

TOWN OF HALTON HILLS

TRAFFIC CALMING PROTOCOL

PROCESS FOR INSTALLATION OF TRAFFIC CALMING DEVICES

The Process for Installation of Traffic Calming Devices has been prepared to provide an objective procedure for staff to evaluate traffic calming requests. Furthermore, the process focus is to establish a transparent and efficient planning process for the installation of traffic calming devices. The Process of Installation of Traffic Calming Devices is illustrated as Appendix 'B', and is described in the following sections:

Process Initiation

A resident, community association or business group, submits a concern regarding speeding, cut-through traffic, increased vehicle collisions or decreased pedestrian safety occurring within a neighbourhood will be advised if traffic calming is applicable to the road in question.

Screening Process

The road will go through an initial screening to determine whether traffic calming measures are appropriate for the concerns raised. It will identify previous traffic issues in the area, the frequency of complaints and any traffic initiatives taken in a study area in the past five years. The concern will be evaluated based on the existing traffic data, such as, Turning Movement Counts (TMC), Automatic Traffic Recordings (ATR), Spot Speed Radar Studies (S.S.R.S.), Origin/Destination studies and Motor Vehicle Accident (MVA) history, etc.

If the data is more than three years old, staff will initiate a necessary traffic data collection to properly assess the scope of the issue. The traffic data will be subjected to the Warrant Criterion to streamline the process and prevent creating false community expectations.

Warrant 1- Initial Screening				
Road Classification	Condition 1 Through Traffic	Condition 2 (Speed & Volume)		
		Speed (85th percentile)		
		40	50	60
Local Street	Infiltrating Traffic exceeds 30%	>54	>65	>79
Collector Street	Infiltrating Traffic exceeds 30%	>54	>65	>79

* Local and Two-Lane Residential Collector Roads only.

For a Local or Collector classification street to be considered for implementation of physical traffic calming measures both Conditions 1 and 2 of the Warrant Criterion are required to be fully satisfied. Strict adherence to the Warrant Criterion is required to ensure that the integrity of the process is maintained and that devices are not installed in inappropriate locations.

Petition – Resident Initiated

Once staff has determined whether the road meets the criteria for traffic calming, the resident would be required to circulate a petition to all affected households. The petition will require a minimum **60** percent (%) of surveyed residents to be in support of the traffic calming plans. A minimum **35** percent (%) of households must participate in the traffic calming vote.

The Town will provide affected public with Traffic Calming pamphlets for the public education and process transparency, as well as, include the traffic calming information on the Town's official website.

Each dwelling will be allowed a single vote and special considerations will be given to medium and high-density buildings. The weighing factor of a medium or high-density building will depend on the building's street frontage occupancy, thus making a more balance system. Each situation will be evaluated as a special case scenario.

A petition will ensure an adequate community support for traffic calming measures and issues identification. It is essential for the traffic calming process to have community support to serve proper functions of increasing pedestrian safety, lowering vehicular speeds and increasing neighbourhood's livability.

A lack of community support may lead into a public discontent for traffic calming devices and result in a petition from the community to remove the traffic calming devices.

Study Area Review

Upon receiving the necessary community support, the Town will initiate a comprehensive review of the study area signage, pavement markings, horizontal and vertical profile of the road. A significant emphasis will be placed on adjacent neighbourhoods, since addressing a problem in one community may result in transfer of the problem to the neighbouring community. Town's staff will modify the study area if the review shows a potential of negative impacts affecting adjacent streets.

Non-Intrusive Traffic Calming Measures

Initially, the identified traffic operation issues will be subjected to Non-Intrusive Traffic Calming Measures, such as, Community Road Watch Program, Radar

Message Board (RMB), traffic enforcement, signage, pavement markings, education and marketing for a period of six months. Upon completion of the period, a further traffic data collection will be required to identify the effectiveness of the Non-Intrusive Traffic Calming Measures.

Residents of the affected neighbourhood will be asked to collect speed data through the Radar Message Board (RMB) and observe the drivers' behaviour. This step in the process will ensure that the residents will have a chance initially to assess the problem based on statistical data and on-site observations. The speed data collected by the residents will be analyzed and compared to the Spot Speed Radar Study (S.S.R.S.) conducted by Town staff.

If the Non-Intrusive Traffic Calming Measures provides desired results, staff will contact the resident(s), thus concluding the process.

Establishment of a Neighbourhood Traffic Advisory Committee (NTAC)

Staff will work with the neighbourhood to formally establish a Neighbourhood Traffic Advisory Committee (NTAC) to get a clear public support for traffic calming measures and understand the issue(s) affecting the local community.

Establishing an effective traffic calming process requires staff to notify the required stakeholders, since traffic calming measures will affect emergency response agencies. The agencies involved as stakeholders in the traffic calming process shall include the Halton Hills Fire Department, Halton Regional Police Service, Halton Emergency Medical Service (EMS) and Members of Council.

If a school facility is in the affected area, the School's representatives will be asked to participate in the traffic calming process.

