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City of Fort Saskatchewan

Final Report

Transportation Master Plan

May 2018

ISL Engineering and Land Services

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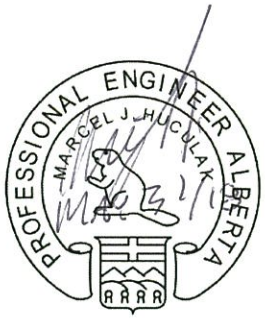

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Executive Summary

Fort Saskatchewan's Transportation Master Plan (TMP) will guide how the City's transportation infrastructure will grow with the City's population. This includes improvements for roadways, transit, walking, and cycling for a 30 year time frame, when the City population more than doubles to reach about 53k.

For road improvements traffic was forecasted to the 35k and 53k population levels, which were used to create Ten and Thirty-year capital plans. A key finding of the traffic forecast is that the Veterans Way corridor (Highway 21 and Highway 15 to the City's northeast boundary) requires widening from 4 to 6 lanes before 35k population. In order to avoid widening Veteran's Way to 8 lanes and to provide access opportunities to growth areas, a 2 lane high speed industrial bypass should be built before the City reaches the 53k population level.

Another key consideration when widening Veterans Way is to improve pedestrian and bicycle crossings. There will be options to improve the pedestrian friendliness of the at-grade crossings, but these may be marginal improvements especially when compared to an inviting pedestrian and bicycle underpass (an overpass is likely unfeasible given the high load corridor status of Veterans Way).

The TMP reviewed many transit strategies at a high level which will require more detailed study prior to implementing and include:

- Increase service frequency
- Leveraging the new park and ride station through land use opportunities and through linking multiple transportation modes
- Strengthen downtown service
- Partnering with Ride Share services
- Land Use Planning
- Provide deeply discounted bus passes for People-in-need

The TMP also presents some over-arching design concepts to improve safety and provide more livability for the City. One concept is Safe System – an ethical approach to road safety that accepts the price of mobility should never be death or serious injury. The TMP gives tools that are consistent with Safe System, including how fatality risks can be greatly diminished for a given collision type by managing speeds. Many of these tools are from traffic calming guides and from progressive design guides emerging from organizations like the National Association of City Transportation Officials (NACTO). The TMP helps the City implement Safe System by documenting many examples of these tools.

Finally, given the move to Safe System the TMP provides a functional road classification system. This system uses many traditional classification definitions but integrates pedestrians, cyclists, and transit by defining how to treat each of these modes for each road classification.

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1.0 Introduction and Project Objectives

Fort Saskatchewan is a growing municipality with a population of more than 25,000 people. Located within Alberta's Industrial Heartland the City is an important regional link for economy, culture, and recreation. Demand for the City's infrastructure is continuously growing. The City requires a new Transportation Master Plan to identify and assess the impacts of future growth within Fort Saskatchewan and the Edmonton Metropolitan Region.

The role of the Transportation Master Plan (TMP) is to set an overall direction for transportation within Fort Saskatchewan. There are also specific objectives that this Master Plan will help accomplish:

- Evaluate and identify road classifications
- Identify the failure locations and pinch points within the City's transportation network; this includes not only roads but networks for transit, pedestrians, and cyclists
- Develop a staged upgrade plan for the recommended improvements including cost estimates and triggers (population, volume or other) for implementation
- Evaluate multi-modal transportation networks and provide recommended improvements
- Analyze the City's non-motorized transportation network (sidewalks and multi-use trails) and provide recommended improvements
- Review existing and future transit system planning at a high level to ensure the transportation network has the capacity and functionality required for transit
- Identify opportunities and solutions to resolve congestion issues on the Highway 15 and 21 corridors

This Transportation Master Plan report identifies the context of transportation in Fort Saskatchewan by establishing existing conditions of roads, sidewalks, trails, and transit. This assessment is via feedback received in our initial round of public feedback as well as a technical assessment. It then identifies anticipated future growth and how this growth impacts the City's transportation systems. Supplementing this analysis is a section on Transportation System Strategies that help address some of the Plan's objectives.

To help with implementing the Plan this report provides:

- A consolidated capital plan for the City
- Recommendations for potential future work or studies

In addition, to help Fort Saskatchewan implement the plan this report presents several new strategies aimed at improving safety performance and alternatives to using car transportation, thereby improving quality of life. These strategies will define Fort Saskatchewan's road network improvements and road classification system. They also lay out a path forward for transit service, non-motorized traffic, Safe System, and traffic calming, as well as alternative design approaches.

This report closes with conclusions and recommendations for the City's consideration.

1.1 Document Organization

This document uses both Figures and Exhibits. Figures are illustrations embedded in the text flow, whereas Exhibits are illustrations requiring an 11 x 17 paper sheet to display clearly. Exhibits are at the end of the section.

This document references Veterans Way. This is all of Highway 21 in the city limits, as well as the portion of Highway 15 from the City's northeast boundary to Highway 21.

2.0 Initial Public Engagement

Public input at the beginning of the TMP is necessary. It adds value to the TMP because the public's local experience and knowledge will reveal concerns that may not be discovered through a technical review. We then consider these concerns as the technical review proceeds and incorporate solutions where reasonable.

There are many different methods to gather public input. We chose an online tool that ISL successfully used on previous projects. The tool is relatively simple for the public to use. It allows them to select locations and annotate their concerns in as great of detail as they wish. Access to the online tool can be allowed for several weeks, which is much longer than compared to a traditional drop-in Open House event, which may be a few hours. In addition users are free to return to the site to add more concerns at their convenience.

2.1 Online Survey

Between September 7 and October 11, 2016 an online survey was available for residents/business owners to input transportation concerns. The survey asked for input in four subject areas:

1. Safety Concerns
2. Traffic Operations/Congestion
3. Trail/Sidewalk Links
4. Other Issues – allowing responders to outline concerns not captured by the above items.

The survey allowed responders to annotate their concern and pin its location on a map. The following summarizes the survey findings for each of the subject areas.

2.1.1 Survey Findings

Sixty-seven (67) people responded to the survey identifying concerns at 306 locations.

Results of the survey are presented as they relate to the specific topic areas addressed by the survey which were Safety, Traffic Operations/Congestion, Sidewalks Links, Trail Links and Other Issues.

Safety Concerns

Respondents were asked to identify locations on a map where they feel there are Traffic Safety issues and to describe why they feel the location was unsafe. Respondents marked 121 locations as having safety concerns. The following summarizes the locations mentioned most often. (See Appendix A for comment details and all other locations mentioned.)

Highway 15 (43 mentions): Highway 15 is a primary concern with congestion at the bridge area identified as the main issue. Others have concerns with generally slow, congested traffic all along the highway and a few mentions of specific locations include the "curve" east of Highway 37 and the intersections at Highway 37, 101 Street, 94 Street and 84 Street.

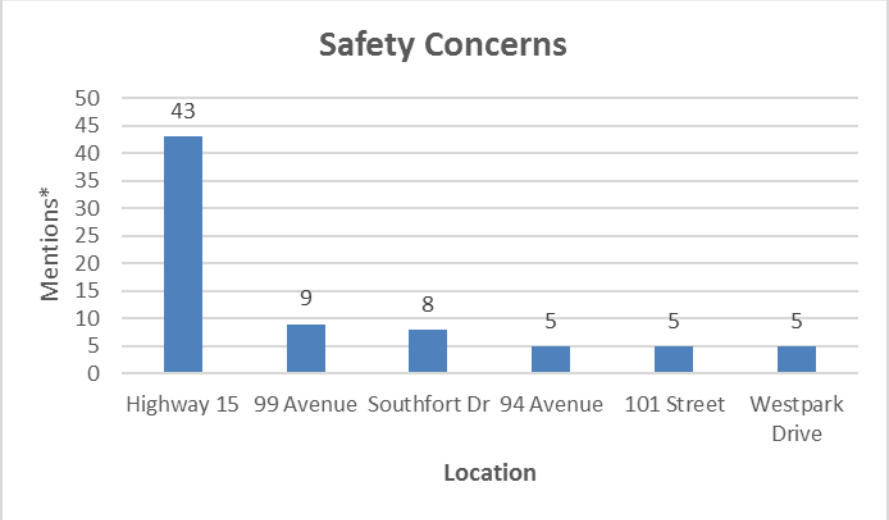
99 Avenue (9 mentions): Respondents indicate a few concerns with shortcutting, congestion at the mall entrance at 104 Street, the intersection at 101 Street and with visibility at the 99 Avenue side road.

Southfort Drive (8 mentions): Comments indicate safety concerns where the road narrows from four lanes to two, with buses causing congestion, with poor intersection lighting at a bus stop and with visibility issues at the intersection at Southfort Blvd.

94 Avenue (5 mentions): Five respondents indicate a concern with the intersection/pedestrian crossing at 84 Street.

101 Street (5 mentions): Respondents' comments indicate issues at the 88 Avenue mall entrance and the 99 Avenue intersection. One respondent reports an icy access at the Esso carwash.

Westpark Boulevard (5 mentions): Respondents indicate concern with speeders, pedestrians crossing and parked cars at the playground area, as well as with missing painted lines on the road between Woodhill and Wilshire.



*locations marked less than five times not shown on this graph. Please see Appendix A for all results

Figure 2.1 shows the frequency that locations were pinned on the safety map (This map version clusters nearby pins into larger groups. Note the frequencies were measured by pins placed on map while mentions were measured as text within the annotation associated with the pin – there could be more than one mention per pin).

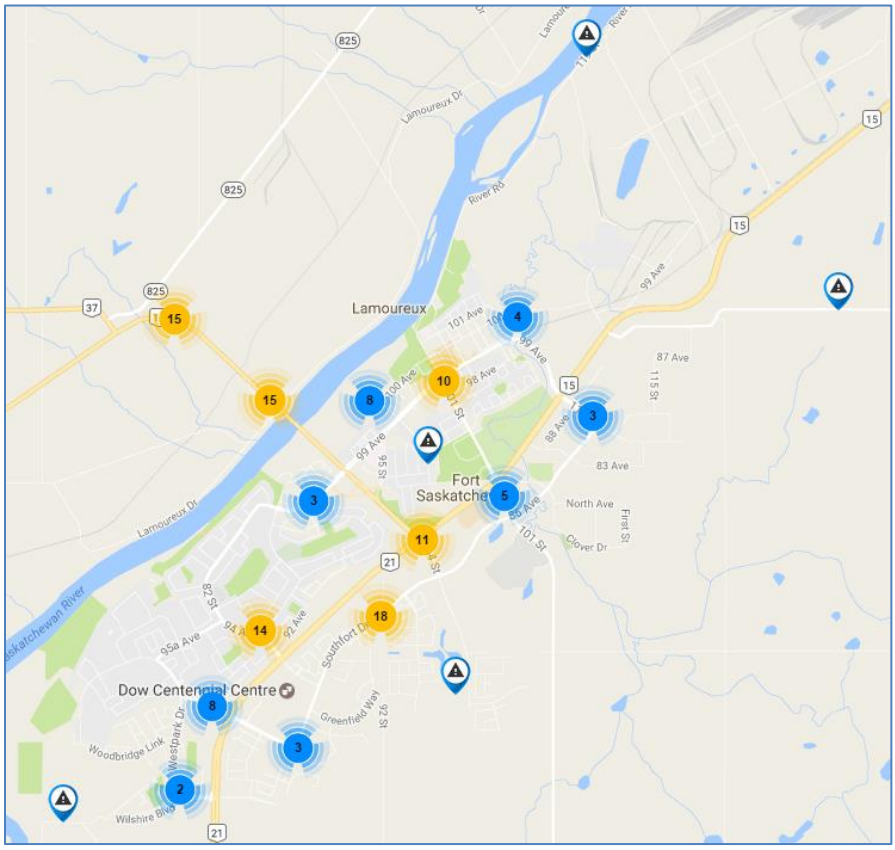


Figure 2.1: Frequency Heat Map for Safety Concerns

Traffic Operations/Congestion

Respondents were asked to identify locations on a map where they felt traffic congestion is a major concern and to describe the cause of the congestion. Respondents marked 96 locations as having concerns. The following summarizes the locations mentioned most often. (See Appendix A for comment details and all other locations mentioned.)

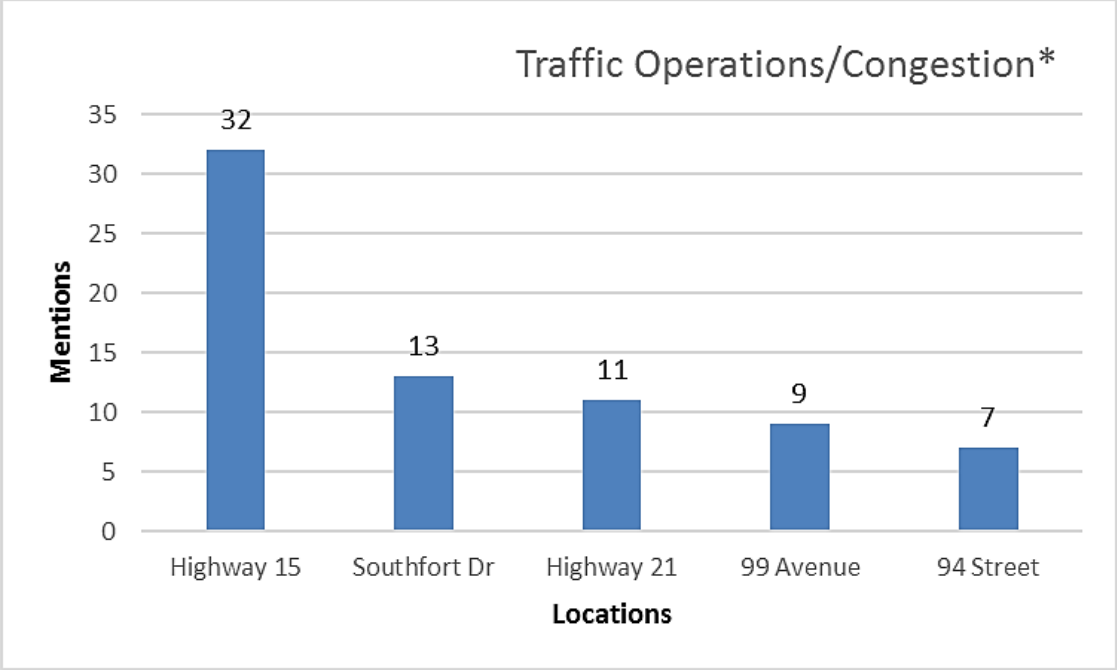
Highway 15 (32 mentions): Highway 15 is identified most often as having traffic congestion issues with the bridge area and various intersections being highlighted as the major causes.

Southfort Drive (13 mentions): Respondents suggest traffic congestion on Southfort Drive is caused by the single lanes (needs twinning) and issues with the intersection at Allard Way.

Highway 21 (11 mentions): Respondents report the intersection/signal phase at 84 Street causes issues and that general congestion on Highway 21 would be helped with a bypass.

99 Avenue (9 mentions): Respondents report the signal phase (left turns) is causing congestion at the intersection of 99 Avenue and 101 Street.

94 Street (7 mentions): Respondents report congestion and difficulties turning in and out of the access to the mall along 94 Street.



*locations marked less than five times not shown on this graph. Please see Appendix A for all results

Figure 2.2 shows the frequency that locations were pinned on the congestion map (This map version clusters nearby pins into larger groups. Note the frequencies were measured by pins placed on map while mentions were measured as text within the annotation associated with the pin – there could be more than one mention per pin).

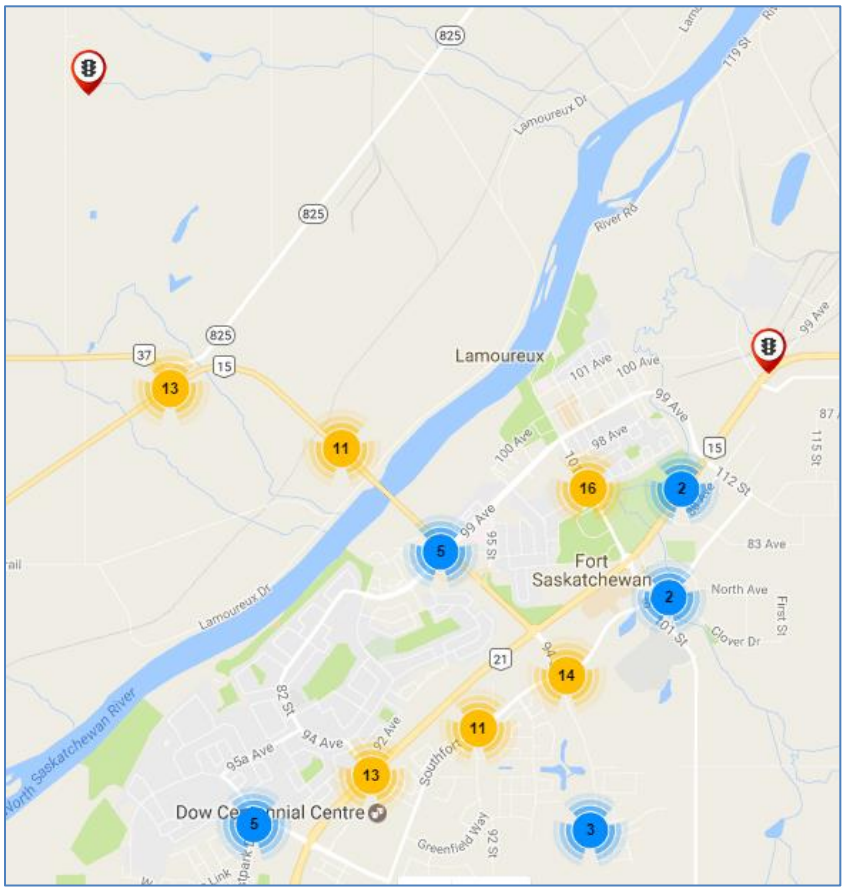


Figure 2.2: Frequency Heat Map for Congestion Concerns

Trail Links

Respondents were asked to identify on a map the locations they feel trails should be added. Respondents marked 25 locations, which can be seen in Figure 2.3.

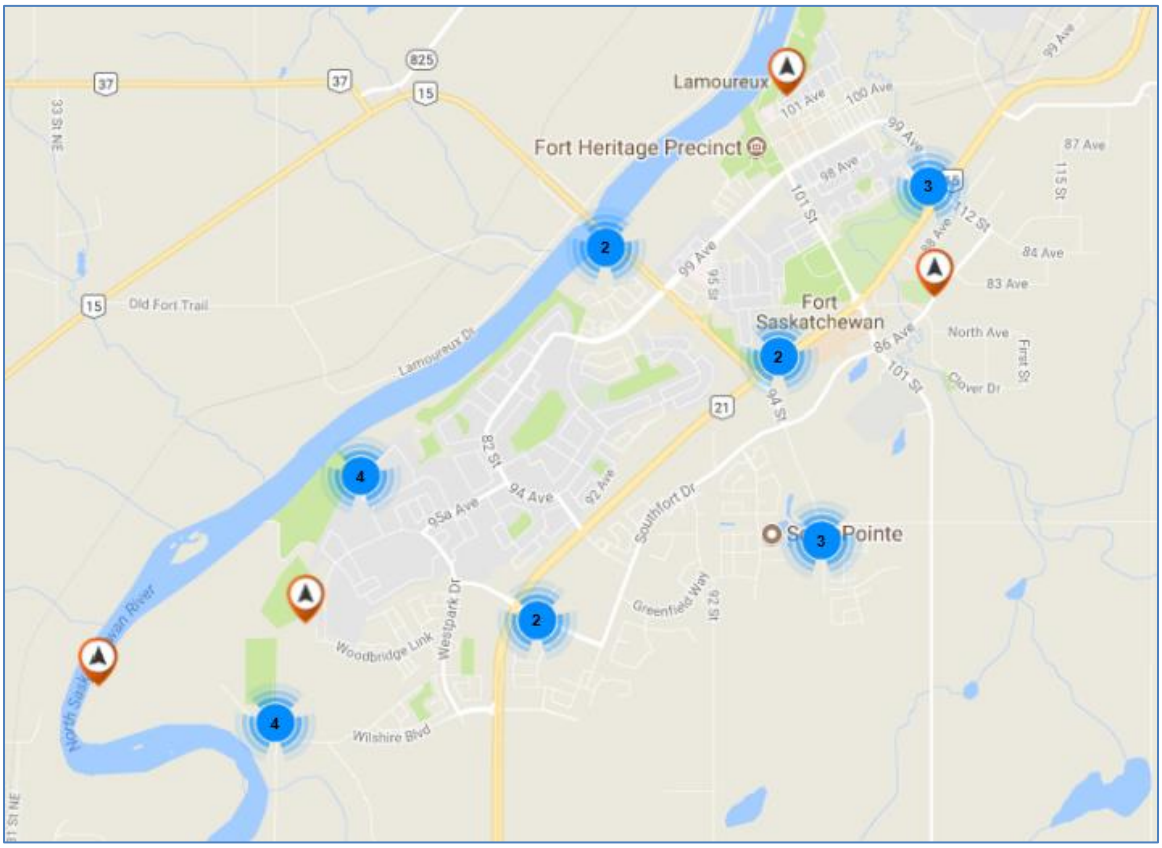


Figure 2.3: Frequency Heat Map for Trail Concerns

Not only did respondents identify locations that require connections, but they also highlighted trails requiring maintenance and upgrading. Please see Appendix A for details of all results.

Other Issues

Respondents were asked to identify on a map the locations where there are additional concerns. Figure 2.4 shows the 29 locations which respondents marked.

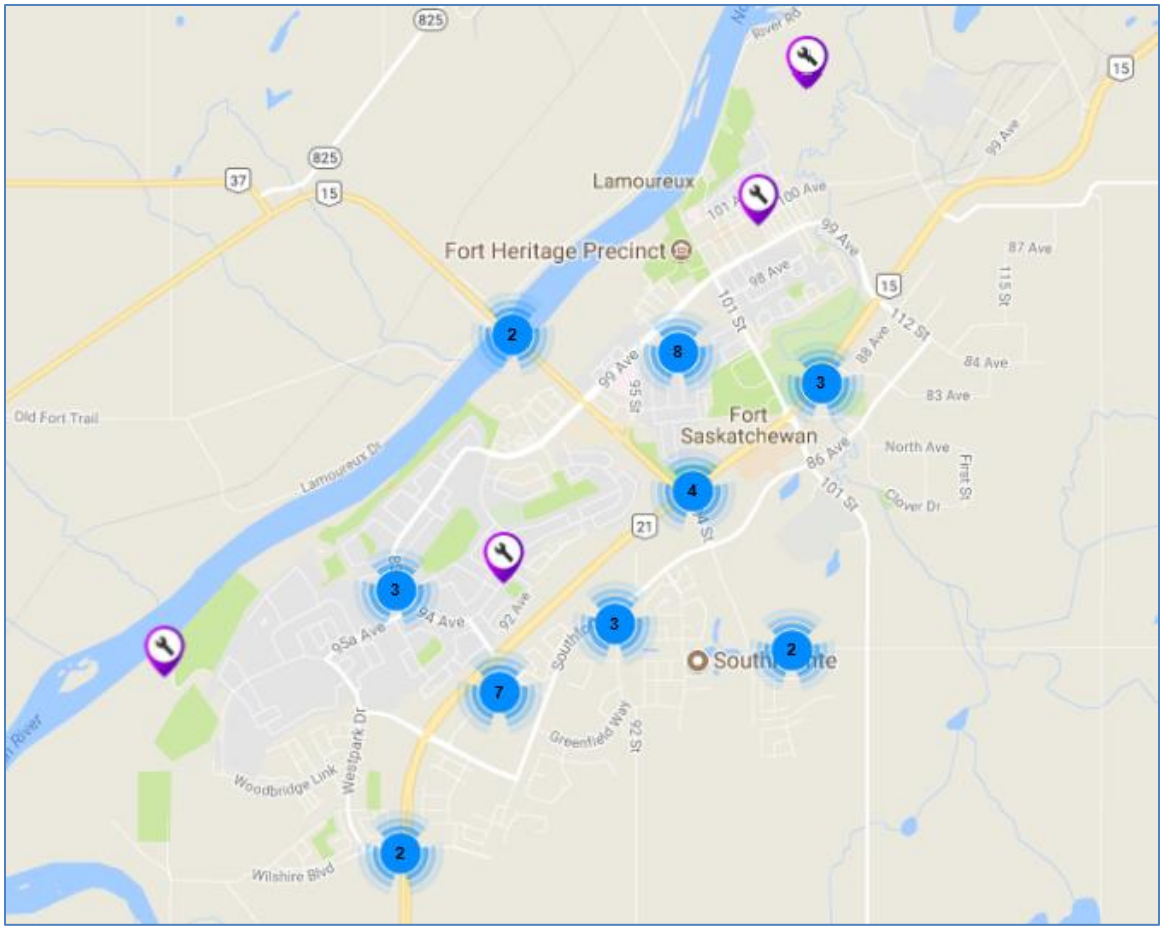


Figure 2.4: Frequency Heat Map for Other Issues

Transit stops (7) and roadway maintenance (6) were mentioned most often. Please see Appendix A for details of all results.

2.2 Survey Summary

The most frequent locations raised in the online survey were the Highway 15 bridge crossing the North Saskatchewan River and the curve east of Highway 37 at the Highway 15 intersection. The concerns are understandable but are outside the City limits and therefore beyond the City's direct control. However, the City should bring these issues forward to Alberta Transportation on the basis that City residents are directly impacted by these Highways.

The safety concerns raised cover a broad range of locations, from Highways to arterial to collector and local roads. This is symptomatic of system-wide issues. The TMP's Transportation System Strategies will include system-wide safety strategies as well as specific tools to deploy.

Concerns regarding congestion will be confirmed through the technical review. A travel demand model based on existing land use and traffic will be used to confirm existing traffic congestion. Those locations with significant congestion will be subject to remedial measures.

Some of the congestion concerns focus on traffic operations and are not subject directly to TMP technical analysis. For examples, the left turn phasing at 99 Avenue – 101 Street causing congestion and ingress/egress along 94 Street at the commercial areas. These should be studied in detail as part of an operational review . In some cases the specific tools in the Transportation System Strategies may improve the 94 Street issues, but this would need confirmation in a detailed operational review.

The trail concerns raised in the online tool will be confirmed in the technical review. The review will focus on trails used for utilitarian purposes as opposed to those for recreational purposes.

Of the other concerns raised in the online tool most relate to transit stops and to roadway maintenance. The TMP reviews transit at a very high level; transit stops should be reviewed by the administration. Similarly, roadway maintenance should be reviewed by the administration.

3.0 Anticipated Future Growth

This section describes expected existing population and employment growth for Fort Saskatchewan over the next 30 years.

3.1 Population Growth

3.1.1 Introduction

The Fort Saskatchewan Growth Study was completed in 2015 to project the City's future growth over the next 50 years. The study estimated the population of Fort Saskatchewan to a 2066 horizon and determined the amount of land that would be required to accommodate the growth.

The results of the Growth Study were used to inform the inputs for land use and population for the Travel Forecast Model. This section summarizes how the Growth Study was considered and used for the Travel Forecast Model.

3.1.2 Population Forecasts

The growth study determined three population growth scenarios for Fort Saskatchewan for the 2066 horizon – a low case, a medium case, and a high case. The growth projections were based on the Alberta Treasury Board and Finance Census Division Population Projections for Alberta from 2014. Fort Saskatchewan is one of 50 municipalities in the Edmonton metropolitan area that form Census District (CD) No. 11 in Alberta. CD No. 11 is expected to grow by 28,342 people each year, totaling 2,125,455 people by 2041. The Growth Study assumed this rate would continue past 2041 to the study horizon of 2066. It is also expected that of the 28,342 new people each year in CD No. 11, Fort Saskatchewan will account for 3.18%. This is based on historical growth between 2007 and 2014 being higher in Fort Saskatchewan than in CD No. 11.

Details of the growth scenarios are shown below:

In the "Low Case" scenario, Fort Saskatchewan:

- experiences an average annual growth rate of 1.6% over the 52-year period;
- experiences a total population increase of 28,911 for an overall change of 127% between 2014 and 2066; and
- doubles its 2014 population in 40 years by 2054.

In the "Medium Case" scenario, Fort Saskatchewan:

- experiences an average annual growth rate of 2.2% over the 52-year period;
- experiences a total population increase of 48,408 for an overall change of 212% between 2014 and 2066; and
- doubles its 2014 population in 24 years by 2038.

In the "High Case" scenario, Fort Saskatchewan:

- experiences an average annual growth rate of 2.9% over the 52-year period;
- experiences a total population increase of 76,138 for an overall change of 334% between 2014 and 2066;
- doubles its 2014 population in 16 years by 2030;
- triples its 2014 population in 32 years by 2046; and
- quadruples its 2014 population in 48 years by 2062.

The three scenarios are shown in graphical format in the Figure below.

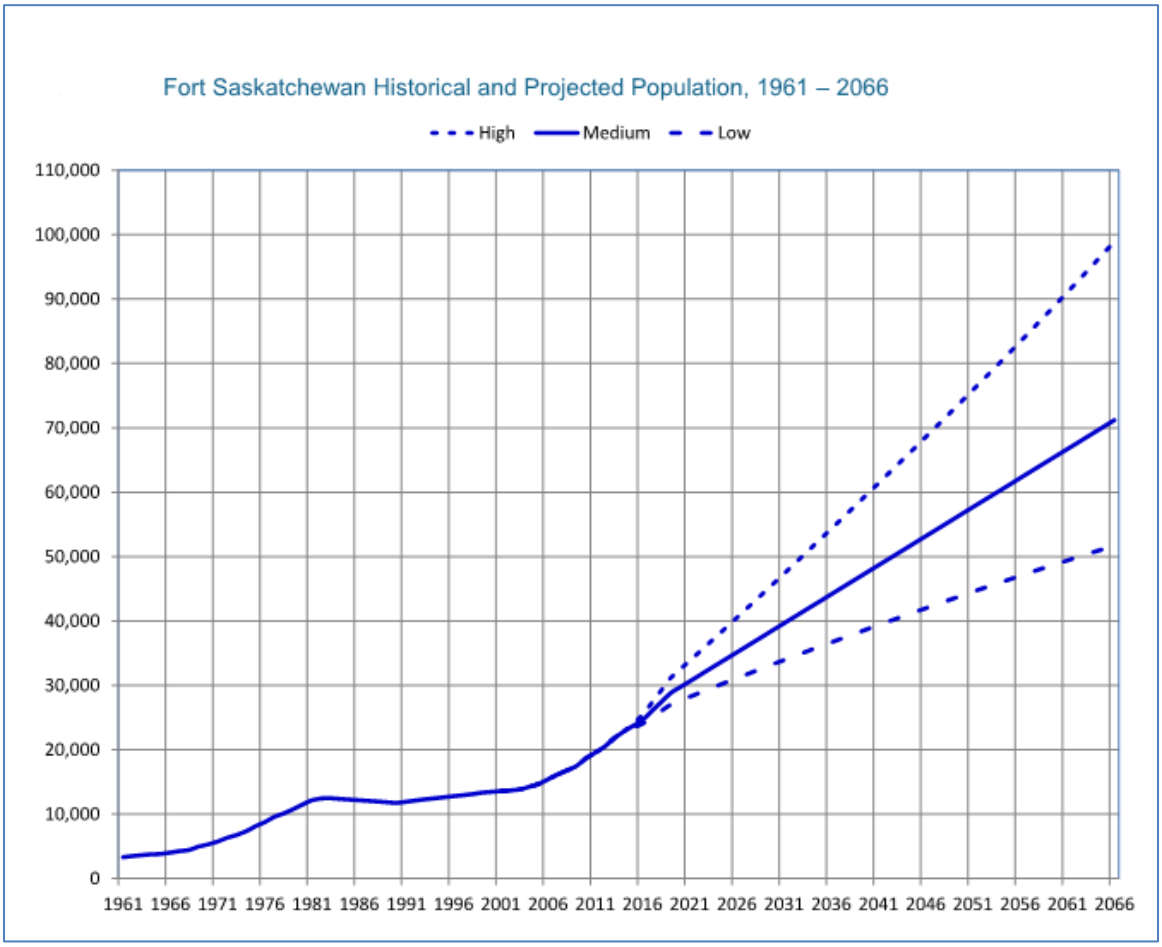


Figure 3.1: Historical and Projected Population, 1961-2066

Of the three scenarios, the “Medium Case” scenario is the recommended growth scenario for the City of Fort Saskatchewan Growth Study. It is noted that the “Low Case” is not recommended because it is unlikely that Fort Saskatchewan will take 40 years to double its population, considering that the City has doubled its population within the last 24 years. It’s also noted that the “High Case” is not being recommended but would be possible if there were little to no downturns in the economy up till the project horizon.

3.1.3 Growth Assumptions

Residential Density

The Growth Study used 28 dwelling units per net residential hectare as a target. This was in line with the density target range of 25-30 dwelling units per net residential hectare assigned by the Capital Region Growth Plan (CRGP) in 2009.

Average Household Size

A combined average household size of 2.55 persons per occupied dwelling unit was used to help determine the amount of residential land required for the 2066 horizon.

3.1.4 Land Requirements

Based on estimations from the Growth Study, 18.3 quarter sections outside of the City's current boundary are required at the 2066 time horizon in the medium growth scenario.

3.1.5 Recommended Expansion Areas

Based on the amount of land required, the Growth Study recommended expanding south of the existing southern boundary of the City, as well as a small portion of land north of the existing City boundary. The expansion areas and the preliminary land uses can be seen in the figure below. This growth represents a logical extension along the Highway 21 corridor.

Based on the preceding information two growth horizons were identified. The first was a population of about 35k in 10 years. The second was a population of about 53k in 30 years. This represents the middle growth line in Figure 3.1

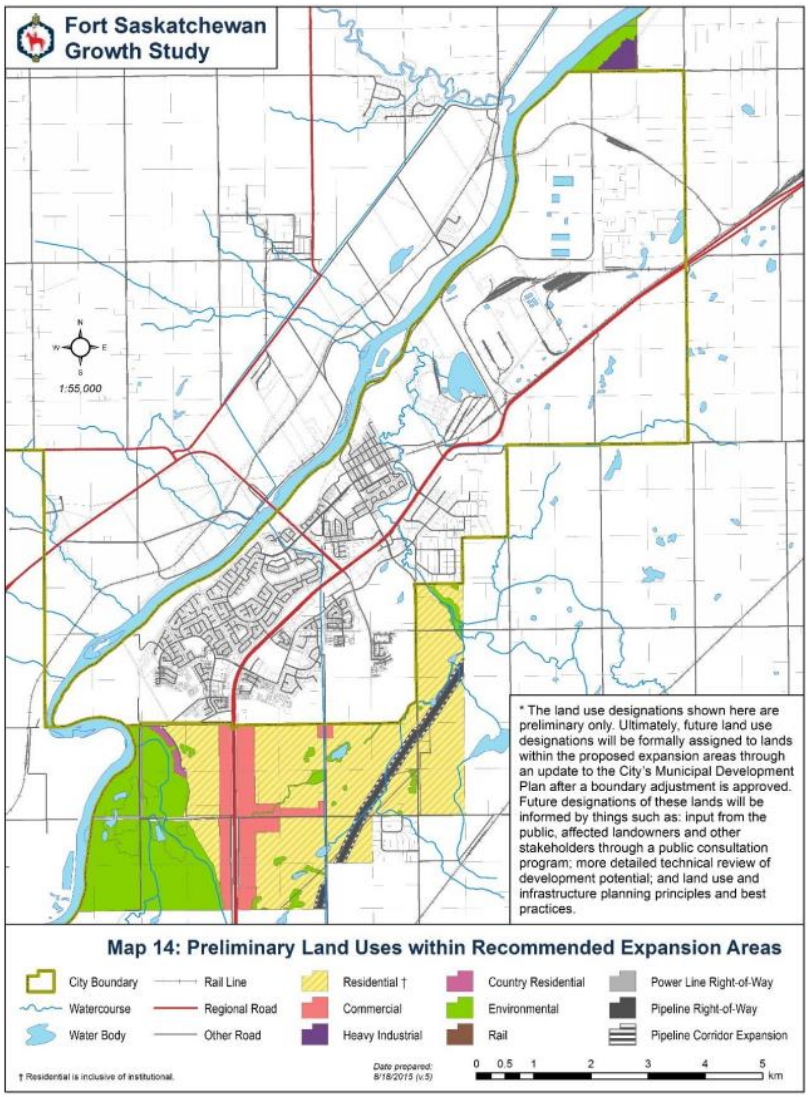


Figure 3.2: Preliminary Land Uses within Recommended Expansion Areas

4.0 Active Transportation

Active transportation is any form of transportation that uses human power as its energy source and includes walking, cycling, skateboarding, jogging, long boarding, and inline skating. Active transportation is a small portion of the overall transportation demand. However, it is gaining recognition as a legitimate means of transportation for fitness, health, sustainability and social equity reasons. From a safety perspective, the mass and speed of active transportation users makes them inherently much less hazardous than compared to motor vehicles.

4.1 Existing Conditions

4.1.1 Background Documents

In evaluating the existing conditions of active transportation in the City, ISL conducted a background review of the policy documents in place for Fort Saskatchewan.

Land Use Bylaw

Fort Saskatchewan's Land Use Bylaw provides significant guidance for providing safe and comfortable access to pedestrians and cyclists. The following topics are covered in the Land Use Bylaw:

- **Safe Integration:** Development should provide for the safe integration of pedestrians, bicycles and vehicles within the site. Measures to enable safe integration may include but are not limited to special paving, raised surface, pavement marking, signs or stripping bollards, median refuge areas, traffic calming features, landscaping, lighting or other means to clearly delineate pedestrian areas for both day and night use.
- **Site Planning and Design:** Providing on-site sidewalks, including direct connections to the front doors of buildings or dwelling units, and the facilities to the network of sidewalks and trails adjacent to the development.
- **Parking:** Providing separation between vehicles and pedestrians or cyclists, and ensuring safe interactions at conflict points.

Municipal Development Plan

The Municipal Development Plan highlights that increased priority will be placed on planning for pedestrians, cyclists and transit users in future and lists policies to promote active transportation. There are three policies listed in the Section 8.2 for pedestrians and cyclists as follows:

1. Ensure the delivery of pedestrian and bicycle facilities throughout the City as an integral part of the transportation system for both recreational and commuting use.
2. Plan for pedestrian and cyclist facilities as part of the development and redevelopment proposals, ensuring the provision of adequate walking and cycling paths and lanes, and adequate cycle facilities such as secure storage, changing rooms, and showers where appropriate/feasible.
3. Continue to extend the multi-use trail network, including additional connections to the River Valley Greenbelt.

Recreation, Culture and Parks Master Plan

The City of Fort Saskatchewan's Recreation, Culture and Parks master plan was developed to help guide City Council and administration in the future provision of community facilities, parks and open spaces. The master plan proposes an equitable distribution of new neighborhood parks and / or a combination of larger city-wide parks and park corridors within 0.4 to 0.8 km (i.e. 3 to 6 blocks) of every residence. The need of having a hierarchy of trail system and a classification system of trail standards with a range of standard

amenities associated with each trail type is also identified in the plan. The following types of trails were classified in the master plan:

Primary Trail: A possible cross-section of the Primary Trail as provided in the master plan is shown in Figure 4.1. These trails are the most important trails in the system and typically correspond to arterial roads in a vehicular system. Primary trails serve both recreation and active transportation uses and may link population centres with significant recreational resources or other major destinations. They may also be a component of important regional trails.

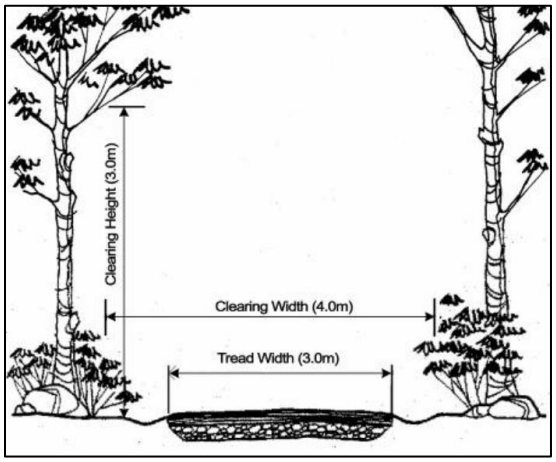


Figure 4.1: Possible Primary Trail (From Recreation, Culture and Parks Master Plan)

Secondary Trail: A secondary trail may be a sidewalk or a paved trail that is narrower than the primary trail. These trails correspond to collector roads in a vehicular circulation system, providing access to primary trails, parks and other open areas.

Tertiary Trail: A possible cross-section of the Tertiary Trail as provided in the master plan is shown in Figure 4.2. These trails are considered to be similar to neighbourhood streets. Tertiary trails may connect smaller population nodes or serve as internal site linkages. These trails offer opportunities for small scale circuits and interpretation.

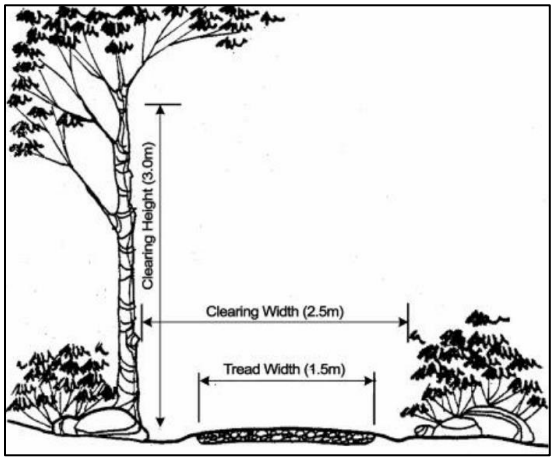


Figure 4.2: Possible Tertiary Trail (From Recreation, Culture and Parks Master Plan)

Regional Trail: A regional trail is a trail connecting the City of Fort Saskatchewan to the region. It was recommended to identify the regional trail initiatives being planned in Strathcona County, Edmonton, and Sturgeon County.

The master plan finds that the existing multi-use trails in the community were the most heavily utilized facilities. The plan also identifies that the trails in the City of Fort Saskatchewan are separated by the highway into north (predominantly mature areas) and south (predominantly new areas) sections. It was recommended to review the ability to interconnect north and south trail networks in future. Further, it was also suggested to consider including the bicycle trails as part of the roadway development to reduce greenhouse gases.

