narrower lanes.</p> <p>Improves safety and traffic flow while creating space for trees and other landscaping.</p> <p>Provides a safe refuge for both left turning vehicles and pedestrians crossing the street.</p> <p>Separates opposing traffic.</p> <p>Eliminates left-turn conflicts.</p>	<p>May require additional right-of-way.</p>	
<p>Two-Way Left Turn Lane</p> <p>A center lane for traffic in both directions to make left turns off the roadway. Ideal when traffic volumes and driveway density is relatively low.</p>	<p>Removes traffic from the through lanes which improves safety and traffic flow.</p> <p>This lane can also be used by emergency vehicles.</p>	<p>May require additional right-of-way.</p> <p>Creates an additional lane for pedestrian and bicycle traffic to cross but does not provide refuge location.</p> <p>Creates additional conflict areas for vehicular traffic.</p>	
Driveway Improvements			
<p>Improvements include standardizing driveway widths and throat lengths and internal drive aisles. Driveway improvements can reduce number of conflict points and crashes.</p>	<p>Visibility is increased for users accessing the roadway.</p> <p>Motor vehicles slow when entering and exiting.</p> <p>Creates pedestrian right-of-way.</p> <p>Allows for safe access and reduces pedestrian and vehicular conflicts.</p> <p>Improves access for people with disabilities.</p> <p>Improves safety and mobility for all users.</p>	<p>Tree branches and foliage will need to be maintained.</p> <p>Signs may need to be removed or relocated.</p>	

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<p>Access Management</p> <p>A set of techniques used to control access to highways, major arterials, and other roadways. Access points are separated to reduce the number of turning and crossing movement locations. Techniques include:</p> <ul style="list-style-type: none"> • Regulating minimum spacing of median openings and access connections • Limiting number of property access points and encouraging shared driveways • Separating signalized intersections and freeway ramps from access points • Promoting shared and connected parking lots. • Placing directional openings in medians. • Adding turn lanes into roadways. 	<p>Strategies and techniques reduce conflicts between those traveling and those entering/exiting a roadway.</p> <p>Creates appropriate access points for all users.</p> <p>Maintains the flow of traffic.</p> <p>Traffic entering and exiting the roadway is slowed.</p> <p>Establishes pedestrian right-of-way.</p> <p>Safety and mobility for pedestrians and bicyclists is improved.</p>	<p>Direct access to properties is reduced.</p> <p>May not be consistent or continuous through the corridor.</p> <p>Business owners may be reluctant to eliminate or modify existing driveways.</p>	
<p>Improved Sight Distance</p> <p>The distance a driver needs to see an object on the roadway ahead and safely stop their vehicle.</p>	<p>Improves the driver's ability to avoid a crash and enhance awareness of the approaching intersection.</p> <p>Safety is improved for all users.</p>	<p>Continued road maintenance.</p> <p>Roadway alignment and additional right-of-way may be required.</p>	
<p>Horizontal Curve Realignment</p> <p>A curve that has been realigned by increasing or flattening the radius of the curve.</p>	<p>Sight distance is improved.</p> <p>Side force experienced by the driver is reduced.</p> <p>The potential for drifting into another lane is reduced as well as the potential for run-off road crashes.</p>	<p>May require additional right-of-way.</p>	

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INTERSECTION SAFETY IMPROVEMENT TOOLS			
Left Turn Lanes			
<p>A left-turn lane provides space for left turn vehicles to decelerate and queue prior to turning.</p>	<p>Stopped traffic is removed from through traffic, improving safety for drivers.</p> <p>Roadway capacity is increased.</p> <p>Reduce the incidence of rear-end collisions.</p>	<p>May require additional right-of-way.</p> <p>Creates an additional lane for pedestrian and bicycle traffic to cross.</p> <p>Does not provide a refuge location.</p>	
Traffic Signals			
<p>Assigns right-of-way to pedestrians and vehicles.</p>	<p>Traffic moves in an orderly fashion.</p> <p>Intersection traffic capacity is increased.</p> <p>Allows safe crossing for minor street traffic.</p> <p>Reduces the frequency of certain types of crashes.</p>	<p>Major through movement may be delayed or slowed.</p> <p>Some drivers may not follow signal indications.</p> <p>The frequency of rear-end crashes may increase.</p>	
Roundabout			
<p>A type of circular intersection in which road traffic is slowed and flows almost continuously in one direction around a central island to several exits onto the various intersecting roads.</p>	<p>Continuous flow of traffic</p> <p>Reduces accident rates and severity</p> <p>Reduces vehicle delay</p> <p>No equipment maintenance or electricity costs</p> <p>Provides a safe pedestrian crossing opportunity.</p> <p>Speed reduction</p>	<p>Requires a large amount of right-of-way</p> <p>Some drivers may not understand how to proceed through a roundabout</p> <p>If a roundabout is placed in close proximity to a signalized intersection where queues may spill back into the roundabout.</p>	

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<p>Traffic Signal Modernization</p> <p>Low-cost improvements to signalized intersections to improve signal operations.</p>	<p>Signal visibility improves.</p> <p>Motorists receive additional information regarding traffic signals, increasing the likelihood of stopping for red lights.</p>	<p>Installation and maintenance may require additional costs.</p>	
<p>Roadway Lighting</p> <p>Increase luminance on roadway.</p>	<p>Increases security, safety, and comfort for pedestrians and motorists.</p> <p>Glare from oncoming traffic is reduced.</p>	<p>May require additional costs for installation and maintenance.</p>	