

COMMITTEE OF THE WHOLE (WORKING SESSION) JANUARY 14, 2003

NEIGHBOURHOOD TRAFFIC CALMING INITIATIVES

Recommendation

The Commissioner of Engineering and Public Works recommends:

1. That the results of the traffic calming surveys distributed to residents of each completed Neighbourhood Traffic Committee be received for information purposes and considered in any future implementation of traffic calming in the City of Vaughan;
2. That the results of the speed studies conducted within each completed Neighbourhood Traffic Committee be received for information purposes;
3. That the proposed updated Neighbourhood Traffic Committee Policy and Procedure, and the proposed new Traffic Calming Criteria and Traffic Calming Standard Drawings, as attached, be approved;
4. That existing traffic calming measures in the City be retrofitted, where necessary, to conform to the Traffic Calming Standard Drawings, and that funds for the retrofitting, estimated at approximately \$70,000, be drawn from the 2001 Capital Budget (Project 1203-2 Traffic Calming); and
5. That Council provide direction concerning the current moratorium on traffic calming in the City of Vaughan.

Purpose

To provide a report on the Traffic Calming Policy, to seek Council approval for the adoption of several new traffic calming initiatives, to inform Council of the results of the before/after speed studies conducted to date, and to inform Council of the results of the surveys distributed to residents within each completed Neighbourhood Traffic Committee area.

Background – Analysis and Options

At its meeting of November 12, 2001, Council directed that staff review and provide a report on the Traffic Calming Policy addressing concerns raised, including notification to residents directly affected with the installation of traffic calming measures, and regarding final Council approval of traffic calming measures to be implemented.

Further, at its meeting of December 18, 2001, Council approved a number of recommendations pertaining to traffic calming in the City of Vaughan. The recommendations included the placement of a moratorium on traffic calming, direction to invite emergency services representatives to Traffic Committee meetings, direction to limit the use of speed humps wherever possible, direction to distribute surveys to residents within each completed Neighbourhood Traffic Committee area, and direction to develop design standard drawings for the City's traffic calming measures and criteria for determining where they should be installed.

This report was prepared in response to the directions given by Council and will be accompanied by a verbal presentation from Engineering Department staff.

Resident Surveys

Surveys were mailed to residents within each completed Neighbourhood Traffic Committee area during the week of April 2, 2002. The Neighbourhood Traffic Committee areas in the City that

have been completed or are in progress are shown on Attachment No. 1. The residents were asked to complete the surveys and return them by mail, fax, internet or Community Centre drop-off by April 26, 2002. A total of 14,205 surveys were individually mailed out, and 1,417 were received, for a City-wide response rate of 10 percent.

A sample survey is included as Attachment No. 2. Residents were asked whether they think traffic conditions have improved in their neighbourhood since the installation of traffic calming measures, and whether they think their benefits outweigh any negative aspects. They were also asked whether they think there should be more or fewer speed humps, raised crosswalks, allway stop controls, and other traffic calming measures in their neighbourhood. Space was provided to allow for additional comments.

Some of the data collected from the surveys is shown below. A more detailed summary of the results is included as Attachment No. 3.

<u>Project</u>	<u>No. of Surveys</u>		<u>Have Traffic Conditions Improved?</u>		<u>Do Benefits Outweigh Negatives?</u>	
	Mailed	Received	Yes	No	Yes	No
1. Historic Maple	400	76	57%	43%	68%	32%
2. Arnold Avenue	95	25	85%	15%	92%	8%
3. Kleinburg Core	700	138	83%	17%	82%	18%
4. Weston Downs Phase 1A	214	43	37%	63%	61%	39%
5. Crossroads	239	14	53%	47%	56%	44%
6. Joseph Aaron	1036	64	68%	42%	61%	39%
7. Belview	1255	64	44%	56%	56%	44%
8. Maple Springs Phase 1	1575	134	59%	41%	63%	37%
9. Mullen	1006	127	44%	56%	56%	44%
10. Forest/Bainbridge	600	38	53%	47%	67%	33%
11. Thornhill (Westmount-Wilshire)	1980	264	44%	56%	51%	49%
12. Brownridge	1815	124	54%	46%	60%	40%
13. York Hill	1594	174	56%	44%	65%	35%
14. Morning Star/Mapes	960	68	68%	32%	59%	41%
15. Woodbridge	736	64	54%	46%	66%	34%
Total for all projects	14,205	1,417	57%	43%	64%	36%

Of residents responding to the surveys, 57 percent think that traffic conditions have improved in their neighbourhood since the installation of traffic calming measures, and 64 percent think that the benefits of traffic calming outweigh any negative aspects.

With respect to individual traffic calming measures, the following is noted:

- Of the residents responding, 54 percent think there should be more speed humps and raised crosswalks in their neighbourhood, 6 percent think the number is satisfactory, and 40 percent think there should be fewer speed humps and raised crosswalks.
- Of the residents responding, 38 percent think there should be more allway stop controls in their neighbourhood, 35 percent think the number is satisfactory, and 27 percent think there should be fewer allway stop controls.
- Of the residents responding, 26 percent think there should be more "other traffic calming measures" in their neighbourhood, 10 percent think the number is satisfactory, and 64 percent think there should be fewer. In this context, "other traffic calming measures" means measures that are not speed humps and raised crosswalks, such as raised

intersection medians, flush-to-grade centre medians, curb extensions and painted road narrowings.

The greatest negative response was for the flush-to-grade centre medians installed on Beverley Glen Boulevard and Worth Boulevard as part of the Thornhill (Westmount-Wilshire) Traffic Committee plan. The raised intersection medians on Beverley Glen Boulevard, and the curb extensions and painted road narrowings installed on Brownridge Drive and other streets as part of the Brownridge Drive Traffic Committee plan also received mainly negative responses. The medians and curb extensions installed on Melville Avenue, Cunningham Drive and Cranston Park Drive installed as part of the Maple Springs Phase 1 Traffic Committee plan received mixed, but mainly negative, responses, while public opinion was split on the painted road narrowings on these streets.

Most of the comments received from residents were requests for increased police enforcement of the speed limit or compliance at stop signs. Of the comments received concerning speed humps and raised crosswalks, many were for more severe designs to further slow motorists, although some wanted less severe designs. Most comments about medians and curb extensions were concerns that they were generally ineffective in slowing motorists, and that they took away on-street parking spaces.

Speed Studies

In November 2001 staff reported on the results of a series of speed studies for all the City's traffic calming projects constructed to date. The results of the studies indicated that traffic calming has reduced average speeds by approximately 8 km/h, and corresponding average maximum speeds by about 12 km/h. The Belview Avenue, Westmount/Wilshire Phase I, Kleinburg Core Phase I and Joseph Aaron Boulevard Traffic Committees were not evaluated because these plans were implemented in prior years, before a program to collect speed data was initiated.

Staff have continued to conduct radar studies in all projects where traffic calming measures have been implemented to determine their impacts on traffic speeds. The list of completed speed studies now includes the Maple Springs Phase I, Historic Maple, Arnold Avenue and Weston Downs Phase IA Traffic Committees and the Thomson Creek Boulevard Raised Crosswalk. The results are summarized below:

<u>Project</u>	<u>Speed Before Implementation</u>		<u>Speed After Implementation</u>	
	Average (km/h)	Max. (km/h)	Average (km/h)	Max. (km/h)
1. Westmount/Wilshire Traffic Committee Phase II	48	80	45	70
2. Kleinburg Core Traffic Committee Phase II	57	83	42	66
3. Brownridge Dr. Traffic Committee	44	81	36	52
4. Woodbridge Ave. Ratepayers Traffic Committee	50	72	46	78
5. Woodbridge Core Traffic Committee	49	73	44	59
6. <i>Torii St. Speed Hump</i>	42	62	37	51
7. York Hill Blvd. Traffic Committee	50	68	41	61
8. Crossroads Traffic Committee	37	57	27	43
9. Forest Dr./Bainbridge Ave. Traffic Committee	46	70	38	63
10. Morning Star Dr./Mapes Ave. Traffic Committee	49	78	35	52
11. Maple Springs Traffic Committee Phase I	49	82	41	61
12. Historic Maple Traffic Committee	47	74	37	54
13. <i>Thomson Creek Blvd. Raised Crosswalk</i>	51	63	44	60
14. Arnold Avenue Traffic Committee	52	75	44	63
15. Weston Downs Traffic Committee Phase IA	46	80	39	53
Average for all projects	48	73	40	60

The results show that traffic calming has reduced average speeds by approximately 8 km/h, and corresponding average maximum speeds by about 13 km/h, which is consistent with the results reported in November 2001.

Current Traffic Calming Practice

Traffic calming in the City of Vaughan is conducted on an area-wide basis to improve safety on neighbourhood streets by reducing the negative impacts of motor vehicle use. These impacts are usually associated with high speeds and traffic infiltration. In existing areas of the City, traffic calming measures are implemented through a process that starts with requests from residents. There are currently technical criteria by which streets are deemed not suitable for traffic calming measures (i.e. presence of steep grades, locations of driveways, etc.) but no warrants for their installation. Endorsement of a traffic calming plan is instead achieved through support from the area residents.

Traffic calming measures are incorporated into new areas of the City through the block plan process. Traffic calming plans are prepared on a block wide basis and submitted to the City for preview and approval. These approved traffic calming plans are implemented through development of each draft plan in a block at the Developer's cost. Implementation of traffic calming in new "greenfield" development provides for the use of traffic calming measures such as raised intersections, traffic circles and medians that often cannot be used in retrofit situations in existing communities.

