CITY OF ASPEN

Neighborhood Traffic Calming Policy

Contents

Introduction

The City of Aspen's Neighborhood Traffic Calming Policy is part of the City's commitment to the safety and livability of residential neighborhoods. Under this policy, City staff works closely with residents within neighborhoods to identify the motor vehicle speed issues on their streets. In general, identified issues are first tackled using non-infrastructure solutions such as education campaigns and community watches. If non-infrastructure measures prove ineffective in dealing with the issue, a variety of infrastructure-based traffic calming measures are available. Citizen participation is an important part of all traffic calming projects. The City's goal is to give the people who live in the project area the opportunity to become actively involved in the planning and decision-making process.

The City of Aspen continually strives to protect multimodal function while maintaining a high standard of safety. Traffic calming reduces automobile speeds and, therefore, improves neighborhoods' quality of life and increases the safety and comfort of pedestrians and bicyclists. Traffic calming within neighborhoods is unique and measures can vary based on vehicle speeds, pedestrian and bike infrastructure, public transportation, right of way width, and proximity to public venues (such as parks, schools, etc.). The City of Aspen developed a clear process for planning, evaluating, and implementing traffic calming measures coordinated through the Neighborhood Traffic Calming Policy.

The Pedestrian and Bicycle Safety Team (PABST) was key in guiding the Neighborhood Traffic Calming Policy and in making decisions on the issues received. PABST was created in 2007 to ensure that transportation improvements and requests followed the Complete Streets principals[1] and were reviewed by all impacted departments. PABST includes members from:

- Engineering Department (lead)
- Environmental Health Department
- Parks Department
- Police Department
- Streets Department
- Transportation Department
- Parking Department

Safety issues related to speeding will follow this policy. PABST will review other safety issues following the City of Aspen Pedestrian / Bicycle and Transportation Policy.

One of the benefits of adopting traffic calming measures is vehicle speed reduction in areas where there can be conflicts between vehicles and pedestrians. Lower speeds can significantly decrease the chances of pedestrian injuries. As show in Figure 1, "if struck by a motor vehicle travelling at a speed of 20 miles

[1] City of Aspen Municipal Code, Section 21.26

per hour or less, a pedestrian is typically not permanently injured. If struck by a motor vehicle travelling at a speed of 36 miles per hour or more, a pedestrian is usually fatally injured."[2]

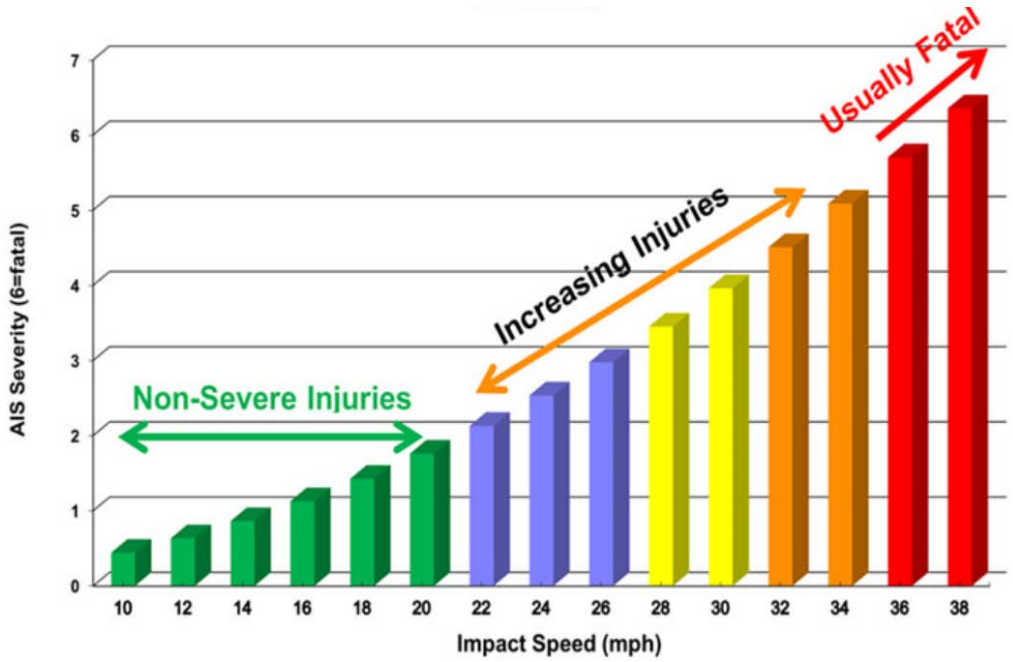

Figure 1: Pedestrian Injury X Vehicle Impact Speed Correlation (Source C. E. Rick Chellman)

Traffic calming can often involve trade-offs within existing corridors. Maintaining a safe environment for all users including vehicles, pedestrians and bicyclists is evaluated through the Neighborhood Traffic Calming Policy. Through a clear public process, the City of Aspen will balance the need for traffic calming with a variety of entities that may be impacted by measures including emergency response services, public transportation services and snow removal operations. The following pages give an overview of the process.

