LINDON CITY CITIZEN-INITIATED TRAFFIC CALMING PROGRAM

PREPARED FOR:

The City of Lindon

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INTRODUCTION

In general, many people in Utah drive above the posted speed limit. Although this may sound like the generalization of primarily a Utah problem, it is not. Across the United States this trend appears to be on the rise. In some regards it may be directly attributed to our fast paced life styles and the need to be in two places at one time. However, when this trend spreads to our local residential streets, it compromises our sense of neighborhood by creating noise, pollution and unsafe roadway environments.

Lindon City residents are taking responsibility for quality of life issues in their own neighborhoods by learning that neighborhood action can help to address speeding and cut-through traffic related problems. Lindon City can be a supporting partner to help neighbors devise creative and workable solutions to restore and preserve our safe and peaceful streets.

ITE DEFINITION OF TRAFFIC CALMING:

"The combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street use." I.M. Lockwood, "ITE Traffic Calming Definition," *ITE Journal*, Vol. 67, July 1997, pp. 22-24.

WHAT CAN TRAFFIC CALMING DO FOR LINDON CITY?

Speeding and unsafe driving practices on residential streets have become an increasing concern to City residents as well as government agencies charged with ensuring traffic safety and neighborhood livability.

Lindon City is committed to improving the quality of life in our neighborhoods by actively joining with the residents in a partnership to devise creative and workable ways to restore and preserve our safe and peaceful streets.

The function of residential streets is not just to act as a corridor for vehicular traffic; they are also used for walking, running, and bicycling which help to foster social interaction among neighbors. Traffic calming encourages automobile drivers to operate with consideration for the safety of other individuals utilizing the roadway. Traffic calming measures can help alleviate undesirable conditions such as excessive speed, noise, cut-through traffic, excessive traffic volumes, crime, and numerous other impacts. By aiding in the relief of these conditions, traffic calming can improve the quality of the neighborhood by creating safe attractive streets and promoting pedestrian and social activities.

APPLICATION OF TRAFFIC CALMING MEASURES

Traffic calming can help reduce some of the undesirable effects of motor vehicle traffic on neighborhood streets, but in order to achieve the desired results, it is important that the appropriate traffic calming measures be implemented for the specific traffic problem. It is also important that this occur on the correct classification of street. According to Lindon City's Transportation Element of the General Plan, the hierarchical functional classification of streets includes arterials, major collectors, minor collectors and local streets.

Traffic calming is typically implemented only on the lower volume roads and streets, including local streets and minor collectors. Traffic calming methodologies are seldom (and cautiously) used on major collectors and never used on arterial streets due to the relatively higher traffic volumes, speeds and intended purpose of this type of facility.

The following traffic calming measures can be applied to a variety of traffic problems; however, their main purpose is to reduce vehicular speeds and traffic volumes. Secondary benefits derived include encouraging community interaction and promoting safety through increased usage of alternative transportation modes (e.g. walking, running, and bicycling).

TRAFFIC CALMING FOR LOCAL STREETS AND MINOR COLLECTORS

This section briefly summarizes the different categories of traffic calming measures that can be used on local streets and minor collectors, including the traffic problems most correctable by these measures.

Street Design Measures

Traffic calming measures related to street design include measures that physically alter the vertical or horizontal alignment of the roadway such as speed humps, traffic circles, chicanes and neckdowns or chokers. A brief explanation of some of these measures is contained in the following paragraphs.

Speed Humps

Speed humps are vertical measures that are generally used to reduce vehicular speed and cut-through traffic; they are raised sections that are usually parabolic in shape. While they do tend to reduce speed and cut-through traffic, they also tend to increase emergency vehicle response time and noise.

Traffic Circles

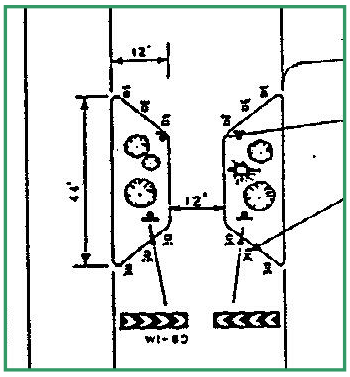
This traffic calming device is a circular island that is generally placed at intersections around which traffic flows in a counter-clockwise direction. This device has the potential to reduce speed and accident severity and improve capacity. Some of the negative aspects of traffic circles are driver unfamiliarity (yielding to the vehicle on the left), and vehicles may encroach on pedestrian crosswalks and bicycle travel lanes.

