NEIGHBORHOOD TRAFFIC CALMING

HANDBOOK

VISION ZERO
SAN ANTONIO
Drive safe. Bike safe. Walk safe.

CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

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Table of Contents

Introduction 2
Background 3
Complete Streets Policy 4
Neighborhood Traffic Calming Request Process 5
Additional Information 6
Expected Impact 7
Estimated Cost Sheet 8

NEIGHBORHOOD TRAFFIC CALMING MEASURES

Signage
One-Way Streets 9
Turn Restrictions 10
Speed Limit Radar Unit Signs 11
Flashing Beacons 12

Pavement Markings
Stop Lines (Stop Bars) 13
Improved Shoulders/Parking Lanes 14
Bicycle Lanes 15
Rumble Strips 16

Curb Extensions
Intersection Curb Extensions 17
Chokers 18
Chicanes 19

Street Closure
Diagonal Diverters 20
Half Street Closures 21

Medians
Raised Pedestrian Refuge Islands 22
Median Barriers 23
Forced Turn Islands 24
Median Islands 25
Traffic Circles 26

Speed Humps
Speed Humps 27
Speed Tables/Raised Crosswalks 28

Enforcement
Police Enforcement 29
Temporary Radar Speed Trailers 30

Introduction

One of the City of San Antonio's goals is to improve mobility safety across all modes of travel in a way that fits within a neighborhood's context. This Neighborhood Traffic Calming Handbook provides information on traffic calming options on residential streets with the goal of improving neighborhood quality of life. Traffic calming refers to improving street features to reduce the negative effects of speeding and cut-through traffic while enhancing safety for pedestrians and bicyclists. These efforts are typically aimed at reducing vehicle speeds and/or the volume of non-local traffic in residential areas.

Disclaimer: This handbook is intended as guidance only. There are City ordinances which authorize what can be constructed in the public right-of-way. Transportation & Capital Improvements (TCI) is accountable for determining what can be constructed in the public right-of-way to ensure the welfare and safety of all users. Neighborhood traffic calming requests that do not meet all traffic calming requirements as identified in this handbook may be denied.

For more information, please visit www.sanantonio.gov/TCI/FAQs/Traffic/Traffic-Calming.

Background

Speed humps have historically been the most commonly used solution for neighborhood traffic calming issues in San Antonio, although other measures are also available. This handbook details alternative traffic management measures that also address specific traffic issues and provides guidance on selecting the most appropriate measure that addresses specific traffic issues.

A city's transportation network is generally comprised of three different street classifications, which include local, collector, and arterial roadways. For new development, the City's Unified Development Code (UDC) specifies the following:

Street Classification	Vehicles on Street Per Day	Description
Local	500-8,000	Primarily provide access to residential properties
Collector	8,000-10,000	Connect local streets to arterial streets
Arterial	14,000-46,000	Generally connect to local highways

Source: Unified Development Code 35-502 (e)(1)

Traffic calming measures are typically appropriate on two-lane local residential streets with lower traffic volumes. Certain traffic calming measures may not be used on major collector or arterials roadways. Traffic calming measures should be used to address extraordinary traffic problems within residential areas, like unusually high traffic volumes and/or high operating speeds. Traffic count collection or other studies may need to be completed to determine the nature and severity of the traffic problem when evaluating alternative treatments. Transportation & Capital Improvements (TCI) staff will make the final recommendation on which traffic calming measure, if any, is most appropriate.

Complete Streets Policy

Through Ordinance 2011-09-29-0795, the City of San Antonio adopted a Complete Streets Policy on September 29, 2011. The Policy encourages an approach to street design that supports pedestrian and bicycle-oriented neighborhoods; promotes healthy living, fitness, and activity; enhances the economic vitality of commercial corridors and districts; and maximizes the benefits of investment in public infrastructure. The Complete Streets Policy will be considered when neighborhood traffic calming measures are being identified.

One of the most important principles of the Complete Streets concept is that each street improvement will take into account all users. This includes people driving cars, riding bikes, walking, using transit, and using wheelchairs. There is not a “one-size fits all” approach to Complete Streets. The function of the road (e.g. local, collector, and arterial) and the level of vehicular, pedestrian, and bicycle traffic will be considered. The use of the land next to the road (e.g. residential or commercial) will also be considered to determine the best range of options for each situation.

