



City of
Peterborough

To: Members of the Committee of the Whole

From: W.H. Jackson, Director of Utility Services

Meeting Date: May 30, 2016

Subject: Report USTR16-007
Prince Street Traffic Calming Study

Purpose

A report to present the findings and recommendation of the Prince Street Traffic Calming Study.

Recommendation

That Council approve the recommendation outlined in Report USTR16-007 dated May 30, 2016, of the Director of Utility Services, as follows:

That traffic calming measures not be implemented on Prince Street.

Budget and Financial Implications

The implementation of the recommendation has no financial implications.

Background

At the City Council meeting on May 19, 2015, in response to a resident petition signed by 55 residents representing 39 households on Prince Street, City Council directed staff to undertake a traffic study on Prince Street with respect to the need for the

implementation of traffic calming measures. AECOM was retained by the City to conduct a Traffic Calming Study and facilitate a Public Open House.

Traffic Calming

The objective of traffic calming is to slow down or reduce traffic using a local or a collector street in a residential neighbourhood by altering the road layout through physical changes or the implementation of traffic regulations to encourage lower speeds or prohibit certain vehicle movements. Such measures may slow traffic down and deter non local drivers from using the traffic calmed street and encourage drivers to use alternate routes to get to their destination.

While the implementation of traffic calming measures on local streets are intended to encourage drivers to use the arterial road network instead of cutting through neighbourhoods, it is recognized that some measures may simply move the problem to other local streets if the arterial road network is not able to serve the demand adequately. As such it is important to carefully evaluate each case and determine the need for such measures versus the potential impact to adjacent neighbourhoods. For that reason the City has developed an approach to evaluating traffic calming requests that combines a technical assessment to determine if traffic calming measures are appropriate for a given street, with a neighbourhood evaluation process to assess various options with the goal of achieving consensus on the most appropriate measures to implement.

The Study Area

The Prince Street study area included the neighbourhood bounded by Princess Street to the north, Park Street to the west, Lansdowne Street to the south and George Street to the east as shown on 'Appendix A – Prince Street Study Area'. Residents of Princess Street were included in the study area as the implementation of traffic calming measures on Prince Street may indirectly increase traffic on Princess Street which is also a local designated road.

Prince Street between Park Street and George Street is comprised of approximately 60 residential homes. Princess Street between Park Street and George Street is comprised of approximately 27 residential homes on the south side of the road with King Edward Park, Peterborough Day Care Centre and the YMCA on the north side of the road.

The Study Process

The technical assessment undertaken as part of the study was completed to evaluate the need and justification for the implementation of traffic calming measures on Prince Street and identify appropriate alternative traffic calming measures which are applicable to the local conditions and address the conditions identified through the technical review process.

The detailed review and analysis of existing operational conditions included:

- 24 hour – 7day vehicle volume counts,
- Vehicle speed study,
- 5 year Collision History,
- Intersection turning movement counts (TMC),
- Licence plate trace study, and
- Traffic signal operations review on Lansdowne Street.

Vehicle Volumes

The average two-way vehicle volume on Prince Street is approximately 435 vehicles per day consisting of 200 westbound vehicles and 235 eastbound vehicles on a typical day. The average number of vehicles recorded during the peak P.M. hour was 27 vehicles per hour which is equivalent 1 vehicle every 2 to 3 minutes.

The average daily vehicle volume on Prince Street is not high when compared to typical daily traffic volumes on local roads. The Transportation Association of Canada (TAC) guidelines suggest that 1,000 – 3,000 vehicles per day is typical for the average daily volume on an urban local road. While the City does not undertake annual traffic counts on every local road, there have been a number of counts done as part of other studies that suggest many other local roads in Peterborough have traffic volumes within this range. A few examples include Bellevue Street (2,800 / day), Douro Street (2,150 / day), Driscoll Terrace (2,300 / day), Mark Street (2,300 /day), McKellar Street (1,500 / day), Neptune Street (3,400 / day), Hopkins Ave (900 / day), Simons Avenue (1,100 / day) and Hewitt Drive (980 / day).

Based on trip generation guidelines published by the Institute of Transportation Engineers (ITE) a typical neighbourhood with 30 residential homes per city block, would typically generate approximately 290 local vehicle trips per day.

The average daily volume on Prince Street is well below the TAC guidelines for an urban local road, and is lower than many other local roads in the City. When compared to ITE trip generation guidelines it is estimated that there may be up to 145 vehicle trips per day on Prince Street who's drivers do not reside on Prince Street. Some of these drivers possibly live within adjacent streets in the neighbourhood where others have an origin/destination outside of the neighbourhood.

Vehicle Speed Study

The speed limit on Prince Street is 50km/h. Analysis of the vehicle speed study determined that 85% of the drivers on Prince Street are travelling at or below 50km/h, with the average speed recorded as 40 km/h. The results of the Vehicle Speed Study are typical for an urban local road within the City of Peterborough.

Collision History

There have been four reported collisions within the past five years related to the operation of Prince Street. One collision on Prince Street itself, one collision at the

intersection of George Street and Prince Street and two collisions at the intersection of Aylmer Street and Prince Street. The review of collision data reveals three of the four collisions occurred at the intersections with arterial roads. The numbers of reported collisions at these high volume intersections are within expected levels.

Licence Plate Trace and TMC

A Licence Plate Trace Study was conducted to determine the routing of traffic using Prince Street. This type of study tracks the licence plates of vehicles at the entry and exit points along the corridor and by matching the licence plates between different stations the routing of the vehicles can be determined. This data is analysed along with the turning movement counts (TMC) collected at the intersections to identify local traffic versus cut-through traffic (vehicles traveling on the road with a destination outside of the neighbourhood). Analysis of the data shows approximately 25% of the average daily traffic on Prince Street (or about 100 vehicles / day) can be identified as cut-through traffic. The main cut-through pattern is east-west traffic traveling between Park Street and George Street.

Traffic Signal Operation on Lansdowne Street

An operations review was conducted at the intersections on Lansdowne Street at Park Street and Lansdowne Street at George Street to ascertain whether delay and queuing was a potential cause for the main east-west cut-through traffic pattern. The operation of the intersections were analyzed using a traffic simulation program (Synchro/Sim Traffic) for both the AM and PM peak hours using current turn movement volumes. Analysis shows that the traffic signals at both Park Street and George Street are operating at an acceptable level of service and that the left turn lanes operate well with only a modest amount of queuing.

City staff also conducted site visits and observed drivers southbound on Park Street diverting east on Prince Street when the traffic signal was red whether there were vehicles delayed to make the left turn or not. This maneuver matches the observed cut through patterns and demonstrates a general level of driver impatience. Given that the observed cut through patterns did not occur as a result of long delays at the signals, it is unlikely that simple adjustments to traffic signal timing would change the existing cut-through traffic pattern.

Technical Assessment

The traffic study shows that Prince Street carries less vehicle volume than a typical urban local road and vehicle speed and collision rates are at acceptable levels. The study clearly identified an east-west traffic cut-through pattern in the range of 25% of total daily traffic that equates to approximately 100 vehicles per day.