The classification by type of multi-use trail network was identified in the 2008 Recreation, Culture and Parks Facilities Master Plan, as shown in Exhibit 4.1.

Further, there is a regional trail network also identified in the 2008 master plan (see Exhibit 4.2) showing the regional trail initiatives.

The 2015 Recreation Facility and Parks Master Plan is an update to the 2008 master plan. However, the multi-use trail classification network map and regional trail network map provided in 2008 master plan were not updated neither included in the 2015 updated report.

Fort Saskatchewan Parking Strategy

Fort Saskatchewan's Parking Strategy studied pedestrian connectivity in the commercial areas adjacent to Highway 15 and 21. The strategy recommended amendments to the Land Use Bylaw to specify in detail the ways in which to improve pedestrian safety and access in parking areas. The following amendments were suggested:

- Any crossing between pedestrians and vehicles should be raised or have a raised element (such as a speed bump, speed hump, or raised table) immediately beside the crossing. This will help slow down vehicles as they approach pedestrian walkways, and will also make vulnerable road users, such as physically disabled individuals or young children, more visible to drivers.
- Sidewalks and walkways should have a clear path (that is, not counting vehicle overhang of a parking stall into the sidewalk) of at least 2.0 metres and connect the municipal sidewalk system to the building doors.

4.1.2 Sidewalk and Trail Network Conditions

Exhibit 4.3 shows the existing sidewalks and trails in residential and commercial areas of the City. In regards to pedestrian infrastructure, the following is observed from this map:

- Residential areas are well served by sidewalks and in most areas have sidewalks on both sides of the roads
- Residential areas off of Greenfield Way lack sidewalks; pedestrians must use the road, or access the multi-use trails backing onto residential properties
- Downtown is well served with a tight network of sidewalks
- Commercial areas at the intersection of Highway 15 and 94 Street are connected well to the city-wide pedestrian network, however, inside the commercial areas, connectivity is poor; pedestrians are forced to use the same areas as vehicles to circulate within the commercial areas

In regards to cycling infrastructure, the following is observed from the map in Exhibit 4.3:

- Trails are provided throughout the City, and on both sides of Highway 21, but in some areas there are connections missing

Exhibit 4.4 shows areas of the City lacking trail connections. Most missing trails are in future development areas and will be completed upon development. However, some are within existing residential or industrial areas. In such cases responsibility to complete the trail falls to the City. Trails in residential areas would likely be well-received by residents.

The most challenging trails to retro-fit will likely be the downtown and the industrial areas. In the downtown the available right of way is tight. In industrial areas providing trails will encourage people to travel to work by walking or by bicycle, and will also support transit service by providing all-weather walking surfaces. The City will need to work with area businesses to successfully implement these trails.

Exhibit 4.5 shows that there are no sidewalks or trails within the industrial areas in the City's north. This may be appropriate for the larger industrial plants north of Highway 15 and could be explored with those businesses. South of Highway 15 sidewalks would be a near-necessary prerequisite to providing transit service, but would also serve those who wish to walk to work or walk between businesses. Trails would encourage people to bike to work in this area.

4.1.3 Walkability and Cyclability

Walkability is a measure of how a person can access nearby places as a pedestrian. If there are places within Fort Saskatchewan that are walkable, they may better support transit and need quality transit. This is because persons without access to a car, whether by choice or by circumstance, are more likely to choose walkable areas. These residents are also more likely to use transit, because they have no car alternative and transit can take them to many addresses that are not within walking distance.

We used the Walk Score website to assess walkability. It measures walking distances to the following place categories:

1. Dining and Drinking
2. Groceries
3. Shopping
4. Errands
5. Parks
6. Schools
7. Culture & Entertainment

For each place category within 400m of an address, Walk Score assigns points on a sliding scale, where the shorter walking distances receive more points. Walk Score categorizes points as follows:

Table 4.1: Walk Score Criteria

Walk Score Points	Walk Score Category	Category Description
90 – 100	Walker's Paradise	Daily trips do not require a car
70-89	Very Walkable	Most trips can be accomplished on foot
50-69	Somewhat Walkable	Some trips can be accomplished on foot
Below 50	Car-Dependent	Most or almost all trips require a car

Figure 4.3 shows a Walk Score heat map for Fort Saskatchewan. The most walkable areas are in green (not including the homogeneous park spaces). They are all within or near the Downtown, where Fort Saskatchewan has high land use diversity as well as a tight grid pattern. A well-integrated sidewalk and trail network provides excellent infrastructure necessary to facilitate a walkable community.

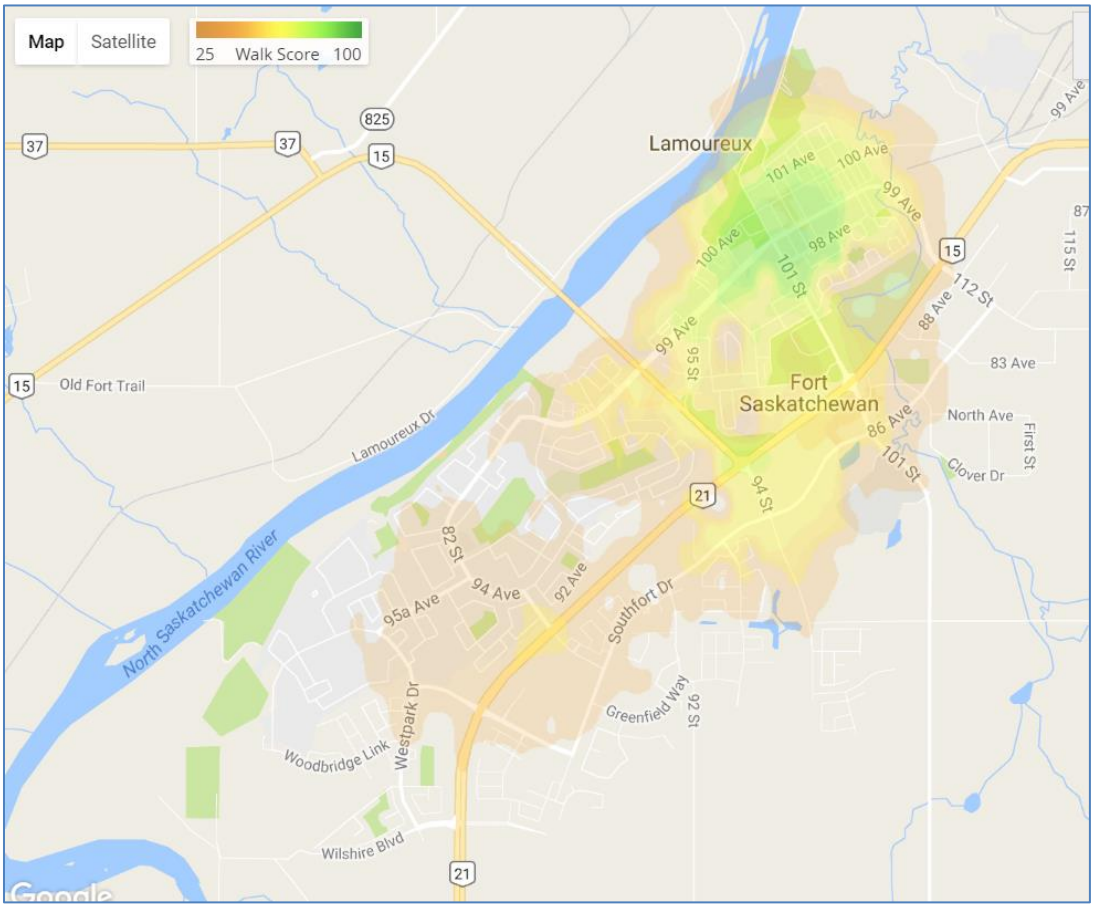


Figure 4.3: Walk Score Heat Map for Fort Saskatchewan

Similar to walking, cycling is also valued for its health benefits and it is an energy-efficient means of transportation. Therefore, for its health and sustainability benefits, cycling should also be encouraged as a legitimate means of transportation.

Experience shows that cyclists prefer separate paths in areas where traffic volumes exceed typical local road volumes or speeds exceed 30 km/h (a high bicycle speed). In addition, cities with the highest bicycle mode share use a network of separated paths for cycling that are reasonably direct and connect diverse land uses. Exhibit 4.5 shows that there are many multi-use trail links for cyclists in the City of Fort Saskatchewan.

Good cyclability from the network perspective means the ability to make meaningful trips without being exposed to high traffic volumes and/or high traffic speed. Thus, along arterial and collector roads many cyclists desire separated bike paths instead of riding on the road.

4.1.4 Summary

The City of Fort Saskatchewan has very supportive policy in place for promoting walking and cycling. Sidewalk and trail networks cover a significant amount of area and connect to many destinations. However, the coverage and connectivity can be improved. As the City grows the network should be integrated with other transportation and land use systems as well. Recommendations for improving the active transportation accommodations with the City are included in Section 4.0.

4.2 Opportunities and Constraints

4.2.1 Opportunities

The assessment of existing active transportation conditions revealed the following opportunities for active transportation:

1. Sidewalks connected to Greenfield Way: Residential areas off of Greenfield Way lack sidewalks on roadways fronting onto dwelling units. The feasibility of sidewalks should be evaluated.
2. Sidewalk requirements in Engineering and Servicing Standards: The standards state that sidewalks are optional in cul-de-sacs with 10 or fewer lots. Sidewalks on both sides of the road are not required unless 18 or more lots are present. To provide access to all abilities equitably sidewalks should be provided on both sides of a residential roadway regardless of the number of lots present in a cul-de-sac. Alternatively if sidewalks are not provided pedestrians could walk on the road provided it is designed for low speeds (less than 20 km/h) and snow is cleared.
3. Sidewalk standards by Land-use and context: Engineering standards should provide different sidewalk types based on land-use. For example, downtown sidewalks should be wider than the minimum 1.5m.
4. On-site sidewalk provisions in Commercial Areas: Commercial areas off of Highway 15 and 21 lack on-site active transportation accommodation. A network of designated walking spaces for pedestrians could be implemented at these sites.
5. Vehicle / Pedestrian Conflicts: Conflicts between vehicles and pedestrians on low volume roads and inside parking lots should be managed by using raised elements such as speed bumps, speed humps, or raised tables. At busy crosswalks on high volume roads it is safer to provide a reduced speed through the crosswalk, preferably by permanent enforcement measure, by sharp horizontal deflection, or by vertical deflection.
6. Front Door Sidewalk Connection: At major destinations, such as recreation centres, downtown, commercial areas, municipal sidewalks and trails should connect directly to the front doors of the buildings. This would require amendments to the Land Use Bylaw.
7. Industrial Area Sidewalks: There is an opportunity to provide sidewalks in industrial areas which will facilitate walking to jobs and using transit instead of the default-drive option.
8. Highway 21 Multi-use Trail: The multi-use trails on the east side of Highway 21 is missing a connection between 84 Street and 94 Street. An interim or permanent connection can be constructed.
9. Wayfinding Strategy: An opportunity exists to connect attractions and key destinations within the City through a wayfinding system. This would help make the City-wide trail network more user-friendly.
10. For cycling, provide separated paths for cyclists parallel to roads that have high traffic volumes and high speeds. The separated paths could take the form of protected bikes which are on-street but buffered from moving cars by barriers or parked cars, or of shared use paths that are widened sidewalks that cyclists and pedestrians share. In the absence of these options it may be appropriate to allow cycling on existing sidewalks.

4.2.2 Constraints

The following constraints exist in Fort Saskatchewan regarding active transportation.

1. Land-use of new neighbourhoods: Making trips by walking requires different destinations for shopping, dining, and recreation within close proximity to residential areas. Few neighbourhoods are walking distance from Downtown and the Commercial areas adjacent to the Highway (and would score poorly on Walkability).
2. Highway 21 crossing: Crossing large rights-of-way such as the one for Highway 21 is intimidating and can make pedestrians feel unsafe. Highways with signal timings optimised for the through-movement of vehicles can also be inconvenient as the pedestrian phase is not serviced on-demand. Another issue is the lack of crossings present along the corridor, for example the spacing between the 84 Street crossing and the 94 Street crossing is over 1.7 kilometres.

4.3 Strategies for Active Transportation

4.3.1 Introduction

As identified earlier, Fort Saskatchewan already has two statutory plans that compel better active transportation. The strategies herein leverage these plans as the foundation to recommend active transportation improvements.

From a transportation perspective the TMP focuses on active transportation for commuting and everyday travel between origins and destinations. It also recognizes that many trails and other facilities may be used for recreational purposes, and even those that are primarily recreational may also be used as transportation routes.

Also Fort Saskatchewan's Land Use Bylaw makes provision for improving active transportation through the following areas:

- **Safe Integration:** Development should provide for the safe integration of pedestrians, bicycles and vehicles within the site. Measures to enable safe integration may include but are not limited to special paving, raised surface, pavement marking, signs or stripping bollards, median refuge areas, traffic calming features, landscaping, lighting or other means to clearly delineate pedestrian areas for both day and night use.
- **Site Planning and Design:** Providing on-site sidewalks, including direct connections to the front doors of buildings or dwelling units, and the facilities to the network of sidewalks and trails adjacent to the development.
- **Parking:** Providing separation between vehicles and pedestrians or cyclists, and ensuring safe interactions at conflict points.

The following sections identify strategies to improve both cycling and walking in Fort Saskatchewan.

4.3.2 Pedestrian Strategies

Fort Saskatchewan already has many places with positive pedestrian infrastructure. The Downtown is walkable with its tight grid of sidewalks on both sides of roads and its diverse land uses. Most roads in residential areas have sidewalks on both sides, allowing all-weather access for pedestrians and especially mobility impaired persons.

Keeping in step with the residential areas the City should require sidewalks on both sides of most roadways. This includes local and collector roads in industrial areas, especially the areas east and south of Highway 15. Such sidewalks will be necessary to properly provide transit service to these areas.

Some exceptions to sidewalks on both sides can be reasonable along the Highway 15 and 21 corridors. In some cases a sidewalk paralleling the Highway may not reasonably connect other pathways.

Another challenge for pedestrians is the Greenfield area, where rural servicing precludes sidewalks. Pedestrians can walk along the roads and this can be reasonable where traffic speeds are low. There may need to be mitigation where speeds are high or where parked cars require pedestrians to walk within the travel lanes (Figure 4.4 shows a parked car on Greenfield Place. Source: Google Streetview). An additional challenge is all weather access for pedestrians – in this case the road would require snow ploughing. However, in urban sections intersections should be ploughed, where pedestrian crossings are legal, for the same reason.

Figure 4.4: Parked car along Greenfield Place

Similar to cycling strategies, another area to improve pedestrian infrastructure is connecting public sidewalks to building doors, especially for all land uses with larger sites. This would require changes to the Land Use Bylaw.

Another key strategy area is crossing the Highways, especially once they are widened to six lanes. The current environment is very intimidating to cross for many pedestrians. With widening to six lanes there may be opportunity, in some cases, to grade separate the pedestrian crossing from the Highway.

Since the Highway is a high load corridor, a pedestrian overpass requires a clearance of at least 9m. This is very high and would require significant work to gently raise the grade (which would also allow bikes and avoid significant distance added by using switch backs). Therefore it is likely better to use an underpass, especially where the Highway grade is already relatively high compared to the surrounding terrain. Two candidate locations are:

1. Along Highway 15 between or at one of 94 or 101 Streets.
2. Crossing Highway 21 at Westpark Boulevard.

Such underpasses need to be designed as warm and welcoming structures, where people feel secure as they pass through. Design elements should include:

1. Generous width of at least 4m.
2. Slope sidewalls instead of vertical sidewalls
3. Light coloured walls to reflect light.
4. Gentle approach grades that allow long sightlines to the underpass.
5. Open to the air in the median, thus breaking up the long tunnel effect and allowing natural light to penetrate.
6. High illumination during night.

These design elements will also work well for cyclists, thereby improving the number of users for the underpass.

Finally, the City should employ Safe System principles to improve pedestrian safety. At busy crossings the City should consider one of two general strategies:

1. Greatly reduce probability of crash by separating movements in time, such as by using a traffic control that requires drivers to stop and then allow pedestrians to cross, such as:
   a. A red/amber/green pedestrian or half signal
   b. An all-way stop
2. Greatly reduce probability of serious injury or death by using target speed no greater than 30 km/h for the road, such as by using:
   a. A speed hump or raised crosswalk
   b. A raised intersection
   c. A roundabout

The second strategy should be used where pedestrians can be expected over a larger area, such as local residential roads. In this case an additional device to achieve a 30 km/h target speed is very abrupt curves or bends, or a warranted yielding of right of way. Generally there should not be a local road segment longer than 150m with some form of speed control device.

4.3.3 Cycling Strategies

Cycling becomes well-used when it is convenient and comfortable. Experience in North America is consistently showing that this means the cycling network is contiguous, direct, and safe. Generally contiguous and direct networks for transportation purposes will be parallel to major roads. Sometimes short links that penetrate barriers will provide cyclists with much shorter distance routes than car drivers. For example, Figure 4.5 shows routing by bicycle and by car for an origin destination pair. The cycling route on the left is 850m while the car route for the same origin/destination pair is 2200m. The cycling route is less than half the car route because the pedestrian/bike overpass along Highway 15 provides a short but key link.

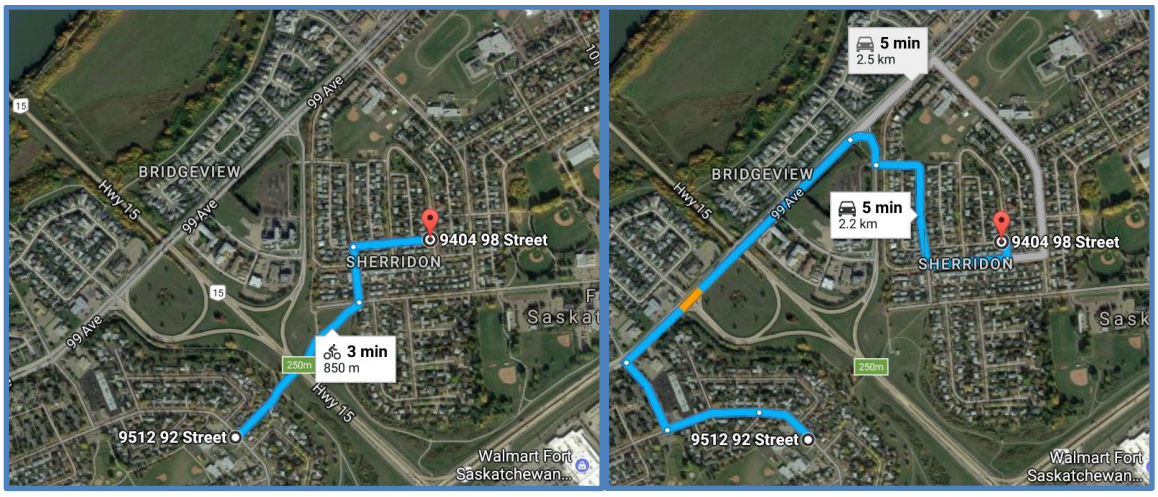


Figure 4.5: The Pedestrian/Cycling Overpass on Highway 15 provides significantly shorter routes for cyclists.

Safe cycling networks make users of all ages and abilities feel comfortable – an eight year old or an eighty year old should be able to independently navigate the network without help. This is a much farther reach than just commuters, as it includes non-work trips and a wider range of ages. More cities are finding that when such networks are implemented cycling increases dramatically. Safe cycling networks means physically separating cyclists from motor vehicles when the vehicle becomes too high and the vehicle

speeds become too great. This generally means that local roads with low speeds are suitable for cycling while collector and arterial roads require separated cycling facilities.
Fort Saskatchewan already has many separated cycling facilities along these roads in the form of Multi-Use Trails. With one exception the network is adequate. The exception is the downtown, where separated cycling routes surround the downtown, but do not penetrate the downtown. The downtown's walkability suggests it's a supportive environment for cyclists. A basic grid of two streets and two avenues, connecting to the peripheral network would be adequate (that is, it is not necessary to have separate cycling facilities on every street and avenue in downtown). An engagement with the public would be necessary to test alternatives and inform a recommended plan.

Generally multi-use trails will adequately serve for the cycling network. However in the downtown these may not work well because of pedestrian conflicts. Therefore alternatives to consider are protected bike lanes (PBL), both one-way and two-way. One-way PBL's have separate bike lanes for cyclists, flowing in the same direction as traffic. Two-way PBL's put cyclists on one-side of a road. Two-way PBL's usually take less width to implement, but induce more unusual conflicts at intersections. Figures 4.6 (From National Association of City Transportation Officials Urban Bikeway Design Guide, Online version. Example is in Chicago, Illinois) and 4.7 (From National Association of City Transportation Officials Urban Bikeway Design Guide, Online version. Example is in Portland, Oregon) show examples of both one-way and two-way PBL's.

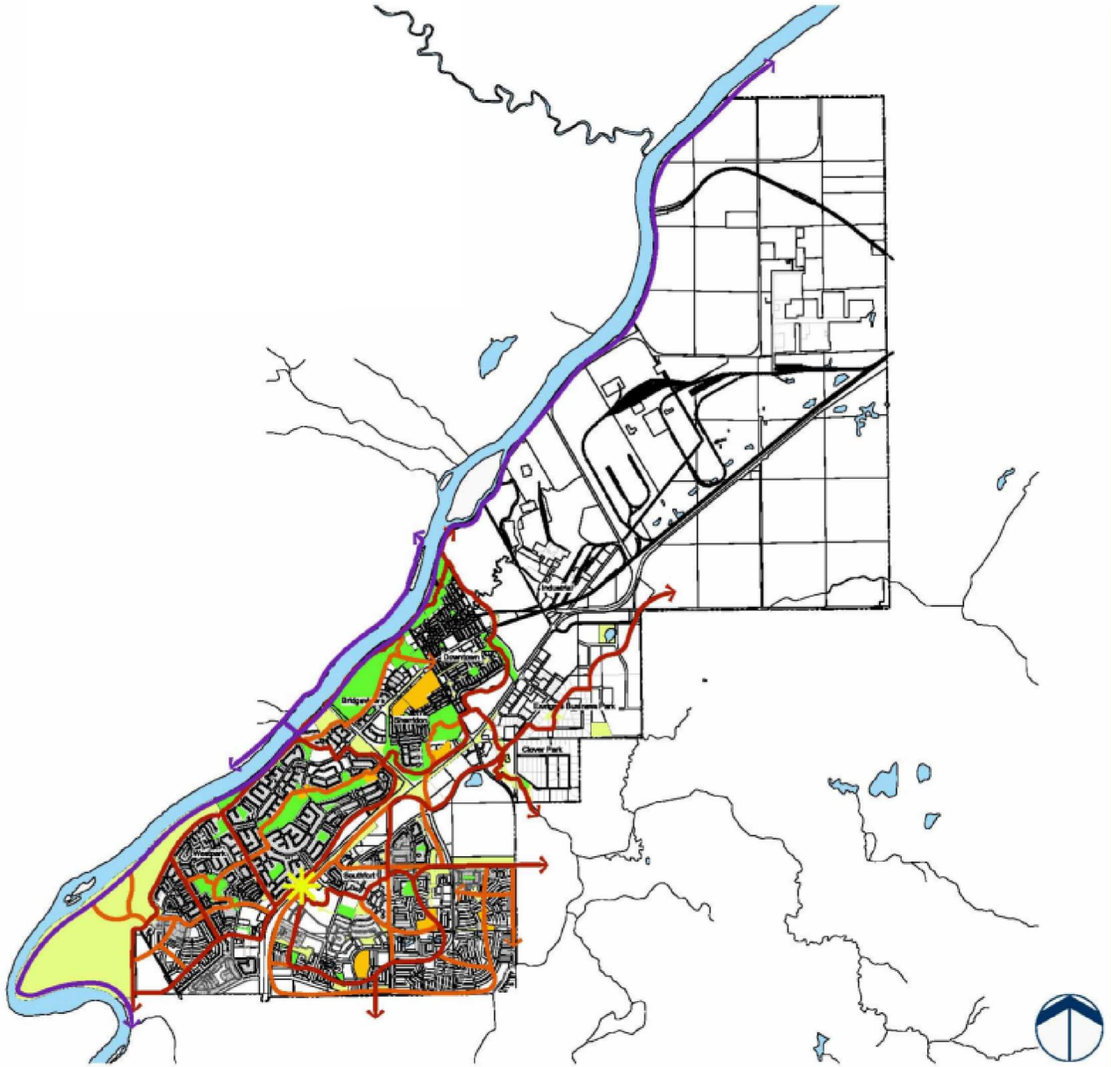
Figure 4.6: A One-way Protected Bike Lane using paint, bollard posts, and parked cars as protection from moving traffic.

Figure 4.7: A Two-way Protected Bike Lane using a raised surface and different material as protection from the adjacent road lanes.

Another area to improve cycling infrastructure is connecting the multi-use trails to building doors, especially for all land uses with larger sites. This would require changes to the Land Use Bylaw.

Finally, the City's Land Use Bylaw should be updated to add more land uses to require bike parking, and to describe the size of bicycle stalls, as well as acceptable formats to support the bicycle. The current bylaw requires bicycle parking for multi-unit developments with more than 7 dwelling units, in addition to bicycle parking for downtown developments to the satisfaction of the Development Authority. The bylaw update should add bicycle parking requirements for all land uses except residential uses with less than 7 dwelling units.

Map #1: Network Plan



City of Fort Saskatchewan

Recreation, Culture and Parks Facilities Master Plan

LEGEND

- Regional Trail
- Primary Trail
- Secondary Trail
- Highway Crossing

Network Plan

eda

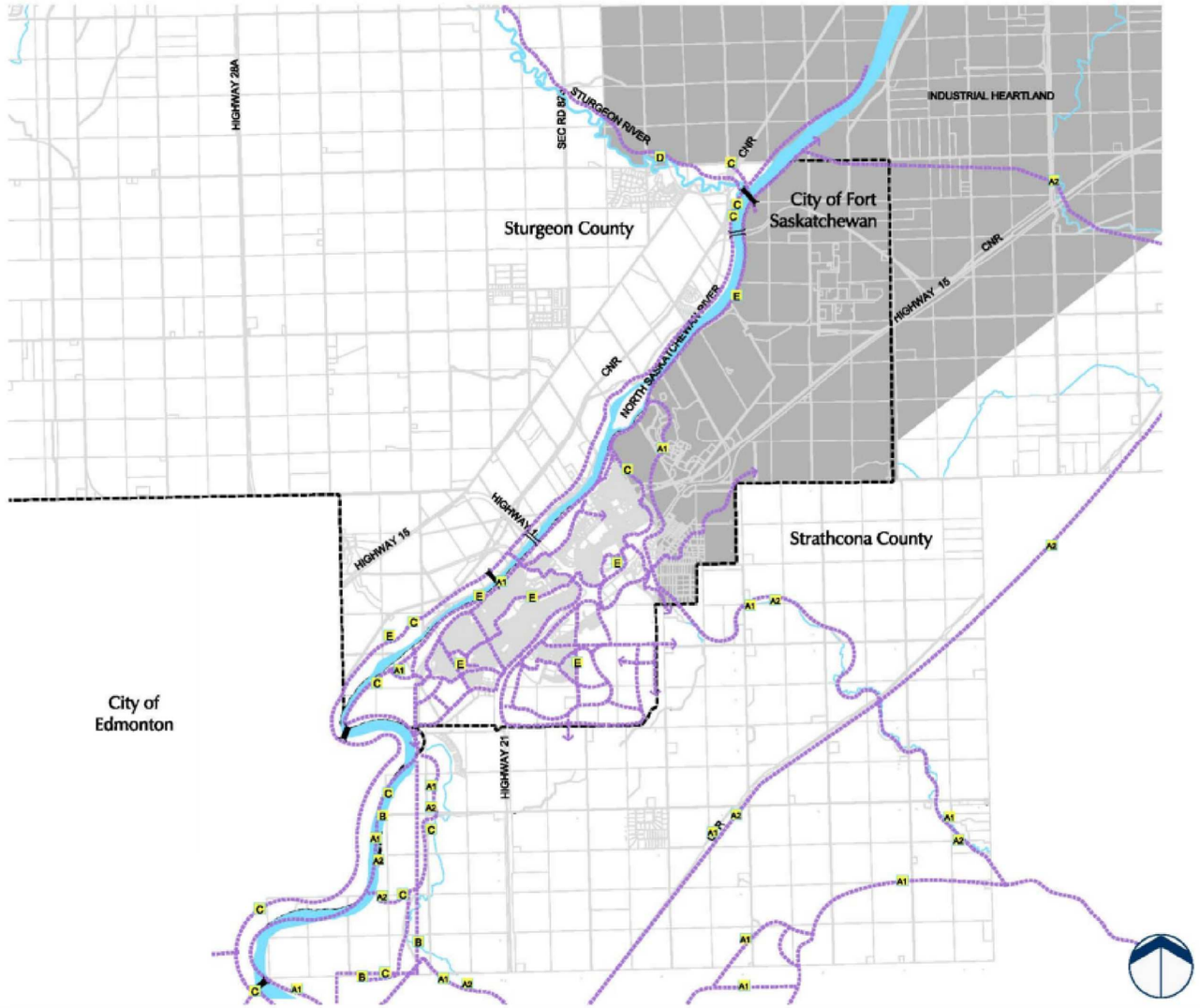
Scale 0 5.0 10.0km

May 2008

1

Exhibit 4.1
Network Plan for Trails (From Recreation, Culture and Parks Facilities Master Plan)

Map #3: Regional Network Plan



City of Fort Saskatchewan

Recreation, Culture and Parks Facilities Master Plan

LEGEND

- *Proposed Trails as Identified in:*
- A1 *1998 Strathcona County Trails Master Plan (Bicycle Trails)*
- A2 *1998 Strathcona County Trails Master Plan (Walking / Cross Country Skiing Trails)*
- B *2000 Strathcona County Trans Canada Trail Plan*
- C *2003 Alberta's Capital River Valley Interated Concept Plan Updater*
- D *2003 Sturgeon County Open Space Plan Update*
- E *2008 Fort Saskatchewan Recreation, Culture amd Parks Facilities Master Plan*
- *Existing Bridges*
- *Proposed Bridges (2003 Alberta's Capital River Valley Integrated Concept Plan Update)*

Regional Network Plan

eda Scale 0 0.5 1.0 2.0km May 2008

3

Exhibit 4.2
Regional Network Plan for Trails (From Recreation, Culture and Parks Facilities Master Plan)

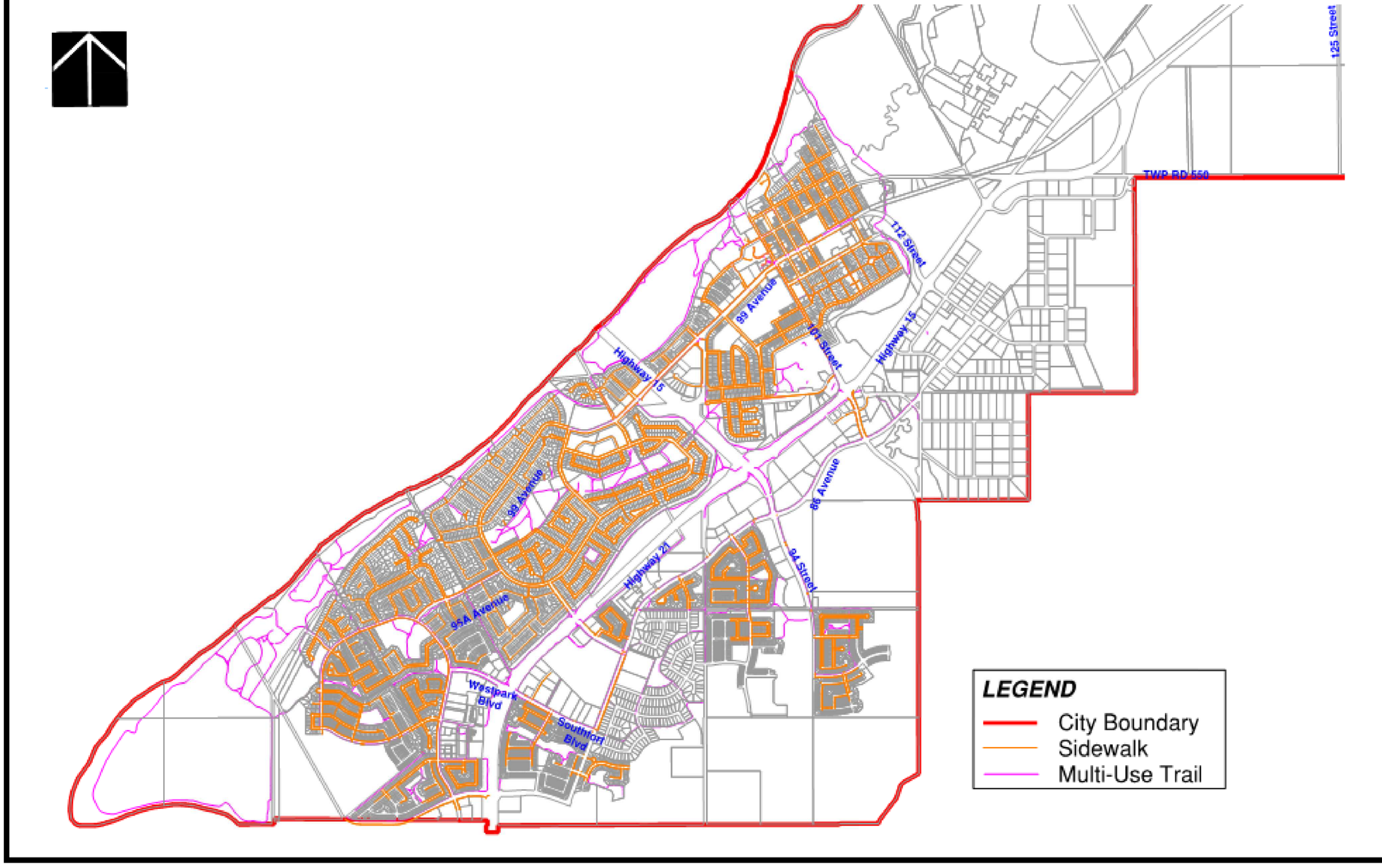


Exhibit 4.3
Existing Sidewalks and Trails in Fort Saskatchewan (Residential and Commercial)

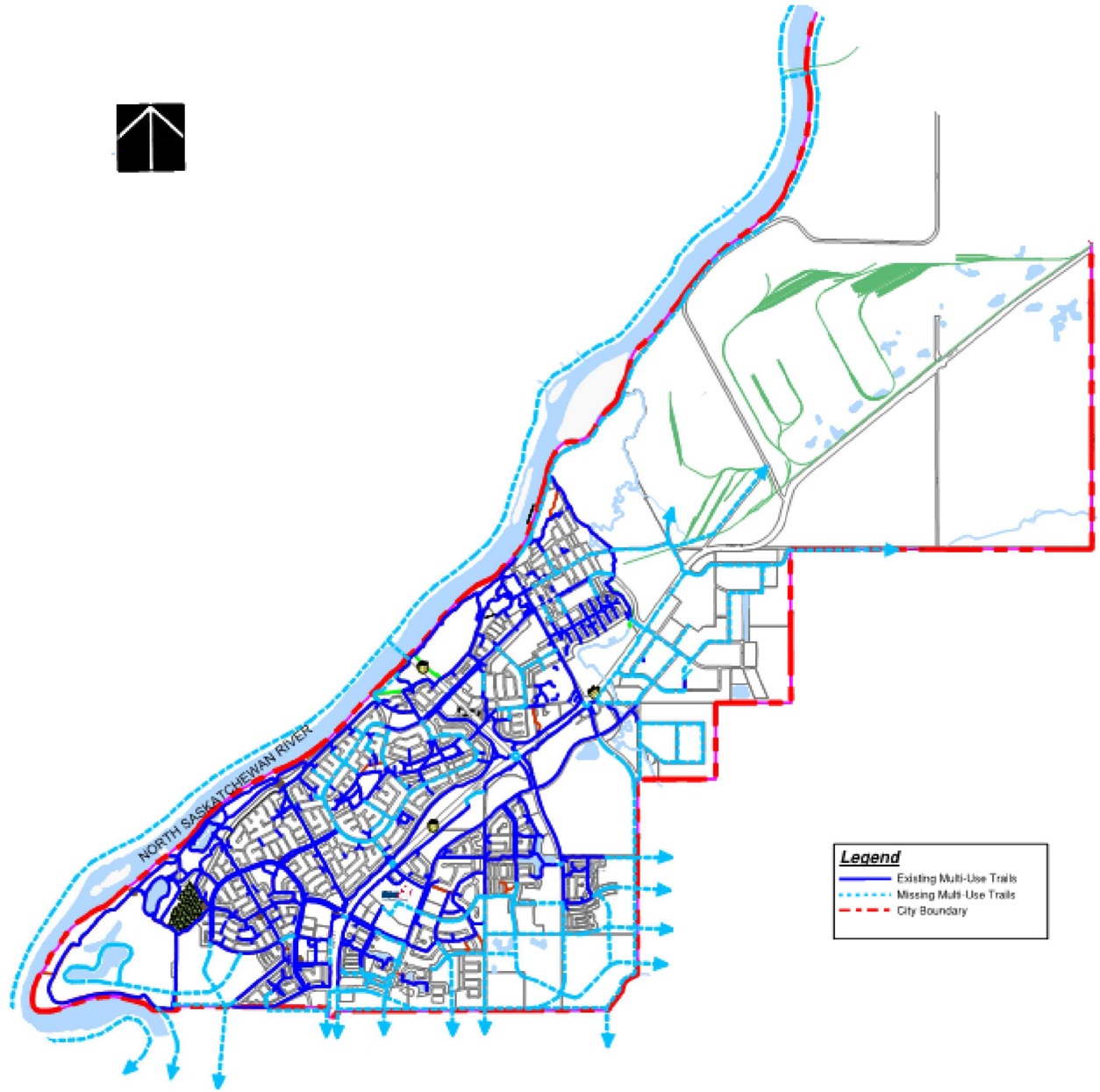


Exhibit 4.4
Missing Trail Connections

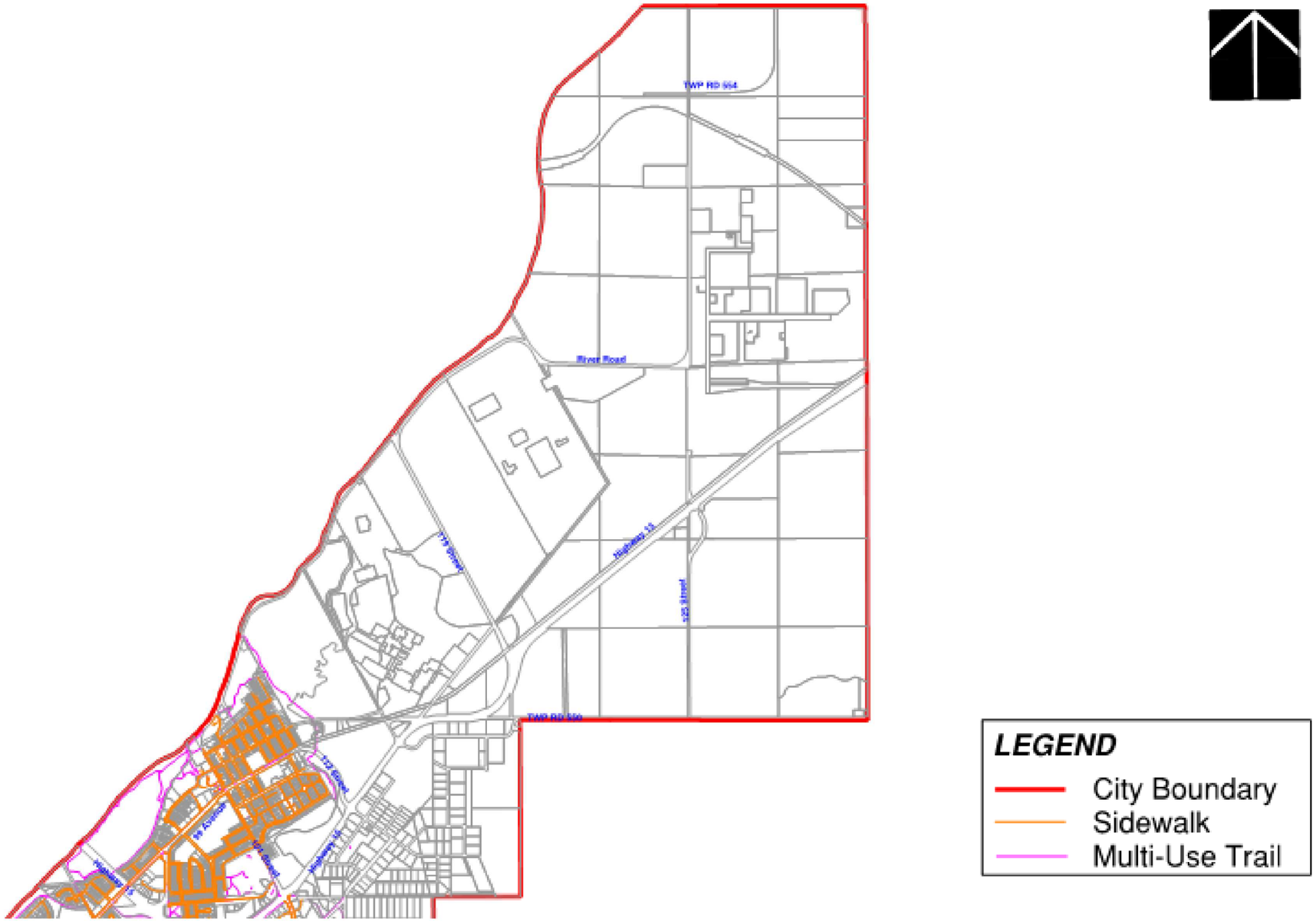


Exhibit 4.5
Existing Sidewalks and Trails in Fort Saskatchewan (Industrial Area)

5.0 Transit

Public Transit is essential for creating a community which provides access to all citizens. People without the ability to drive or without access to a vehicle are granted the freedom of mobility through public transit. Providing public transit can also increase economic flexibility for families that desire to decrease the number of vehicles in the household.

5.1 Existing Conditions

Fort Saskatchewan currently operates routes locally as well as a commuter service to Clareview LRT Station in northeast Edmonton. The information below summarizes the existing characteristics for each of the routes fares used by the City.

