

NEIGHBOURHOOD TRAFFIC MANAGEMENT

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ABSTRACT

Neighbourhood traffic management issues have received considerable attention in the last decade, dealing with concerns over vehicle speeds, volumes, level of truck activity, pedestrian and cyclist accommodation and safety, and street aesthetics. Generally, the focus has been on local residential streets; however, collector streets have also been examined in some cases. This paper will review a number of neighbourhood review projects, including:

- A local street in Winnipeg, MB along the Red River that was the subject of a corridor enhancement focussing on upgrades to the pedestrian and cyclist environment along the street and improved access to the Red River. The study looked at traffic circles, bulb outs, and raised crosswalks. After initial public support the project was stopped due to a change of heart among some residents who were directly impacted by the measures.
- A collector street in Fargo, ND that was reviewed following intense neighbourhood lobbying to the Mayor and City Commission following the street being extended under I-29 to connect to a street adjacent to a regional shopping centre. Area residents were concerned about increased volumes and speeds, and difficulty in exiting from local streets onto the collector. The study looked at traffic management measures that did not involve vertical deflection. Initially supported by City Commission, a strong grass roots movement by area residents significantly modified the recommended plan.
- A neighbourhood review in Saskatoon, SK was requested due to the proposed closure of a portion of a collector street by the City to expand the City's water plant. The street served as an important link to the downtown area and neighbourhood residents were concerned that traffic would divert to the local streets. The study examined both "carrot and stick" approaches to encourage commuters to stay on the major road system.

1. INTRODUCTION

Residents have been increasingly willing to "fight" traffic in their neighbourhood that they feel is higher or faster than is appropriate. This may in part be due to a greater awareness of measures that are available to mitigate speeds and volumes as well as to enhance pedestrian crossings. ND LEA has examined neighbourhood traffic issues in Winnipeg, Brandon, Thunder Bay, Saskatoon, and Fargo, North Dakota in the last few years. This paper will provide an overview of three of these reviews and what type of mitigation measures have been recommended.

2. SCOTIA STREET, WINNIPEG, MANITOBA

2.1. Background

Scotia Street is a local street in northwest Winnipeg along the Red River, between Kildonan Park to the north, and St. John's Park to the south. The street is part of the City's bicycle route system, including closure to vehicular traffic on Sundays and holidays during the summer months. Vehicle traffic is allowed, but is supposed to use the nearest connecting street between a driver's origin or destination to access or leave Scotia Street. The street was part of a number of studies commissioned by the City's Planning, Property & Development

Department to enhance neighbourhoods. The study was to examine opportunities for enhanced access to the river, and address resident concerns about traffic volumes and speeds, pedestrian and cyclist safety, and roadway aesthetics.

Scotia is a residential street with single-family homes, the homes on the east side back on to the Red River. The street has a two lane undivided cross-section with parking on one side in some areas. The street width varies along its length from approximately 7.5 to 10 metres. Traffic volumes range from 670 to 1,150 vehicles per day (vpd), with peak hour volumes of 30 to 55 vehicles per hour (vph) in the morning, and 70 to 145 vph in the afternoon. The City's guideline for a local street is 1,000 vpd, with a 25 percent range generally accepted; therefore the volumes on Scotia fall within the City's guidelines for a residential, local street.

Early consultation sessions identified resident concerns over traffic volumes and speeds. In response, ND LEA staff conducted field observation on a number of weekdays and on the weekend at a variety of times during the day. No evidence of high volumes or speeds was observed; volumes were light, with vehicles appearing to drive at or below the speed limit. Traffic volume and speed data was collected during the study, confirming the field observations and traffic counts previously supplied by the City. A summary of vehicle speeds along five areas of Scotia Street is shown in Figure 1.