Based on traffic calming policies in other municipalities and the experience in undertaking reviews in various areas of the City, a technical assessment process has been developed as a screening process to determine if traffic calming measures are

appropriate for a given street. The data collected on Prince Street was compared to the thresholds in the Traffic Calming Screening process and the results are summarized in Table A, below.

Table A – Traffic Calming Screening Results for Prince Street

Traffic Calming Screening Process			
Factor	Criteria	Prince Street	Criteria Satisfied
Road Type	Local or Collector	Local	Yes
Road Length	Block Length greater than 300 m	190 m	No
Operating Speed or Cut-through	85%ile speed greater than 55km/h	50km/h	No
	or Infiltration (non local Traffic)	25%	No
Transit Route	Not a transit route	No transit	Yes
Vehicle Volume	Greater than 1,000 vehicles/day, less than 5,000 vehicles/day	430 vehicles /day	No
Sidewalks	Minimum – sidewalk on one side	Two sides	Yes
Results	All Criteria Satisfied?		No

In summary, the Traffic Calming Screening Process concluded that even though cut-through traffic is present, the significance of this observed pattern did not trigger the technical need for traffic calming measures.

In recognition of the number of residents who signed a petition requesting that traffic calming measures be investigated, a number of options were considered to address the main cut-through traffic patterns that were identified through the technical assessment process.

The traffic calming options developed to address the cut-through traffic include:

- Traffic Island (right-in, right-out) on Prince Street at Aylmer Street,
- Split on-street parking on Prince Street (half of street park on the north side of the street and the other half park on south side to create a chicane effect), and
- Traffic Island (right-in, right-out) on Prince Street at Park Street.

For detailed sketches of these traffic calming options, including a listing of some advantages and disadvantages see 'Appendix B - Prince Street Public Open House Traffic Calming Options'.

Public Open House

A Public Open House (POH) was held for study area residents on April 14, 2016 at St. James United Church to share the study findings and solicit feedback on the traffic calming options presented. City staff hand delivered 98 Notices of Public Open House to residents on Prince Street and Princess Street, and advertisements were placed in Peterborough local news papers. At the POH participants were given the opportunity to review the preliminary study findings, share their comments and discuss the project with City staff and the lead consultant. A formal project presentation was conducted at 7:00 pm and the display material and comment sheets were posted online at www.peterborough.ca.

The POH was attended by about 25-30 residents with 18 attendees signing in from 17 households. Following the POH 12 attendees completed and submitted the comment sheet. Through open discussion at the POH and review of comments sheets received, several residents brought forward the option of building physical chicanes on Prince Street to slow drivers down and discourage cut through traffic, as an alternative to the traffic calming measures presented. City staff assessed the possibility of implementing chicanes and concluded that the construction of mid-block chicanes on Prince Street would be feasible and may deter some of the cut-through traffic.

Neighbourhood Survey

The Prince Street study area is comprised of approximately 98 households of which only 17 (17%) attended the POH, which is significantly less than the 39 households on Prince Street who signed the original petition. Since a new option was suggested by some of the residents at the public meeting, and given that many of the options could result in traffic shifting to other streets (such as Princess Street), City staff felt that it would be appropriate to solicit broader neighbourhood feedback before recommending a preferred option, recognizing the relatively low turnout at the POH.

On April 22, 2016, City staff hand delivered 98 surveys (see 'Appendix C - Prince Street Neighbourhood Survey') to study area residents asking them to indicate their preference of traffic calming measures, with the objective of identifying a preferred neighbourhood option. The options included:

1. Do Nothing.
2. Traffic Island on Prince Street at Aylmer Street
3. Split On-Street Parking along Prince Street
4. Traffic Island on Prince Street at Park Street
5. Chicanes along Prince Street

The surveys responses were received and the results are summarized in Table B, below.

Table B – Neighbourhood Survey Results

Option	Number of Surveys	Percentage of Total
1. Do Nothing	10	10.0%
2. Traffic Island on Prince Street at Aylmer Street	5	5.1%
3. Split Parking along Prince Street	3	3.1%
4. Traffic Island on Prince Street at Park Street	1	1.0%
5. Chicanes along Prince Street	3	3.1%
Other Suggestions	2	2.0%
Did Not Respond	74	75.7%
Total	98	100%

The results indicate that 75.7% of Prince Street study area households chose not to engage in the survey. Of the 24.5% or 24 households that participated in the survey, 41.7% or 10 households preferred to do nothing. Only 14 households or 14.3 % indicated a desire to implement traffic calming on Prince Street although there was no clear consensus of a preferred option amongst these residents.

Discussion

The Prince Street study area is comprised of approximately 98 households. Approximately 25-30 residents attended the Public Open House, however those who signed in represent only 17 (17%) of the total neighbourhood households, which is significantly less than the 55 residents/39 households who signed the original petition. In response to a hand delivered survey to solicit neighbourhood preferences on traffic calming options, only 24.5% of residents responded and the majority of these indicated that no action should be taken.

The Traffic Calming Screening Process concluded that even though cut-through traffic is present on Prince Street, the significance of this observed pattern did not trigger the technical need for traffic calming measures. It would appear from the results of the neighbourhood survey that the majority of residents agree with this assessment or did not see enough of a problem to engage in the survey process. Accordingly, it is recommended that Traffic Calming measures not be implemented on Prince Street at this time.

Summary

The Prince Street Traffic Calming Study data revealed vehicle volume, vehicle speed and collision history are typical of an urban local road. The study also identified that Prince Street is being used by drivers with a destination outside of the neighbourhood.

The lack of resident participation in the study process suggests that the cut-through traffic is not of great concern to residents in the study area. This conclusion is supported by the results of Traffic Calming Screening Process and many resident comments indicating there is no problem with current traffic conditions on Prince Street. The implementation of traffic calming measures on Prince Street between Park Street and George Street is not technically justified or supported by the neighbourhood.