Objective

The Neighborhood Traffic Calming Policy provides a roadmap for traffic calming measure implementation. The objective of the Neighborhood Traffic Calming Policy is to:

- Define a process for addressing traffic and speeding concerns
- Provide a basis for prioritizing traffic calming requests
- Educate the public regarding traffic calming
- Encourage citizen and neighborhood involvement in traffic calming programs
- Slow the speeds of motor vehicles where indicated
- Improve the real and perceived safety for non-motorized users of the street
- Incorporate the preference and requirements of the people using the area
- Allocate funds effectively

[2] FHWA Traffic Calming ePrimer, https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

Process

Process Overview

Below is an overview of the process for implementation of traffic calming measures. Each of these steps is detailed in this document.

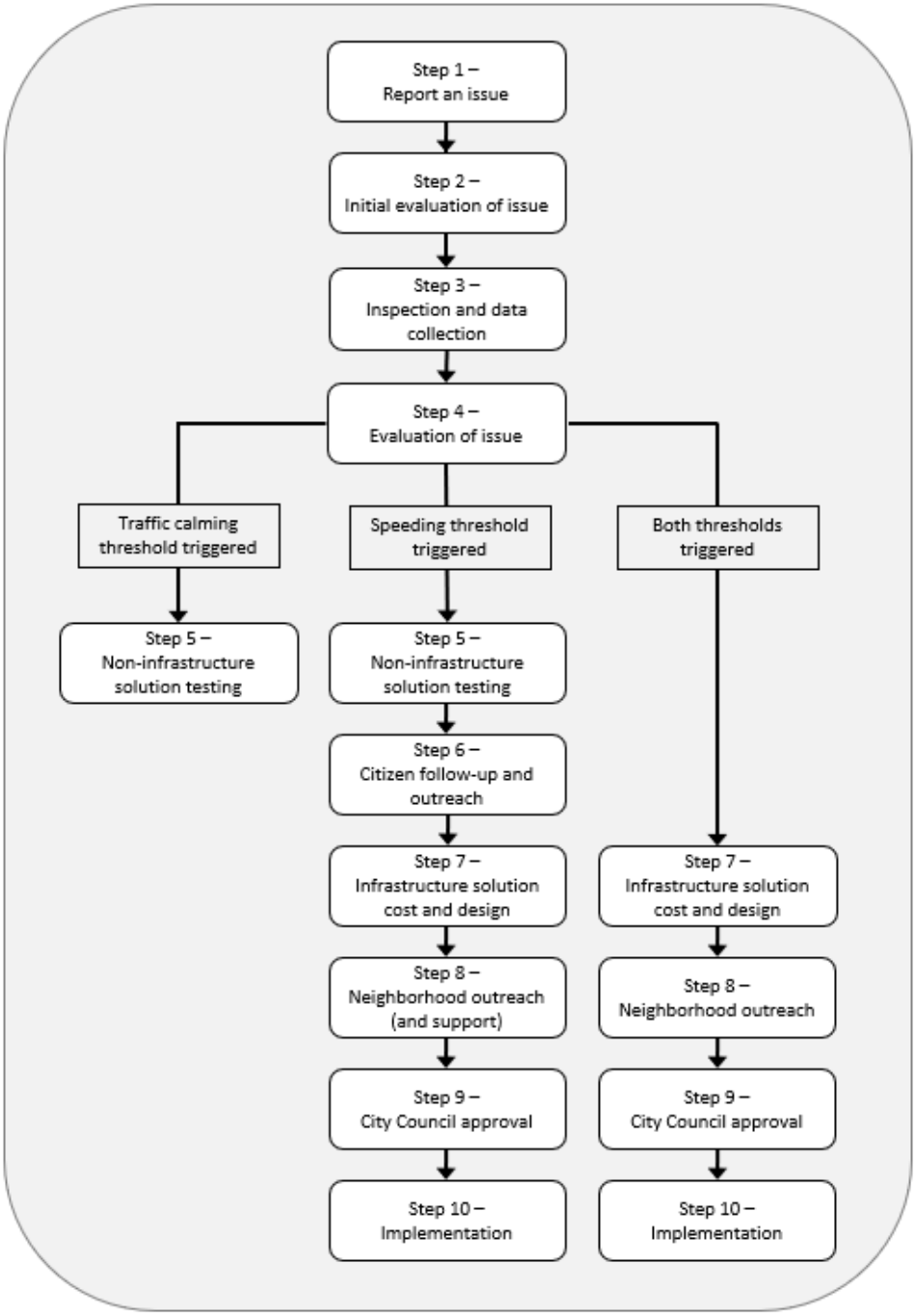

Figure 2: Traffic calming measure implementation process

Step 1 – Report the Issue

Concerns about speeding traffic on city roadways can be made by any citizen, business or staff. Issues can be reported by completing the Speeding Issue Form (Appendix A) and submitted to the City of Aspen Engineering Department.

Step 2 – Initial Evaluation of the Issue

After an issue is submitted to the Engineering Department, staff will review it with input from PABST. If the item qualifies as a speeding issue, it will proceed to Step 3.

Step 3 – Inspection and Data Collection

The Engineering Department will visually inspect the street and collect traffic volume and speed data. Traffic volume and speed data will be collected no more than once every five years and considered valid for this period. If a street/ neighborhood undergoes significant change as determined by the Engineering Department, new traffic data may be collected sooner.

The data collection will normally occur over a period of days. The following data may be collected:

- Speed data to determine the 85th percentile speed as well as the median speed and average speed.

  The 85th percentile speed is the speed at which 85% of the vehicles travel at or under. It is the standard for traffic safety engineering because it reflects actual traffic flow patterns and the relationship between traffic speeds and safety. There is always a small percentage of vehicles traveling at speeds above the designated limit, but those are not used to determine safety and traffic calming measures.

- The volume of traffic for a typical day, usually a weekday.
- The speed and volume data will typically be in a form that enables specific times of days to be evaluated to determine peak hour traffic volume and identify any specific times of day when traffic speeds are higher.