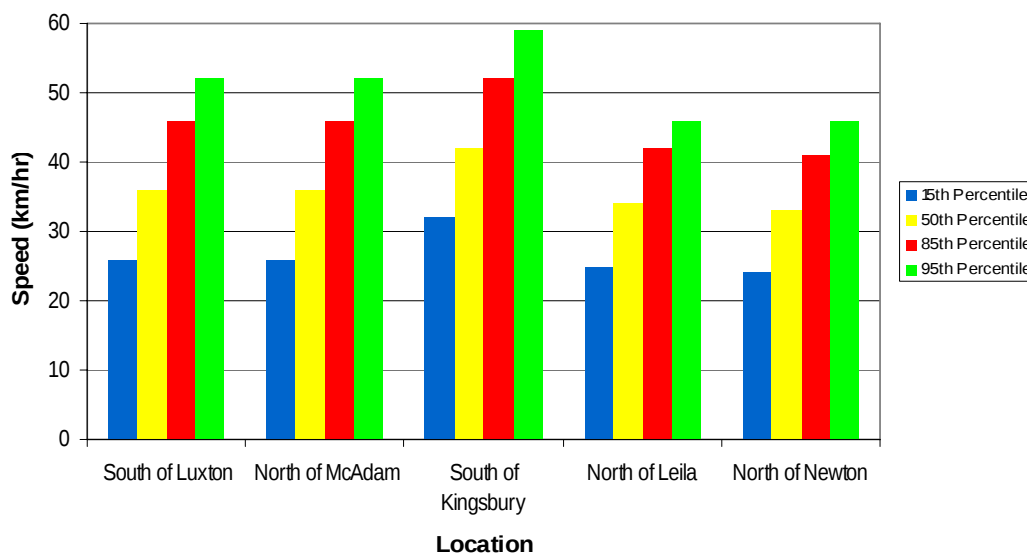


Figure 1: Scotia Street Speed Statistics

Subsequent consultation sessions at which the field observations and measured data were presented resulted in attendees indicating that the main concern was inappropriate driver behaviour on days when the street was closed for pedestrian and cyclist use. Drivers were not making use of the first opportunity to enter/exit Scotia and were driving along the street. This is not an issue that can be addressed through physical construction, but rather, through additional signage and education, with enforcement if needed.

2.2. Enhancement Options

The focus of the study then shifted to measures to enhance the pedestrian environment, and consideration of some traffic calming features. Measures that were examined and presented to area residents included:

- Ornamental paving stone crosswalks
- Additional lighting
- Raised pedestrian crosswalks
- Curb extensions at intersections
- Traffic circles
- Bus stop enhancements
- Information boards
- Additional trees at focus points
- Seating areas

Illustrations of the concepts are attached at Figures 2 and 3.



Figure 2: Raised Crosswalk with Curb Extension

The initial public process was separate from the implementation portion of the project. Follow-up public meetings presented the proposed changes; initially attendees endorsed much of the plan, and asked for additional traffic circles to be added to the plan. Subsequent

meetings during the implementation phase resulted in a number of concerns raised by the local residents.



Figure 3: Traffic Circle

Although they continued to voice concerns about traffic speed and volumes, they did not accept any of the proposals that were put forth to address the perceived problem. A homeowner with a driveway within the traffic circle strongly objected due to his perception that his access would be more restrictive. The project was placed on hold pending deliberations by the City on how or whether to proceed given the strong objections by study area residents to any traffic calming measures.

3. 17TH AVENUE, FARGO, NORTH DAKOTA

3.1. Introduction

This study examined potential traffic management measures along four blocks of 17th Avenue South, a collector street immediately east of I-29. The request for the study was precipitated by the extension of 17th Avenue South as an underpass at I-29 connecting to 17th Avenue South west of the underpass. A major regional shopping centre, as well as other retail and commercial centres are located west of the interstate. A number of area residents had contacted the mayor and City Commission members with concerns regarding traffic volumes and speeds, a request to change the two-way stop at 17th Avenue South and West Gateway to a four-way stop, concerns about long intersection queues blocking driveways at the four-way stop controlled intersections of 17th Avenue South with 32nd Street South and 34th Street South,

truck use of the street, although it is not a truck route, and increased shortcutting on Cobblestone Court.

17th Avenue South is a two-lane collector street, bounded by residential development, with a speed limit of 25 mph (40 km/hr). On-street parking is permitted on the north side of the street between 32nd Street South and 35th Street South and a sidewalk is located on the north side, and portions of the south side of the street. 17th Avenue South is not designated as a truck route. Four-way stops are located at the intersections of 17th Avenue South with 32nd Street South and 34th Street South. All other intersections within the study area are two-way stops for the north-south connectors.

Traffic along 17th Avenue is in the order of 10,000 to 11,150 vpd, with 1,000 to 7,700 vpd on the cross streets. This is somewhat higher than before the connection across the interstate, but consistent with the traffic forecasts developed during planning for the new link. Intersection analysis for pm peak hour traffic revealed that three of the four intersections were operating at level of service E or F for many of the approaches.