Locations Served

Figure 5.1 shows the bus routes operating in the City. The local service consists of two routes (route 582 – blue, and route 583 – red) arranged in loops running in opposite directions within the City, each taking 30 minutes to complete. The commuter route (route 580 - purple) is arranged in a smaller loop within the City and takes 30 minutes to travel between Fort Saskatchewan and Clareview LRT Station. Transfers between the local and commuter routes can be facilitated at the North Transfer Location and the Dow Centennial Centre.

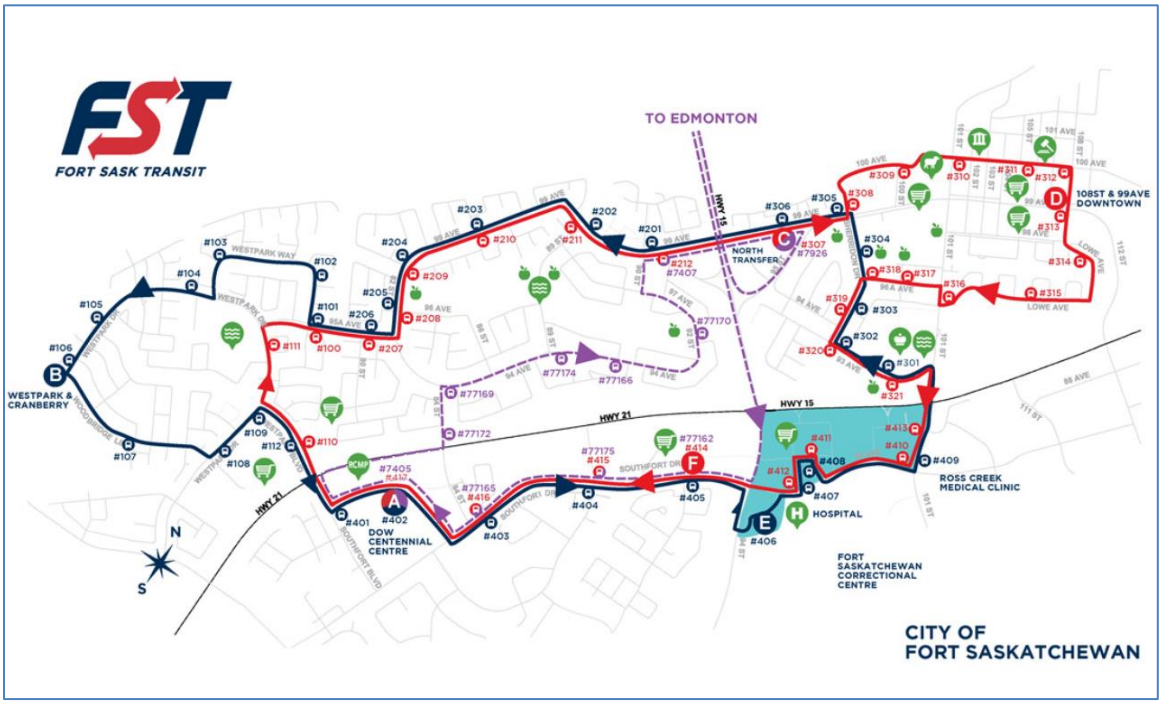


Figure 5.1: City of Fort Saskatchewan Transit Routes

Major destinations that both routes provide service to include:

- Dow Centennial Centre
- Fort Saskatchewan Community Hospital
- North Transfer Location (connection to commuter service)
- Commercial Areas east of Highway 21

The Downtown core service is one-way only with route 583. Similarly at the opposite side of Fort Saskatchewan, Westpark service is one-way only with route 582. Both routes provide service into the residential areas of Sherridon, Bridgeview, Pineview and Southfort. Neither bus route provides service into any of the industrial areas in the north.

The commuter route is provided in conjunction with Edmonton Transit. The route has stops along the commercial areas on the east side of Highway 21, as well as the Dow Centennial Centre and the North Transfer Location, before it makes its way out of Fort Saskatchewan towards Clareview LRT Station.

Schedule

The local and commuter routes currently operate Monday through Friday. The local routes run according to the following schedule:

Time of Day	Local	Commuter
5:30 AM – 7:30 AM	every 30 minutes	every 30 minutes
7:30 AM – 1:30 PM	every 60 minutes	no service
1:30 PM – 3:30 PM	every 30 minutes	every 60 minutes
3:30 PM – 5:30 PM	every 30 minutes	every 30 minutes
5:30 PM – 8:30 PM	every 30 minutes	every 60 minutes

Fares

The fare system in Fort Saskatchewan is organized into three categories:

- Local fare for the Red and Blue routes sold as single fare, 10-pack tickets or a monthly pass
- A commuter monthly pass which includes unlimited travel on the local routes
- An integrated monthly pass with access to the local routes, the commuter route, as well as transit routes in Edmonton

The monthly pass costs:

- Local Routes: $50.00 for an adult, and $20.00 for seniors and students (aged 13-17)
- Local and Commuter Routes: $90.00 for an adult, and $35.00 for seniors and students (aged 13-17)
- Local, Commuter, and Edmonton Routes: $184.25 for an adult, $50.00 for seniors, and $121.00 for students (aged 13-17)

Additionally, Fort Saskatchewan allows students going to MacEwan University, NAIT, NorQuest College, and the University of Alberta to use their U-Pass to access the local and commuter services within Fort Saskatchewan for free.

Accessibility

All buses used by Fort Saskatchewan Transit allow users with limited mobility and mobility challenges to access transit services with ease. The buses can kneel to the level of the curb to make boarding and alighting easier for users, especially those with walkers or strollers. The buses also have ramps which can be activated by the drivers to allow wheelchair users to board the bus.

Transit Information

The City provides real-time bus locations, and route and schedule information through a smartphone app called SmartTraxx. Locations and times for all bus stops within Fort Saskatchewan are also available on Google Maps, although the real-time location feature is not available. Route 580 can also be viewed using the Transit app. The Transit app is a third party app that is recommended by the City of Edmonton to view routes within Edmonton.

5.1.2 Transit Reports

The City provided two transit reports. A brief summary of each follows.

City of Fort Saskatchewan – Transit Plan (Final Report, June 12, 2012)

This document evaluated the feasibility of enhancing Fort Saskatchewan's transit services. It reviews and analyses needs and opportunities, and develops recommendations and improvements for both conventional and specialized services. The study included an existing service review, a peer review, and a market analysis, as well as extensive public, stakeholder, and staff consultation.
The study made several recommendations, including:

1. Route Classifications:
   a. Commuter Route – connecting to other municipalities.
   b. Local Route – serving with Fort Saskatchewan and connecting to commuter route.
   c. Specialized Services – accessible door-to-door service both within and beyond Fort Saskatchewan.
2. Hours of Service:
   a. Commuter route needs to meet demand, with higher frequencies during peak periods.
   b. Local services from 07:00 to 19:00.
3. Service Coverage – local service should provide 400m walking distance for residential and commercial areas and 800m for other areas for 90 percent of population within the service area.
4. Route Performance and Vehicle Loading Standards – guide where services need adjusting to meet high or low demands.
5. Other Standards:
   a. On-time Performance.
   b. Amount of Service.
   c. Service in New Areas.
   d. Service in New Operating Periods.
6. Proposed Route and Service Option Recommendations – were based on three scenarios. A commuter-only, a Local-only, and a commuter and local. Generally the routes featured large loops, sometimes with service in both directions and sometimes in one direction.
7. Park and Ride Recommendations – preferred options to pursue:
   a. Dow Centennial Center.
   b. 99 Avenue / Hwy 15 interchange.

Fort Saskatchewan Transit – Pilot Review (Draft Report, October 22, 2015)

This study notes that in 2011 the City initiated a study to examine transit feasibility with respect to various routing, fare structures, local services and revenue implications. Based on the 2011 study the City began a transit study. Thus 18 months into the new service the City retained WSP/Parsons Brinckerhoff for the purpose of the Pilot Review. The Review's analysis found there are four major destinations:

- Edmonton (Clareview LRT)
- Fort Saskatchewan Downtown
- North Commercial Area (Fort Mall)
- North-east Commercial Area (Cornerstone, Southpointe, Medical Clinic and Hospital)

The report found that the existing service could be improved significantly. Three routing options were analyzed. The recommended option by the Study Team was to modify the local and commuter services. While it was the most expensive, it also provided the best service in terms of overall travel times, ridership, and cost recovery. This option is similar to the current routing (2017).

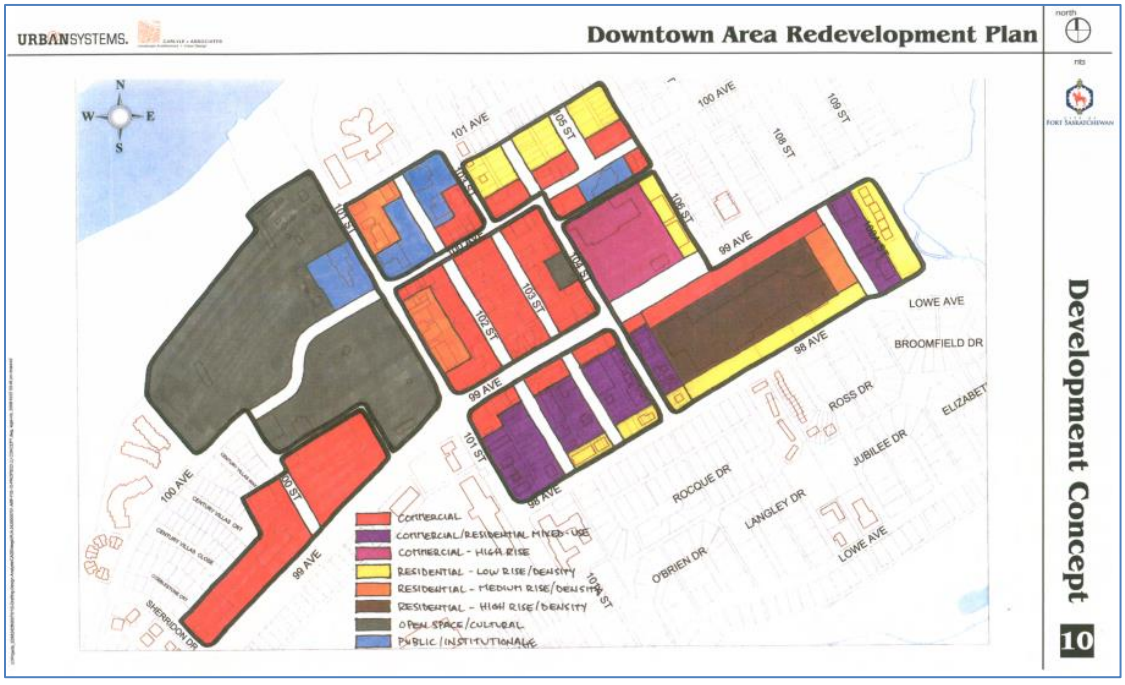
Other recommendations included:

1. Adopt new fare structure – mostly to provide discounts for prepaid fare media.
2. Marketing and Branding – to raise the profile of transit in the community.
3. Operations and Maintenance contract – strengthen the contract to better protect the City and to include performance requirements, revenue service hours and service standards.
4. Work with Developers – they may be able to pay for transit infrastructure (bus passenger shelters or concrete bus pads for examples)
5. Right size the fleet – choose accessible buses with lower operating and maintenance costs.
6. City-owned fleet – A city owned fleet should provide the lowest overall cost of ownership.
7. Establish a Transit-Supportive Climate – dedicate one full-time equivalent staff member to the service, as well as stable, predictable funding for capital replacement and growth of FST. Finally, future land-use planning needs to support transit.

Fort Saskatchewan's Downtown Area Redevelopment Plan (DARP)

The DARP's vision calls for a vibrant downtown where people choose to live, work, and play. The plan objectives and goals require increased intensity, including increased residential dwellings.

- Transportation Policy 4.1 4) calls for continued joint transit service in the Downtown area with Edmonton Transit, and consideration of a formal transit hub in the area to make the system more visible and useable.
- Transportation Policy 4.1 5) contemplates extending the Edmonton Transit route onto 99 Avenue from 108 Street to 101 Street to serve the future area population.
- Transportation Policy 4.1 6) calls for encouraging an overall community transit system that promotes transit-oriented development and supports intensification in the Downtown.



5.2 Opportunities and Constraints

5.2.1 Opportunities

Based on the review of existing operations of Fort Saskatchewan's transit service, there are a number of opportunities to enhance and expand transit within Fort Saskatchewan.

1. Strengthen Downtown service: Downtown is identified as a major destination in the Pilot Review from 2015. Currently, only route 583 goes into the Downtown area. Some locations within Downtown are more than one kilometre away from the closest route 582 bus stop. This means that users are forced to choose between walking a longer distance, or a longer trip for one leg of their round trip.
2. Commuter service into industrial areas: There is no industrial service currently provided. Many employees in these areas live in Fort Saskatchewan and would benefit from bus service.
3. Integrate the regional service with other regional transit systems: Integrating fares will allow users to take transit in Edmonton without being charged twice.
4. Providing discounted transit passes through employers, as a stand-alone program or as part of a development permit application to reduce parking.
5. As residential areas grow there is an opportunity to start transit service early and capture trips before new residents become too reliant on cars. One possibility to introduce the service is to require developers to provide service with links to key transfer locations in the existing service.

5.2.2 Constraints

There are funding and service choices that trade-off against each other. For examples:

- Cover entire City at 30 minute frequency
- or 2/3 of City at 20 minute frequency
- or 1/2 of City at 15 minute frequency

Given that the current system covers the entire City, it will be difficult to remove service in order to concentrate it in specific areas.

5.3 Transit Strategies

This section discusses strategies at a high level that will improve transit for Fort Saskatchewan. They will require further detailed study to confirm their overall effectiveness as well as costs.

Some of the strategies will directly impact the transit service, whereas others have no such impact but will nonetheless improve transit service. The following sections identify both direct and indirect strategies for the City to consider.

5.3.1 Direct Transit Strategies

Increase Service Frequency

Increasing service frequency is a basic strategy to improve service. It reduces waiting times for buses and provides more capacity, reducing instances of standees.

Increasing service frequency can be staged by focusing on routes and times of day that are already well-used. For example it could entail providing midday service for the commuter route 580. It currently has no weekday service from 7:30am to 1:30pm. Also at this time the local service frequency is one bus per hour, which is half the frequency during peak hours. Another example is to provide service at times not currently served, such as weekends and later evenings.

Leverage New Park and Ride Station

In January 2018 the city opened a new park and ride station south of the Dow Centennial Centre. These park and ride stations can provide access to other land uses in the area, whether it be businesses or public facilities. The new centre could be leveraged in the following ways:

- Ensure it is multi-modal – in addition to providing car parking stalls, provide kiss and ride areas, bicycle parking, and sidewalk connections from surrounding residential areas to the bus loading platform.
- Allow complementary land uses – it may be possible to allow land uses whose parking demand peaks in evenings or weekends, thereby allowing the commuter park and ride stalls to be shared.

Strengthen Downtown Service

Fort Saskatchewan's Downtown is a major destination. It is also walkable, making it inherently transit-friendly and a good location for persons to live who do not own a car, whether by choice or by circumstance.

The current downtown service is largely served by Route 583, which penetrates through the downtown. Route 582 is over 500m from the fringe of downtown at 99 Avenue and 101 Street. The two routes basically operate in opposite loops, meaning that in effect most of the downtown has one-direction service. This works well for trips in that direction but is highly inconvenient for trips in the opposite direction.

Therefore a possible short term strategy would be to provide service in both directions on the loop. However, while it is possible it requires considering alternatives carefully because merely extending the 582 route will require more travel time, throwing it off schedule connections with other routes and off its clock-headway schedule.

One possible alternative is to shorten the loop the 583 route uses in the downtown, as it tends to skirt on the perimeter of the downtown residences along Lowe Avenue. If the loop were shortened it would provide spare time which could be added to Route 582 by inter-lining the two routes.

Possible Service to Industrial Areas

Fort Saskatchewan's industrial areas in the northeast are significant employers. There are likely a great number of Fort Saskatchewan residents who travel to the area. However, the transit rider market will be limited to workers in low wage jobs who find car ownership costs a burden. If there are such workers and if they are reasonably concentrated at specific locations, a peak hour transit service may be worthwhile.

Another benefit to this service is that it may attract employees from outside of Fort Saskatchewan, who would travel in the off-peak direction on the commuter route. This helps improve revenue and ridership performance even if the buses are full in the peak direction.

Such a service will need further study. The service will require more buses and therefore more capital and operating funding.

New Service to New Developing Areas

People develop their travel habits based on their context. In a new developing area where transit is unavailable, people will develop habits that preclude transit, usually by relying on a car. Once transit becomes available in the area, those previously living there are far less likely to use transit because of their context-developed habit. If they are using a car, the great convenience they have found will outweigh the great ownership and operating costs of a car.

However, new people moving in are more likely to consider transit as a travel choice in their moving decision, and then to use it. It's especially important for post-secondary students, who are sensitive to car costs and thus much more willing to develop transit habits.

The City should look at demographics of new neighbourhoods and develop a strategy as to when new service should be added to the neighbourhood. In addition, it is imperative that the road network support the transit service as the neighbourhood develops.

Partnering with Rideshare Services

Recently some transit agencies are considering partnerships with ridesharing services. Rideshares operate similar to taxis, leveraging the power of mobile apps to dispatch cars to riders quickly and transparently.

Ridesharing may be ideal for "the first and last mile" of transit trips. This is where passengers may have long walking distances for their trip, especially in low density areas, and thus a ride share may serve the trip more effectively than public transit. The ride share could be in the form of a taxi subsidy for existing local taxi service providers or better hours for Fort Saskatchewan's specialized service.

Implementing such a service will need to address issues such as:

1. Defining which trips qualify for the rideshare service, likely defined by a service area and a specific bus stop to start/end a trip.
2. Defining who pays for the trip and how much. Existing transit customers may expect no additional fare, as if they were simply transferring buses. This would mean the City is paying for the trip, and would do so willingly because it is less expensive than serving the trip with a bus.

It is also important to understand that rideshares cannot effectively replace transit where trips are more frequent. This is effectively because a full bus is split into 10 to 20 rideshare cars, each with a driver expecting payment. The cost to the municipality of such a service would be greater than a bus, and it would also lead to greater congestion on the roads.

5.3.2 Indirect Transit Strategies

Land Use Planning

As the City develops new land use plans or receives land use applications there will be opportunities to consider strategies to improve transit. Broadly there are three strategy areas:

1. Uses Conducive to Transit
2. Parking reductions dues to nearby to transit
3. Pedestrian and Transit Network Design

First, some land uses naturally present opportunities for transit. For examples:

1. Offices typically have dense work force populations who need peak hour transportation. This high concentration of people is conducive to mass transit.
2. Higher density residential areas are also conducive to mass transit.
3. Uses with employers whose workers are largely paid at or near minimum wage – such as retail commercial. These workers often cannot afford a car because of their wage. In addition, there are instances in the Edmonton region where such employers located beyond public transit then hired private buses to transport their workers to and from home.
4. Businesses that allow alcohol consumption will have customers who need alternative transportation. Providing transit service can be part of a strategy to reduce drunk driving.

For all the above opportunities the City could amend its land use bylaw to require such establishments to locate within proximity to transit. Second, and tying into the same bylaw amendment, the City could reduce the amount of required parking for developments that are within a specific distance of a bus stop. This could apply to all the above cases as well as many other land uses. Alternatively instead of amending the land use bylaw the City could develop guidelines to improve transit service. These alternatives should be evaluated as part of a broader transit review.

Finally, the City should have guidelines to provide quality pedestrian and transit networks. For proposed Area Structure Plans and subdivisions the guidelines should require reasonable walking distances to bus stops and good routing alternatives for bus service. The guidelines could also translate to site specific requirements, which could also be added to the Land Use Bylaw. For example, larger sites, whether commercial, industrial, residential, or institutional, should have sidewalk connections to public streets, in all relevant directions. This allows pedestrians (including transit users) quality, all-weather access to these properties.

Provide Discounted Transit Passes through Employers

The City should consider discounts to transit fares for large employers who are willing to commit to bulk sales of bus passes, provided the discount passes on to the rider. The benefits to the City would be:

- Increased ridership – the City should confirm this using before and after data of the employer's staff using transit.
- Increased or neutral fare recovery.
- Improved transit brand implied by the employer's participation and passed on to employees and by the transit service partnering with large employers.

Provide Discounted Passes for People-in-need

While transit service is often less expensive than other motor vehicle alternatives, it may not be affordable to some. The City could provide deeply discounted transit access to such people in need. It would be best if the City could use a consistent means test for this and other similar programs offered by the City.

Integrated Fares with other Regional Transit Services

An ongoing challenge in the Edmonton Metropolitan Region is integrating transit fares between the numerous transit agencies, such as a "Smart Fare". For example, for a transit trip from Fort Saskatchewan to the Edmonton International Airport, three separate fares are necessary.

Although simple in principle, it will take significant cooperation between many regional transit systems. The challenges include how to share both revenues and costs. The benefit is a seamless transit system in the region for transit users.

Integrated Carshare

A carshare is a short-term car rental, often by the minute or by the hour. Most carshare users do not own a car or have more drivers than cars in their household, and often rely on alternative transportation, such as transit, biking, or walking. However, the carshare users still require occasional access to a car for special trips with a short duration. Thus carshares are best suited to areas with good alternative transportation.

The City should explore opportunities where a carshare may provide synergy with its transit system and the City's overall transportation infrastructure. The best location for carshare vehicles would likely be Fort Saskatchewan's downtown, because of its walkability and its transit service.

6.0 Motor Vehicles

6.1 Existing Traffic

As part of the transportation analysis for the Master Plan, ISL modelled existing traffic in Fort Saskatchewan for the PM peak hour. Figure 6.1 shows the results of the traffic modelling. The legend shows the levels of congestion on the roads connecting to Fort Saskatchewan, and within the City.

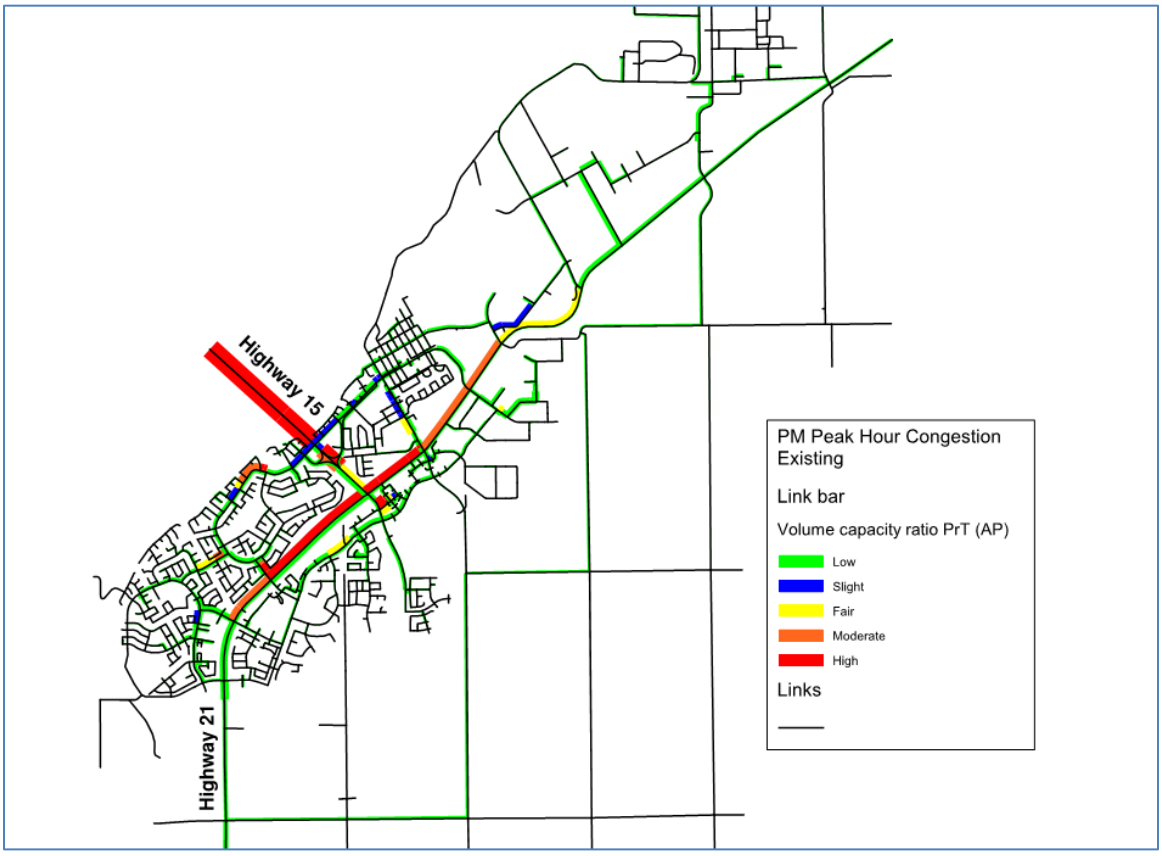


Figure 6.1: PM Peak Hour Congestion - Existing

The Highway 15 Bridge over the North Saskatchewan River shows congestion in both directions. This shows an unusual characteristic of Fort Saskatchewan: unlike most municipalities surrounding Edmonton, Fort Saskatchewan has high volumes in both directions, caused by Fort Saskatchewan being both a major residential area as well as a major employment area. Thus there are large amounts of trips generated in both directions. In this case the congestion is largely on the river bridge as well as some of the 99 Avenue interchange ramps.

Veteran's Way (Highway 15/21) westbound through the City from about 101 Street to 84 Street is also congested. One other significant congestion point is the Walmart/Canadian Tire access to 94 Street.

The model also shows a small amount of traffic using the range roads and township roads to the southeast. This is caused by the westbound congestion on Highway 15/21, indicating that some drivers may be willing to use these routes as a means around the City.

In reviewing this information with the City we found that the 99 Avenue left turn bay west bound at 95 Street often has long delays in the PM Peak. The model does not show this because it is a link based model; it assigns traffic based on travel time, while in reality drivers use other factors to decide their routes, including intersection congestion. This indicates that the value of the model is to identify when more general purpose lanes are necessary along a road; the model is less valuable at identifying intersection improvements. However, using more detailed analysis the model's volumes can be used in conjunction with existing traffic counts to identify intersection improvements. These kinds of analysis are best done by specific intersections, often in conjunction with other proposed developments or road improvements.

6.2 Travel Demand Model Forecast

To provide better insight into future traffic conditions ISL built a travel demand model. In addition to predicting future traffic flows it forecasts future congestion and allows alternative testing in order to resolve the congestion. The model best predicts volumes along arterial roads and highways. Local and collector roads are represented in the model for the purposes of improving the major road forecasts. In addition, local and collector roads are usually built as part of developments, not due to a City-wide network need like major roads.

This section describes some of the basic inputs into the model, as well as the forecasted congested and alternative solutions tested. A basic input into the model is land use. This includes the 10 and 30 population horizons of 35k and 53k respectively as well as corresponding employment at these horizons. The future growth areas from the City's Growth Study were reflected in these horizons.

6.2.1 Future Growth Areas

From Section 3.0, Figure 3.2 "Preliminary Land Uses with Recommended Expansions Areas" informed the inputs that were used for the traffic model.

Each traffic zone in the traffic model required inputs for the amount and type of land within it. However, each model horizon also requires knowledge for the year in which the development is likely to occur. This information was derived from the development staging map shared in the Growth Study. The map is shown in Figure 6.2.

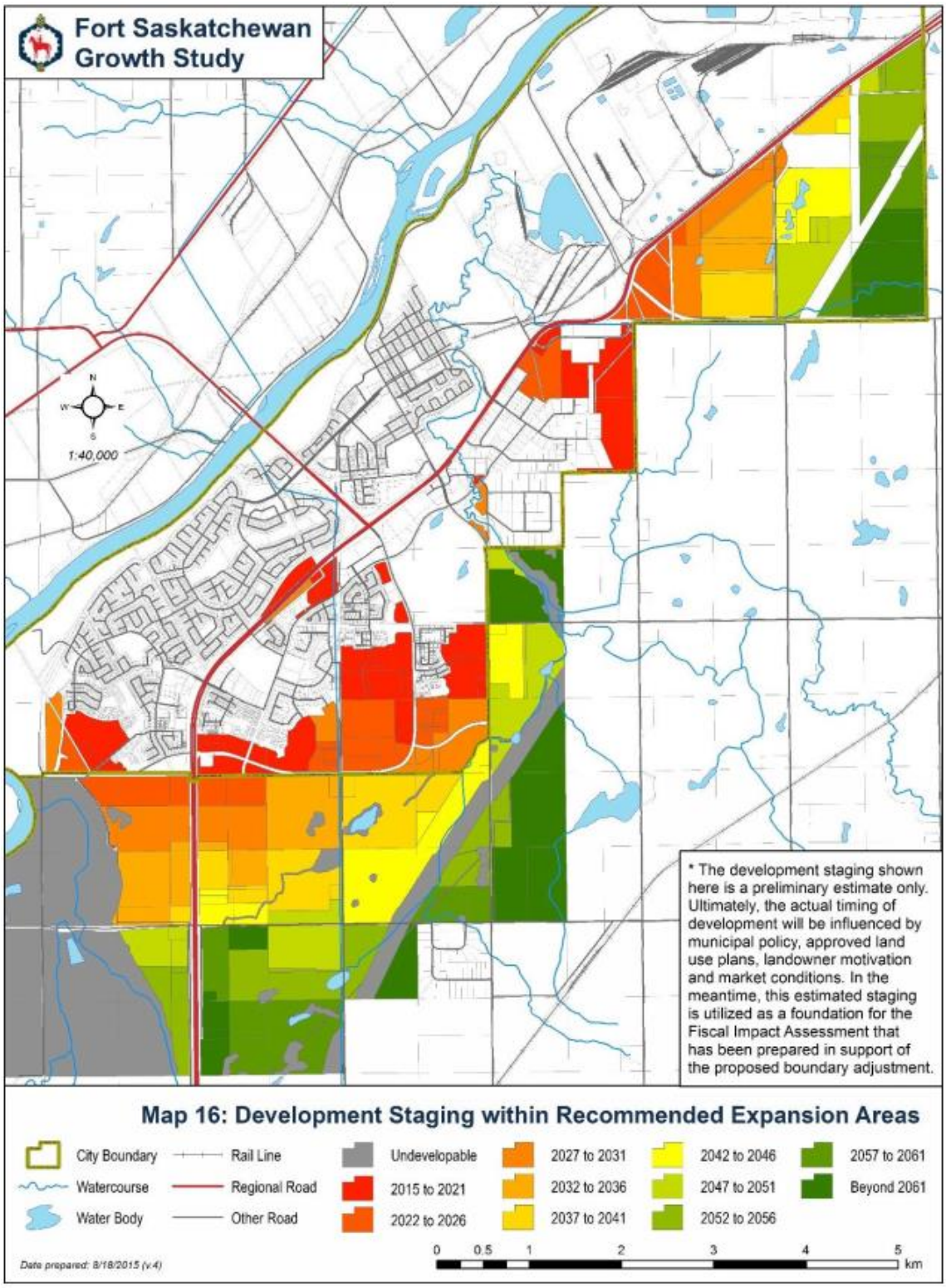


Figure 6.2: Development Staging within Recommended Expansion Areas

6.2.2 Employment Growth

While the City has good data on population, employment data is less available. To confirm the distribution of jobs within its municipal boundary and surrounding area, ISL obtained a database of businesses for the model area from InfoCanada. The database included coordinates, the number of employees, and industry classifications for each business. The businesses were aggregated into five land use types, geocoded based on their coordinates, and their resulting locations audited for accuracy. Several businesses had incorrect coordinates and their locations were corrected accordingly. Each business was then tagged to a traffic zone based on their final locations to understand the distribution of jobs across the model area.

The result of this process was a cleaned InfoCanada data set that provided a reasonable basis for the amount and kind of employment within each traffic zone. However, the overall total of jobs from InfoCanada was low compared to estimates published elsewhere such as those within the Edmonton Metropolitan Region Growth Plan (EMRGP). The overall total was therefore extrapolated to a 2016 control total that was interpolated from the 2014-2044 high case employment projections in the EMRGP. The extrapolated jobs were prorated to each traffic zone and land use type based on the previously determined distribution of jobs. In a final round of adjustments, during model calibration, some employment was moved to logical locations in order to better match known congestion and volume patterns.

In terms of the TMP's employment projections, the high case employment projections in the EMRGP were prorated to the City of Fort Saskatchewan 2015 Growth Study's medium case population projections.

6.2.3 Traffic Forecasting Model Growth

This section describes how the Growth Study information was used as input into the Travel Demand Model.

Model Input Needs

The Model needs land use information for each horizon. The model uses simplified land use (as compared to zoning definitions of land use). In the Fort Saskatchewan model the following land use classes were used:

1. Single family houses
2. Multi-family houses
3. Retail employment
4. Industrial employment
5. Oil Upgrader employment
6. Non-Retail employment (all other kinds of employment)

The Model used three different time horizons:

1. Base Year (2016)
2. 10 Year (2026), corresponding to a population of 35,000 people
3. 30 Year (2046), corresponding to a population of 53,000 people

Base Year Model Land Use

The intent of the base year model is to closely represent existing traffic conditions both in terms of volumes and congestion. To be representative it must be calibrated and validated to ensure is properly forecasts traffic volumes. During the calibration process some employment was reallocated in order to allow the model to properly fit to existing volumes.

To simplify model plots, the land use information was separated into two – housing/population and employment.

Figure 6.3 shows the Base Year housing and population information. This is based on Census information. The only adjustments to the Census were when model boundaries did not match traffic zone boundaries. Usually this was because the traffic zones were smaller than the census boundaries. In such cases, as a check, traffic zones can be combined to match a census boundary, and the population total then matches.

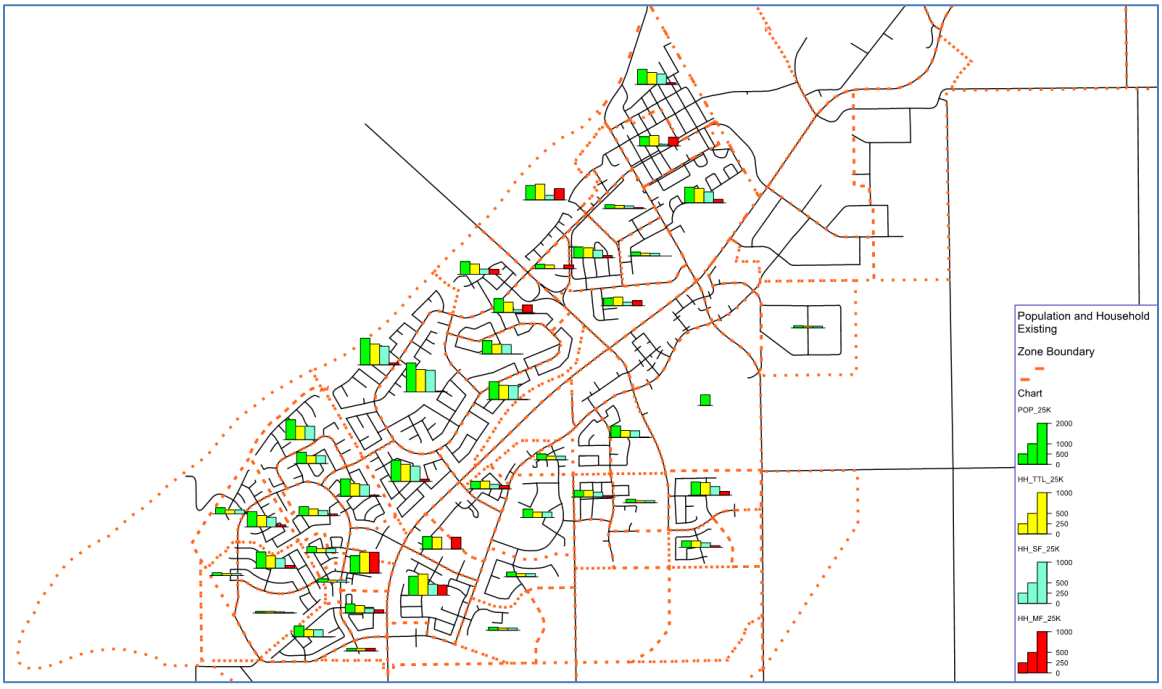


Figure 6.3: Base Year Population and Households

Figure 6.4 shows the Base Year employment information. It is based on the Info Canada data set with adjustments as noted in the previous section. The retail employment is largest in the South Fort commercial area and then the downtown. Non-retail employment is largest downtown. The industrial areas south and east of Highway 15 have the largest industrial employment, while the oil upgrader category is largest northeast of the City.

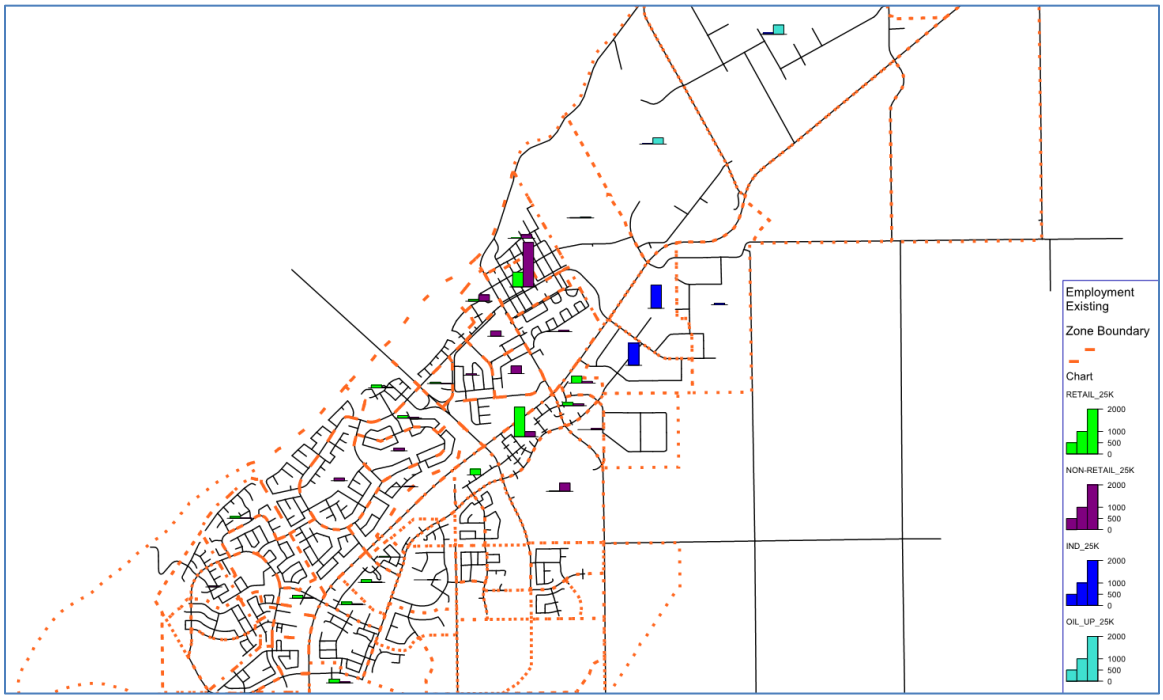


Figure 6.4: Base Year employment

10 Year Model Land Use

The expected growth in residential population and housing for the 10-year horizon, as input into the traffic model, can be seen in Figure 6.5 (the figures in the 10 year horizons show incremental growth relative to the Base Year figures). The growth shown is taking place within the existing boundaries in the areas of Westpark and Southfort.

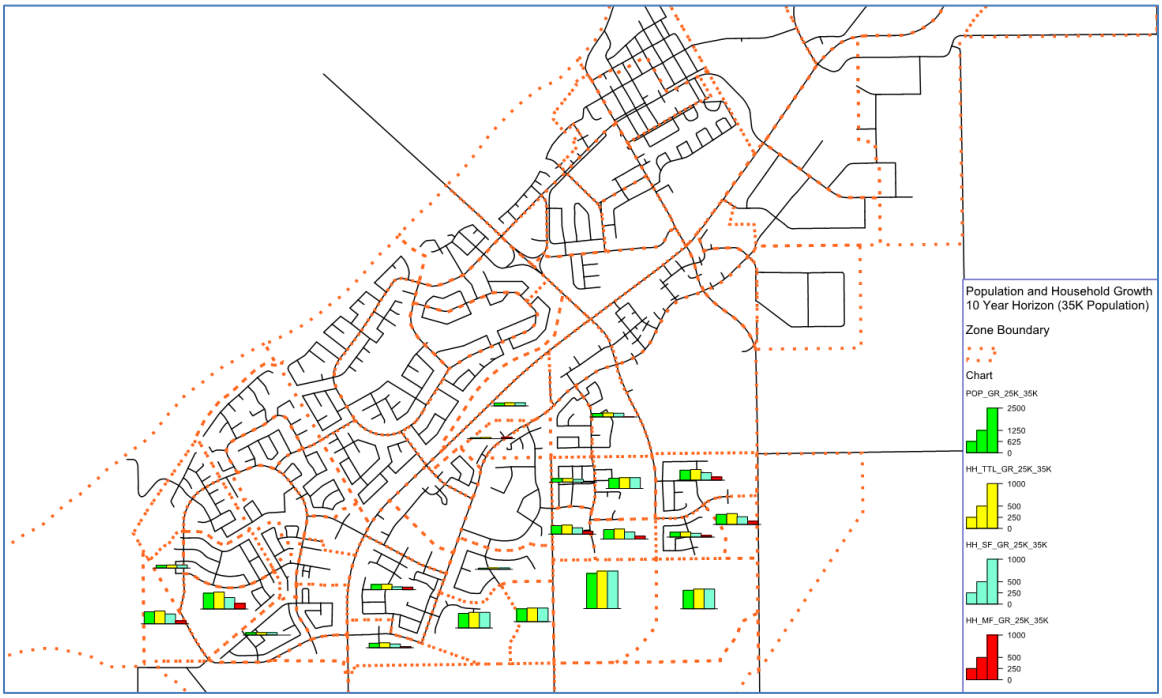


Figure 6.5: Population and Household Growth – 10-year Horizon

The employment growth is more spread out across the City but is also only expected to grow up to the City limits on the south side for the 10-year horizon. On the north side, employment is expected to grow in the Josephburg Road North Industrial and the Heartland area within the existing City limits. Commercial growth was assumed along Highway 21, including some infill between Highway 15 and 84 Street. The employment growth for the 10-year horizon was input into the model as shown in Figure 6.6.

