City Council Staff Report

Date:
Mar 15, 2023

Applicant:
Mapleton City

Location:
N/A

Prepared By:
Rob Hunter, City Engineer/
Public Works Director

Public Hearing:
No

Attachments:
Traffic Calming Policy

REQUEST

Consideration of a Traffic Calming Policy prepared by the Mapleton City Public Works and Police Departments, to use in evaluating and prioritizing street safety projects.

BACKGROUND & DESCRIPTION

The Mapleton City Public Works and Police Departments regularly receive complaints speed and street safety complaints or inquiries. These complaints and inquiries have been addressed based on the severity of the problem identified. However, there has not been a specific adopted procedure. The Mapleton City Public Works and Police Departments have prepared a Traffic Calming Policy to standardize how complaints and inquiries are evaluated and prioritized.

EVALUATION

State and federal guidance exists for several traffic safety measures, including specific warrant analyses for some measures. There are other speed reduction and safety measures the City may consider that do not have specific warrant analyses in state and federal guidance. The proposed Traffic Calming Policy summarizes existing state and federal guidance, identifies other safety and traffic calming measures the City may consider, and describes the evaluation criteria and prioritization. This policy does not revise existing code. It gives citizens a clearer understanding of how their complaints or inquiries will be evaluated, and what safety measures may be considered.

RECOMMENDATION

Approve the Traffic Calming Policy to evaluate and prioritize street safety projects.

Traffic Calming Policy

Prepared by:

MAPLETON PUBLIC WORKS

MAPLETON POLICE DEPARTMENT

March 2023

Section 1 - Introduction

This traffic calming policy was prepared as a joint effort between the Mapleton Police Department and Public Works Department, and describes the traffic calming measures that may be considered by Mapleton City. This policy also sets forth the process by which inquiries and requests regarding street safety and speeding will be evaluated. This policy applies to City-owned streets. Inquiries and requests made regarding state-owned roads and highways will be directed to the Utah Department of Transportation.

Section 2 – Existing Guidance

The Utah Manual on Uniform Traffic Control Devices (MUTCD) establishes state criteria on signs, signals, markings, and other traffic control devices. Mapleton City follows the standards and guidance in the Utah MUTCD, including for the following items that frequently arise in street safety discussion:

- Process for warranting traffic signals.
- Process for warranting 4-way stops. This includes the guidance that "*Yield or STOP signs should not be used for speed control*".
- School Crosswalk Zones and Reduced Speed School Zones.

Another common inquiry is potential enhancements for standard (non-school zone) pedestrian crosswalks at locations without a signal or stop sign. The City will refer to the FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations for potential safety measures. Table 1 is from that document and summarizes the guidance.

Adding sidewalk to unfinished streets is also a common inquiry, especially along high use routes to school. The City will use its adopted street cross sections to determined sidewalk geometry.

Prioritization of projects is detailed in Section 4 of this policy. Meeting state and national warrants or guidance will generally contribute to the project being higher priority.

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Table 1: Pedestrian Countermeasure Guide from FHWA

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	● 2 4 5 6	● 5 6 7 9	○ 5 6 ● 9	● 4 5 6	● 5 6 7 9	○ 5 6 ● 9	● 4 5 6 7 9	○ 5 6 7 9	○ 5 6 ● 9
3 lanes with raised median (1 lane in each direction)	● 2 3 4 5	● ❸ 5 7 9	○ ❸ 5 ● 9	○ 3 4 5 7 9	○ ❸ 5 ● 7 9	○ ❸ 5 ● 9	○ ❸ 4 5 7 9	○ ❸ 5 ● 7 9	○ ❸ 5 ● 9
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	● 2 3 4 5 6 7 9	● ❸ 5 6 7 9	○ ❸ 5 6 ● 9	○ 3 4 5 6 7 9	○ ❸ 5 6 ● 7 9	○ ❸ 5 6 ● 9	○ ❸ 4 5 6 7 9	○ ❸ 5 6 ● 9	○ ❸ 5 6 ● 9
4+ lanes with raised median (2 or more lanes in each direction)	● ❸ 5 7 8 9	● ❸ 5 7 8 9	○ ❸ 5 8 ● 9	○ ❸ 5 7 8 9	○ ❸ 5 ● 7 8 9	○ ❸ 5 8 ● 9	○ ❸ 5 ● 7 8 9	○ ❸ 5 8 ● 9	○ ❸ 5 8 ● 9
4+ lanes w/o raised median (2 or more lanes in each direction)	● ❸ 5 6 7 8 9	○ ❸ 5 ❻ 7 8 9	○ ❸ 5 ❻ 8 ● 9	○ ❸ 5 ❻ 7 8 9	○ ❸ 5 ❻ ● 7 8 9	○ ❸ 5 ❻ 8 ● 9	○ ❸ 5 ❻ ● 7 8 9	○ ❸ 5 ❻ 8 ● 9	○ ❸ 5 ❻ 8 ● 9