Vision Zero

The City of San Antonio adopted Vision Zero in 2015. Vision Zero establishes that the loss of even one life or serious injury on our roads is unacceptable. Through Vision Zero, the community shares the responsibility for ensuring the safety of people in our community. The responsibility for roadway safety is shared between those who design the road and those who use the road. Every person in our community matters, and we can achieve Vision Zero together.

The City of San Antonio, led by the Transportation & Capital Improvements (TCI) along with partner agencies, is committed to enhancing safety in San Antonio. All efforts continue to support the Vision Zero goal. Please visit www.VisionZeroSA.com for more information.

Neighborhood Traffic Calming Request Process

1. Citizen identifies a concern and requests a Neighborhood Traffic Calming Measure

- Request is made by submitting a completed Neighborhood Traffic Calming Request Form.
- Neighborhood Traffic Calming Request Form can be found at: www.sanantonio.gov/TCI/FAQs/Traffic/Traffic-Calming
- Property owners representing ⅔ of the properties along the study length must sign the Neighborhood Traffic Calming Request Application in support.

2. Transportation & Capital Improvements (TCI) evaluates Neighborhood Traffic Calming Request

- Application is evaluated for completeness and roadway eligibility for neighborhood traffic calming application.
- TCI will collect any necessary data and conduct studies for further evaluation. Please note that studies will not be performed over the summer or during winter and spring holidays.

3. TCI provides requestor Neighborhood Traffic Calming evaluation results

4. TCI provides appropriate City Council office with recommendations and concept schematic

5. Once funding has been identified, TCI will prepare detailed design plans

6. Notification and Public Outreach as needed

7. Installation & Construction

Additional Information

Maintenance

Any necessary maintenance on traffic improvements will be the responsibility of the City with the exception of any landscaping that is installed as a result of the measure. All landscaping will be maintained by the neighborhood. The authorized representative of the neighborhood group must sign and maintain a current Adopt-a-Spot Agreement, which can be obtained at http://www.sanantonio.gov/Remember-the-River/Get-Involved/Adopt-A-Spot-to-Clean-Up#140231008-agreement-forms--literature. Installation of signs and vegetation must conform to the requirements of the Clear Vision Area ordinance. All landscaping must be reviewed and approved by the City. Low maintenance vegetation is strongly recommended. Suggested low maintenance plants and grasses can be found at such websites as www.saws.org.

Monitoring and Evaluation

A post implementation evaluation of the measure may be conducted by Transportation & Capital Improvements to include field observations, traffic counts, speed studies and other data collection as deemed necessary. If a project has not met its objectives, additional needs or changes can be considered but additional funding may be required. A measure not fully meeting its objectives does not automatically justify removal.

Measures of Effectiveness (MOE)

Several different neighborhood traffic calming features and other devices are employed to affect traffic volume, vehicle speeds, or accident problems. Neighborhood residents view effective devices/treatments as those that provide conditions that are amenable to neighborhood living, e.g., operating speeds approximately equal to the regulatory speed. Therefore, the effectiveness of each device or calming feature is based on the result achieved irrespective of the original condition. The following table will be used as a guide to grade treatments/devices after installation:

Results Achieved After Implementation

MOE	Good	Fair	Poor
Speed	<= 31 mph	32-34 mph	>=35 mph
Cut-through Traffic	0-14% over baseline traffic volume	15-24% over baseline traffic volume	>=25% over baseline traffic volume

Removal of an Improvement

If Transportation & Capital Improvements (TCI) determines that a measure needs to be removed for health or safety reasons, TCI shall proceed to remove or modify the installation after notifying the neighborhood representatives.

If the neighborhood itself would like to have a traffic calming measure removed or significantly altered, the process is the same as the process for installation. A Neighborhood Traffic Calming Request Application with signatures from property owners representing at least ⅔ of the properties whose property is next to the street segment in question in support of the removal or alteration is required. The neighborhood may be required to fund the removal or alteration of the measure. The cost to remove or relocate the measure may include the cost to repair the pavement by milling and overlaying the section of roadway.

Expected Impact

The various neighborhood traffic calming measures can help decrease operating speeds, traffic volumes and/or accident problems. Typically measures that are viewed as successful by residents are those that provide better conditions for neighborhood living such as slower speeds or lower traffic volumes. In this handbook, the positive impact of each measure is based on a four-star scale, with four stars indicating the best results. The bottom of each page includes a scale that rates the reduction of speed, reduction of traffic volume, safety enhancement and projected maintenance for each measure.

