City of Saskatoon
Transportation

Intersection Review

Engineer: Michelle Buchko, P. Eng.

Location: Clarence Avenue & Main Street

Date: October 28, 2022

1.0 Issue

The City of Saskatoon continues to receive concerns from residents regarding safety at the intersection of Clarence Avenue and Main Street, located between the Nutana and Varsity View neighborhoods, shown below in Figure 1.

Figure 1: Intersection location

2.0 Background

In 2002, the Administration completed a review of intersections within the Nutana neighborhood in response to requests from residents that measures be taken to reduce traffic volumes and speed, and to improve safety.

At its Regular Business Meeting held on June 9, 2003, City Council adopted the recommendation that the eastbound and westbound through and left turn movements on Main Street at Clarence Avenue be prohibited in a temporary manner for a period of six months, and that the Administration report back on the project. Following the City Council meeting, opposition was received from nearby residents. As a result, the recommended changes were not implemented.

In 2005, a pedestrian-actuated signal was installed at the north crosswalk on Clarence Avenue to address pedestrian safety concerns. The crosswalk on the south side of Clarence Avenue was removed to encourage pedestrians to use the pedestrian crossing device.

At its Regular Business Meeting held on September 12, 2011, the following enquiry was made by Mayor Clark (City Councillor at the time):

> "Would the Administration please do an intersection analysis of Main Street at Clarence Avenue to assess the safety and functionality of the intersection and to reduce the traffic using Main Street as an arterial roadway."

On August 15, 2013, an information report was presented by the Administration to Finance Committee in response to Mayor Clark's inquiry. The report indicated:

> "From a traffic safety perspective, it has been determined that the most effective and practical measure is to prohibit through and left turn movements on Main Street at Clarence Avenue."

This recommendation was presented to the Nutana and Varsity View neighborhoods during the Neighborhood Traffic Review initial public consultation in October 2013 and January 2014, respectively. Mixed support was received from the neighborhoods and as a result, the recommended changes were not made.

2.0 Existing Conditions

The intersection is located within a residential area, with multi-family housing in three of the four intersection quadrants. This section of Clarence Avenue provides a connection from the south-east side of the City to the University of Saskatchewan and Downtown. Both Clarence Avenue and Main Street are tree-lined streets, with Main Street also having trees in the wide median.

The intersection is two-way stop-controlled with vehicles on Main Street required to stop. There is a pedestrian-actuated signal installed on the north leg of Clarence Avenue to facilitate the east-west pedestrian crossing. Pedestrians are prohibited from crossing the south leg of the intersection. The pedestrian-actuated signal includes accessible pedestrian pushbuttons. Pedestrian ramps with texturing are provided in all directions where pedestrians are permitted to cross.

Additional information regarding the intersection is shown in Table 1 on the following page.

Table 1: Intersection Characteristics

Road Name	**Clarence Avenue**	**Main Street**
Direction	North-South	East-West
Classification	Major Arterial	Local
(Un) Divided	Undivided	Divided
Average Daily Traffic Volume (vpd)	12,900 (2018) (Main St – 12th St)	1,000 (East of Clarence Ave, 2021) 1,500 (West of Clarence Ave, 2021)
Speed Limit (km/h)	50	50
No. Approach Lanes	2	1
Parking Lane	No	Yes
Traffic Control	Pedestrian-Actuated Signal	Double Stop sign with EB Stop Ahead sign
Transit Route	Yes	No

2.1 Traffic Volumes

Traffic volumes on Main Street have decreased significantly since 2012. Previously, Main Street carried up to 2,000 vehicles per day. This is more than desirable for a local street, which is expected to carry up to 1,000 vehicles per day. The function of a local street is to provide land access, primarily traffic with an origin or destination along its length.

Traffic volumes from an October 2021 count (Attachment 2) indicate traffic volumes on Main Street have decreased to approximately 1,000 vehicles per day east of the intersection and 1,500 vehicles per day west of the intersection. This may be attributed to the current detour in place at Main Street and Dufferin Avenue impacting local traffic patterns, which is to remain in place until March 2023.

As demonstrated by the October 2021 traffic count, traffic volumes along Clarence Avenue follow predictable commuter traffic patterns. Northbound volumes are higher during the AM peak hour as drivers travel to the university and Downtown and southbound volumes are higher during the PM peak hour as drivers return home. Traffic volumes on Main Street are relatively low throughout the day with the largest directional split occurring during the PM peak hour. Approximately 40% of the vehicles on Main Street are travelling straight through the intersection, rather than turning onto Clarence Avenue, indicating shortcutting is still an issue.

2.2 Sight Lines

Sight lines for drivers approaching the intersection are obstructed in several ways, as described below.

Departure Sight Triangle

The Transportation Association of Canada's (TAC) Geometric Design Guide (GDG) for Canadian Roads recommends departure sight triangles be provided in each quadrant of each intersection approach controlled by a stop or yield sign. Approach triangles were not considered given the side street and main street traffic control.

The departure sight triangles at the intersection contain several large trees located in the right of way on either side of Clarence Avenue, as shown in Attachment 3. Departure sight triangles

are intended to provide sufficient sight distance for a driver stopped on a minor road approach to depart from their position and complete their maneuver (turn or cross). The departure sight triangles are measured 4.4 meters from the intersecting curb, as recommended by the GDG, rather than from the Stop sign location or stop line. Studies show that drivers typically stop their vehicle 2 meters or less from the edge of the intersecting major road and the driver's eye is positioned approximately 2.4 meters back from the front of a passenger vehicle.

Corner Visibility Triangle

The City of Saskatoon Zoning Bylaw No. 8770 also requires that the corner visibility triangle on private property be free from any object greater than 1 meter in height. Both the south-west and north-east corner visibility triangles contain large trees, as shown in Attachment 4.

Occlusion

Drivers on Main Street have been observed using the parking lane as a driving lane, creating a two-lane approach, rather than a single lane approach. This creates sight line issues for Clarence Avenue drivers approaching the intersection. The median lane vehicle, typically turning left, obstructs the view of the curb lane vehicle, which may be travelling through the intersection.

2.3 Access Management

The unpermitted driveway crossing in the south-west corner of the intersection (Attachment 4) is located approximately 6 meters from the intersection. As per City of Saskatoon Private Driveway Crossing Guidelines, a minimum corner clearance of 15 meters is required for both signalized and unsignalized intersections on a local street. This temporary driveway crossing should be removed.

2.4 Collision History

While traffic volumes on Main Street have decreased since the last review, the proportion of right-angle collisions at the intersection has increased. Between 2016 and 2021, there were 46 collisions at the intersection, as shown on the attached collision diagram (Attachment 5). Based on the collision data:

- 11 collisions resulted in injuries
    - No pedestrians were involved
- 1 collision involved a tree or bush
- Approximately 60% of the collisions were a right-angle configuration:
    - Resulting in 7 of the 11 injuries
    - 41% involved an eastbound and northbound vehicle
    - 50% were due to failure to yield the right-of-way on Main Street
    - 22% were due to driver inattention on Main Street
- Most Main Street vehicles involved in collisions were going straight
- None of the Main Street vehicles were turning right

There were no patterns observed related to weather, lighting, or road surface condition. Additional collision details are summarized in Attachment 6.

Residents have also provided photos of three collisions that occurred during Summer 2022, shown in Attachment 7, all appearing to be right-angle collisions.

Based on the collision configuration, pre-collision information, and main contributing factors, it appears that the high frequency of right-angle collisions is attributed to a combination of the following:

- Poor sight distance
- Traffic from the minor street
- Failure to yield the right of way

3.0 Discussion

To address safety concerns at the intersection and the high frequency of right-angle collisions, several countermeasures were considered, shown in Attachment 8. Applicable countermeasures included:

- Provide a stop line on minor-road approaches
- Clear sight triangles on stop-controlled approaches to intersections
- Modify allowed turning maneuvers through geometric improvements
- Convert the unsignalized intersection to a signalized intersection

Three options were developed using the applicable countermeasures, described below. The addition of stop lines on Main Street and the removal of the unpermitted temporary driveway crossing in the south-west corner of the intersection is recommended in all three options.

An All-way Stop was not considered as this location does not meet the criteria outlined in Council Policy C07-007 Traffic Control - Use of Stop and Yield Signs.

Option 1 – Clear Sight Triangles

Clear sight triangles should allow sufficient time for Main Street drivers to accelerate from a stopped position and complete their movement without interfering with Clarence Avenue traffic. While the risk of a right-angle collision is less, it is not eliminated due to the potential for Main Street drivers to misjudge the gap in traffic and turn or cross when it is unsafe. In addition, sight lines issues for drivers on Clarence Avenue caused by median lane vehicles obscuring curb lane vehicles remains. Clearing the sight triangles will not address occlusion.

Clearing all sight triangles for vehicles on Main Street would involve the removal of 14 mature trees from the right of way within the departure sight triangles and two trees from private property that are within the corner visibility triangle, as shown in Attachment 9. This option preserves all traffic movements at the intersection and does not negatively impact traffic on Clarence Avenue.

A high-level cost estimate for the monetary value of these trees provided by Urban Forestry is approximately $12,000 -$30,000 per tree, depending on many factors such as size and age. However, the actual value of these trees is expected to be much higher as they form an important part of the urban forest intended for the enjoyment of citizens, past, present, and future. They also provide privacy and contribute to the quality of life of nearby residents.

Removal of the trees within the right of way is expected to have a capital cost of around $400,000. Removal of the trees on private property would be the responsibility of the property owner.

Option 2 – Channelization

In this option, the left turn and through movements from Main Street would be prohibited by channelizing the eastbound and westbound approaches on Main Street, as shown in Attachment 10. Geometric improvements to the median would physically force drivers to make a right turn onto Clarence Avenue. This would eliminate the potential for right-angle collisions. These changes would be supported by signage and pavement markings, as well as the appropriate parking restrictions in advance of the intersection. No geometric changes are proposed on Clarence Avenue. As a result, the possibility of a determined driver completing an east-west through movement would exist after channelization.

Channelization on Main Street would impact approximately 100 east-west drivers during the AM and PM peak hours, combined:

- AM peak (15 eastbound, 9 westbound)
- PM peak (60 eastbound, 21 westbound)

Traffic operations on Clarence Avenue remain unchanged. Channelization will lower east-west traffic volumes on Main Street; however, some of these vehicles will be displaced to adjacent streets.

Although the departure sight triangle for right turns is obstructed by several trees, removal of the trees within the departure sight triangle is not recommended at this time. It does not appear that any collisions since 2016 involved a vehicle turning right off Main Street, indicating that the trees are not currently creating issues for right turning drivers.

Occlusion is addressed with this option as there will no longer be room for more than one vehicle on the approach and the through and left turn movements are no longer permitted.

This option aligns with the following goals of the Varsity View Local Area Plan, adopted by City Council in 2014:

- Protect and maintain the urban forest that exists in the Varsity View neighbourhood
- Encourage traffic on local streets in Varsity View to be primarily a result of local destinations and not short-cutting

The estimated cost to construct the channelization is $100,000.

Option 3- Traffic Signals

Traffic signals are not warranted using the guidance provided in TAC's Traffic Signal and Pedestrian Head Warrant Handbook. This intersection received 31 warrant points, lower than the 100 warrant points recommended for installation. A warrant calculation alone is generally not sufficient background for making decision on the installation of traffic signals – there may be other considerations such as safety.

The installation of traffic signals is expected to greatly reduce the potential for right angle collisions. However, traffic signals can also introduce safety problems at an intersection such as increasing the potential for rear-end and sideswipe collisions. They can also cause infiltration of traffic onto local neighborhood street (shortcutting). The traffic volumes on Main Street, which are already higher than desirable for a local street in the eastbound direction, can be expected to increase because of signalization. Unfortunately, it is difficult to estimate the magnitude of this impact.

All sight triangles do not require clearing with this option. At signalized intersections, the first vehicle stopped on one approach should be visible to the driver of the first vehicle stopped on each of the other approaches. The departure sight triangles for drivers turning left from the Main Street or Clarence Avenue is not required; however, if right turns are permitted on the red light, the departure sight triangle for right turns is required.

Occlusion would be addressed with this option.

Several trees are impacted with this option. To ensure the visibility of the traffic signal heads and to achieve the departure sight triangle for right turns, 9 mature trees within the right of way require removal, and 2 additional trees in the right of way require significant trimming, shown in Attachment 11.

The estimated cost to install traffic signals and remove the trees is $500,000.

The advantages and disadvantages of each of these three options is discussed in further detail in Table 2 on the following page.

Table 2: Option Evaluation

Option	Clear Sight Triangles	Channelization	Traffic Signals
Cost	$400,000	$100,000	$500,000
Advantages	• Fewer right-angle collisions expected • All traffic movements maintained • Clear sight lines for all movements off Main Street provided • No impacts to traffic operations on Clarence Avenue • Preserves pedestrian-actuated signal	• Potential for right-angle collisions is eliminated • Clear sight lines are provided for right turns off Main Street • Trees are not impacted • Lower traffic volumes and reduced shortcutting on Main Street expected • Supports the goals of the Varsity View Local Area Plan • No impacts to traffic operations Clarence Avenue • North-south pedestrian crossing distance reduced • Addresses occlusion • Preserves pedestrian-actuated signal • Lowest-cost solution	• Potential for right-angle collisions greatly reduced • Clear sight lines are provided for right turns off Main Street • Addresses occlusion • Facilitates pedestrian crossing in all directions
Disadvantages	• Risk of right-angle collisions is not reduced • Does not address shortcutting • Occlusion remains • Gap selection issues remain for Main Street drivers • Largest number of trees removed • Largest reduction in tree canopy • Negative impacts to neighborhood aesthetics and quality of life for adjacent residents • Private property impacts • High-cost solution	• Left turn and through movements prohibited resulting in inconvenience for some residents • Potential for increase in traffic at adjacent intersections and streets • Additional parking restrictions on Main Street in advance of intersection	• Risk of right-angle collisions is not eliminated • Increased rear-end and sideswipe collisions expected • Increased delays to Clarence Avenue traffic expected • Increased traffic volumes on Main Street expected due to shortcutting • Tree removal required, resulting in a reduction of the tree canopy • Negative impacts to neighborhood aesthetics and quality of life for adjacent residents • Tree root system may cause installation issues • Highest-cost solution

4.0 Engagement – What We Heard

Following evaluation of the options, channelization was recommended as it is the measure with the most impact on safety and addresses shortcutting into the neighbourhoods. It will eliminate the high frequency of right-angle collisions at the intersection. This option has the lowest cost, does not impact the adjacent trees, and does not introduce delays to main street traffic on Clarence Avenue.