Chicanes

A chicane consists of curb extensions that are placed to form an S-shaped path for vehicular traffic to follow. This traffic calming measure may help to reduce vehicle speed, shorten pedestrian crossing distances, and protect parking bays; however, they tend to have higher maintenance costs due to landscaping, may be a factor in head-on collisions, and can potentially contribute to drainage problems.

Neckdowns or Chokers

The purpose of both neckdowns and chokers is to narrow the roadway. Neckdowns, however, are generally implemented at intersections while chokers are utilized at midblock locations. A main application of this measure is to improve pedestrian safety by decreasing the street crossing distance. As neckdowns are typically applied at intersections, they tend to reduce the turning speed of vehicles at these locations. Landscaping associated with neckdowns (chokers) may increase maintenance costs, and adjustments to the drainage system may be required.



Route Modification

In contrast to the traditional traffic calming methods, which attempt to modify driver behavior, the traffic calming measures in this section attempt to alter the routes available for traffic or traffic flow. Although route modification and other traffic calming measures share the common goal of improving the quality of life by preventing cut through traffic, route modification is an attempt to change traffic routing or traffic flow on the street network while more conventional traffic calming measures attempt to alter driver behavior.

Full Street Closures

A full street closure completely closes the street to through traffic and is primarily used to reduce cut-through traffic. A variety of measures could be used to create a full street closure such as islands, walls, gates, or side-by-side bollards. Some of the main concerns associated with street closures are an increase in emergency response time, a decrease in the capacity of the roadway, and the diversion of traffic to other routes.

Half Closures

This measure is also used to reduce traffic volumes by blocking travel in one direction on streets that generally permit travel in both directions. Half closures may be implemented at both intersections and midblock locations. These closures, however, tend to be less effective than full closures due to the fact that motorists are more likely to violate the closure since it may extend only a short distance.

Diagonal Diverters and Median Barriers

Diagonal diverters are placed across an intersection in order to block the through movements, and median barriers are positioned at an intersection to impede the through movement from the cross street. By impeding the through movements, these routes become less attractive, and therefore, the traffic volume on these roads may be reduced. The main concern with these types of traffic calming measures is the potential for increased volumes on parallel streets.

TRAFFIC CALMING FOR MAJOR COLLECTORS

The traffic calming measures available for major collector streets are somewhat limited since most of the traffic calming measures previously mentioned are not designed for implementation on higher speed roads. Traffic calming measures available for use on major collector streets could include several forms of intersection control, traffic circles and their higher capacity form, roundabouts. Median islands, lane narrowing via re-striping, or chokers may also be utilized to reduce the available roadway width and subsequently lower traffic speeds.

Education and Enforcement

Education and enforcement includes measures such as neighborhood speed watches, portable radar display units, and targeted police enforcement. A neighborhood speed watch records information about citizens found speeding, and then, the police department sends a notice to those individuals encouraging them to comply with the posted speed limit. Portable radar display units also attempt to encourage drivers who are speeding to slow down by displaying the speed of the vehicle as it passes the radar unit. Another strategy to promote compliance with the speed limit is randomly targeted police enforcement where police select a specific street and time of day on which to focus their enforcement efforts.

Driver Perception

Re-striping the pavement and adding bicycle lanes is an attempt to change the driver's perception of the roadway width and could also be implemented as a traffic calming measure. Driver perception and education/enforcement methods of traffic calming have seen only temporary success, but they may be a beneficial in some specific situations.

GOAL

The goal of the Lindon City Traffic Calming Program is to protect and improve neighborhood quality of life through implementation of traffic calming measures.

POLICIES

This section outlines the policies that should be followed when implementing a traffic calming device specifically preserving emergency vehicle access, adhering to the outlined implementation process, and following sound engineering and planning practices.