Identification of the Preferred Traffic Calming Plan and Public Consultation

In addition to publicizing available traffic calming measures and identification of issues affecting the neighbourhood, staff will initiate a walkabout. The neighbourhood walkabout will help all the parties involved in the process to visualize preferred alternatives and provide an additional on-site input. The Town will present the preferred Traffic Calming Plan (TCP) during the stakeholders meeting. The focus of the meeting will be to address any concerns that may arise from the implementation of intrusive traffic calming measures. The Town will work closely with all of the emergency response agencies to minimize negative impacts, primarily, decreased response time.

Implementation of Traffic Calming Plan

Once the TCP receives an acceptance from the NTAC, a detailed design will be completed and circulated to the utility companies, other potentially affected

agencies and departments for comments. Town staff will prepare a report to Council for approval.

It is expected that once the Traffic Calming Implementation Protocol is approved, a number of requests will be reviewed by the public. Due to the costs associated with the construction, a priority ranking system is required.

Once a Traffic Calming Plan is approved by Council, it will be added to the program (subject to a further report) based on priority ranking.

Table A:

RANKING SYSTEM FOR TRAFFIC CALMING PROJECTS			
Ranking Max. 100 points	Speed (0 to 30 points)	Local Street 5 points for each 2 km/h that the 85th percentile speed is above the Condition 2, Warrant 1 threshold for speed of traffic.	Collector Street 3 points for each 2km/h that the 85th percentile speed is above the Condition 2, Warrant 1 threshold for speed of traffic.
	Volume (0 to 30 points)	Local Street 1 point for every 100 vehicles as per recorded A.A.D.T. above the Condition 2, Warrant 1 threshold for volume of traffic.	Collector Street 1 point for every 200 vehicles as per recorded A.A.D.T. above the Condition 2, Warrant 1 threshold for volume of traffic.
	Collisions (0 to 30 points)	10 points for 1 preventable collision as per police record in the past 3 years; or 30 points for 2 or more preventable collisions recorded in the past 3 years.	
	Pedestrian Traffic Generators (0 to 10 points)	5 points for each pedestrian generator (i.e. school, park, retirement home, recreation centre, etc.)	
Note: Preventable collisions are those that are considered preventable through the use of traffic calming measures.			

Monitoring, Evaluation and Follow-up

During the year following the installation, the Town will monitor the effectiveness of the traffic calming measures installed as part of the TCP. Staff will carry out a review through conducting specific traffic studies and preparing an information report to Council. Staff will comment on before and after traffic conditions, any resulting impacts and future recommendations.

NTAC members and stakeholders involved in the process will be notified and given the opportunity to participate.

Town of Halton Hills Guide to Traffic Calming Measures



April 2015

1. BACKGROUND

Traffic calming has its origin in the Dutch “Woonerf” schemes of the 1970’s. The original “Woonerf” schemes introduced the concept of shared space between vehicle and pedestrian. Streets were reconstructed so as to tip the balance in favour of the residential function of the street and to reduce the domination of motor vehicle

2. PURPOSE

Traffic calming is fundamentally concerned with reducing the adverse impact of motor vehicles on build-up areas. Primarily, it involves slowing the speed or reducing the volume of vehicular traffic on neighbourhood streets to increase safety and livability in the neighbourhood.

3. TRAFFIC CALMING OBJECTIVES

The objectives are as follows:

- Increase the driver’s awareness of the street functions and thereby reduce vehicular speed.
- Discourage non-local traffic from traveling through a neighbourhood on local and collector residential streets, thereby reducing traffic volume.
- Reduce conflicts between various street users, including motorists, cyclists, pedestrian and others.
- Aesthetically enhance the neighbourhood environment with landscaping and design.
- Establish a method of priorities required to ensure neighbourhoods are treated equitably and to ensure that limited staff and monetary resources are allocated where they are needed most.
- Encourage public involvement in the traffic claming activities.

4. TRAFFIC CALMING MEASURES

Traffic calming can be applied in the form of less and more intrusive measures. Less intrusive measures usually are included in initial design of roadway, and include things such as the placement of trees, medians, narrower lane widths, on-street parking, streets with boulevards separating sidewalks, highly visible pedestrian crossing and intersection design. In addition, signage and pavement markings constitute less intrusive traffic calming measures. Signs indicating speed limit, school crossings and no exit can be used where appropriate to slow traffic. Finally, through educational programs and target enforcement as less intrusive measures can provide outcome of lower speeds in residential neighbourhoods and raise awareness of existing problems.