Traffic Calming Procedures in Other Municipalities

Other municipalities in the Greater Toronto Area such as Toronto, Mississauga, Brampton, Pickering, Markham and Richmond Hill deal with requests for traffic calming somewhat differently. A brief summary of our understanding of their traffic calming procedures follows:

- The City of Toronto usually conducts traffic calming on a street-by-street basis, although several streets may be considered under one plan. Consideration of traffic calming measures is initiated through a public meeting, a petition signed by at least 25 percent of the affected households (10 percent in the case of multiple family rental dwellings), or a survey conducted by the Ward Councillor.

Staff poll by letter those households that have frontage or flankage on the streets where traffic calming measures are being considered. If minimum technical criteria are met then staff develop a plan and present it to the neighbourhood. Forty percent or more of the affected households must respond to the poll, and 60 percent or more must be in favour of the plan, before it can proceed to Council for approval.
- The City of Mississauga implemented several traffic calming projects in the early 1990s, and then stopped because of complaints from residents. They are now considering resuming the practice in response to public demand and will report to Council this fall. City of Mississauga staff are considering a process whereby traffic calming will be implemented on an area-wide basis if a survey establishes that two-thirds of the residents in the area are in favour, and the measures are technically warranted. Public meetings would then be held to finalize the plan before it goes to Council. Over the past few years some traffic calming measures have been incorporated into new areas.
- The City of Brampton has not as yet undertaken any traffic calming in new or existing areas, however, staff expect that they will be initiating a program in response to public demand. Staff are currently working on a Traffic Calming Policy and Criteria to guide the implementation of traffic calming measures.

- The City of Pickering conducts traffic calming generally on a street-by-street basis in response to requests from the public. If minimum technical criteria are met the request is forwarded to a Safer Streets Traffic Calming Review Committee for approval. The committee is made up of a resident of the affected street or area, and representatives from Council, Emergency Services, Transit, Engineering, Planning, and Public Works.

If committee approves the request, and if a poll by letter establishes that 70 percent of the affected residents are in favour of traffic calming, then staff will form a Neighbourhood Traffic Calming Committee and work with the residents to develop a plan for Council approval.

- The Town of Markham also conducts traffic calming on a street-by-street basis, but limits implementation to one street per ward per year. A Transportation Committee made up of the ward councillor and residents, with technical input from staff, selects the street.

Staff prepare a preliminary design of the traffic calming measures for the street, then a public meeting is held to seek input prior to final design. Once the design is finalized the residents on the street are asked to vote on the plan by telephone. Sixty percent support is needed for the plan to proceed to Council for approval. The Town has recently started to request that traffic calming measures be built into new areas as well.

- The Town of Richmond Hill has to date implemented two traffic calming projects in existing areas in response to public demand. Another project is currently in the design stage, and staff expect that more will be requested in the future. A few roundabouts have been constructed to calm traffic in new areas.

Proposed New Neighbourhood Traffic Committee Policy and Procedure

The process by which traffic calming is implemented in existing areas of the City of Vaughan is through the Neighbourhood Traffic Committee Policy and Procedure. The current version of this document is dated December 1997. An updated version is proposed that provides more detail, reflects the current Neighbourhood Traffic Committee process, and proposes further improvements to that process. The proposed update is included as Attachment No. 4.

Changes from the previous version include:

- Details on how public meetings are arranged. The proposed procedure specifies that the Engineering Department schedule the public meetings and mail notices to all residents in each Traffic Committee area. This reflects current practice. Previously members of the Traffic Committee were asked to deliver the notices. The new procedure specifies that in addition to all members of Council, the Fire Department and York Region Transit be sent notices of all public meetings so representatives have the opportunity to attend.
- The requirement that the support of at least two-thirds of the public is needed before a traffic calming Plan proposal can be brought forward to Committee of the Whole. Previously only majority support was needed.
- Details on how requests for additional traffic calming measures should be dealt with.

Municipal Class Environmental Assessment Requirements

In June 2000, installation or removal traffic calming measures was included in the Municipal Class Environmental Assessment (EA) process. Projects involving the construction or removal of traffic calming measures are now Schedule B Class EA projects if they are expected to cost less than \$1,500,000. The Ministry of the Environment requires that proponents of Schedule B projects go through a process involving public consultation, the examination of alternate

solutions, and the issuing of Notices of Commencement and Completion. The City of Vaughan has generally been following the process, and even exceeds Class EA requirements for public consultation. The process would require the City to issue Notices of Commencement or Completion for each traffic calming project.

Accordingly, the proposed Neighbourhood Traffic Committee Policy and Procedure specifies that the Engineering Department send the notice for the initial public meeting to the Ministry of the Environment to serve as a Notice of Commencement, and file a Notice of Completion with the Ministry and publish the notice on the City Page in two separate editions of the *Vaughan Citizen* or *Liberal*.

Once the Notice of Completion is issued individuals or agencies are allowed 30 days to review the plan. If during the review period, someone has a concern with the project, they may follow a procedure to request a Part II Order (formerly called a “bump-up” request). For Schedule B projects, a person with a concern should bring it to the attention of the City. If the concern is not resolved through discussions, the person may request the City to elevate a Schedule B project to a Schedule C. If the proponent declines, the person with the concern may write to the Minister of the Environment and request a Part II Order. The MOE has 45 days after the receipt of the request and the expiry of the 30 day review period to review the request and prepare a report for the Minister’s consideration. The Minister then has a further 21 days to consider the matter and make a decision on the request. The Minister can deny the request, refer the matter to mediation or require the proponent to do further work.

Traffic Calming Criteria in Other Municipalities

Most municipalities, including Vaughan, have technical criteria by which traffic calming measures can be installed. Other municipalities also have warrants that specify where certain traffic calming measures can be implemented. A brief summary of the warrants used in the City of Toronto and the City of Pickering follows:

- The City of Toronto will only consider traffic measures on local or collector streets where traffic speeds and volumes are within certain limits, and will only consider speed humps on streets that are not primary emergency response or transit routes. If these conditions are met then the street is rated according to a ranking system to determine its order for implementation, as the City of Toronto normally caps spending for traffic calming projects at \$750,000 per year. Consideration is given to the presence of sidewalks, pedestrian and bicycle traffic, road grades, long blocks, and collision history.
- The City of Pickering will only consider traffic calming measures on local and collector streets that have been approved by the Safer Streets Traffic Calming Review Committee. If the street meets minimum warrants for traffic speeds and infiltration, then the committee uses a checklist to determine its suitability for traffic calming measures based on whether the street is an emergency or transit route, its intended function, collision history, road grade, pedestrian activity and residential frontage.

These municipalities employ criteria for two reasons: to confirm that traffic calming measures are not installed where they are inappropriate or dangerous, and to ensure that public funds are spent on traffic calming in the most effective way possible.

Proposed New Traffic Calming Criteria

It is proposed that in the future traffic calming measures be installed on City of Vaughan streets in accordance with warrants as well. Since the City of Vaughan implements traffic calming on a more area-wide basis than Toronto or Pickering, the warrants cannot be as technically detailed. Therefore, it is proposed that warrants be established that simply dictate where certain traffic calming measures should not be considered.

For example, it is proposed that:

- Speed humps and raised crosswalks not be considered on streets that are primary emergency response routes. This would eliminate streets such as Martin Grove Road or Clark Avenue, and most primary roads, from being candidates for speed humps and raised crosswalks.
- Traffic calming measures not be considered on streets where the speed limit is greater than 50 km/h.
- Traffic calming measures not be considered where speeds are not in excess of the speed limit by at least 10 km/h. This will ensure that traffic calming measures are used only on streets where a speeding problem has been established.

The proposed criteria are included as Attachment No. 5.

Traffic Calming Standard Drawings

A number of standard drawings have been developed to standardize the design of traffic calming measures currently in use in the City of Vaughan. The drawings detail a number of features such as sign sizes, symbols and locations, pavement markings, dimensions and use of materials for each type of traffic calming measure in use in the City. The standard drawings, as listed below, are included as Attachment No. 6.

Std. Dwg. P-1 Traffic Calming Advance Warning Signs
Std. Dwg. P-2 Speed Hump
Std. Dwg. P-3 Raised Crosswalk
Std. Dwg. P-4 Raised Intersection
Std. Dwg. P-5 Roundabout Layout
Std. Dwg. P-6 Single-Lane Roundabout
Std. Dwg. P-7 Mini-Roundabout
Std. Dwg. P-8 Traffic Calming Medians
Std. Dwg. P-9 Curb Extensions and Road Narrowings
Std. Dwg. P-10 Chicane

Should they be adopted, any future traffic calming measures in the City would be implemented in accordance with the standard drawings, and wherever possible existing measures would be retrofitted to be consistent with them. Most of the retrofitting would involve replacing the signs associated with speed humps and raised crosswalks constructed prior to 2001. Currently larger signs are being installed at these measures, with larger speed hump symbols and “30 km/h” advisory tabs rather than “20 km/h” tabs. Other retrofitting would involve installing flexible plastic bollards at the traffic calming medians, curb extensions and road narrowings as was done for the medians at the intersection of York Hill Boulevard and Winding Lane/Colleen Street, and revising pavement markings through the City’s annual pavement marking contract.

The estimated cost of retrofitting the City’s traffic calming measures currently not in conformance with the proposed standard drawings is \$70,000. This includes over 90 speed humps needing replacement signs. It is recommended that funds for the retrofitting be drawn from the 2001 Capital Budget (Project 1203-2 Traffic Calming).

The standard drawings would provide more detailed guidelines for the design and installation of traffic calming measures than what has been developed in publications such as the *Canadian Guide to Neighbourhood Traffic Calming* (Transportation Association of Canada, 1998).