Submitted by,

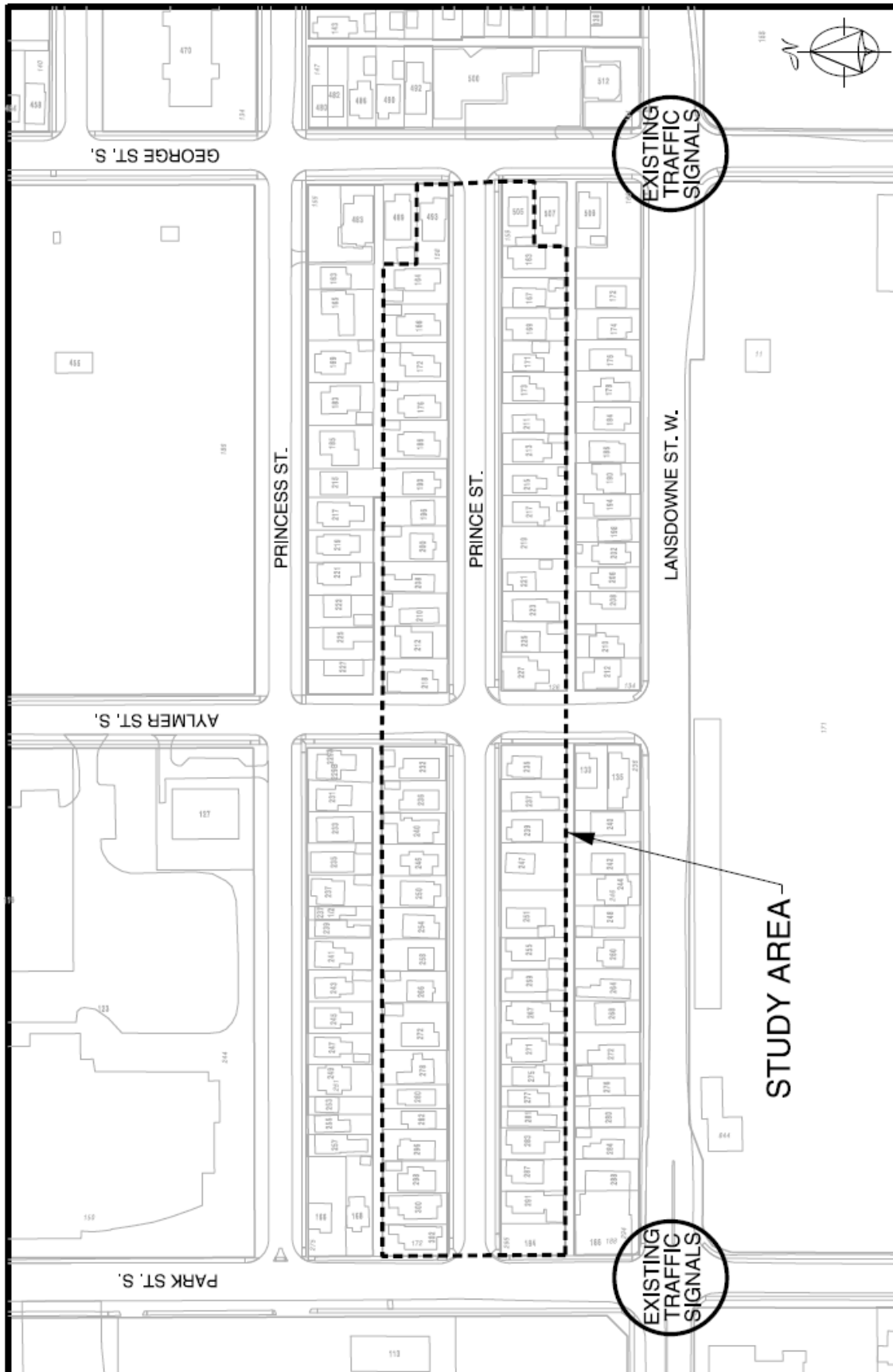
W.H. Jackson
Director of Utility Services

Contact Name:
Peter Malin
Transportation Services Coordinator
Phone: 705-742-7777 Ext. 1846
Toll Free: 1-855-738-3755
Fax: 705-876-4621
E-Mail: pmalin@peterborough.ca

Attachments:

Appendix A: Prince Street Study Area
Appendix B: Prince Street Public Open House Traffic Calming Options
Appendix C: Prince Street Neighbourhood Survey

Appendix A: Prince Street Study Area



Appendix B: Prince Street Public Open House Traffic Calming Options

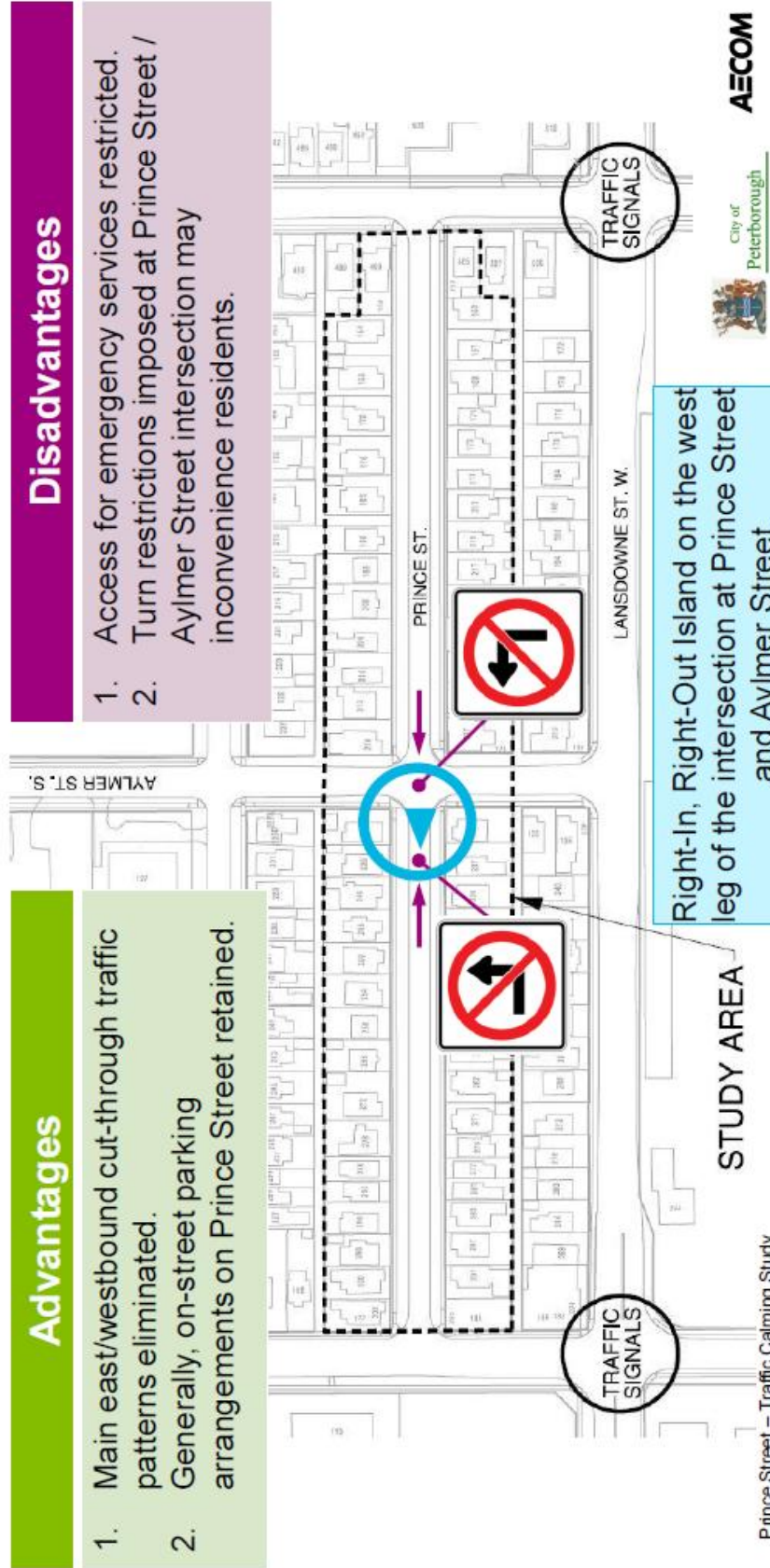
Option 2: Traffic Island on Prince Street at Aylmer Street

Advantages

1. Main east/westbound cut-through traffic patterns eliminated.
2. Generally, on-street parking arrangements on Prince Street retained.