More intrusive measures for existing road network can be categorized into four approaches:

- 1) Vertical Deflection Measures
- 2) Horizontal Deflection Measures
- 3) Horizontal Narrowing Measures
- 4) Traffic Volume Reduction Measures

4.1 Vertical Deflection Measures

Vertical deflection measures use variations in pavement height and alternative paving materials to contribute to a driver’s discomfort at high travel speeds. The purpose of the deflection is to reduce speeds along a street within a neighbourhood or at a specific location in order that other users, such as pedestrians, are presented with a roadway feature that better meets their needs. Some common vertical devices include:

- Raised Crosswalks

- Raised Intersections
- Speed Humps
- Speed Tables

4.2 Horizontal Deflection Measures

Horizontal deflection measures use raised islands and curb extensions to deflect the driver's path away from straight line along roadways and through intersections. The intention of the deflection is to reduce the vehicular speed through a corridor in order that others in the area are not impacted by speeding traffic. Some common horizontal deflection devices include:

- Curb Extensions
- Chicanes
- Traffic Circles
- Roundabouts
- Realigned Intersections

4.3 Horizontal Narrowing Measures

Horizontal narrowing measures use raised island and/or curb extensions to narrow the street, making the area more "pedestrian friendly". The intention of the narrowing is to increase the driver's awareness of pedestrian activity, and reduce their speed through an intersection or mid-block pedestrian crossing. Some common horizontal narrowing devices include:

- Neckdowns
- Chokers
- Center Island

4.4 Volume Control Measures

Volume control measures include physical diverter, street closures, and median barriers, which restrict vehicles from turning at specific locations. Their main purpose is to divert and ultimately reduce traffic volumes from residential streets. Volume control measures typically move traffic volumes and the associated negative impacts from one street to an adjacent street, and therefore, should be considered only under special circumstances. Some volume control devices include:

- Full Street Closures
- Half Closures
- Diagonal Diversers
- Median Barriers

5. EFFECT ON EMERGENCY VEHICLES RESPONSE TIMES

Any traffic calming device that might be effective because it physically controls traffic generally has negative impact on several classes of emergency vehicles to varying degrees. Emergency response services, as well as, Town's residents place a high value on response times in time of emergency. Installation of most physical traffic calming devices can, and will in most cases, increase response time. In case of fire trucks and ambulances, these vehicles must come to almost a complete stop when they encounter a bump, dip or sharp curve.

6. NOISE IMPACT

The noise impact to adjacent residents resulting from vehicles braking, or going over and around traffic calming devices, such as speed humps, can have a major impact on the acceptability of these devices by residents living closest to them.

7. PARKING

It is often necessary to prohibit on-street parking in the immediate vicinity of the intersection in order to accommodate the realigned vehicle path.

8. INCREASED MAINTENANCE COST

Street maintenance costs will increase in two areas. Landscaping associated with such devices as traffic circles, and neckdowns will require regular maintenance. Devices such as speed humps will have to be reinstalled each time a residential street is overlaid.

9. CONCLUSION

In order for traffic calming to work on local residential roads, neighbourhood support and participation is absolutely necessary. More intrusive traffic calming devices should be used only when other less intrusive measures do not serve their function.

Traffic Calming Measures Available for Consideration

Measure	Description	Illustration
VERTICAL DEFLECTION MEASURES		
Raised Crosswalk	Raised Crosswalks elevate the level of a pedestrian crossing. Pedestrians are more visible to approaching motorists. They are often constructed with brick or textured materials on the ramps to increase visibility for approaching motorists. The walking surface is typically asphalt.	
Raised Intersection	Raised Intersections are flat raised areas covering an entire intersection, with ramps on all approaches. They often have brick or other textured materials on the	

	ramp section. They usually raise the intersection to the level of the sidewalk. As a result, the crosswalks are more visible to motorists.	
Speed Hump	Speed Humps are raised pavement areas placed across the road. They are generally 3 to 4.5 metres long measured in the direction of travel, and are typically 10 centimetres high. Speed humps are very distinct from the shorter "speed bumps" found in many parking lots.	
Speed Table	Speed Tables are flat-topped speed humps often constructed with brick or other textured materials on the flat section. They are typically long enough for the entire wheelbase of a passenger car to rest on the flat section, and allow for higher design speeds than speed humps. The brick or other textured materials improve the appearance of speed tables, draw attention to them, and may enhance safety and speed-reduction.	

HORIZONTAL DEFLECTION MEASURES		
Curb Extensions	Curb Extensions extend the sidewalk or curb line out into the parking lane, which reduces the effective street width. Curb extensions significantly improve pedestrian crossings by reducing the pedestrian crossing distance, visually and physically narrowing the roadway, improving the ability of pedestrians and motorists to see each other, and reducing the time that pedestrians are in the street.	
Chicane	Chicanes are curb extensions that alternate from one side of the street to the other, forming S-shaped curves. Alternating on-street parking from one side of the street to the other can also create chicanes. Each parking bay can be created either by striping the roadway or by installing raised, landscaping islands at the ends of each parking bay.	

Traffic Circle	Traffic Circles are raised islands, placed in intersections, around which traffic circulates. They are good for calming intersections, especially within neighborhoods, where large vehicular traffic is not a major concern but speeds, volumes, and safety are problems.	
Roundabout	Roundabouts require traffic to circulate counterclockwise around a center island. Roundabouts are used on higher volume streets to allocate right-of-way between conflicting movements, where traffic circles are used on low volume roads. Roundabouts are effective at intersections with a history of accidents, and where queues need to be minimized.	
Realigned Intersections	Realigned Intersections change road alignments at T-intersections from straight approaches into curving streets that meet at right-angles. A former "straight-through" movement along the top of the T-intersection becomes a turning movement.	