An engagement event was held at the intersection on August 23, 2022, to inform residents of the recommended channelization and to collect feedback. Residents who live within one block of the intersection (102) were mailed a flyer and both the Varsity View and Nutana Community Associations received a flyer for the event via email (Attachment 12).

Approximately 45 people attended the engagement event and feedback was received from approximately 50 residents, which is summarized in the attached Engagement Summary (Attachment 13). Residents who were unable to attend the engagement event had the opportunity to provide their feedback to the project team via email. All feedback received prior to September 15th, 2022, is included in the Engagement Summary.

The feedback indicates most local residents are in favor of channelization on Main Street, as shown in the following table.

	Local Resident (Main Street, within 1 block of Clarence Avenue)	Community Residents (Nutana or Varsity View)	Resident Elsewhere
In favor	17	4	2
Opposed	9	7	4
Unknown	2	3	1

Many residents expressed a desire for an additional pedestrian crossing on the south side of the intersection and indicated that Main Street was an important route for cyclists.

No concerns regarding the recommended channelization were received from internal stakeholders.

5.0 Recommendation

Channelization on Main Street at the intersection with Clarence Avenue is recommended to address the safety concerns and collision patterns at the intersection (Attachment 14).

Based on the feedback from residents, it is recommended to modify the existing pedestrian-actuated signal to allow pedestrians to cross the south side of Clarence Avenue. In addition, the design of the channelization on Main Street should consider the feasibility of including cyclist infrastructure, such as a bicycle signal with cyclist actuation or detection.

Given the number of right-angle collisions that occurred in 2021, it is recommended to permanently install the channelization as soon as funding allows. In the interim, temporary channelization should be installed.

6.0 Next Steps

Channelization on Main Street is considered a proposed road closure with the closed portion to remain as right of way, requiring Public Notice and a new bylaw.

The recommended option, along with a summary of the feedback received, will be presented to City Council at the November 21, 2022, City Council Meeting - Public Hearing. Prior to the meeting date, a Bylaw Notice will be issued for the property in the south-west corner of the intersection requesting the owner/occupant stop illegally crossing the boulevard.

If adopted by City Council, temporary channelization and pedestrian-actuated signal modifications will be implemented during the 2023 construction season. Funding for the permanent channelization will be requested in the 2024-2025 multi-year business plan and budget submission package.

Authorization

Prepared By:

Michelle Buchko, P.Eng.
Senior Transportation Engineer

Checked By:

David LeBoutillier, P.Eng.
Transportation Engineering Manager

Attachments:

1. Previous Review and NTR Summaries	8. Countermeasure Selection
2. October 2021 Traffic Volumes	9. Option 1 – Clear Sight Triangles
3. Sight Triangles	10. Option 2 – Channelization
4. Corner Visibility Triangles	11. Option 3 – Traffic Signals
5. Collision Diagram	12. Engagement Event Flyer
6. Collision Summary	13. Engagement Summary
7. 2022 Collision Photos	14. Recommended Option

CONCERN 7 – CLARENCE AVENUE & MAIN STREET REVIEW

The intersection of Clarence Avenue and Main Street was reviewed in 2013, including traffic and pedestrian volumes, collision data and analysis of operational and safety conditions.

Clarence Avenue is a major arterial roadway with a traffic volume of approximately 11,250 vehicles per day, and Main Street is a local street carrying up to 2,500 vehicles per day, substantially more than acceptable for a local street, which typically carries up to 1,000 vehicles per day. It was determined that approximately 50% of traffic on Main Street was not turning off of Main Street at Clarence Avenue, but were simply making a through movement. As a result, Main Street has been a large generator of traffic collisions at the intersection with Clarence Avenue (84 collisions reported in the past five years, 43% right angle collisions).

An effective and practical measure is to prohibit through and left turn movements on Main Street at Clarence Avenue. To force the movements, the centre median on Main Street would need to be modified to physically prevent cross traffic and left turn movements and to force right turns onto Clarence Avenue. It is anticipated that this measure would reduce traffic volume on Main Street by approximately 50% and would also reduce the number of collisions at this intersection by 46%.

The proposed measure was presented to residents during the initial public consultation and the feedback received was inclusive as many residents were not in favour of the discussed change.

Neighbourhood concerns regarding the proposed measure to prohibit through and left turn movements on Clarence Avenue & Main Street:

- Proposed measure will divert traffic onto 9th Street & 10th Street
- In favour of restrictions on Clarence Avenue - may decrease traffic flow on Main Street and slow traffic
- No issues at the intersection; leave as is
- Many condos on Main Street resulting in high traffic volumes

Proposed solutions identified by residents:

- Install full traffic signals

CONCERN 8 – CLARENCE AVENUE & MAIN STREET REVIEW

The intersection of Clarence Avenue and Main Street was reviewed in 2013, and included collecting traffic and pedestrian volumes, assessing collision data, and analysis of operational and safety conditions.

Clarence Avenue is a major arterial roadway with a traffic volume of approximately 11,250 vehicles per day, and Main Street is a local street carrying up to 2,500 vehicles per day, substantially more than acceptable for a local street, which typically carries up to 1,000 vehicles per day. It was determined that approximately 50% of traffic on Main Street was not turning off of Main Street at Clarence Avenue, but were simply making a through movement. As a result, Main Street has been a generator of traffic collisions at the intersection with Clarence Avenue (84 collisions reported in the past five years, 43% right angle collisions).

An effective and practical measure is to prohibit through and left turn movements on Main Street at Clarence Avenue. To force the movements, the median on Main Street would need to be modified to physically prevent cross traffic and left turn movements and to force right turns onto Clarence Avenue. It is anticipated that this measure would reduce traffic volume on Main Street by approximately 50% and would also reduce the number of collisions at this intersection by 46%.

The proposed measure was presented to residents during the initial public consultation and mixed support was received.

Neighbourhood concerns regarding the proposed measure to prohibit through and left turn movements at Clarence Avenue & Main Street:

- Proposed measure will divert traffic onto 9th Street & 10th Street
- In favour of restrictions on Clarence Avenue - may decrease traffic flow on Main Street and slow traffic
- No issues at the intersection; leave as is
- Many condos on Main Street are resulting in high traffic volumes
- Drivers will continue to drive straight through regardless of changes

Proposed solutions identified by residents:

- Install full traffic signals
- Move the right-in right-out islands to Cumberland Avenue & Main Street
- Install flashing yellow lights (at all times) to slow down drivers

TO: **Secretary, Administration and Finance Committee**

FROM: **General Manager, Infrastructure Services Department**

DATE: **August 15, 2013**

SUBJECT: **Enquiry – Councillor C. Clark (September 12, 2011)**
Safety and Functionality - Main Street/Clarence Avenue Intersection

FILE: **IS. 6280-1 and CK. 6320-1**

RECOMMENDATION: that the following report be forwarded to City Council for its information.

TOPIC AND PURPOSE

This report is to provide information in response to an enquiry from Councillor Clark regarding an analysis of the intersection of Main Street and Clarence Avenue. This information will be presented to the community and used as part of the neighbourhood-wide traffic review to be undertaken this fall.

REPORT HIGHLIGHTS

1. The intersection of Clarence Avenue and Main Street was reviewed using current data, including traffic and pedestrian volumes, collision data and analysis of operational and safety conditions.
2. From a traffic safety perspective, it has been determined that the most effective and practical measure is to prohibit through and left turn movements on Main Street at Clarence Avenue.
3. The proposed median modification will be presented to the community as part of the Nutana Neighbourhood Traffic Management Plan in Fall 2013.

STRATEGIC GOALS

The changes to the intersection at Main Street and Clarence Avenue, as outlined in this report, support the City of Saskatoon Strategic Goal, Moving Around, as traffic safety measures provide safety for motorists, cyclists and pedestrians and optimize the flow of people and goods in and around the city.

BACKGROUND

The following enquiry was made by Councillor Clark at the meeting of City Council held on September 12, 2011:

> "Would the Administration please do an intersection analysis of Main Street at Clarence Avenue to assess the safety and functionality of the intersection and to reduce the traffic using Main Street as an arterial roadway."

A similar study was conducted in 2002 in response to requests from residents that measures are taken to reduce traffic volume and speed, and to improve safety at intersections in the Nutana neighbourhood.

At its meeting held on June 9, 2003, City Council approved a recommendation that the eastbound and westbound through and left turn movements on Main Street at Clarence Avenue be prohibited in a temporary manner for a period of six months, and that a report on this matter follow. Following the Council meeting, opposition was received from nearby residents concerned about the impact on the changes to the traffic patterns. The changes were subsequently put on hold. In 2005, a pedestrian activated signal was installed to address pedestrian safety concerns.

Some of the concerns raised in 2002 persist today, such as excessive traffic volume and speed along Main Street, and infiltration of non-local traffic.

REPORT

The intersection of Clarence Avenue and Main Street was reviewed again in 2012 and 2013 using current data, including traffic and pedestrian volumes, collision data and analysis of operational and safety conditions.

Clarence Avenue is a major arterial roadway with a traffic volume of approximately 12,500 vehicles per day, and Main Street is a local street carrying up to 5,000 vehicles per day, substantially more than acceptable for a local street, which typically carries up to 1,000 vehicles per day. It was determined that approximately 50% of traffic on Main Street was not turning off Main Street at Clarence Avenue but were simply making a through movement. As a result, Main Street has been a large generator of traffic collisions at the intersection with Clarence Avenue.

A review of the collision history revealed that there were 84 collisions reported in the past five years at this location. Of these, 36 collisions (43%) were classified as right-angle collisions. It is evident that motorists on Main Street are having difficulties seeing and

judging oncoming traffic on Clarence Avenue, due to the large trees lining Clarence Avenue, and finding adequate gaps to safely proceed across the intersection.

A number of different measures to discourage or eliminate the use of Main Street as a thoroughfare, and to improve safety at the intersection with Clarence Avenue have been examined. It has been determined that the most effective and practical measure is to prohibit through and left turn movements on Main Street at Clarence Avenue. To force the movements, the centre median on Main Street would need to be modified to physically prevent cross traffic and left turn movements and to force right turns onto Clarence Avenue. Proper signage will also help to deter motorists crossing through on Main Street. The proposed median modification is illustrated in Attachment 1 and will be presented to the community during the Nutana Neighbourhood Traffic Management review in Fall 2013.

It is anticipated that this measure would reduce traffic volume on Main Street by approximately 50% and would also reduce the number of collisions at this intersection by 46%. A main concern with this measure is the diversion of traffic to other local streets, such as, 9th and 10th streets. However, a close examination of the potential alternate routes did not identify such direct alternatives. The neighbouring local streets are not considered inviting to shortcutting traffic due to their narrow geometry resulting in low speeds. With the existing yield signs on these alternate streets, it would be too inconvenient and unreasonable for commuter traffic to cut through the area using 9th or 10th Streets.

Traffic volume reduction usually requires use of restrictive traffic measures that prevent certain movements in order to be effective. The physical restriction at the intersection of Main Street and Clarence Avenue may cause some inconvenience to local residents; however, it would result in significant reduction of traffic volumes and collisions. This is one of the trade-offs in a neighbourhood traffic calming plan.

The proposed changes will be presented to the public as part of the Nutana Neighbourhood Traffic Management Plan in Fall 2013. If general support is received, the changes will be incorporated into the neighbourhood-wide traffic management plan and implemented on a temporary basis to evaluate their effectiveness.

OPTIONS TO THE RECOMMENDATION

A variation of the proposed design is to only allow left and right turning movements on Main Street at Clarence Avenue, as illustrated in Attachment 2. This alternative will only restrict the through movements across Clarence Avenue, which would be less restrictive

to local residents. However, a major disadvantage is the remaining safety concern for left turning traffic onto Clarence Avenue from Main Street; therefore, the Administration is not pursuing this option.

POLICY IMPLICATIONS

There are no policy implications.

PUBLIC AND/OR STAKEHOLDER INVOLVEMENT

As part of the Nutana Neighbourhood Traffic Management Study, to be conducted later in 2013, Infrastructure Services will consult with residents on the proposed changes and implications at this intersection.

The feedback received from the previous study in 2002 was largely positive. The proposed restriction was deemed acceptable, especially from residents living on Main Street though some residents expressed concerns about traffic shifting from Main Street to neighbouring streets. Residents were, however, willing to give the plan a chance on a trial basis.

Based on the feedback that will be received from residents on these proposed modifications, Infrastructure Services will evaluate and recommend a future course of action.

COMMUNICATION PLAN

As part of the community engagement activities for the Nutana Neighbourhhood Traffic Management Study, residents will be invited, through direct mail and the community association, to participate in the discussion and learn about how changes will affect them. With input collected from the public engagement activities, a report will be presented to City Council for a decision on the study's final recommendations.

As with all changes to traffic movement on arterial roads, once the new medians are installed, signage will be in place to notify drivers of the restrictions.