Vehicle queues during the pm peak hour ranged from one to 17 vehicles depending on the approach and intersection. Speed data collected by monitoring equipment found that average speeds ranged from 30 to 34 mph along the study area, compared to the posted speed of 25 mph. The 85th percentile speeds ranged from 35.5 to 39.7 mph. Field observations during peak hours found speeds within the limit due to higher volumes.

A review of collision statistics for a six-year period identified 16 collisions along the study area; the collision rates at the intersections of 0.09 to 0.35 collisions per million entering vehicles are considered low.

3.2. Traffic Management Options

Traffic management (calming) measures are typically applied to reduce traffic volumes and/or vehicle speeds, primarily on neighbourhood local residential streets, but have been applied on collector streets as well. Measures can include vertical and horizontal deflections in roadway. In this case, given the collector designation, and its use by buses and some trucks, measures that rely on vertical deflection were not considered.

Seven measures, as well as a combination of measures, were considered, including:

- Chicanes
- Curb extensions at intersections and mid-block
- Raised median islands at intersections and mid-block
- Traffic circles
- Additional lanes at intersection approaches
- Bicycle lanes
- Roundabouts

The measures were compared in terms of the possible influence on traffic volumes and vehicle speeds, intersection queues, on-street parking, pedestrian movements, cyclist movements, and other issues.

3.3. Public Consultation

A public consultation program was carried out that included a mailbox newsletter and survey, two open houses and publicly advertised presentations to the City's Planning Committee and Transportation Technical Advisory Committee (TTAC).

The first open house with local residents was held to establish what residents considered the main traffic issues along 17th Avenue, and what improvement options should be considered to improve the current situation.

The main issues identified by the 66 17th Avenue area residents at the first open house were:

- Excessive speed (24 responses)
- Traffic volume (20)
- Access problems (20)
- Noise (16)
- Intersection congestion (15)
- Pedestrian / bike safety (12)

Attendees also identified the improvement options they considered would help to alleviate some of the existing traffic issues:

- Four-way stops (21 responses)
- Roundabouts (11)
- Traffic signals (7)
- Increased police enforcement (7)
- Turning lanes (6)
- Increase the speed limit to 30 mph (3)

A traffic calming survey sheet and information pack comprising a list of traffic calming measures and a summary of their advantages and disadvantages together with a newsletter providing background information to the study was prepared for distribution to 430 area homes. The objective of this survey was to establish the area resident's views with respect to the implementation of traffic calming measures on 17th Avenue.

The survey results were not consistent with the questionnaire from the first open house. The survey results indicate that all-way stop signs have the greatest level of public support, with 71 out of 93 residents responding supporting their implementation. Of the remaining options, curb extensions and raised mid-block medians attracted the greatest level of support. Roundabouts,

chokers and traffic circles, received the lowest level of support with only 8 out of 93 residents responding in favour.

It is worth noting that measures that may best address issues identified by attendees at the first open house were not necessarily supported. The disparity between the issues that residents raised and the effectiveness of the traffic management measures that they would like to see implemented is illustrated in Figure 4. The degree of effectiveness was based on the average ranking of a number of study team members.

The graph shows that the most popular measure (all-way stop signs) is potentially the least effective at addressing the issues, while the second least popular measure (roundabouts) is likely to be the most effective measure at addressing the identified issues.