HORIZONTAL NARROWING MEASURES

Neckdown	Neckdowns are curb extensions at intersections that reduce the roadway width from curb to curb. They effectively make an intersection more pedestrian friendly by shortening crossing distances and drawing attention to drivers. The curb radii at the corners are also tightened, reducing the speed of vehicles turning at the intersection. Neckdowns are good at intersections with high pedestrian activity.	
Choker	Chokers are curb extensions at midblock locations that narrow a street. Two-lane chokers leave the street cross-section with two lanes that are narrower than the normal cross section. One-lane chokers narrow the width to allow travel in only one direction at a time. They are good for areas with substantial speed problems and no on-street parking shortage.	

Center Island	Center Island narrowing is a raised island located along the centerline of a street that narrows the travel lanes at that location. Placed at the entrance to a neighbourhood, and combined with textured pavement or landscaping, they create an attractive gateway to a neighbourhood. Center islands work well on wide streets where pedestrians need to cross.	
VOLUME CONTROL MEASURES		
Full Street Closure	Full street closures are barriers placed across a street to completely close the street to through traffic. Only the sidewalk is open.	
Half Street Closure	Half closures are barriers that block travel in one direction for a short distance on two-way streets.	

Diagonal Diverter	Diagonal Diverters are barriers placed diagonally across an intersection, blocking through movements and creating two separate, L-shaped streets. Like half closures, diagonal diverters are often staggered to create circuitous routes through the neighborhood as a whole, discouraging non-local traffic while maintaining access for local residents.	
Median Barrier	Median Barriers are islands located along the centerline of a street and continuing through an intersection so as to block through movement at a cross street. They are ideal at intersections where left turns to and/or from the side street are unsafe.	

Sources:

TAC/ITE Canadian Guide to Neighbourhood Traffic Calming, December 1998
www.trafficcalming.org

QUESTIONNAIRE

1. Have you installed any traffic calming measures other than those listed above?	Yes	No	Please describe		
2a. How would you describe the effectiveness of traffic calming measures in reducing speed ?	Significant	Moderate	Minimal	No difference	
2b. What measure was most effective?	Please describe				
3. How would you describe the effectiveness of traffic calming measures in reducing cut-through traffic ?	Significant	Moderate	Minimal	No difference	
3b. What measure was most effective?	Please describe				
4a. On average, how many measures do you implement each year?				Number	
	Single devices				
	Traffic calming schemes or routes				
4b. Please complete the following table showing the percentage of traffic calming measures.	Installed as:			Percentage (%)	
	New development				
	Stand alone treatment (existing road)				
	Part of street or route reconstruction				
	Part of an area wide program				
5. Do you have a policy governing the consideration of traffic calming measures?	Yes	No	Please describe (attach policy if available)		
6. Do you have an annual budget specifically for traffic calming devices and what is its approximate value?	Yes	No	Please describe		
7. Would you undertake consultations prior to the introduction of a traffic calming measure?	Yes	No	Please describe		
8. Do you have a committee to deal with an implementation of traffic calming measures, including members such as, Fire Department, Police, EMS, Public, City staff & local interest groups?	Yes	No	Please describe structure of committee		
9. Indicate the type of data collected to review the effectiveness of traffic calming device?	Volume	Speed	Accidents	Public	Other
10. Please provide general comments or suggestions on how effective the traffic calming program is in your municipality?					