DUE DATE FOR FOLLOW-UP AND/OR PROJECT COMPLETION:

Upon completion of the public consultation for the Nutana Neighbourhood Traffic Management Study, a report will be presented with recommendations for the entire neighbourhood. The public consultation is planned for fall 2013, with a report in spring 2014.

ENVIRONMENTAL IMPLICATIONS

There are no environmental implications.

PRIVACY IMPACT

There are no privacy implications.

SAFETY/CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

A CPTED review is not required.

PUBLIC NOTICE

Public Notice, pursuant to Section 3 of Policy C01-021, Public Notice Policy, is not required.

ATTACHMENTS

1. Clarence Avenue & Main Street Proposed Intersection Improvements Concept 1; and
2. Clarence Avenue & Main Street Proposed Intersection Improvements Concept 2.

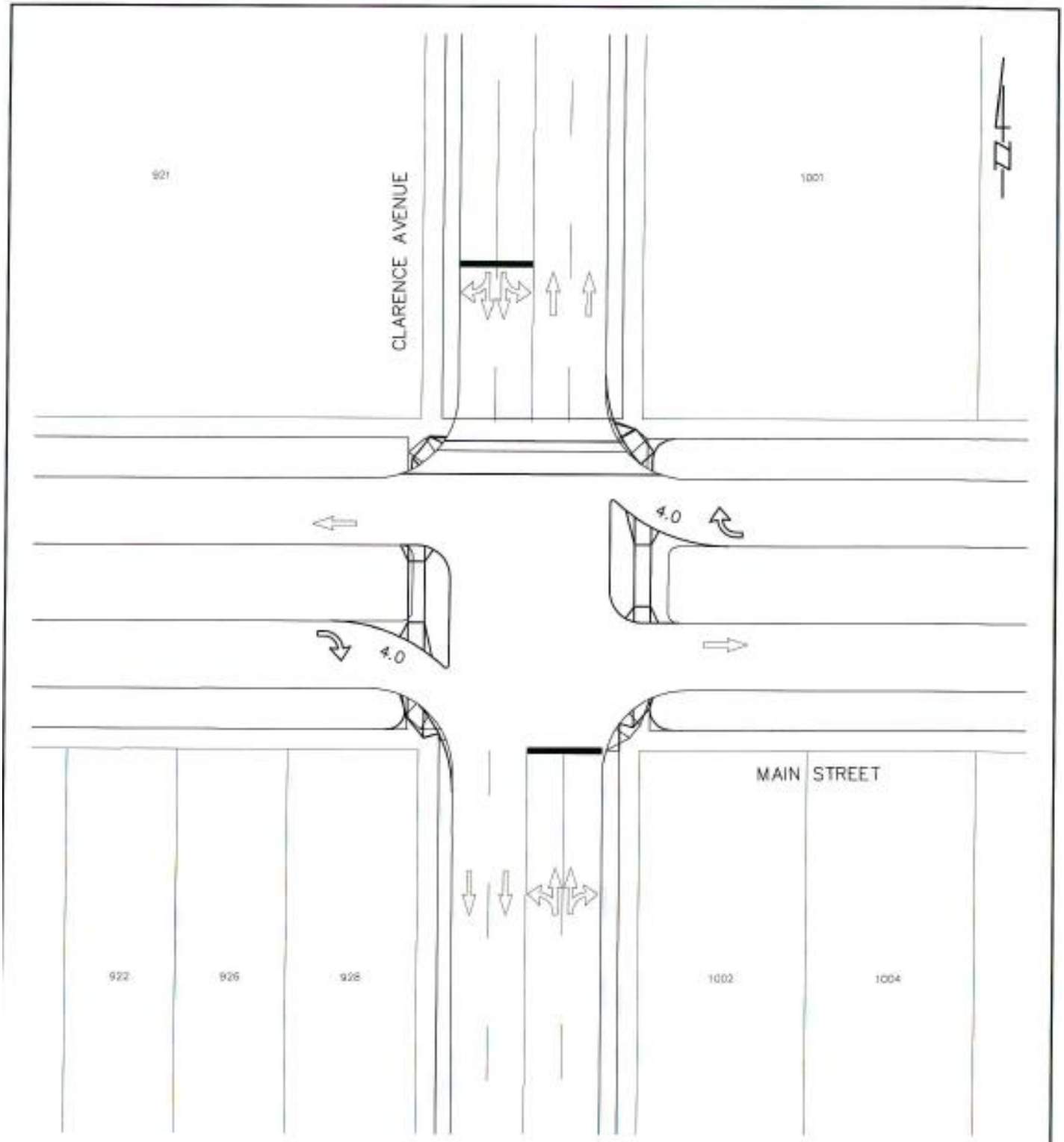
Written by: Lanre Akindipe, Traffic Systems Engineer
Transportation Branch

Approved by: Angela Gardiner, Manager
Transportation Branch

Approved by: "Angela Gardiner for Mike Gutek"
Mike Gutek, General Manager,
Infrastructure Services Department
Dated: "August 26, 2013"

Copy to: Murray Totland
City Manager

AF LA Clarence Avenue Main Street



FUNCTIONAL

PROJECT NO. 504-0065-001+001

PLAN DESCRIPTION/REVISIONS		
4		
3		
2		
1		

DRAWN BY BAJ / LCI

DATE 2013-MAR-15 / 2013-AUG-26

SCALE : HOR. 1:500 VERT. _____

City of Saskatoon
Infrastructure Services Department

CLARENCE AVENUE & MAIN STREET
PROPOSED INTERSECTION IMPROVEMENTS
CONCEPT 1

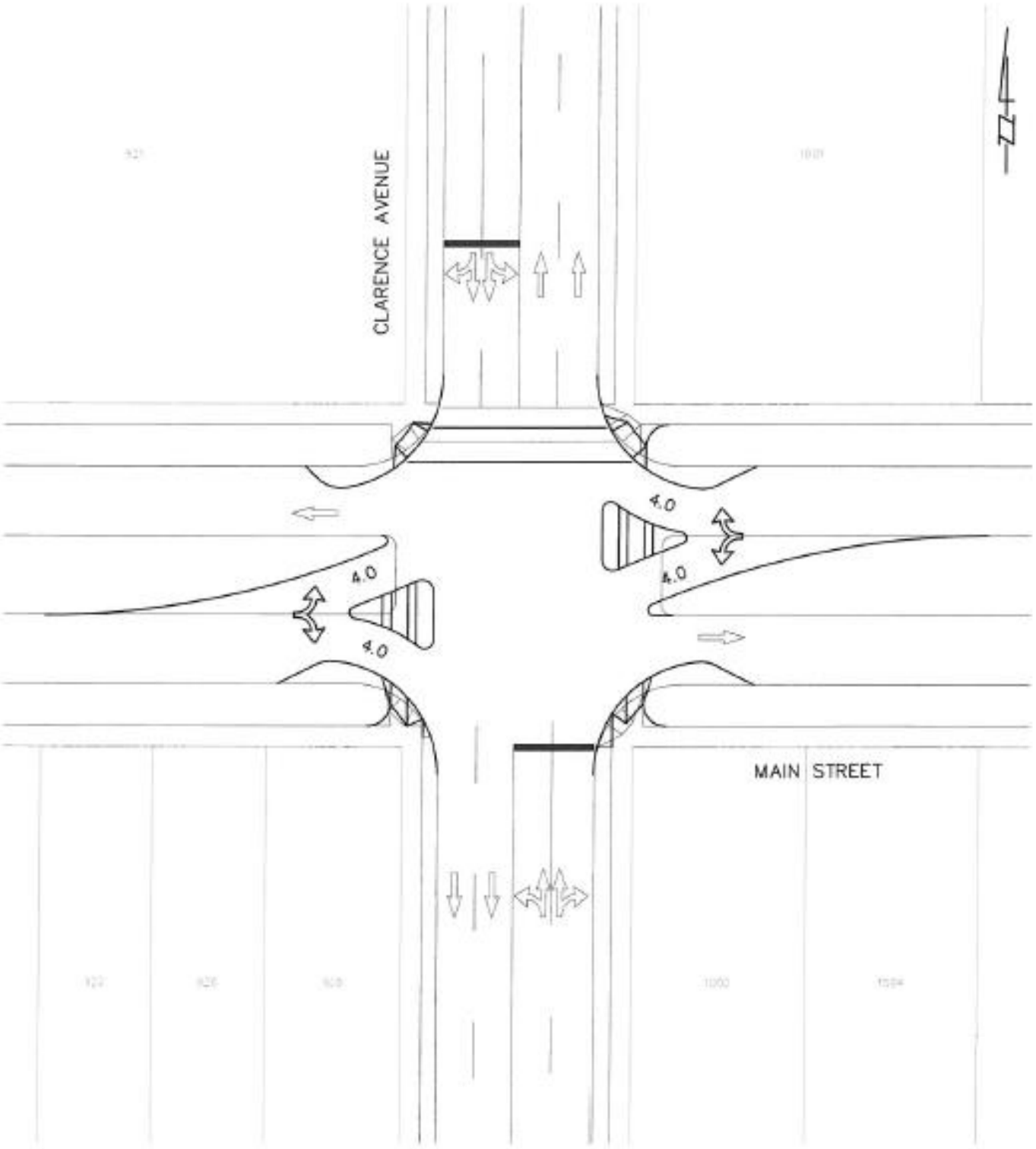
APPROVED

GENERAL MANAGER

ENGINEER

ENGINEER

PLAN NO. ATTACHMENT 1



FUNCTIONAL

PROJECT NO. 504-0055-002/001

PLAN DESCRIPTION/REVISIONS	City of Saskatoon Infrastructure Services Department	APPROVED
4		
3		GENERAL MANAGER
2		ENGINEER
1		ENGINEER
DRAWN BY BAJ DATE 2013-MAR-15	CLARENCE AVENUE & MAIN STREET PROPOSED INTERSECTION IMPROVEMENTS CONCEPT 2	PLAN NO. ATTACHMENT 2
SCALE : HOR. 1:500 VERT.		

Attachment 2: October 2021 Traffic Volumes

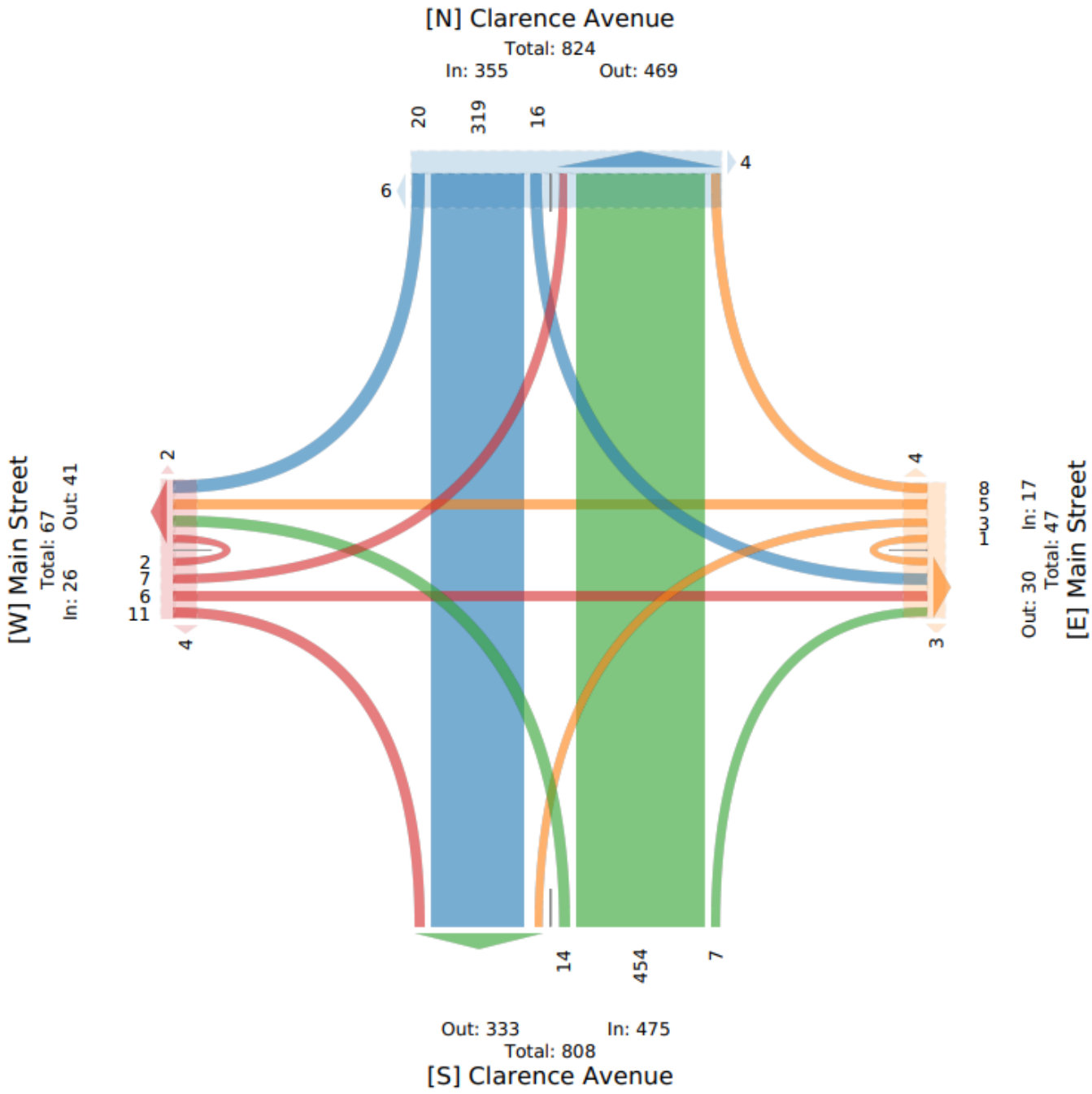


Figure 2: AM Peak Hour (October 20th , 8 AM - 9 AM)