EMERGENCY ACCESS

The city should consult with the local emergency services to determine the potential impact of these measures on local emergency response routes. It is important to minimize the impact of traffic calming measures on the primary response routes. As such, primary emergency response routes are only eligible for passive traffic calming measures. Regarding the secondary response routes, the City Council in consultation with emergency services shall determine the ultimate traffic control plan. See Appendix A for emergency response routes in Lindon City.

IMPLEMENTATION PROCESS

Particular attention should be paid to the implementation process to ensure that each step is followed. This procedure promotes citizen involvement, which can translate into a greater acceptance by those individuals affected in the project vicinity. Through this process, the City Council can also more objectively evaluate whether traffic calming should be applied to a particular location and can prioritize potential projects.

PLANNING AND DESIGN

All traffic calming measures shall be planned, designed, and installed using sound engineering and planning practices.

LOCAL AND MINOR COLLECTOR STREET PROCEDURES

This section outlines the procedures that shall be followed when considering the implementation of a traffic calming measure beginning with the submission of a request for traffic calming and continuing through the project evaluation.

INITIATING A PROJECT

Projects are initiated when residents or neighborhood associations request help with traffic problems on their street. Requests must be submitted in writing. If an individual is submitting the request, a petition with signatures from 80% of the residents on the problem street area (area to be determined by Lindon City Traffic Engineer) must be received in order for a project to be initiated.

STREET RANKING/SELECTION ROUND/PRIORITIZATION ROUND

Once the project has been initiated, existing conditions on each street will be analyzed and assigned a numerical score, based on two qualification rounds. The selection round will consist of two criteria, speed and volume (Refer to Table 1). If the street does not meet a minimum score of 40, the street will not receive further consideration. Streets that meet or exceed a minimum score of 40 will be forwarded to the prioritization round (Refer to Table 2). There may be cases in which, without a formal study, there is good reason to believe that the selection round score is likely to be well below the required score of 40 points. When this is the case, in the professional opinion of the traffic engineer, and with the concurrence of the City Council, the traffic engineer may estimate the score, rather than conducting formal speed and volume studies to determine it. In such cases the traffic engineer shall document the rational of estimating the score.

Table 1 - Selection Round Point Assignment

Criteria	Points	Basis for Point Assignment
Speed	0 to 50	When 85th percentile traffic speeds are more than 5 mph above the posted limit (5 points assigned for every mph greater than 5 mph above the posted speed limit)
Volume	0 to 50	Average daily traffic volume (1 point assigned for every 100 vehicles)
Total Points Possible	**100**	

Table 2 - Prioritization Round Point Assignment

Criteria	Points	Basis for Point Assignment
Speed	0 to 50	Percentage of vehicles traveling 10 mph over the posted speed (1 point assigned for every 1 percentage)
Volume	0 to 5	Average daily traffic volumes (1 point assigned for every 1,000 cars over 5,000 vehicles per day)
Elementary Schools	0 to 10	5 points assigned for each 20-mph school zone on the project street
Pedestrian Generators	0 to 15	5 points assigned for each public facility(such as parks, community centers, and high schools) that generates a significant number of pedestrians on the street
Pedestrian Routes	0 or 5	5 points assigned if the street is a designated pedestrian route
Bicycle Routes	0 or 5	5 points assigned if the street is a designated bicycle route
Pedestrian Facilities	0 or 10	5 points assigned if there is no continuous sidewalk on one side of the street and 10 points if there is no sidewalk on both sides of the street
Total Points Possible	**100**	

All streets evaluated in the prioritization round are then ranked by the total points accumulated in the combination of these two rounds. Projects receiving 80 points or more are considered high priority projects. Projects receiving less than 80 points are considered low priority projects.

In identifying projects, other considerations include the project size and complexity, impact on emergency vehicle routes, and compatibility with other transportation projects.