Reduced Speed – Measures that keep operating speeds at or below the lawful speed will have more stars than measures that have little or no impact on operating speeds.

Reduced Traffic Volume – Measures that have a greater impact on reducing the volume of traffic will have more stars than measures which have no impact on reducing traffic volumes.

Enhanced Safety – Measures which have the potential to reduce crashes will have more stars than measures which would not necessarily reduce crash potential.

Projected Maintenance – Most traffic calming measures will require some level of maintenance depending on the level of use, weather, soil stability, material and/or weight of the vehicle traffic. Measures which require little to no maintenance will have more stars than measures which require frequent maintenance or replacement.

Average Effectiveness by Application

Zero Impact	☆ ☆ ☆ ☆
Poor	★ ☆ ☆ ☆
Fair	★ ★ ☆ ☆
Good	★ ★ ★ ☆
Best	★ ★ ★ ★

Estimated Cost Sheet

The table below provides approximate costs for implementing each of the neighborhood traffic calming measures. It is important to note that implementation costs may differ from one location to another, and may be less expensive when integrated as neighborhoods are being developed. Utility relocations or right-of-way requirements may impact the traffic calming measure cost and implementation may not be cost effective. Neighborhood traffic calming measures that include landscaping will also require a continual commitment between the City of San Antonio and neighborhood associations to maintain and irrigate vegetation.

Neighborhood Traffic Calming Measures	Cost	Additional Details
One-Way Streets	$2,500 - $3,500	Per block
Turn Restrictions	$200 - $500	Per location
Speed Limit Radar Unit Signs	$20,000	Per installation
Flashing Beacons	$14,000 - $65,000	Per pair
Stop Lines (Stop Bars)	$300 - $800	Per intersection
Improved Shoulders/ Parking Lanes	$250 - $300	Per 100 linear feet per direction
Bicycle Lanes	$20,000	Per mile
Rumble Strips	$1,000	Per lane per direction
Intersection Curb Extensions	$25,000	Per extension
Chokers	$50,000 - $75,000	
Chicanes	$50,000 - $75,000	
Diagonal Diverters	$50,000	
Half Street Closures	$50,000	
Raised Pedestrian Refuge Island	$75,000 - $100,000	
Median Barriers	$60,000 - $120,000	Per ¼ mile
Forced Turn Islands	$50,000	
Median Islands	$50,000	
Traffic Circles	$50,000 - $100,000	Per intersection
Speed Humps	$14,000 - $20,000	Per set based on street width
Speed Tables/Raised Crosswalks	$50,000	Per set based on street width
Police Enforcement	No Charge	
Temporary Radar Speed Trailers	No Charge	

Disclaimer: Table is based on Fiscal Year 2017 cost estimates. Current costs may vary due to inflation, design costs, and increased materials and construction costs.

Signage: One-Way Streets

Converting two-way streets to one-way streets can help reduce cut-through traffic when there is a dominant direction in traffic flow.

Advantages

- Reduces high volume of non-local traffic that uses the street as a shortcut

Disadvantages

- Residents may be inconvenienced by the one-way flow
- Drivers may disregard the one-way sign and drive into oncoming traffic
- The cut-through traffic may be diverted to parallel streets
- Pedestrians are less likely to check for vehicles approaching from the wrong direction

Eligibility Considerations

- 90% of adjacent property owners must agree
- Review and approval by the San Antonio Police and Fire Departments
- Requestor(s) and residents must acknowledge that the one-way designation would be permanent

Reduced Speed ★★★☆

Reduced Volume ★★★☆

Enhanced Safety ★★★☆

Maintenance ★★★☆

Signage: Turn Restrictions

Turn restrictions may be used on local streets to reduce traffic congestion or a pattern of crashes.

Advantages

- Deters cut-through traffic on residential streets
- Addresses crash problems such as rear-end or right angle crashes

Disadvantages

- Turn restrictions require regular enforcement to be effective
- Residents, San Antonio Police and Fire Departments may be inconvenienced by the turn restrictions

Eligibility Considerations

- Documented cut-through traffic should represent 25 percent or more of the total daily street volume
- History of crashes that can be corrected by a turn restriction

Reduced Speed	★☆☆☆	**Reduced Volume**	★★☆☆
Enhanced Safety	★★★☆	**Maintenance**	★★★☆

Signage: Speed Limit Radar Unit Signs

Speed limit radar unit signs are supplemental traffic control devices which inform motorists of their operating speed on a digital display.