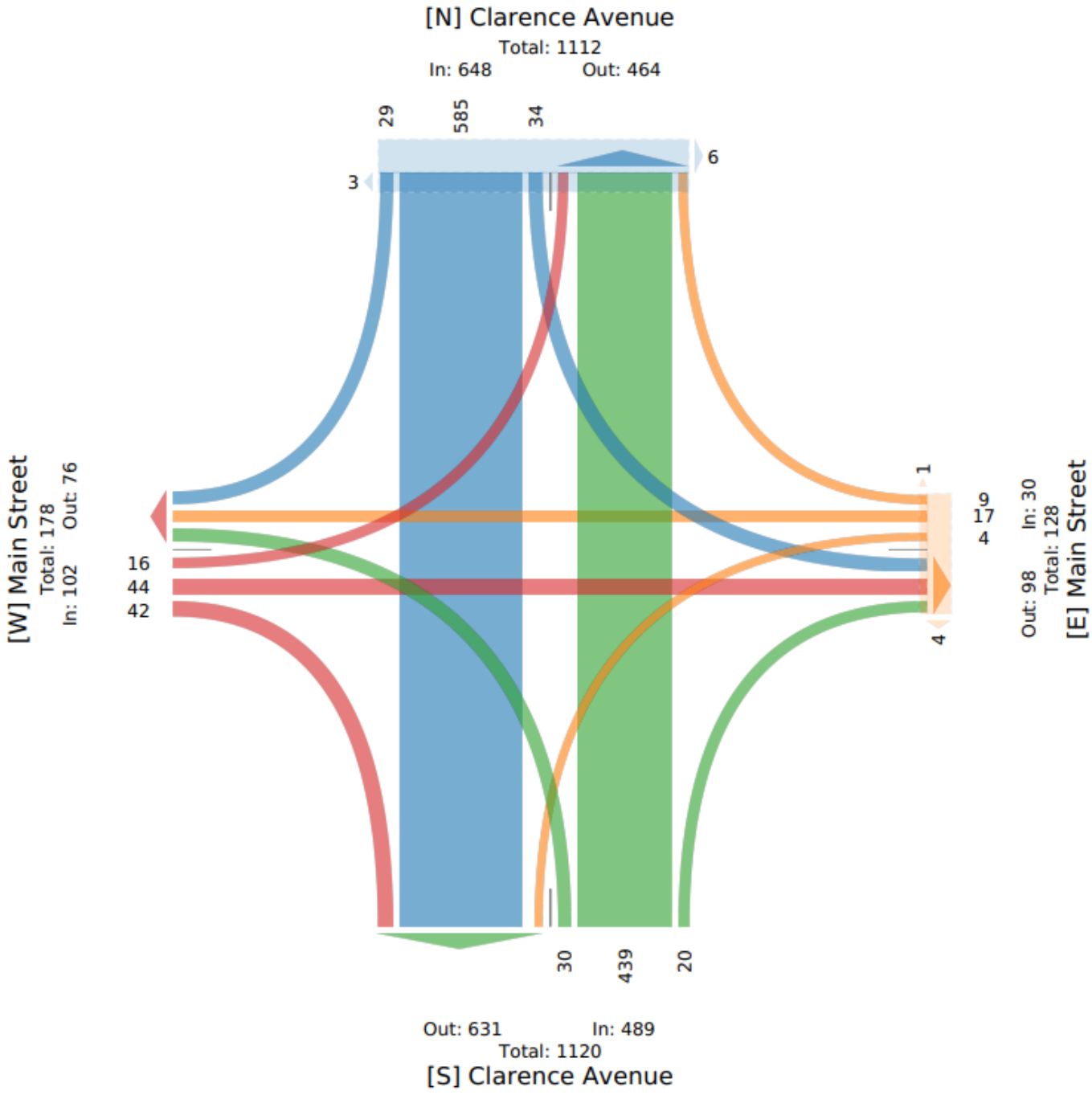
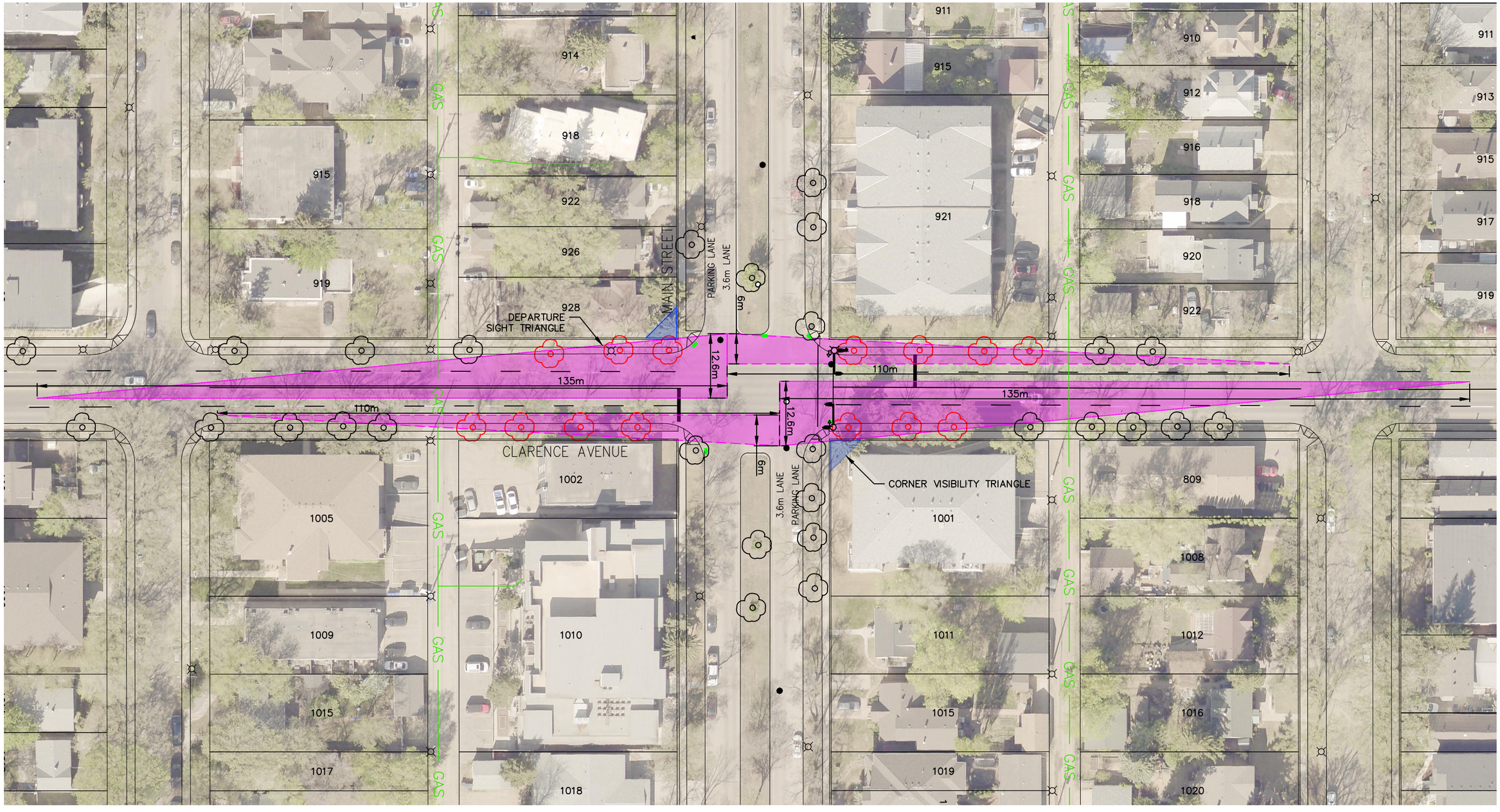


Figure 3: PM Peak Hour (October 19th , 4:30 PM - 5:30 PM)

Attachment 3

TREE

TREE IN CONFLICT



PLAN DESCRIPTION/REVISION	DATE	BY

SEAL

CHECKED BY: _____ DATE

CHECKED BY: _____ DATE

DRAWN BY KAS DATE 2022-JUN-28

City of Saskatoon
Transportation

CLARENCE AVENUE & MAIN STREET
SIGHT TRIANGLES
EXISTING CONDITIONS

ENGINEER _____ DATE

SCALES : HOR. 1:750 VERT. _____

SHEET NO. 1 OF 4

PLAN NO.

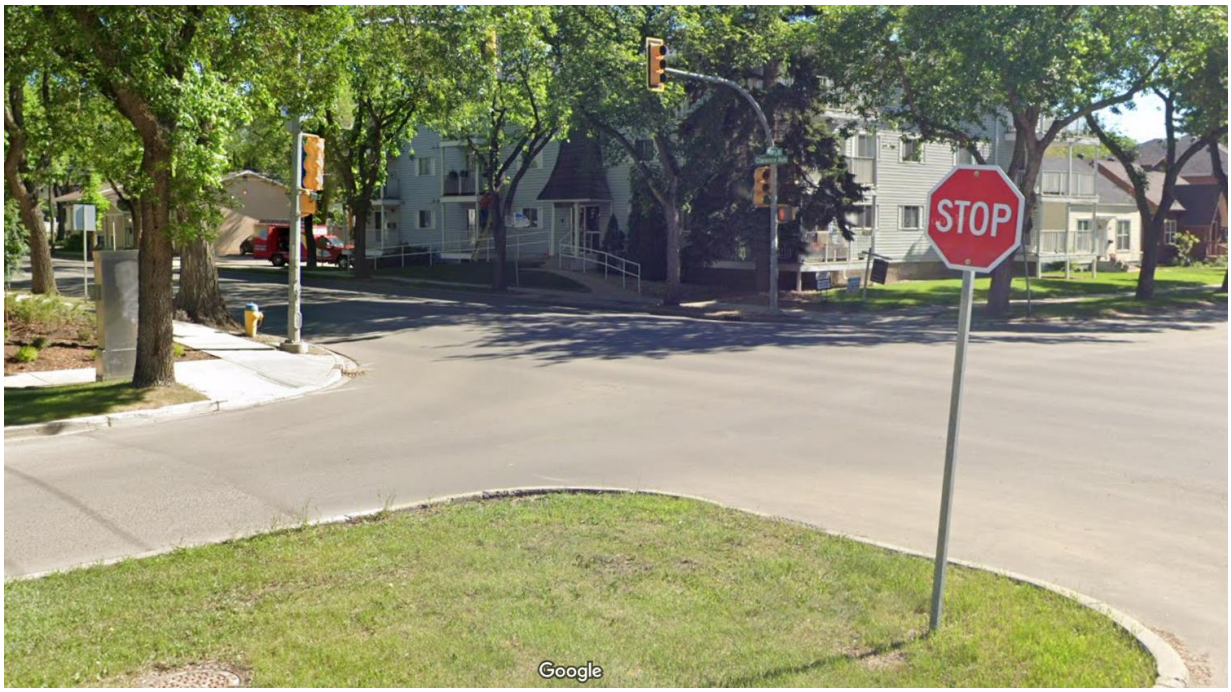


Figure 4 – Eastbound on Main Street looking left (June 2021)

Figure 5 – Eastbound on Main Street looking right (June 2021)

Figure 6 – Westbound on Main Street looking right (October 2015)

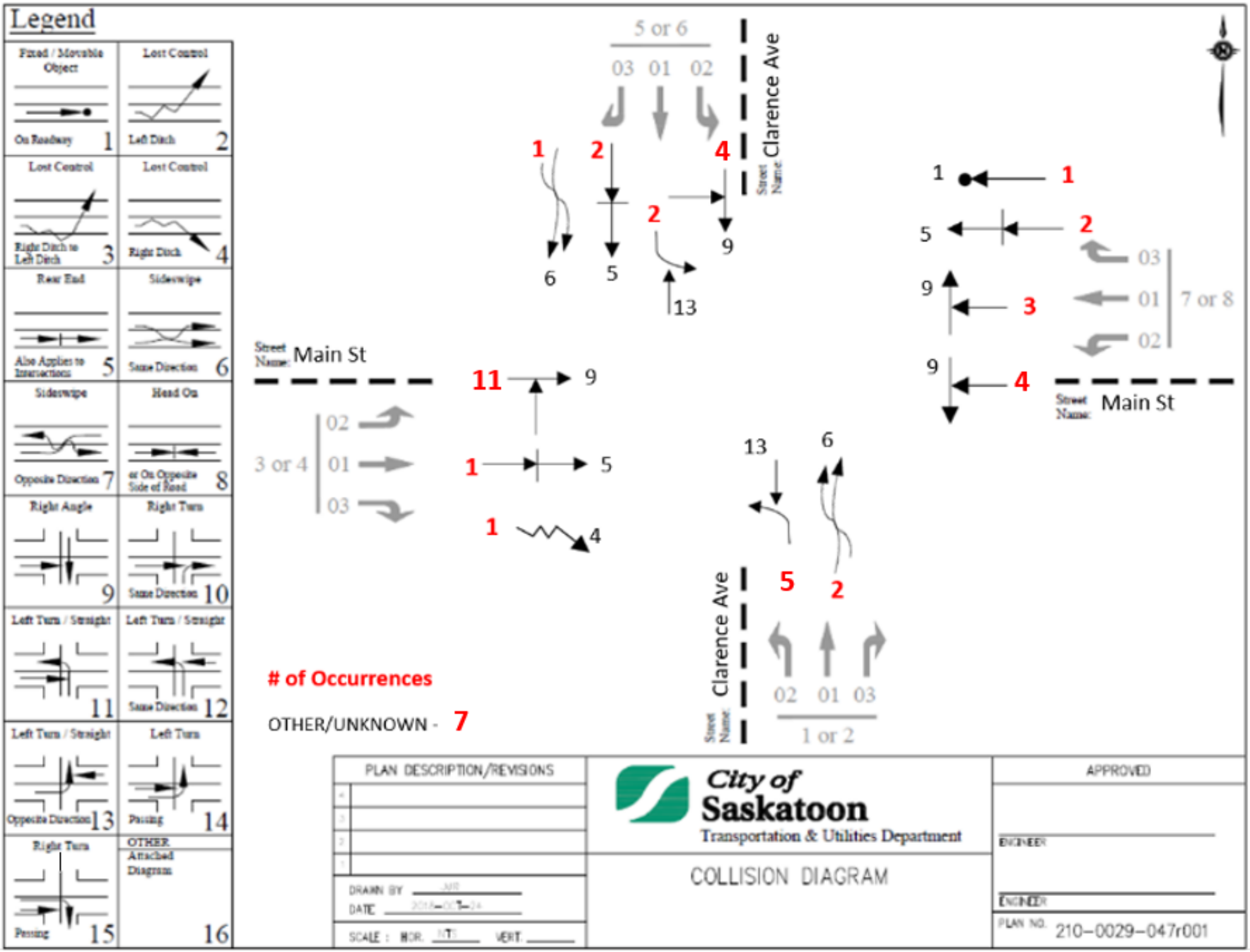
Figure 7 – Westbound on Main Street looking left (October 2015)