The drawings concerning roundabouts (or traffic circles) have been developed in accordance with the publication *Roundabouts: An Informational Guide*, by the Federal Highway Administration in the United States. The guide reflects the latest thinking on roundabout design in North America. The standard drawings incorporate revised signs and pavement markings, and specify splitter islands on primary or collector road approaches that are longer than those in use on some of the City's existing roundabouts. The new splitter island design will create safer conditions for pedestrians, and provide better guidance for motorists about which direction they are to travel through a roundabout. However, additional land will be required to accommodate the widening needed for the longer islands, and it will be difficult to locate residential driveways close to the roundabouts because the islands will interfere with driveway access. For these reasons roundabouts will continue to be largely feasible only when designed into new areas.

Speed Hump Tests

At its meeting of June 24, 2002, Council approved a recommendation that speed humps be constructed on the Chancellor Community Centre property for the purposes of testing their effects on heavy vehicles.

Speed humps in the City of Vaughan are currently 7.0 metres long by 100 mm high. Some residents have claimed they are not effective in slowing some vehicles, particularly the sport utility vehicles that are becoming increasingly common on our streets, and have requested that more severe designs be used. However, the Fire Department and other agencies have concerns that more severe designs will have greater impacts on their heavier vehicles.

Staff will test two other speed hump designs using fire trucks and other vehicles to determine if the current standard is adequate, or whether future speed humps and raised crosswalks in the City should be made more severe. The results of the tests will be the subject of a future Committee of the Whole report.

Future Traffic Calming in the City of Vaughan

The City of Vaughan has been a leading proponent of traffic calming in the Greater Toronto Area. Over the past several years over 100 speed humps and raised crosswalks, and a number of other measures, have been implemented through 23 separate Neighbourhood Traffic Committees. At least 20 other committees are in the process of developing traffic calming plans or waiting for their implementation, and should the moratorium be lifted others will likely be established. At the current rate traffic calming measures will soon be implemented in most existing residential areas of the City. To date the City has spent a total of over \$1.5 million on 23 individual traffic calming projects.

Each Traffic Committee involves a considerable amount of staff time: preparation and attendance at a minimum of two public meetings; working meetings with the Traffic Committee members; distribution of meeting notices; field work including speed studies, traffic counts and sometimes infiltration studies; a report to Committee of the Whole; traffic calming design; tender preparation and contract administration of the construction of traffic calming measures. The work is done with limited staff resources.

Staff are already receiving requests for speed humps and raised crosswalks in both newly assumed and unassumed areas in Block 17, Block 39 and the Woodbridge Expansion Area. This is in addition to the raised intersections, roundabouts and curb extensions or road narrowings that were constructed in these areas through the block plan process.

While studies have proven that speed humps and raised crosswalks are effective measures for reducing traffic speeds, and surveys have established they are generally popular with residents, they have undesirable impacts on heavy vehicles and emergency response times. Unless public expectations begin to change regarding the role of primary roads, residents will continue to

demand that additional traffic calming measures, primarily speed humps and raised crosswalks, be implemented on these streets. It is proposed through the Traffic Calming Warrants that most primary roads in these new blocks not be candidates for speed humps and raised crosswalks because of their higher volumes and role in providing a route for transit and emergency response, and other measures be considered should the moratorium on traffic calming be lifted. These include raised intersections, roundabouts, medians, curb extensions or road narrowings, contrasting materials, pavement markings and warning signage.

Staff are of the view that effective police enforcement of vehicle speeds combined with our radar message board program and public education together with a change in the public's attitude towards driving is necessary to create the vehicular travel conditions that residents desire in their neighbourhoods. Staff will be providing a report to a future Committee of the Whole meeting on the implications of expanding our current radar message board program. Staff will consult with York Regional Police for their input.

Conclusion

It is recommended that the results of the resident traffic calming surveys be considered in any future implementation of traffic calming, and the results of the speed studies be received for information purposes. It is also recommended that the proposed updated Neighbourhood Traffic Committee Policy and Procedure, and the proposed new Traffic Calming Criteria and Traffic Calming Standard Drawings, be approved, and that Council provide direction on the current moratorium on new traffic calming projects in the City of Vaughan.

Attachments

1. Location Map
2. Sample Resident Survey
3. Survey Summary
4. Neighbourhood Traffic Committee Policy and Procedure
5. Warrants for the Use of Traffic Calming Measures
6. Traffic Calming Standard Drawings

Report prepared by:

Philip Weber, Transportation Engineer, ext. 8264

Respectfully submitted,

Bill Robinson, P. Eng.
Commissioner of Engineering and Public Works

ATTACHMENT No. 1



ATTACHMENT No. 2

April 8, 2002

TRAFFIC CALMING FEEDBACK REQUESTED

The City of Vaughan wants your feedback on the traffic calming measures (speed humps, median islands etc.) installed in your neighbourhood. Your input is important and will help us make future decisions on dealing with traffic issues.

Please complete the following survey and return it by mail, fax, internet or Community Centre drop-off no later than April 26, 2002. The traffic calming plan for your neighbourhood is shown on the reverse. A report summarizing the results of the survey will be presented to Vaughan Committee of the Whole on June 3, 2002.

1. Have the traffic conditions in your neighbourhood improved since the installation of traffic calming measures? Yes ☐ No ☐
2. Do the benefits of traffic calming outweigh any negative aspects? Yes ☐ No ☐
3. Do you think there should be more or fewer

Speed Humps?	More <input type="checkbox"/>	Fewer <input type="checkbox"/>
Median Islands?	More <input type="checkbox"/>	Fewer <input type="checkbox"/>
Curb Extensions?	More <input type="checkbox"/>	Fewer <input type="checkbox"/>
Painted Road Narrowings?	More <input type="checkbox"/>	Fewer <input type="checkbox"/>
Allway Stop Signs?	More <input type="checkbox"/>	Fewer <input type="checkbox"/>
4. In addition to increased Police enforcement, how else do you think the traffic calming plan in your neighbourhood could be improved?

Please provide us with any additional comments concerning traffic calming in the space below.

For tracking purposes please provide your address: _____

Please complete the survey and return it no later than April 26, 2002, by any of the following methods.

Mail: Mike Dokman, CET, Sr. Transportation Technologist, Engineering Department, 2141 Major Mackenzie Drive, Vaughan, ON, L6A 1T1 (Telephone 905-832-8525, ext. 8031)

Facsimile: 905-832-6145, Attention: Mike Dokman

Internet: <http://www.vaughan2u.ca/engsurvey.htm>, or click on "Top Stories" on the City's homepage

Drop Off:

Garnet A. Williams Community Centre 501 Clark Ave. W. Thornhill	Dufferin/Clark Community Centre 1441 Clark Ave. W. Thornhill	Maple Community Centre 10190 Keele St. Maple	Father Ermanno Bulfon Community Centre 8141 Martin Grove Rd. Woodbridge	Al Palladini Community Centre 9201 Islington Ave. Woodbridge
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THANK YOU FOR YOUR INPUT!

ATTACHMENT NO. 3

CITY OF VAUGHAN TRAFFIC CALMING PROJECTS

2002 RESIDENT SURVEY SUMMARY

Project	Traffic Conditions Improved?		Benefits Outweigh Negatives?		Speed Humps		Allway Stop Controls		Other Measures (If Applicable)		
	Yes	No	Yes	No	More	Same Fewer	More	Same Fewer	More	Same Fewer	
1. Historic Maple Traffic Committee	57%	43%	68%	32%	36%	7%	58%	32%	7%	62%	
2. Arnold Avenue Traffic Committee	85%	15%	92%	8%	68%	12%	20%	8%	88%	4%	
3. Kleinburg Core Traffic Committee	83%	17%	82%	18%	45%	29%	26%	49%	36%	15%	
4. Weston Downs Traffic Committee Phase 1A	38%	63%	61%	39%	51%	19%	30%	33%	28%	40%	
5. Crossroads Traffic Committee	53%	47%	56%	44%	43%	0%	57%	36%	14%	50%	
6. Joseph Aaron Blvd. Traffic Committee	68%	43%	61%	39%	77%	-36%	59%	27%	61%	13%	
7. Belview Ave. Traffic Committee	44%	56%	56%	44%	38%	26%	36%	21%	63%	15%	
8. Maple Springs Traffic Committee Phase I	59%	41%	63%	38%	66%	-7%	41%	53%	22%	25%	
9. Mullen Dr. Traffic Committee	44%	56%	56%	44%	43%	15%	42%	13%	78%	9%	
10. Forest Dr./Bainbridge Ave. Traffic Committee	53%	47%	67%	33%	68%	5%	26%	53%	16%	32%	
11. Thornhill (Westmount-Wilshire) Traffic Committee	44%	56%	51%	49%	42%	17%	41%	14%	77%	10%	
12. Brownridge Dr. Traffic Committee	54%	46%	60%	40%	55%	-2%	48%	61%	10%	29%	
13. York Hill Blvd. Traffic Committee	56%	44%	65%	35%	40%	24%	36%	43%	29%	28%	
14. Morning Star Dr./Mapes Ave. Traffic Committee	68%	32%	59%	41%	54%	-6%	51%	51%	6%	43%	
15. Woodbridge Ave. Traffic Committee	54%	46%	66%	34%	83%	-17%	34%	75%	-5%	30%	
Totals	57%	43%	64%	36%	54%	6%	40%	38%	35%	27%	
									26%	10%	64%

ATTACHMENT No. 4

**NEIGHBOURHOOD TRAFFIC COMMITTEE
POLICY AND PROCEDURE**

DRAFT

REVISED JANUARY 2003

POLICY

1. **Purpose:** A Neighbourhood Traffic Committee (the "Committee") may be established in an area where general concern has been expressed about the volume or speed of traffic on the local street system. The goal of the Committee is to prepare a Neighbourhood Traffic Calming Plan (the "Plan"), which should be based on the use of traffic calming, enforcement or regulatory measures to satisfy as fully as practicable the following objectives:

- Improve safety and convenience for pedestrians and cyclists;
- Reduce the number and severity of collisions;
- Reduce the speed and volume of motorized vehicles;
- Reduce the volume of extraneous or non-local traffic;
- Minimize traffic impacts on adjacent local residential streets;
- Reduce motor vehicle emissions; and
- Maintain access for local traffic and emergency vehicles.