Given the set of conditions in a cell,

- \# Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- ● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- ○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1. High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2. Raised crosswalk
3. Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4. In-Street Pedestrian Crossing sign
5. Curb extension
6. Pedestrian refuge island
7. Rectangular Rapid-Flashing Beacon (RRFB)**
8. Road Diet
9. Pedestrian Hybrid Beacon (PHB)**

Section 3 – Additional Safety and Traffic Calming Measures

This section contains additional traffic calming measures Mapleton City allows on City streets, and will be considered when a speed or other safety problem is identified.

RADAR SPEED SIGNS

Radar speed signs have limited long-term effect on increasing compliance to posted speed limits. They also lose effect if they are used too broadly, as drivers become either desensitized to or annoyed at excessive flashing signs and decrease compliance. Therefore, radar speed signs will be reserved for higher priority safety areas where other measures are either infeasible or the expense requires significant time to budget.

Figure 1: Typical flashing speed sign configuration

LANE STRIPING

Lane striping will generally be limited to collector and arterial streets. Lane striping is not appropriate for most local streets, since the smaller pavement widths and lower volumes make striping an unwarranted cost both for initial installation and long-term maintenance. When striping is appropriate, it can be added or revised to narrow travel lanes, add designated bike lanes, and designate parking lanes or change it to angled parking. Narrowing the travel lane can have some limited effect on reducing speeds. Additional safety enhancements are realized through giving cyclists a designated lane separate from vehicle traffic, and through perceived friction from adjacent parking encouraging drivers to slow down.

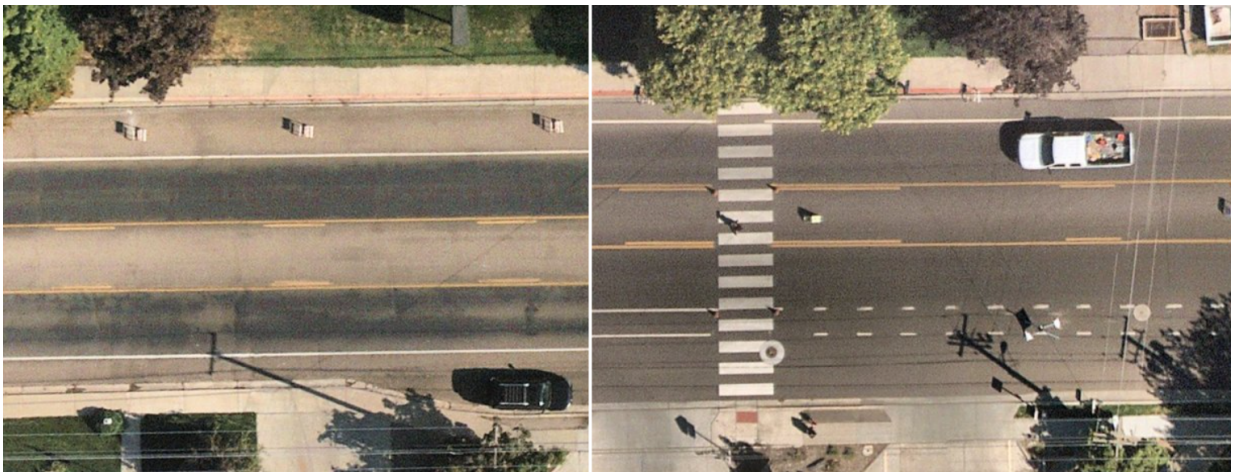

Figure 2: Comparison of old (left) vs. revised (right) lane striping on Maple Street

RAISED CROSSWALKS

Raised crosswalks are effective for slowing traffic and increasing awareness of pedestrians and cyclists at the crossing. However, as with other vertical speed control measures (speed bumps, speed tables, etc.) they can cause noise pollution for adjacent residences and businesses, they slow down all vehicles including emergency vehicles, and if used too frequently they cause a rough, unpleasant ride for drivers. Because of the cons associated with too frequent use, raised crosswalks will be the only vertical speed control considered for City streets, and will be limited to uncontrolled trail crossings, and at uncontrolled school crossings directly adjacent to an elementary, middle, or junior high schools.