Attachment 4 – Corner Visibility Triangle

Figure 8- Obstructed South-west Corner Visibility Triangle (June 2021)

Figure 9- Obstructed North-east Corner Visibility Triangle (June 2021)

Attachment 5- Collision Diagram (2016-2021)



Attachment 6: Collision Summary (2016-2021)

Collision Severity by Year				
	Total	**PDO**	**Injury**	**Fatality**
2016	4	3	1	0
2017	11	11	0	0
2018	9	7	2	0
2019	8	6	2	0
2020	3	1	2	0
2021*	11	7	4	0
Total	**46**	**35**	**11**	**0**

Collision Severity by Configuration						
Configuration		**Total**	**PDO**	**Injury**	**Fatality**	**%**
1	01 - Fixed/Movable Object	1	0	1	0	2%
4	04 - Lost Control Right Ditch	1	1	0	0	2%
5	05 - Rear End	5	4	1	0	11%
6	06 - Sideswipe Same Direction	3	3	0	0	7%
9	09 - Right Angle	26	19	7	0	57%
10	10 - Right Turn Same Direction	1	1	0	0	2%
13	13 - Left Turn/Straight Opposite Direction	7	5	2	0	15%
16	16 - Other	2	2	0	0	4%
Total		**46**	**35**	**11**	**0**	**100%**

Collision Severity by Month						
Month		**Total**	**PDO**	**Injury**	**Fatality**	**%**
1	January	2	1	1	0	4%
2	February	4	2	2	0	9%
3	March	3	3	0	0	7%
4	April	2	1	1	0	4%
5	May	2	2	0	0	4%
6	June	4	3	1	0	9%
7	July	4	4	0	0	9%
8	August	7	4	3	0	15%
9	September	7	6	1	0	15%
10	October	4	3	1	0	9%
11	November	4	3	1	0	9%
12	December	3	3	0	0	7%
	Total	**46**	**35**	**11**	**0**	**100%**

Collisions by Weather Conditions			
Description		**Total**	**%**
1	Clear	23	50%
2	Cloudy	4	9%
3	Raining	1	2%
4	Snowing	2	4%
0	Unknown	16	35%
Total		**46**	**100%**

Collisions by Lighting Conditions			
Description		**Total**	**%**
1	Daylight	38	83%
2	Dark	6	13%
0	None	2	4%
Total		**46**	**100%**

Collisions by Road Surface Condition			
Description		**Total**	**%**
1	Dry	22	48%
2	Wet	4	9%
3	Loose Snow	2	4%
4	Packed Snow/Ice	9	20%
5	Loose Gravel or Sand (to be used only if excessive)	1	2%
0	Unknown	8	17%
Total		**46**	**100%**

Right Angle Collisions		
Pre-Collision Direction	**Total**	**%**
Westbound & Northbound	3	11%
Eastbound & Northbound	11	41%
Eastbound & Southbound	4	15%
Westbound & Southbound	4	15%
Unknown	4	15%
Total	**26**	**100%**

Right Angle Collisions		
Main Contributing Factor	**Total**	**%**
Fail to yield the right-of-way - a person or vehicle failing to allow lawful passage to others	13	50%
Inattentive - any failure to pay particular attention to the driving task	6	22%
Traffic control device disregarded - a person's failure to obey a traffic control device contributed to the collision.	3	12%
View obstruction/limited outside the vehicle - refers insufficient sight distance outside the vehicle due to trees, parked vehicles, hills, or other objects	1	4%
Road condition (surface or structure) - indicates if the adverse condition recorded in Road Condition or Road Surface Condition	1	4%
Impaired - ability to cope with a situation in traffic is impaired by alcohol consumption. Impairment usually implies over the legal limit even though charges may or may not have been laid	1	4%
Other Human Conditions - the state of a person's physical or mental condition, immediately prior to the involvement in the collision, not listed above that may have been a factor in the collision	1	4%
Total	**26**	**100%**

Right Angle Collisions			
Pre-Collision Vehicle Action- Main Street Vehicles		**Total**	%
1	Going Straight	15	58%
2	Turning Left	1	4%
10	Stopped in Traffic (including mechanical breakdown)	2	8%
11	Starting in Traffic (accelerating)	8	30%
Total		**26**	**100%**

Attachment 7 – 2022 Collision Photos

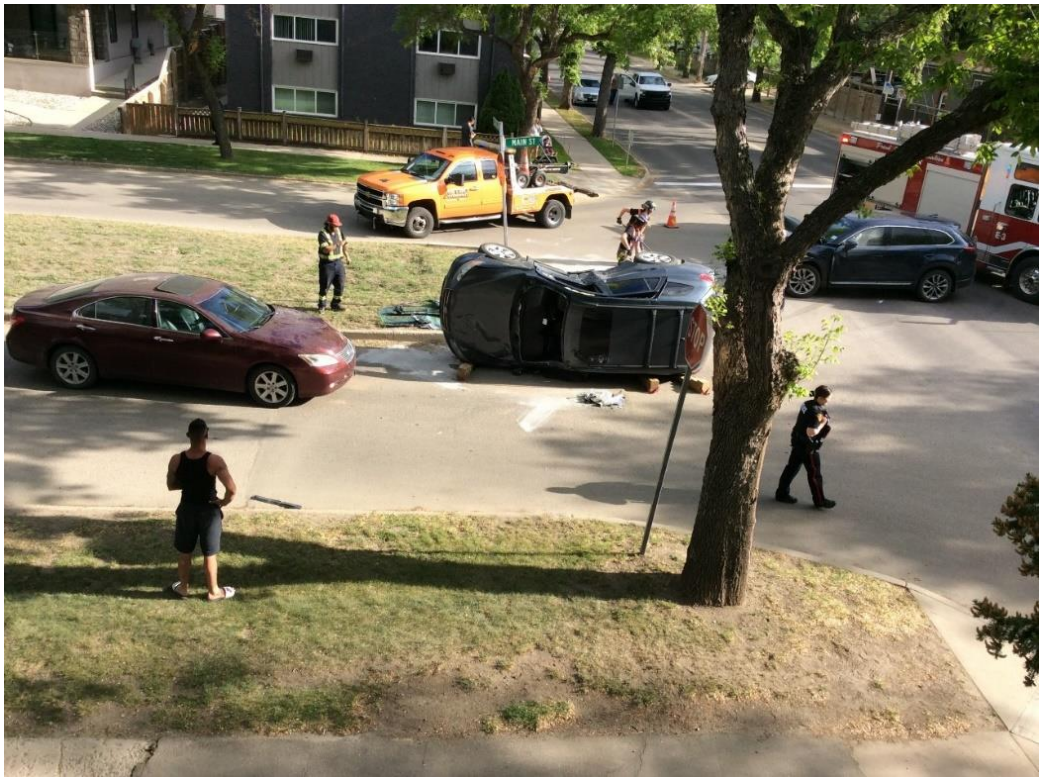


Figure 10 – Collision on June 8, 2022

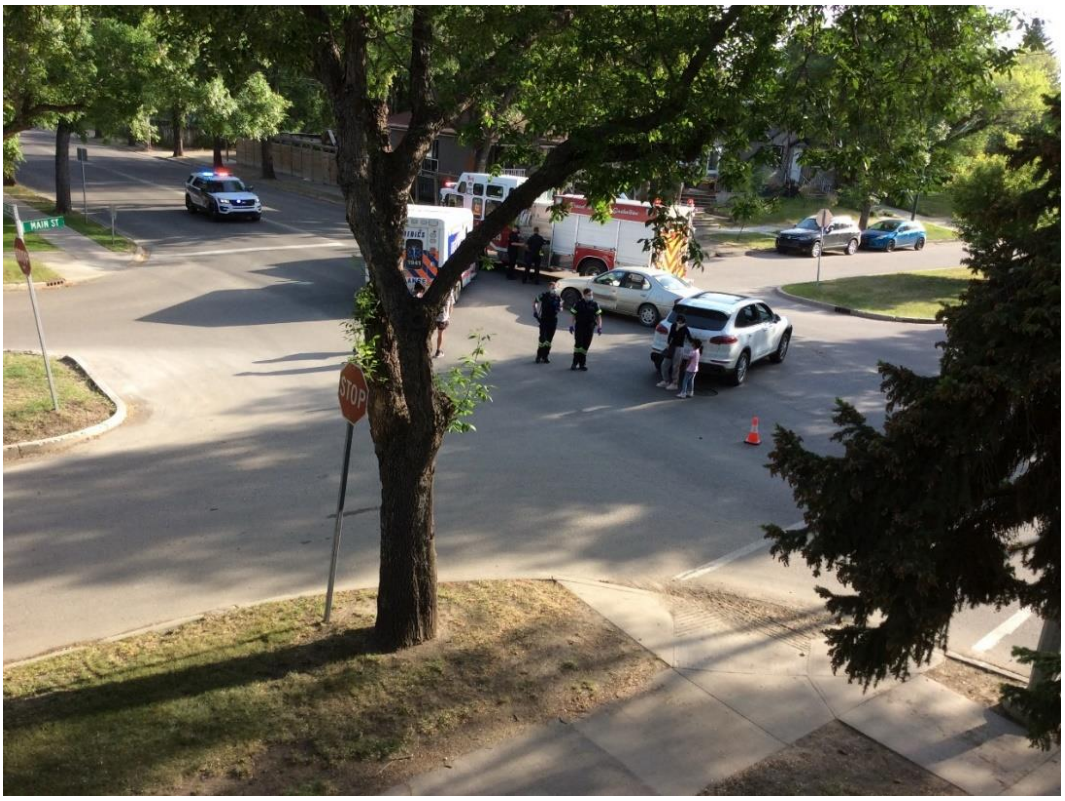


Figure 11 – Collision on June 18, 2022

Figure 12 – Collision on August 5, 2022

Figure 13 – Collision on August 5, 2022 (2)

Attachment 8 – Countermeasure Review

SAFETY CONCERN	Relative Cost		
	Low	Moderate	High
High frequency of right-angle collisions attributed to:			
traffic from minor street	C1, C3, D2, E4	B6, B8, D1	A3, F3, F5
poor sight distance	C1, C3, H3	D1	C2, F3, F5
failure to yield at stop or yield sign	E1, E4, F2	G1	F3, F5

A3 – Corridor access management - reduce number of intersections

Where to use - Corridors with many intersections in close proximity and a high number of intersection related collisions. Reducing the number of intersections reduces the number of conflict points and can improve traffic flow along the corridor. Keywords: intersection spacing, access management, change number of legs

- ☐ Not applicable - There are no permitted access points near the intersection that appear to be causing safety issues. The existing unpermitted private driveway crossing should be removed by the property owner.

B6 – Provide offset right-turn lanes at intersections

Where to use - Unsignalized intersections with a high frequency of collisions between vehicles on the minor road that are turning left, turning right, or proceeding straight through, and vehicles on the major road. Keywords: offset right turn lane

- ☐ Not applicable – Right of way constraints prevent the channelization of right turns.

B8 – Modify allowed turning maneuvers through geometric improvements

Where to use - Unsignalized intersections with patterns of collisions related to particular turning maneuvers where it is impractical to reduce that pattern of collisions by improving sight distance or providing a left-turn or shoulder bypass lane. Also, at locations where it is possible to restrict or eliminate turning maneuvers by providing channelization or by closing the median opening (Replace direct left-turn with right- turn/U-turn). Keywords: replace direct left with right turn / u turn

- ☐ Applicable – restricting left turn and through movements would eliminate the potential for right-angle collisions and left-turn straight collisions.

C1 – Clear sight triangles on stop- or yield-controlled approaches to intersections or in the medians of divided highways near intersections

Where to use - Unsignalized intersections or medians with restricted sight distance and patterns of collisions related to lack of sight distance, where sight distance can be improved by clearing roadside or median obstructions without major construction. Keywords: increase triangle sight distance

- ☐ Applicable – Departure sight triangles for Main Street vehicles are obstructed in all quadrants of the intersection.

C2 – Change horizontal and/or vertical alignment of approaches to provide more sight distance

Where to use - Unsignalized intersections with restricted sight distance due to horizontal and/or vertical geometry and with patterns of collisions related to that lack of sight distance that cannot be ameliorated by less expensive methods. Keywords: sight distance

- ☐ Not applicable – There are no horizontal or vertical alignment issues at this intersection.

C3 – Eliminate parking that restricts sight distance

Where to use - Unsignalized intersections with restricted sight distance due to parking. Keywords: prohibit on-street parking

- ☐ Not Applicable – Parked vehicles are not obstructing sight lines. Currently, there are Parking Prohibited signs installed on Clarence Avenue. As per Bylaw 7200, parking is not permitted within 10 meters of the intersection of the prolongation of the curb lines unless otherwise indicated by a sign or pavement markings.