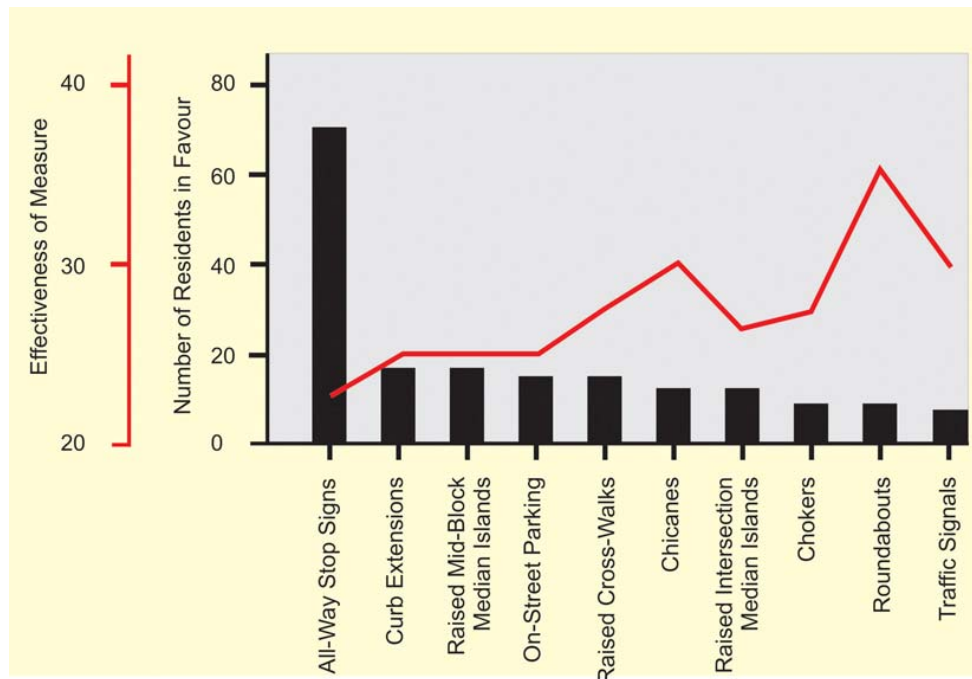


Figure 4: Effectiveness of Proposed Resident Traffic Management Measures

A phone survey of nine other jurisdictions was conducted to establish what experience other North American cities have had with traffic calming on collector streets. The survey data, together with the information obtained at the first open house was used to help formulate three preliminary roadway modification options for the 17th Avenue corridor. These options were presented to the public at a second open house and presentation. The second open house was held to discuss and obtain views on each of the three options. A presentation was provided, followed by a question and answer period.

From discussion with the 70 - 75 area residents who attended, there appeared to be a mixed reaction to the proposed options. For example, while a number of residents voiced their concerns about the introduction of roundabouts at 32nd Street South and West Gateway Circle (cost, will be different to learn how to use them, not helpful for pedestrians, cross-street entry may be difficult), a few residents stated that they had experienced roundabouts in other parts of

the country and thought they would worth considering. Several residents in the vicinity of 32nd Street South intersection were concerned about the effect a roundabout would have on their ability to access their driveways. Residents also expressed concern about the loss of parking between 34th Street South and 32nd Street South that is associated with Options 2 and 3. In general, residents were in favour of the introduction of protected parking area between 34th Street and 32nd Street.

3.4. Traffic Management Options

Three traffic management options were developed and evaluated. The options reflect comments received through the public consultation process, input from the City's Steering Committee and TTAC committee, and consultant judgment in considering features that address resident concerns.

Option 1. This option includes roundabouts at 32nd Street and West Gateway Circle, a short service road serving six homes, and the provision of protected on street parking areas between 32nd Street South and 34th Street South.

Option 2. In this option chicanes were applied to the section of 17th Avenue between 34th Avenue South and 32nd Avenue South both mid-block and on the approaches to intersections. As with Option 1, roundabouts were located at the intersections of 17th Avenue South and West Gateway Circle - Prairiewood Drive and 17th Avenue South and 32nd Street South, and a short service road serving six homes was provided.

Option 3. In this chicanes incorporating mid-block median islands were applied to 17th Avenue South between 34th Avenue South and West Gateway Circle. Protected parking areas were introduced on the north side of 17th Avenue South between 34th Street South and 32nd Street South. Intersection median islands were also applied on 17th Avenue at West Gateway Circle. As with Options 1 and 2, a roundabout was located at the intersection of 17th Avenue South and 32nd Street, and a short service road serving six homes was provided.

3.5. Supplementary Review

City of Fargo Engineering staff conducted a supplementary review of issues through a comment sheet sent out in to residents in a square mile area, and a review of traffic speeds on 17th Avenue South from 2003 to 2005.

A total of 1095 comments sheets were sent out, with 213 returned. Four questions were asked, which of the options were preferred, what modifications should be considered, has an issue been overlooked and how it could be addressed, and any other comments. In summary, 15 percent of respondents supported Option 1, less than one percent supported Option 2, seven percent supported Option 3, 36 percent supported a do nothing approach, 12 percent would like to see all-way stop signs installed, and 30 percent would like to see traffic signals installed.