Additionally, if applicable, a geometric analysis will be performed to determine sight triangles, design speed, and other relevant information.

The driver of a vehicle approaching or departing from an intersection should have an unobstructed view of the intersection, including any traffic control devices, and sufficient lengths along the intersecting highway to permit the driver to anticipate and avoid potential collisions (Maze and Plazak 2000). These unobstructed views form triangular areas known as sight triangles.[3]

[3] NACTO, https://nacto.org/docs/usdg/sight_distance_study_Iowa.pdf

Step 4 – Evaluation of Issue

Engineering staff and PABST will evaluate the issue and data using the following thresholds.

Speeding Threshold:

The 85th percentile speed is above 5 miles per hour over the speed limit. If this threshold is triggered, the item moves to Step 5 – Non-infrastructure Solution Testing.

Traffic Calming Threshold:

The item receives a ranking of 50 according to the ranking table in Appendix B. If this threshold is triggered, the item moves to Step 5 – Non-infrastructure Solution Testing, but does not continue to the subsequent steps.

Speeding and Traffic Calming Threshold:

If both thresholds are met, the item moves to Step 7 – Infrastructure Solution Cost and Design**.**

Step 5 – Non-infrastructure Solution Testing

Possible solutions that do not involve the use of physical controls or impediments on the roadway system are tested. These are primarily education-based or short-term measures and include:

- Radar Speed Trailer Deployment — This is a temporary device primarily used to educate motorists regarding the fact that they may be significantly exceeding the posted speed limit.
- Community Watch Program — The community reports traffic infractions to the Police department. The community watch program promotes education and enforcement on an as-needed basis.
- Community Education Actions — This includes neighborhood held activities, such as disseminating flyers printed by the City reminding the community to slow down, etc. The intent is to educate street users and create an immediate safer condition for all drivers and neighbors.

Step 6 – Citizen Follow-up and Outreach

Evaluation of the non-infrastructure solutions will be done over a six-month period. The evaluation will include visual observations by citizens and staff. The Engineering Department may provide a follow-up speed survey or collect other relevant information to gauge the success of the non-infrastructure solutions.

At the end of no more than six months of implementing Step 5, the City will provide neighborhood outreach to discuss the results. The impacted residents, within 300 ft of the area of concern, will vote if they want additional traffic calming measures installed.

