

Attachment B – Comprehensive Review of the Neighborhood Traffic Calming Program

Program Purpose

The Neighborhood Traffic Calming Program was first adopted by Town Council in 2007 and re-adopted with a few revisions to the voting procedures in 2015. It was created in response to concerns about vehicle speeds and cut through traffic on residential streets. As such, only residential streets with direct driveway access are currently eligible, with a very few exceptions to certain collector classification streets as discussed in the Features of the Current Program section. The purpose of the Program is to provide residents and staff with a consistent procedure that is community driven and fiscally conscious for addressing neighborhood traffic concerns on residential streets where documented speeding problems or other traffic factors exist that may adversely affect the overall residential quality of life.

The Program utilizes a neighborhood driven process. The reason for this is that the people that are generating the concern are the neighbors themselves. As a result, not all neighbors are supportive of these types of treatments. Treatments also generate increased noise and delay emergency response times and negatively impact snow and ice management operations. It seeks to improve neighborhood livability by reducing the impact of vehicular traffic, encouraging appropriate driver behavior, and reducing the number of vehicles exceeding the posted speed limit if the majority of the neighbors are supportive of this goal and accept the tradeoffs listed above.

Why this is not a “Safety” Program

High Safety is a value we know the community desires to maximize in all of our programs. The Town has other programs that address crash and capacity issues that affect safety. If staff is made aware or identifies a safety issue that can be addressed with physical improvements, a targeted project is created and implemented with other community priorities.

Additionally, other programs directly address these values, such as the capital project planning process, crash facts report, signal warrant studies, traffic count program, pedestrian crossing improvement program, safety project program, and as needed safety and operational engineering evaluations to name a few. When these programs identify a safety concern, based on an engineering evaluation that is guided by the industry’s best practices, we make efficient and responsible investment of resources to address them.

The Program does not address changes to the regulatory speed limit, the use of all-way stop signs, or other changes to traffic control like a traffic signal. Those changes are specific to operations and safety engineering evaluations that are handled in other programs. Drivers tend to drive a reasonable speed they feel comfortable with based on the given roadway environment. The impact of changing posted speed limits on driver speed behavior has been well studied and documented nationally. The outcome is that the population speed does not change. If the posted limit is lowered, it can actually create safety risks due to increased speed differentials created when a few drivers actually comply with the posted limit. To illustrate this, imagine if the posted speed limit on I-25 was reduced to 55mph. Most drivers would recognize that this is not appropriate for the given environment between Castle Rock and Denver.

If drivers were encountered driving this speed, aggressive passing is likely which can increase safety risks.

Similarly, stop signs are used to manage vehicle conflicts at an intersection. If a stop sign is installed in hopes of slowing vehicles, an unsafe condition is created because drivers know there is a low volume of side street traffic that does not necessitate their stop, and they may ignore the stop sign. Additionally, drivers tend to increase speeds to make up delays that are created. This is unfortunate for the location where it's installed, as well as other stop signs that lose their credibility for drivers. This has also been well studied and documented nationally. It is for these reasons that stop signs are not used to manage vehicles speeds along a roadway.

The focus of the current Program is to address concerns that residents have about the cut through volume and speed of traffic on their streets. It is not currently intended to address access, noise, congestion or other street related issues. The Program is also not meant to be used for intersection issues or safety problems. All of these types of concerns are addressed through the Town's normal operational efforts and its capital improvement program. If a safety concern is identified as a part of the Program, the Town would prioritize the issue with other on-going activities and remedy it in another way. Therefore, the Program is not a "safety" driven program.

Features of the Current Program

Town managed streets are grouped into three classifications in the Transportation Master Plan:

- Arterials,
- Collectors, and
- Local streets, which include residential streets.

These classifications help define the primary purpose of the roadway between access and mobility as illustrated in Figure 2.