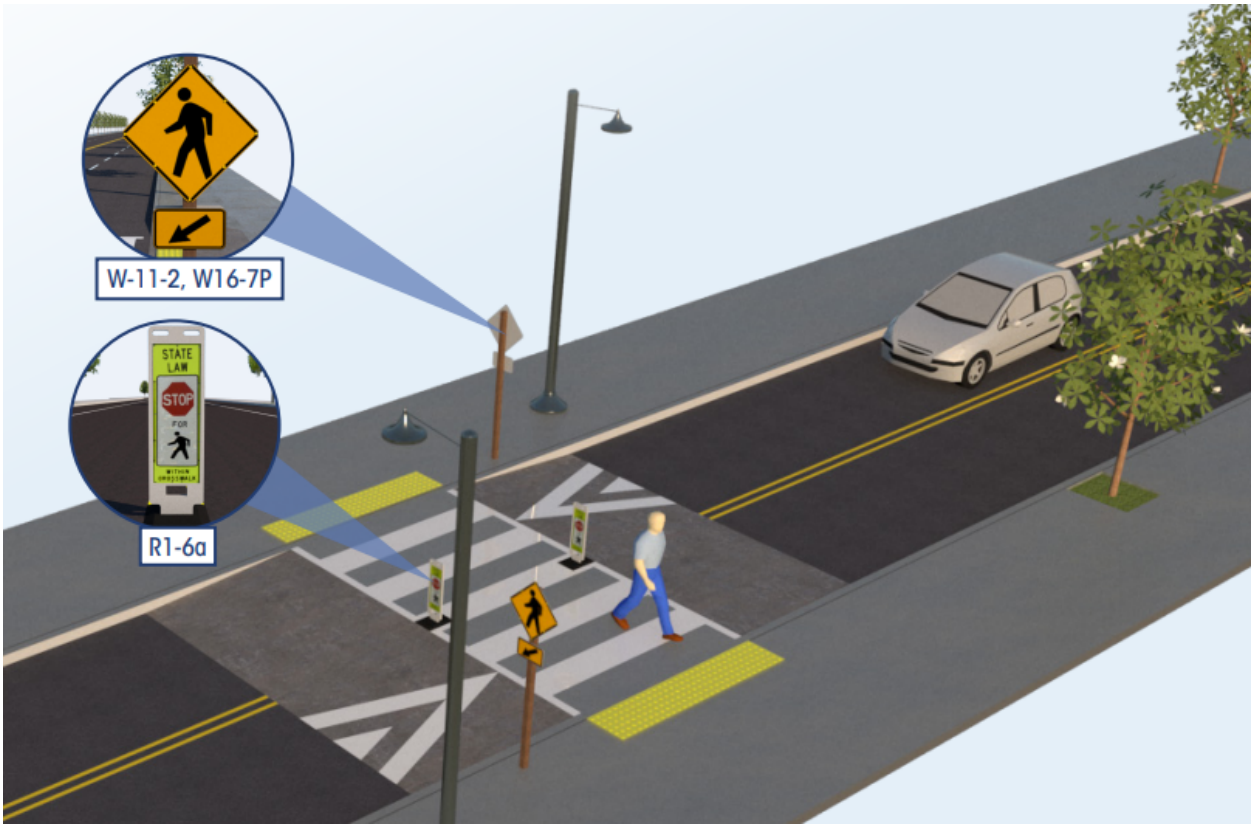

Figure 3: Example of raised crosswalk from FHWA tech sheet

ROUNDABOUTS

Roundabouts can be used at intersections on collector roads or minor arterials, and have been shown to reduce vehicle delay, speeds through the intersection, and serious and fatal crashes. Vehicles slow at the intersection as they navigate the circular pattern, and vegetation and/or artwork in the center island enhances the aesthetics. Raised splitter islands at each approach provide refuge for pedestrians as they cross. Installing roundabouts at existing intersections has higher costs compared to other treatments due to additional right-of-way needed from corner properties, moving utilities such as power poles, plus the general cost of construction. Therefore, roundabouts will typically have a longer delay in project implementation to allow time for budget to be appropriated.

Figure 4: Roundabout at the intersection of two collector roads in Provo

NEIGHBORHOOD TRAFFIC CIRCLES

Neighborhood traffic circles are raised center islands at intersections, similar to roundabouts. But they are much smaller and are typically used at the intersections of two local streets. A mountable curb is installed around the edge of the island so that larger vehicles can maneuver through the intersection, but the curb is tall enough to deter standard vehicles from using it to maintain faster speeds through the intersection. Traffic circles can be effective at reducing speeds, as well as reducing serious and fatal crashes.