Disadvantages

1. Access for emergency services restricted.
2. Turn restrictions imposed at Prince Street / Aylmer Street intersection may inconvenience residents.



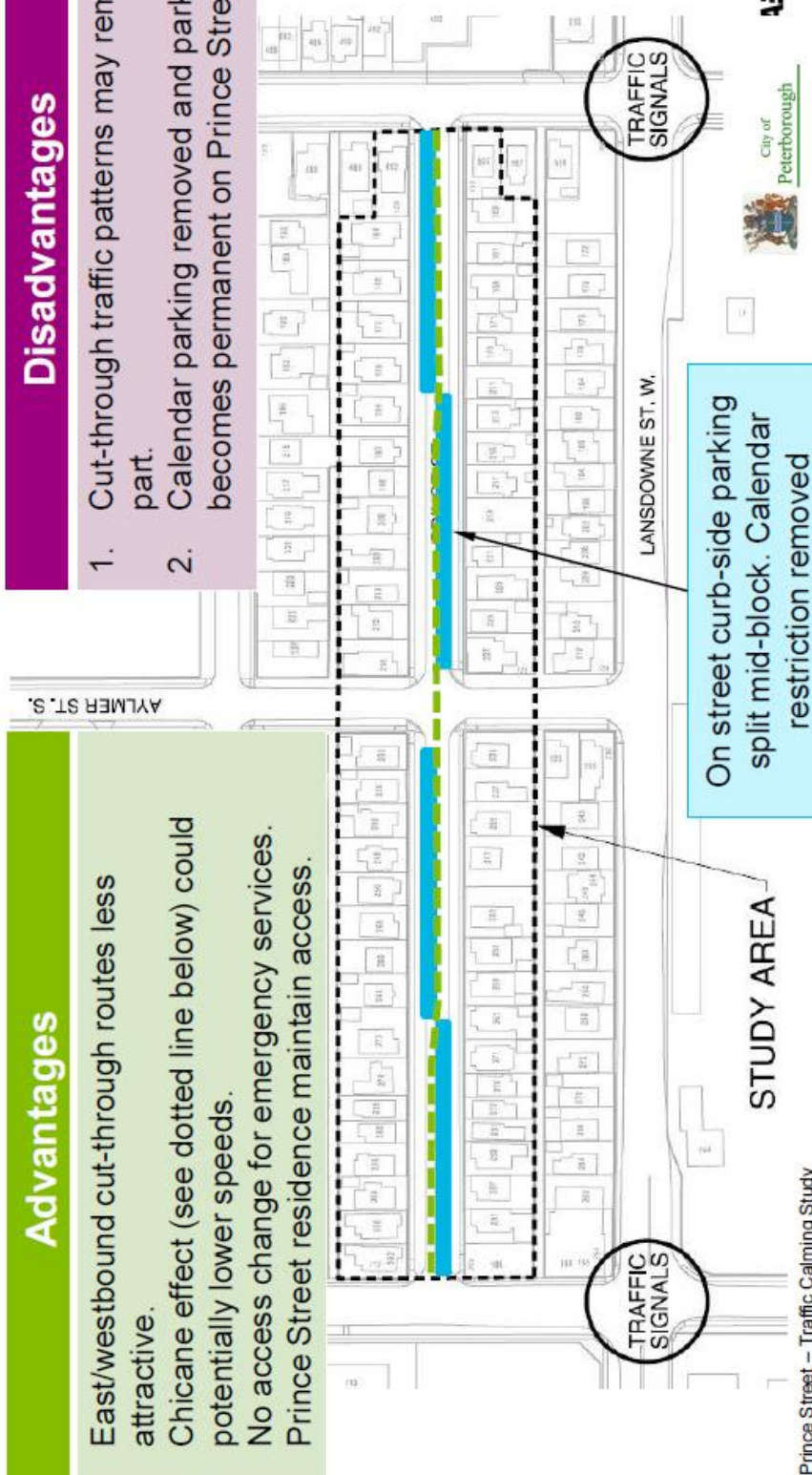
Option 3: Split Parking Along Prince Street

Advantages

1. East/westbound cut-through routes less attractive.
2. Chicane effect (see dotted line below) could potentially lower speeds.
3. No access change for emergency services.
4. Prince Street residence maintain access.