Advantages

- Alerts motorists of their operating speed, which may encourage them to slow down

Disadvantages

- Compliance may only be temporary
- Radar unit signs may require regular enforcement to be effective
- Radar unit signs will require continuous maintenance

Eligibility Considerations

- Measured operating speed is 10 mph or more over the posted speed limit
- Must have sufficient right-of-way for placement of the unit
- May be used in conjunction with school zones

Reduced Speed	★★★☆	**Reduced Volume**	☆☆☆☆
Enhanced Safety	★★★☆	**Maintenance**	★★☆☆

Signage: Flashing Beacons

A flashing beacon operates in a flashing mode to supplement regulatory or warning signs in order to increase awareness.

Advantages

- Draws attention to regulatory or warning sign, such as reduced speed school zone signs
- For school zones, it informs motorists when the reduced speed zone is in effect

Disadvantages

- Solar panel powered devices cannot be placed close to trees
- Must have sufficient right-of-way for placement of the unit

Eligibility Considerations

- School zone locations
- Pedestrian crossing locations
- Overhead flashing beacons are required for school zones on streets with two or more lanes of traffic in each direction or posted speed limit greater than 35 mph

Reduced Speed	★★☆☆	**Reduced Volume**	★☆☆☆
Enhanced Safety	★★★★	**Maintenance**	★★☆☆

Pavement Markings: Stop Lines (Stop Bars)

Stop lines, also called stop bars, are 24 inch-wide, solid white lines extending across all lanes in one direction to indicate where vehicles are to stop.

Advantages

- Provides motorists with an additional visual reminder to stop
- Gives guidance on where to stop before entering the intersection
- May be used to direct motorists to the preferred location to stop their vehicles when sight distance is limited or when crash history indicates that motorists are running the stop sign

Disadvantages

- Markings require continuous maintenance
- Not as effective when markings are faded

Eligibility Considerations

- Poor sight distance from a stop approach to an intersection
- Accident trend that may be corrected by marking stop lines

Reduced Speed	☆☆☆☆	**Reduced Volume**	☆☆☆☆
Enhanced Safety	★★★☆	**Maintenance**	★☆☆☆

Pavement Markings: Improved Shoulders/Parking Lanes

Improved shoulders/parking lanes are areas along the edge of the roadway created by marking an eight-inch wide, solid white stripe parallel to the curb or edge of the pavement. A minimum of seven feet from the edge of pavement is needed for a designated marked parking lane. The width is sufficient to allow parking for vehicles but not be mistaken as travel lanes. For wider roadways, hatch stripes may be added between the vehicle travel lane and the shoulder/parking lane to serve as a buffer.

Advantages

- Narrows the motor vehicle travel lane which may cause motorists to reduce their operating speeds
- Seven to eight foot improved shoulders may serve as a parking lane
- Keeps vehicles further away from the side of the roadway providing a buffer area next to the sidewalk

Disadvantages

- Markings require continuous maintenance
- Not as effective when markings are faded
- Level of speed reduction is usually minimal

Eligibility Considerations

- Street width must exceed 36 feet

Reduced Speed ★★☆☆

Reduced Volume ★☆☆☆

Enhanced Safety ★★☆☆

Maintenance ★☆☆☆

Pavement Markings: Bicycle Lanes

Bicycle lanes are areas along the edge of the roadway created by marking an eight-inch wide, solid white pavement markings approximately five feet from the curb or edge of the pavement. In addition to the white pavement markings on the road, bike symbols and arrows are placed on the pavement within the bike lane and appropriate signage is placed adjacent to the roadway.