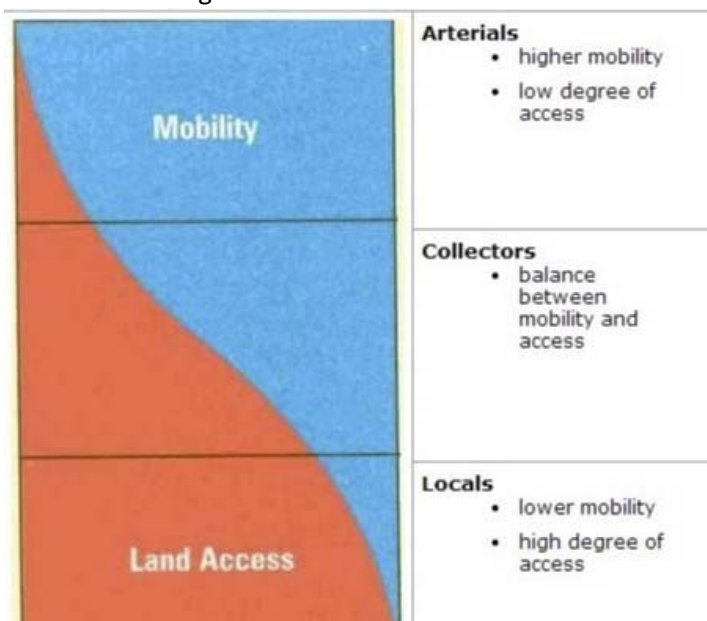


Figure 2. Mobility verses access and roadway classification

Roadways that are focused on mobility have higher traffic volumes and higher speeds. The opposite is true for roadways that are geared primarily toward access.

The current Program is primarily targeting local residential streets as this is where people are more active as pedestrians and are more active with parking and unparking maneuvers. Traffic calming projects on collector roadways are only considered when at least 50% of the platted lots fronting the collector street are residential, either a school or public facility that generates high pedestrian traffic is present, and the collector street must have a posted speed limit of 30 mph or less. Arterial streets are not eligible for traffic calming

treatments as they serve as critical emergency response and snow removal routes and typically do not have residential frontage. Additionally, most drivers are more concerned with minimizing the amount of delay experienced on roadways geared toward mobility versus access. If the request is about speeding on a local residential roadway, information about the Program is shared including a blank petition form, to be filled out and returned by the point of contact if they are interested after learning more about the program. In several instances, staff does not hear back from the resident regarding the issue. There could be a variety of reasons for this, for example, the need to be neighborhood driven is a detriment to someone pursuing the program, there is not enough support in their neighborhood to obtain signatures for the petition, or they recognize that their concern does not meet the level of pursuing the program. Having this type of balance and neighborhood driven process to this quality of life program is healthy for the program and the community in staff's opinion.

These target roadways included in the Program are an area the current program could be revised in order to include residential collectors, when at least 50% of the platted lots that front, side, or back to the collector street are residential. Lots that back or have side lot lines shared with the public right of way (ROW) of a collector roadway can also be negatively impacted by potential cut through traffic, and speed of vehicles on that roadway. The minimum posted speed limit for eligible streets could also be increased from 30 MPH to 35 MPH or less. These changes would make roadways like Butterfield Crossing Drive, Mikelson Blvd, Lanterns Circle, Enderud Boulevard, Red Hawk Drive, Loop Rd, Foothills Drive, Sapphire Point Boulevard, Montaine Loop, and Plum Creek Boulevard to name a few eligible for the program. By increasing eligible roadways there are increased program budget, staff resources, and maintenance costs that should be considered. As well as impacts to Emergency Services and their response times if traffic calming devices are installed on these roads.

In order to be eligible for the current Program, the traffic studies conducted by the Town must show that the following "thresholds" are met or exceeded:

- The 85th percentile speed must be 30 miles per hour (MPH) or greater, or, in the case of streets with posted speeds higher than 25 MPH, the 85th percentile speed must be at least 5 MPH over the posted speed limit. A residential street must have a traffic volume greater than 500 vehicles per day (VPD), or, at least 20% of the traffic on the street must be determined to be "cut through traffic" by Town Staff.
- A collector street within a residential area must have a traffic volume greater than 1,500 VPD and the 85th percentile speed must also be 5 MPH over the posted speed limit

These thresholds, or similar, are recommended to be continued in order to provide a measure of need to implement a program. A few changes to consider, like removing the 1,500 vehicle a day threshold for residential collectors. By definition a roadway with a volume of 1,500 vehicles per day is considered a collector street, therefore having a Program threshold for a collector street volume greater than 1,500 is redundant if the desire is to include the residential collector roadways mentioned above. There are other thresholds that may be considered with the 85th-percentile threshold. For example, metrics that address cases where very high speed is measured (street racing), the average speed of the roadway is over the speed limit, or other speed or quality of life impact is determined.