D1 – Install an intersection conflict warning system (ICWS)

Where to use - Unsignalized intersections with a collision history involving vehicles entering or crossing the major road, difficulty among drivers in determining appropriate gaps in traffic, and awareness of the intersection is lacking. Keywords: install dynamic advance intersection warning system

- ☐ Not applicable – Given the high traffic volumes on Clarence Avenue, the ICWS would likely be flashing continuously.

D2 – Re-time adjacent signals to create gaps at stop-controlled intersections

Where to use - Unsignalized intersections (between signalized intersections) with a high frequency of right-angle or turning related collisions due to a lack of sufficient gaps in through traffic on the major road. Keywords: gaps, signal timing

- ☐ Not applicable – There are traffic signals at the intersection of Clarence Avenue and 8th Street, approximately 200 meters south of this intersection, which operates in coordination with the rest of 8th Street. The next set of traffic signals is approximately 330 meters north of Clarence Avenue and Main Street, at the intersection of Clarence Avenue and 12th Street. Traffic volumes on Main Street are too low to justify the additional delays to Clarence Avenue traffic.

E1 – Improve visibility of intersections by providing enhanced signing and delineation

Where to use - Unsignalized intersections that are not clearly visible to approaching motorists, particularly approaching motorists on the major road. The strategy is particularly appropriate for intersections with patterns of rear-end, right-angle, or turning collisions related to lack of driver awareness of the presence of the intersection. Measures can include installing larger or supplementary regulatory and warning signs at intersections or providing dashed markings (extended left edge-lines) for major-road continuity across the median opening at divided highway intersection. Keywords: signs, pavement markings

- ☐ Not applicable- Most right-angle collisions are due to drivers on the minor road, Main Street, failing to yield the right of way, or driver inattention. The existing pedestrian actuated signal provides a visual clue to drivers that they are approaching an intersection.

E4 – Provide a stop line on minor-road approaches

Where to use - Approaches to unsignalized intersections having traffic control devices that are not currently being recognized by some approaching motorists. Locations should be identified by patterns of collisions related to lack of driver recognition of the traffic control device (e.g., right-angle collisions related to stop sign violations). Keywords: centerline, stop bar, stop sign

- ☐ Applicable –Approximately 35% of the right-angle collision did report drivers inattentive on Main Street, which currently does not have stop lines painted. Stop lines are present on Clarence Avenue in advance of the pedestrian actuated signal.

F2 – Provide two-way stop-control at appropriate intersections

Where to use – Uncontrolled, or yield-controlled unsignalized intersections with patterns of right-angle and turning collisions from side street approaches. Keywords: stop control, two-way stop. Keywords: stop control, two-way stop

- ☐ Not applicable- The intersection is already a two-way stop control.

F3 – Provide roundabouts at appropriate locations

Where to use - Unsignalized intersections that are experiencing right-angle, rear-end, and turning collisions. Roundabouts are appropriate at most intersections, and at intersections with large traffic delays roundabouts are oftentimes a superior alternative to all-way stop or signalization. Roundabouts can also be very effective at intersections with complex geometry (e.g., more than four approach roads) and intersections with frequent left-turn movements. Keywords: roundabout, unsignalized

- ☐ Not applicable- Not practical given the right of way constraints and low volumes on Main Street.

F5 - Convert an unsignalized intersection to a signalized intersection

Where to use - Unsignalized intersections with conflicts involving cyclists and pedestrians crossing the intersection, conflicts with left-turning vehicles or vehicles attempting to continue on the minor road by crossing the major road, insufficient gaps in major road traffic for left-turn or through movements from minor road, and conflicts involving vehicles in the median. Keywords: signalized

- ☐ Applicable – Signalization would reduce the potential for right-angle collisions.

H3 – Post reasonable, safe, and consistent speed limits on intersection approaches

Where to use - Unsignalized intersections experiencing a high frequency of speed related violations or collisions. Keywords: lower posted speed, speed limit

- ☐ Not Applicable – Both Clarence Avenue and Main Street are posted at 50 km/h.

G1 – Provide targeted enforcement to reduce stop sign violations

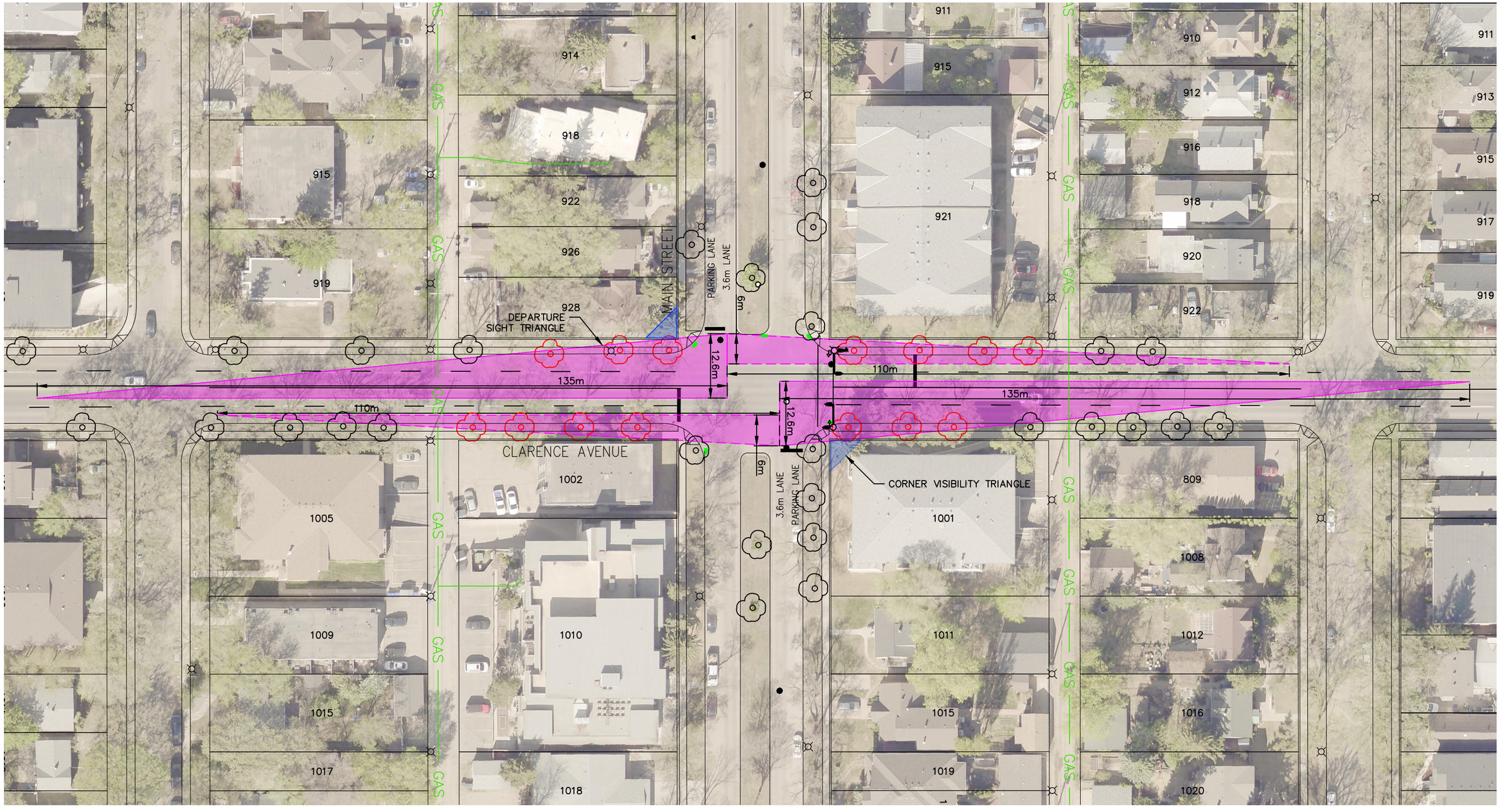
Where to use - where stop sign violations and patterns of collisions related to stop sign violations have been observed. Collision types potentially related to stop sign violations include right-angle and turning collisions. Keywords: traffic laws

- ☐ Not Applicable – it is believed that drivers are stopping at the intersection and proceeding when unsafe, rather than not stopping.

Attachment 9

TREE

TREE TO BE REMOVED



PLAN DESCRIPTION/REVISION	DATE	BY

SEAL

CHECKED BY:	CHECKED BY:
DATE	DATE

DRAWN BY KAS DATE 2022-JUN-28

City of Saskatoon
Transportation

CLARENCE AVENUE & MAIN STREET
OPTION 1
CLEAR SIGHT TRIANGLES

ENGINEER

SCALES : HOR. 1:750 VERT.

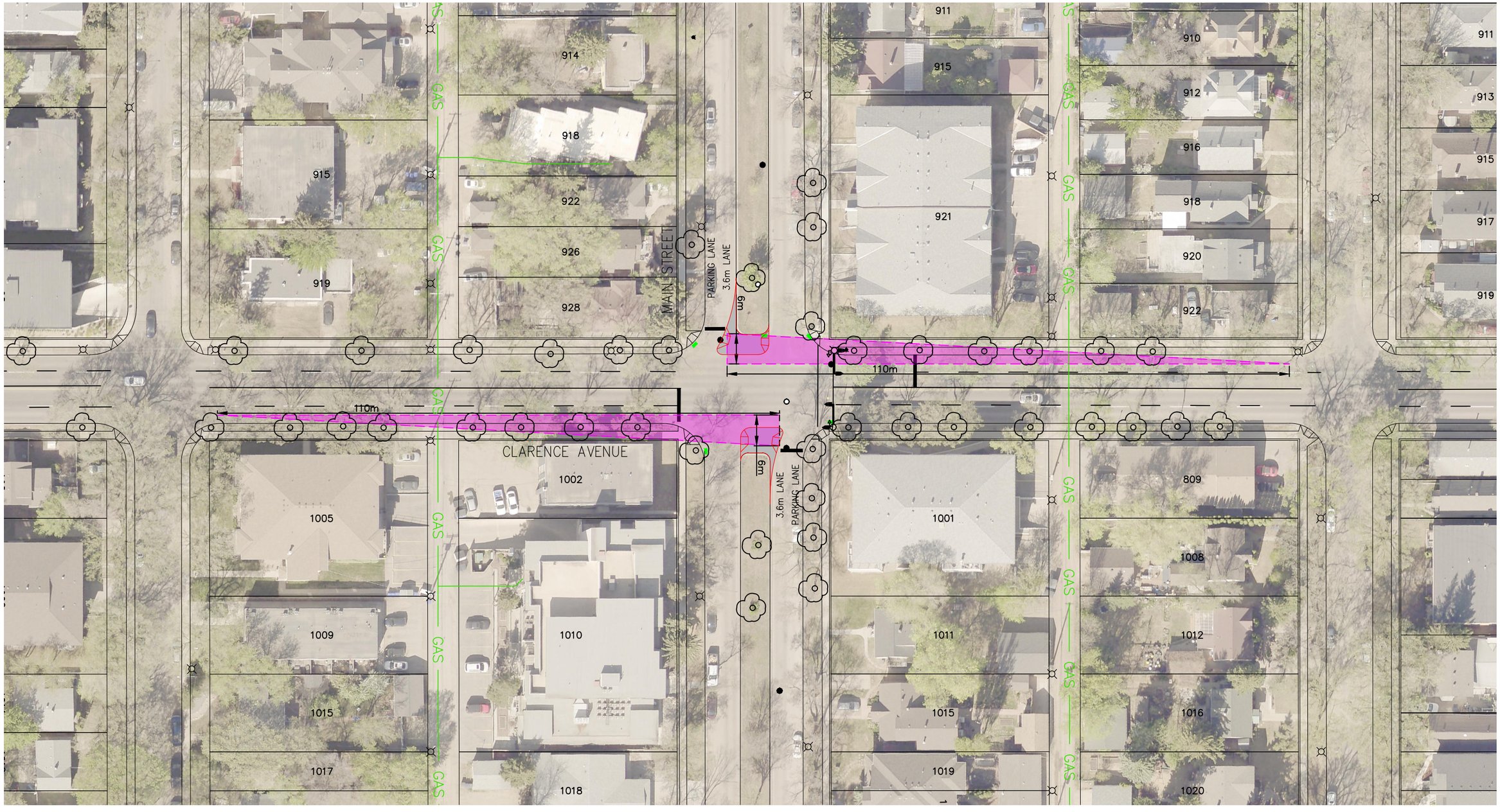
DATE

SHEET NO. 2 OF 4

PLAN NO.