Advantages

- Provides a place for bicyclists to ride in their own designated lane
- Narrows the motor vehicle travel lane which may cause motorists to reduce their operating speeds

Disadvantages

- Markings require continuous maintenance
- Signs are a requirement
- Excessive signs can cause visual clutter
- On-street parking will be restricted for all new bicycle lane installations
- Level of speed reduction is usually minimal

Eligibility Considerations

- Street width must exceed 34 feet
- Connectivity to local venues or other bike lanes should be present
- Little to no homes facing the roadway

Reduced Speed ★★☆☆

Reduced Volume ★☆☆☆

Enhanced Safety ★★★☆

Maintenance ★☆☆☆

Pavement Markings: Rumble Strips

Rumble strips are patterned sections of rough pavement or topical applications of raised material, which when driven over cause vibration and noise in a vehicle. This treatment is intended to direct the attention of the motorist back to the roadway.

Advantages

- Rumble strips may be used to heighten motorists' awareness of certain conditions like a stop sign, curve or speed limit change

Disadvantages

- Rumble strips are noisy and may be annoying to nearby residents

Eligibility Considerations

- Accident history that would support the installation of rumble strips
- Unusual or unexpected condition that requires particular attention by the motorists
- Adjacent property owners must agree to installation

Reduced Speed ★☆☆☆

Reduced Volume ☆☆☆☆

Enhanced Safety ★☆☆☆

Maintenance ★☆☆☆

Curb Extensions: Intersection Curb Extensions

Curb extensions are roadway features that narrow the roadway width from curb to curb and tighten the curb radii at the corner.

Advantages

- Improves pedestrian safety by shortening crossing distance
- Creates protected on-street parking bays
- Reduces the speed of turning vehicles, especially for right turn movements

Disadvantages

- May slow right-turning emergency vehicles
- Some on-street parking near the intersection may be eliminated
- Bicyclists may briefly have to merge with vehicular traffic
- Local street drainage may be impacted

Eligibility Considerations

- Minimum of 36 feet wide streets where significant pedestrian crossings occur
- Must be at intersection

Reduced Speed	★★☆☆	**Reduced Volume**	☆☆☆☆
Enhanced Safety	★★★☆	**Maintenance**	★★★☆

Curb Extensions: Chokers

Chokers are intersection or mid-block curb extensions on both sides of a street directly across from one another. They reduce the roadway width from curb to curb. They shorten the crossing distances for pedestrians and draw motorist's attention to pedestrians.

Advantages

- Narrows the roadway which may cause motorists to reduce their operating speeds
- Creates protected on-street parking spots

Disadvantages

- Curb realignment and landscaping may be costly
- Some on-street parking may be eliminated
- Bicyclists may briefly have to merge with vehicular traffic

Eligibility Considerations

- Measured operating speed is 35 mph or greater
- Traffic volume less than 500 vehicles per day if reducing to only one lane

Reduced Speed	★★★☆	**Reduced Volume**	★☆☆☆
Enhanced Safety	★★★☆	**Maintenance**	★★★☆

Curb Extensions: Chicanes

Chicanes are mid-block curb extensions that alternate from one side of the street to the other, forming S-shaped curves. This measure should be only used on residential roadways with less than 500 vehicles per day if reducing the street width to only one lane.

Source: Urban Street Design Guide, National Association of City Transportation Officials

Advantages

- Narrows the roadway which may cause motorists to reduce their operating speeds and may reduce volume
- If landscaped, reduces impervious cover and has a positive environmental impact

Disadvantages

- Curb realignment and landscaping may be costly
- Some on-street parking may be eliminated
- Bicyclists may briefly have to merge with vehicular traffic
- Local street drainage may be impacted

Eligibility Considerations

- Measured operating speed of 35 mph or greater
- No more than one travel lane in each direction

Reduced Speed ★★★★

Reduced Volume ★☆☆☆

Enhanced Safety ★★★☆

Maintenance ★★★☆

Street Closure: Diagonal Diverters

Diagonal diverters are barriers placed diagonally across an intersection, blocking through movement; they are sometimes called full diverters or diagonal road closures. These types of street closures are most appropriate for neighborhood areas with grid network streets where cut-through traffic is a significant problem.

Source: *Urban Bikeway Design Guide,* National Association of City Transportation Officials

Advantages

- Maintains full pedestrian and bicycle access
- Reduces the volume of vehicles

Disadvantages

- Reduces access options for local residents and emergency services
- Reconstruction of corner curbs may be necessary
- Local street drainage may be impacted
- Requires ⅔ approval of the affected neighborhood

Eligibility Considerations

- Cut-through traffic should represent 25 percent or more of the total daily street volume

Reduced Speed	★★☆☆	**Reduced Volume**	★★★★
Enhanced Safety	★★★★	**Maintenance**	★★★☆

Street Closure: Half Street Closures

Half street closures are barriers that block travel in one direction for a short distance on otherwise two-way streets. They are sometimes called partial closures, entrance barriers, or one-way closures.