A project meeting the high priority criteria will be advanced for a preliminary assessment. A project meeting the low priority criteria will be placed on hold until either 1) all the high priority projects are advanced giving the lower priority projects opportunity to be moved up in the process, 2) it is reprioritized due to changed conditions, or 3) the neighborhood advances the project by committing to funding the entire cost of the engineering, construction and implementation of the project. An application and fee will be required in order for the neighborhood to advance the project in this manner. The fee is to cover the anticipated costs of work from the preliminary assessment to the City Council action approving design and construction of the project.

PRELIMINARY ASSESSMENT

A project meeting the high priority requirements moves to the preliminary assessment. During this assessment the Lindon City Traffic Engineer identifies the appropriate types of traffic calming measures that would match the street classification, location, and physical characteristics. The Public Safety Department will provide input on the measures identified by the Traffic Engineer. Specific traffic calming measures could be eliminated from consideration or an entire project could be stopped at this stage for public safety considerations. Only traffic calming measures appropriate to the situation will be introduced to the neighborhood at the educational meeting.

EDUCATIONAL MEETING

All traffic calming projects provide for and encourage resident involvement. Lindon City desires to maintain a close dialogue with neighborhood residents and to help them work toward a mutually acceptable traffic calming plan.

An educational meeting will be held where all residents and businesses in the identified project area are encouraged to attend and discuss the traffic problem, traffic calming options, and/or other viable solutions. Lindon City will distribute a notice to all residents and businesses in the project area describing the meeting place, time, and agenda. The Lindon City Traffic Engineer will discuss the appropriate types of traffic calming measures that are available to be implemented on the road proposed for traffic calming mitigation.

ENGINEERING ASSESSMENT

During the engineering assessment, the Lindon City Traffic Engineer will prepare a sketch showing the different types of traffic calming measures presented at the educational meeting, appropriately located and strategically placed for maximum traffic calming benefit.

On primary emergency response routes, the activities listed under "Notification & Petition-to-Test" and "Pilot Testing (3 Months)" do not apply. The next step in the process on primary emergency response routes is "Project Ballot".

NOTIFICATION & PETITION-TO-TEST

As residents of the street being evaluated, and being the most familiar with the traffic problems and issues in the area, and potentially the most affected by any traffic calming measures that may be implemented, a notification and a petition-to-test will be distributed in the proposed projects vicinity.

Lindon City will distribute a petition-to-test concerning the proposed project including a review of the background information, educational meeting, outcome of the engineering assessment and the proposed solutions to include testing of temporary measures. The petition-to-test asks residents their opinion about the proposed solutions and whether they would like the project to proceed and if so, do they agree to the proposed testing measures. All suggestions, solutions, and comments will be taken into consideration during this process.

Each household and business is entitled to one response. Nonresident property owners (e.g. individuals owning rental properties in the project area) are not included in the survey. However, Lindon City will notify them of the proposed testing and inform them of the procedures that will be followed in approving a permanent project.

A couple of options are available to the community if there is a low or unfavorable response. If 30% of the individuals in the project area do not respond, residents will be responsible for holding project area meetings to discuss project concerns and encourage residential involvement. If after the petition-to-test, the majority (51%) of the responses are not favorable, a determination may be made by the Lindon City Council that the project be discontinued, or that additional educational meetings are needed.

Lindon City may print an informative article in the local newspaper updating the status of the project to provide background information and the proposed solutions at any point in the process as needed.

PILOT TESTING (3 MONTHS)

The pilot testing process can proceed only if the following criteria have been met:

- At least 30% of the individuals in the project area respond to the survey.
- The majority (51%) of the survey responses are favorable.
- The City Council approves pilot testing of the project.

When these conditions are met, the project advances to the testing phase, if needed, depending on type(s) of traffic calming measure(s) pursued. If the plan includes traffic diversion measures, temporary testing may be required. Diversion measures are physical measures used to divert traffic away from the project street onto the arterial street system. Testing is required to ensure that an unacceptable amount of traffic is not merely shifting onto other local service streets.

PROJECT BALLOT

After the temporary testing has been completed, Lindon City will organize and hold an open house to present the proposed permanent traffic calming plan. Everyone in the project area is notified through mail of the open house. In addition, households and businesses in the defined project area receive a ballot asking if they support the project. For projects that do not include diversion, this area includes all properties on the project street, on cross streets up to the next parallel street, and on any other street that must use the project street as its primary access. Both residents and nonresident property owners are included in this ballot.