TRAFFIC CALMING MEASURES QUESTIONNAIRE

Municipality: _____

Person(s) replying to questionnaire: _____

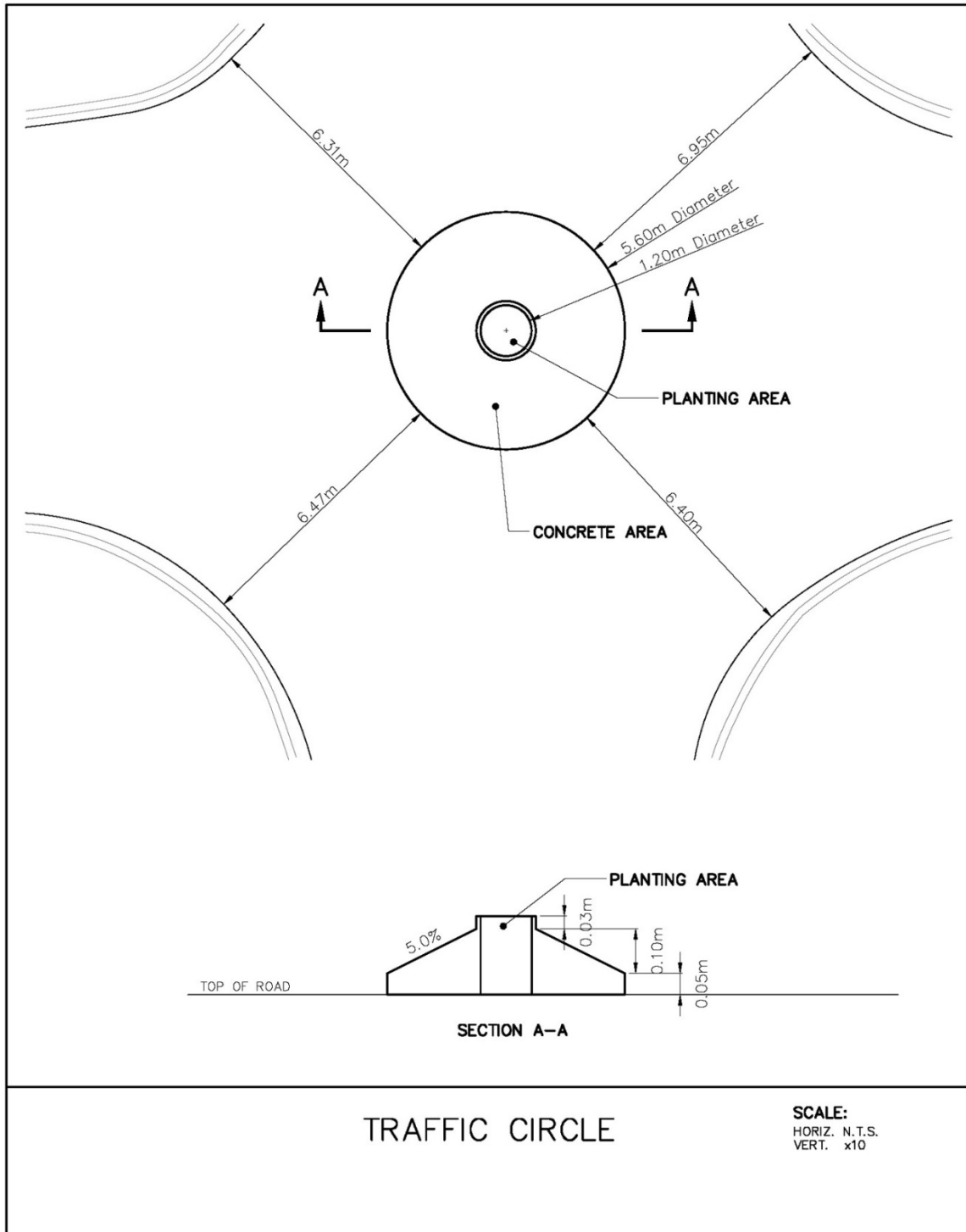
Contact phone number: _____