Advantages

- Maintains two-way bicycle access
- Reduces the volume of vehicles

Disadvantages

- Limits access for local residents and emergency services
- Drivers may disregard the barrier and drive into oncoming traffic
- Local street drainage may be impacted
- Requires ⅔ approval of the affected neighborhood

Eligibility Considerations

- 70/30 or greater directional split of cut-through traffic in one direction only
- No more than one lane of travel in each direction
- Minimum daily traffic of 500 vehicles per day is required

Reduced Speed	★☆☆☆	**Reduced Volume**	★★★☆
Enhanced Safety	★★★☆	**Maintenance**	★★★★

Medians: Raised Pedestrian Refuge Islands

Raised pedestrian refuge islands are located in the center of a street. The island allows the pedestrian to cross the street in two stages.

Advantages

- Reduces pedestrians' crossing distance
- May reduce vehicle operating speeds
- Allows the pedestrian to cross the street in two stages

Disadvantages

- May impair access and encourage wrong-way traffic if blocking driveways
- Some on-street parking may be eliminated
- Local street drainage may be impacted

Eligibility Considerations

- Minimum of 36 feet wide street
- Minimum of 50 pedestrian crossings per hour for any four hours of the day or minimum of 100 pedestrian crossings in any single hour of the day
- Minimum traffic volume of 500 vehicles per day

Reduced Speed	★★★☆	**Reduced Volume**	☆☆☆☆
Enhanced Safety	★★★★	**Maintenance**	★★★★

Medians: Median Barriers

Median barriers are islands located in the center of a street that continue through an intersection to block left-turn and through movements from a cross street or driveway.

Advantages

- Improves safety by prohibiting certain vehicle turning movements
- Reduces the volume of vehicles on a cut-through route that crosses a major street

Disadvantages

- Limits turns to and from side streets for residents and emergency services
- Some on-street parking may be eliminated on narrower streets
- Local street drainage may be impacted

Eligibility Considerations

- Street width must be a minimum of 32 feet wide; 36 feet width recommended
- Cut-through traffic should represent 25 percent or more of the total daily street volume
- Crash history correctable by the installation of a median barrier

Reduced Speed	★★☆☆	**Reduced Volume**	★★★☆
Enhanced Safety	★★★★	**Maintenance**	★★★★

Medians: Forced Turn Islands

Forced turn islands are raised islands that block turn movements on approaches to an intersection. Forced turn islands may reduce traffic congestion, crashes, and/or help reduce cut-through traffic.

Advantages

- Improves safety by prohibiting certain vehicle turning movements
- Reduces the volume of vehicles on a cut-through route that crosses a major street

Disadvantages

- Traffic problem may be diverted to a different street
- Local street drainage may be impacted
- May cause sight distance challenges for right turning vehicles as drivers enter intersection at a skewed angle

Eligibility Considerations

- Cut-through traffic should represent 25 percent or more of the total daily street volume
- Crash history correctable by the installation of a forced turn island
- Street should be wide enough to construct a turn island

Reduced Speed	★★★★	**Reduced Volume**	★★★★
Enhanced Safety	★★★★	**Maintenance**	★★★★

Medians: Median Islands

Median islands are raised areas located mid-block in the center of a roadway. Median islands narrow the travel lanes, separate opposing traffic flows, and require motorists to maneuver around the median island.

Advantages

- May reduce the speed of vehicles as motorists travel around the median

Disadvantages

- Some on-street parking may be eliminated
- May require right-of-way acquisition
- Local street drainage may be impacted

Eligibility Considerations

- No more than one travel lane in each direction
- Measured operating speed is 35 mph or greater
- Minimum traffic volume is 500 vehicles per day

Reduced Speed	★★★★	**Reduced Volume**	★★★★
Enhanced Safety	★★★☆	**Maintenance**	★★★★

Medians: Traffic Circles

Traffic circles are raised, circular islands that are used within intersections in residential areas in an effort to reduce vehicle operating speeds.