Formation of a Neighbourhood Traffic Committee and participation of City staff must be specifically authorized by City Council.

2. **The Committee:** The Committee must be comprised of residents living in the neighbourhood, and should be representative of the whole area. Residents may join the Committee at the initial public meeting or by informing their local Councillor in writing. Members who join the Committee through either of these means shall be designated an "official member". A committee should comprise a minimum of six official members. A majority of committee members must be in attendance to conduct a formal Committee meeting. The Committee should have a maximum of about twelve members.

The position of Chair or Co-Chair of the Committee must be filled at the initial public meeting. Where necessary, a vote among all residents attending the meeting shall be held to determine the successful candidate. This volunteer shall remain the Chair until such time as either the Chair submits their resignation in writing to the Councillor's office, or is removed and replaced by a two-thirds (66.7 percent) vote of all official members of the Committee.

3. **The Plan:** The area of the Neighbourhood Traffic Calming Plan should be bounded by collector or arterial roadways, and should correspond as closely as possible to that of the local ratepayers association, if applicable.

The Plan should incorporate traffic calming measures in accordance with the latest version of the City's Criteria for the Use of Traffic Calming Measures, and as specified in City of Vaughan Standard Drawings P-1 to P-10 and the *Canadian Guide to Neighbourhood Traffic Calming* (Transportation Association of Canada, 1996). Variations in the design of these traffic calming measures may be incorporated into the Plan if approved by the Engineering Department.

4. The Class EA Process: The construction or removal of traffic calming measures under \$1,500,000 are considered Schedule B projects under the *Municipal Class Environmental Assessment Act* (Municipal Engineers Association, June 2000). In accordance with the Class EA Act, a copy of the notice of the initial public meeting shall be sent to the Ministry of the Environment to serve as a Notice of Study Commencement. A copy of the notice of the final public meeting shall also be sent to the Ministry.

Once the Plan is approved by Council a Notice of Completion shall be filed with the Ministry of the Environment and published in two separate editions of the local newspaper. The notice is the means by which individuals or agencies are informed they have a 30 day period within which to request a Part II Order if they have unresolved concerns with the project. It should be noted that these individuals or agencies should have already brought their concerns to the City's attention prior to the Notice of Completion being issued.
5. Public Meetings: Initial and final public meetings shall not be held during the summer vacation months of June, July and August. It may not be appropriate to hold public meetings at other times, such as during religious holidays. All public meetings shall begin no later than 7:00 pm.

PROCEDURE

1. Establishing the Committee: The Committee may be established in one of two ways. If a local ratepayer's association exists in the area, then its executive may contact their Councillor's office in writing and request the formation of a Neighbourhood Traffic Committee. If no such association exists, then an area resident must circulate a petition, signed by at least twenty (20) other such residents, requesting the formation of a Neighbourhood Traffic Committee. In either case, the request shall be brought to Council by a member of Council in order to authorize establishment of the Committee and the assistance of the Engineering Department. A single deputant appearing before Committee of the Whole shall not be sufficient to form a Traffic Committee.

2. The Initial Public Meeting: The Engineering Department shall arrange the time and place of the initial public meeting of the Traffic Committee. The Engineering Department shall prepare notices for the meeting and a map of the area, and mail them to all residents in the area no less than two weeks in advance of the meeting date. A copy of the meeting notice shall be sent to members of the Ward Sub-committee, the Fire Department, and the Regional office of the Ministry of the Environment. Notices shall be from City staff and follow the sample formats attached.

The purpose of the initial public meeting is to request that residents join the Committee as official members, and to appoint or elect a Committee Chair or Co-Chair. The meeting may also be useful in gaining an understanding of the traffic concerns in the neighbourhood, and the types of measures that may be used to mitigate the concerns. Engineering Department staff and/or the local Councillor should chair the meeting. Minutes of the meeting shall be prepared by the Engineering Department and forwarded to members of the Ward Sub-committee and the Committee Chair.

3. Developing the Plan: The Committee shall identify any neighbourhood traffic concerns, identify preferences for various traffic calming measures, and develop a Neighbourhood Traffic Calming Plan proposal. This process may involve one or more working meetings. The Committee Chair shall arrange these meetings and, if necessary, request the assistance or attendance of Engineering Department staff. The Engineering Department shall conduct supporting traffic studies as required to develop the Plan proposal.

The Committee must submit the Plan proposal to the Engineering Department for review of its technical feasibility and appropriateness prior to the final public meeting. The Committee should also circulate the Plan proposal to the local ratepayer's association and advise them when it will be presented to Committee of the Whole.

4. The Final Public Meeting: The Engineering Department shall arrange the time and place of the final public meeting of the Traffic Committee. The Engineering Department shall prepare notices for the meeting and a map of the Plan proposal, and mail them to all residents in the area no less than two weeks in advance of the meeting date. The notices shall also be sent to any institutional and commercial land uses within the Traffic Committee area. A copy of the meeting notice shall be sent to the members of the Ward Sub-committee, the Fire Department, York Region Transit and the Regional office of the Ministry of the Environment.

The locations of the traffic calming measures in the Plan proposal shall be marked in the field by Engineering Department staff prior to the final public meeting.

The purpose of the final public meeting is to obtain public input on the Plan proposal. This meeting must be attended by Engineering Department staff, and should be chaired by the Traffic Committee. Minutes of the meeting shall be forwarded to the members of the Ward Sub-committee and the Committee Chair. The Plan proposal must have the support of at least two-thirds (66.7 percent) of the residents at the meeting. A formal vote may be held to determine this level of support. Residents may provide input on the Plan proposal to the Engineering Department in advance of the meeting. Signatures on a petition may be considered, but shall not be counted numerically in a formal vote.

if minor changes are requested to the Plan proposal, and these changes are acceptable to the Engineering Department, then these changes may be incorporated provided they have the support of at least two-thirds (66.7 percent) of the residents present. If major changes are requested, then a further public meeting is required.

5. Approving the Plan: The Committee Chair must present the Plan proposal at a Committee of the Whole meeting. To do so a deputation request must be made through the Clerks Department and a copy of the Plan proposal provided for circulation to Mayor and Members of Council and senior staff. The Committee of the Whole will receive the deputation and request that the Engineering Department report on the Plan proposal as voted upon by the area residents.

The report shall include comments on the feasibility, impacts and estimated costs of the Plan proposal, and the concerns of other agencies. The Plan proposal shall be circulated to the following agencies:

-
- City of Vaughan Fire Department;
- City of Vaughan Public Works Department;
- York Regional Police;
- York Region EMS;
- York Region Transit;
- York Region Transportation and Works Department;
- York District School Board; and
- York Catholic District School Board.
-

The Committee of the Whole shall consider the Plan proposal and the Engineering Department report, hear deputations from the public and interested parties, consider the public support demonstrated at the final public meeting, and make a recommendation to City Council.

6. Notice of Completion: Once the Plan is approved by Council a Notice of Completion shall be filed with the Ministry of the Environment and published on the City Page in two separate editions of the *Vaughan Citizen or Liberal*.

7. Dealing with Additional Requests: Should a request for additional traffic calming measures be made after the Plan has been approved by Council, but before the Plan is implemented, then the Committee Chair or resident making the request shall circulate a petition, signed by at least two-thirds (66.7 percent) of the residents directly affected, indicating support for the additional measures. If the measures are proposed on a through street, then "directly affected" shall mean those residents that can reasonably be expected to use that street. If the measures are proposed on a crescent street, then "directly affected" shall mean those residents on that street. The Engineering Department shall ultimately determine what area is to be included in the petition.

- If major changes are requested, then a further public meeting to vote on these changes and Council approval is required. Should a request for additional traffic calming measures be made after the Plan has been implemented then a further public meeting, with public notification, and Council approval are required.

8. Evaluating the Plan: The Engineering Department shall report to the Committee of the Whole approximately one year after the implementation of the Plan. Several Plans may be reported on at once. The report shall describe any benefits and problems that have been identified or changes that may be required to improve the effectiveness of the Plan.

- If major changes are recommended then a further public meeting and Council approval is required before they can be implemented. Should a number of requests be received for additional traffic calming measures that are not part of the recommended changes, then it may be necessary to re-establish the Traffic Committee and hold further public meetings.



The City of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario
Canada L6A 1T1
Tel (905) 832-2281

SAMPLE NOTICE

Notice of Public Meeting

(Name of Street) Neighbourhood Traffic Committee

On (date), City of Vaughan Council approved the formation of the (Name of Street) Neighbourhood Traffic Committee to address traffic concerns relating to vehicle speeds, compliance and infiltration within the (name of street) community. The (name of street) community is bounded by (list boundary streets). See plan on reverse side.

You are invited to an initial public meeting to learn about traffic calming, establish the Traffic Committee and elect a chairperson. After that, the Traffic Committee will need to:

- Solicit input from the residents, schools and other affected parties, regarding traffic-related concerns in the neighbourhood and possible solutions to these concerns;
- Prepare a Neighbourhood Traffic Management Plan with technical assistance from the City of Vaughan Engineering Department;
- Hold a final public meeting to allow residents an opportunity to provide input on the Plan. Revise the Plan, if necessary, to incorporate any input; and
- Present the Plan to Vaughan City Council for their consideration and approval.

The initial public meeting will be held:

(Date)
(Location)
(Time)

If you are unable to attend this meeting, and would like to learn more about traffic calming or provide input, please contact (Transportation Section contact, telephone number and e-mail address).

(Transportation Section Contact)
City of Vaughan Engineering Department

WE NEED YOUR INPUT!