If 75% of the impacted residents want additional traffic calming measures, the City Engineer will determine if the issue requires additional measures and should continue to Step 7. This determination

will include, but is not be limited to, neighborhood outreach and support, existing masterplans, future development in the area, and PABST input, and observations.

Step 7 – Infrastructure Solution Cost and Design

The Engineering Department will conduct a formal study to suggest possible traffic calming measures. The measures could involve physical modifications of the street to control traffic speeds and improve safety. This step includes an estimated project budget developed by the Engineering Department. Please refer to Appendix C - Traffic Calming Toolkit for definition and examples of traffic calming measures.

Staff will evaluate impacts to street maintenance activities, drainage patterns, traffic patterns and emergency response time. Traffic calming measures must meet the American Association of State Highway and Transportation Officials (AASTO) guidelines.

Step 8 – Neighborhood Outreach

Various outreach will be done with the neighborhood and impacted community to present the infrastructure solution, including project budget, possible time frames, possible temporary installations, etc. A survey will be used to gauge community support for the infrastructure solutions.

If only the Speeding Threshold is triggered in Step 4, for the item to continue to Step 9, at least 67% of the impacted neighborhood (within 300 feet of the proposed device) and 75% of the residents within 100 feet of the proposed device shall support the installation.

Step 9 – City Council Approval

Once outreach is performed, staff will bring the proposal and outreach results to the City Council for final approval and funding allocation.

Step 10 – Implementation

After all approvals, a bid will go out for implementation to start.

Appendix A. Speeding Issue Form

1. Contact Information
Name:_____
Address:_____
Phone Number: _____
Email: _____

2. Please describe the location of the traffic concern. Attach a map or picture if necessary:

_____
_____

3. Please describe the nature of the neighborhood issue you are concerned with (attach additional sheets if necessary):

_____
_____
_____
_____

4. Please list possible solutions to the issue that you would like the City to consider:

_____
_____
_____

Appendix B. Traffic Calming Threshold Ranking Table

Criteria	Points	Basis Point Assignment
Speed data (48 hour)		Extent by which the 85th percentile traffic speed exceeds the posted speed limit (1 point per 1 mph from 15 – 25 mph, 5 points per 1mph > 25 mph)
Volume data (48 hour)		Average daily traffic volumes (10 point per 100 vehicles). Max of 20 points.
Accident data (12 month)		Accident caused by speeding (20 points per accident) Accident caused by stop sign violations should be identified.
Proximity to schools or other active public venues		20 points assigned if within 300 feet of a school or other active public venue such as a park or other areas where people congregate
Pedestrian crossing, bicycle routes, & proximity to high pedestrian areas		20 points assigned based on commercial areas, trail connections and other high pedestrian areas
No sidewalks		20 points assigned if there is no continuous sidewalk on either side of the road.
Total points		Minimum points needed = 50

Appendix C. Traffic Calming Toolkit

1. Overview

There is a range of traffic calming measures that can be used. The applicability of a measure depends on the nature of the issue. Table 1 presents a simplified summary of their applicability in different settings. This toolkit summarizes traffic calming measures that are the most applicable in the City of Aspen. Please refer to the Federal Highway Administration (FHWA) Traffic Calming ePrimer[4] for more information on traffic calming measures.

Traffic Calming Measure	Segment or Intersection	Functional Classification			Street Function	
		Thoroughfare or Major	Collector or Residential Collector	Local or Local Residential	Emergency Access	Transit Route
Horizontal Deflection						
Lateral Shift	Segment	3	5	5	5	5
Chicane	Segment	1	5	5	3	3
Realigned Intersection	Intersection	1	5	5	5	5
Traffic Circle	Intersection	1	3	5	3	3
Small Modern & Mini-Roundabout	Intersection	3	3	5	5	5
Roundabout	Intersection	5	3	1	5	5
Vertical Deflection						
Speed Cushion	Segment	1	5	5	5	5
Speed Table	Segment	3	5	5	1	3
Offset Speed Table	Segment	3	5	5	5	3
Raised Crosswalk	Both	3	5	5	1	3
Raised Intersection	Intersection	3	5	5	3	3
Street Width Reduction						
Corner Extension	Intersection	5	5	5	5	5
Choker	Segment	5	5	5	5	5
Median Island	Both	5	5	5	5	5
On-Street Parking	Segment	5	5	5	5	5
Road Diet	Both	5	5	3	5	5
Routing Restriction						
Diagonal Diverter	Intersection	1	3	3	1	3
Full Closure	Both	1	3	3	1	1
Half Closure	Intersection	1	5	5	3	3
Median Barrier	Intersection	3	5	5	1	3
Forced Turn Island	Intersection	3	5	5	3	3