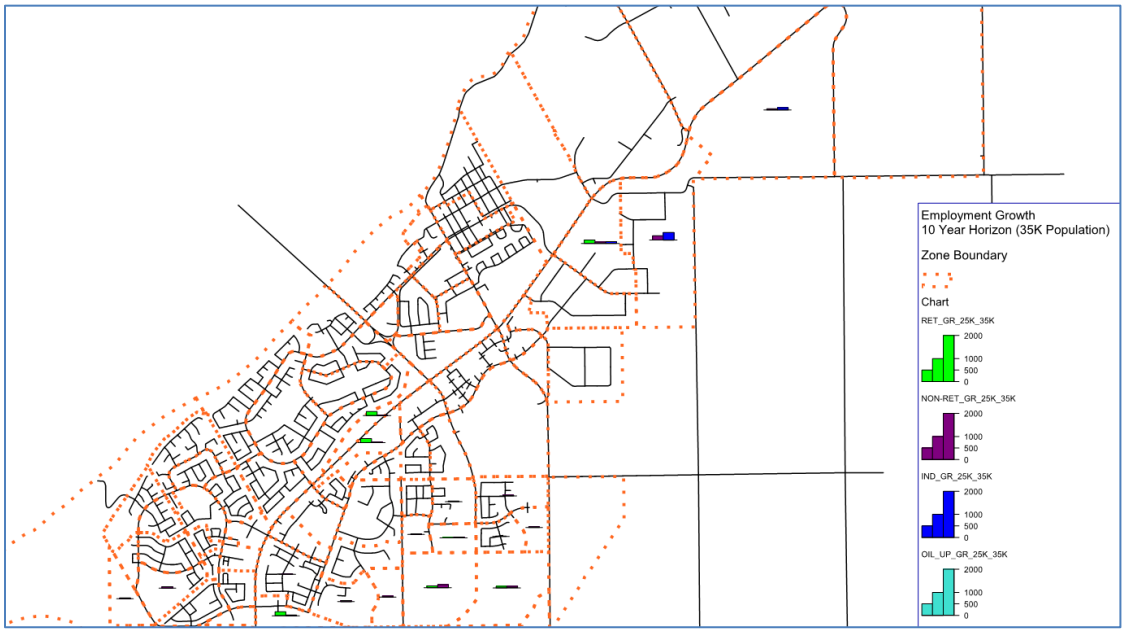


Figure 6.6: Employment Growth – 10-year Horizon

30-Year Model Land Use

In the 30-year horizon, the development staging map from the Growth study was used to assign population and employment into traffic zones south of the existing City boundary. This can be seen in the population growth map of the 30-year model shown in Figure 6.7 (the figures in the 30 year horizons show incremental growth relative to the 10 year figures). The growth was assumed on the City's south side.

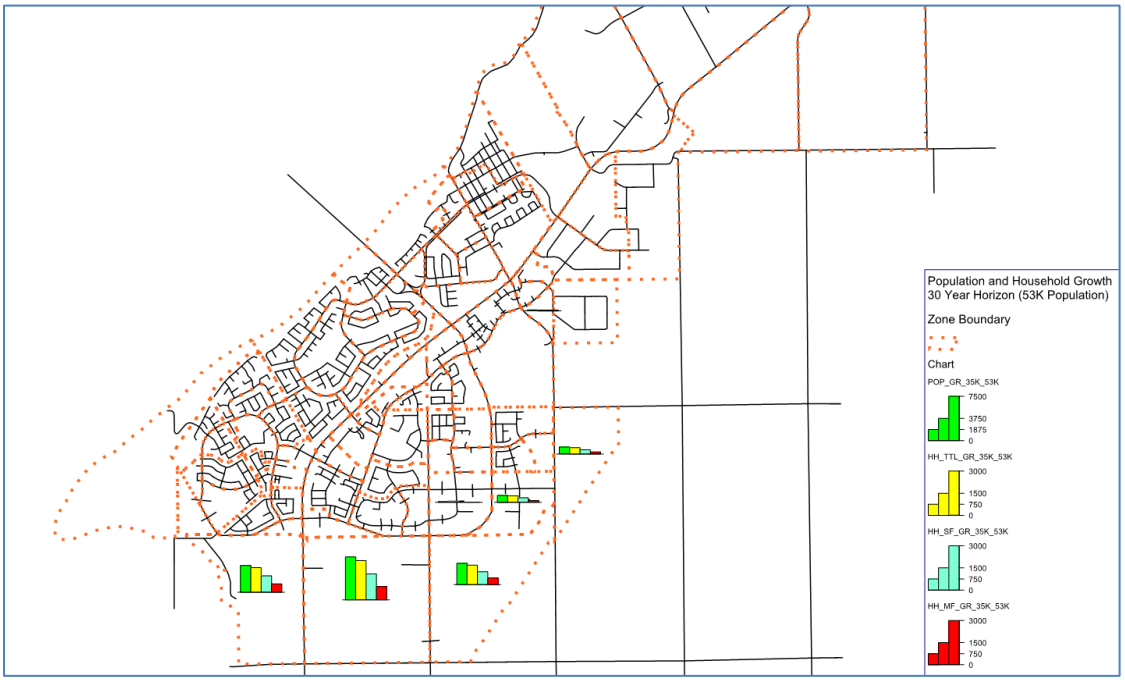


Figure 6.7: Population and Household Growth – 30-year Horizon

Employment growth for the 30-year horizon was input into the new traffic zones south of the existing City boundary as well as in the Josephburg Road North Industrial Area. This can be seen in Figure 6.8. Most of the retail and non-retail employment growth is to the south, while to the northeast there is most of the industrial development as well as some non-retail employment.

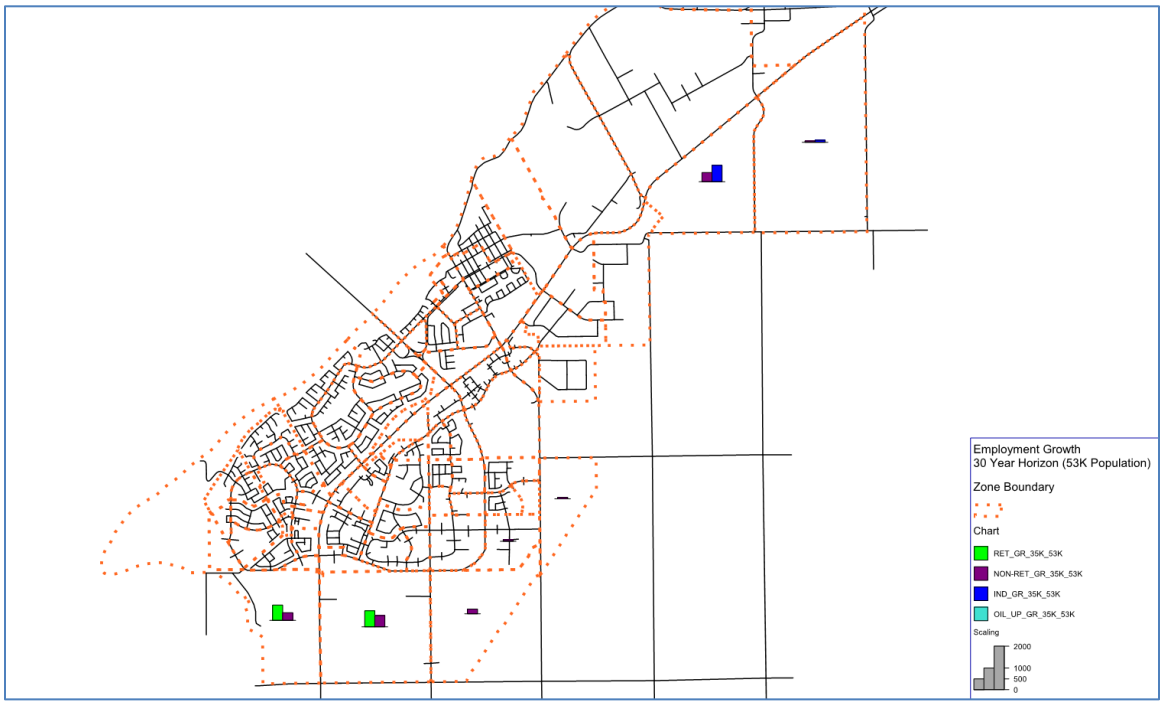


Figure 6.8: Employment Growth – 30-year Horizon

6.3 Model Road Network Improvements

The results of the travel demand model forecasts largely define the future road network improvements. In some cases the results need interpretation through engineering judgement in order to be more practical. These improvements were defined for the 10 year and 35 year forecast horizons.

The procedure to define the improvements was as follows:

1. Input the 10 year land use into the base (calibrated) model.
2. Determine which roads links require additional capacity (generally those whose volume to capacity ratio is greater than 0.90).
3. Test improvements in the model to determine their impact on the network, until congestion levels become acceptable (generally volume to capacity ratio is less than 0.90):
   a. Capacity improvements are the most common which translate to adding lanes to the congested link
   b. New links will sometimes divert surplus volumes on one link to a route that has spare capacity
   c. Increased speed on alternative routes – representing appropriate improvements to a road, will sometimes divert surplus volumes on one line to a route that has spare capacity.
4. Input the 30 year land use into the 10 year improved road network with any other known improvements, such as the Southfort Drive widening and the new river bridge upstream of the City.
5. Test improvements similar to step 3 to determine the 30 year network improvements.

The following sections summarize the above steps.

6.3.1 10 Year Road Network Improvements

Figure 6.9 shows the model congestion resulting from the 10 year land use overlaid on the existing road network (10 year "Do Nothing" model). Congested road links are in red and include:

1. Veterans Way (Highway 15/21 corridor) from 84 Street to 112 Street
2. Highway 15 at the North Saskatchewan River Bridge
3. Highway 15 on/off ramps at 99 Avenue/95 Street
4. Southfort Drive from Greenfield Way to the Walmart/Canadian Tire Access
5. Allard Way south of Southfort Drive
6. 94 Street south of Southfort Drive

There are some short links showing as congested in the model; these are a result of limited access in/out of specific traffic zones in the model structure and are thus not considered as congestion issues.

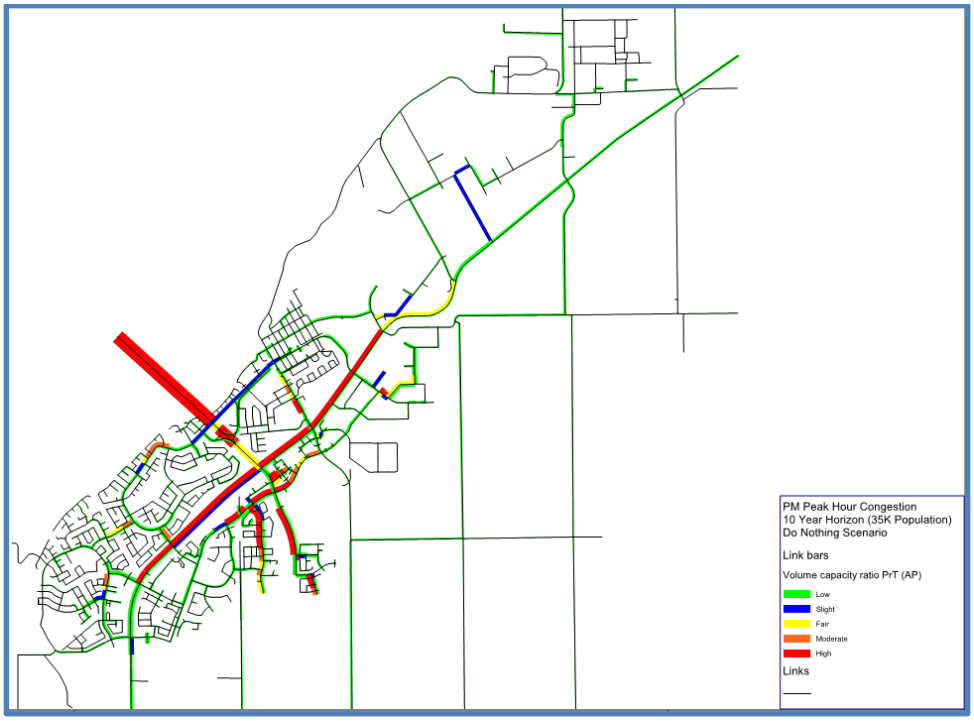


Figure 6.9: 10 Year "Do Nothing" Model Results

Figure 6.10 shows the model congestion with improvements added for the 10 year land use after eight model runs testing alternative improvements. All significant congestion was resolved.

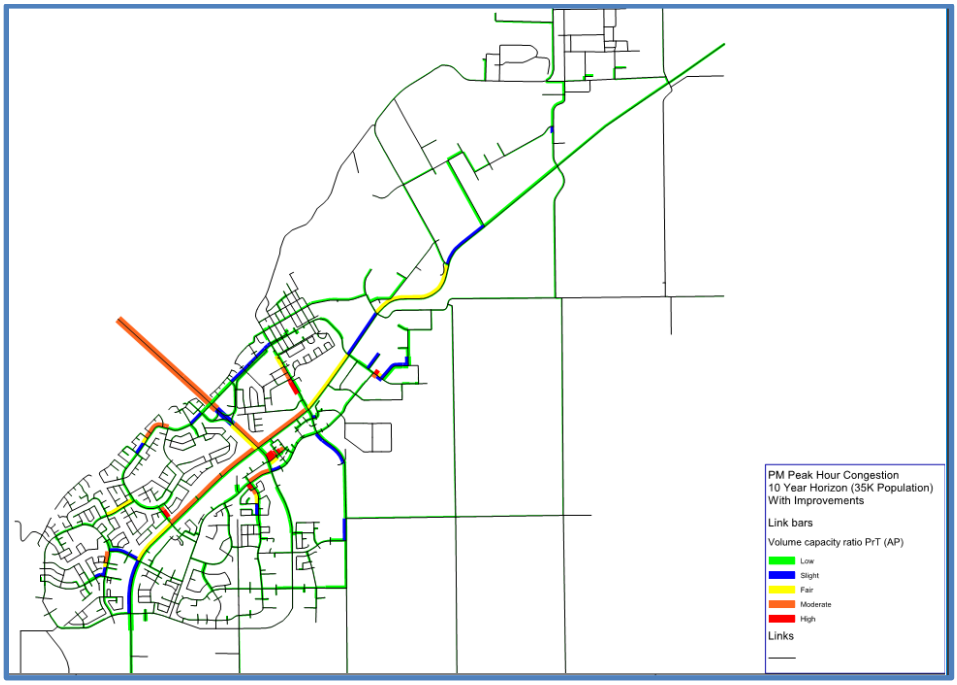


Figure 6.10: 10 Year "With Improvements" Model Results

The improvements in the 10 year model were all capacity additions or new roads due to new developing areas. Figure 6.11 shows all these links in green.

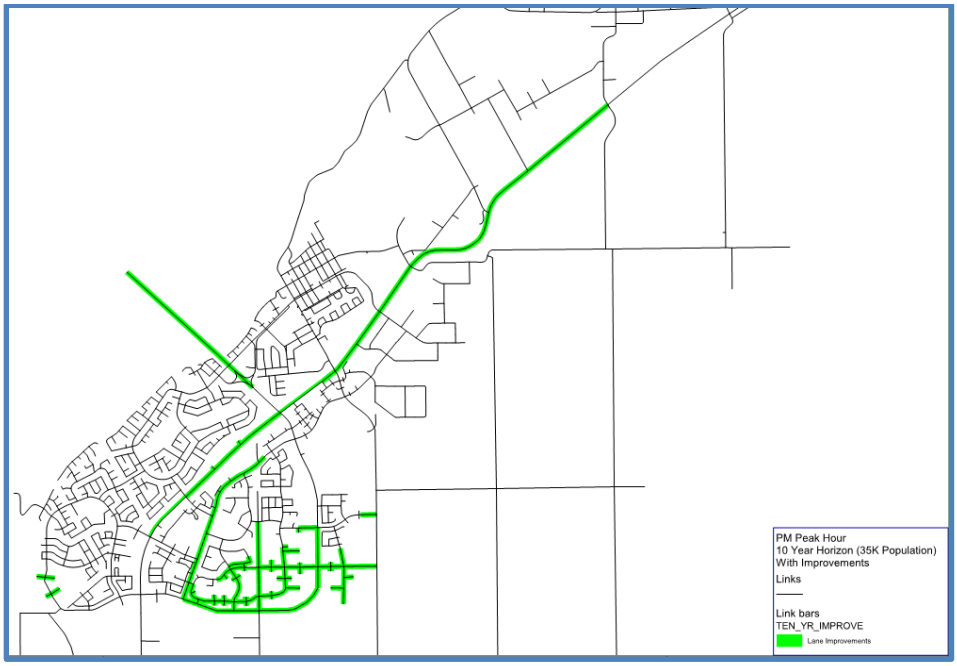


Figure 6.11: 10 Year Network Improvements

In terms of the congestion previously identified Table 6.1 shows the same road links and the improvement that reduced its congestion to acceptable levels. In most cases road widening reduced the congestion. However, the Southfort Drive congestion reduces due to a combination:

1. Widening already planned by the City (before the TMP modeling finished – the widening is now implemented);
2. Widening to the parallel Highway 15, which allows some traffic to divert.
3. A new road network in the City's south relieved congestion of Allard Way and on 94 Street.

Table 6.1: 10 Year Improvements to Reduce Congestion to Acceptable Levels

Road Link	Model Improvement
Veterans Way from 84 Street to 112 Street	add one lane per direction (four to six lanes)
Highway 15 at the North Saskatchewan River Bridge	add one lane per direction (two to four lanes)
Highway 15 at the on/off ramps at 99 Avenue/95 Street	add one lane per direction (two to four lanes)
Southfort Drive from Greenfield Way to the Walmart/Canadian Tire Access	Southfort Drive widening from two to four lanes and Hwy 15 improvements diverted traffic
Allard Way south of Southfort Drive	New links due to development
94 Street south of Southfort Drive	New links due to development

6.3.2 30 Year Road Network Improvements

Figure 6.12 shows the model congestion resulting from the 30 year land use overlaid on the 30 year base network. This network includes the improvements for the 10 year network as well as a new river crossing south of the City. Congested road links include:

1. Veterans Way (Highway 15/21 corridor) from 84 Street to 112 Street
2. Highway 15 at the North Saskatchewan River Bridge
3. Highway 15 from on/off ramps at 99 Avenue/95 Street to Highway 15/21 intersection
4. Highway 21 from Wilshire Boulevard to the neighbourhood collector to the South

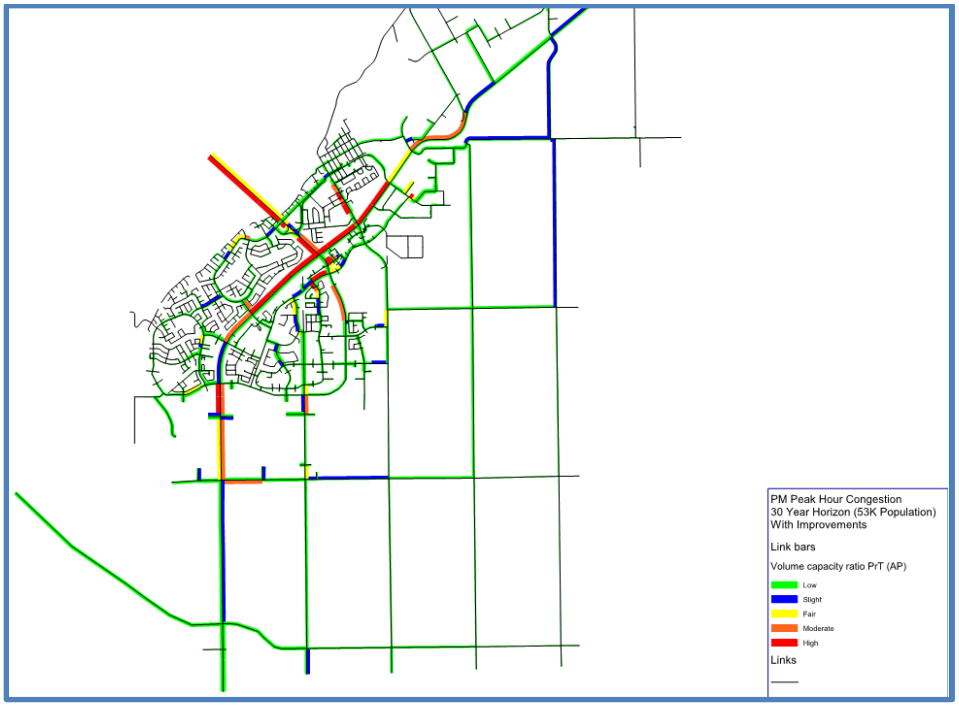


Figure 6.12: 30 Year Base Network Model Results

Figure 6.13 shows the model congestion with improvements added for the 30 year land use after five model runs testing alternative improvements. Most congestion was resolved.

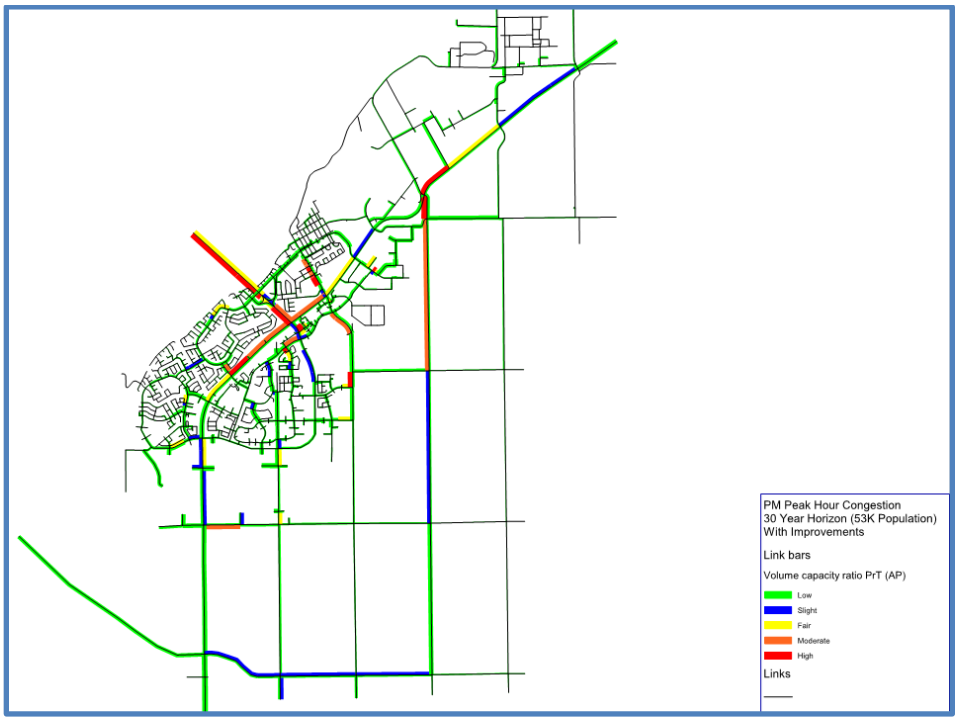


Figure 6.13: 30 Year "With Improvements" Model Improvements

The improvements in the 30 year model included new links, higher speeds on some roads, and road widening. Figure 6.14 shows the improved links in blue, with the 10 year improvements shown in green. Note that Figure 6.14 shows the Industrial Bypass on RR223 for modelling purposes; its actual alignment will differ depending on for their study and could be as far east as RR222.

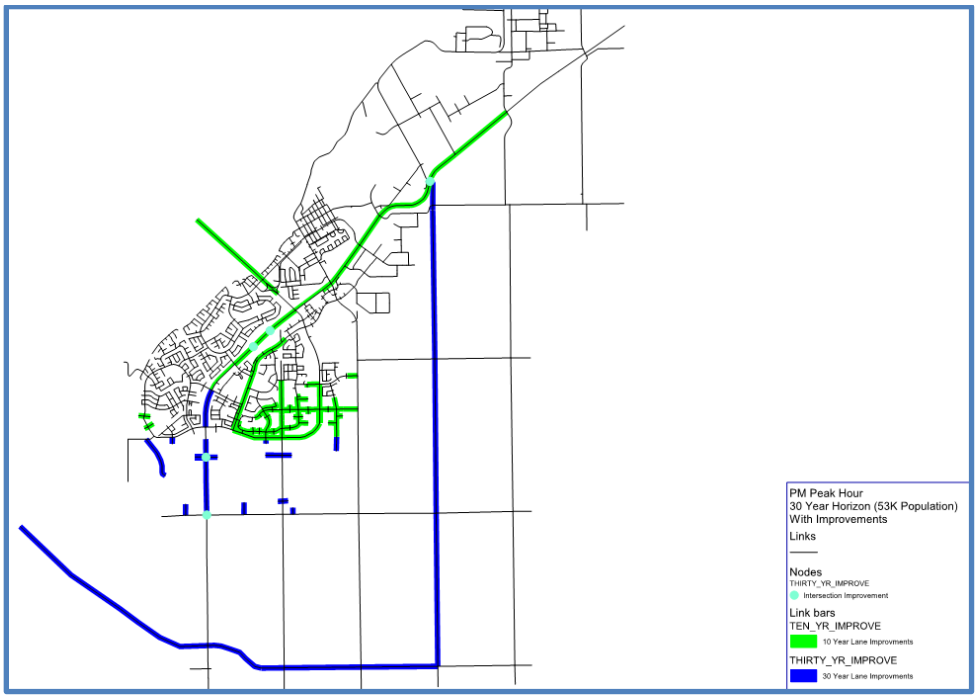


Figure 6.14: 30 Year Road Network Improvements (in blue)

In terms of the congestion previously identified, Table 6.2 shows the same road links and the improvement that reduced its congestion to acceptable levels. In some cases the congestion remains.

Table 6.2: 30 Year Improvements to Reduce Congestion to Acceptable Levels

Road Link	Model Improvement
Veterans Way from 84 Street to 112 Street	New link to Hwy 15 at RR223 and higher speed on RR223
Highway 15 at the North Saskatchewan River Bridge	Remains congested – see text following table
Highway 15 from on/off ramps at 99 Avenue/95 Street to Highway 15/21 intersection	Remains congested – see text following table
Highway 21 from Wilshire Boulevard to the neighbourhood collector to the South	New links due to development

The alternative tests did not include further widening of the Highway 15 river bridge. This is because the model cannot reassign the bridge traffic to the new river bridge further south. Alberta Transportation is planning a significant reconfiguration of the road network west of the River, and this will likely divert traffic to the new river bridge. In addition, such alternative routing will be better tested using a regional travel model.

In testing alternatives widening Veterans Ways from 6 to 8 lanes was considered. However in practice the incremental benefits of this widening in terms of capacity gains are diminishing. An alternative option was tested – the Industrial Bypass. It allows trucks and industrial commuters to bypass the City if destined to the industrial plants northeast of the City.

It creates a new link connecting Highway 15 to Range Road 223, and then improves Range Road 223 to allow speeds in the order of 100 km/h. What these model improvements really reflect is a need for an alternative route to the Veterans Way corridor through Fort Saskatchewan, likely in the form of a higher standard bypass. While for the sake of modelling Range Road 223 and Township Road 540 were used, in practice a more direct alignment that does not cross the rails twice would likely be more practical.

6.3.3 Recommended Road Network Improvements

While the model proves useful to forecast future traffic volumes and test alternative solutions to resolve congestion, it requires interpretation. Table 6.3 updates Tables 6.1 and 6.2 in order to identify more practical improvements where necessary.

Table 6.3: Recommended Improvements to Reduce Congestion to Acceptable Levels

Road Link	Recommended Improvement
10 Year Improvements	
Veterans Way from 84 Street to 112 Street	add one lane per direction (four to six lanes)
Highway 15 at the North Saskatchewan River Bridge	add one lane per direction (two to four lanes)
Highway 15 at the on/off ramps at 99 Avenue/95 Street	add one lane per direction (two to four lanes)
Southfort Drive from Greenfield Way to the Walmart/Canadian Tire Access	Southfort Drive widening from two to four lanes
Allard Way south of Southfort Drive	New links due to development
94 Street south of Southfort Drive	New links due to development
30 Year Improvements	
Veterans Way from 84 Street to 112 Street	Industrial Bypass - New link to Hwy 15 near RR222/R223 and high speed road connecting to Hwy 21
Highway 15 at the North Saskatchewan River Bridge	Consider traffic diversion to new river bridge
Highway 15 from on/off ramps at 99 Avenue/95 Street to Highway 15/21 intersection	Intersection improvements at Hwy 15/21
Veterans Way from Wilshire Boulevard to the neighbourhood collector to the South	New links due to development

Some of these improvements may be built as part of land development, such as Allard Way. Others may be a shared responsibility with other authorities, such as the Industrial Bypass.

6.4 Opportunities and Constraints

6.4.1 Opportunities

The model provides obvious opportunities for road network improvements. Over and above these improvements there are opportunities relating to road standards and emerging practices. Section 7 articulates these in more detail, but they are presented here to underline the opportunity associated with the road network improvements.

The following opportunities exist for new construction or reconstruction of roadways in Fort Saskatchewan:

1. Lane widths: There is opportunity to use narrower lane widths for local and collector roadways. Generally many Alberta municipalities use overly wide land widths, resulting in roads being overdriven, roads that are less safe, infrastructure dollars being wasted, and more environmental impacts.

2. Design Speeds: The current engineering standards allow the design of local and collector roadways to a design speed of 60km/h. Lowering the design speed for local and collector roadways in Fort Saskatchewan is an opportunity to minimise the chances of fatality or serious injury on these roadways.
3. Areas of interaction between vehicles and pedestrians/cyclists: In areas where vehicles and pedestrians/cyclists interact, such as an intersection, a mid-block crossing, or a parking lot access, physical features should be used to slow down vehicles at the point of interaction and also make vulnerable road users more visible. For example, cross-walks with raised portions force vehicles to slow down to a safer speed and help make pedestrians more visible. Similarly, roundabouts can be designed to allow vehicles to safely travel around at a speed of around 30 km/h.
4. Intersection controls: Intersections in urban areas account for a disproportionately high number of crashes compared to their overall representation of road length. In addition the collisions are more likely to be severe because they are often right angle collisions where the vehicle offers less protection to the occupants. Other intersections such as raised intersections and roundabouts offer reduced speeds or less severe collision angles, making intersections operate safer.

6.4.2 Constraints

The following constraints exist in Fort Saskatchewan in regards to improvements of the traffic conditions:

1. Becoming Familiar with New Design Features: Implementing new design features such as raised crosswalks or roundabouts take time for drivers and pedestrians to adjust to the new environment. New safety philosophies such as Safe System also require time for drivers, pedestrians, designers, and elected officials to fully understand.

6.5 Capital Plan

The results from the traffic modelling were used as input into the proposed capital plan. Some of these improvements will require City funding, but for others the funding will depend on others. There are two horizons for the capital plan – a 10 year and a 30 year horizon.

The cost estimates provided in this section have limited design information. Thus they are Class 5 estimates that can vary by up to 50%. This variance will fall as these projects move forward from concept to design to construction phases the estimates will be updated based on the improved information at each of these phases.

10 Year Horizon

Table 6.4 shows all the 10 year horizon major road (arterial and expressway) improvements and their status. The 10 year horizon represented a population of 35k for the City in the traffic analysis. Thus these improvements should be in place prior to the City reaching this population.

Table 6.4: Major Road Improvements Required for 10-year Horizon

Improvement	Status
Widening of Veterans Way from Westpark Boulevard to 114 Street	To be completed by Fort Saskatchewan
Widening of the Highway 15 bridge and the on/off ramps at 99 Avenue/95 Street	To be completed by Alberta Transportation
Widening of Southfort Drive between Greenfield Way and the Walmart/Canadian Tire Access	Already Completed by Fort Saskatchewan
Construction of 94 Street south of Sienna Boulevard and Southridge Boulevard east of Southfort Drive	To be completed by developer

The first and third improvement are the City's responsibility. However, the City completed the Southfort Drive widening in 2017 and thus only the Veterans Way corridor is left for the City. This corridor is long and expensive to construct in one year. ISL therefore broke the widening into four segments. Table 6.5 shows the recommended improvements in priority order using the congestion levels to determine the priority.

Table 6.5: Recommended Roadway Improvements and Estimated Costs for 10-Year Horizon.

Road Link and Improvement	Length (km)	Estimated Cost ($M)
Veterans Way from 94 Street to 101 Street Add one lane per direction (increase from four to six lanes)	0.95	2.9
Veterans Way from 94 Street to 84 Street Add one lane per direction (increase from four to six lanes)	1.7	5.1
Veterans Way from 101 Street to 112 Street Add one lane per direction (increase from four to six lanes)	1.0	3.2
Veterans Way from 112 Street to 114 Street	0.80	2.2
Veterans Way from 84 Street to Westpark Boulevard Add one lane per direction (increase from four to six lanes)	0.75	2.6
TOTAL	**5.2**	**16.0**

The cost estimates assume widening on the outside lanes, in a rural format, where possible. In cases where there is a wide grassed median the estimates assume widening to the median, with urban drainage. These are based on unit rates based on similar projects in ISL's experience. The unit rates include 10% for engineering and 30% for contingency. Most traffic signals along Veterans Way are set back to allow for widening. Only one location needs signal rebuilding (Westpark Boulevard). The costs do not include utilities or property.

30 Year Horizon

The traffic model for the 30-year horizon yielded several required improvements for the road network in the region. The 30 year horizon represented a population of 53k for the City in the traffic analysis. Thus, these improvements should be in place prior to the City reaching this population. Table 6.6 shows these improvements and their status.

Table 6.6: Major Road Improvements Required for 30-Year Horizon

Improvement	Status
Construction of Industrial Bypass between Highway 15 at Range Road 223 and the proposed Regional Connector south of Fort Saskatchewan.	To be completed by Fort Saskatchewan
Construction of Northeast River Crossing	To be completed by Alberta Transportation
Intersection Improvements along Highway 15 and 21	To be completed by Fort Saskatchewan
Widening of Highway 21 between Westpark Boulevard and Wilshire Boulevard	To be completed by Fort Saskatchewan

Table 6.7 shows the estimated costs for the project costs. The Industrial Bypass may facilitate growth for others, such as the Alberta Industrial Heartland or Strathcona County. For the Industrial Bypass the route is undefined and thus a range of lengths was used. The lengths estimated assume:

1. That the portion from Highway 15 to Township Road 550 (Highway 636) will be constructed as part of development.
2. That the Industrial Bypass will be between Range Roads 222 and 223 in a north-south alignment, then follow the rails to Township Road 540.
3. In addition part of the bypass route may tie into the Edmonton Metropolitan Region Board's arterial approximately on the Township Road 540 alignment.

Table 6.7: Recommended Roadway improvements and estimated costs for 30-year horizon.

Road Link and Improvement	Length (km)	Estimated Cost ($M)
Industrial Bypass from Highway 15 to proposed Regional Connector Construction of new two-lane highway	10 to 12	41 to 48
Veterans Way from Westpark Boulevard to Wilshire Boulevard Add one lane per direction (increase from four to six lanes)	0.80	2.5
TOTAL	**10.8 to 12.80**	**43.5 to 50.5**

The bypass costs assume a two lane rural road with 6 intersections including the tie-ins to the Highways at either end. This includes four intersections between the highways and is less than the number of range road and township road crossings. Limiting these intersections improves the speed along the bypass and thus its ability to divert traffic from the City's Veterans Way corridor.

The Bypass will likely have property and utility costs, which are not known at this time. For context, in 2010 the Alberta Industrial Heartland Association considered a freeway style bypass around Fort Saskatchewan, and estimated the cost at $262M. This included four lanes and at least 3 interchanges.

7.0 Road Classification System

Fort Saskatchewan already uses a road classification system for the purposes of establishing snow clearing priorities. However, for the Transportation Master Plan the City desires a system based on road function and operation.

To establish such a system it is useful to start with the City's existing system. Then, the functions of each road class require definition. Finally, a functional road classification system for the TMP is possible based on this information and on engineering judgement.

7.1 Existing City Road Classification

Figure 7.1 shows the City's existing road classification system for the purposes of snow clearing.

Figure 7.1: City's existing classification system based on snow clearing priorities

The system uses the following classifications:

1. Alley
2. Arterial
3. Collector
4. Highway
5. Local
6. Private
7. Rural Arterial
8. Rural Local

7.2 Defining a Functional Road Classification System

While the City's classification for snow clearing purposes is useful, for a TMP the function of the road is more important. Function describes road character in terms of volume, speeds, access to adjacent properties, and treatments for pedestrians and cyclists. Usually the functional classes for TMP's do not include private roads or alleys. Also they usually do not make a distinction between rural and urban classes although this is certainly important when defining road cross sections for construction standards.

For Fort Saskatchewan's TMP the following road classes will be included:

1. Expressway
2. Arterial
3. Collector
4. Local

Table 7.1 shows the parameters that describe each road class. Brief descriptions of each parameter follow the table.

Table 7.1: Parameters for a Functional Road Classification

Parameter	Functional Road Classification			
	Expressway	Arterial	Collector	Local
Target Speeds (km/h)	60 to 80	50 to 60 (50 at intersections)	30 to 50 (30 at pedestrian crossings)	30
Traffic Volume Per Weekday	1,000 to 50,000	1,000 to 30,000	Up to 7,000	Up to 1,000
Number of Travel Lanes per Direction	1 to 3	1 to 3	1	1 shared for both directions 1 per direction if high on street parking
All-Turns Access Spacing	800m	Yes for non-residential, spaced at 200m to 400m No direct access for low density housing; Consolidated access to multi-family permitted	Yes, every property, backing maneuvers for low density housing allowed but should be minimized if volume >3500 No direct access for low density residential if rear lane available	Yes, every property, backing maneuvers allowed from low density housing No direct access for low density residential if rear lane available
Parking	None	Possible in business areas; none in residential areas	At least one side	At least one side
Pedestrian and Cyclist Facility Along Street	Separate paths from road	Separate paths from road	Protected bike lane if backing maneuvers across path are permitted and pedestrians on sidewalks; Shared use path for walking and biking	Pedestrians on sidewalks; Bicyclists on the roadway
Public Transit	Route - Yes Stops - No	Yes	Yes	No

Brief descriptions of each functional classification parameter:

- **Target speeds –** are the speeds drivers will use given the road design. These speeds are based on applying Safe System (Section 7). In cases where there is a range there is a choice of speeds that may be selected based on Safe System.
- **Traffic volume per weekday –** the total number of vehicles along the road during a typical weekday. These numbers are not capacities but guides to indicate what is typical; in some cases volumes can fall outside these ranges. For local and collector roads the volumes should not be exceeded otherwise there can be operational challenges.
- **Number of travel lanes per direction –** these are the number of travel lanes along the road. They do not include turning lanes. It is important to recognize that more than 1 travel lane per direction allows passing maneuvers and greatly changes expected driver behaviour – passing is allowed and can make pedestrian crossings much more challenging.
- **All Turns Access –** these are guides, exceptions are possible, usually through a detailed study.
- **Parking –** these indicate what is typical, but it is possible to have exceptions. For collector and local roads usually parking is on both sides; however in some cases parking on one side may be acceptable.
- **Pedestrian and Cyclist Facility along Street –** these are the means to convey pedestrians and cyclists parallel to the road. Generally pedestrians are always separated, although it is possible to mix pedestrians with very low speed traffic (target speed of 15 km/h) such as a Mew and is typical in parking lot drive aisles. Cyclists can share a low volume and low speed road, but otherwise require separated paths to meet all ages and abilities criteria. The separation can be shared with pedestrians, especially if there are no driveways crossing the path. If driveways are frequent, a protected bike lane is preferable.
- **Public Transit –** This describes if public transit vehicles would operate along the street. Yes means both route and stops are acceptable; No means neither route or stop would be typical.

ISL reviewed the City's road network with this functional classification as a lens. We assigned classes to existing and future roads as shown in Figure 7.2.

Figure 7.2: Functional Road Classifications

8.0 Transportation System Strategies

This section presents several strategies that span more than one travel mode and apply system-wide. One strategy is Safe System, which is an approach to improving safety that fits with a Vision Zero philosophy. The remaining two strategies identify specific tools that the City may use to improve safety performance and to improve livability of the City.

8.1 Safe System

Safe System is an ethics-based approach to road safety. Its followers fundamentally believe that the price of mobility should never be death or serious injury. Safe System roots are from Sweden's Vision Zero, Netherlands' Sustainable Safety, and New Zealand's Safe Journeys. Safe System uses a holistic, systematic, and multi-disciplinary approach.

Under Safe System the whole transport system protects people from fatality and serious injury. Safe System is a forgiving system that accounts for human fallibility and vulnerability. Organizations using Safe System accept the following principles:

1. People make mistakes – collisions are inevitable;
2. People are vulnerable – human bodies tolerate some crash force, beyond which serious injury or death result. Given that people make mistakes, the Safe System aims to make mistakes forgiving so that no serious injury or death will result;
3. We need to share responsibility – road system designers (engineers, law makers, law enforcers, insurers, vehicle manufacturers, and others) and road users share responsibility to create a road system where, in the event of a crash, death or serious injury are highly unlikely;
4. We need to strengthen all parts of the system – including roads, roadsides, speeds, vehicles, and road use, such that if one part fails, other parts protect the road users.

By accepting and applying Safe System principles to laws, infrastructure, and enforcement, the numbers and severity of collisions will reduce.

In road safety, evidence shows that speed greatly affects crash outcomes. Figure 7.1 (Source: www.safejourneys.gov.govt.nz) shows a relationship between the fatality risk and collision speeds for three collision types:

1. Pedestrian/Cyclist (vulnerable users)
2. Side Impact
3. Head on

Figure 8.1 was prepared based on the collision speed for a safest vehicle where the forces are likely to exceed the tolerance of the human body. As shown the fatality risk increases rapidly above certain impact speeds. These curves do not account for less safe vehicles, the effect of vehicles of different masses colliding, or the variation in fragility of different persons.