For diversion projects, ballots are also given to citizens in the identified project area and also to properties on additional streets that were affected during the test. The Lindon City Traffic Engineer will determine which additional streets were impacted. A majority of the returned ballots must be in favor of the project (51%) in order for it to proceed to City Council action.

CITY COUNCIL ACTION

Once balloting is complete, staff members prepare a report including recommendations for City Council action. The public is notified of the opportunity to attend the City Council hearing and comment on the action being made.

DESIGN AND CONSTRUCTION/IMPLEMENTATION

If the project is approved by the City Council, the City may then design and construct the approved traffic calming measures. A variety of educational tools are also utilized such as distributing notices and conducting additional meetings that inform residents of the traffic calming measures to be permanently implemented.

PROJECT EVALUATION

Six months after construction is complete, Lindon City will evaluate the effects of the project. If any unacceptable impacts are identified, corrective measures are then evaluated so the appropriate actions are taken. Those corrective measures that were deemed appropriate will then be implemented (See Lindon City Traffic Calming Program Flow Chart located in Appendix B).

MAJOR COLLECTOR STREET PROCEDURE

Due to the nature of the major collector streets needing to convey traffic to the arterial streets from the local and minor collector streets, any traffic calming measures requested on these streets will be evaluated with the local and minor collector street process, as applicable, with adaptations made by the Lindon City Traffic Engineer. Adaptations to the local and minor collector street process might include but are not limited to using a higher speed limit for the selection and prioritization rounds. The process may need to be adapted to the situation by the Lindon City Traffic Engineer with City Council review before implementation of the process.

FUNDING PROGRAMS

Three basic approaches could be utilized in funding construction of traffic calming projects including full funding by the citizens, a combined effort of the citizens and the city, or full funding by the city. Lindon City will be responsible for maintaining traffic calming measures.

Option1- Full Funding by Citizens

Under this option, the citizens within the project area may assume the entire responsibility of funding engineering and construction of the approved traffic calming device. This option is particularly applicable to approved low priority projects.

Option 2- Shared Funding by Lindon City and Citizens

This option specifies that both Lindon City and the citizens in the project area will contribute a portion of the funds necessary for engineering and construction of the traffic calming measure. Lindon City shall pay up to 65% of the cost of engineering and construction of the highest priority projects while the citizens will be responsible for the remaining percentage. For measures that require landscaping such as chicanes, traffic circles, chokers, and others, the citizens may pay a portion of their percentage through the donation of landscaping materials and volunteer labor.

Option 3- Full Funding by Lindon City

Under this option, the Lindon City assumes the responsibility for completely funding the approved traffic calming measures. This option is available only for highest priority projects; however, the time and budget considerations associated with this option are left to the discretion of the Lindon City Council.

LIABILITY

According to the ITE *Traffic Calming State of the Practice*, of the 50 cities and counties that were surveyed few of the programs have had legal problems, and "only two lawsuits against traffic calming programs have been successful."

Cities should take the appropriate actions to minimize their liability. Among these actions, are checking the law in their state concerning the authority to implement traffic calming measures. They should also "respect the constitutional rights of affected land owners and travelers on the roadways." Finally, cities should seek to minimize the risk of traffic calming measures to roadway users.

In minimizing the risk to roadway users, cities should post signs that sufficiently warn drivers of the impending traffic calming device, and the signs should be posted to give drivers adequate time to slow down. The city should also ensure that measures are constructed according to design specifications and that they are properly maintained.