TREE

Attachment 10



X	DESCRIPTION OF PLAN/REVISION	20YY-MON-DD	XXX	SEAL
	PLAN DESCRIPTION/REVISION	DATE	BY	

CHECKED BY: _____ DATE

CHECKED BY: _____ DATE

DRAWN BY KAS DATE 2022-JUN-28

City of Saskatoon
Transportation

CLARENCE AVENUE & MAIN STREET
OPTION 2
CHANNELIZATION

ENGINEER _____ DATE

SCALES : HOR. 1:750 VERT. _____

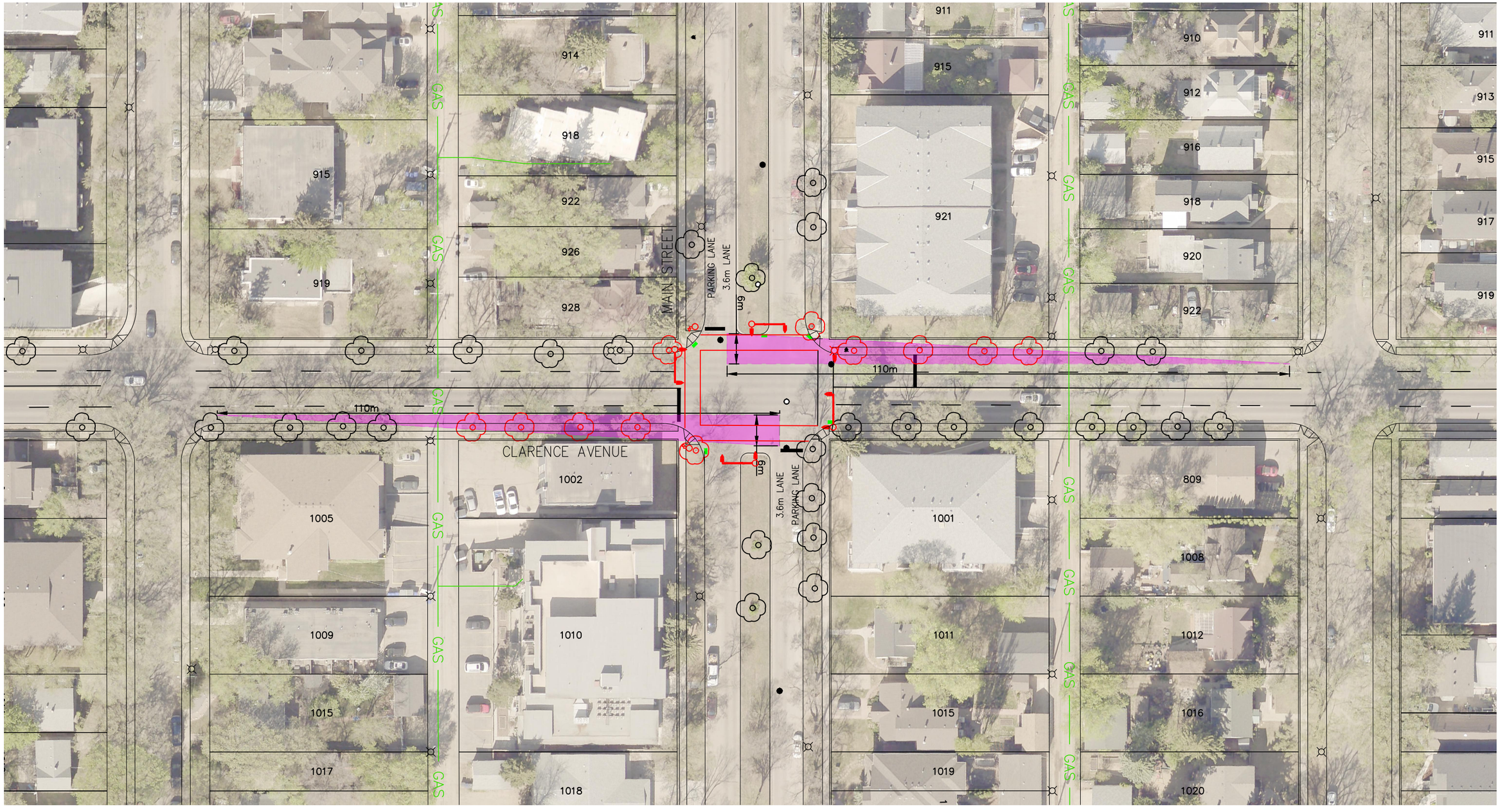
SHEET NO. 3 OF 4

PLAN NO.

TREE

TREE TO BE REMOVED OR TRIMMED

Attachment 11



PLAN DESCRIPTION/REVISION	DATE	BY

SEAL

CHECKED BY: _____ DATE

CHECKED BY: _____ DATE

DRAWN BY KAS DATE 2022-JUN-28

City of Saskatoon
Transportation

CLARENCE AVENUE & MAIN STREET
OPTION 3
TRAFFIC SIGNALS

ENGINEER _____ DATE

SCALES : HOR. 1:750 VERT. _____

SHEET NO. 4 OF 4

PLAN NO.

City of Saskatoon ENGAGE

August 2022

Intersection Improvements - Clarence Avenue & Main Street

The City of Saskatoon recently completed a traffic review at the intersection of Clarence Avenue and Main Street after several residents reached out with concerns about safety. This intersection was previously reviewed for improvements and discussed with residents during the Nutana and Varsity View Neighborhood Traffic Reviews in 2015.

Recommendation: Channelization

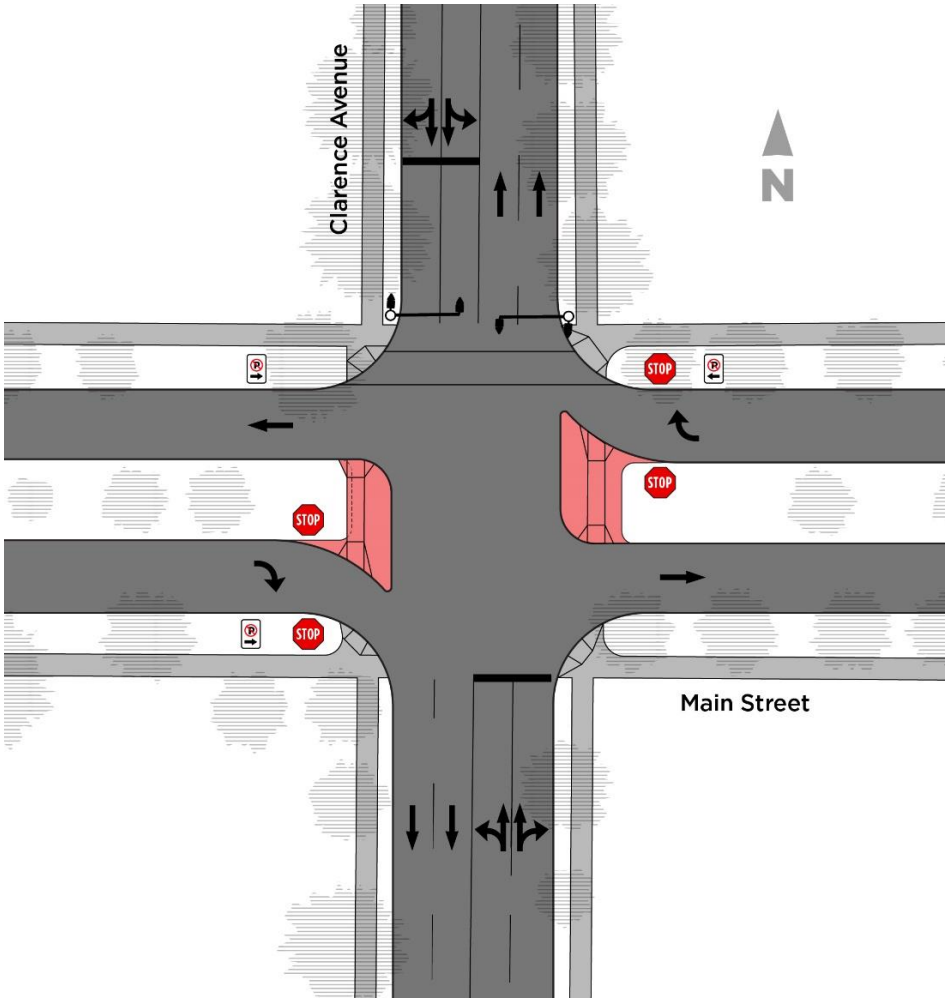
To improve safety at the intersection and address collision patterns, channelization on Main Street is recommended. This involves modifying the existing medians on Main Street at both approaches to create right turn only lanes. Drivers on Main Street would be required to turn right at the intersection and would no longer be able to drive straight through or turn left onto Clarence Avenue.

Benefits

- Reduce right-angle (T-bone) collisions
- Less traffic on Main Street
- Preserve all trees
- Clarence Avenue drivers are not impacted

Disadvantages

- Main Street traffic is restricted
- Adjacent streets may have more traffic



Other Options

Improving sight lines

Sight lines for drivers travelling on Main Street are challenging with many mature trees along Clarence Avenue. Removing the trees may improve sight lines and reduce collisions involving Main Street drivers; however, the potential for collisions still exists. As a result, this option was not selected.

Installing traffic signals

Installing traffic signals at this location would address collision patterns at the intersection but may cause increased traffic and short-cutting on Main Street. In addition, traffic signals would introduce delays to Clarence Avenue traffic. To install traffic signals, some of the mature trees along Clarence Avenue would be impacted or need to be removed. For these reasons, this option was not selected.

Implementation Process

We are proposing to install the recommended channelization temporarily and monitor its effectiveness for at least 3 years. If effective, it would be prioritized for funding and installed permanently.

Have Your Say

We want your feedback on the recommended traffic changes to improve safety at this intersection. Please join us on-site to share your comments:

Date: Tuesday, August 23, 2022

Time: 6:30 – 7:30 pm

Location: 1001 Main St; NE corner of Clarence Ave & Main St

Reporting and Approval

This traffic review and recommendation, along with a summary of the feedback received, will be presented to City Council for approval.

Please refer to **saskatoon.ca/trafficstudy** for project information and send your questions or comments to **NTR@saskatoon.ca**.

Sincerely,

MBuchko

Michelle Buchko, P.Eng.
Senior Transportation Engineer
City of Saskatoon

City of Saskatoon
Communications & Public Engagement

ENGAGE

Clarence Avenue & Main Street Intersection Improvements

What We Heard - Engagement Summary

September 29, 2022

Engagement Summary

The City of Saskatoon recently completed a traffic review at the intersection of Clarence Avenue and Main Street after several residents reached out with concerns about safety. To improve safety at the intersection and address collision patterns, channelization on Main Street is recommended. This involves modifying the existing medians on Main Street at both approaches to create right turn only lanes. Drivers on Main Street would be required to turn right at the intersection and would no longer be able to drive straight through or turn left onto Clarence Avenue.

Engagement with local residents on this recommendation took place in August and September 2022. Residents living within one block of the intersection were identified as being highly impacted by this work due to potential changes to traffic flows on Main Street and access to Clarence Avenue. This intersection was also discussed as a part of the Nutana and Varsity View Neighborhood Traffic Reviews (NTRs) when residents raised concerns about short cutting and collisions at the intersection.

Summary of engagement activities

The goal of this engagement was to **inform** local impacted residents of the potential changes to the intersection and to **collect feedback** from the residents about the impacts of these changes.

Flyers were distributed to local residences within one block of the intersection describing the recommended changes and results of the traffic review. The flyer also advertised a pop-up engagement event that was held on-site on at Clarence Avenue and Main Street to review the proposed changes with local residents and staff from the Transportation Department. The flyer and information about the pop-up engagement was also shared with the Nutana and Varsity View Community Associations.

Approximately 45 people attended the pop-up engagement event on August 23, 2022. Feedback forms were completed by people at the event, and residents were also able to submit their comments through email to the project team. Overall, feedback was received from approximately 50 residents through feedback forms, emails, and conversations with the project team.

Table 1: Summary of Engagement Strategy

Phase	Engagement Objective	Participants	Engagement Goal	Engagement Activities
1	Gather Feedback	Local Residents Community Associations Residents of Nutana and Varsity View	Share the recommended option for Clarence Avenue & Main Street and collect feedback from impacted residents	On-site meeting Flyers Emails to CAs Correspondence

What We Heard

A majority of local residents living within one block of the intersection were in support of the recommendation. Local residents who were opposed were concerned about restricted access onto and across Clarence Avenue, as well as the potential to displace traffic to adjacent streets or back lanes.

Of the community residents living elsewhere in Nutana, Varsity View, or another neighborhood of Saskatoon, several residents were opposed due to the impact of the changes on the ability to cycle on Main Street. Several cyclists commented that Main Street is an alternate cycling route for 8th Street and suggested allowing cyclists the ability to cross Clarence Avenue or alternate options such as a 4-way stop. Additional concerns from residents are detailed below.

Table 2. Summary of Input from Emails and Feedback Forms

	Local residents (within 1 block)	Community residents – Nutana / Varsity View	Resident elsewhere in Saskatoon
In favour	17	4	2
Opposed	9	7	4
Unknown / Other comments	2	3	1

The main themes from the engagement included:

Alternate Options for Improvements

The most common question from residents was why alternate options for the intersection are not being recommended. Many residents suggested traffic signals, a 4-way stop, or a roundabout at the intersection of Clarence Avenue & Main Street as an alternative to channelization. Suggestions for timed traffic signals, pedestrian actuated signals, and adding crosswalks to the north and south side of Clarence Avenue were also received. Residents also suggested changing yield signs on adjacent streets to make it easier to re-route traffic on nearby streets.

Active Transportation Options

Many residents commented on the need to support pedestrian and cycling movements through Main Street across Clarence Avenue. The right-hand only turn movement will restrict cyclists' ability to bike down Main Street as an alternate route to 8th Street and several people noted they would not feel comfortable cycling down Clarence Avenue. Residents suggested infrastructure to allow cyclists to travel across Clarence Avenue, such as a bicycle signal with some form of cyclist detection.

Several people also requested an additional pedestrian crossing on the south side of Main Street and Clarence Avenue to allow pedestrians to cross safely on both sides of the street, noting the south side is near to a bus stop as well.

What We Heard - Engagement Summary

Safety

Concerns about the number of collisions at the intersection were raised by several residents, particularly those who live near the intersection and have witnessed or responded to multiple collisions over the years. Local residents in particular recognized the need to address safety concerns at this location.

Speed

Some residents believed that speed is also an issue at this location and suggested traffic calming or measures to address speeding problems would also improve the intersection. A request for additional monitoring of speed data in the area was also made by one resident. Some residents also expressed a preference for the temporary concrete curbs over temporary rubber traffic calming curbs.