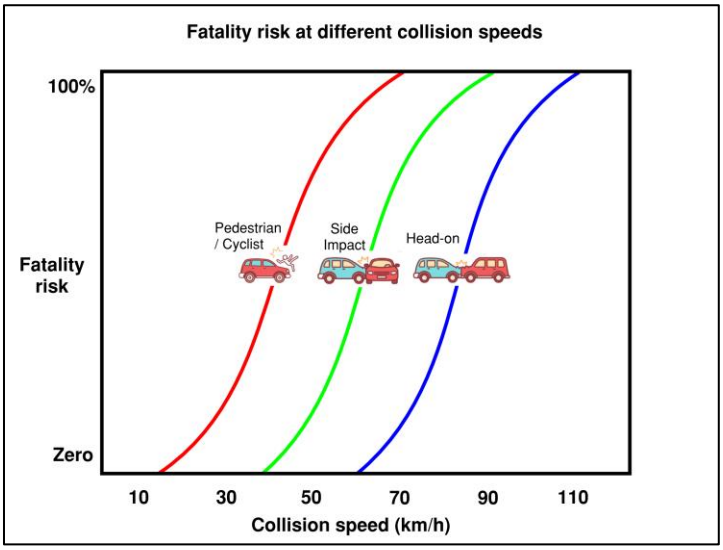


Figure 8.1: Probability of Fatal Injury corresponding to Impact Speed

The key characteristic of all three of the above curves is that fatality risk rises sharply above specific speeds. Based on this, Safe System practitioners around the world use the following target speeds to guide their infrastructure choices:

Table 8.1: Maximum Target Speed for Potential Crash Types

Potential Crash Type	Maximum Target Speed
Pedestrian/Cyclist (vulnerable users)	30 km/h
Side Impact	50 km/h
Head on	70 km/h

In the above table Target Speed refers to the speed vehicles travel through the point of interest. The point of interest may be a crosswalk for a vulnerable user, an intersection for a side impact crash, or a road segment for a head-on crash.

The following are examples of how Table 8.1 could be applied:

- At a busy pedestrian cross walk a raised cross walk could be designed such that the target vehicle speed at the crosswalk is 30 km/h
- At an intersection of two collector roads a roundabout could be designed such that the target vehicle speed is less than 50 km/h
- On a two lane undivided road target vehicle speeds should be below 70 km/h otherwise a centerline cable barrier could be designed

Jurisdictions practicing Safe System use these target speeds because exceeding these speeds will greatly increase fatality risk. They also acknowledge that collisions below these target speeds will not completely eliminate serious injury or death. This is simply a fact of motor vehicles – their mass can make them deadly at any speed. However Safe System practice selects speeds that reduce fatality or injury risk below sharply increasing levels. In addition further reductions are possible by employing all principles of Safe System.

The engineering challenge is then to apply these target speeds to the roads in Fort Saskatchewan. This application does not necessarily require changes to the posted speed in all cases; an alternative is to install a traffic calming measure to reduce speeds at the conflict point.

There are some specific tools to use to achieve the above target speeds:

1. An Institute of Transportation Engineers (ITE) Journal March 2003 edition article titled “Traffic Calming Design Standard for New Residential Streets: A Proactive Approach”
2. The Transportation Association of Canada’s (TAC) “Guide to Neighbourhood Traffic Calming”.

The strength of the ITE article is that it is flexible to a wide range of road networks, including the long tangents along some roads. The key point is to use the speed control points to ensure appropriate travel speeds in the residential neighborhoods. Speed control points include:

- Along a local residential road, an intersection with a collector or arterial road
- A traffic calming device such as roundabout, raised cross walk, speed hump, speed table, or raised intersection.
- A horizontal curve with the horizontal curve criteria in the table below. Note that these criteria are for a target speed of 40 to 50 km/h. If the target speed is lower then smaller radii will be necessary

Table 8.2: Horizontal Curve Criteria

Delta Angle (must be > 30 degrees)	Radius
30 to 40	30 m
41 to 50	35 m (min) to 50 m (max)
> 51	35 m (min) to 45 m (max)

The article indicates that speed control points should be used such that no road segment is longer than 150m between speed control points.

The TAC Guide indicates that vertical deflections have the most impact in reducing vehicle speeds, especially where the target speed for vulnerable users (30 km/h) is in play. A well-designed roundabout will also have a more significant impact on vehicle speeds and is often suitable to bring speeds within tolerable limits at intersections.

Therefore speed control points will typically be:

- For vulnerable users at conflict points with vehicles (30 km/h target speed) - vertical deflections unless there are horizontal curves with radii listed in Table 6.1 – for vulnerable users
- For right angle collisions (50 km/h target speed), such as typically found at intersections – a roundabout or raised platform intersection.
- For head-on collisions (70 km/h target speed), such as on undivided roads with higher posted speeds – a cable barrier in the median.

8.2 Design Guidance

8.2.1 Introduction

Urban street design is seeing new ideas emerging within the design standards and practices of municipalities across North America. The National Association of City Transportation Officials (NACTO) is at the forefront of this change in philosophy for urban road street design. Their Urban Street Design Guide incorporates many new design ideas.

NACTO'S Design Guide incorporates many demands expected from our streets. The public expects streets must be safe, sustainable, resilient, multi-modal, and economically beneficial, all while accommodating traffic including cars, trucks, buses, bicycles, and pedestrians. NACTO'S Design Guide is like a toolbox to help engineers and urban plans provide better streets. Many of the "tools" in NACTO's toolbox are similar to those found in Traffic Calming Guides, such as the Transportation Association of Canada's (TAC) Canadian Guide to Neighbourhood Traffic Calming, 1998.

In this Design Guidance section we present elements from both NACTO's Design Guide and TAC's Traffic Calming Guide. These elements can be used as a toolbox for implementing Safe System as well as to better meet public expectations. As such, in some cases the City may wish to update its standards to formally incorporate some of these elements as part of its roadway standards.

8.2.2 Design Philosophy

Design philosophy is the high-level thinking behind a roadway design. For example, a freeway is a high speed road without traffic signals that is exclusively for motor vehicles. Its design philosophy must accommodate these high speeds and high volumes through gentle curves and generous sight distances. Its design philosophy would not be concerned with bus stops, pedestrians, or bicycles along the freeway (however, for crossing the freeway these are important considerations).

Accommodating high speeds and high volumes is often the focus for traffic engineers. But this focus is incorrect in some contexts, such as local residential and collector roads, and downtown arterial roads. This engineering focus is from a history of municipal street design standards commonly derived from highway design standards which are often ineffective and sometimes contradictory when applied to the urban context. This is because these standards largely consider motor vehicle needs, often without reward to pedestrian, cyclist, and transit needs.

The principles in NACTO's Urban Street Design Guide and TAC's Canadian Guide to Neighbourhood Traffic Calming offer better consideration for all modes when designing for automobiles, pedestrians, cyclists, and transit users. The goals of applying new principles to urban street design are to provide for safer streets that accommodate a wider range of transportation choices and to consider the land use context of the surrounding area.

Safety is strongly linked to speed management, as illustrated in the following quote from the "Global Street Design Manual" (Global Designing Cities Initiative and the NACTO, 2016, page 172).

> *"Vehicle speed is the single most important indicator of the safety of a street. The higher the speed, the higher the crash rate and the injury severity rate. As such, it is imperative to manage vehicle speeds. Introducing high speeds into narrow, constrained corridors may cause traffic injuries and fatalities. While traffic enforcement can help manage speeds, it is not always available. Instead, speed management should be achieved through design complemented by intersection controls and supported by enforcement where possible."*

This quote is also consistent with Safe System as well as the tools presented in that section (8.1).

Accommodating a wider range of transportation choices will help shift people from automobiles to pedestrian, cycling, and public transit alternatives. The benefits of these alternatives are primarily:

- They are better suited to support higher density developments because they require less public right of way space per user
- They provide proven health benefits because they require users to walk or cycle,
- They have a smaller impact on our natural environment, including a smaller carbon footprint.

The following sections present tools as design guidance. These tools are organised around the following three areas:

1. Traffic Calming Through Design
2. Street Design Elements
3. Intersections

8.2.3 Traffic Calming Through Design

A major part of emerging urban street design is creating cross-sections that automatically control speed, rather than implementing a traffic calming strategy after the construction of a neighbourhood. Both NACTO's and TAC's design guides introduce several methods of calming traffic, to either reduce speeds, minimize conflicts between different users, or to discourage shortcutting through neighbourhoods.

Normally traffic calming applies to residential neighbourhoods, but the principles could apply to other non-residential situations. For example, on some minor streets in the downtown may be well-served by introducing traffic calming elements, because the lower speeds create a safer pedestrian environment and a more livable space for street activities such as sidewalk cafes.

Defining Traffic Calming

Traffic calming refers to any physical measure along a roadway used to deter speeding or short-cutting. Typically implemented on streets with higher chances of interactions between vehicles and vulnerable road users such as pedestrians and cyclists, traffic calming measures can include any vertical or horizontal design features to slow down vehicles. These design features can be implemented after a roadway is constructed, or even be included in the initial design of the roadway.

Ideally, the need for traffic calming should not arise if a roadway has been initially designed with traffic calming principles. This is essentially the same as using the Design Guidelines, mainly from NACTO, as discussed in the previous section.

Another way to think of traffic calming is as a means to improve communication among different roadway users. Transportation systems are governed by legislation which dictates rules for drivers and pedestrians and the interactions between them. Within these laws, on neighbourhood streets, drivers in vehicles and other road users such as pedestrians and cyclists typically communicate and negotiate for space by using eye contact and hand gestures. The speed at which vehicles are moving has a considerable impact on how well drivers and other street users are able to communicate using eye contact and hand gestures. Street design that naturally slows drivers down enables drivers to effectively communicate with other roadway users.

Purpose of Traffic Calming

Implementing traffic calming measures can help achieve the following improvements (based on the Transportation Association of Canada's Canadian Guide to Neighbourhood Traffic Calming, 1998):

Reduce vehicular speeds: The link between pedestrian and cyclist fatalities and vehicle speeds is now well known. The chances of a pedestrian or cyclist fatality increase drastically with vehicle speeds above 30 km/hr. To ensure adequate stopping distances for vehicles and to minimise fatalities or serious injuries in case of impact, it is key to control speeds within neighbourhoods.

Discourage through traffic: With congestion becoming more of an issue during peak travel hours, automobile users may look for different routes to and from work. Residential streets that allow for a quicker route than the surrounding collector and arterial road network can become unsafe, congested, and noisy for the residents of the neighbourhood. Adding measures to control speed and traffic volumes, these neighbourhood roads can be eliminated as short-cutting routes.

Minimize conflicts between street users: The goal of minimizing conflicts is not to separate vehicles from pedestrian and cyclists, but to ensure that their interactions are not unsafe. The traffic calming "tool box" includes many measures that can be used within a neighbourhood to increase the safety of different kinds of road users.

Improve the neighbourhood environment and quality of life: The goal of traffic calming measures is also to improve the livability of neighbourhoods. Residents should feel comfortable using the street network around their home on modes other than an automobile. And in cases such as local roads, residents should feel there street is so safe and comfortable that it can be used for games such as street hockey. Traffic calming measures also have the ability to enhance the aesthetics of a neighbourhood.

Traffic Calming Treatments

The following sections describe different traffic calming treatments. While many of these treatments are effective for reducing speeds, they also work to make short-cutting less attractive. Also, any short-cutting that continues is at lower speeds and therefore less likely to cause serious injury or fatality.

GATEWAY TREATMENT

Gateways are curb extensions at the entrance to a street, which narrow the width of lanes available to vehicles (see Figures 8.2 and 8.3). This encourages vehicles to slow down upon entering a local street, and allows more time to see the pedestrian activity at the intersection. Increasing the width of curbs (bulbing) also means that the crossing distance for pedestrians is significantly reduced, allowing vulnerable road users such as children, the elderly, and those with mobility challenges, to cross safely without hurrying. These curb extensions can also be used for bus bulb-outs for transit (see Figure 8.3). The bulb-outs make boarding and alighting easier for passengers and for bus operations.

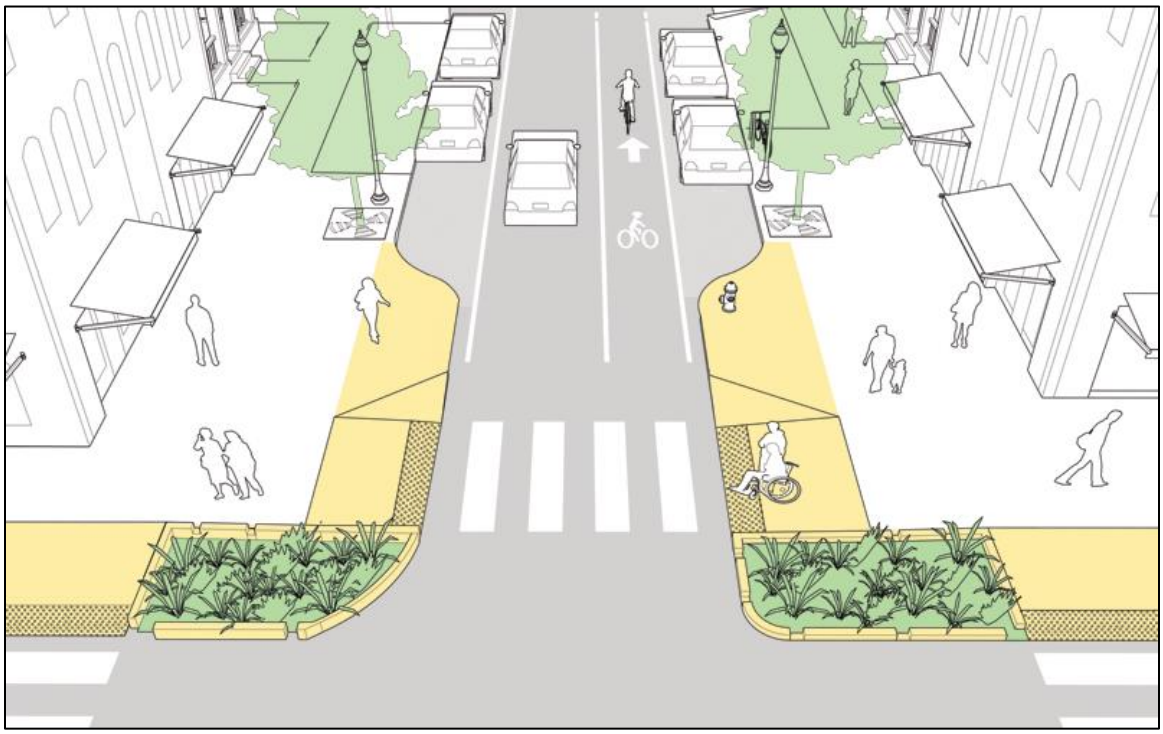


Figure 8.2: Gateway Treatment on a narrow road using Bulb-outs from NACTO's Urban Street Design Guide

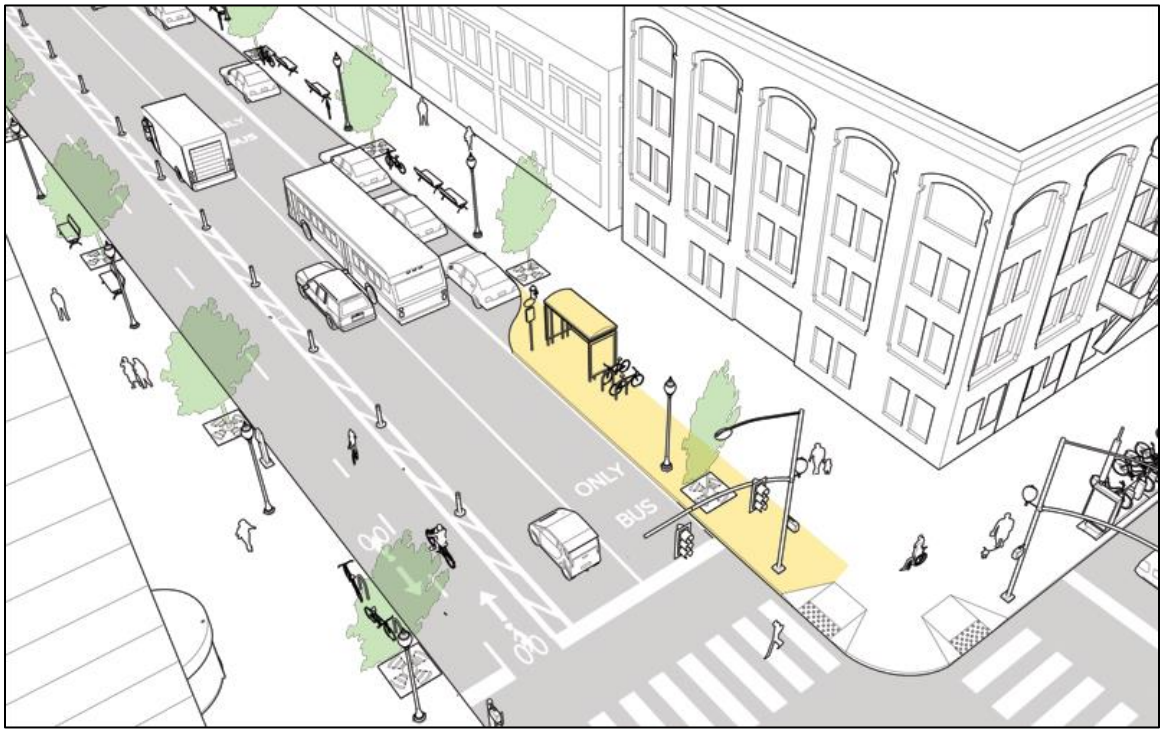


Figure 8.3: Gateway Treatment's on a wider road using Bulb-outs from NACTO's Urban Street Design Guide

PINCHPOINT TREATMENT

Pinchpoints are curb extensions applied mid-block to encourage vehicles to slow down (see Figure 8.4). Pinchpoints have the same benefits as Gateway curb extensions and can even offer mid-block crossing opportunities. The pinchpoints can also be used as mid-block cross walks or bus bulb-outs.

Figure 8.4: Pinchpoint Treatments using mid-block Bulb-outs from NACTO's Urban Street Design Guide

CHICANE TREATMENT

Chicanes use curb extensions to shift the center line of the street to slow down vehicles. Chicanes are also constructed by alternating the side of the road with parking, or by placing planters in place of curbs or parking spaces. The following examples in Figures 8.5 and 8.6 from NACTO and the City of Red Deer (Google StreetsView) respectively illustrate chicanes

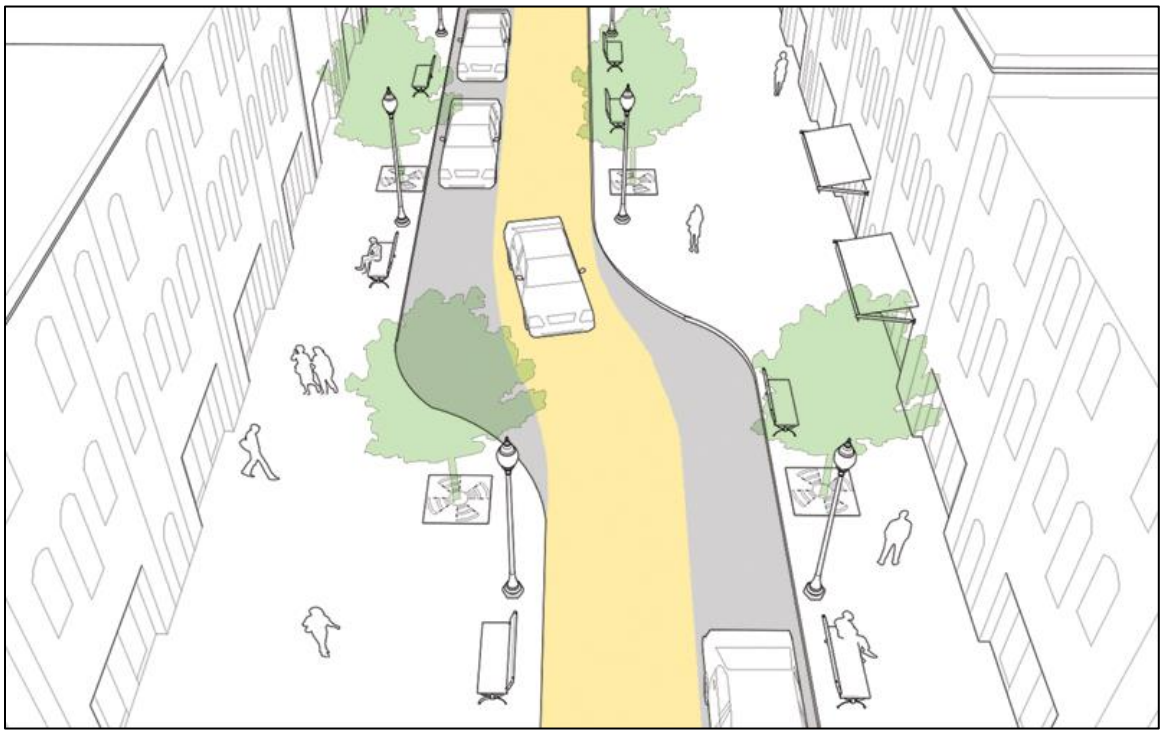


Figure 8.5: Chicane treatment example from NACTO

Figure 8.6: Chicane treatment from Google Streetsview (Red Deer)

VERTICAL ELEMENT TREATMENTS: SPEED HUMPS, TABLES, AND CUSHIONS

Vertical Speed control elements are intended to slow vehicles down as they traverse an abrupt change in the vertical alignment of the road (see Figure 8.7). Speed humps are designed for lower speed streets, usually local residential streets, and are typically designed so the slopes of the hump are in the range of 1:10 to 1:25. The height of a speed hump is 7-13 cm and the length can range from 1.0-2.0 metres.

Figure 8.7: Vertical Speed Control Element – a speed hump, from NACTO's Urban Street Design Guide

Speed tables are used at mid-block locations, and are longer in length than speed humps (see Figure 8.8). The height of a speed table is the same as a speed hump, but the length is 7.0 metres. They are also flat on top and can be used for pedestrian crossings (called a raised cross walk).

Figure 8.8: Vertical Speed Control Element – a speed table from NACTO's Urban Street Design Guide

Speed cushions are speed humps or speed tables that allow emergency vehicles or buses to traverse the hump or table without a vertical deflection (see Figure 8.9).

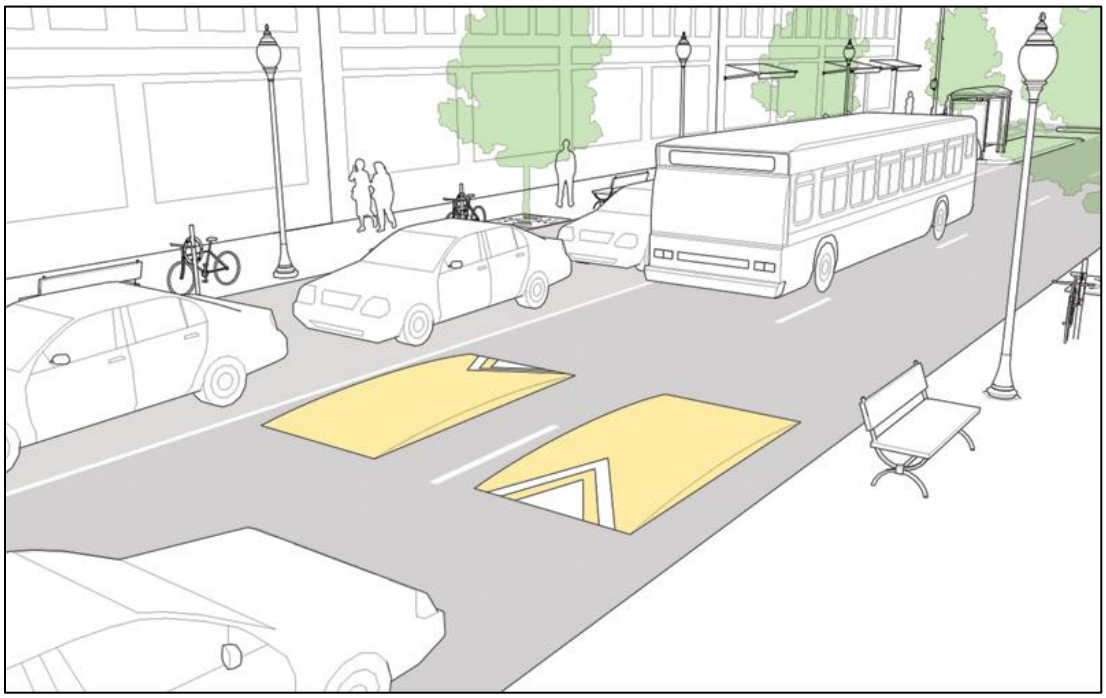


Figure 8.9: Speed cushions from NACTO's Urban Street Design Guide

ROUNDABOUT TREATMENT

Mini roundabouts encourage drivers to slow down at the approach of an intersection in order to traverse the around the roundabout. These roundabouts are ideal for minor uncontrolled intersections (see Figures 8.10 and 8.11 for examples from NACTO and the City of Edmonton (ISL Project Photo) respectively).

Figure 8.10: Roundabout example from NACTO's Urban Street Design Guide

Figure 8.11: Roundabout Example from ISL Engineering and Land Services (City of Edmonton)

8.2.4 Street Design Elements

The street design elements included in this section are lane widths, streetscaping, building setbacks, building colour and shape diversity, repurposing, and sidewalks. Lane widths are the only element on the road; the others are included because they provide context to the road and will impact vehicle speeds and safety performance. Thus they must be considered in the road design philosophy.

Lane Widths

Guidance on lane widths has traditionally been to provide buffers for drivers between each lane. This can be effective for higher speed roads in reducing vehicle crashes with other vehicles and with losing the road. However in areas with high pedestrian activity or frequent access this can degrade safety because it encourages inappropriate speeds. This provides less time to react to incidents around the vehicle and effectively makes a driver's sight triangle narrower. Figure 8.12 shows a picture sequence from NACTO's Urban Street Design Guide of how a drivers sight triangle (peripheral vision) reduces with increasing speed.

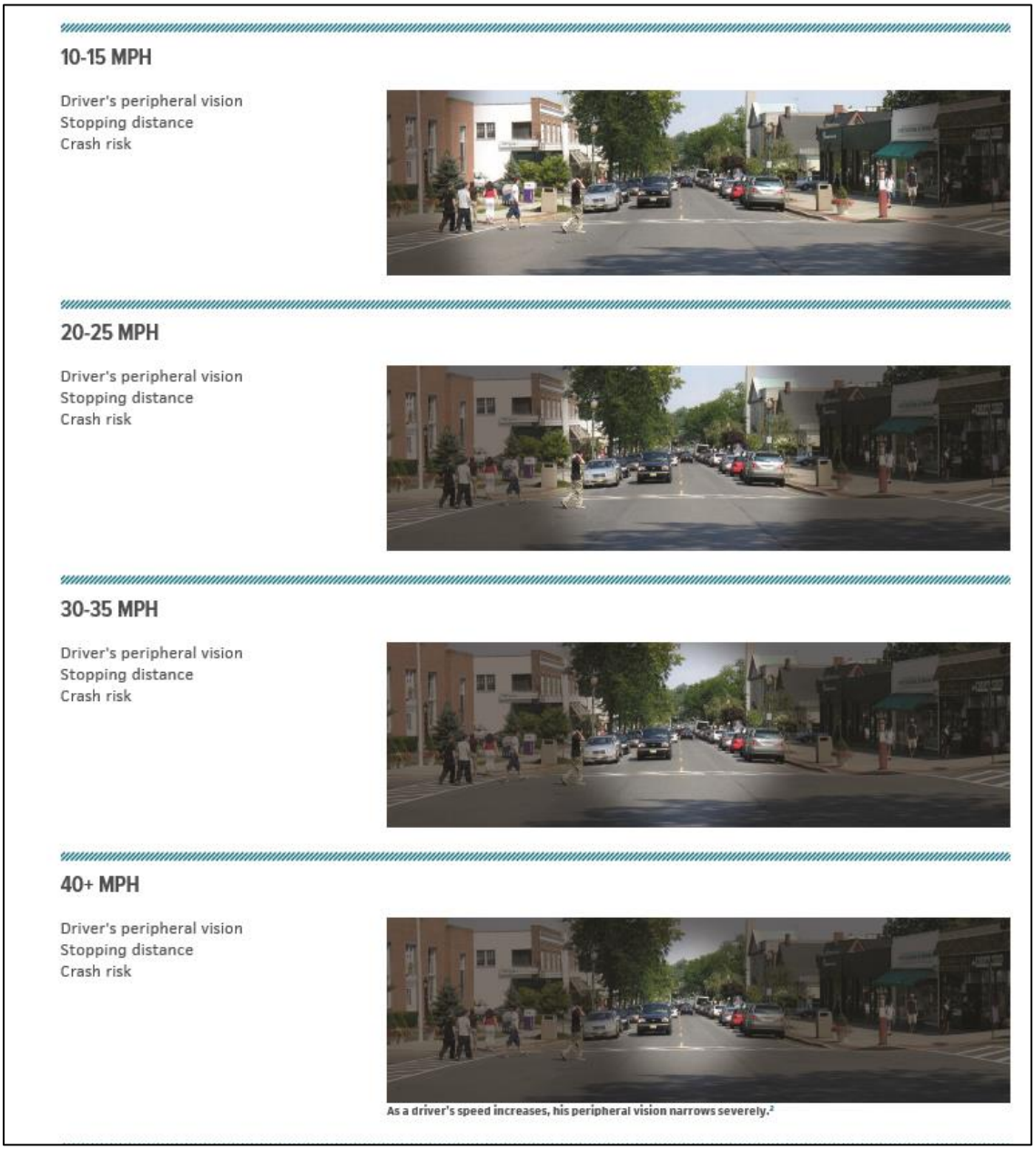


Figure 8.12: Driver Sight Triangle at Different Speeds, from NACTO's Urban Street Design Guide

Using narrower lanes requires drivers to slow down and pay attention to the movement of people around them, such as pedestrians and people exiting parked cars, and other vehicles. Narrower lanes also means that the posted speed limit on roadways should be the design speed.

Conventional road design guidance is to select a posted speed limit and a design speed limit that is equal to the 85th percentile operating speed. This reduces safety in areas with pedestrian activity or frequent access. Streets in residential areas, local or collector, should design the roadway so that the intended speed (or target speed) is equal to the design speed and the posted speed. Figure 8.13 illustrates the philosophical differences between Conventional Highway Design and Proactive Urban Street Design when considering design and posted speeds. Designing streets for a speed higher than the posted speed limit is appropriate for highway design, but can make urban streets unsafe.

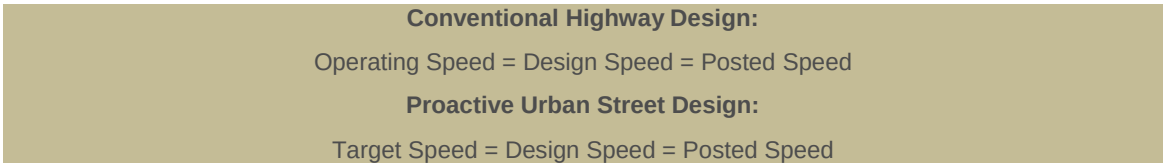


Figure 8.13: Differences between Conventional and Proactive Design from NACTO's Urban Street Design Guide

In urban areas there are many tools that can reduce speeds. Figure 8.14 from NACTO shows many such devices, including some traffic calming treatments previously discussed. These treatments should be designed to meet the target speed for the roadway in question.

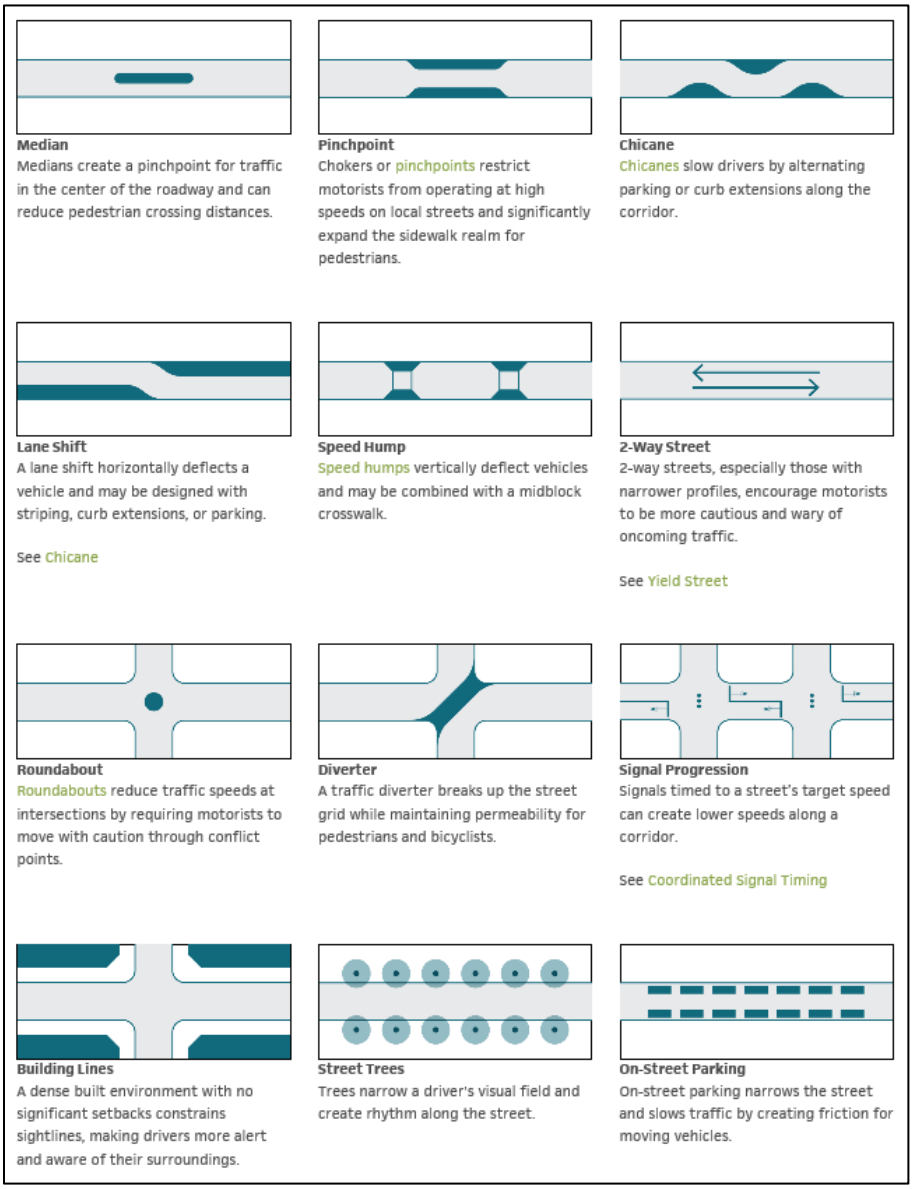


Figure 8.14: Tools for Reducing Speed from NACTO's Urban Street Design Guide

Most of these measures are "horizontal" geometry – that is they require vehicles to shift left or right. Some measures, such as speed humps, are "vertical" geometry. These require vehicles to climb and descend short, sharp grades. Generally vertical measures can reduce speeds by greater margins that horizontal measures. This is partly due to vehicle size, where horizontal measures need to accommodate trucks, meaning that smaller vehicles can more easily negotiate the shift and thus their speeds are less-affected.

In addition to on-street measures there are many road-side measures that also influence speed. NACTO identifies strategies for these, which we summarise in the following sections.

STREETSCAPING

Streetscaping includes plants and trees within the road right of way. They provide better aesthetics and can improve environmental impacts and sustainability performance. Trees have larger impacts on motor vehicle traffic than other plantings.

Street trees in neighbourhoods are commonly placed in between the roadway and the sidewalks on each side of the road. Street trees improve safety performance because they effectively narrow the width of the road and reduce the drivers sight triangle, thereby encouraging drivers to slow down.

Trees should be included as part of urban street design due to their benefits to safety, environmental impacts, and sustainability performance.

BUILDING SETBACKS

Drivers perceive the width of the corridor to be from the edge of the building on one side of the road to the edge of the building on the other side. If houses are placed too far back from the edge of the roadway, drivers perceive that as a wide corridor and tend to driver faster through it. The height of the building also plays a role in this, as taller buildings give a perception of a constricted corridor. This sense of enclosure is lost when buildings are set too far back and are short in height.

In his book Spaces (1981), Barrie Greenbie specifies that a width to height ratio of 2:1 or 3:1 is appropriate (that is, if the road right of way is 2 or 3 units, the building height is 1 unit. For the design of new neighbourhoods, it should be ensured that building setbacks are not too large.

BUILDING COLOUR AND SHAPE DIVERSITY

The items in a driver's peripheral vision can affect the perception of speed through a corridor. As a driver passes by buildings of varying shapes and colours, the speed can be exaggerated to feel higher than it is. This can be used to ensure that vehicles drive slower.

REPURPOSING

The space saved from using narrower lanes is an opportunity for providing sufficient pedestrian surfaces, landscaping, bus lanes, bike lanes or snow storage. The "Existing" and "Redesign" examples in Figure 8.15 show repurposing a street to improve its interaction with adjacent uses instead of emphasizing flow only.

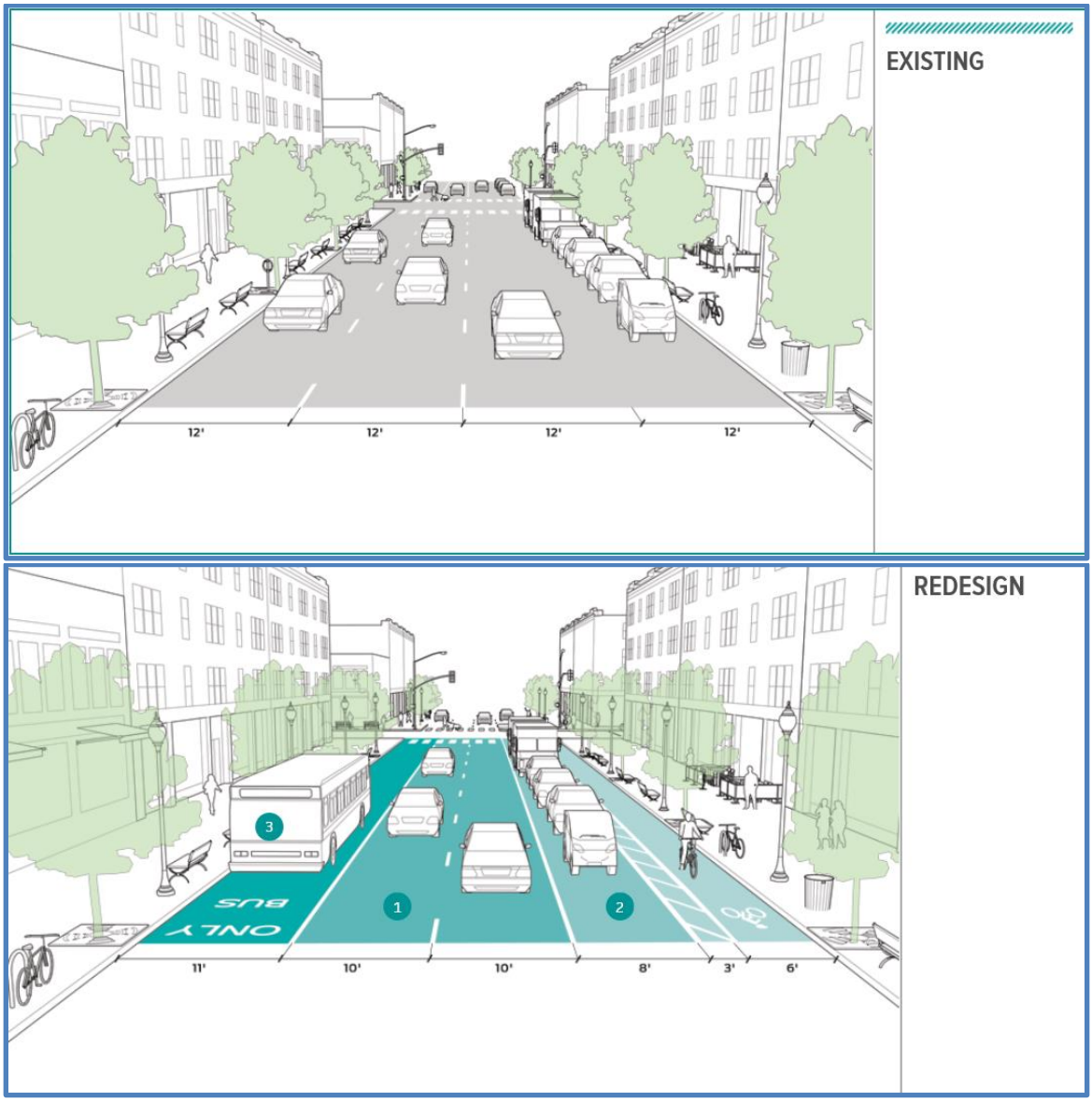


Figure 8.15: Repurposing the Street, from NACTO's Urban Street Design Guide

Sidewalks

Sidewalks are a crucial part of promoting walking within areas that are conducive to pedestrian design. Sidewalk design is quite complicated and includes design for multiple purposes. Figure 8.16 below indicates the variety of purposes a sidewalk provides.

Figure 8.16: Sidewalk Design Considerations (Source: Edmonton Complete Streets Guidelines)

It is also important to consider the context in which the sidewalk exists. Sidewalks in residential streets differ from sidewalks in downtowns, which differ from sidewalks in industrial areas. Areas with higher pedestrian activity deserve wider sidewalks with dedicated frontage, through zone, and furniture zone.

8.2.5 Intersections

This section on intersections discusses signal timings, cross walks, and corner radii.

Signal Timing

Cycle lengths designed for vehicles along a corridor are inefficient and less safe in areas with higher pedestrian activity. Usually traffic engineers favour longer cycle times in order to better coordinate traffic signals and higher speeds. However, in some areas favouring traffic flow may not be an appropriate strategy and can degrade safety.

Signal timing plans with 90 seconds or more designated for the major approach add significant delay to pedestrians wishing to cross. In areas where there is demand for pedestrians to cross, the signal timing should reflect the need of all users.

The set of diagrams in Figure 8.17 show two signal timing design approaches. The first emphasizes vehicles with 96s of green for the major street and 24s of green for pedestrians crossing the major street. The long

cycle time improves capacity and signal coordination. The second significantly reduces the cycle time with 36s of green for the major street and 24s of green for pedestrians crossing the major street. This reduces pedestrian delays and vehicle delays on the minor streets to half. Typically capacity is marginally impacted and coordination is more seriously impacted. In areas with higher pedestrian numbers the second approach should be employed.