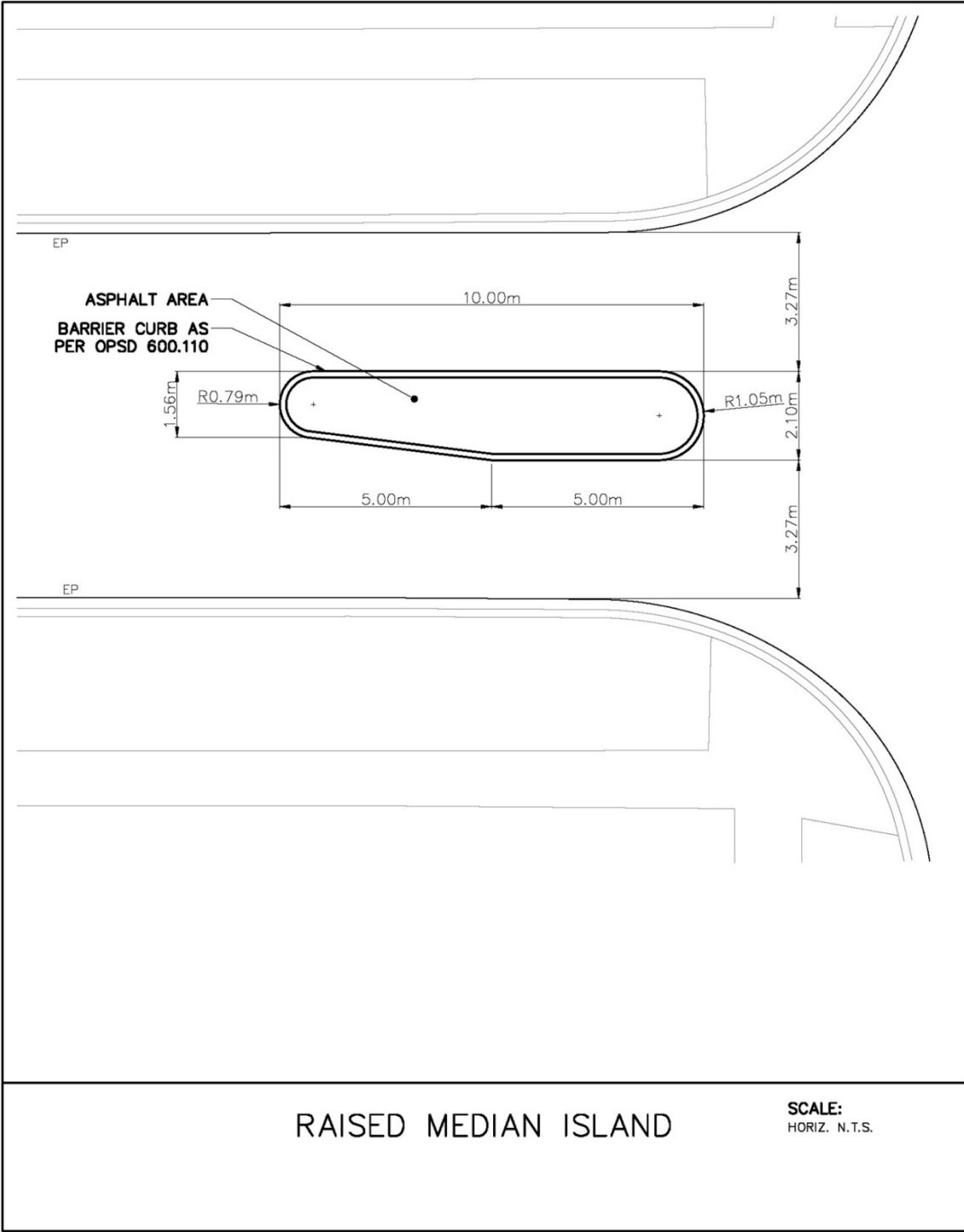
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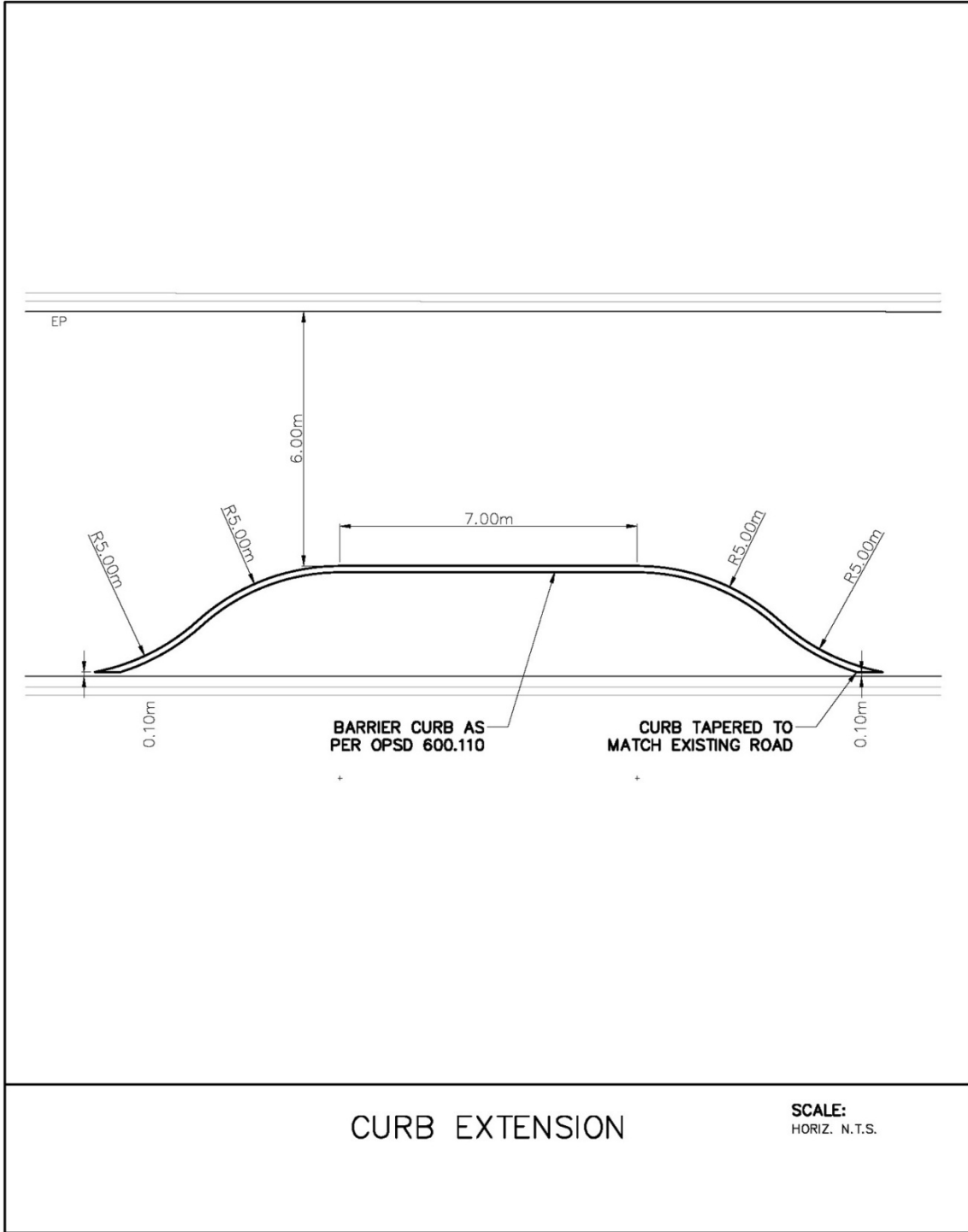
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