Ward (#) Sub-committee:

Mayor

Regional Councillor

Regional Councillor

Local Councillor

SAMPLE NOTICE

Notice of Public Meeting

**(Name of Street)
Neighbourhood Traffic Committee**

On (date), City of Vaughan Council approved the formation of the (Name of Street) Neighbourhood Traffic Committee to address traffic concerns relating to vehicle speeds, compliance and infiltration within the (name of street) community.

So far the Traffic Committee has:

- Been established, and has elected a chairperson;
- Solicited input from the residents, schools and other affected parties, regarding traffic-related concerns in the neighbourhood and possible solutions to these concerns; and
- Prepared a Neighbourhood Traffic Management Plan with technical assistance from the City of Vaughan Engineering Department.

Next the Traffic Committee must:

- Hold a final public meeting to allow residents an opportunity to provide input on the Plan. Revise the Plan, if necessary, to incorporate any input; and
- Present the Plan to Vaughan City Council for their consideration and approval.

The Traffic Committee has developed a preliminary Plan which includes traffic calming measures such as speed humps and traffic control devices such as allway stop control. You are invited to a final public meeting to learn about the proposals and provide input on the Plan. See plan on reverse side.

The final public meeting will be held:

**(Date)
(Location)
(Time)**

If you are unable to attend, and would like to provide input prior to the meeting, please contact (Transportation Section contact, telephone number and e-mail address).

(Transportation Section Contact)
City of Vaughan Engineering Department

WE NEED YOUR INPUT!

Ward (#) Sub-committee:

Mayor

Regional Councillor

Regional Councillor

Local Councillor

ATTACHMENT No. 5

WARRANTS FOR THE USE OF TRAFFIC CALMING MEASURES

JANUARY 2003

TYPES OF MEASURES

City Standard Drawings P-1 to P-10 detail the traffic calming measures that shall be considered acceptable for installation on City streets. Other measures that shall be considered appropriate for traffic calming purposes include contrasting materials, pavement markings and warning signage. Their applicability in existing and new areas is summarized in Table 1.

Table 1 – Accepted Traffic Calming Measures and their Applicability

Traffic Calming Measure	Through Traffic Committee Process (Existing Areas)	Through Traffic Management Plans (New Areas)
Speed Hump	Subject to Warrant 1	No
Raised Crosswalk	Subject to Warrant 1	With Pedestrian Signal Only on Primary Roads
Raised Intersection	Where Possible	Yes
Roundabout	Yes	Yes
Median	Subject to Warrant 2	Yes
Curb Extension/Road Narrowing	Subject to Warrant 2	Yes
Chicane	Subject to Warrant 2	Yes
Contrasting Materials	Yes	Yes
Pavement Markings	Yes	Yes
Warning Signage	Yes	Yes

WARRANTS FOR INSTALLATION

Warrant 1 – Speed Humps and Raised Crosswalks

Speed humps and raised crosswalks shall be considered in existing areas, through the Neighbourhood Traffic Committee process, only where the following three warrants are met:

1. The street is not a primary emergency response route. The determination of whether a street is a primary emergency response route shall be made in consultation with the Engineering and Fire Departments.
2. The speed limit is 50 km/h or less.
3. The average speed on the street is measured to be 10 km/h greater than the speed limit.

Speed humps may not be integrated into streets in new developments through a block Transportation Management Plan. Raised crosswalks may only be installed with a pedestrian signal.

Warrant 2 – Medians, Curb Extensions or Road Narrowings and Chicanes

Medians, curb extensions or road narrowings and chicanes shall be considered in existing areas, through the Neighbourhood Traffic Committee process, only where the following two warrants are met:

1. The speed limit is 50 km/h or less.
2. The average speed on the street is measured to be 10 km/h greater than the speed limit.

Medians, curb extensions or road narrowings and chicanes may also be integrated into streets in new developments through a block Transportation Management Plan.

Raised Intersections and Roundabouts

Raised intersections may be integrated into intersections in new developments, as specified in an approved block Transportation Management Plan. They may be retrofitted into existing intersections provided that drainage issues can be satisfactorily resolved.

Roundabouts may be installed at intersections in existing areas through the Neighbourhood Traffic Committee process, and integrated into intersections in new developments as specified in an approved block Transportation Management Plan. In both cases the installation of roundabouts may be subject to right-of-way constraints.

Contrasting Materials, Pavement Markings and Warning Signage

Contrasting materials (i.e. textured concrete crosswalks and parking lay-bys) and pavement markings (i.e. painted road narrowings) may be installed through the Neighbourhood Traffic Committee process, and integrated into streets in new developments as specified in an approved block Transportation Management Plan. Warning signs (i.e. Curve Warning, Children Playing, Park Area, etc.) may be installed by staff in new or existing areas.



INSTALL IF CURB
EXTENSION RESULTS
IN PAVE REDUCTION



WHITE ON GREEN SIGN



WHITE ON GREEN TAB

INSTALL ON ALL STREETS
ENTERING A TRAFFIC CALMED
NEIGHBORHOOD
(MIN. 20m FROM ARTERIAL ROAD
WHEREVER POSSIBLE)

INSTALL IN BOTH DIRECTIONS PER THE FOLLOWING (EXCEPT AS NOTED)

1. 100m II ADVANCE OF EACH MEASURE IF ON LOCAL ROAD, 150m IF ON PRIMARY/FEEDEER ROAD OR ABOVE.
2. IN ADVANCE OF SERIES OF MEASURES IF THEY ARE LESS THAN 300m APART.
3. ON PROPERTY LINES WHEREVER POSSIBLE.
4. ON EXISTING LIGHT STANDARD OR UTILITY POLE IF WITHIN 30m OF LOCATION DETERMINED THROUGH PRECEDING STEPS.

1. ALL SIGNS MUST BE VISIBLE TO MOTORISTS FROM A DISTANCE OF 65m ON LOCAL ROADS, AND 85m ON PRIMARY/FEEDER ROADS WHEREVER POSSIBLE. TRIM OR RELOCATE OBSTRUCTING BOULEVARD TREES IF NECESSARY.

2. LETTERING AND SYMBOLS TO BE BLACK ON HIGH INTENSITY REFLECTIVE YELLOW BACKGROUND, EXCEPT WHERE NOTED.
3. MOUNT ON 3.7m U-CHANNEL GALVANIZED STEEL POSTS, OR EXISTING LIGHT STANDARDS OR UTILITY POLES IF APPROPRIATE.
4. MOUNT SO THAT BOTTOM EDGE OF WARNING SIGN IS BETWEEN 2.0 AND 2.5m HIGH AND ROADSIDE EDGE IS AT LEAST 0.3m BEHIND CURB.

mm DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

REVISING	APPROVED DATE
4	
3	
2	
1	

ENGINEERING
DEPARTMENT

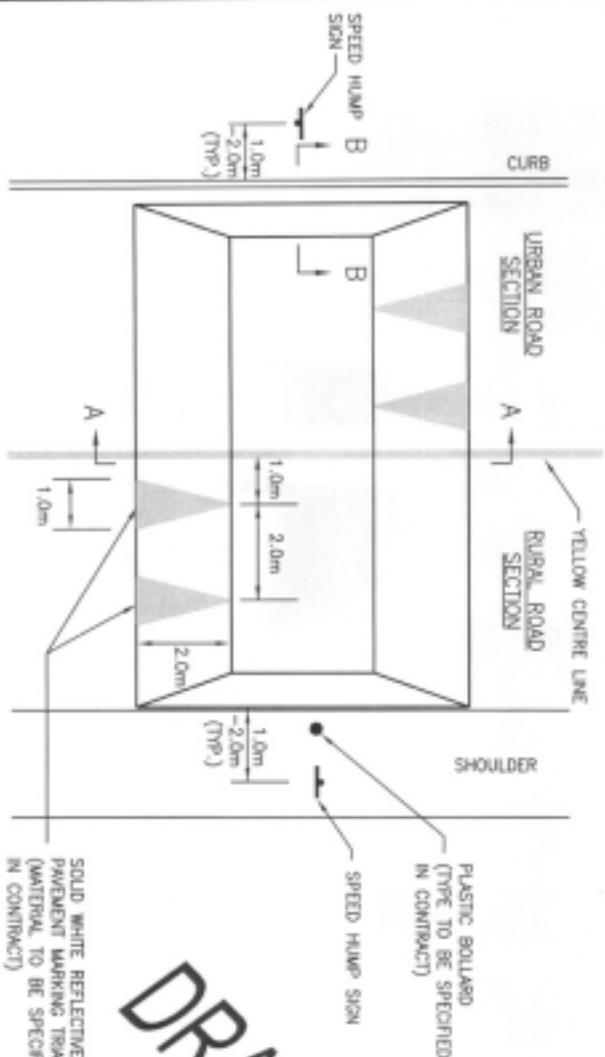
CITY OF VAUGHAN ENGINEERING STANDARD

TRAFFIC CALMING ADVANCE WARNING SIGNS

NOT TO SCALE APPROVED: _____ SLD. DWG

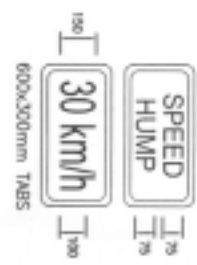
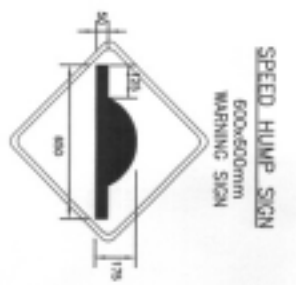
DESIGNED: _____ P.W. _____ DATE: OCT. 2002 _____ P-1