One of the most critical issues when developing an effective traffic calming plan is the involvement of residents in the study area. Residents of the area must be able to provide input on the extent of the traffic problem and to help in identifying appropriate solutions. Each neighborhood will have its own set

of concerns, with some being more apparent than others. It becomes much clearer as to how complex many traffic issues are when neighbors meet and share their various perspectives and experiences.

If a given street qualifies for the Program, residents meet in a town hall style format that is facilitated by Town staff, to provide input and determine what devices to implement, if any. The neighborhood developed traffic calming plan, developed to address the traffic issues on the street, or for other streets within the study area, must be approved by at least 50% of the property owners along the streets where the traffic calming features will be installed. If the plan is not approved then the project will be closed, and become eligible for the program in one year.

If there is a desire to include residential collectors without residential frontage in the Program, a different study area and eligible residents voting on implementation should be considered. Collector roadways also provide access for other neighborhoods by connecting them to arterials, and therefore serve more than just the residents that live along a roadway. The impact of devices on these drivers, in addition to Emergency Management Services should be considered when determining the need for devices.

The current program allows for private funds to be used for an approved traffic calming plan (speed and volume thresholds are met, and neighborhood consensus is reached) when Town funding is not available, and even contract the construction project for themselves. Since the program was created in 2012, private funding has not been used to construct traffic calming devices in existing neighborhoods because Town funding has been available. In the case of privately funded projects, the current program states Town staff will assist these projects by preparing a preliminary cost estimate that will include design, permitting, construction and inspection costs, as well as additional maintenance that may be assigned to the private entity. This will be documented in an agreement that is presented to Town Council for approval. In these cases, it is the responsibility of the neighborhood to raise the funds needed to complete the project, and all funding must be received by the Town before construction is scheduled. Once the project has been completed, any unused funds will be returned to the funding entity. If the neighborhood elects to design and construct the project, Town staff will work with the design team on the design, review, permitting and construction process that must be followed. If desired by policy makers, we would recommend that the current program be amended to allow privately funded improvements if thresholds are NOT met, but only if the improvements are supported by the surrounding community as is currently required.

If the thresholds are not met, the Town will not proceed with the traffic calming project, as this means it may not be a responsible use of Town resources, and any additional improvements are seen as overly impactful to the traveling public and likely to have little benefit to slowing speeds. Staff will notify the resident contact and work with them and other residents from the study area on other possible approaches, such as driver awareness and educational programs. The street may be "re-studied" after one year to determine if the thresholds are then met.

In addition, the current Program has an appeal process that allows the point of contact, if they choose, to appeal staff's decision by submitting a written request. This request must be signed by at least 5 of the people who signed the initial petition submitted by the point of contact. The request must be submitted to the Director of Public Works for an evaluation. Public Works will then present the request to the Public Works Commission for its review and recommendation. This meeting is open to the public and time will be allocated to anyone wanting to speak. Staff will then present the appeal to the Town Council. At this meeting, the recommendations of staff and the Commission will be presented. As at the

Commission meeting, time is available for the public to present their information and observations to Council. If Town Council denies the appeal, the process will stop and the street(s) will be eligible for reevaluation after one year. If Council approves the appeal, the project will move forward.

Request and Budget Status

Staff receives a variety of requests about speeds in local neighborhoods, ten inquiries in the last six months. When those requests are received, information about the program and a blank petition is provided to the point of contact. We don't track the number of general inquiry requests that relate specifically to the Program, and we do monitor the number of petitions that are returned to the Town. The table below documents the numbers since the last revision of the program in 2015 through October 2022, the number converted to projects, appeals received, and funds spent each year. The approved Program budget for 2022 and 2023 is \$25,000 which has not changed since 2015.

Based on these metrics the number of requests has been relatively constant over this period, and few petitions have been converted to a project where the residents successfully vote to agree on a particular solution.