Moving the Problem to Adjacent Streets

Some feedback received suggested the channelization measures would only shift the problems at Clarence Avenue and Main Street to nearby intersections at 9th Street and 10th Street and encourage drivers to shortcut through other streets in the neighborhood or through back lanes. Residents were concerned the number of collisions on nearby streets would increase as a result of these changes.

Inconvenience to local residents

The next theme raised by residents was the restricted access for very local residents of Main Street who would lose the ability to turn left onto or cross Clarence Avenue. Some local residents indicated they were willing to tolerate some inconvenience in order to improve safety at the intersection, while others were strongly opposed to losing access.

Trees

The final theme identified by residents was the trees surrounding the intersection. Most residents were supportive of removing trees to increase the visibility surrounding the intersection and improve safety. Several people suggested removing key trees on the corners and next to alleys to improve visibility in the area, including on other nearby streets. One resident expressed the desire to ensure the trees were preserved.

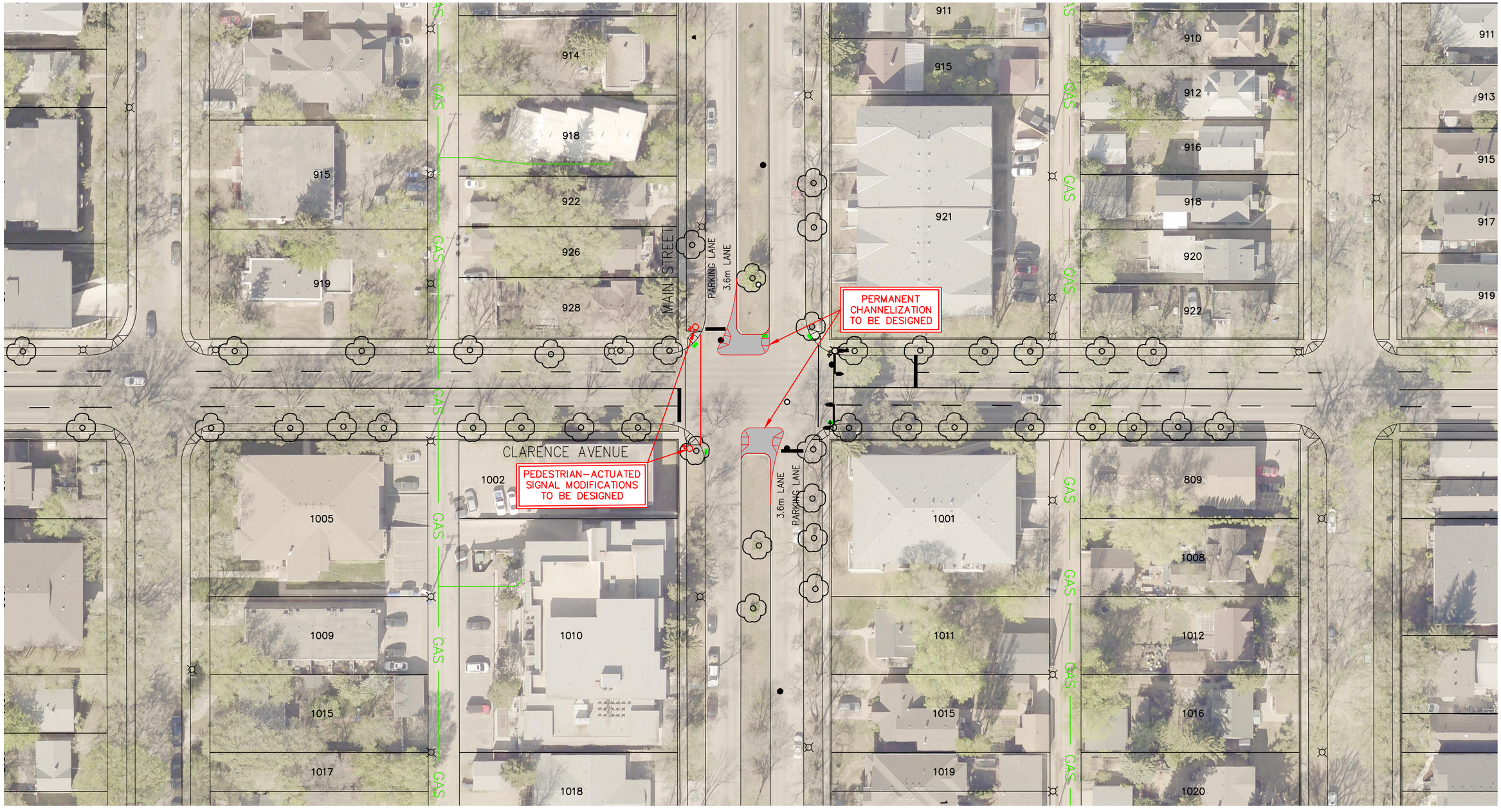
Next Steps

Engagement results will be shared with City Council along with the recommended option of channelization.

The City is proposing to install the recommended channelization temporarily and monitor its effectiveness for at least 3 years. If effective, it would be prioritized for funding and installed permanently.

TREE

Attachment 14



PLAN DESCRIPTION/REVISION	DATE	BY

SEAL

CHECKED BY:	CHECKED BY:
DATE	DATE
DRAWN BY SJK	DATE 2022-OCT-27

City of Saskatoon
Transportation

CLARENCE AVENUE & MAIN STREET
RECOMMENDED OPTION

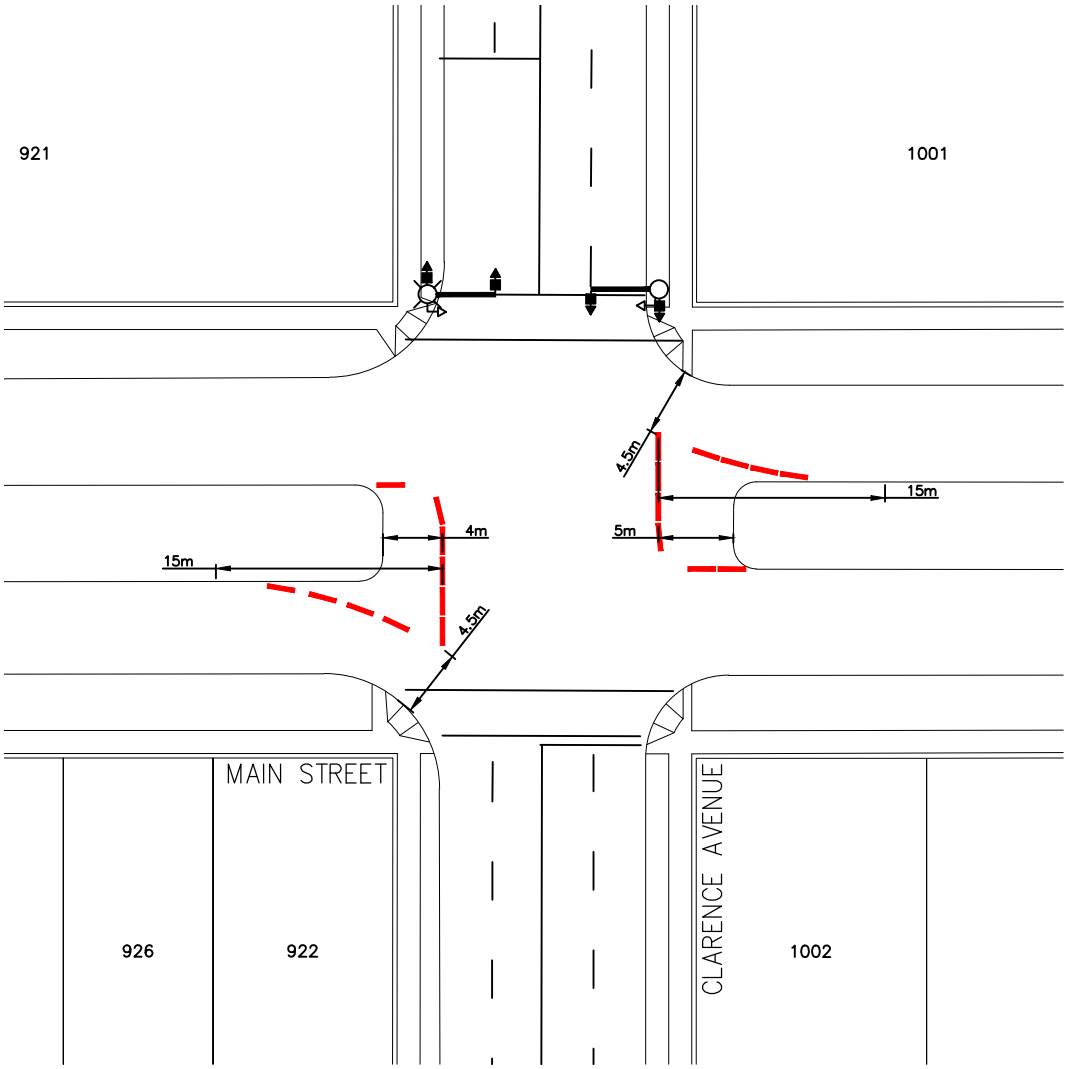
ENGINEER

SCALES :
HOR. 1: 750
VERT.

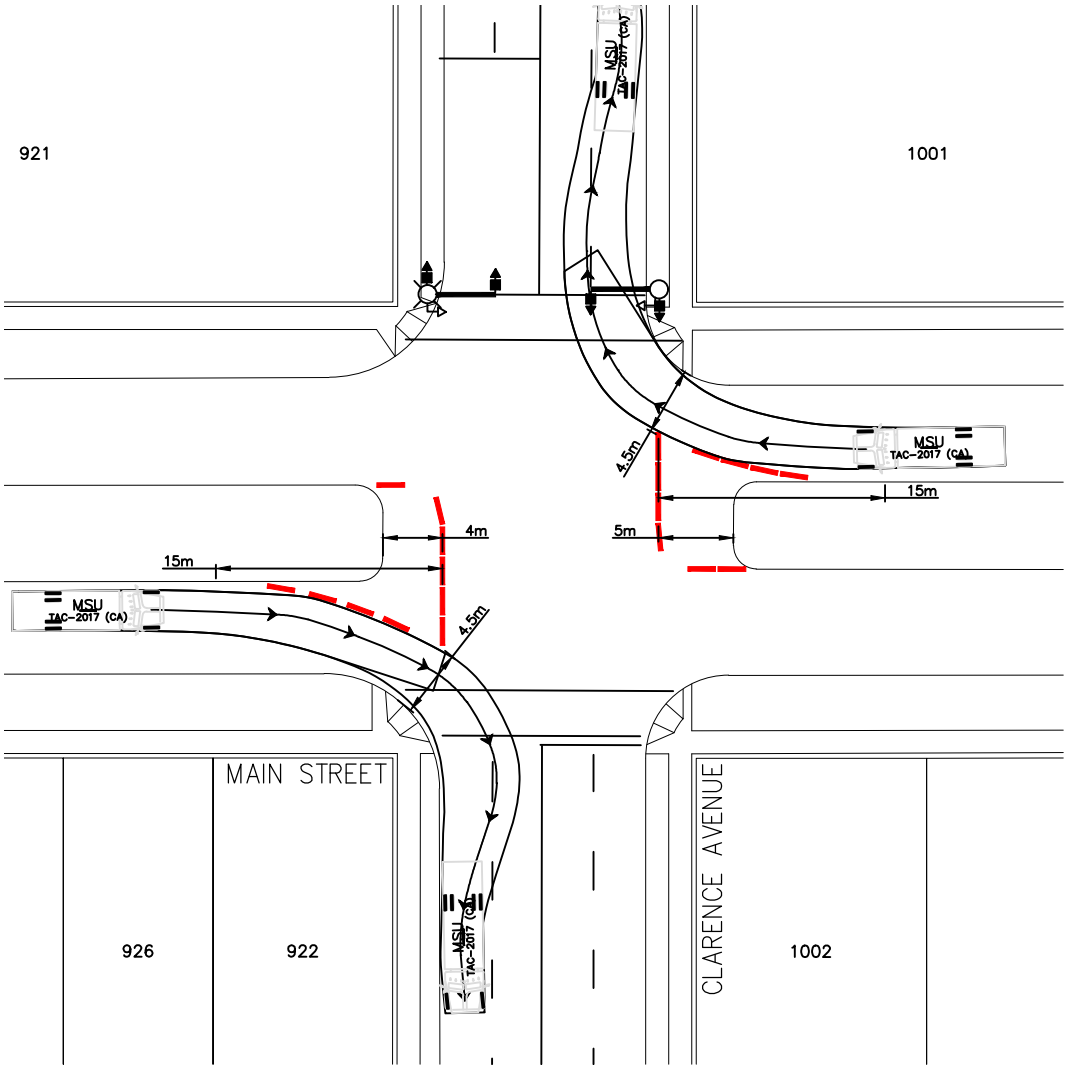
DATE

SHEET NO. 1 OF 1

PLAN NO.



PLAN DESCRIPTION/REVISIONS			APPROVED
		City of Saskatoon Transportation	ENGINEER
X	DESCRIPTION OF PLAN/REVISION 20YY–MON–DD XXX	TRAFFIC CALMING TEMPORARY INSTALLATION MAIN STREET & CLARENCE AVENUE	ENGINEER
	DRAWN BY TJL DATE 2021–DEC–06		PLAN NO. Cla–renc–e and M
	SCALE : HOR. 1:500 VERT. "		



PLAN DESCRIPTION/REVISIONS		APPROVED
		ENGINEER
X	DESCRIPTION OF PLAN/REVISION 20YY-MON-DD XXX	ENGINEER
DRAWN BY TJL	City of Saskatoon Transportation	PLAN NO. Cla-renc-e and M
DATE 2021-DEC-06	TRAFFIC CALMING TEMPORARY INSTALLATION MAIN STREET & CLARENCE AVENUE	
SCALE : HOR. 1:500 VERT. "		