Appendix A: Emergency Response Routes

PRIMARY EMERGENCY RESPONSE ROUTES

NOT TO SCALE

Legend

- Existing Primary Response Route
- Future Primary Response Route

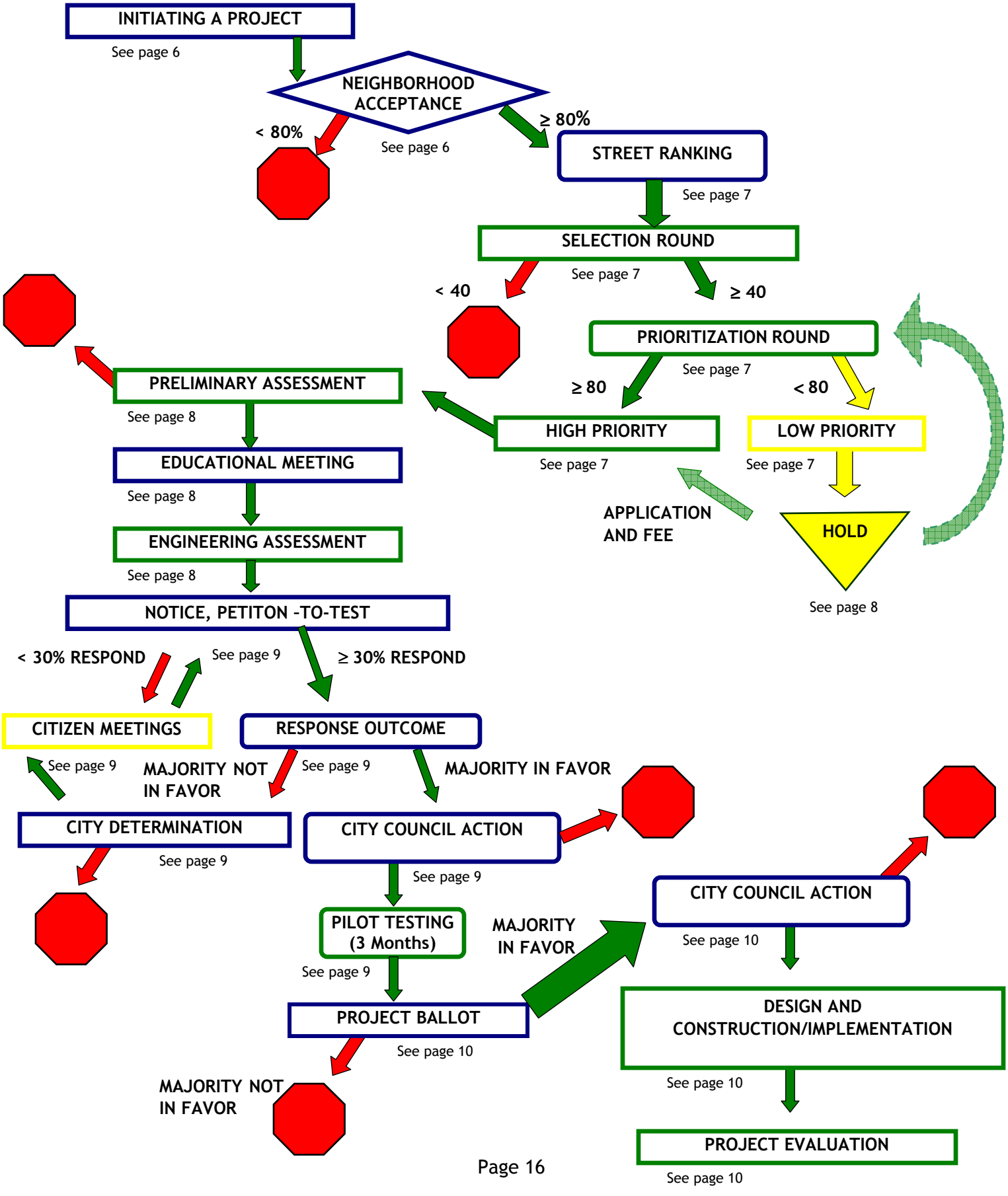
LINDON PUBLIC WORKS

Updated: 2022 FEB 02

Appendix B:
Citizen Initiated Traffic Calming Program
Flow Chart

CITIZEN INITIATED TRAFFIC CALMING PROGRAM

LOCAL AND MINOR COLLECTOR STREET FLOW CHART



CITIZEN INITIATED TRAFFIC CALMING PROGRAM
PRIMARY EMERGENCY RESPONSE ROUTE FLOW CHART