YEAR	No. of Petitions	Convert to Projects	# of Appeals	Funds Spent	Notes
2015	7	1	0	\$0.00	Saddleback Dr. qualified
2016	6	0	0	See Notes	Saddleback Dr. project costs over two years = \$49,012 (2016 & 2017)
2017	1	0	0	See Notes	
2018	3	0	0	\$0.00	
2019	5	2	0	\$0.00	Diamond Ridge Pkwy qualified, N Meadows addressed with education
2020	4	0	0	See Notes	Diamond Ridge Pkwy project cost \$55,016 (included \$25,000 rollover from 2019)
2021	7	0	0	\$0.00	
2022	4	0	0	\$0.00	

Current Request Needs

Recently, staff has received more requests for speed management solutions throughout Town that are beyond, and not applicable in the current Neighborhood Traffic Calming Program. There have been more requests regarding speeding on residential collector roadways, like Butterfield Crossing, Plum Creek Boulevard, and Mikelson Boulevard. The current Program does not pertain to these roadways because there are not homes fronting to them. Other tasks beyond the Program are typically undertaken for evaluating collector and arterial roadways that may lead to additional signage, beacons, pedestrian crossing enhancements, access and traffic control review, or a speed limit evaluation.

If the program is revised to include these types of roadways, we expect there to be an increase in the number of active projects. In 2022, the cost for a contractor to install a traffic calming device on a

collector roadway is \$20,000 to \$50,000, and could include a pedestrian refuge, speed cushion, or a raised crosswalk. The Public Works Department's Streets Division has assisted with installing local street speed humps for a lower cost, however on collector roadways the size of devices is large enough that it is not feasible for them to install these devices. Additional devices increase maintenance needs of the roadway and create slowdowns to emergency response and school bus travel times. Increased noise is also a typical complaint associated with speed bumps, and similar raised treatments that vehicles must drive over. Maintenance frequency would not change. The Pavement Maintenance Program (PMP) would address any maintenance per their usual maintenance schedule across Town on a performance metric basis and as budget allows. Snow plow operations are impacted by slowing their maintenance response, as well as increase damage to road and plow when a plow blade inadvertently hits devices buried in snow. Signage and delineator devices help, however darkness, driving snow, and slippery roadways while moving snow all make this a challenge. Snow plow blades ride over the raised crosswalks relatively smoothly versus other devices that create a hard stop if hit. These are all considerations that need to be addressed when evaluating a roadway for traffic calming and applying the right device to address community concerns.

Other Jurisdiction Programs

Staff reviewed neighboring communities for similar programs and alternate programs. A summary table is provided on the next page. Several surrounding communities don't have similar programs. Douglas County specifically rejects the idea of speed humps as standard traffic calming device, and recommends targeted enforcement.

Compared to those that do have a program the Town was an early adopter of this type of program initiative, and the Town remains the most accessible to our residents for these types of improvements. Parker's Neighborhood Traffic Calming program is the most similar. Of note, it evaluates local streets and residential collector roadways in a similar manner. Parker and other communities have more initial phase options prior to installing any devices in an attempt to do more education and enforcement prior to committing to roadway improvements. Points of contact are able to more easily access these earlier phases compared to Castle Rock, however to install physical devices requires a greater percentage of the affected area to support the Project, and approval from Town Council is required with no set aside budget. Parker does not allow speed humps unless Town Council specifically approves on a special basis. By comparison in Golden, the Town's Program is much more accessible initially, with higher thresholds needed to determine the need for devices. In Golden, in order for staff to be able to evaluate the need for a neighborhood speed hump, requires 75% support from the area before consideration, compared to needing only 5 signatures in Castle Rock to perform the threshold study and then 50% of resident's affirmative vote to install. Once general approval to install devices by the neighborhood is met, the speed profile to install devices in Golden is slightly different than Castle Rock. Here we use 85% percent of drivers being over 5 MPH above the speed limit and in Golden it is 30% of motorists being over 5 MPH.

Boulder has been the quickest to transition between different speed management programs for their roadways. They had a robust neighborhood driven traffic calming program, then changed to a quick speed management implementation program based on requests that installed delineators and paint improvements, and now they are pausing all those efforts to focus on their high injury network (collectors and arterials) improvements with their funds at their City Council's direction.