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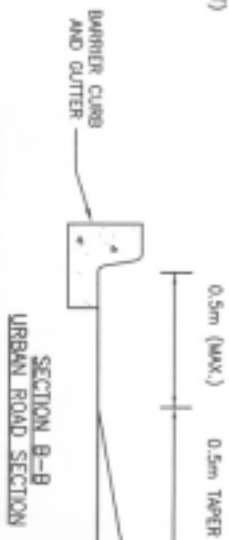


SOLID WHITE REFLECTIVE
PAVEMENT MARKING TRIANGLES
(MATERIAL TO BE SPECIFIED
IN CONTRACT)

DRAFT



600x300mm TABS



NOTES:

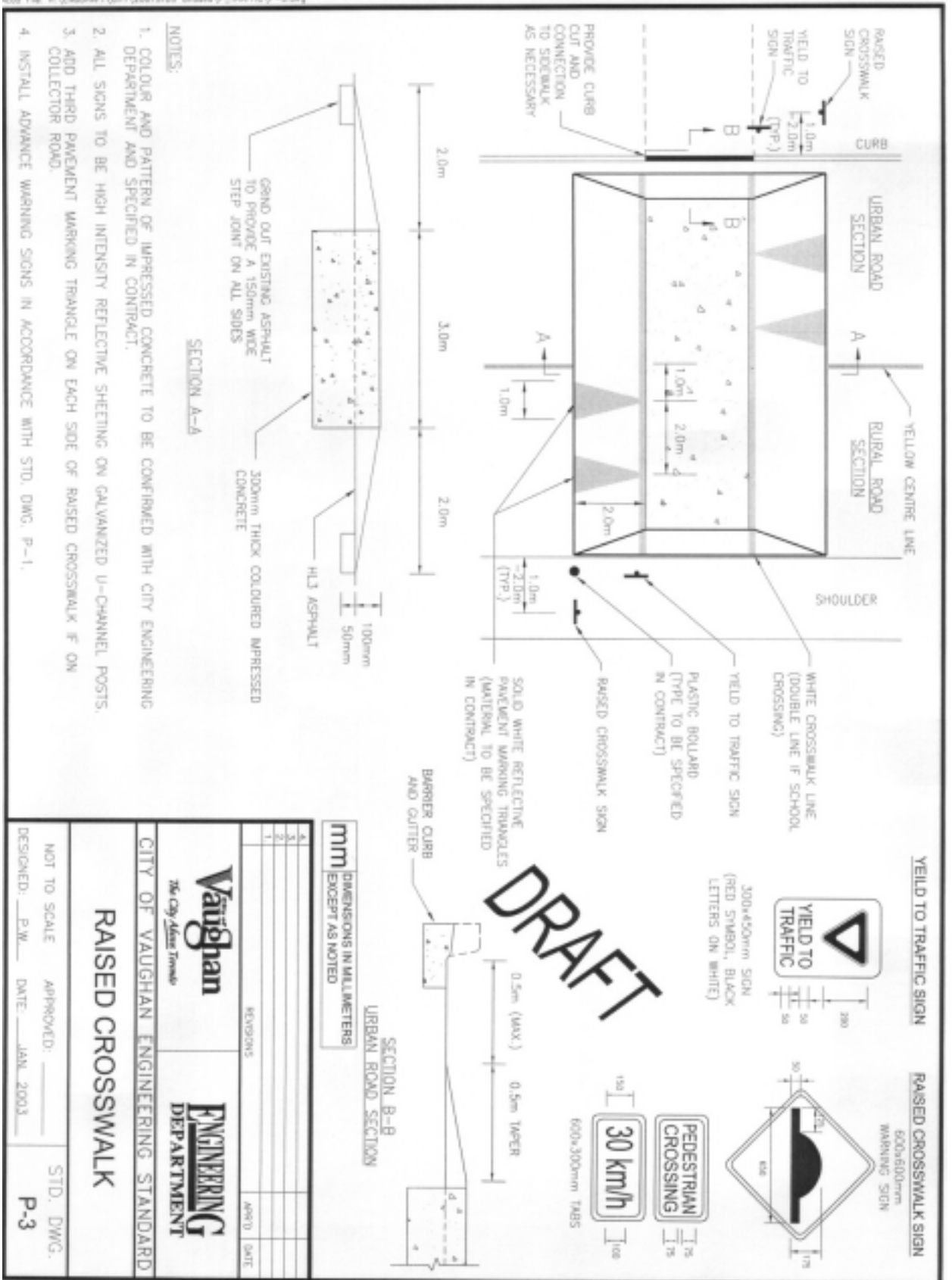
1. COLOURED IMPRESSED CONCRETE MAY BE USED FOR FLAT SECTION AS PER STD. DWG. P-3.
2. ALL SIGNS TO BE HIGH INTENSITY REFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
3. ADD THIRD PAVEMENT MARKING TRIANGLE ON EACH SIDE OF SPEED HUMP IF ON COLLECTOR ROAD.
4. INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH STD. DWG. P-1.

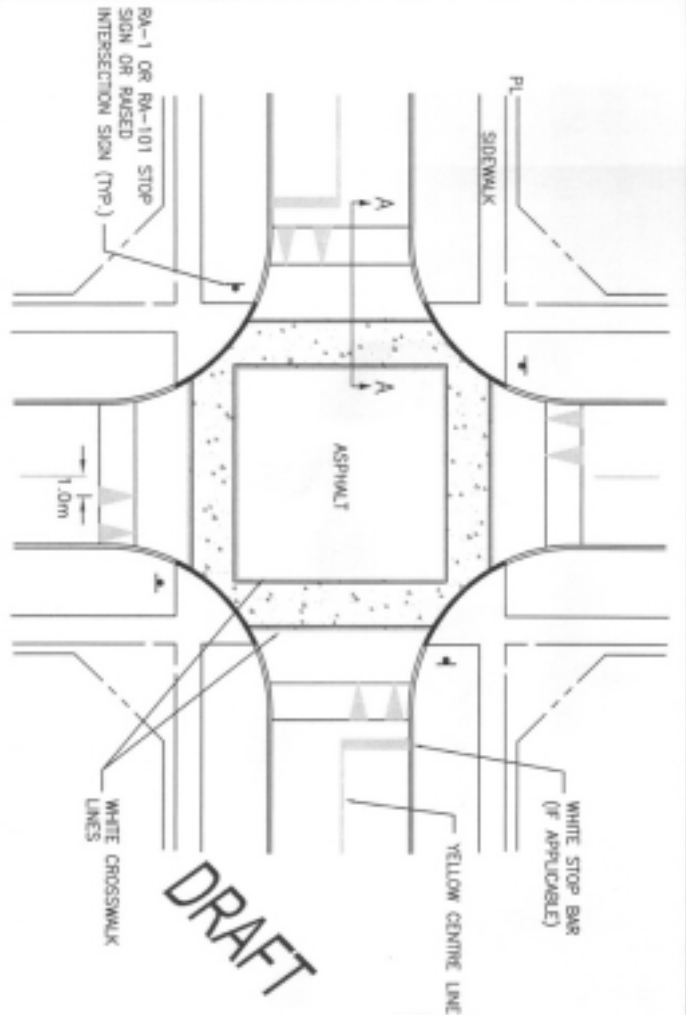
SECTION A-A

SECTION B-B

mm
DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

Vaughan The City of Vaughan		ENGINEERING DEPARTMENT	
CITY OF VAUGHAN ENGINEERING STANDARD			
SPEED HUMP			
NOT TO SCALE	APPROVED: _____	STD. DWG.	
DESIGNED: P.W.	DATE: OCT. 2002	P-2	





NOTES:

1. MAINTAIN ROAD GRADES THROUGH INTERSECTION.
2. COLOUR AND PATTERN OF IMPRESSED CONCRETE TO BE CONFIRMED WITH CITY ENGINEERING DEPARTMENT AND SPECIFIED IN CONTRACT.
3. ALL SIGNS TO BE HIGH INTENSITY REFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
4. ADD THIRD PAVEMENT MARKING TRIANGLE ON EACH SIDE OF RAISED INTERSECTION IF ON COLLECTOR ROAD
5. INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH STD. DWG. P-1.