Table 1 - Likelihood of Applicability of Traffic Calming Measure[5]

[4] https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

[5] Modified from FHWA Traffic Calming ePrimer

Legend:

5 – traffic calming measure may be appropriate
3 – caution; traffic calming measure could be inappropriate
1 – traffic calming measure is likely inappropriate

2. Horizontal Deflection[6]

2.1 Lateral Shift[7]

A lateral shift is a realignment of an otherwise straight street that causes travel lanes to shift in at least one direction. A typical lateral shift separates opposing traffic through the shift with the aid of a median island.

Appropriate in a variety of road types and settings. The maximum appropriate speed limit is typically 35 mph. Lateral shifts are applicable only in mid-block locations and it may require removal of some on-street parking.

The expected level of speed reduction is a function of the amount of the lateral shift and the angle of deflection. A lateral shift of at least one-lane width and an angle of deflection of at least 45 degrees is a common target.

Figure 3 – Lateral shift example, City of Sparks Public Works: Traffic Division, Reno, NV

[6] FHWA Traffic Calming ePrimer

[7] ITE Traffic Calming Fact Sheet, Lateral Shift

2.2 Chicanes

A chicane is a variation of a lateral shift that shifts alignments more than once. The chicane curves can be created with a curb extension that alternates from one side of the street to the other. A chicane-like effect can also be achieved by alternating on-street parking from one side of the street to the other.

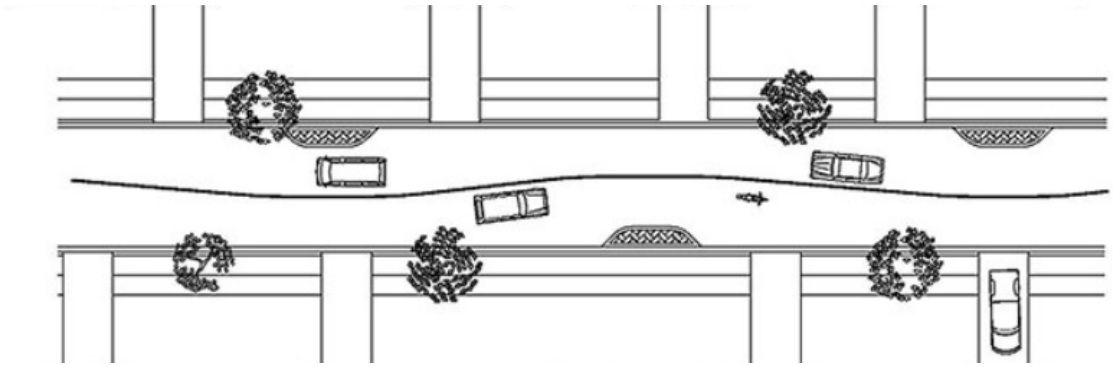

Figure 4 – Chicane Schematic, Delaware Department of Transportation

3. Vertical Deflection[8]

3.1 Speed Tables

Speed tables are midblock traffic calming devices that raise the entire wheelbase of a vehicle to reduce its traffic speed. Speed tables are usually between 3 and 4 inches in height, wider than speed humps and flat-topped. The longer longitudinal depth in the direction of travel enables comfortable and safe vehicle operating speeds that are faster than for a speed bump. Vehicle operating speeds for streets with speed tables range from 25–45 mph, depending on the design.[9]

[8] FHWA Traffic Calming ePrimer

[9] NACTO; https://nacto.org/publication/urban-street-design-guide/street-design-elements/vertical-speed-control-elements/speed-table

Figure 5 – Speed table example (source: www.pedbikeimages.org)

3.2 Offset Speed Tables

An offset speed table is a speed table split down through the centerline of the street with the two halves separated longitudinally. The offset tables enable an emergency response vehicle to bypass the speed tables by travelling in the opposing traffic lane for a short distance. This maneuver removes most of the emergency vehicle delay associated with a standard speed table.

Figure 6 – Offset speed table example (source: Jeff Gulden)

3.3 Raised Crosswalk

A raised crosswalk is a variation of speed table, where the speed table is marked and signed as a pedestrian crossing. The 10-foot flat top on a typical speed table conforms to a desired crosswalk width.