The average speeds on 17th Avenue, east of 32nd Street dropped from 33 to 32 mph for eastbound traffic, and from 33 to 30 mph for westbound traffic. The 85th percentile (the speed at which 85 percent of vehicles are traveling at or below) dropped from 39 to 37 mph for

eastbound traffic, and from 38 to 36 mph for westbound traffic. City staff feels this may be a reflection of the expanded speed enforcement carried out by Fargo Police.

3.6. Recommended Plan

Option 1 was selected as the preferred option, as illustrated on Figure 5. This option is considered the most effective at addressing the identified resident concerns along 17th Avenue South. The recommended option includes the following measures:

- Alter road markings on 17th Avenue on the approach to the 34th Street South and 35th Street South intersection to provide additional approach lanes.
- Introduce curb extensions to create designated parking areas on the north side of 17th Avenue between 34th Street South and 32nd Street South and to help control vehicle speeds on the approach to the 32nd Street intersection from the west.
- Create a service road to facilitate the 17th Avenue driveway accesses immediately to the west of 32nd Street South.
- Introduce a roundabout at the 17th Avenue South / 32nd Street South intersection.
- Introduce a roundabout at the 17th Avenue South / West Gateway Circle - Prairiewood Drive intersection.

Given the public concern regarding the introduction of roundabouts on 17th Avenue South, it was recommended that only the 32nd Street roundabout should be constructed initially. Improving this intersection first is the more critical in terms of addressing existing congestion levels. This will give the public an opportunity to familiarize themselves with the operation of the roundabout before the second roundabout is introduced. It will also allow construction to be staged over a two-year period. The estimated implementation cost for Option 1 is \$585,000US.

Prior to constructing the first roundabout, it was recommended that the City of Fargo undertake a public education program that would be aimed at providing the public with information on how to safely proceed through a roundabout. This could take the form of information leaflets distributed to area residents combined with a newspaper article, which is likely to reach a larger audience, as well as material on the City's web site, and public information messages through the media. In addition a public meeting could be arranged which could include video footage showing existing roundabouts in operation.

3.7. What Happened

Prior to the hearing at City Commission (City Council) for final project approval, the Commission asked for a pre-hearing briefing to allow them an opportunity to review the plan in more detail and have their questions answered. The consultant and administration provided an overview of the process, the recommended plan, and costs. After lengthy discussion on the plan and possible alternatives, it appeared the Mayor and most Commission members were supportive of the recommended plan.



Figure 5: Recommended Plan - Option 1

There was a strong feeling among some area residents that roundabouts would not work, were too expensive, and wouldn't address their key concerns. A core group organized themselves and went door to door in the study area with a petition opposing the plan. They received support from over 200 residents, and many appeared at the City Commission hearing. The

opponents were persuasive, resulting in the City Commission approving the project, but without the roundabouts.

4. KING GEORGE/HOLIDAY PARK, SASKATOON, SASKATCHEWAN

4.1. Background

The City of Saskatoon's water treatment plant is located directly east of the 11th Street West and Avenue H South intersection. The City is currently developing plans to expand the plant to the west and south. The expansion is envisioned to incorporate the intersection of 11th Street West and Avenue H South, resulting in the closure of the intersection. The proposed closure will result in a requirement for commuters to alter their route, potentially impacting residential streets in the adjacent King George and Holiday Park neighbourhoods. This potential for shortcutting through the residential neighbourhoods has resulted in concerns over additional non-local traffic on local residential roads. The study area is illustrated on Figure 6.



Figure 6: Study Area

The City retained ND LEA to conduct a review of the impacts of the proposed closure of the intersection of 11th Street West and Avenue H South on traffic movements in the area. Traffic

route options to mitigate the effects of the intersection closure were identified, with preliminary cost estimates for the recommended option. Potential impacts on emergency vehicle access, pedestrians, and stakeholders in the adjacent neighbourhoods were reviewed.

11th Street West is classified by the City of Saskatoon as a minor arterial and runs in the east-west direction. 11th Street West is a two-lane roadway with parking lanes on both sides of the street and separates the King George and Holiday Park neighbourhoods. Avenue H South is also classified as a minor arterial and runs in the north-south direction. Avenue H South is a two-lane roadway with parking lanes on both sides. Avenue P South and Spadina Crescent are also classified as minor arterials and are two-lane roadways with parking lanes on both sides. All remaining roads in the study area are classified as local streets. The intersection of 11th Street West and Avenue P South is controlled by a traffic signal. All other intersections in the study area are currently controlled by stop signs.