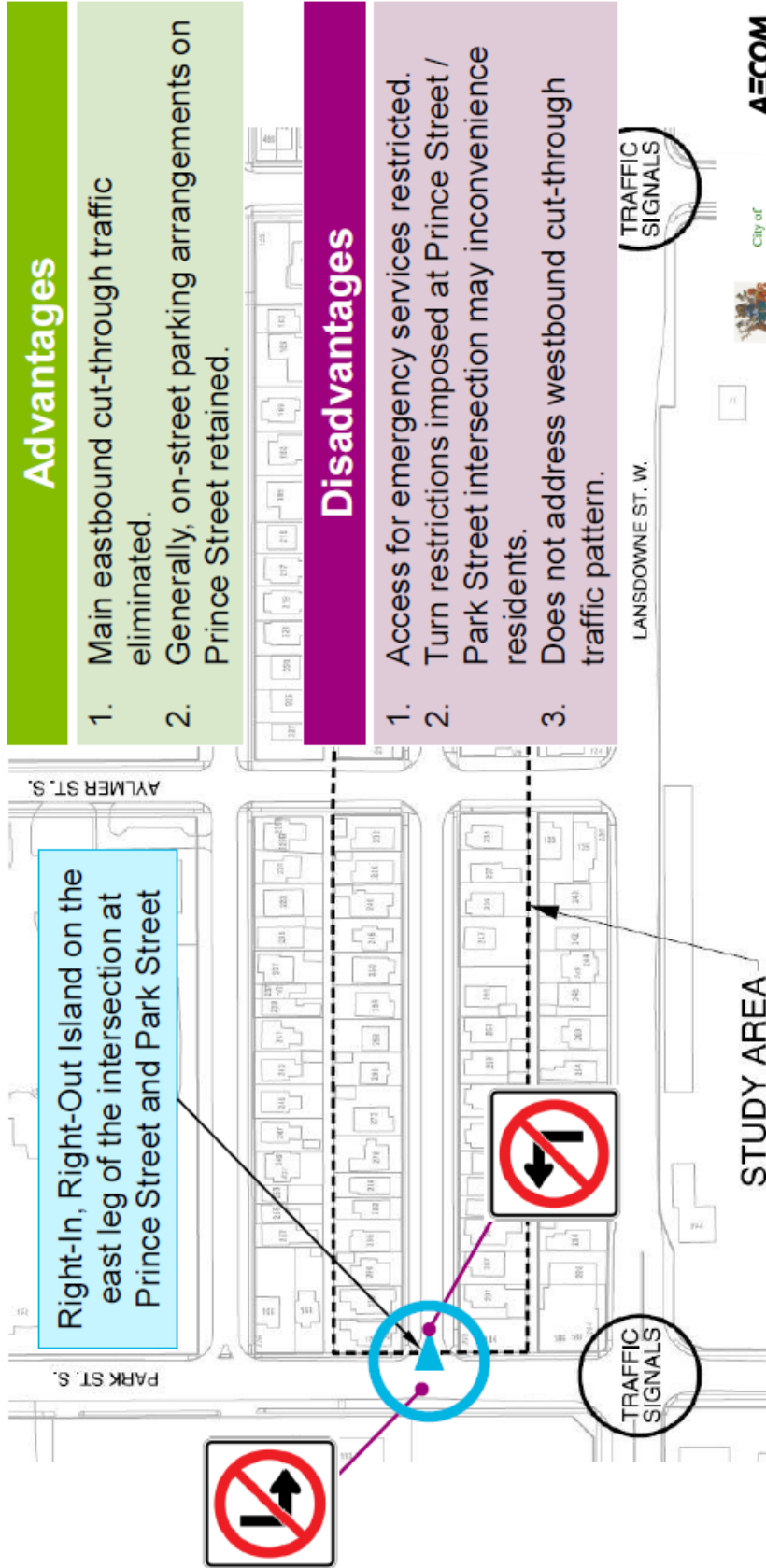
Disadvantages

1. Cut-through traffic patterns may remain in part.
2. Calendar parking removed and parking becomes permanent on Prince Street.



Prince Street – Traffic Calming Study

Option 4: Traffic Island on Prince Street at Park Street



Advantages

- 1. Main eastbound cut-through traffic eliminated.
- 2. Generally, on-street parking arrangements on Prince Street retained.

Disadvantages

- 1. Access for emergency services restricted.
- 2. Turn restrictions imposed at Prince Street / Park Street intersection may inconvenience residents.
- 3. Does not address westbound cut-through traffic pattern.

Prince Street – Traffic Calming Study

Appendix C: Prince Street Neighbourhood Survey



City of
Peterborough

500 George Street North, Peterborough, ON K9H 3R9
Utility Services Department, Transportation Division
Tel: 705 742 7777, Extension 1846 Fax: 705 742 6273

April 22, 2016

Prince Street Traffic Calming Study - Neighbourhood Survey

At the City Council meeting on May 19, 2015, in response to a resident petition, City Council directed staff to undertake a traffic study on Prince Street with respect to the need for the implementation of traffic calming measures. AECOM was retained by the City to conduct a Traffic Calming Study and facilitate a Public Open House. The study findings were presented to neighbourhood residents at the Public Open House held on April 14, 2016 at St. James United Church in Peterborough. At the Public Open House, area residents were invited to review preliminary study findings and share their comments with City staff and the lead consultant. Subsequent to the review of resident comments, several residents brought forward the idea of constructing chicanes on Prince Street to calm existing traffic. City staff evaluated the possibility of implementing chicanes along Prince Street and has since added chicanes as an additional option for residents to consider.

To ensure all residents within the Prince Street study area have the opportunity to provide their input, City staff have prepared the attached resident survey to determine if there is a desire to implement traffic calming measures on Prince Street. The results of this survey will be tabulated and analyzed to determine if changes are warranted and supported. Recommendations resulting from the study and this survey will be included in a report to City Council for approval.

Please complete the survey, indicate your choice of options and return your survey in the attached envelope on or before May 3, 2016. We welcome any comments you may have and encourage you to complete the comments section provided. If you have any questions with respect to this survey, please feel free to contact the undersigned at your earliest convenience.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Peter Malin'.

Peter Malin, Transportation Services Coordinator
Transportation Division

Prince Street Traffic Calming Study

The Traffic Calming Study on Prince Street between Park Street and George Street identified the presence of cut-through traffic (vehicles traveling on the road with a destination outside of the neighbourhood). To reduce cut-through traffic, City staff are looking for neighbourhood input with respect to the implementation of traffic calming measures on Prince Street such as: turn restrictions, split parking and chicanes to reduce cut-through traffic.

Recent traffic studies conducted on Prince Street between Park Street and George Street indicate:

- The average vehicle speed on Prince Street is 40 km/h which is below the speed limit.
- The average daily vehicle volume on Prince Street is approximately 392 - 470 vehicles per day which is less than a typical urban local road.
- The percentage of cut-through traffic on Prince Street is approximately 25% of the total daily traffic. The main cut-through pattern is east-west traffic travelling between Park Street and George Street.

The purpose of this survey is to determine if there is neighbourhood support for traffic calming measures to reduce cut-through traffic and to gather input on a preferred option.

The proposed traffic calming measures (Options 1 through 5) are depicted on pages 3 to 7 and include a brief description and some factors to consider when comparing the options. The options include:

6. Do Nothing.
7. Traffic Island on Prince Street at Aylmer Street
8. Split Parking along Prince Street
9. Traffic Island on Prince Street at Park Street
10. Chicanes along Prince Street

Please review the following options and indicate your first (1) and second (2) choice on the "Preferred Traffic Calming Options and Comment Sheet" (page 8). Once you have made your selection, return the "Preferred Traffic Calming Options and Comment Sheet" in the attached envelope on or before May 3, 2016.