Advantages

- Effective in reducing vehicle speeds and improving safety at intersections
- Provides traffic calming devices for two or more streets
- May reduce right angle crashes

Disadvantages

- Large vehicles may have difficulty negotiating the center island
- Some on-street parking may be eliminated
- Ineffective designs may impede emergency vehicle response time
- May not eliminate left-turn, cut-through violations
- May require right-of-way acquisition at corners
- Local street drainage may be impacted

Eligibility Considerations

- Measured operating speed is 35 mph or greater
- At least three correctable crashes in a 12 month period
- Minimum traffic volume of 3,000 vehicles per day

Reduced Speed	★★★☆	**Reduced Volume**	★☆☆☆
Enhanced Safety	★★★☆	**Maintenance**	★★★★

Speed Humps

Speed humps are raised physical features applied to the road surface that are uncomfortable to negotiate at high operating speeds.

Advantages

- Effective in reducing vehicle speeds
- Does not require the removal of on-street parking
- No minimum roadway width requirement

Disadvantages

- Makes traveling on the roadway uncomfortable for motorists and may increase noise
- Increases emergency vehicle response time by 8-10 seconds when installed in pairs
- Requires continuous maintenance
- Local street drainage may be impacted

Eligibility Considerations

- Street segment must be primarily a residential street which provides direct access to abutting single family, duplex, triplex or quadplex residential properties
- Street segment must have no more than one moving lane of traffic in each direction
- Street segment must be ¼ mile or more in length. The measured length must be continuous without interruption by a traffic control device.
- Measured operating speed is 35 mph or greater
- Minimum traffic volume is 500 vehicles per day
- Street segment may not be designated as a major or arterial street
- Street must have a speed limit of 30 mph as determined in accordance with State Law
- Street segment must not be within ¼ mile from a Fire Department Facility as to significantly interfere with emergency vehicle operations

Reduced Speed ★★★☆

Reduced Volume ★★☆☆

Enhanced Safety ★★★☆

Maintenance ☆☆☆☆

Speed Humps: Speed Tables/Raised Crosswalks

Speed tables are flat-topped speed humps covering the entire width of the roadway. When outfitted with crosswalk markings and signage, the speed table becomes a raised crosswalk.

Source: Scott Batson, City of Portland, Oregon

Advantages

- Raised crosswalks improve safety for pedestrians
- Effective in reducing vehicle speeds

Disadvantages

- May increase noise
- Local street drainage may be impacted

Eligibility Considerations

- Street segment must be primarily a residential street or provide access to abutting residential properties
- Street must not have more than one lane of travel in each direction
- Measured operating speed must be at least 35 mph or higher
- Minimum traffic volume of 500 vehicles per day
- Minimum of 25 pedestrian crossings per hour for any 4 hours of the day or minimum of 50 pedestrian crossings in any single hour of the day

Reduced Speed ★★★☆ **Reduced Volume** ★★☆☆

Enhanced Safety ★★★☆ **Maintenance** ★☆☆☆

Enforcement: Police Enforcement

Police enforcement may reduce vehicle travel speeds and crashes. However, sufficient resources to mount and sustain effective speed enforcement programs are limited.

Advantages

- Effective in reducing vehicle speeds and volume

Disadvantages

- Compliance may be only temporary
- Requires extended amount of patrol time
- Resources may be not be available

Eligibility Considerations

- Requires coordination with the San Antonio Police Department

Reduced Speed	★★★★	**Reduced Volume**	★★★★
Enhanced Safety	★★★★	**Maintenance**	★★★★

Enforcement: Temporary Radar Speed Trailers

Similar to a speed limit radar unit sign, temporary radar speed trailers are mobile and easy to setup. They are used to make drivers aware of their speed by providing an instant displayed message. The San Antonio Police Department oversees the use of this equipment.

Advantages

- Trailers can be used in various locations as needed
- Alerts motorists of their operating speed which may encourage them to reduce vehicle operating speed

Disadvantages

- Radar Unit Signs require regular enforcement to be effective
- Compliance may be only temporary
- Resources may be limited
- Units require continuous maintenance

Eligibility Considerations

- Requires coordination with the San Antonio Police Department

Reduced Speed	★☆☆☆	**Reduced Volume**	☆☆☆☆
Enhanced Safety	★★☆☆	**Maintenance**	★★★☆