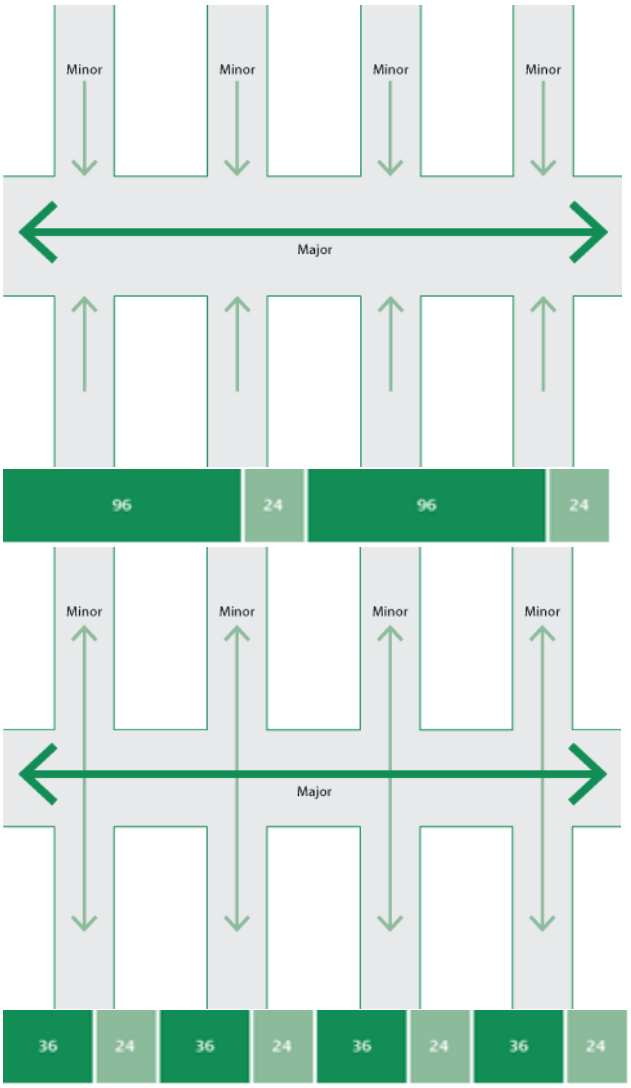


Figure 8.17: Upper Diagrams: Corridor-Based Signal Timing with Longer Cycles. Lower Diagrams: Balanced Signal Timing with Shorter Cycles from NACTO's Urban Street Design Guide

Crosswalks

In areas with demand for pedestrian crossings, or where there is an obvious connection to pathways, adequate pedestrian crossing facilities should be provided. The type of facility depends on the land use context and the roadway being crossed. In general, crossing facilities should be available at all legs of an intersection. Using curb extensions decreases the crossing distance for pedestrians, and this is especially important for children, and the elderly. However, using islands may not be favoured by pedestrians, as the environment can be more intimidating because of traffic flow on all sides of the island, and the right turning radius being larger thereby encouraging higher speeds. Narrowing the roadway at the approach of an intersection also slows approaching vehicles down and allows for a larger sight triangle for drivers. This can be seen by comparing Figures 8.18 and 8.19.

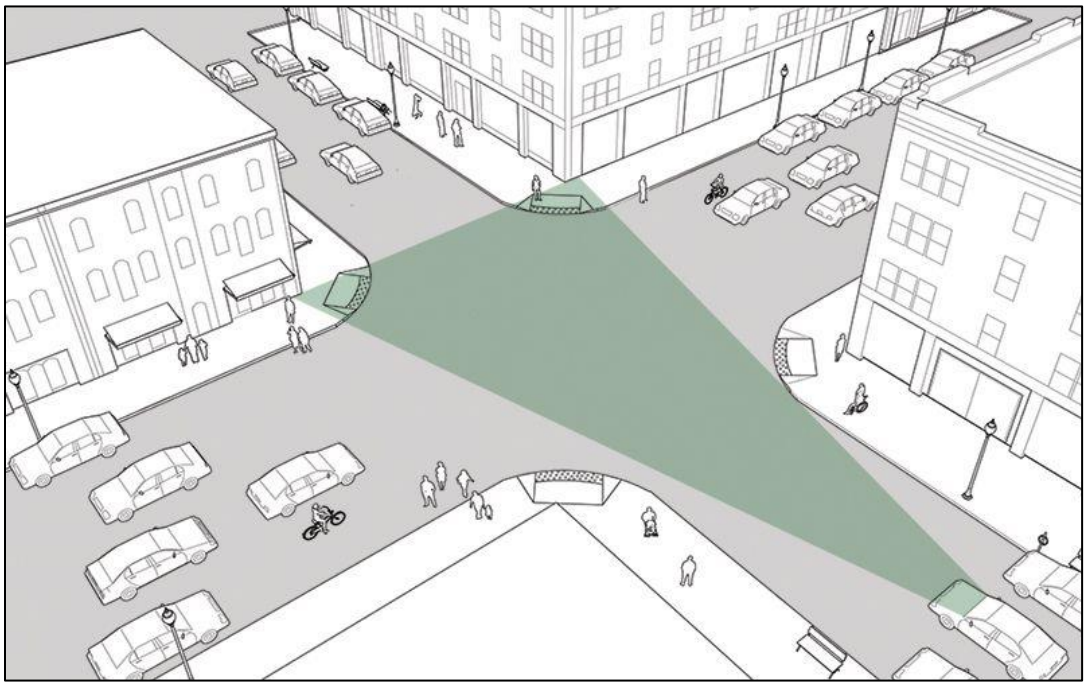


Figure 8.18: Large Pedestrian Crossing Distances with Typical Street Design, from NACTO's Urban Street Design Guide

Where possible two separate crosswalks aligned with the crossing should be constructed at each corner of the intersection. This helps people with reduced mobility to reach the roadway surface in a safe manner (see Figure 8.19). It also reduces right turning speeds which improves safety. Note that there are the same number of travel lanes in both Figure 8.18 and 8.19. And in Figure 8.19 parking is eliminated by bulbs, but parking this close to a corner is normally illegal. Thus there is no change in the amount of parking.

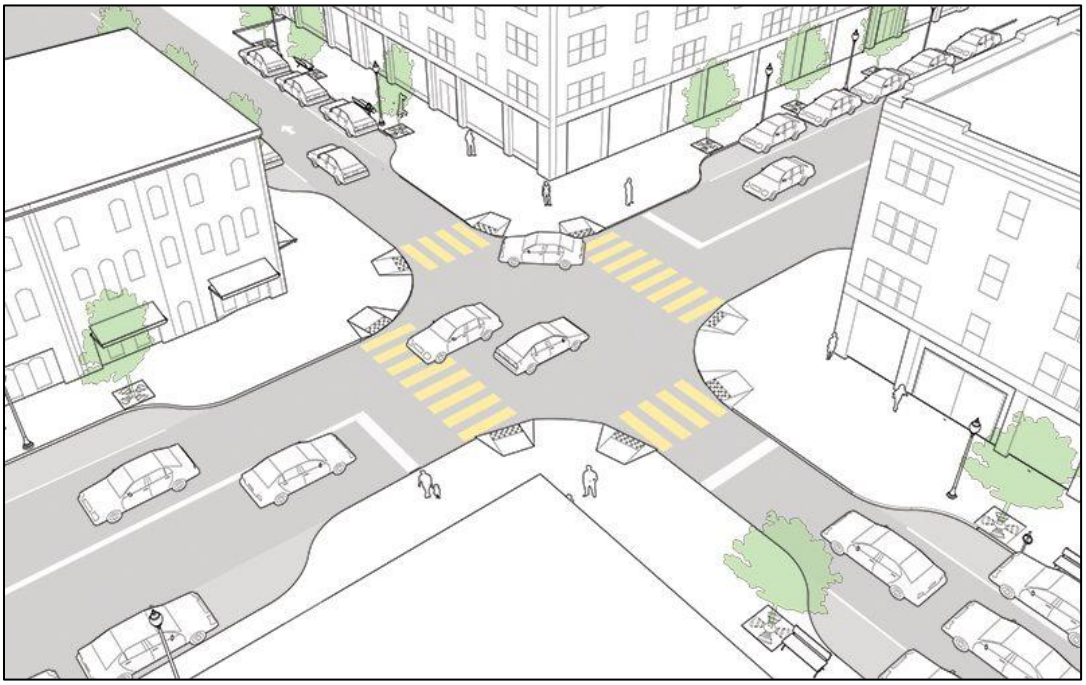


Figure 8.19: Shorter Pedestrian Crossing Distances using Corner Bulbs, from NACTO's Urban Street Design Guide

Corner Radii

Corner radii are typically selected based on the turning radius of design vehicles such as trucks. In residential neighbourhoods, local and collector roadways with large corner radii affect pedestrian safety. Large corner radii allow normal passenger vehicles to turn at higher speeds, creating risks for pedestrians. Large radii also increase the crossing distance for pedestrians (see Figure 8.20) and provide poor alignment for curb radii. Intersections designed for proper pedestrian access should be kept as compact as possible. To facilitate truck turning movement, the stop bar of the opposing lane should be placed further back from the intersection.

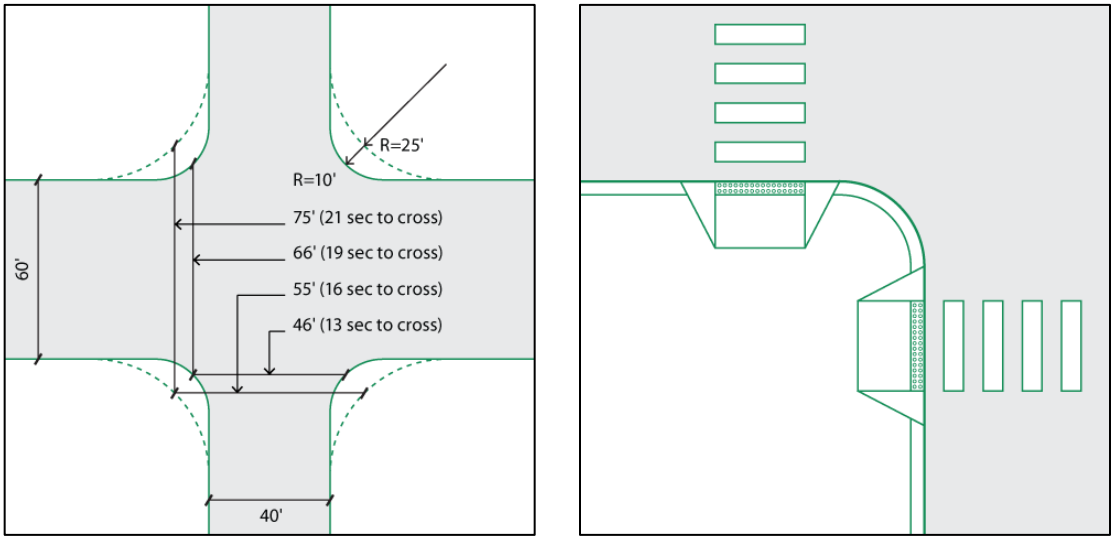


Figure 8.20: Corner Radii and Pedestrian Crossing Times from NACTO's Urban Street Design Guide

Street designers should also keep in mind the effective radius of a corner. In the scenario below (Figure 8.21) the car turning right has a very large radius available even though the radius of the corner is quite small. This allows vehicles to turn at higher speeds, and creates risk for pedestrians. Large effective radii can be decreased by building curb extensions out to meet the parking lane.

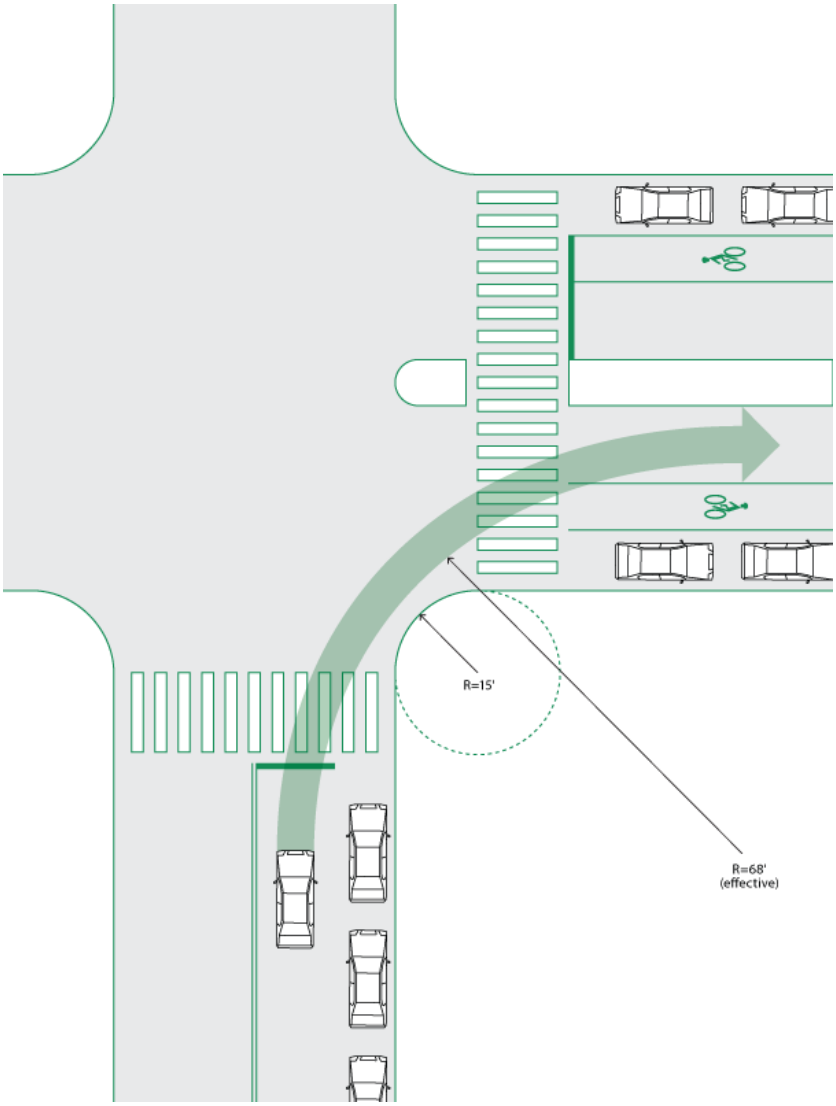


Figure 8.21: An Overdesigned Curb Radius from NACTO's Urban Street Design Guide

8.2.6 Implementation Examples

To provide more context to the foregoing discussion we provide some examples of how the design guidance could impact selected standards in Fort Saskatchewan. Discussed below are a few examples of Fort Saskatchewan's Engineering and Design Standards that can be changed to accommodate multi-modal design. The examples cover lane widths, sidewalks, and horizontal and vertical alignment.

Lane Widths

Fort Saskatchewan's travel lane widths have potential to be decreased in some cases. Currently, commercial and industrial roadways are treated as the same cross section and the standards specify widths of 3.5-3.7 metres.

Commercial streets can be separated from industrial and specify a narrower lane width. Figure 8.22 is suggested lane widths from the Edmonton Complete Streets guidelines. These suggest lane widths ranging from 3.4m where truck volumes are high to 3.2m for roads with bus routes and 3.0m for general purpose travel lanes.

Table 4.1: Constrained Dimension Considerations for ≥2 Lane Streets

Dimension	Constrained	Standard
Motor Vehicle Travel Lane Widths		
lane width (general purpose travel lanes)	3.0 m	3.2 m
lane width (transit route / lanes)	3.2 m	3.2 m
lane width (high truck volume streets)	3.4 m	3.5 m
Parking Lane Widths		
motor vehicle parking	2.4 m	2.5 m
motor vehicle parking (on local roads)	2.2 m	2.5 m
Bicycle Facilities		
wider curb lanes or shared use lanes (for side-by-side shared use)	4.0 m	4.0 m
wider curb lanes or shared use lanes - on transit route or high truck volume streets (for side-by-side shared use)	4.2 m	4.2 m
bicycle lane width	1.5 m	1.8 - 2.1 m
cycle track lane width (one-way)	1.5 m	2.1 - 2.7 m
shared use path	2.5 m	3.0 m
Pedestrian Facilities		
sidewalk - in Street Oriented context	1.5 m	1.8 m
sidewalk - in Non-Street Oriented context	1.5 m	1.5 m

Figure 8.22: Lane Width Examples (Source: Edmonton Complete Streets Guidelines)

There is potential for Fort Saskatchewan's standards to adopt the standard lanes widths shown in Table 8.3.

Table 8.3: Recommended Lane Widths for Fort Saskatchewan

Roadway Class	Fort Saskatchewan Travel Lane Width (m)	Recommended Lane Width (m)
Public Lane (Alley)		
• Residential	2.0 – 4.0	2.0 – 4.0
• Commercial/Industrial	3.5	3.5
Local		
• Residential	3.0 – 3.7	3.0 – 3.2
• Commercial	3.5 – 3.7	3.2 – 3.4
• Downtown	–	3.2
• Industrial	3.5 – 3.7	3.5 – 3.7
Minor Collector		
• Residential	3.5 – 3.7	3.2 – 3.4
• Commercial	3.7	3.4
• Downtown	–	3.2
• Industrial	3.7	3.7
Major Collector		
• Residential	3.5 – 3.7	3.4
• Commercial	3.7	3.4
• Downtown	–	3.4
• Industrial	3.7	3.7
Arterial		
• Minor (Undivided)	3.5 – 3.7	3.5 – 3.7
• Standard (Divided)	3.5 – 3.7	3.5 – 3.7
• Major (Divided)	3.5 – 3.7	3.5 – 3.7

Sidewalks

The Engineering and Servicing Standards state that sidewalks are optional unless there are more than 10 lots in a cul-de-sac, and sidewalks on both sides of the cul-de-sac are not required until more than 18 lots are present. The standards should require sidewalks on at least one side of the road regardless of the number of lots in the cul-de-sac.

The standards also do not differentiate between different land use districts such as downtown. The sidewalk standards in downtown areas should be separate from the residential/commercial/retail, and should be wider than 1.5 m.

Industrial land uses require sidewalks on just one side of local and collector roads. Sidewalks should be provided on both sides of the road.

Horizontal and Vertical Alignment

Section 5.9 and 5.10 in the Fort Saskatchewan Engineering and Servicing Standards describe the design speeds for local, collector and arterial highways. The design speeds used are typically 10 km/h higher than the posted speed limit to ensure that the operating speed can safely maneuver the street.

However, in urban residential, commercial, and downtown areas, designing the roadway to a speed that is 10 km/h higher than the posted speed limit will encourage speeding. In areas with higher pedestrian activity, the lane widths, corner radii, and intersection treatments should be designed to the posted speed limit.

In a successful design drivers will adjust their speeds and travel closer to the posted limit.

9.0 Recommendations for Potential Future Work or Studies

Analysis of the transportation system in Fort Saskatchewan revealed opportunities for future work and studies in Fort Saskatchewan. The following are a brief list of studies which the City can undertake.

9.1 Active Transportation

9.1.1 Planning Study: Pedestrian and Trail Crossing the Highway Corridor

These crossing will become especially important once the Highway corridor widens to six lanes. The planning study could be done in conjunction with a widening study (see section 8.1.3).

At a high level the City needs to identify which crossings require grade separation and which will remain at grade. The study should also identify changes to at grade crossings that will improve safety for active transportation users, as well as make the crossing more welcoming and user-friendly.

9.1.2 Downtown Cycle Plan:

The downtown's mixed land use supports people who do not have cars, including walkers and cyclists. However, current cycling infrastructure serves the periphery of downtown, but does not penetrate it. A study should identify a basic grid (two east/west and two north/south routes all connected together) that directly serves the downtown and connect to routes beyond the downtown. The routes should be segregated from motor vehicles, either by using multi-use trails already prevalent in the City or by using protected bike lanes.

9.2 Public Transportation

9.2.1 Frequent Transit Network

Fort Saskatchewan should explore opportunities to increase the frequency of transit throughout the day. The increased frequency could be staged into place. The intent of this strategy is to improve transit service and respond to a common request by transit users.

9.2.2 Industrial Transit Study

Industrial areas are currently not served by Fort Saskatchewan transit. The City should study the potential of providing transit service to the industrial areas within the City boundary, as well as major employers just north of the City boundary.

9.2.3 Transit Demographic Study

The City can complete a study to examine transit demographics and develop metrics to help evaluate the feasibility of transit service into new neighbourhoods.

9.2.4 Partnering with Rideshare Services

The City should study the feasibility of partnering with ride-sharing companies in order to provide service to passengers for the “first and last mile”.

9.2.5 Land Use Planning

Fort Saskatchewan should consider studying all opportunities to enhance and optimize transit options through updating requirements in the Land Use Bylaw.

9.2.6 Discounted Transit Passes through Employers

A study should be conducted to determine whether bus ridership can be increased through the use of discounted transit passes offered by employers.

9.2.7 Integrated Fares with other Regional Transit Services

The City should collaborate with the City of Edmonton to develop an integrated monthly bus pass which does not charge passengers separate fares when making a trip across municipal boundaries.

9.2.8 Carshare

The City should explore whether a carshare program may support the public transit system and work to reduce automobile ownership in the City. One area that may work well is creating an integrated transportation hub. The hub should be at a transit centre with park and ride, private bussing to plants, kiss and ride, and bike parking.

A carshare at such a hub offers opportunities for people to use a car on a short term basis. The hub will have a larger concentration of such persons who may on occasion need a car for a longer trip purpose, including:

- Cyclists transferring between bus and bike.
- Transferring transit passengers between regional and local buses.
- Walk-up transit passengers from nearby homes or businesses.
- Persons using kiss and ride in one direction for transit, but in the opposite direction their driver is not available.
- Park and ride persons whose car broke down, or who had another member of their household pick up their car from the park and ride lot

In order for the carshare to maximize such opportunities it is important that the hub offer services to a wide range of transportation options.

9.2.9 Strengthen Downtown Service

The City should consider re-routing route 582 such that it too directly serves downtown. The study should review alternatives and include their impact on existing schedules, service, and budget.

9.2.10 Vehicles

During the initial public feedback residents raised congestion concerns that focus on traffic operations and are not subject directly to TMP technical analysis. For examples, the left turn phasing at 99 Avenue – 101 Street causing congestion and ingress/egress along 94 Street at the commercial areas. In addition, other concerns were raised in the online tool most relate to transit stops and to roadway maintenance. These issues were not part of the TMP Study Scope, but nevertheless they should be studied in detail as part of an operational, transit, and maintenance review. In some cases the specific tools in the Transportation System Strategies may improve the 94 Street issues, but this would need confirmation in a detailed operational review.

The City should begin a functional planning study for the widening of Veterans Way between Westpark Drive and 114 Street. Following the functional planning, a preliminary engineering study can be completed.

It may be prudent to include the pedestrian and trail crossings of the widened highway as part of the functional planning study. The functional plans should have enough detail to confirm how the widening can best proceed (median or outside). Once the functional plan defines the widening for this corridor, the preliminary engineering studies can then determine further details. These preliminary engineering studies can be conducted into sections corresponding with the priorities set in the 10 year capital plan. Thus the priority order would be:

1. Veterans Way from 94 Street to 101 Street
2. Veterans Way from 94 Street to 84 Street
3. Veterans Way from 101 Street to 112 Street
4. Veterans Way from 112 Street to 114 Street
5. Veterans Way from 84 Street to Westpark Boulevard

9.2.11 Transportation System Strategies

The City should develop a Complete Streets guide to implement roadway street design which is context-sensitive and meets the needs of a wide range of roadway users. This is similar to the Design Guideline section featuring many concepts from NACTO.

10.0 Public Feedback on Draft Plan

10.1 April 4, 2018 Public Open House

On April 4, 2018 ISL and the City shared with the public a draft TMP. Several display boards showed key elements of the draft TMP and a copy of the draft report was available to review. Comments were provided on a comment form, and comments were accepted for two weeks following the event. Further details are in Appendix C.

Many of the comments received are not directly related to the scope of the TMP, but nevertheless should be considered by the City through their normal administration. There was one comment pertaining to the Industrial Bypass that required text updates to the TMP report and also impacts the TMP implementation.

First, the wording within the TMP for the Industrial Bypass alignment was updated to make it clear there is a range of choices for the Bypass.

Second, we acknowledge that the alignment could be even further east of the City, but caution that such an alignment may reduce use by industrial sites immediately to the City's northeast. These sites are also major traffic generators and a more easterly alignment induces backtracking for their traffic, which might detract from use. Once the City initiates a detailed study for the Bypass alignment, it should consider alignments further east of the City and how well traffic will use these alignments.

11.0 Conclusions and Recommendations

The conclusions and recommendations are organized by travel mode or subject area. They were based on information and analysis in the preceding chapters.

11.1 Conclusions

11.1.1 Public Feedback

1. The most frequent locations raised in the online survey were the Highway 15 Bridge crossing the North Saskatchewan River and the curve east of Highway 37 at the Highway 15 intersection. The concerns are understandable but are outside the City limits and therefore beyond the City's direct control.

11.1.2 Active Transportation

Pedestrian Infrastructure:

1. Nearly all residential areas are well served by sidewalks and most areas have sidewalks on both sides of the roads.
2. Residential areas off of Greenfield Way lack sidewalks; pedestrians must use the road, or access the multi-use trails backing onto residential properties.
3. Downtown is well served with a tight grid network of sidewalks and is walkable (that is there are many diverse land uses within easy walking distance).
4. The periphery of commercial areas at the intersection of Highway 15 and 94 Street are connected well to the city-wide pedestrian network.
5. Inside the commercial areas, connectivity is poor; pedestrians often must use to use the same areas that vehicles use to circulate within the commercial areas.
6. Industrial areas lack sidewalks.
7. Highway 21 Multi-use Trail: The multi-use trails on the east side of Highway 21 is missing a connection between 84 Street and 94 Street.
8. The Highway corridors act as barriers to pedestrian travel because the spacing for crossing points is very high and the crossing are very unfriendly to pedestrians.

Cycling Infrastructure:

1. Trails are provided throughout the City, and on both sides of Highway 21, but in some areas there are connections missing.
2. Generally multi-use trails adequately serve as the cycling network. However, the multi-use trails do not penetrate downtown and only serve the periphery.
3. In downtown, multi-use trails may not work well because of pedestrian conflicts. Therefore alternatives to consider are protected bike lanes (PBL), both one-way and two-way.

11.1.3 Public Transportation

1. The transit network covers most important destinations within the City, including downtown, the Dow Centennial Centre, The Fort Saskatchewan Community Hospital, the North Transfer Location, and commercial areas east of Highway 21.
2. Routes 582 and 583 operate in opposite loops, but only route 583 penetrates downtown. To reach areas served by route 582 from downtown, transit users have to walk further to access route 582, or use route 583 but travel the long way around.

3. Currently, the peak hour service runs every half hour. For a frequent transit network, service running every 15 minutes or less is desirable.
4. Transit users who use transit in both Fort Saskatchewan and in Edmonton are required to pay for fares in both jurisdictions.
5. There are many alternative strategies that may benefit transit:
    - Direct Transit Strategies
        - Increase Service Frequency
        - Leverage New Park and Ride Station
        - Strengthen Downtown Service
        - Possible Service to Industrial Areas
        - New Service to New Developing Areas
        - Partnering with Rideshare Services
    - Indirect Transit Strategies
        - Land Use Planning
        - Provide Discounted Transit Passes through Employers
        - Provide Discounted Passes for People-in-need
        - Integrated Fares with other Regional Transit Services
        - Integrated Carshare

11.1.4 Vehicles

1. The technical review confirmed the major road congestion identified by City residents using the Online Feedback tool at the beginning of the TMP study.
2. The following road links have a high level of congestion at the 10-year horizon if no improvements to the road network (based on a 2016 traffic model) are made:
    a. Highway 21 & 15 (Veteran's Way) from Westpark Boulevard to 114 Street
    b. Highway 15 at the North Saskatchewan River Bridge
    c. Highway 15 on/off ramps at 99 Avenue/95 Street
    d. Southfort Drive from Greenfield Way to the Walmart/Canadian Tire Access
    e. Allard Way south of Southfort Drive
    f. 94 Street south of Southfort Drive
3. The following road links have a high level of congestion at the 30-year horizon if improvements at the 10-year horizon are made and a new crossing at the North Saskatchewan River, south of the City is constructed:
    a. Highway 21 & 15 (Veteran's Way) from 84 Street to 112 Street
    b. Highway 15 at the North Saskatchewan River Bridge
    c. Highway 15 from on/off ramps at 99 Avenue/95 Street to Highway 15/21 intersection
    d. Highway 21 from Wilshire Boulevard to the neighbourhood collector to the South

11.1.5 Transportation System Strategies

Road Classification System

1. The City requires a road classification system based on function.

Safe System

1. Safe System is a forgiving system that accounts for the inevitability of collisions, and intends to minimize death or serious injury in the event of a collision.
2. For a collision between a vehicle and a pedestrian or cyclist, at speeds above 30 km/h the risk of fatality rapidly increases.
3. For a side-impact collision between two vehicles, at speeds above 50km/h the risk of fatality rapidly increases.
4. For a head-on collision between two vehicles, at speeds above 70 km/h the risk of fatality rapidly increases.

Travel Demand Strategies

1. The focus for improving walkability should be on ensuring a complete network of sidewalks that connects to diverse land uses and ensures safe interactions with motor vehicles.
2. Improving cycling conditions requires identifying and building routes that connect cyclists' homes to commercial areas and recreation and community centres.
3. Providing bicycle parking in all areas of the City which is visible and secure is a simple and effective way to improve cycling conditions.
4. Flexible design standards allow for inclusion of modes, where necessary, that have traditionally not been a part of roadway design. Inclusion of these modes offers more travel options to residents and is a useful travel demand management tool.
5. Paid parking makes more efficient use of land by dictating a cost to park a vehicle in a space. This can have a positive effect on congestion, as the parking rates can be set to the desired level of traffic.
6. Shared parking is way to make commercial areas more land efficient and to reduce development costs.

Design Guidelines

1. Municipal street design standards are commonly derived from highway design standards and can be ineffective and sometimes contradictory when applied to the urban context. This is because these standards largely consider motor vehicle needs, often without due consideration for pedestrians, cyclists, and transit.
2. The principles in NACTO's Urban Street Design Guide offer balance between designing for automobiles and designing for pedestrians, cyclists, and transit users.
3. The goals of applying new principles to urban street design are to provide for safer streets that accommodate a wider range of transportation choices and to consider the land use context of the surrounding area.
4. Accommodating a wider range of transportation choices improves opportunities for people who chose travel by walking, cycling, or public transit.
5. The Complete Streets philosophy recognizes that streets serve many different purposes beyond the mobility of vehicles. Many cities apply this new philosophy to urban street design through the use of a Complete Streets Policy and eventually a set of Complete Streets Guidelines.

Traffic Calming

1. Traffic Calming is the act of reducing traffic speeds or volumes along roadways for creating a safer environment, discouraging through-traffic, minimising conflicts between vehicles and vulnerable street users, or for improving the neighbourhood environment and quality of life.

2. A major component of traffic calming is improving communication between vehicles and vulnerable road users. Slowing down vehicles afford drivers more time to use eye contact and hand gestures to negotiate for space with other road users.
3. Design elements such as lane widths, horizontal and vertical curves, and traffic calming features using horizontal or vertical deflections are effective at controlling the speeds and volumes or traffic of vehicles on a roadway.

11.2 Recommendations

11.2.1 Public Feedback

The City should discuss with Alberta Transportation the issues raised by residents regarding the Highway 15 Bridge and the curve east of Highway 37 at the Highway 15 intersection, on the basis that City residents are directly impacted by these Highways.

11.2.2 Active Transportation

Pedestrian Infrastructure:

1. The City should continue to review pedestrian connectivity and provide sidewalks to maintain neighbourhood connectivity.
2. A network of designated walking spaces for pedestrians should be implemented within existing and future commercial areas.
3. Conflicts between vehicles and pedestrians on low volume roads and inside parking lots should be managed with the use of raised elements such as speed bumps, speed humps, or raised tables.
4. At busy crosswalks on high volume roads it is safer to provide a reduced speed through the crosswalk, preferably by permanent enforcement measure, by sharp horizontal deflection, or by vertical deflection.
5. At major destinations, such as recreation centres, downtown, commercial areas, municipal sidewalks and trails should connect directly to the front doors of the buildings via on-site walking.
6. An interim or permanent connection should be constructed to connect the two pieces of multi-use trail on the east side of Highway 21 between 84 Street and 94 Street.
7. If the highway corridor is widened to 6 lanes, grade separated crossings should be constructed across it. Since the Highway is a high load corridor it is likely better to use an underpass. Two candidate locations are:
   - Along Highway 15 between or at one of 94 or 101 Streets.
   - Crossing Highway 21 at Westpark Boulevard.

Cycling Infrastructure:

1. Parallel to roads that have high traffic volumes and high speeds, separated paths should be provided for cyclists.
2. The separated paths should take the form of protected bikes which are on-street but buffered from moving cars by barriers or parked cars, or of shared use paths that are widened sidewalks that cyclists and pedestrians share.
3. In the absence of separated paths, it may be appropriate to allow cycling on existing sidewalks.
4. A basic grid of separated paths on two streets and two avenues in downtown should be constructed.
5. Similar to pedestrian infrastructure, cycling routes should connect from public trails to near the front doors of buildings via a on-site cycling route.

11.2.3 Public Transportation

1. Route 582 should be re-routed to travel through downtown.
2. The City should have guidelines to provide quality pedestrian and transit networks. For proposed Area Structure Plans and subdivisions the guidelines should require reasonable walking distances to bus stops and good routing alternatives for bus service.
3. The City should look at demographics of new neighbourhoods and develop a strategy as to when new service should be added to the neighbourhood.
4. The City can amend its land use bylaw to require offices, higher density residential buildings, retail commercial areas, and businesses serving alcohol to locate within proximity to transit.
5. The City can reduce the amount of required parking for developments that are within a specific distance of a bus stop.
6. The City should collaborate with Regional Transit providers on creating an integrated regional travel bus pass.
7. The City should consider discounts to transit fares for large employers who are willing to commit to bulk sales of bus passes.
8. The City should explore opportunities where a carshare may provide synergy with its transit system and the City's overall transportation infrastructure.
9. Ridesharing may be ideal for "the first and last mile" of transit trips. This is where passengers may have long walking distances for their trip, especially in low density areas, and thus a ride share may serve the trip more effectively than public transit.
10. The City should consider further study of the following alternative transit strategies:
    - Direct Transit Strategies
        - Increase Service Frequency
        - Leverage New Park and Ride Station
        - Strengthen Downtown Service
        - Possible Service to Industrial Areas
        - New Service to New Developing Areas
        - Partnering with Rideshare Services
    - Indirect Transit Strategies
        - Land Use Planning
        - Provide Discounted Transit Passes through Employers
        - Provide Discounted Passes for People-in-need
        - Integrated Fares with other Regional Transit Services
        - Integrated Carshare

11.2.4 Vehicles

1. Based on modelling, the following improvements will be required for the 10-year horizon:
    a. Widening of Highway 15 & 21 (Veteran's Way) from Westpark Boulevard to 114 Street from four lanes to six lanes.
2. Based on modelling, the following improvements will be required for the 30-year horizon:
    a. an industrial bypass from Highway 15 to the proposed Regional Connector
    b. Intersection improvements along Highway 15 and 21
    c. Widening of Highway 15 & 21 (Veteran's Way) from Westpark Boulevard to Wilshire Boulevard

11.2.5 Transportation System Strategies

Roadway Classification System

1. The City should adopt the proposed roadway classifications shown in Figure 7.2 in Section 7.2.

Travel Demand Management

1. More mixed-use developments should be approved across the City to reducing distances between neighbourhoods and commercial areas.
2. To further improve walkability in downtown, more mixed-use developments should be encouraged by enacting zoning that allows diverse uses, easing approvals and flexibility to changing market conditions.

Safe System

1. The City should employ Safe System principles to improve pedestrian safety. At the location of busy crossings the City should consider one of two general strategies:
   a. Greatly reduce probability of crash by separating movements in time, such as by using a traffic control that requires drivers to stop and then allow pedestrians to cross, such as:
      i. A red/amber/green pedestrian or half signal
      ii. An all-way stop
   b. Greatly reduce probability of serious injury or death by using target speed no greater than 30 km/h at point of conflict for road, such as by using:
      i. A speed hump or raised crosswalk
      ii. A raised intersection
      iii. A roundabout
2. There should not be a local road segment longer than 150m without some form of speed control device.
3. Fort Saskatchewan should adopt the following maximum speed control points for the three scenarios specified:
   a. For vulnerable users at conflict points with vehicles (30 km/h target speed) – for example the City could use vertical deflections unless there are horizontal curves with radii listed in Table 8.1 – for vulnerable users
   b. For right angle collisions (50 km/h target speed), such as typically found at intersections – for example the City could use a roundabout or raised platform intersection.
   c. For head-on collisions (70 km/h target speed), such as on undivided roads with higher posted speeds – for example the City could use a cable barrier in the median.

Design Guidance

1. Use the following recommended lane widths for roadways in Fort Saskatchewan:

Roadway Class	Fort Saskatchewan Travel Lane Width (m)	Recommended Lane Width (m)
Public Lane (Alley)		
• Residential	2.0 – 4.0	2.0 – 4.0
• Commercial/Industrial	3.5	3.5
Local		
• Residential	3.0 – 3.7	3.0 – 3.2
• Commercial	3.5 – 3.7	3.2 – 3.4
• Downtown	–	3.2
• Industrial	3.5 – 3.7	3.5 – 3.7
Minor Collector		
• Residential	3.5 – 3.7	3.2 – 3.4
• Commercial	3.7	3.4
• Downtown	–	3.2
• Industrial	3.7	3.7
Major Collector		
• Residential	3.5 – 3.7	3.4
• Commercial	3.7	3.4
• Downtown	–	3.4
• Industrial	3.7	3.7
Arterial		
• Minor (Undivided)	3.5 – 3.7	3.5 – 3.7
• Standard (Divided)	3.5 – 3.7	3.5 – 3.7
• Major (Divided)	3.5 – 3.7	3.5 – 3.7

1. The City should design roads to a target speed – the intended user speed - rather than a design speed that is 10 km/h over the posted speed.
2. In areas designed for higher pedestrian activity, such as Downtown Fort Saskatchewan, road cross sections should be developed to address lane widths, sidewalks, and intersection treatments that are discussed in this report.
3. Engineering standards should provide different sidewalk types based on land-use. For example, downtown sidewalks should be wider than the minimum 1.5m.

Traffic Calming

1. A Target Speed should be used for the design of all local and collector roadways to discourage roadways designed to be driven above the posted speed limit.
2. The lane widths suggested in Section 8.2.6, traffic calming measures suggested in Section 8.2.3, or horizontal and vertical curves should be used to achieve the Target Design speed of a local or collector roadway.
3. At points of conflicts between vehicles and vulnerable road users such as pedestrians, and cyclists, elements such as raised profiles or horizontal deflections should be used to slow down vehicles to 30 km/h.

Appendix A

Initial Public Engagement Summary

TRANSPORTATION MASTER PLAN ONLINE SURVEY

PUBLIC ENGAGEMENT - REPORT

November 2016

twenty20 COMMUNICATIONS

TABLE OF CONTENTS

A. PROJECT OVERVIEW

In Fall 2016, the City of Fort Saskatchewan began a study to update the Transportation Master Plan last updated in 2008. The Plan will identify where and when the City requires road, sidewalk and trail improvements for the next 20 years. With a population of just under 24,500 in 2016 and an annual growth rate around five percent over the last seven years, the plan needs updating.

B. PUBLIC ENGAGEMENT PROCESS

The City contracted ISL Engineering and Land Services Ltd. to conduct an online survey to gather public input on citizens' use, knowledge, issues and concerns with local traffic, roads, sidewalks and trails. The interactive survey allowed residents to mark map pins on the specific areas they have safety, traffic, sidewalk, trail or other issues and to provide comments. The survey was available for input between September 7 and October 11, 2016. The City advertised the Survey in the City Page publication, on the City's website, on the Dow Centennial Centre electronic message sign, the City's weekly newspaper ad and via a news release.

C. SURVEY FINDINGS

Sixty-seven (67) people responded to the survey identifying 306 locations of concern.

Results of the survey are presented as they relate to the specific topic areas addressed by the survey which were Safety, Traffic Operations/Congestion, Sidewalks Links, Trail Links and Other Issues.

Safety Concerns

Respondents were asked to identify locations on a map where they feel there are Traffic Safety issues and to describe why they feel the location was unsafe. Respondents marked 121 locations as having safety concerns. The following summarizes the locations mentioned most often. (See Appendix B for comment details and all other locations mentioned.)

Highway 15 (43 mentions)**:** Highway 15 is a primary concern with congestion at the bridge area identified as the main issue. Others have concerns with generally slow, congested traffic all along the highway and a few mentions of specific locations include the "curve" east of Highway 37 and the intersections at Highway 37, 101 Street, 94 Street and 84 Street.

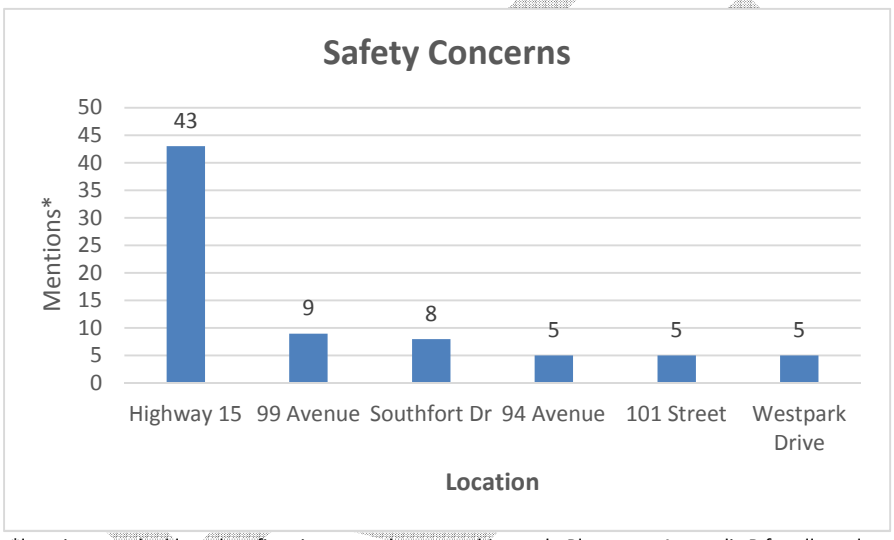
99 Avenue (9 mentions)**:** Respondents indicate a few concerns with shortcutting, congestion at the mall entrance at 104 Street, the intersection at 101 Street and with visibility at the 99 Avenue side road.