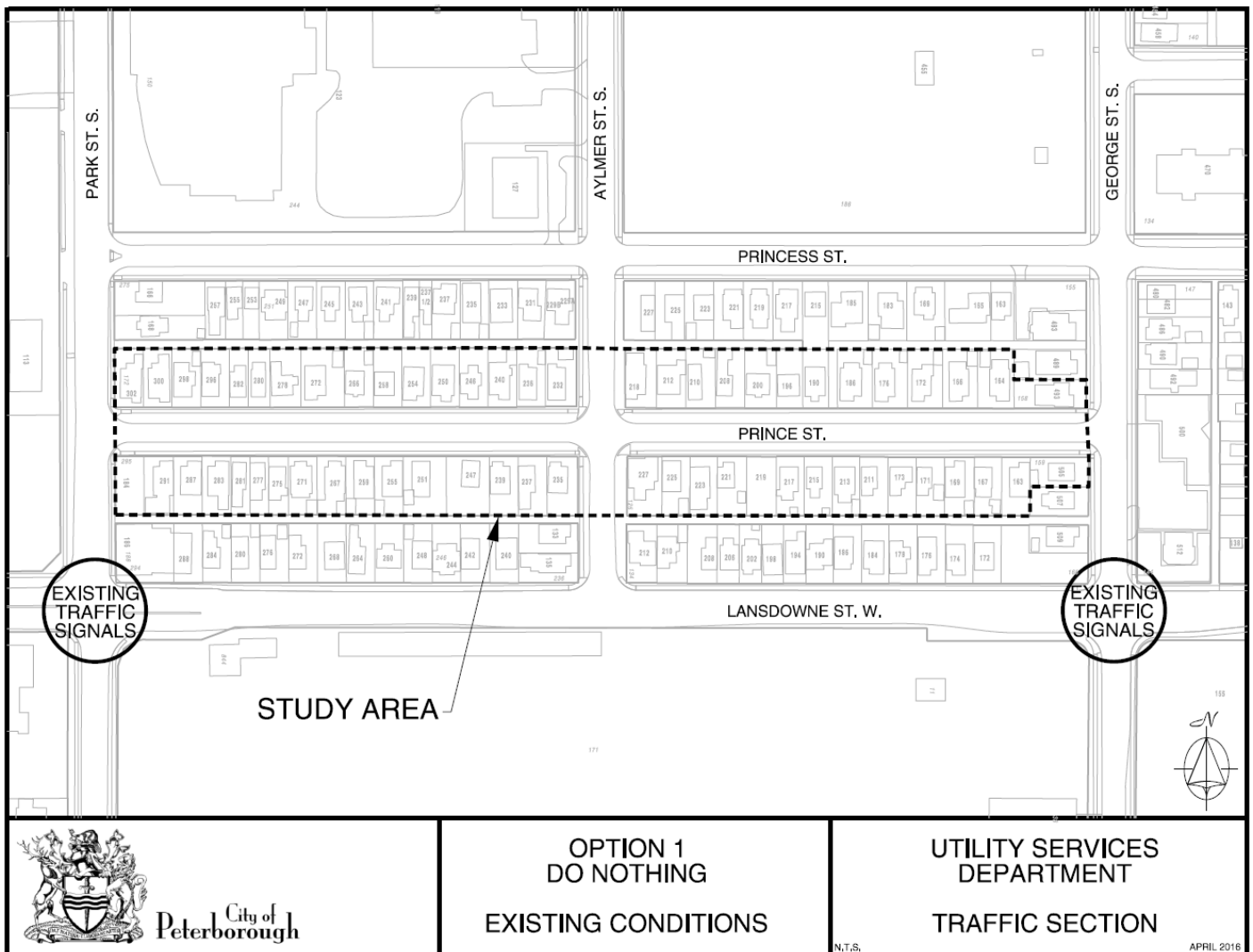
For more information on the preliminary study findings presented at the Public Open House please visit the Transportation page on the City of Peterborough website.
www.Peterborough.ca/Living/City_Services/Transportation.

Option 1 – Do Nothing

Description: No Change to existing conditions.

Factors to consider:

- Prince Street residents maintain access.
- No access change for emergency services.
- On street parking arrangements on Prince Street retained.
- Cut-through traffic patterns remain.

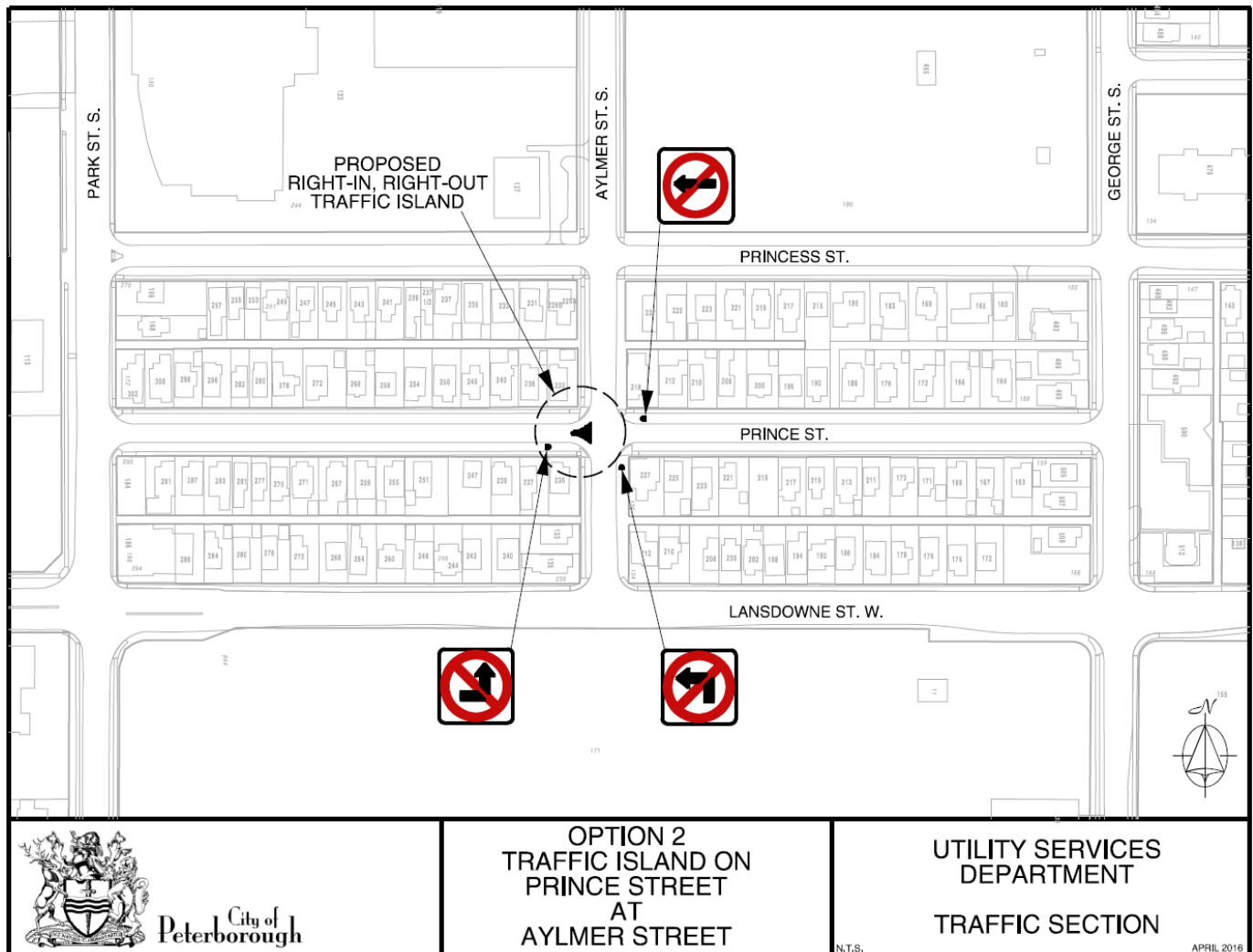


Option 2 – Traffic Island on Prince Street at Aylmer Street

Description: Installation of a raised concrete island on Prince Street at Aylmer Street will allow southbound right turns and eastbound right-turns only. This option will restrict the following traffic movements: Eastbound through/left, westbound through and northbound left.

Factors to consider:

- Main east/westbound cut-through traffic patterns eliminated.
- On street parking arrangements on Prince Street retained.
- Access for emergency services restricted.
- Turn restrictions imposed at Prince Street / Aylmer Street intersection may inconvenience residents.
- Likely to divert traffic to adjacent streets.
- Second most expensive to construct.