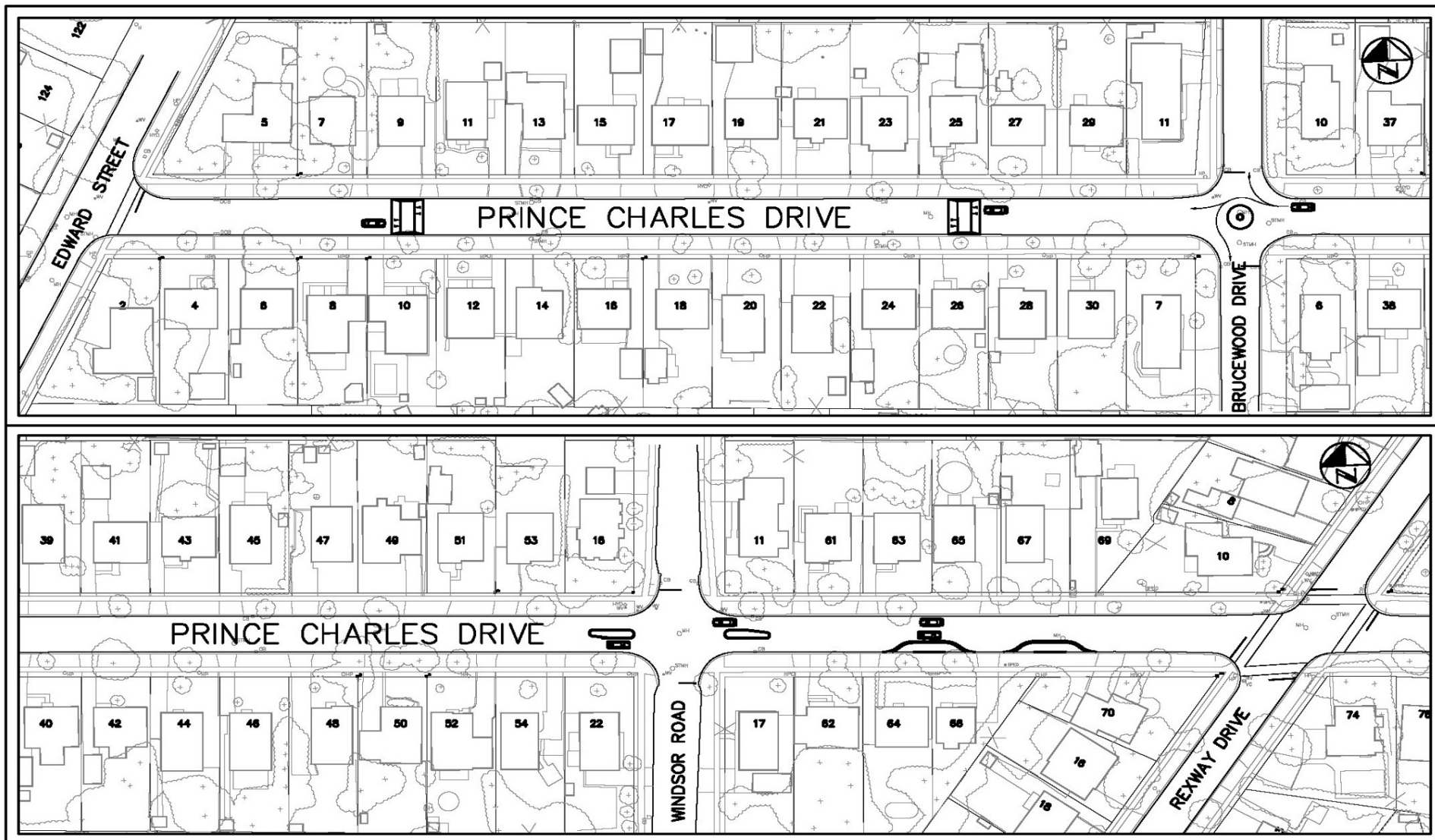
Please indicate below, on what classes of road you have used the following commonly used traffic calming measures.