4.2. Stakeholder Discussion

Neighbourhood representatives, business owners, Transit, emergency services were contacted to identify concerns and issues that would need to be addressed. The comments received from the various community associations are similar in some ways, but also highlight conflicting concerns. Some residents were concerned about access to the downtown and feel their only alternative following the intersection closure would be to travel through the residential neighbourhoods. Many residents do not want any additional traffic in their neighbourhood, would like to remove traffic from 11th Street West, and are supportive of physical measures to control traffic. In contrast, other residents would like to maintain traffic on 11th Street West and are not supportive of physical measures to control traffic.

The diverse opinions result in a challenge as to how to best accommodate the proposed closure of the 11th Street West and Avenue H South intersection while minimizing impacts on other residential streets. Clearly, a solution that completely satisfies all parties may not be feasible.

Traffic volumes were estimated for two scenarios following the closure of the intersection of 11th Street West and Avenue H South. The first scenario assumes the existing road network remains in place. The second scenario assumes a new traffic link (17th Street Extension) has been constructed along the CN right-of-way to connect 17th Street West with 11th Street West west of Avenue P South.

4.3. Mitigation Options

In order to address the potential shortcutting issue, a series of options were investigated to reroute through traffic away from the proposed closure of the 11th Street West and Avenue H South intersection and the adjacent residential streets and onto Avenue P South and 17th Street West.

Option 1: Signage and Wayfinding: This option included additional signage and wayfinding discourage shortcutting through the residential neighbourhoods and encourage traffic to follow the desired travel route. Signage would be used to restrict turning movements onto residential streets during the morning and afternoon peak periods. Wayfinding signage indicating the desired travel route to the city centre would be added at key intersections. Although signage

alone was considered as one option, signage and wayfinding was included as part of all traffic routing options.

Option 2: Traffic Control: The second option involves changes or adjustments to the traffic control devices at key intersections in the study area. Signal timing and phasing at the intersection of 11th Street West and Avenue P South was adjusted to encourage the eastbound to northbound and southbound to westbound movements through extended green time and discourage travel along 11th Street West east of Avenue P South through a reduction in green time. As well, traffic signals were added at the intersections of 17th Street West with Avenue H South and Avenue P South. The signal timing and phasing at both intersections was set to encourage travel along the preferred travel route and discourage travel on 11th Street West and Avenue H South within the study area. Adjustments to existing traffic control at key intersections in the study area should be included as part of all traffic routing options.

Option 3: Intersection Improvements: Intersection improvements were made to encourage the desired movements at the intersections of 11th Street West and Avenue P South, 17th Street West and Avenue P South, and 17th Street West and Avenue H South. Treatments included items such as changing lane allocation, narrowing some approaches, adding medians at approaches, addition of left turn lands and right turn cut-offs. Certain improvements would be required as part of all traffic routing options.

Option 4: Curb Extensions: A curb extension is a horizontal intrusion of the curb into the roadway resulting in a narrower section of road. The purpose of a curb extension is to reduce vehicle speeds and prevent parking close to intersections. Curb extensions also reduce crossing distances for pedestrians and increase pedestrian visibility, which may reduce vehicle-pedestrian conflicts. Curb extensions are not compatible with bike lanes, and cyclists sharing the roadway may feel forced into the path of motor vehicles. Curb extensions were located along 11th Street West east of Avenue P South and along Avenue H South between 11th and 17th Streets West. .

Option 5: Raised Crosswalks: A raised crosswalk is a marked pedestrian crosswalk at an intersection or mid-block location constructed at a higher elevation than the adjacent roadway. The purpose of raised crosswalks is to reduce vehicle speeds and increase pedestrian visibility, which may reduce vehicle-pedestrian conflicts. Raised crosswalks may result in traffic diverting to parallel residential streets that do not have raised crosswalks. As well, there may be delays to ambulances, fire vehicles and buses. Raised crosswalks were located along a number of local streets in the study area to discourage through traffic.