SECTION A-A

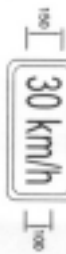
DRAFT

RA-1 OR RA-101 STOP SIGN

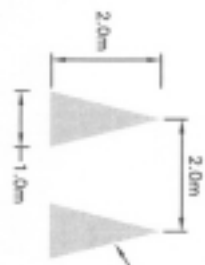


REFER TO STD. DWG. G-1 FOR SIZE AND LOCATION

RAISED INTERSECTION SIGN
600x600mm
WARNING SIGN



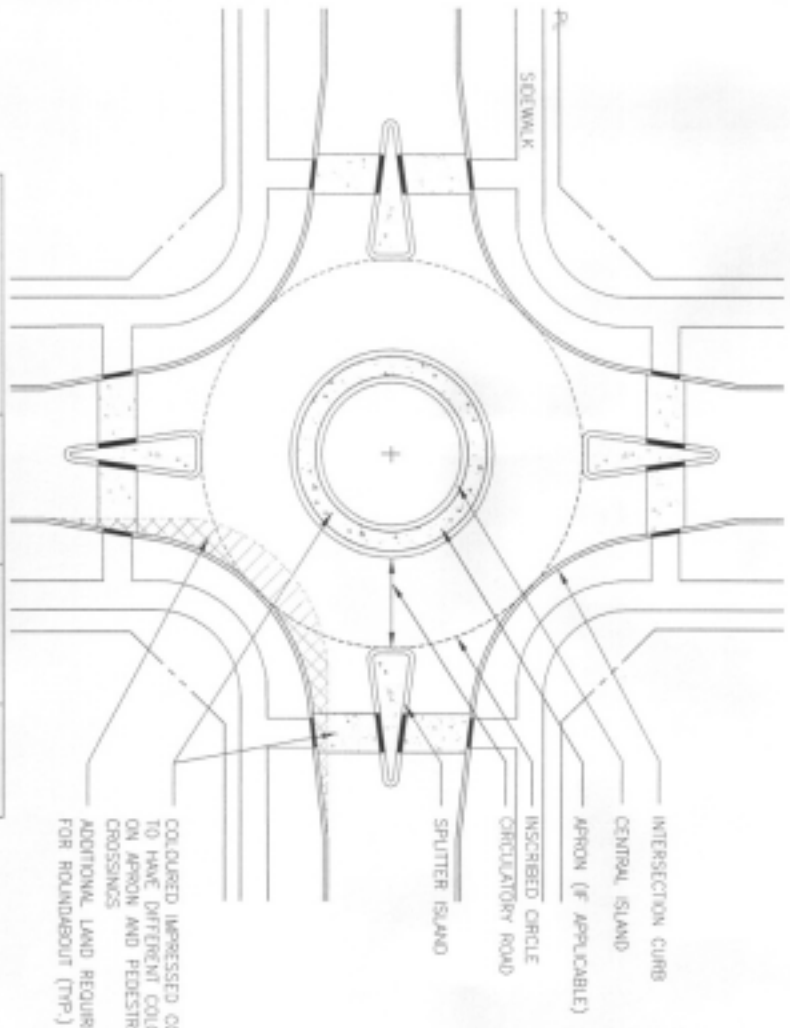
PAVEMENT MARKING DETAIL



SOLID WHITE REFLECTIVE PAVEMENT MARKING TRIANGLES (MATERIAL TO BE SPECIFIED IN CONTRACT)

mm DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

Vaughan The City of Vaughan		ENGINEERING DEPARTMENT	
CITY OF VAUGHAN ENGINEERING STANDARD			
RAISED INTERSECTION			
NOT TO SCALE	APPROVED: _____	STD. DWG. _____	
DESIGNED: P.W.	DATE: OCT. 2002	P-4	



INTERSECTION	PRIMARY/FEEDER -PRIMARY/FEEDER	PRIMARY/FEEDER -LOCAL	LOCAL- LOCAL
ROUNDABOUT TYPE	SINGLE-LANE	SINGLE-LANE	MINI-
INTERSECTION CURB RADIUS	12.0m	12.0m	10.0m
INSCRIBED CIRCLE RADIUS	16.0m	14.5m	12.0m
APRON RADIUS	9.0m	8.0m	N/A
CENTRAL ISLAND RADIUS	6.0m	5.0m	6.0m
CIRCULATORY ROAD WIDTH	7.0m	6.5m	6.0m

- NOTES:
1. ALL DESIGNS ASSUME ROADS INTERSECT AT 90 DEGREES.
 2. INTERSECTIONS WITH COLLECTOR ROADS OR ABOVE REQUIRE SITE-SPECIFIC ROUNDABOUT DESIGNS.

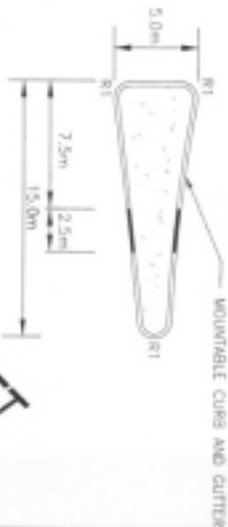
mm
DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

SPLITTER ISLANDS

LOCAL ROADS

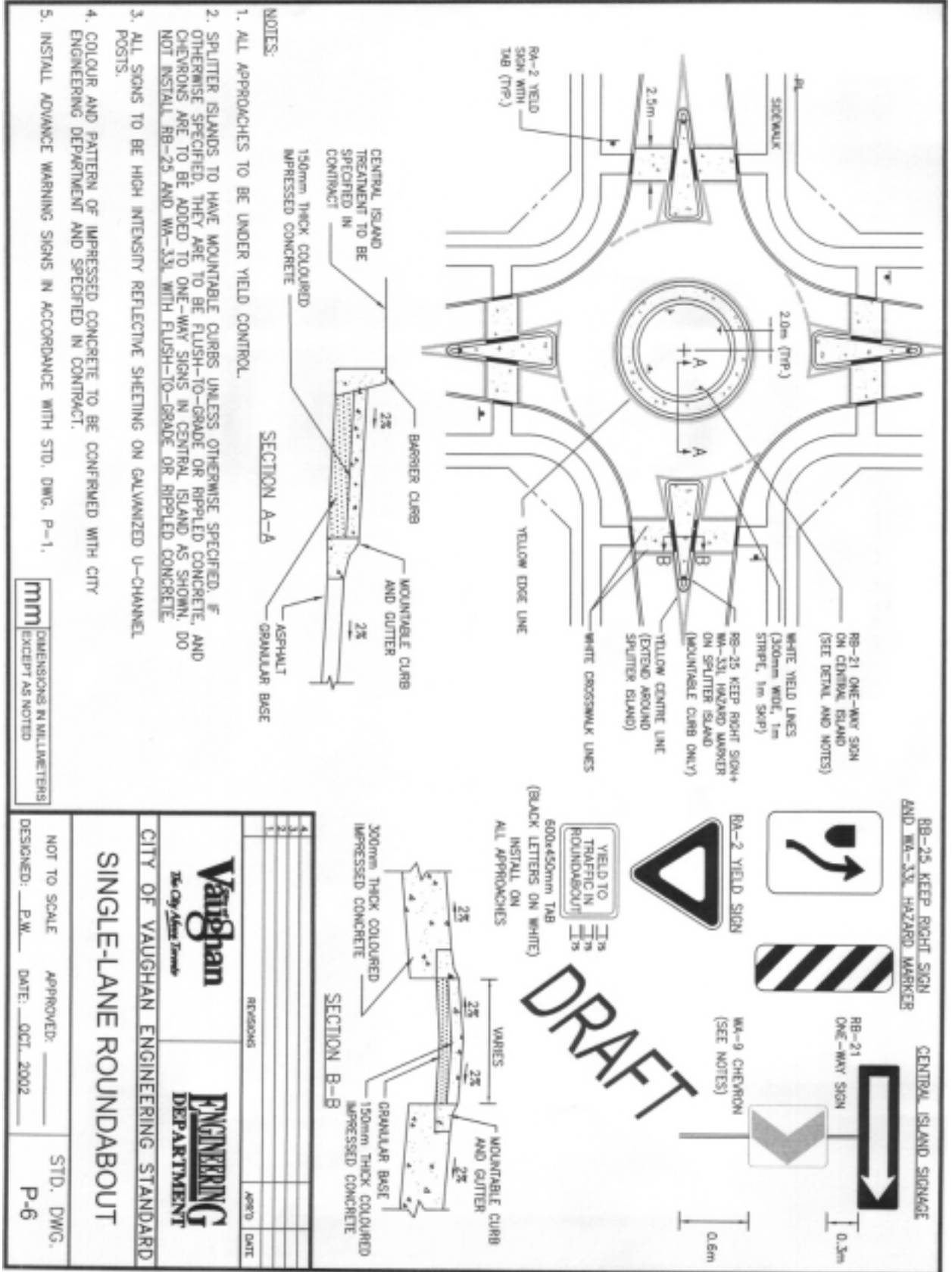


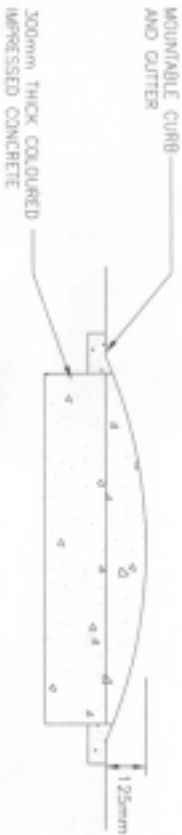
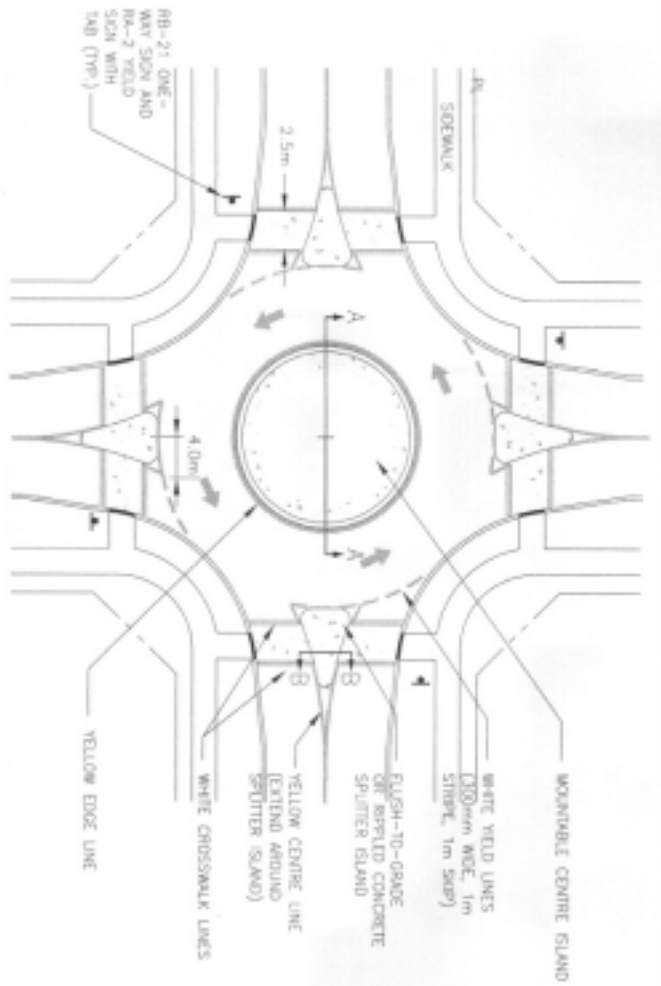
PRIMARY ROADS