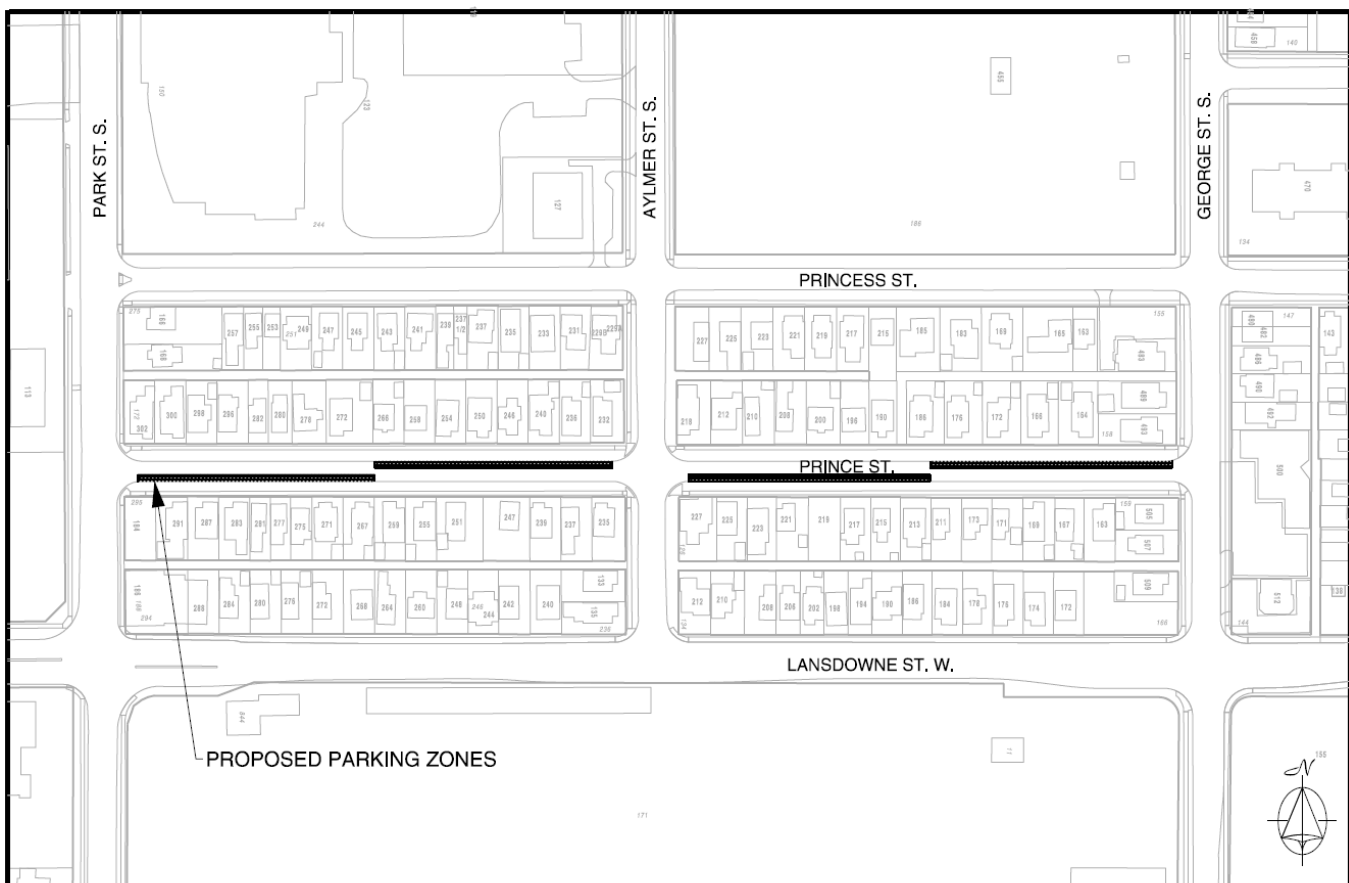


Option 3 – Split Parking along Prince Street

Description: Split parking creates a chicane effect by using designated on-street parking on one side of the road, alternating to the other side midblock. This naturally creates traffic calming within the roadway. The option would remove existing calendar parking on Prince Street, implement parking zones shown below, and retain the existing parking time limits/restrictions.

Factors to consider:

- Main east/westbound cut-through routes are less attractive.
- Chicane effect could potentially lower speeds.
- No access change for emergency vehicles.
- Prince Street residents maintain access.
- Cut-through traffic patterns may remain in part.
- Calendar parking is removed and parking becomes permanent on Prince Street.
- May influence drivers to use adjacent streets.



OPTION 3
SPLIT PARKING
ALONG PRINCE STREET

UTILITY SERVICES
DEPARTMENT
TRAFFIC SECTION

N.T.S.

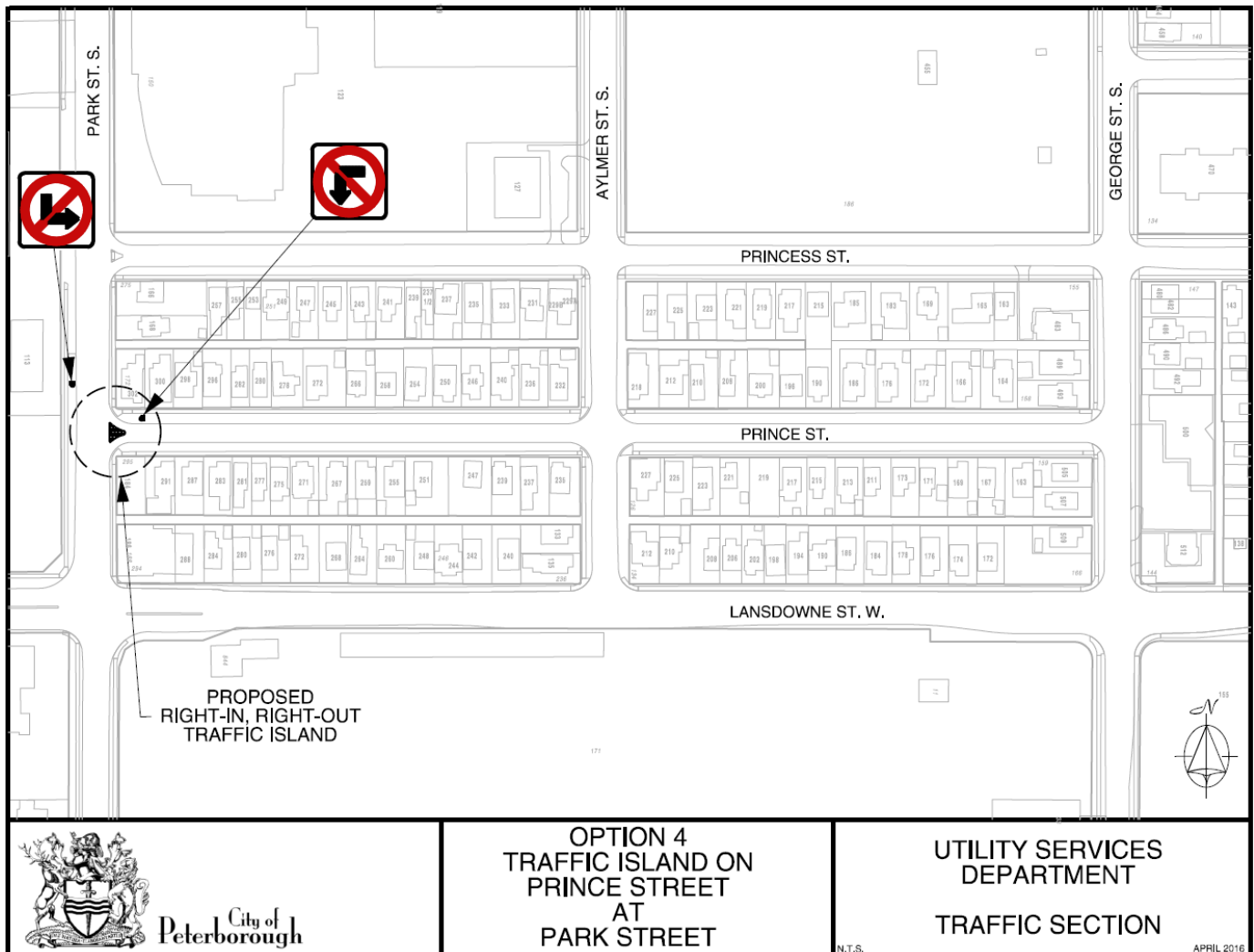
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Option 4 – Traffic Island on Prince Street at Park Street