Option 6: Raised Median Islands: A raised median island is an elevated median constructed along the centreline of a two-way roadway to reduce the overall width of the adjacent travel lanes. The purpose of raised median islands is to reduce vehicle speeds and act as pedestrian refuges to reduce pedestrian-vehicle conflicts. Raised median islands may restrict access to driveway locations to one direction only and may also require the removal of adjacent on-street parking. Mid-block raised median islands can also include marked pedestrian crosswalks. Raised median islands were located along a number of local streets in the study area.

Option 7: Chicanes: Chicanes are curb extensions that alternate from one side of the road to the other. Chicanes narrow the roadway width and force drivers to steer from one side of the road to the other to navigate through the chicane. Typically, at least three curb extensions are used to form a chicane. The purpose of a chicane is to discourage shortcutting or through traffic and to reduce vehicle speeds through the forced deflection of vehicles. Chicanes require the removal of adjacent on-street parking. As the primary purpose of chicanes is to discourage shortcutting, chicanes were located on residential streets throughout the study area. No chicanes were located on those roads that are currently part of the local transit route.

Option 8: Spadina Crescent Connection: The closure of the 11th Street West / Avenue H South intersection also impacts Spadina Crescent, which forms the south leg of the intersection. This link must be maintained in some way. The current connection services both the residents of Holiday Park and others to the south. .

The City will be purchasing properties along the south side of 11th Street West, and along the west side of Spadina Crescent. This would allow for a low speed, two-lane connection between Spadina Crescent and the intersection of 11th Street West and the north leg of Avenue I South within what will be City lands. The geometry could be kept “tight” to encourage low speeds. The connection could continue north along Avenue I South to 12th Street West, and then back to Avenue H South. A traffic diverter was proposed at the intersection of 12th Street West and Avenue I South to ensure that traffic not enter the balance of the neighbourhood. This connection will accommodate vehicles that have no other choice but to use the Avenue H South – Spadina Crescent route.

4.4. Discussion

Overall, the goal of this study was to identify how traffic that is currently using the 11th Street West – Avenue H South connection can be accommodated in such a way as to minimize the impact on the local residential street system. The proposed 17th Street Extension, a new roadway along the CN right-of-way between 17th Street West / Avenue P South and approximately 11th Street West / Avenue W South, will offer an attractive link that will be shorter and quicker than the current connection and is expected to carry the bulk of through traffic to and from the downtown. The new route will be reinforced through geometric modifications at the intersection of 17th Street West and Avenue P South and the realignment of the west terminus of the extension. The 17th Street Extension will become the direct route from 11th Street West west of Avenue W South, with 11th Street West “teeing” into the new alignment of 17th Street to the east.