DRAFT

Vaughan The City Above Tomorrow		ENGINEERING DEPARTMENT	
CITY OF VAUGHAN ENGINEERING STANDARD			
ROUNDABOUT LAYOUT			
NOT TO SCALE	APPROVED: _____	STD. DWG.	
DESIGNED: P.W.	DATE: JAN. 2003	P-5	





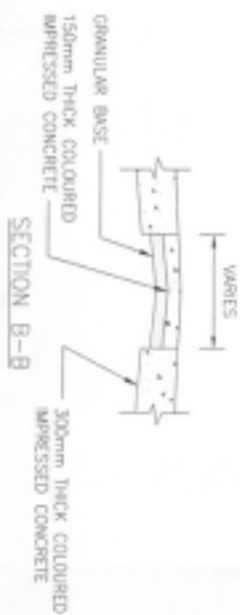
NOTES:

1. ALL APPROACHES TO BE UNDER YIELD CONTROL.
2. ALL SIGNS TO BE HIGH INTENSITY REFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
3. COLOUR AND PATTERN OF IMPRESSED CONCRETE TO BE CONFIRMED WITH CITY ENGINEERING DEPARTMENT AND SPECIFIED IN CONTRACT.
4. INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH STD. DWG. P-1.

mm DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

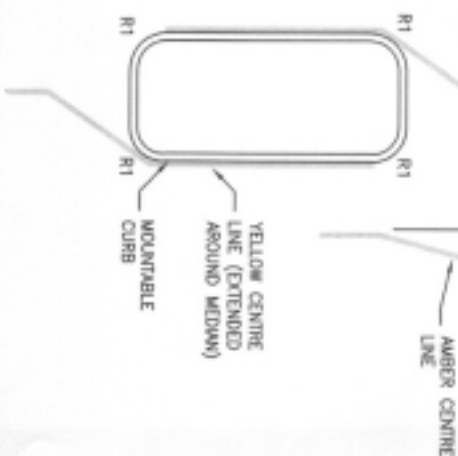
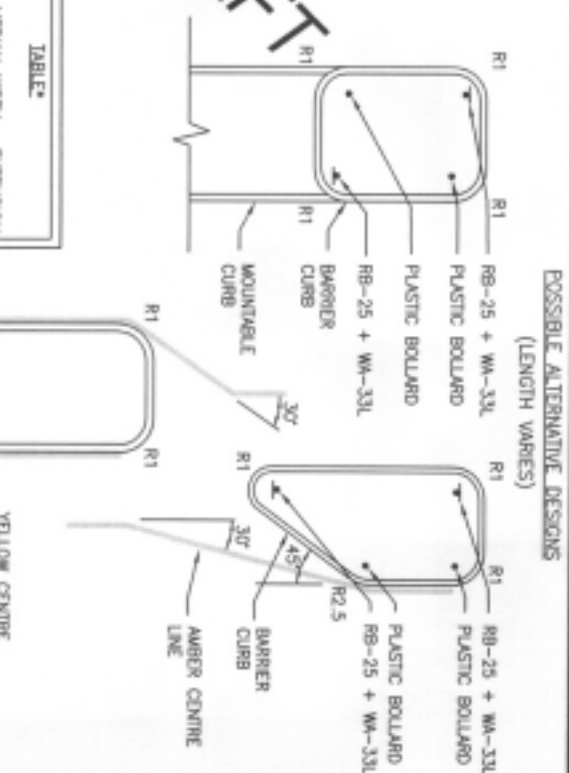
DRAFT

RR-21 ONE-WAY SIGN
AND RA-2 YIELD SIGN



NO.	REVISIONS	DATE
1		
2		
3		
4		

Vaughan <i>The City of Vaughan</i>	ENGINEERING DEPARTMENT
CITY OF VAUGHAN ENGINEERING STANDARD	
MINI-ROUNDABOUT	
NOT TO SCALE	APPROVED: _____
DESIGNED: P.W.	DATE: OCT. 2002
	STD. DWG. P-7



SECTION A-A

NOTES:

1. POST NO PARKING SIGNS 15m EITHER SIDE OF ALL MEDIAN TYPES (BOTH SIDES).
2. ALL SIGNS TO BE HIGH INTENSITY REFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
3. PLASTIC BOLLARD TYPE TO BE SPECIFIED IN CONTRACT.
4. INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH STD. DMC P-1.

BB-25 KEEP RIGHT SIGN
AND WA-33L HAZARD MARKER



APR 10	REVISIONS	APR 10	DATE
APR 11			
APR 12			
APR 13			
APR 14			
APR 15			

Vaughan
The City Above Toronto

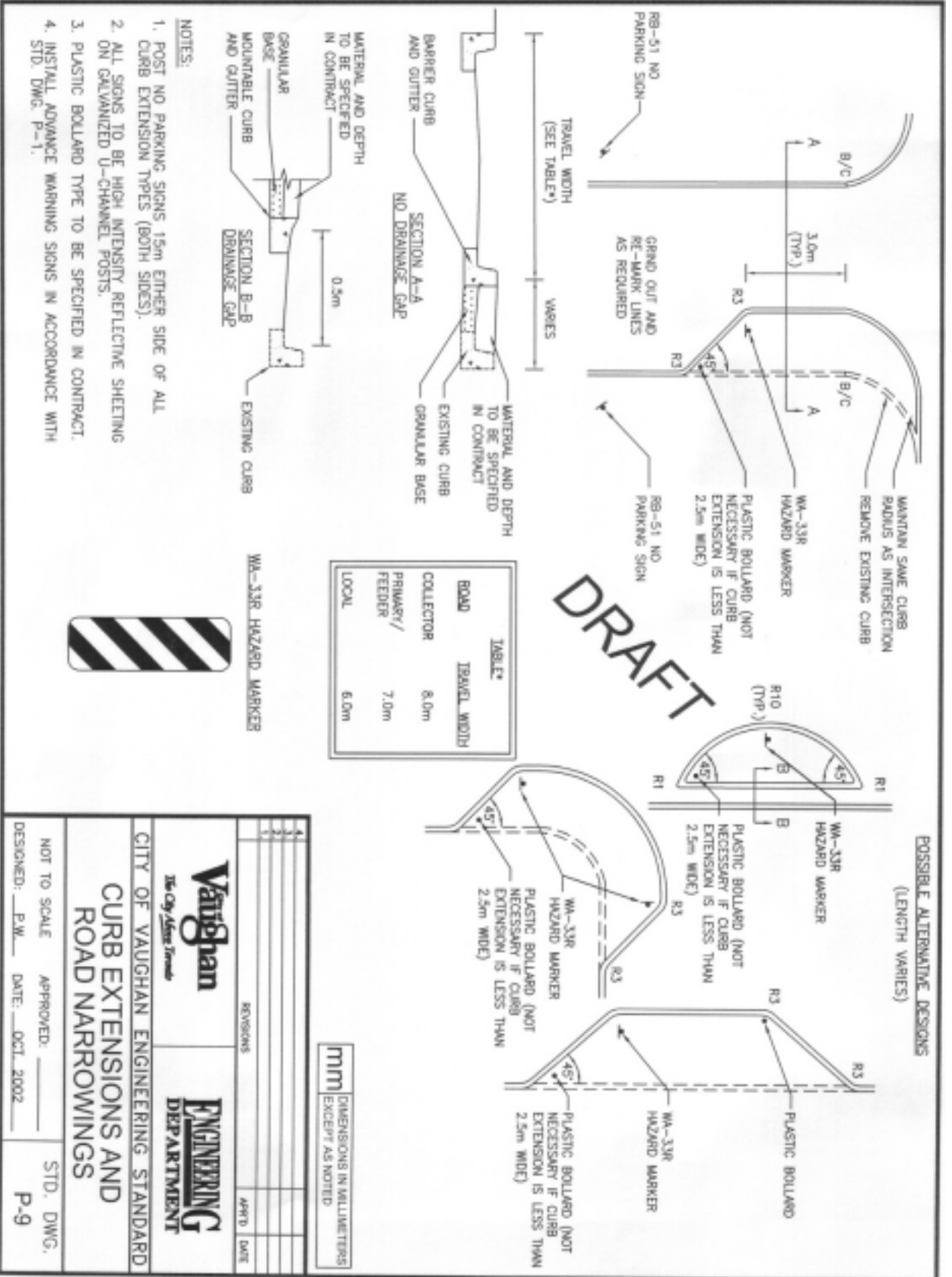
ENGINEERING
DEPARTMENT

CITY OF VAUGHAN ENGINEERING STANDARD

TRAFFIC CALMING MEDIAN

NOT TO SCALE APPROVED: _____
DESIGNED: _____ P.W. DATE: OCT. 2002
P-8 STD. DWG.

STD. DMG.
P-8





DRAFT

		TABLE	
ROAD	INSTR. MATH	MIN. SEQUEST	
PRIVATE/ FEEDER	7.5m	SEVENFOLD	
LOCAL	8.5m	7.5m	
		8.5m	

1. SPACING OF CHOCOLATE SEGMENTS DEPENDANT ON SITE CONSIDERATIONS.
2. POST NO PARKING SIGNS 15m EITHER SIDE OF ENTIRE LENGTH OF CHOCOLATE (BOTH SIDES).
3. ALL SIGNS TO BE HIGH INTENSITY REFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
4. PLASTIC BOLLARD TYPE TO BE SPECIFIED IN CONTRACT.
5. INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH STD. DMS P-1.



The City of Vaughan
Vaughan ENGINEERING DEPARTMENT

CITY OF VAUGHAN ENGINEERING STANDARD

CHICANE

NOT TO SCALE APPROVED: _____
 DESIGNED: P.W. DATE: OCT. 2002

STD. DWG.
P-10