Treatment	Arterial	Collector	Local
Raised Crosswalk			
Raised Intersection			
Speed Hump			
Speed Table			
Curb Extension			
Chicane			
Traffic Circle			
Roundabout			
Neckdown			
Choker			
Center Island			
Full Street Closure			
Half Street Closure			

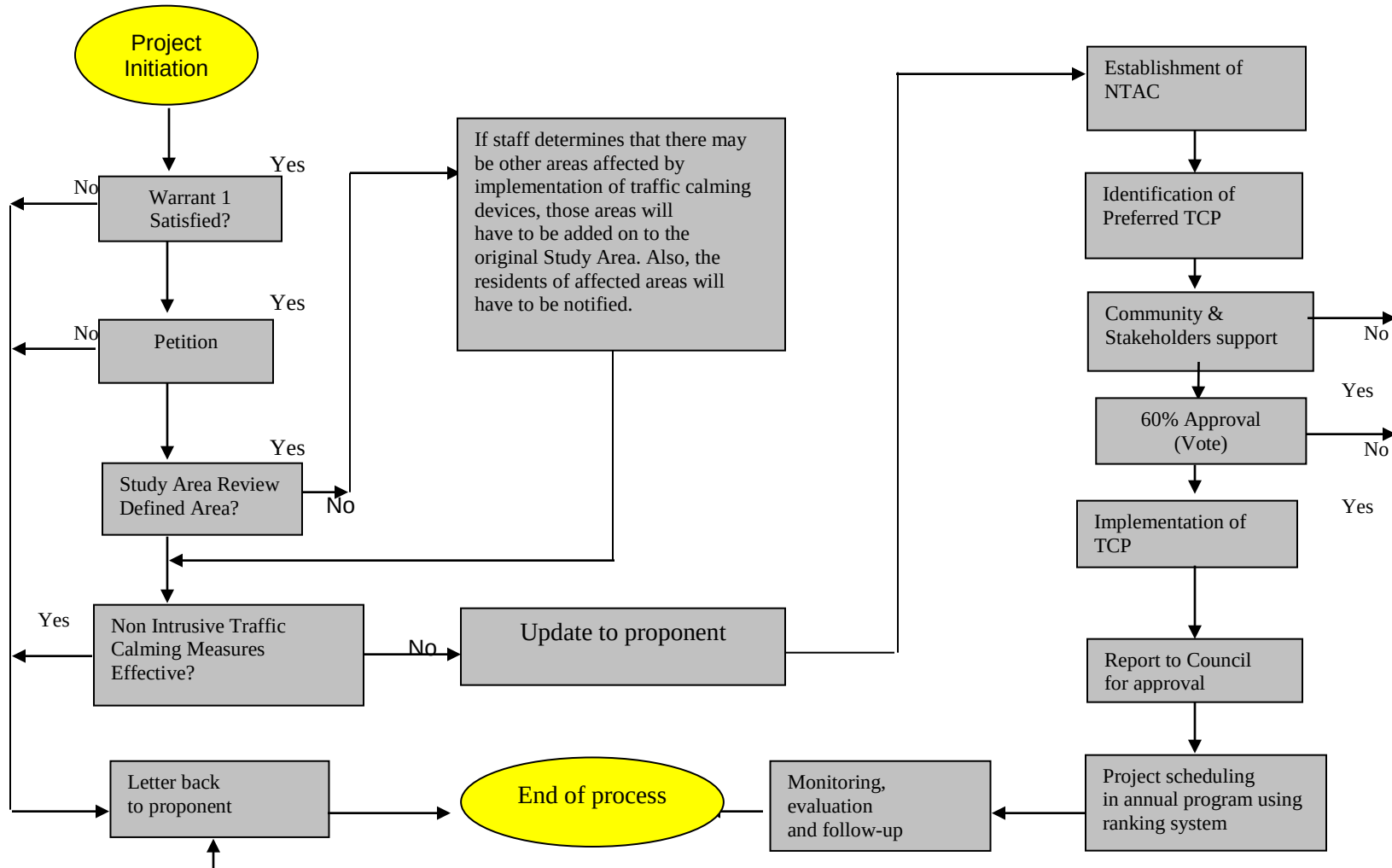








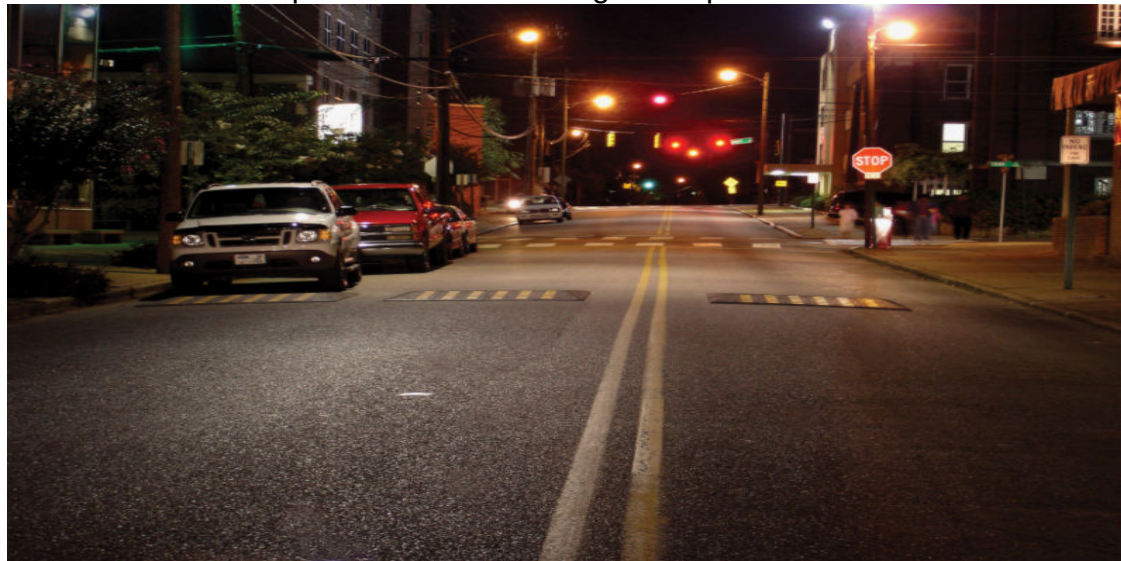
FLOW CHART OF PROCESS FOR INSTALLATION OF TRAFFIC CALMING DEVICES



EXAMPLES OF SPEED CUSHION APPLICATIONS



Fire Department Truck driving over speed cushion



Speed cushions at night conditions