Other programs used by some, including Denver, Boulder, and Golden change their local street speed limits jurisdiction wide from 25 MPH to 20 MPH unless otherwise posted in programs called “20 is Plenty”. Results have shown that this has not had an impact on driver speeds. In Boulder and elsewhere, 6% fewer people drove under 20 miles per hour after new speed limit signs were installed, and roughly 2% more cars travelled over 30 or 35 mph at several locations, according to their data. It was stated that it was not the point of the political decision. Lawmakers argued that lower speed limits is just the first step toward creating a culture of safer driving in their community. However, none of the jurisdictions have a master plan for developing this culture, nor a definition of what a safer driving culture means. Their staff and ours agree, the best way to change driver behavior is to change infrastructure, so additional improvements will follow or should be done in conjunction with lowering the speed limit. This includes, narrower streets, roads without a painted centerline, a mature tree canopy, cars parked parallel along the side of the street — all these elements provide a more focused visual for the driver. The “20 is Plenty” speed limit type of program has a cost, to time and resources to change all of these signs. It cost Boulder \$65,000 to change 450 signs across their community. The evaluation of speed limit postings on actual driver speed behavior has been well studied across the nation with the common outcome being that posted speed limits do not significantly change driver speed behavior. The effect is that more drivers that are actually driving at safe speeds are placed in a scofflaw position. This is not in the overall public’s interest as a result. For these reasons, our staff are not recommending this type of program at this time.

Finally, Northglenn has a new program called, No Need for Speed, that allows points of contact to fill out an online application for a roadway of interest which begins a three step speed awareness process in that area. This includes community engagement, temporary devices installed if a problem is measured, and other signs and markings if determined needed. When the Town first developed our program, the feedback from our consultant that assisted indicated that nationally, jurisdictions that have installed temporary devices have found that residents don’t receive these well. This is due to the poor aesthetic quality of these types of devices. Northglenn also has a traffic calming program to install devices that is similar to Castle Rock’s, however 75% of a neighborhood approval is necessary to install a new calming device. Providing an alternative or more robust engagement and education process for a community, even with additional target enforcement in lieu of devices may be beneficial to our community. This level of engagement from staff with residents would be more frequent than our current program and may require an additional staff member to manage successfully. We have reached out to Northglenn and are looking to get more information about how it is working for them and their community. They have not been able to respond since they are a small staff to begin with, and have had recent turnover of their team.

Project Performance

Since 2015, two Program projects and two other traffic calming projects outside the program have been constructed. In the table below, before and after speed data is shown. Typical roadway speed is represented by the 85th percentile driver speed, the threshold used to determine approval of a project and the industry standard speed most drivers feel comfortable driving along a roadway. Results vary based on the devices used, however in all cases effective speed reduction results have been achieved at or below the roadway speed limit. On Diamond Ridge Parkway the after speed data has not been consistently recorded and staff have scheduled a task to do that on a typical day and will update the table accordingly.

Location	Devices	85 th Percentile Speed Before	85 th Percentile Speed After	+/- MPH (% Diff)	Notes
Saddleback Dr	Speed Cushions	33 MPH	18 MPH	-14 MPH (45% decrease)	
Diamond Ridge Pkwy	Chicane	41 MPH	*34 MPH	-7 MPH (17% decrease)	* After speed data based on demonstration chicane, current after data is being collected
Butterfield Crossing	Raised Crosswalk	42 MPH	29 MPH	-13 MPH (31% decrease)	
Gilbert St	Raised Crosswalk, Ped Refuge	33 MPH	26 MPH	-7 MPH (21% decrease)	

A complete location map (Appendix A) of traffic calming devices around Town is included.

Recommendations

Principle objectives in the current Program that are recommended to remain, include:

- Ensure a consistent approach to the initiation and approval of a traffic calming study and development of a traffic calming project.
- Define the existing traffic conditions on the street or within the neighborhood that warrant the initiation of a traffic calming study and project.
- Integrate aspects of education, enforcement, and engineering in the development of traffic calming projects.
- Encourage citizen involvement in developing solutions to neighborhood traffic concerns.
- Effectively balance the goal of reducing traffic impacts with the needs of the Town's emergency response personnel.
- Efficiently allocate the use of Town funding and resources.

Staff recommends keeping the current Program in place, and expand the program to include:

- Modify the approval process for collectors with no direct driveway access to be determined by Town Council with input from the broader community.
- Allow for neighborhoods that don't meet the program criteria to privately fund improvements only if the surrounding neighborhood supports their installation as defined in the current program. Since staff review would be needed for all privately funded projects, it's recommended that our current private development review fees be considered to apply to each application.