Description: Installation of a raised concrete island on Prince Street at Park Street will allow northbound right turns and westbound right-turns only. This option will restrict the following traffic movements: Westbound left, and southbound left.

Factors to consider:

- Main eastbound cut-through traffic eliminated.
- On street parking arrangements on Prince Street retained.
- Access for emergency services restricted.
- Turn restrictions imposed at Prince Street / Park Street South intersection may inconvenience residents.
- Does not address westbound cut-through traffic pattern.
- May divert traffic to adjacent streets.
- Second most expensive to construct (same as option 2).

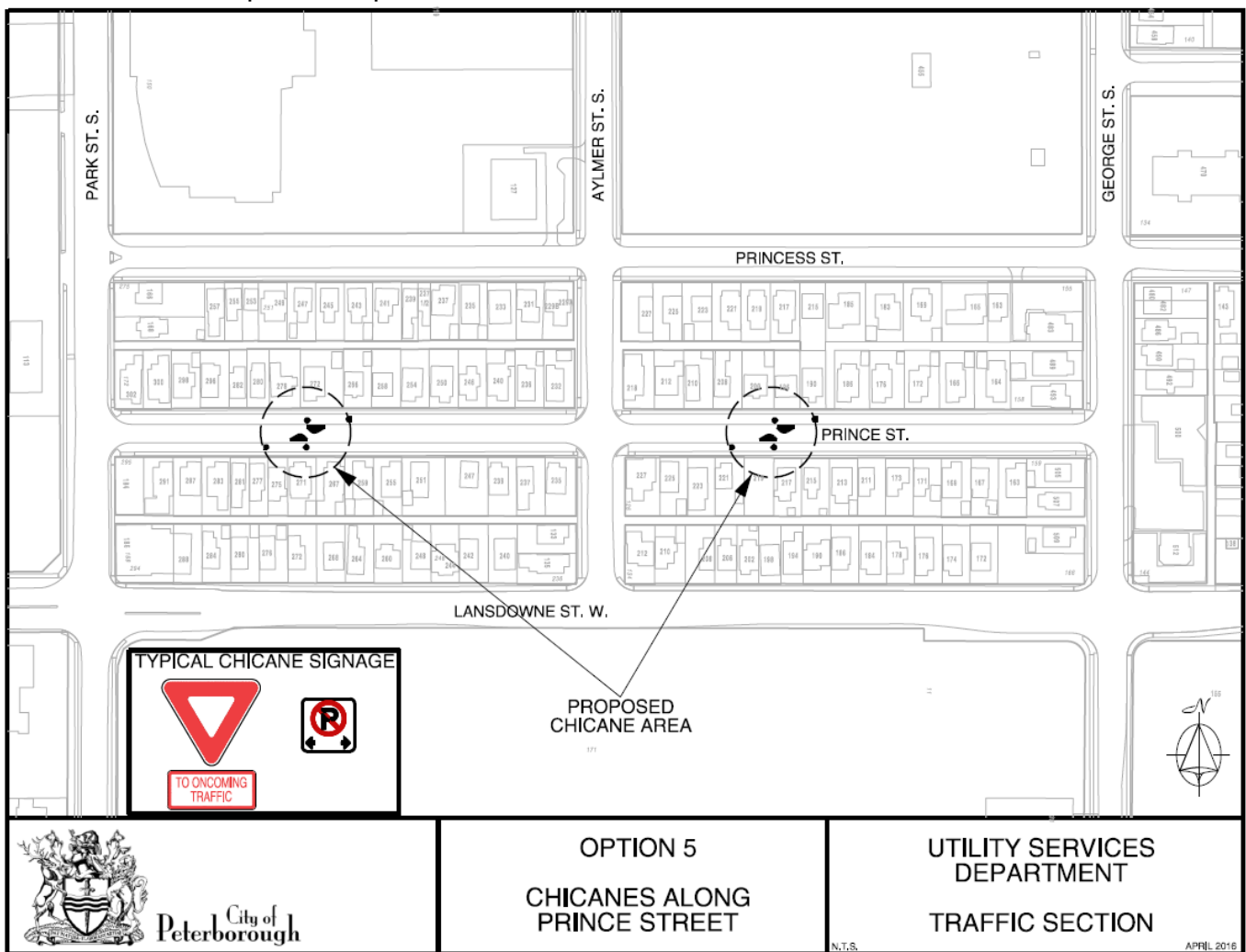


Option 5 – Chicanes along Prince Street

Description: Installation of raised concrete islands on Prince Street that force motorists to maneuver through a narrow single lane roadway at a mid-block location.

Factors to consider:

- East/westbound cut-through routes are less attractive.
- Chicane effect could potentially lower speeds.
- No access change for emergency vehicles.
- Prince Street residents maintain access.
- Cut-through traffic patterns may remain in part.
- Increased noise at chicanes due to vehicle acceleration.
- Efficiency of snow clearing will be impacted.
- On-street parking and driveways impacted at chicanes.
- May influence drivers to use adjacent streets.
- Most expensive option to construct.



Preferred Traffic Calming Options and Comment Sheet

Please indicate your first (1) and second (2) choice...

RANK

<p>Option 1 - Do Nothing Existing Conditions</p>	<p>_____</p>
<p>Option 2 – Traffic Island on Prince Street at Aylmer Street Installation of a right-in, right-out raised concrete island.</p>	<p>_____</p>
<p>Option 3 – Split Parking along Prince Street Installation of prohibited parking for half the block.</p>	<p>_____</p>
<p>Option 4 - Traffic Island on Prince Street at Park Street Installation of a right-in, right-out raised concrete island.</p>	<p>_____</p>
<p>Option 5 – Chicanes along Prince Street Installation of raised concrete islands that force motorists to maneuver through a single lane.</p>	<p>_____</p>

My address is: _____

Comments:

The City of Peterborough appreciates your co-operation in completing this survey and returning your comments in the attached envelope on or before May 3, 2016. While comments collected will become part of the public record, individual's addresses will not.