Southfort Drive (8 mentions)**:** Comments indicate safety concerns where the road narrows from four lanes to two, with buses causing congestion, with poor intersection lighting at a bus stop and with visibility issues at the intersection at Southfort Blvd.

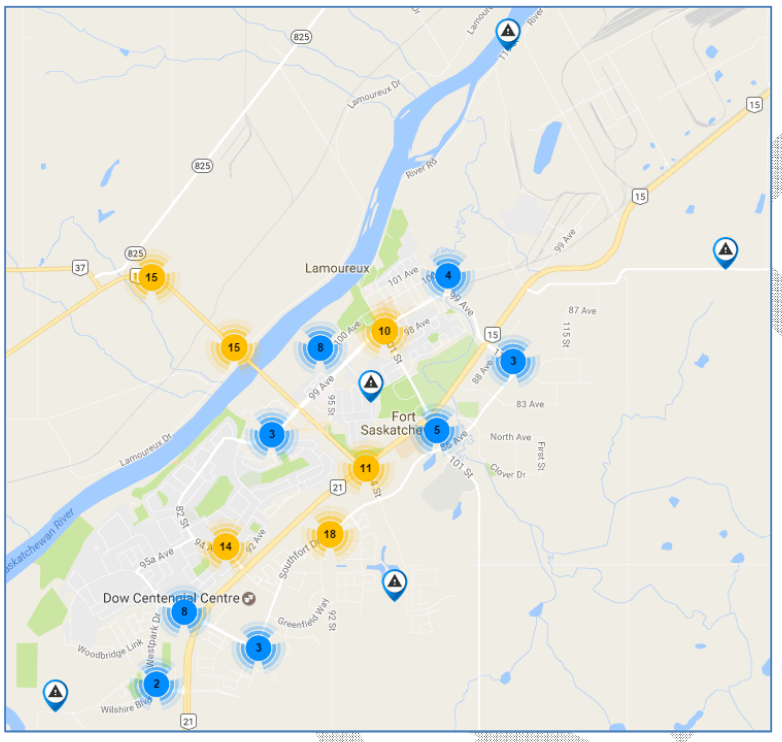
94 Avenue (5 mentions)**:** Five respondents indicate a concern with the intersection/pedestrian crossing at 84 Street.

101 Street (5 mentions)**:** Respondents' comments indicate issues at the 88 Avenue mall entrance and the 99 Avenue intersection. One respondent reports an icy access at the Esso carwash.

Westpark Boulevard (5 mentions)**:** Respondents indicate concern with speeders, pedestrians crossing and parked cars at the playground area, as well as with missing painted lines on the road between Woodhill and Wilshire.



*locations marked less than five times not shown on this graph. Please see Appendix B for all results



Traffic Operations/Congestion

Respondents were asked to identify locations on a map where they felt traffic congestion is a major concern and to describe the cause of the congestion. Respondents marked 96 locations as having concerns. The following summarizes the locations mentioned most often. (See Appendix B for comment details and all other locations mentioned.)

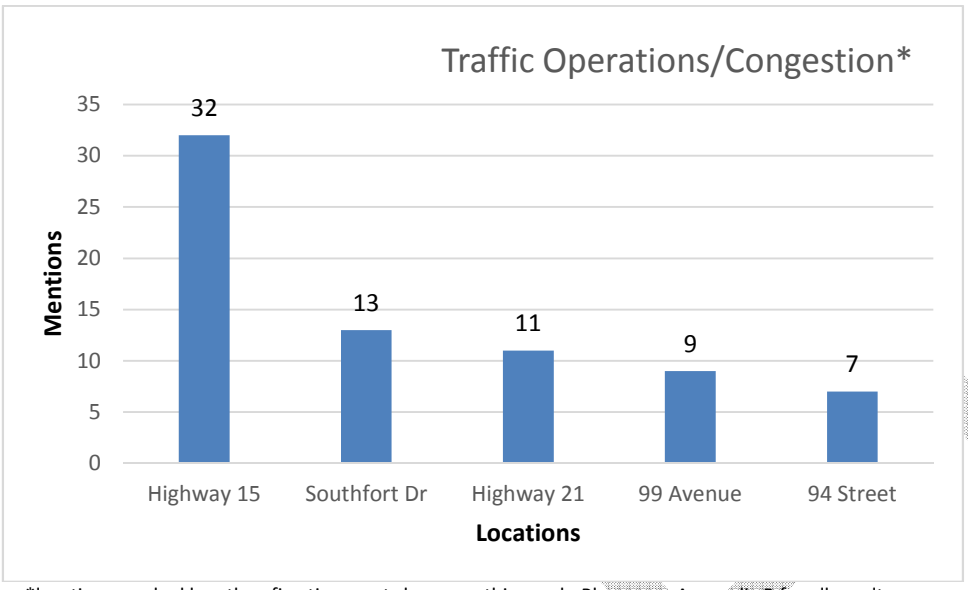
Highway 15 (32 mentions)**:** Highway 15 is identified most often as having traffic congestion issues with the bridge area and various intersections being highlighted as the major causes.

Southfort Drive (13 mentions)**:** Respondents suggest traffic congestion on Southfort Drive is caused by the single lanes (needs twinning) and issues with the intersection at Allard Way.

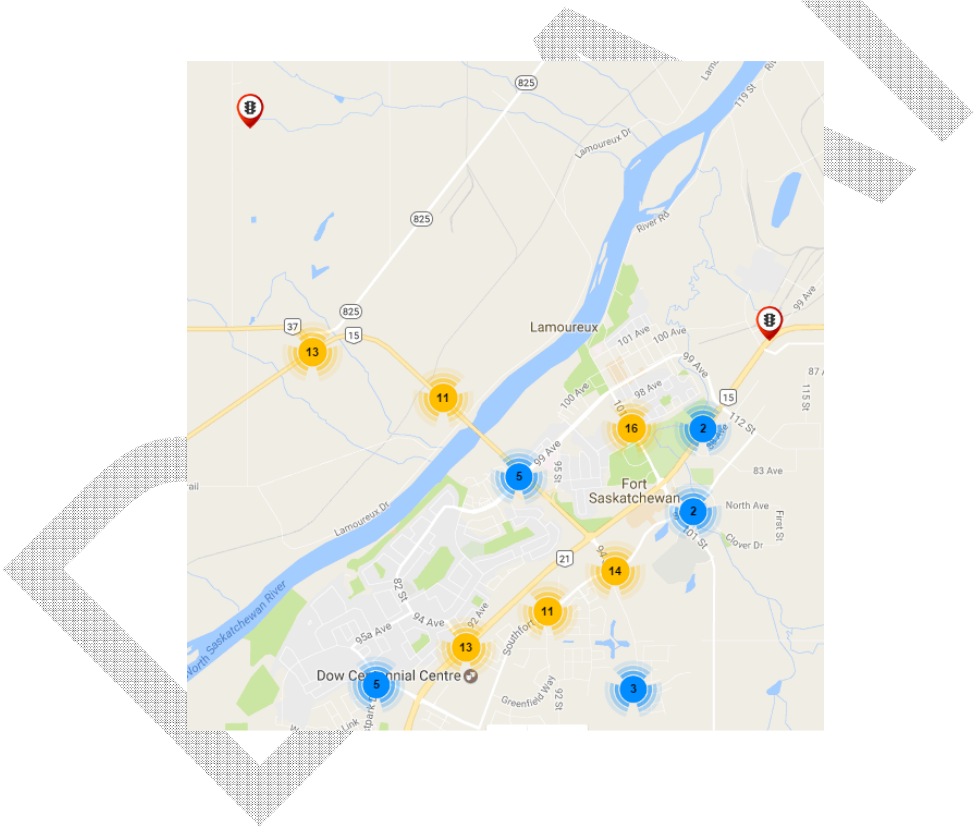
Highway 21 (11 mentions)**:** Respondents report the intersection/signal phase at 84 Street causes issues and that general congestion on Highway 21 would be helped with a bypass.

99 Avenue (9 mentions)**:** Respondents report the signal phase (left turns) is causing congestion at the intersection of 99 Avenue and 101 Street.

94 Street (7 mentions)**:** Respondents report congestion and difficulties turning in and out of the access to the mall along 94 Street.



*locations marked less than five times not shown on this graph. Please see Appendix B for all results



Sidewalk Links

Respondents were asked to identify on a map the locations they feel sidewalks should be added. Respondents marked 19 locations. Only a few locations were marked as requiring the addition of sidewalks or connections, others were marked as requiring maintenance. Please see Appendix B for details of all results.

Location	Mentions	Why important
Westpark Center	4	sidewalk/crosswalk/handicap ramp
99Ave/90St	3	Sidewalk ramp dangerous
106St/100Ave Mall	2	Sidewalk/stair connection
100Ave/106St	1	
100Ave/83aSt	1	Maintenance
100Ave/Residential	1	Connection to Trails lacking
101St (96a Avenue area)	1	Sidewalks narrow
103St/98Ave	1	Overgrowth
106St/ (S of 101Ave)	1	Overgrowth
Hwy 21/84St	1	Pedestrian Overpass
Hwy 21/Pineview	1	Connection to Trails lacking
Sienna Blvd to new School	1	Sidewalk/Trail
Trails systems great	1	Trail good!

Trail Links

Respondents were asked to identify on a map the locations they feel trails should be added. Respondents marked 25 locations. Not only did respondents identify locations that require connections, but they also highlighted trails requiring maintenance and upgrading. Please see Appendix B for details of all results.

Location	Mentions	Why important
Southpont to Sienna	2	Trail - finish/crosswalk needed
TWR543 - road into Dow diamonds	2	Link/pavement
102Ave/105St	1	Rain water
86Ave area	1	Ramp needed
Becker Cr area	1	Flooding
Chabot Park	1	Path to lower trail
Cherry Pointe/Cottonwood Bend	1	Add paved trail
Condo parking lot	1	Trail connector
Hwy21 - old go cart property	1	Trail connector
Inglis Park	1	Flooding
Keith Denim Dodge area	1	Extend trail for scooter

Lowe Ave/Hwy15	1	Handicap Access
Monarch Cl	1	Ramp needed
North Sask River area	1	Repair trails
Point Aux Pins Road	1	Pavement needed
River Valley Dr area	1	More representation
Riverpark Drive (north to river)	1	Trail - finish
Rivervalley Trail	1	Lookout, garbage cans, lights
Ross Creek Trail to 101St	1	Trail link needed
Southfort Blvd/Towncrest Rd	1	Need path to crosswalk
TWR543 - road into Dow diamonds	1	Pavement
William Casey Park area	1	Repave trails
Wilshire Blvd area	1	Link

Other Issues

Respondents were asked to identify on a map the locations where there are additional concerns. Respondents marked 29 locations. Transit stops (7) and roadway maintenance (6) were mentioned most often. Please see Appendix B for details of all results.

Theme	Details	Mentions
Transit	Stops requested	7
Roadway Maintenance	Various locations mentioned	6
Congestion	Various locations mentioned	4
Bridge	Causing congestion	3
Merge Lane	longer needed/various locations	3
Parking	Various locations mentioned	3
87 Avenue	Doesn't exist/update maps	1
Left Turns	Impossible	1
Pedestrian Overpass	Mobility issues here/Hwy15	1
School Loading Zone	Congested	1
Sidewalk Maintenance	Pineview	1
Trails	Benches	1

APPENDIX A – SURVEY QUESTIONS

TRANSPORTATION MASTER PLAN SURVEY

The City completed its last Transportation Master Plan in 2008. The plan identifies where and when the City needs road, sidewalk and trail improvements for the next 20 years. With a population of just under 24,500 in 2016 and an annual growth rate around five percent over the last seven years, the plan needs updating.

To ensure the plan reflects the needs of the community, the City and its consultant ISL Engineering and Land Services, is asking for your input. You can complete and submit the survey online at www.fortsask.ca or email to publicworks@fortsask.ca or return it by August 15, 2016 to:

JAMES E. GRAHAM BUILDING
11121 – 88th Avenue
Fort Saskatchewan, AB T8L 2S5

OR

CITY HALL
10005 – 102nd Street
Fort Saskatchewan, AB T8L 2C5

The first five questions ask you to mark on the map provided. Please use unique numbers to identify each mark or provide a landmark or street address in your comment so we understand the location.

1. ***SAFETY*** *– Mark on the map the locations that have* ***Traffic Safety*** *issues. Describe why this location is unsafe.*

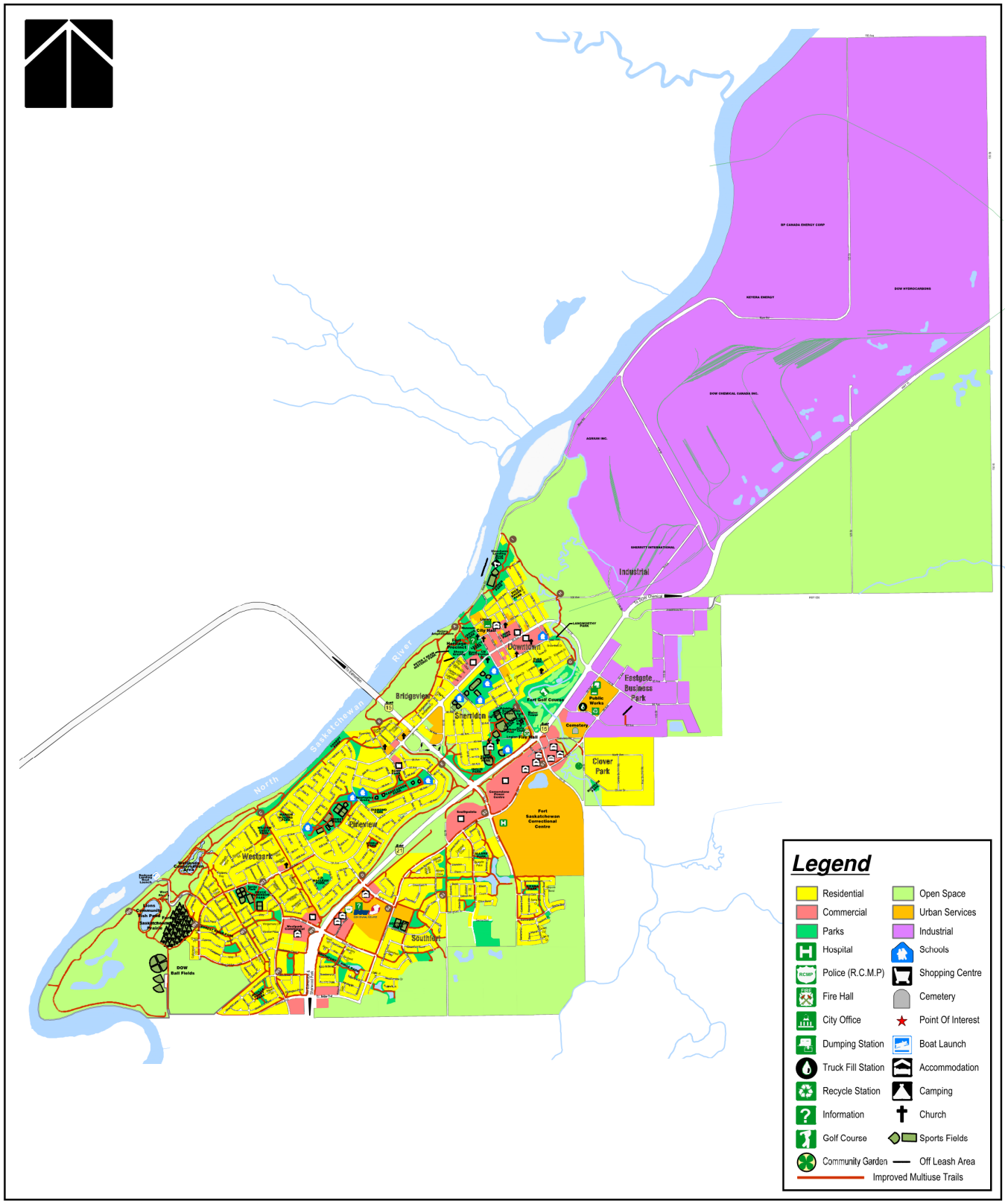
2. ***TRAFFIC OPERATIONS*** *– Mark on the map the locations where* ***Traffic Congestion*** *is a major issue. Describe what is causing the congestion, include the time of day and direction of travel (e.g., northbound, eastbound).*

3. ***SIDEWALK LINKS*** *– Mark on the map the locations where* ***Sidewalks*** *should be* ***added****. Explain why this addition is important.*

4. ***TRAIL LINKS*** *– Mark on the map the locations where* ***Trails*** *should be* ***added****. Explain why this addition is important.*

5. *Other Issues – Mark on the map and* ***describe*** *any* ***other issues*** *or* ***concerns*** *you have with transportation in Fort Saskatchewan.*

6. *What is your postal code?* _____



ISL Engineering and Land Services

Community Map

City of Fort Saskatchewan Alberta

APPENDIX B – SURVEY RESULTS

Latitude	Longitude	Address	Type	Comment
53.6840202	-113.2359096	8700 84 St, Fort Saskatchewan, AB T8L 4P5, Canada	Other Issue	
53.68427277	-113.235683	8700 84 St, Fort Saskatchewan, AB T8L 4P5, Canada	Other Issue	
53.684102	-113.2364058	8700 84 St, Fort Saskatchewan, AB T8L 4P5, Canada	Other Issue	Rush Hour traffic to Clairview Station is taken care of, so how about some connectivity for day-shoppers? Why not fill in with City-owned busses for a once-an-hour run from only the Dow Centennial Centre direct to Clairview station and return?
53.69669377	-113.2154846	8233 89 Ave, Fort Saskatchewan, AB T8L, Canada	Other Issue	2 lane bridge causes backups onto the highway thus delaying traffic elsewhere in the city on its main arterial road (highway 21)
53.68669436	-113.2048845	22411-22423 87 Ave, Fort Saskatchewan, AB T8L, Canada	Other Issue	87 Ave doesn't exist anymore. Maps should be updated to reflect this.
53.70643678	-113.2344317	574 AB-15, Gibbons, AB T0A 1N0, Canada	Other Issue	Accidents occurring on the bridge shutdown one of only 2 major roadways in and out of the city
53.70533176	-113.2168901	9607 Sherridon Dr, Fort Saskatchewan, AB T8L, Canada	Other Issue	ANOTHER one again within 500 meters of the last.
53.7024738	-113.2151842	9408 Sherridon Dr, Fort Saskatchewan, AB T8L 1W3, Canada	Other Issue	Back allies in this area need to be properly graded and enter/exit (local tragic only singe needs to be posted.
53.70168623	-113.2194543	9301 96 St, Fort Saskatchewan, AB T8L 1S4, Canada	Other Issue	Big bump - dangerous when icy
53.70111461	-113.2142723	9804 93 Ave, Fort Saskatchewan, AB T8L 1N4, Canada	Other Issue	Bus stop again super close to the others. People know how to walk you don't need one every 400 meters
53.70272467	-113.2150662	9414 Sherridon Dr, Fort Saskatchewan, AB T8L 1W3, Canada	Other Issue	Bus stop DIRECTLY across the road from another bus stop.. we're not edmonton
53.68827003	-113.2236385	63 Greenfield Way, Fort Saskatchewan, AB T8L 0A1, Canada	Other Issue	Commuters parking for Diversified bus obstructing view to safely turn from Hillside Terrace onto Greenfield way. Pedestrians crossing unsafely in dark. Bus stopping all traffic flow and parking on Southfort Drive to load and unload
53.69599503	-113.2175446	7042 AB-21, Fort Saskatchewan, AB T8L 4E7, Canada	Other Issue	Extend merge lane from HWY 15 Traffic onto HWY 21.
53.70341377	-113.2019234	10109 89 Ave, Fort Saskatchewan, AB T8L 3V5, Canada	Other Issue	Feeble representation to date by Fort Saskatchewan City, Strathcona County, Provincial and Federal government officials in publishing an aggressive awareness campaign that champions relief from the severity of our local bottleneck. GET WITH IT!
53.69032847	-113.2117939	9421 94 St, Fort Saskatchewan, AB T8L 0C6, Canada	Other Issue	Finish 94ave. If twinning is not going to happen at least finish the road as is with curbs and sidewalk so that the area can be landscaped and we don't have to deal with all the weeds. Its embarrassing as this is the only entrance to Sienna
53.68405117	-113.2346356	8700 84 St, Fort Saskatchewan, AB T8L 4P5, Canada	Other Issue	Industrial workers early morning pick-up utilizes closest parking to DOW Rec Center/Theater, Physiotherapy facility. They should park in outer perimeter leaving close spots for users supporting the facility eg. injured need physio, parents w/kids.
53.69824366	-113.2031465	8708 101 St, Fort Saskatchewan, AB T8L, Canada	Other Issue	Left turns during peak rush hours times are near impossible due to industrial workers bypassing the highway via 86 ave/Southfort Drive
53.68125531	-113.2440233	321 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Other Issue	Longer merge lane from SE bound traffic on Southfort Blvd on HWY 21.
53.70483639	-113.2163	9608 Sherridon Dr, Fort Saskatchewan, AB T8L 1W6, Canada	Other Issue	New road way and side walks needed in this area.
53.69041742	-113.2468128	9611 81 St, Fort Saskatchewan, AB T8L 3C7, Canada	Other Issue	Our road is falling apart and hasn't been fixed and replaced like all the other areas around us
53.69579097	-113.2375605	9542 89 St, Fort Saskatchewan, AB T8L 2X7, Canada	Other Issue	Parents park all along the street and load their kids on the drivers side instead of the passenger. Traffic can get backed up because people are trying to find spaces to park and are jaywalking with their child.
53.68437523	-113.2358909	8750 84 St, Fort Saskatchewan, AB T8L 4R5, Canada	Other Issue	See my other comment
53.68424815	-113.2363629	8700 84 St, Fort Saskatchewan, AB T8L 4P5, Canada	Other Issue	See my other comment
53.67403605	-113.2462549	125 AB-21, Fort Saskatchewan, AB T8L 4A1, Canada	Other Issue	The merge lane from Wilshire boulevard to Highway 21 is very short. Please extend this merge lane to allow Wilshire Blvd traffic to reach highway speeds prior to merging onto southbound HWY 21.
53.69934887	-113.2217932	AB-15, Fort Saskatchewan, AB T8L, Canada	Other Issue	The over pass is hard to use for people with limited mobility.
53.68486448	-113.2711458	River Valley Dr, Fort Saskatchewan, AB T8L 0B1, Canada	Other Issue	The parking lot at West Rivers Edge currently has lots of potholes. They need repairing. Better yet regular paving of the site would be appreciated and also paving River Valley Dr would be better. Time to upgrade to regular pavement
53.69081131	-113.2352257	8615 94 Ave, Fort Saskatchewan, AB T8L 2R7, Canada	Other Issue	The sidewalks in Pineview in many locations have heaved, causing uneven walking surfaces. The City has not replaced only used grinding of the heaves. This still leaves uneven surfaces. Sidewalk replacesment is needed.
53.68969316	-113.2230377	9202 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Other Issue	There's a bus stop where several buses (2 to 4)stop for several minutes during rush hour, holding up traffic as there is a median in the road and no way to get around. There need to either be bus lanes put in or stop moved to a section of the road .
53.70278183	-113.2148114	9415-9417 Sherridon Dr, Fort Saskatchewan, AB T8L 1W3, Canada	Other Issue	This new location as a bus stop is not needed and a complete waste of tax payers money. Proper study and numbers crunching was not done well. The meeting with the city and managers with no owners from this area was badly done.
53.67441579	-113.245925	Wilshire Blvd, Fort Saskatchewan, AB T8L 0G3, Canada	Other Issue	This piece of pavement is quite uneven/bouncy and very noticeable when you're making a left turn off of highway 21 north. Fixable?
53.70121623	-113.2051849	7245 89 Ave, Fort Saskatchewan, AB T8L, Canada	Other Issue	Traffic backs up extensively for left turns into the "downtown" area and the problem is made worse by two turning lanes into one actual lone on 101st.
53.68938821	-113.2229519	8902 Southfort Dr, Fort Saskatchewan, AB T8L 4R6, Canada	Other Issue	Traffic during peak rush hours times are excessive for a two lane road due to are near industrial workers bypassing the highway via 86 ave/Southfort Drive
53.69001082	-113.245225	9516 82 St, Fort Saskatchewan, AB T8L 3J3, Canada	Other Issue	Traffic is excessive for school areas/residential due to industrial workers bypassing the highway via 86 ave/Southfort Drive.
53.70275642	-113.2148248	9415-9417 Sherridon Dr, Fort Saskatchewan, AB T8L 1W3, Canada	Other Issue	Unless bus stop. There's 3 within 2 mins of walking to each other and one across the road.
53.72170095	-113.2032967	10904 103 Ave, Fort Saskatchewan, AB T8L 2B8, Canada	Other Issue	Why are the majority of benches along the trails placed in full-sun? It would be nice to have a shady option. Also garbage cans placed right beside these benches are not very pleasant smelling. Move them a little farther away.
53.71316792	-113.2082748	9913 106 St, Fort Saskatchewan, AB T8L 2G7, Canada	Other Issue	Why is there No Parking on one side of 106 Street between 100 and 99 Ave. along the back of the GT mall? Instead of vehicles parking in front of residences, this would provide overflow parking for the courthouse and United Church.
53.70659555	-113.2347536	574 AB-15, Gibbons, AB T0A 1N0, Canada	Other Issue	Wider bridge, at least 2 lanes each way
53.7045506	-113.2151574	9904 96a Ave, Fort Saskatchewan, AB T8L 1P6, Canada	Other Issue	Yet another bus stop within 500 meters of the last one. Do people really not know how to walk ? Best part you slapped it right in front of some poor guys door.
53.70971359	-113.212738	9815 101 St, Fort Saskatchewan, AB T8L 1V5, Canada	Safety	
53.70813872	-113.2234669	9940 Sherridon Dr Unit 100, Fort Saskatchewan, AB T8L 4C9, Canada	Safety	
53.68856943	-113.2390317	9313 84 St, Fort Saskatchewan, AB T8L 3N9, Canada	Safety	
53.68856943	-113.2390317	9313 84 St, Fort Saskatchewan, AB T8L 3N9, Canada	Safety	
53.68856943	-113.2390317	9313 84 St, Fort Saskatchewan, AB T8L 3N9, Canada	Safety	
53.68633856	-113.2362556	9202 84 St, Fort Saskatchewan, AB T8L 3N8, Canada	Safety	84 st at hiway 21 has high volume traffic including very big trucks. There are large numbers of children and adults crossing on the way to Dow Cent. Centre. This location should have a pedestrin overpass.
53.68216081	-113.2461154	20 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Safety	A left turn onto Westpark blvd is difficult a light is needed and also pedestrians jaywalk here and it is very dangerous!!!
53.71509816	-113.2515335	4472 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	A speed limit of 100 is WAY too high for this highway segment, ESPECIALLY going around the curve. The maximum speed limit between the bridge and the 15-37 intersection should be 70 all the way down.
53.704938	-113.2218361	9902 95 St, Fort Saskatchewan, AB T8L 4J4, Canada	Safety	Any traffic delay on the bridge causes people to back up here. Impatient drivers turning onto 95 Street from SW 99 Avenue, block the intersection for SW/NE through traffic
53.71530134	-113.2022667	10913 100 Ave, Fort Saskatchewan, AB T8L 2A3, Canada	Safety	As described in reference to a sidewalk in this area, it would make it safer for pedestrians to walk along 100 Ave to connect to the walking trails along Ross Creek.
53.70580171	-113.2334447	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Bridge access to and from the Fort is horrible. This affects traffic on Hwy 21&15, 99 Avenue, NW bound traffic exiting on 95 street are obstructed by people merging into one lane. The province needs to make this a priority.
53.71609976	-113.210827	10602 102 Ave, Fort Saskatchewan, AB T8L 2B7, Canada	Safety	Broken sidewalks uneven surfaces.
53.71188369	-113.2078242	10404 99 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	Cars coming out of the plaza lots don't stop at the stop line with making a left turn, so the sensor isn't triggered to turn the light. Cars eventually just run the red after a couple minutes.
53.71560611	-113.1926537	11301 100 Ave, Fort Saskatchewan, AB T8L 4K2, Canada	Safety	Commuters are using this as a alternate route during peak times.
53.73734035	-113.1921387	11571-11751 River Rd, Fort Saskatchewan, AB T8L 4C2, Canada	Safety	Commuters are using this as a alternate route during peak times.
53.70676701	-113.191452	11202-11212 87 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	Commuters are using this as a alternate route during peak times.
53.71174558	-113.2091331	10404 99 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	Commuters are using this as a alternate route during peak times.
53.68979481	-113.2218361	9202 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Safety	Commuters are using this route as a alternate to Hwy 15. The traffic at peak times is a safety hazard.
53.70585569	-113.2178986	9607 Sherridon Dr, Fort Saskatchewan, AB T8L, Canada	Safety	CONFESTED AREA WITH LITTLE ROOM FOR STUDENT DROP OFF AND PICK UP. BOTH SIDES CBLOCKED FOR SCHOOL BUS AS WELL AS A TRANSIT STOP IN BETWEEN. AN UNSAFE FOR SCHOOL CHILDREN TO BE CROSSING, A VERY BUSY CHAOTIC AND UNSAFE AREA DURING SCHOOL HOURS
53.69629994	-113.2158279	8233 89 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	congestion at this intersection for access to bridge rush hour times
53.71389177	-113.2598376	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Congestion of traffic is extreme in this area
53.71502197	-113.2609749	23019-55013 AB-825, Gibbons, AB T0A 1N0, Canada	Safety	Congestion of traffic is extreme in this area. traffic control is a must.

Latitude	Longitude	Address	Type	Comment
53.67856094	-113.2338524	7800 Southfort Dr, Fort Saskatchewan, AB T8L 0E7, Canada	Safety	Development of townhouses obstructs view trying to turn left from Southfort Bvd onto Southfort drive. Fence is main issue. Shouldn't have built so close!!!!!! (shorter fence?)
53.68476282	-113.2338524	8700 84 St, Fort Saskatchewan, AB T8L 4R5, Canada	Safety	Difficult to tell where to go when transition from single to two lane and which lane goes straight vs turning. when heading towards Hwy 21
53.68995999	-113.2215142	9202 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Safety	Diversified buses from NWR and other sites make stops on this 2 lane road unloading lots of passengers that often just cross at designated areas. Not only do the buses stopping completely halt traffic so do the pedestrians.
53.68595416	-113.2538322	617 Westpark Dr, Fort Saskatchewan, AB T8L 4J2, Canada	Safety	Drivers speed up before the end of the playground zone
53.69408932	-113.2104206	9450 86 Ave, Fort Saskatchewan, AB T8L 4P4, Canada	Safety	Drivers typically drive 60+ km/h in this 50 zone.
53.68989646	-113.2167292	26 Allard Way, Fort Saskatchewan, AB T8L 0E6, Canada	Safety	Drivers will travel this road much faster than is safe. There are over 15 marked crosswalks on Allard Way, combined with over parking and speeding vehicles, this makes for a very dangerous road for children/pedestrian. The limit should be 40km/h.
53.70961198	-113.2125664	9811 101 St, Fort Saskatchewan, AB T8L 1V5, Canada	Safety	Esso gas station car wash n winter has water run off that turns to ice on the road. I have been personal affected her twice.
53.71433624	-113.2588291	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Grossly deficient
53.71392987	-113.2598805	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Grossly deficient
53.71492038	-113.2611465	150 AB-37, Gibbons, AB T0A 1N0, Canada	Safety	Grossly deficient
53.71540293	-113.2593656	23019-55013 AB-825, Gibbons, AB T0A 1N0, Canada	Safety	Grossly deficient
53.70813872	-113.2377148	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Grossly deficient
53.7048872	-113.2317924	AB-15, Fort Saskatchewan, AB T8L, Canada	Safety	Grossly deficient
53.70365511	-113.2293892	AB-15, Fort Saskatchewan, AB T8L, Canada	Safety	Grossly deficient
53.70281676	-113.2279515	AB-15, Fort Saskatchewan, AB T8L, Canada	Safety	Grossly deficient
53.70221975	-113.2266641	99 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	Grossly deficient
53.70933257	-113.2396245	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Grossly deficient
53.71206307	-113.2446671	491 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Grossly deficient
53.71462831	-113.2498384	4472 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Grossly deficient
53.74048783	-113.1327438	5879 AB-15, Fort Saskatchewan, AB T8L, Canada	Safety	Highway 15 to the City east boundary, has a 70KM speed limit. This should be increased to 80KM. Highway is busy with big trucks many exeeding 70KM making ir dangerous for individuals driving 70KM
53.71507277	-113.2611465	23020-55014 AB-825, Gibbons, AB T0A 1N0, Canada	Safety	I believe the bridge issue has been well documented.
53.70620816	-113.2341099	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	I believe the bridge issue has been well-documented.
53.71398067	-113.2599878	150 AB-37, Gibbons, AB T0A 1N0, Canada	Safety	I believe the bridge issue has been well-documented.
53.67499572	-113.2507825	Westpark Dr, Fort Saskatchewan, AB T8L 0G3, Canada	Safety	I think this stretch of Westpark Drive would be safer if lines were painted between the Woodhill and Wilshire intersections. There's lines painted along the rest of Westpark Drive except here. Why?
53.69964581	-113.2315403	8930 99 Ave Unit 110, Fort Saskatchewan, AB T8L 3L1, Canada	Safety	Improperly levelled handicap ramp to street - looks safe until you try to negotiate with a wheelchair or mobility scooter. No safe.
53.67891363	-113.2542211	Woodbridge Link, Fort Saskatchewan, AB T8L 0C9, Canada	Safety	In general, I think all of Woodbridge Link is where there are people who drive way over the speed limit (can hear them loudly every other night) cuz its so nice and straight. Not safe considering there's a crosswalk right here.
53.70592873	-113.2205486	9904 99 Ave, Fort Saskatchewan, AB T8L 0A2, Canada	Safety	Industrial traffic shortcutting down 99th Ave to get around highway/bridge congestion -- many at a high rate of speed -- has been an issue since at least 2009. It's a miracle a family, young child, etc. haven't been injured/killed.
53.69530899	-113.2148409	8725 94 St, Fort Saskatchewan, AB T8L 4P7, Canada	Safety	Intersection for Walmart plaza and walk in clinic plaza. People get frustrated waiting to try and get out on 94 to use 15/21 or southfort drive. People rush through intersection or get angry at people waiting to go when safe.
53.70737667	-113.2364273	22 Lamoureux Dr, Fort Saskatchewan, AB T8L 1V9, Canada	Safety	Lack of merge lanes from Lamoreux Drive make slow moving traffic entering from Lamoreux Dr and exiting from Hwy 15 a hazard to other motorists and slows down traffic flow
53.69161432	-113.2263079	7412 AB-21, Fort Saskatchewan, AB T8L, Canada	Safety	Large vehicle traffic occupying every lane. It does sound like an irritant but have seen other areas bylaw heavy traffic to stay in a particular lane. This could be an issue during an emergency situation.
53.68211951	-113.2465553	20 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Safety	Left turn traffic hazard due to the volume coming from new development
53.70000944	-113.204155	8708 101 St, Fort Saskatchewan, AB T8L, Canada	Safety	lots of close calls with traffic turning when unsafe to do so
53.71511086	-113.2554173	4472 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Merge lane to 825
53.69142119	-113.2187462	9220 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Safety	Merging traffic. Lines are poorly done (line curves the wrong way and you can still see the painted solid line which hasn't been removed)
53.70139153	-113.2050545	8908 101 St, Fort Saskatchewan, AB T8L, Canada	Safety	Motorists continually attempt to run red lights in this intersection. If the entering hwy 21 from the east side of 101 st they attempt to beat the arrow and some have raced through that intersection well after the change. Could be a simple timing chg
53.70600494	-113.2339597	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Need a second bridge so it is one way traffic across each bridge
53.70592873	-113.2329082	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Need new 4 lane bridge due to increased probability of an evacuation due to chemical mishap creating a toxic environment. Many rail cars are being loaded with yet more to come and many pipelines in area.
53.68391545	-113.2306483	Southfort Dr, Fort Saskatchewan, AB T8L 0A3, Canada	Safety	Needs to be signalized. I counted 30 cars that passed who would not let pedestrians cross.
53.68933738	-113.2447529	95a Ave, Fort Saskatchewan, AB T8L, Canada	Safety	Not a safe intersection when the lights stop working after 9:00 pm.
53.68608441	-113.2361698	9202 84 St, Fort Saskatchewan, AB T8L 3N8, Canada	Safety	Not a safe option for crossing the high way as a pedestrian
53.70646218	-113.2345176	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Obviously twin the bridge. If not this bridge then an alternative to crossing the river.
53.71743465	-113.2077599	10202 109 St, Fort Saskatchewan, AB T8L 2K8, Canada	Safety	Older Asphalt trails in the river valley should be inspected for tripping hazards due to tree roots coming through the hard surface.
53.68583026	-113.2540655	617 Westpark Dr, Fort Saskatchewan, AB T8L 4J2, Canada	Safety	parking along this road during spring and summer months of soccer season or high use periods of spayr park. the road has people parking on both sides and children crossing between vehicles. barely enough room for cars to get through when parking on
53.68631314	-113.2554603	617 Westpark Dr, Fort Saskatchewan, AB T8L 4J2, Canada	Safety	parking on both sides, comments explained in pin at the intersection
53.71199958	-113.207159	10433 99 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	Pedestrian traffic will cross in the center of 99 Ave. to get to the new mall from the residential area to access the sidewalk entry, rather than walking the longer distance to the crossing light at the GT Mall entrance/exit.
53.68851146	-113.239367	8285 94 Ave, Fort Saskatchewan, AB T8L 3L5, Canada	Safety	People on 94 Ave blow by this sidewalk. Rarely do people stop for pedestrians. There is a sight issue due to cars parked near it. It is a dangerous crosswalk for pedestrians.
53.682496	-113.2473063	20 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Safety	People turn left out of the Shopper's parking lot and I'm not sure that's allowed?
53.68890894	-113.2192209	112 Campbell Ct, Fort Saskatchewan, AB T8L 0E5, Canada	Safety	People will park right in front of the mail box close to the corner and it makes it difficult to see when you are turning in.
53.71387907	-113.2599449	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Plant traffic congestion and high speeds leading to risks for other motorists.
53.68854958	-113.2390881	8285 94 Ave, Fort Saskatchewan, AB T8L 3L5, Canada	Safety	Poorly marked cross walks, blind spots
53.70688132	-113.2352686	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Safety!!
53.70575091	-113.2326508	AB-15, Fort Saskatchewan, AB T8L 4H3, Canada	Safety	Self explanatory. Observe, on site, for a complete working day cycle. The "Heartland" has outgrown this infrastructure 10 years ago.
53.68864259	-113.2390881	8410 94 Ave, Fort Saskatchewan, AB T8L 2R6, Canada	Safety	Should be all-way stop or signalized.
53.69629994	-113.2165146	665 AB-15, Fort Saskatchewan, AB T8L, Canada	Safety	So many accidents at this intersection. Also not a very safe option for pedestrians to cross the road here.
53.69091295	-113.2218361	8820 92 St, Fort Saskatchewan, AB T8L 4E7, Canada	Safety	Southfort Dr narrows from 4 lane to 2 lane, just after traffic lights near Coop Gas Station. This is dangerous and confusing for the high volume of traffic being suddendly squeezed from 4 to 2 lanes. Southfort is a main throughway.
53.68551791	-113.2321276	208-212 Galloway Wynd, Fort Saskatchewan, AB T8L, Canada	Safety	Speed limits in this very narrow neighborhood remain 50 kph. This is incredibly quick in such a congested area. The parking is far to restrictive and there are far too many folks around especially children.
53.70267703	-113.2149053	9415-9417 Sherridon Dr, Fort Saskatchewan, AB T8L 1W3, Canada	Safety	Speeders using Sheridan to cut across town
53.69274257	-113.2152271	9332 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Safety	Speeders using south fort drive to cut across town,
53.71158684	-113.215608	10006 100 Ave, Fort Saskatchewan, AB T8L 0J3, Canada	Safety	Speeding through the park, "taking a shortcut". Change 100th Ave. from 101 St to 100 St. to a one-way. Direction of travel being from 100st. to 101st.
53.70143218	-113.2051274	8908 101 St, Fort Saskatchewan, AB T8L, Canada	Safety	Takes far too long to cross Hwy 21
53.68311077	-113.2109571	94 St, Fort Saskatchewan, AB T8L 0E9, Canada	Safety	Terrible 2 way stop. Needs to be a 4 way or lights there to help ppl turn
53.70646218	-113.2343674	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	The bridge should have been replaced or widened years ago.
53.70630977	-113.2342815	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	The Highway 15 bridge is too small. It cannot handle rush hour traffic. The volume and congestion causes lots of accidents on and around the bridge.
53.70981519	-113.213253	9817 101 St, Fort Saskatchewan, AB T8L 1V5, Canada	Safety	The light patterns at this intersection are very inconsistent therefore when you are at this light heading east you never know if you will get a left turn signal.
53.69922739	-113.2217945	AB-15, Fort Saskatchewan, AB T8L 1L9, Canada	Safety	The lip of the foot-bridge could possibly be a hazard not only to foot traffic, but to mobility scooter/wheelchair access. Both ends of bridge have a distinct drop that should be addressed - transition from trail to bridge should be less "abrupt".