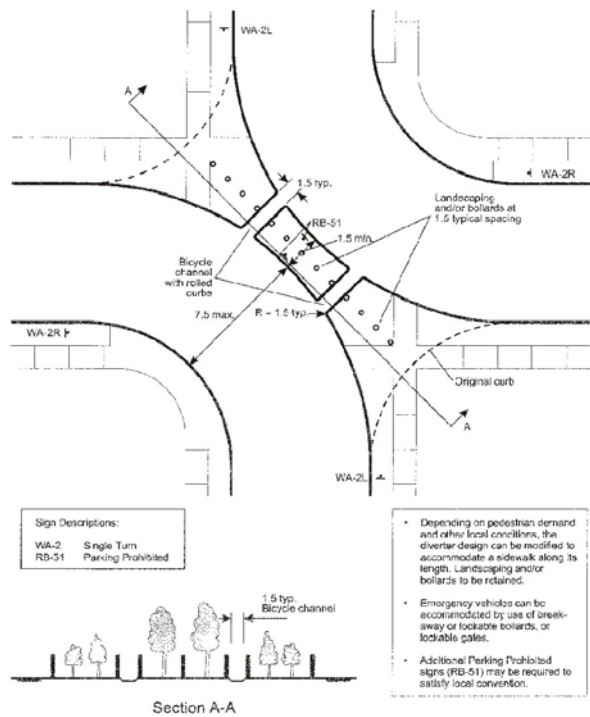
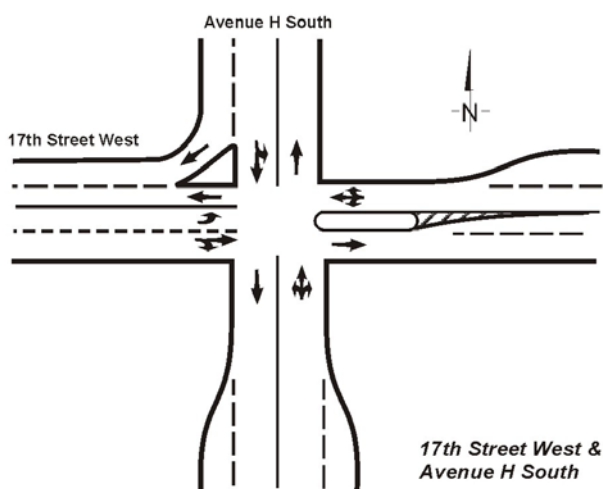
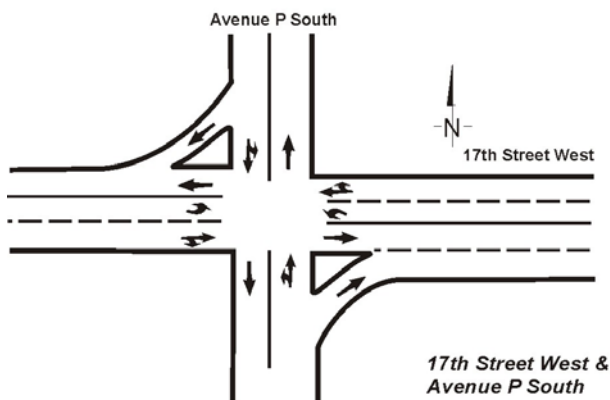
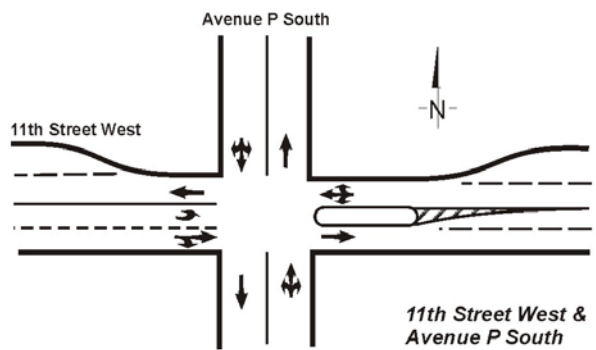
The study team concluded that the 17th Street Extension combined with Option 1 (signage and wayfinding), Option 2 (traffic control), and Option 3 (intersection improvements) offers an effective means of addressing the intersection closure. Together, these options should provide adequate protection to the adjacent residential neighbourhoods. The recommended option is illustrated in Figures 7a and 7b. The recommended changes also suggest the need to reclassify certain streets. The new role for 17th Street West would best be serviced by its reclassification to a minor arterial, consistent with the streets it will connect to. At the same time, the reduced traffic role of 11th Street West east of Avenue P South and Avenue H South south of 17th Street West would suggest that they could be reclassified as neighbourhood collector streets.

4.5. Cost Estimates

Preliminary cost estimates were developed for the recommended improvements. The cost estimate for the 17th Street Extension was \$2.4M, including removal of the existing railway ties. The estimate for the signage, traffic control, and intersection improvements was \$0.45M, for a total project budget of \$2.85M. Land acquisition, GST and engineering costs were not included in the cost estimates.



Figure 7a: Recommended Option



All dimensions are in metres unless otherwise noted.

NOT TO SCALE

Figure 7b: Recommended Option - Intersection Treatments

5. GENERAL CONCLUSIONS

Conclusions that can be reached, based on these case studies, as well as others undertaken in Winnipeg, Thunder Bay, and Saskatoon, include:

1. Perceived traffic volume and speed concerns are no easier to address than actual problems.
2. Public consultation before, during, and after development of mitigation measures is critical.
3. An initial walkabout is an effective tool in obtaining resident input early in the process.
4. There is no single solution, and each case must be addressed based on its specific circumstances.
5. Implementation of temporary measures is an effective means of determining resident acceptance, the ability of the measure to address the problem, and providing “education” on different measures for both area residents, emergency services, and other City services agencies.

REFERENCES

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3. ND LEA, *King George/Holiday Park Traffic Review*, City of Saskatoon, Infrastructure Services Department, Saskatoon, Saskatchewan, May 2004.