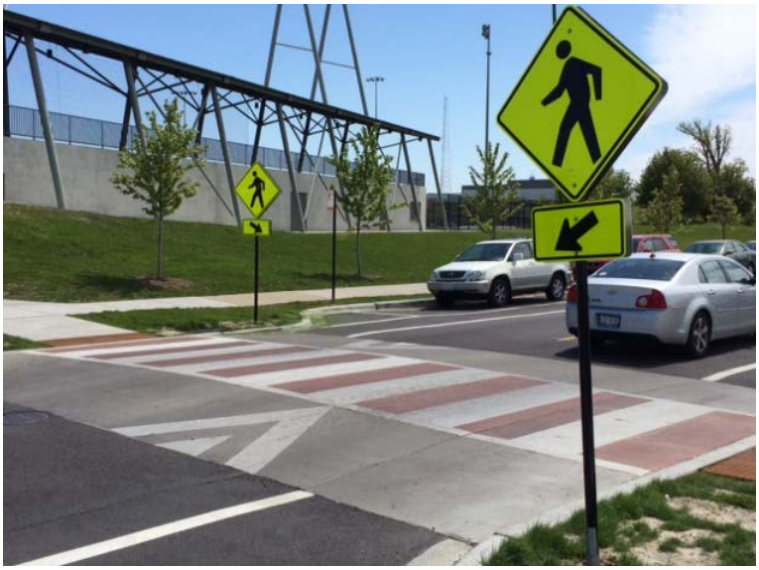

Figure 7 – Raised crosswalk example (source: Vision zero for the youth)

4. Street Width Reduction

4.1 Corner/ Curb Extension

A corner extension is a horizontal extension of the sidewalk into the street, resulting in a narrower roadway section. It is an effective method for narrowing pedestrian crossing distances and increase pedestrian visibility. It can be used on a variety of street types, speeds and settings, but adequate turning radii must be provided to use on bus routes. It can require drainage modifications due to possible gutter realignment. Curb extension use must be cautious as it may negatively impact snow removal operations and can lead to some parking loss. Curb extensions can achieve greater speed reductions if combined with vertical deflection.[10]

[10] ITE Traffic Calming Fact Sheet, Corner Extension/ Bulb-out

Figure 8 – Curb extension example, corner of Spring St. and Main St., Aspen

4.2 Choker

Choker are curb extensions in mid-block locations.

Figure 9 – Choker example (source: Dan Burden)

5. What is not a Traffic Calming Measure?[11]

5.1 Enforcement

Increasing enforcement is not a long-lasting traffic calming measure. Compliance is only improved when police are present and it is not feasible to have enforcement in an area on a continuous basis.

5.2 Speed Limit Signs

Engineering studies show that speed limit signs are not the most significant factor influencing driver speeds and that changing posted speed limits, has only a minor effect on driver behavior.[12] Research indicates that a reasonable driver will drive the speed suggested by roadway and traffic conditions, to the extent of disregarding the posted speed limit. A speed limit that is unrealistic invites the majority of drivers to disregard posted speeds.

5.3 Stop Signs

It seems like an obvious, inexpensive way to reduce vehicle speeds; however, what seems to be a perfect solution can create a less desirable situation. When stop signs are used as "nuisances" or "speed breakers", a high incidence of drivers intentionally violating the stop. When vehicles do stop, the speed reduction is effective only in the immediate area of the stop sign as a large percentage or motorists then increase their speed to make up for perceived lost time. This results in increased mid-block speeds. For these reasons, we do not use stop signs for speed control solutions. Instead, they are used to improve safety at intersections where traffic volumes or accidents require their installation.

5.4 Children signs

Some parents believe that the safety of their children playing in or near the street can be enhanced through the installation of "Slow - Children" or "Children at Play" signs. Traffic studies have shown that "Children at Play" signs do not increase a driver's attention to the point of reducing vehicles speeds or reducing pedestrian accidents. In fact, placement of these signs can increase the potential for accidents by conveying to children and parents a sense of a protected area, which does not exist and cannot be

[11] City of Mukilteo, Traffic Calming Program

12 FHWA, Effects of Raising and Lowering Speed Limits on Selected Roadway Sections, January 1997

guaranteed.[13] For these reasons, the City does not install these types of signs, and instead encourages parents to find alternative play areas for children, such as a backyard or local park.

13 ITE publication, *Traffic Control Devices Handbook*