Figure 5: Neighborhood traffic circle in Vancouver, Canada

BULBOUTS (aka NECKDOWNS)

Bulbouts are curb extensions typically used at intersection corners to narrow the pavement width at the intersection, slowing traffic and reducing the pedestrian crossing length. On local street intersections, pavement width is typically reduced to 24-28 feet depending on factors such as traffic volumes and school bus routes. Bulbouts are sometimes appropriate for collector roads, but traffic volumes, center turn lanes, commercial truck routes, on-street bikes lanes, or other factors may prevent their use or significantly reduce their effectiveness.

Figure 6: Bulbouts at a local street T-intersection in Provo

Section 4 – Evaluation Procedures

The Mapleton Police Department and Public Works Departments will use the following steps to evaluate inquiries and requests regarding street safety and speeding.

DATA COLLECTION

The Mapleton Public Safety and Public Works Departments will gather the following information for the street or intersection being evaluated:

- Average Daily Traffic (ADT) – traffic counts will be taken for one week. Additional points for traffic will be given adjacent to schools, since their peak traffic as a percentage of ADT is typically higher compared other streets.
- 85th Percentile Speed – 85% of traffic is travelling at or below this speed.
- 3-year crash data – serious injury and fatal crashes are weighted higher.
- Pedestrian facilities – whether continuous sidewalk exists along the study area.
- Sensitive facilities – vicinity to schools, trails, libraries, community centers, parks, day care facilities, and churches.

EVALUATION AND WARRANT STUDIES

State-established warrants from the Utah MUTCD will be used for traffic signals, stop signs, school crosswalk zones, and school speed zones. Latitude is given to the engineer to judge whether a significant safety risk exists that was not captured in the warrant analysis. In general, however, locations not meeting established MUTCD warrants will not have those measures installed. For all other measures, the City will use scoring criteria contained in Table 2 below. Locations scoring less than 30 points and do not meet a specific MUTCD warrant will not be a candidate for a traffic safety project.

SAFETY PROJECT PRIORITIZATION

Locations scoring 30 or above will be added to the list of potential safety projects and prioritized. Prioritization of projects will be based on a combination of the score and discussions involving the Police Chief, City Engineer, and City Manager. For projects related to school safe routes, input will be solicited from the affected school's community council and the Nebo School District Traffic Safety Committee. For project costs above thresholds specified in City policy, project-specific funding is required to be approved by the City Council. The initial scoring system is intended to guide prioritization discussions, but input from these stakeholders, project costs, and availability of funding will affect final prioritization. The Mapleton Public Safety and Public Works Departments will continue to review the scoring criteria, and the scoring criteria and/or minimum threshold may be revised if lower priority projects remain unfunded for multiple years due to additional higher priority locations being identified.

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Table 2: Initial Scoring Guide (maximum 100 pts)

Traffic Volume (20 points maximum)		**_____ pts**
Less than 1,000 ADT	0 pts	
1,000 ADT to 2,000 ADT	5 pts	
2,001 ADT to 3,000 ADT	10 pts	
More than 3,000 ADT	15 pts	
Peak traffic volume bonus when adjacent to a school	add 5 pts	
85th Percentile Speed (20 points maximum)		**_____ pts**
85th Percentile ≤ 4 MPH over posted speed	0 pts	
4 MPH over ≤ 85th Percentile ≤ 6 MPH over	5 pts	
6 MPH over ≤ 85th Percentile ≤ 8 MPH over	10 pts	
8 MPH over ≤ 85th Percentile ≤ 10 MPH over	15 pts	
10 MPH over < 85th Percentile	20 pts	
3-year crash data (30 points maximum)		**_____ pts**
Less than 3 crashes per 500', and no serious/fatal	0 pts	
3-5 crashes per 500', and no serious/fatal	10 pts	
6-8 crashes per 500', or one serious/fatal	20 pts	
More than 8 crashes per 500', or multiple serious/fatal	30 pts	
Pedestrian Facilities (10 points maximum)		**_____ pts**
Continuous sidewalk on both side of street	0 pts	
Continuous sidewalk on only one side of street	5 pts	
Not continuous sidewalk on either side of street	10 pts	
Sensitive Facilities (20 points maximum)		**_____ pts**
No sensitive facilities or crosswalks	0 pts	
Contains standard crosswalk(s)	5 pts	
Adjacent to sensitive facility, or within ¼ mile of junior high or middle school and on safe route	10 pts	
Adjacent to junior high, middle school, trail or park, or on within ¼ mile of elementary school and on safe route	15 pts	
Adjacent to elementary school	20 pts	