Latitude	Longitude	Address	Type	Comment
53.68885136	-113.2166862	141 Calvert Wynd, Fort Saskatchewan, AB T8L, Canada	Safety	There are a lot of cars that park right on Calvert Wynd, right up to Allard Way. It makes it very difficult to see if anyone is coming/pedestrians when you are turning off of Allard way onto Calvert Wynd.
53.68974716	-113.2184511	48 Campbell Ct, Fort Saskatchewan, AB T8L 0E5, Canada	Safety	There are a lot of children playing in this court. I believe there should be a children playing sign at the entrance. That way motorists are aware that there are children around here. There are no sidewalks once you get past the first few houses.
53.67217384	-113.2674873	Township Rd 543, Fort Saskatchewan, AB T8L 4A1, Canada	Safety	There are several trail-users (walking and bicycles) that utilize Township Rd 543 to connect from the neighborhood areas to the West Rivers Edge/Dow Ball Fields which. This is unsafe for trail users. Widen road or install parallel trail please.
53.68896572	-113.2153827	15 Bremner Crescent, Fort Saskatchewan, AB T8L 0E2, Canada	Safety	There is a park here that kids play at, yet there is no 30 km/hr park zone there. It is very dangerous with the many crosswalks on these roads.
53.68888313	-113.2156402	18 Brunette Pl, Fort Saskatchewan, AB T8L 0J7, Canada	Safety	There is a play ground here but no playground zone. There should be one on Bremner Crescent as a minimum.
53.70212448	-113.2271737	99 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	There is a pothole southbound on 99ave on the downstream edge of the bridge.
53.68981784	-113.2183278	60 Campbell Ct, Fort Saskatchewan, AB T8L 0E5, Canada	Safety	There is no sidewalk in this area so children play in the street. A sign warning vehicles that children are playing should be posted at the entrance to the court.
53.68889742	-113.2192504	8 Campbell Ct, Fort Saskatchewan, AB T8L 0C4, Canada	Safety	There is no sidewalk in this area so children play in the street. A sign warning vehicles that children are playing should be posted at the entrance to the court.
53.68212268	-113.2461047	21-23 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Safety	There needs to be a painted crosswalk here, at the exit/entrance by Husky. It's difficult to cross with 2 lanes turning while exiting and one coming in from Westpark Blvd. Cars block access to the other side.
53.68461032	-113.2390022	4093 AB-21, Fort Saskatchewan, AB T8L, Canada	Safety	There needs to be signage on the trails, for all users, to be considerate and let those in front of you know that you are approaching. Several times my friend & I have almost been run over by cyclists, etc. Signage would be good for safety. Tk You
53.70597318	-113.2336485	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	This bridge is ridiculous given the traffic!
53.6889816	-113.2243252	8902 Southfort Dr, Fort Saskatchewan, AB T8L 4R6, Canada	Safety	This road should be two lanes both directions to the south end. The bottleneck where southbound just past Coop Service Station is dangerous right now. At the very least the curb lane should be forced to turn right at the intersection with signs.
53.71326952	-113.2470703	4472 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	this whole section here is unsafe with the hill and single lane traffic.
53.70851111	-113.1959435	4689 112 St, Fort Saskatchewan, AB T8L, Canada	Safety	Timing off at intersection.
53.69134495	-113.246448	9620 82 St, Fort Saskatchewan, AB T8L 3J2, Canada	Safety	To congested during school pick up times.
53.70674161	-113.2350326	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Too much traffic for 2 lanes
53.69970456	-113.2220078	95 St & AB-15, Fort Saskatchewan, AB T8L, Canada	Safety	Traffic exiting is affected by traffic trying to cross the bridge and blocking the curb lane waiting to merge to the left.
53.71580928	-113.1559181	Township Road 550, Fort Saskatchewan, AB T8L, Canada	Safety	Traffic is traveling way too fast.
53.69159907	-113.218317	Allard Way, Fort Saskatchewan, AB T8L 0C1, Canada	Safety	Traffic lights are a great addition. The problem is that drivers will run the red light on a regular basis.
53.70046676	-113.2237244	1027 AB-15, Fort Saskatchewan, AB T8L, Canada	Safety	Traffic shortcutting the hwy 15 /94 street congestion going through town at peak hours often speeding and driving aggressively. poor merging habits
53.69487703	-113.2145405	8701-8725 94 St, Fort Saskatchewan, AB T8L 4E7, Canada	Safety	Traffic trying to cross / turn left. Lots of close calls and people crossing multiple lanes. Poor access location
53.71494578	-113.2612324	150 AB-37, Gibbons, AB T0A 1N0, Canada	Safety	Traffic turning left from #825 onto Hwy 37 has difficult time and often cuts of other motorists. Need better option that doesn't interrupt traffic flow
53.69629994	-113.2166004	4947 AB-21, Fort Saskatchewan, AB T8L, Canada	Safety	Traffic turning left from Hwy 21 NB onto Hwy 15 often remains in the intersection because people turn before there is somewhere to turn to (traffic backed up from other side of bridge)
53.68857499	-113.2390344	8423 94 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	Trees on the corner make it difficult to see cars coming along 94 Ave when turning from 84 Street onto 94 Ave. The tree should be cut down or trimmed to improve visibility.
53.68369534	-113.2306767	Southfort Dr, Fort Saskatchewan, AB T8L 4P5, Canada	Safety	turn lanes required. getting too busy and holding up traffic trying to turn. all directions. i take other routes to avoid this intersection during peak hours if I need to turn
53.71006919	-113.2132316	9819-9859 101 St, Fort Saskatchewan, AB T8L, Canada	Safety	Turning left here is dangerous because it's hard to see oncoming traffic. Lots of near accidents at this location, especially when busy.
53.70138137	-113.2055283	89 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	Turning right off 101 street onto highway 15 to proceed south is dangerous as there is not a proper merge lane.
53.69680811	-113.2156563	36 89 Ave, Fort Saskatchewan, AB T8L, Canada	Safety	Un acceptable backups of traffic trying to get on to Hwy 15 and the bridge. Hwy 15 cannot handle traffic if evacuation required.
53.70575091	-113.2328224	574 AB-15, Gibbons, AB T0A 1N0, Canada	Safety	Unacceptable backlog during rush hours.
53.70926074	-113.2145599	10025 99 Ave, Fort Saskatchewan, AB T8L 1R6, Canada	Safety	Vehicles moving east & turning right off 99ave (to access Fort Christian student drop off/pick up in the church parking lot) can't see vehicles moving parallel to them on the side street, thus causing confusion on right of way & potential collision
53.70926074	-113.2145599	10025 99 Ave, Fort Saskatchewan, AB T8L 1R6, Canada	Safety	Vehicles moving east & turning right off 99ave (to access Fort Christian student drop off/pick up in the church parking lot) can't see vehicles moving parallel to them on the side street, thus causing confusion on right of way & potential collision
53.68893872	-113.2191405	112 Campbell Ct, Fort Saskatchewan, AB T8L 0E5, Canada	Safety	Vehicles park extremely close to the corners on all sides of this intersection. It makes it very difficult to see traffic when entering or exiting.
53.68887518	-113.2167292	141 Calvert Wynd, Fort Saskatchewan, AB T8L, Canada	Safety	Vehicles park extremely close to the corners on all sides of this intersection. It makes it very difficult to see traffic when entering or exiting.
53.70329094	-113.1943632	8311-8599 111 St, Fort Saskatchewan, AB T8L 4S1, Canada	Safety	Very dangerous intersection for making turns onto 86 Ave.
53.70021269	-113.2042408	8815 101 St, Fort Saskatchewan, AB T8L 4J6, Canada	Safety	Very difficult to turn left from the Tim's/KFC area onto 101 Street due to traffic coming off the Highway and traffic off of 86 Avenue onto 101 Street northbound. I've seen many close calls and a few accidents at that intersection.
53.68613524	-113.2561684	625 Westpark Dr, Fort Saskatchewan, AB T8L 4J2, Canada	Safety	Very few people do the speed limit in either direction going around Pryce Alderson.
53.68905784	-113.2240677	8902 Southfort Dr, Fort Saskatchewan, AB T8L 4R6, Canada	Safety	Very poor lighting at this very busy bus stop . Accident waiting to happen if a passenger is running to catch the bus or pedestrians to cross the road
53.69797688	-113.2195762	AB-15, Fort Saskatchewan, AB T8L 1L9, Canada	Safety	Would be fantastic if there was some underpass connecting both sides of the city here.
53.69124331	-113.2234025	8820 92 St, Fort Saskatchewan, AB T8L 4E7, Canada	Sidewalk Link	
53.68180179	-113.2504392	110-214 Westpark Dr, Fort Saskatchewan, AB T8L 4M5, Canada	Sidewalk Link	A direct sidewalk route to the Tim's, Brewhouse, etc would be great to have. MANY people have already made a trail along the fence here, which speaks to the need of one.
53.68226565	-113.2101202	94 St, Fort Saskatchewan, AB T8L 0E9, Canada	Sidewalk Link	A sidewalk and/or walking trail connecting Sienna to the new school will be important for when the school opens in Sept. 2017.
53.69952672	-113.2314062	8930 99 Ave Unit 110, Fort Saskatchewan, AB T8L 3L1, Canada	Sidewalk Link	Crossings at 90st and 99ave are totally inadequate for mobility scooters, wheelchairs and strollers. Pri#1 in my books.
53.68202419	-113.2459331	21-23 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Sidewalk Link	It would be nice to be able to cross between both sides of Westpark Blvd so you can walk to dinner and stop at shoppers AND the liquor store on your way home rather than driving or walking to one of the other crosswalks. People already cross here.
53.67293017	-113.2908225	3220 211 Ave NE, Edmonton, AB T5Y 6P1, Canada	Sidewalk Link	KUDO's for the wonderful trail system, and the latest addition that we just fell in love with! Keep up the good work!
53.68141417	-113.2480225	214 Westpark Dr Unit 5, Fort Saskatchewan, AB T8L 4M1, Canada	Sidewalk Link	No handicap ramp coming down off sidewalk behind Restaurant.
53.68169853	-113.2478267	100 Westpark Blvd, Fort Saskatchewan, AB T8L 0B2, Canada	Sidewalk Link	No handicap ramp off sidewalk corner at intersection from Gas station to Drug Store parking lot.
53.68621148	-113.2370496	6184 AB-21, Fort Saskatchewan, AB T8L, Canada	Sidewalk Link	Pedestrian overpass required for safety . Hwy. 21 gets extremely busy with many impatient drivers.
53.71306633	-113.2097769	10409 100 Ave, Fort Saskatchewan, AB T8L 1Z3, Canada	Sidewalk Link	Should be a proper stair connecting the parking lot at Scotia Bank to the alley, mid-way between the United Church and Fotty Stevenson Wilson parking lot. Maintained in winter. Access is difficult for pedestrians espcially in winter.
53.69944732	-113.2313633	8930 99 Ave Unit 110, Fort Saskatchewan, AB T8L 3L1, Canada	Sidewalk Link	Sidewalk ramp to street level has dangerous lip, hard for scooter to negotiate, probably impossible for someone in a wheelchair. Both sides of the street have same problem
53.70105109	-113.2287669	99 Ave, Fort Saskatchewan, AB T8L, Canada	Sidewalk Link	Sidewalk ramps are not up to standard and need refinishing to meet the street, not "drop" onto the street and not be able to get off again... :>(
53.70641138	-113.209691	9611 101 St, Fort Saskatchewan, AB T8L 1T9, Canada	Sidewalk Link	Sidewalks on either side of 101 street are barely passable for strollers, wheelchairs and mobility scooters. When are these being updated?
53.69616019	-113.2470918	8322 100 Ave, Fort Saskatchewan, AB T8L 3H4, Canada	Sidewalk Link	Some sidewalks are cracking and irregular heights. Minor to moderate but getting worse each year.
53.69091295	-113.2297325	7412 AB-21, Fort Saskatchewan, AB T8L, Canada	Sidewalk Link	The existing walking trail along highway 21 has no access to Pineview, from corner of Highway 15/21 to 84 St. This is a unreasonable distance for seniors to walk to acces the trail system
53.7135997	-113.2088757	10511 100 Ave, Fort Saskatchewan, AB T8L 1Z5, Canada	Sidewalk Link	The sidewalk along 106 Street, next to the GT Mall ends at the alley and does not continue to the corner. Pedestrians have to walk on the road to get to the corner, sidewalk and crosswalk across 100Ave.
53.71545373	-113.2029533	10913 100 Ave, Fort Saskatchewan, AB T8L 2A3, Canada	Sidewalk Link	The sidewalk ends at the end of the residences on 100 Ave. Continuing the sidewalk to meet up with the walking trails along Ross Creek. Now you have to walk on the road and traffic is not always courteous to pedestrians. It's unsafe.

Latitude	Longitude	Address	Type	Comment
53.71001839	-113.2095623	9805 103 St, Fort Saskatchewan, AB T8L 2C7, Canada	Sidewalk Link	The vegetation on a vacant lot in this area is overhanging the public sidewalk. The boulevard has also not been maintained.
53.71469181	-113.2094765	10009 106 St, Fort Saskatchewan, AB T8L 2G8, Canada	Sidewalk Link	Vegetation on some private residential private properties in Downtown are overhanging public sidewalks. This should be checked and remedied periodically. Overhead branches or shrubs narrowing the sidewalk are a hazard.
53.70209272	-113.2278442	99 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	
53.73449725	-113.2701588	55003-55101 Range Rd 230, Gibbons, AB T0A 1N0, Canada	Traffic Operation	
53.69317455	-113.2133818	9401 86 Ave, Fort Saskatchewan, AB T8L 0C6, Canada	Traffic Operation	
53.69373358	-113.5590219	27 Riverridge Rd, Sturgeon County, AB T8T, Canada	Traffic Operation	
53.69325079	-113.2130814	9334-9408 86 Ave, Fort Saskatchewan, AB T8L 0C6, Canada	Traffic Operation	
53.70940878	-113.2396889	574 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	
53.69325079	-113.2125235	9401 86 Ave, Fort Saskatchewan, AB T8L 0C6, Canada	Traffic Operation	
53.68938821	-113.2230806	8902 Southfort Dr, Fort Saskatchewan, AB T8L 4R6, Canada	Traffic Operation	
53.6842545	-113.2309771	41 Galloway Wynd, Fort Saskatchewan, AB T8L 0A3, Canada	Traffic Operation	
53.70651299	-113.2099056	9608 101 St, Fort Saskatchewan, AB T8L 1V2, Canada	Traffic Operation	101 st is only two lanes and is congested, from 99 ave to highway 15. It should be widened to 4 lanes.
53.70625896	-113.2096481	9609 101 St, Fort Saskatchewan, AB T8L 1T9, Canada	Traffic Operation	101st Street needs to become 4 lanes at some point -- since you own all of the lots along the southwest side -- or another route into downtown needs to be identified with an attempt to direct motorists there as their main point of entry for downtown.
53.68257701	-113.250246	Westpark Dr, Fort Saskatchewan, AB T8L 4M5, Canada	Traffic Operation	4 way stop is backed up during peak hours.
53.71367589	-113.2602882	3314 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	4:00-6:00 going west is very congested
53.66651043	-113.245697	1845 AB-21, Fort Saskatchewan, AB T8L 4A1, Canada	Traffic Operation	A new highway bypassing the city would alleviate much of the rush hour traffic. People from Sherwood Park and Edmonton would not have to drive through the city.
53.68222753	-113.2096589	94 St, Fort Saskatchewan, AB T8L 0E9, Canada	Traffic Operation	A road linking Sienna to the new school and Southpointe area will alleviate some of the traffic on Highway 21 and Southfort Drive. It will also be important for children in Sienna to get to the new school when it opens in Sept. 2017.
53.7100549	-113.2132342	9819-9859 101 St, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Advanced left turn signal for all directions comes AFTER green light which doesn't help traffic flow because it's not a dedicated turn lane. Make it so each direction has the green AND advanced for better flow.
53.69530899	-113.2112789	87 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	All entrance/exits in thia complex need to be widened to include left turn lanes. You can sit there forever waiting to get out of the mall.
53.68246264	-113.2466626	25-35 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Between 5 and 7 you can't make a left turn. Why build hopping ares to attract customers and not pre think the congestion.
53.7105264	-113.2414055	491 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	bridge - morning and evening traffic a major congestion area, accidents and safety a major concern. Delays cause impatient drivers = more accidents
53.65810608	-113.2444739	23011 Township Rd 542, Fort Saskatchewan, AB T8L 3Z9, Canada	Traffic Operation	Bypass road long overdue. Should probably go west to new bridge from this intersection.
53.69459752	-113.2141972	8701 94 St, Fort Saskatchewan, AB T8L 4E7, Canada	Traffic Operation	Can't make left turn - high traffic area and you can't move. Can our developers not have any vision for the future when designing. Just because your design may thrill the eye of the designer, doesn't mean it will function. Don't complicate things.
53.69444506	-113.2141489	8701 94 St, Fort Saskatchewan, AB T8L 4E7, Canada	Traffic Operation	Cars should not be able to go straight across or turn left coming out of the commercial areas.
53.68194158	-113.209101	94 St, Fort Saskatchewan, AB T8L 0E9, Canada	Traffic Operation	Completing the link from 94 Street to Wilshire Blvd will alleviate some of the traffic on Highway 21 and Southfort Drive. People in Sienna and potentially Southpointe would be able to bypass those routes.
53.69624912	-113.2163858	665 AB-15, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Congestion in all directions due to bridge bottleneck.
53.71500927	-113.2613397	150 AB-37, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Congestion of traffic is extreme in this area. traffic control is a must. Possibly a relocation to highway access
53.70655427	-113.2190466	9901 99 Ave, Fort Saskatchewan, AB T8L 1R6, Canada	Traffic Operation	DIFFICULT TO TURN LEFT AT THIS SET OF LIGHTS WITH SECONDARY SIDE ROAD. NO LIGHT FOR TRAFFIC TURNING LEFT FROM SHERRIDON DRIVE
53.6944692	-113.2140813	8701 94 St, Fort Saskatchewan, AB T8L 4E7, Canada	Traffic Operation	Difficult to cross 94 Street from one commercial area to the other due to traffic traveling both ways on 94 Street.
53.68220847	-113.2463322	20 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Difficult to exit onto Westpark Blvd from either side of the commercial areas due to volume of traffic on Westpark Blvd.
53.69164989	-113.2183975	9280 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Traffic Operation	Difficult to make a left hand turn into the home depot area in rush hour. Usually wait for a few lights. Is there a turning light here?
53.68202419	-113.2458472	21-23 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	During rush hour it is difficult to make the left turn onto Westpark Blvd from the stop sign due to traffic volume, and vice versa turning right from the other side of the road.
53.71418385	-113.2594299	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	during rush hours and peak periods of traffic entering and leaving the lights are an issue
53.69158319	-113.2185692	9220 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Traffic Operation	Even though the signs show which lane to be in, the road itself has so many misleading lines that people get confused which lane to be in.
53.69638557	-113.216579	665 AB-15, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	facing northwest on 94 st & turning left onto hwy 21; if there is a vehicle in front of you, can't see the turning arrow making it dangerous to enter the intersection, and slowing traffic if you wait & enter the intersection only when you can see it
53.69140213	-113.2188964	9220 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Traffic Operation	Finish twinning Southfort Dr
53.70747192	-113.2364058	574 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Grossly deficient
53.6916213	-113.2184511	9280 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Traffic Operation	Have a walk signal with each green light instead of only when button is pushed. Sometimes you have to wait a long time to cross, or people dont wait and cross on the hand.
53.68613524	-113.2360411	8775 84 St, Fort Saskatchewan, AB T8L 0A3, Canada	Traffic Operation	Have left turn signals operateung at all times of day, have them triggered only when vehicles are turning
53.70999299	-113.2131672	9817 101 St, Fort Saskatchewan, AB T8L 1V5, Canada	Traffic Operation	Have turn signals come on first not at the end. Current setup backs up traffic
53.7109836	-113.2424355	491 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Highway 15 bridge urgently requires widening to 4 lanes. This bridge is highly congested and has accidents that cause major holdups. This bridge doesn't even have a sidewalk allowing people to walk/bike across!
53.70131785	-113.2053888	89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	HWY15 onto 101 St N despite having the best visibility of any turn in FS you have to wait for a turn light even when there is no oncoming traffic
53.70131785	-113.2053888	89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	HWY15 onto 101 St N despite having the best visibility of any turn in FS you have to wait for a turn light even when there is no oncoming traffic
53.69160542	-113.218419	Allard Way, Fort Saskatchewan, AB T8L 0C3, Canada	Traffic Operation	I believe that the walk signal should be on each time the light changes to green. If a vehicle triggers the light seconds before you get to the intersection you have to wait through two light cycles before you can cross.
53.71410359	-113.2601509	150 AB-37, Gibbons, AB T0A 1N0, Canada	Traffic Operation	I don't think I need to state the obvious and continually on-going issue with this intersection. We need a solution.
53.68602087	-113.2358694	8775 84 St, Fort Saskatchewan, AB T8L 0A3, Canada	Traffic Operation	in the afternoon hours going away from the DCC there is very little time to get through the intersection. someone could be waiting near the dcc going straight and they would not be able to get through for 2 or 3 cycles since the timing is so short.
53.69077319	-113.2459331	9610 82 St, Fort Saskatchewan, AB T8L 3J2, Canada	Traffic Operation	insufficient parking for people picking up students.
53.71001839	-113.2129955	10109 99 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	It is difficult to turn left here during the evening rush hour. The green arrow helps, but very often there are cars going straight in that lane. It takes a long time to turn.
53.71390447	-113.2599449	150 AB-37, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Lanes need to be added.
53.6869485	-113.2347107	6418 AB-21, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Large transport truck in both lanes at varying times of day.
53.68603358	-113.2363844	6184 AB-21, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Left turn advance light way too short for volume of traffic waiting to turn, often exceeds more than 10 vehicles waiting through several light cycles to turn, 3 to 5 cycles on a regular basis. Hwy 21 northbound, left at 84, 4:45 until approx 6:15
53.71005332	-113.2132155	10109 99 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Left turn lights don't work very well. 101 St is not a true four lane road and cars are always stopped in "left turn lane" but not turning left with cars that want to turn left stopped behind them unable to proceed.
53.69635076	-113.2162571	8233 89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Left turn onto 94st from Hwy 15 is poorly timed for traffic arriving from Hwy 15/101st. The same issue exists at Hwy 15/101st, which causes a lot of traffic to use 112st / 86 Ave so that we can hit a left turn that is timed well and not sit long
53.68379383	-113.2005501	Sienna Blvd, Fort Saskatchewan, AB T8L 0E9, Canada	Traffic Operation	Linking Sienna Blvd to Range Road 224 will alleviate some rush hour traffic at Highway 15 and Highway 21. People in Sienna will be able to bypass that area.
53.69660484	-113.2154846	8233 89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Major highways require relocation(bypass) to accommodate industrial and inter city strain.
53.71418385	-113.2579708	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Morning and late afternoon are worse times for getting through the bridge because of all the workers getting to work.
53.70204191	-113.2268143	1027 AB-15, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Need a left turn lane on 94 street
53.7066527	-113.2347107	574 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Need a second bridge to reduce congestion and accidents
53.70650638	-113.1987691	8162 89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	need a third lane
53.71457091	-113.2602668	150 AB-37, Gibbons, AB T0A 1N0, Canada	Traffic Operation	need an overpass
53.68379066	-113.2307464	Southfort Dr, Fort Saskatchewan, AB T8L 4P5, Canada	Traffic Operation	Need to have traffic lights at this intersection. At least a 3 way stop until twining is completed
53.70046676	-113.204155	8815 101 St, Fort Saskatchewan, AB T8L 4J6, Canada	Traffic Operation	Patrons trying to leave the shopping centre get into near misses leaving the two centres.

Latitude	Longitude	Address	Type	Comment
53.70991679	-113.213253	9817 101 St, Fort Saskatchewan, AB T8L 1V5, Canada	Traffic Operation	Poorly timed left turn signal for traffic which is arriving and turning left onto 101st. Must sit and wait entire duration of light to get left advance, making motorists choose 94 st / Hwy 15 (also bad) or earlier at 112st
53.71006602	-113.2132262	9819-9859 101 St, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Really really needs a fix to the red light, no turning lane issue.
53.70592873	-113.2337236	574 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Rush hour congestion Northbound. More lanes needed between hwy 21 and 37
53.69163719	-113.2183599	9280 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Traffic Operation	Sensor from Allard way / Home depot side of intersection is very disruptive to Southfort drive traffic flow. Should have a 10 s delay to minimize triggering caused by vehicles stopping and making right hand turns. People speed to make the light
53.71389812	-113.2599074	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Single lane both directions, high traffic flowing from all three directions and short lights
53.70615735	-113.2341957	574 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Single lane bridge going north from 4:00 on is very congested. Anytime there is an accident either way the bridge is very congested or closed. Need to double this or make a new bridge.
53.70412509	-113.2329082	AB-15, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Southbound between 5-6:30
53.68964234	-113.2222652	9202 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Traffic Operation	Southfort Drive needs to have two lanes in each direction. Congestion in both directions is caused by vehicles turning, stopping, etc.
53.71467752	-113.1882575	89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Speed should be changed to 80kph
53.71499658	-113.2612109	150 AB-37, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Stop sign backs up traffic for kilometers
53.70632247	-113.2343245	574 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	The Bridge and Road needs to be twinned. The congestion of traffic is outrageous. I would also consider this a safety issue as well.
53.68610982	-113.2359123	6184 AB-21, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	The green arrow advance needs to be in service more often, especially turning left off Hwy 21 around noon.
53.71377748	-113.2598591	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	The issue of backed up traffic is not the bridge's fault. The issue being primarily caused by lack of free flow on Hwy 37 / 15 intersection. Upgrading the intersection could buy time on the construction of bridge and be cheaper short term relief.
53.69670648	-113.2163429	4800 89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	The issues from highway 15 back up onto highway 21
53.70519204	-113.2217503	9503 99 Ave, Fort Saskatchewan, AB T8L 1R4, Canada	Traffic Operation	The left turn from 99 Ave to 95 Street during afternoon rush hour is extremely congested. This stems from the fact that the Highway 15 bridge is too small.
53.69031577	-113.2209027	9202 Southfort Dr, Fort Saskatchewan, AB T8L 0C5, Canada	Traffic Operation	The light changes too frequently thus stopping the overloaded traffic on Southfort Drive. During peak hours residents leaving or coming from the areas onto the arterial roads should have to wait longer to ensure traffic keeps flowing.
53.71398067	-113.2597733	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	The lights at the HWY 15 and HWY 37 intersection cause significant congestion back into Fort Saskatchewan (its not the bridges fault). Add additional lane for east bound HWY 15 to allow access into Fort bypassing lights + north lane from HWY 15to 825
53.70131785	-113.2053888	89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	The lights for the turning bay from HWY15 onto 101 Street Northbound need to be changed. They do not stay on long enough to clear the number of vehicles in the bay. Despite having the best visibility of any of the turning bays in FS you can only turn
53.69444506	-113.214106	8701 94 St, Fort Saskatchewan, AB T8L 4E7, Canada	Traffic Operation	There always seems to be a high volume of traffic here and turning/crossing 94 St from either side always takes a long time. I use other routes now to get to businesses on either side rather than here.
53.68857499	-113.2390022	8423 94 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	There is a need for some kind of Traffic control at this intersection due the volume of the traffic. It is very difficult to enter 94 Ave off 0f 84 St.
53.7012988	-113.2057214	89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	There is no merge lane from 101 Street onto HWY 15. It is the only entrance onto HWY 15 or HWY 21 within Fort Saskatchewan which does not have a merge lane causing confusion for motorists and restricts the free flow of traffic (all times of day).
53.7012988	-113.2057214	89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	There is no merge lane from 101 Street onto HWY 15. It is the only entrance onto HWY 15 or HWY 21 within Fort Saskatchewan which does not have a merge lane causing confusion for motorists and restricts the free flow of traffic (all times of day).
53.7012988	-113.2057214	89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	There is no merge lane from 101 Street onto HWY 15. It is the only entrance onto HWY 15 or HWY 21 within Fort Saskatchewan which does not have a merge lane causing confusion for motorists and restricts the free flow of traffic (all times of day).
53.7012988	-113.2057214	89 Ave, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	There is no merge lane from 101 Street onto HWY 15. It is the only entrance onto HWY 15 or HWY 21 within Fort Saskatchewan which does not have a merge lane causing confusion for motorists and restricts the free flow of traffic (all times of day).
53.68631314	-113.2356548	9134 AB-21, Fort Saskatchewan, AB T8L 4E9, Canada	Traffic Operation	There is significant traffic congestion on west bound HWY 21 in evening hours (~5pm). Suggestion for lights to allow 84 street traffic to cross HWY 21 have the intervals between cycles lengthened to allow better flow of traffic on Highway 21.
53.71398067	-113.2594299	2056 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	This area needs two lanes both ways and an overpass to keep morning and afternoon commute traffic flowing.
53.70646218	-113.2352257	574 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	This bridge need to be twinned in some form. If there is an accident, or excessive weather conditions, it makes it impossible to get through.
53.68865123	-113.2250547	8902 Southfort Dr, Fort Saskatchewan, AB T8L 4R6, Canada	Traffic Operation	This drive needs to increased to 4 lanes.
53.71398067	-113.2599449	150 AB-37, Gibbons, AB T0A 1N0, Canada	Traffic Operation	This intersection bottlenecks from all sides during rush hour. It's not uncommon for traffic to back up for miles, even stretching into the downtown area. This is not only inconvenient, but also very unsafe for road users during this time.
53.68849875	-113.2389164	9313 84 St, Fort Saskatchewan, AB T8L 3N9, Canada	Traffic Operation	This intersection needs to be a traffic light or 3 way stop at the least.
53.68861311	-113.2389379	8410 94 Ave, Fort Saskatchewan, AB T8L 2R6, Canada	Traffic Operation	this is a bad intersection, road curves and with people failing to signal its difficult to tell if they are turning or not. would be better as a 3 way stop
53.70636057	-113.2343674	574 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	Too much government inaction, studies and indecision for proper bridge, highway upgrade and railroad grade separation have been ongoing for 10 years and perhaps for another 10years before "meaningful construction" will take place. EMBARRESSING !!
53.69878992	-113.2003784	10101 86 Ave, Fort Saskatchewan, AB T8L 4P4, Canada	Traffic Operation	Too much non resident traffic using 86 st to avoid using The highways.
53.70554768	-113.2328224	AB-15, Fort Saskatchewan, AB T8L 4H3, Canada	Traffic Operation	Traffic from plant workers going to/from work causes congestion.
53.70019046	-113.2039672	10101 88 Ave, Fort Saskatchewan, AB T8L 4K1, Canada	Traffic Operation	traffic issues entering or leaving this intersection
53.68135698	-113.2435513	321 Westpark Blvd, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Turning left from Westpark blvd onto 21 is slow during peak traffic times. Cars are often backed up.
53.69496596	-113.2144761	8701-8725 94 St, Fort Saskatchewan, AB T8L 4E7, Canada	Traffic Operation	Very difficult to turn left from the Shoppers/Starbucks area onto 94th Street due to the flow of traffic coming from Highway 21 as well as traffic coming out of the Walmart parking lot.
53.70611874	-113.2343674	574 AB-15, Gibbons, AB T0A 1N0, Canada	Traffic Operation	We urgently need another bridge access into/out of Fort Sask.
53.68583026	-113.2295179	8602 Southfort Dr, Fort Saskatchewan, AB T8L, Canada	Traffic Operation	Widen Southfort Drive to four lane all the way to Wilshire Blvd sooner than later. This road is a main thorough fare to move through the city away from the highway traffic and is becoming congested.
53.68389867	-113.2307625	Southfort Dr, Fort Saskatchewan, AB T8L 0A3, Canada	Traffic Operation	You may need to put a traffic light here, as it's tough to change direction onto Southfort at times. Especially with the school going in.
53.67350218	-113.2707596	Pointe Aux Pins Rd, Fort Saskatchewan, AB T8L 0H2, Canada	Trail Link	A link from this location East would provide a pathway for pedestrians and cyclists as an alternate to the very busy TWP rd 543.
53.67289204	-113.2616615	Wilshire Blvd, Fort Saskatchewan, AB T8L 0G3, Canada	Trail Link	A trail link from this location to the Dow Ball Diamonds would allow pedestrians and cyclists safer access between the neighborhood areas and the Dow Fields
53.67408689	-113.2708025	Pointe Aux Pins Rd, Fort Saskatchewan, AB T8L 0H2, Canada	Trail Link	Again some pavement would be nice to have when crossing the section on a bike, rollerblades, etc vs the gravel now present. In the future this road to the ball fields needs regular pavement on it and the parking lot paved
53.70905316	-113.1973743	4689 112 St, Fort Saskatchewan, AB T8L, Canada	Trail Link	Are there any plans to link Lowe Ave via Trail to the South Side of the FSG&CC/Hwy 15? There is absolutely no handicap access to the Light Industrial areas/Home Hardware/Modo Mio/etc.
53.68987105	-113.2611465	442 Riverpark Dr, Fort Saskatchewan, AB T8L 4J7, Canada	Trail Link	Finish path to lower level from street level to lower trail by river
53.68562694	-113.2094121	94 St, Fort Saskatchewan, AB T8L 0G1, Canada	Trail Link	Finish trail connecting South Pointe to Sienna. Gravel hill is dangerous. Need a designated crosswalk at this location too many people crossing all over the place, only a matter of rime till someone gets hit.
53.6977355	-113.2141542	1877 89 Ave, Fort Saskatchewan, AB T8L, Canada	Trail Link	Flooding occurs on the trail in this low lying area. In the winter this means the path is one big frozen pond.
53.69053177	-113.2144547	116 Becker Crescent, Fort Saskatchewan, AB T8L 0C2, Canada	Trail Link	Improper drainage along this and most trail routes. Even with minimal rain parts of these trails are covered in water for a lot longer than should be.
53.70503962	-113.2335949	AB-15, Fort Saskatchewan, AB T8L 4H3, Canada	Trail Link	Look outs , garbage/cigarette cans and lights along the path in the river valley.
53.684102	-113.2693863	River Valley Dr, Fort Saskatchewan, AB T8L 0B1, Canada	Trail Link	More representation needed in this area of fort Saskatchewan for the trails
53.6935303	-113.2532072	7906 100 Ave, Fort Saskatchewan, AB T8L 3K3, Canada	Trail Link	Needs a path to lower trail by riverside
53.68028942	-113.2414055	1 Reed Ct, Fort Saskatchewan, AB T8L 0E8, Canada	Trail Link	No path to the cross walk, you have to go across grass to cross the street
53.70585252	-113.1983185	11141 89 Ave, Fort Saskatchewan, AB T8L 3K8, Canada	Trail Link	OR - Extend the trail from McDonalds to Modo Mio so I can utilize my Mobility Scooter to access Home Hardware/other businesses.
53.69173883	-113.2519197	9806 79 St, Fort Saskatchewan, AB T8L 3G8, Canada	Trail Link	Our trails need to be repaved. Trying to rollerblade on them in dangerous. Ruts and cracks/holes in them and one part is on a slant so you walk half rolling your ankles
53.67998084	-113.2670388	50 Cottonwood Crescent, Fort Saskatchewan, AB T8L 0H8, Canada	Trail Link	Paved trail behind Cherry Pointe and Cottonwood Bend would be beneficial.

Latitude	Longitude	Address	Type	Comment
53.67279034	-113.2711458	Pointe Aux Pins Rd, Fort Saskatchewan, AB T8L 0H2, Canada	Trail Link	Pavement is needed for pathway crossing this old gravel road that is now going to be used for the dog park access.
53.71494578	-113.2129955	10304-10306 102 Ave, Fort Saskatchewan, AB T8L 2B4, Canada	Trail Link	Rain water/ melting snow runs down the side of this trail from 102 Ave and 105 Street, towards the river valley in great volume, forming a deep gulley. Better drainage is required.
53.67692136	-113.2340026	Monarch Cl, Fort Saskatchewan, AB T8L 0E3, Canada	Trail Link	Somewhere along here a trail head leads to the street, but the curb is full height. Any plans to install a proper ramp?
53.67576472	-113.2904577	3123 211 Ave NE, Edmonton, AB T5Y 6K5, Canada	Trail Link	there are some spots on this new pathway that need patching as there is patches with missing pavement, flaws in the pavement
53.68608441	-113.2099485	94 St, Fort Saskatchewan, AB T8L 0G1, Canada	Trail Link	There is a cross walk to cross over to Sienna but no path on the west side of the road, you have to go across dirt, grass, mud to get there
53.70912937	-113.1981897	38 Lowe Ave, Fort Saskatchewan, AB T8L 2L1, Canada	Trail Link	There is no trail link to the Ross Creek Trail from 101 St. There should be an unbroken trail loop all around FS
53.70040959	-113.2363093	12-42 Countryside Condos, Fort Saskatchewan, AB T8L, Canada	Trail Link	Trail connector to condo parking lot or ring road would be great.
53.70158461	-113.1966019	11090 86 Ave, Fort Saskatchewan, AB T8L 4K6, Canada	Trail Link	Trail suddenly stops just prior to the cemetery, but no way to get on or off the sidewalk/trail from the road (No mobility ramp!), so I have to scoot down the road from the last intersection. Who builds a sidewalk/trail with no ramp onto the street?
53.69269175	-113.2232738	8226 AB-21, Fort Saskatchewan, AB T8L, Canada	Trail Link	When is the trail going to be connected around the old go-cart property to tie in the old road/trail behind new retirement homes, to the road/trail behind the Home Depot/Shoppers Drug store?

Appendix B

"Traffic Calming Design Standards for New Residential Streets: A Proactive Approach" from the Institute of Transportation Engineers Journal of March 2003

Traffic Calming Design Standards for New Residential Streets: A Proactive Approach

ONE U.S. COUNTY HAS DEVELOPED A PROACTIVE APPROACH TO ACHIEVE TRAFFIC CALMING IN NEW SUBDIVISIONS THAT HAVE NOT YET BEEN BUILT. DEVELOPERS WILL BE REQUIRED TO INCLUDE IN THEIR PLANS DESIGN FEATURES TO ENSURE REASONABLE SPEEDS ON NEIGHBORHOOD STREETS, SUCH AS SPECIFICATIONS FOR TANGENT LENGTHS AND CURVES OR DEVICES SUCH AS TRAFFIC CIRCLES OR SPEED HUMPS.

BY JOSEPH E. WOMBLE, P.E. AND
W. MARTIN BRETHERTON JR., P.E.

PROBLEMS ASSOCIATED WITH residential speeding, both real and perceived, require an inordinate amount of traffic engineers' time and effort in local jurisdictions. Gwinnett County, GA, USA, located in the metropolitan Atlanta area, certainly is no exception. As the population of the county has grown—from 166,808 in 1980 to 352,910 in 1990 to 588,448 in 2000—so has the number of residential speed complaints.

EARLY TRAFFIC CALMING EFFORTS

Since 1985, Gwinnett County has had an aggressive program of residential speed control. The first effort consisted of selective closures of streets that carried large volumes of traffic taking shortcuts through residential neighborhoods. However, it did not take long to discover that street closures can be quite controversial and that, therefore, the approach should be considered for only the most egregious cases of "cut-through" traffic.

The next effort was a program known as Neighborhood Speed Watch, which sought compliance with residential speed limits through behavior modification brought about by peer pressure, increased awareness and a greater sense of responsibility.[1] It was designed specifically for self-contained residential areas, where such an approach is most successful.

Neighborhood Speed Watch worked well for Gwinnett County. Neighborhoods that were in the program for two to three years realized 85th-percentile speed reductions in the range of 11 to 13 miles per hour (mph), which corresponded closely with the results obtained through speed humps. The program did have a serious drawback: To function adequately, it required considerable support from Gwinnett County staff. Neighborhood Speed Watch was eliminated in 1992 during a budget crunch. However, it is interesting to note that speeds in subdivisions that were in the program for two to three years have not returned to their pre-program levels, indicating a lasting modification in behavior.

Following the release of the Institute of Transportation Engineers' first draft on speed hump guidelines, Gwinnett County began an extensive program of retrofitting speed humps on existing streets. Speed humps are installed on a petition basis and capital costs are funded by a special purpose local option sales tax, levied by Gwinnett County to fund transportation and other capital improvements. On a street with 85th-percentile speeds in excess of 35 mph, the approval of 70 percent of the property owners is required. On a street with 85th-percentile speeds less than 35 mph, 90 percent of the residents must approve. In addition, each property owner on a street with speed humps must pay a special tax assessment of $12 per year in perpetuity for the maintenance of the humps.

Gwinnett County's speed hump program has proven quite popular. Since the inception of the program, 797 humps have been installed in 126 subdivisions.

RESIDENTIAL STREET DESIGN STANDARDS

Throughout this period, the Gwinnett County Department of Transportation (DOT) has sought to reduce future residential speed problems by taking a proactive role in the development review and rezoning process and by promoting street design layouts that discourage higher speeds. Only limited success in this endeavor has been achieved, as evidenced by the number of speed hump petitions that continues to be received from new subdivisions. One aspect of the problem is the relatively low operating speed required for strong complaints to be voiced. For example, 18 percent of

the speed hump petitions received in past months have involved 85th-percentile speeds in the 30–35 mph range, which require approval by 90 percent of area residents.

Residential street design standards typically specify minimum values for geometric design features such as horizontal curves but do not specify maximum values. Gwinnett County design standards are no exception.[2] By specifying both maximum and minimum design standards, streets can be designed to operate at speeds that are acceptable in a residential area.

A PROACTIVE APPROACH TO ACHIEVE TRAFFIC CALMING

Gwinnett County's population now is increasing by more than 20,000 people per year. Therefore, it has been important to take a proactive approach to modify the elements of street layout and design that lead to excessive speed. This has been accomplished only by developing specific design standards and incorporating them into the county's development regulations. In developing these low-speed design standards, the following factors were considered:

- Once implemented, the standards should result in 85th-percentile speeds in the 25–30 mph range.
- The standards should be easy to understand.
- The standards should offer maximum flexibility to subdivision designers and developers.

The design elements considered in developing low-speed design criteria include tangent lengths and various types of speed control points, such as horizontal curves, breaks in continuity and different types of traffic calming devices.

Tangent Lengths

While numerous studies have been conducted to determine the effect of tangent lengths on operating speeds, additional studies were conducted to determine this relationship based on Gwinnett County's subdivision development standards (such as street widths, setbacks and parking conditions).

Accordingly, speed studies were completed on eight residential streets with 24 tangent sections. The studies were conducted over 24-hour periods with electronic tube counters. The accuracy of the counters was checked by radar. Tangent lengths ranged from 300 to 2,510 feet (ft.) and operating speeds (85th percentile) ranged from 25.5 to 41.2 mph. The studies were conducted at the midpoints of the tangents. Figure 1 shows a scatter diagram of the 24 studied road segments.

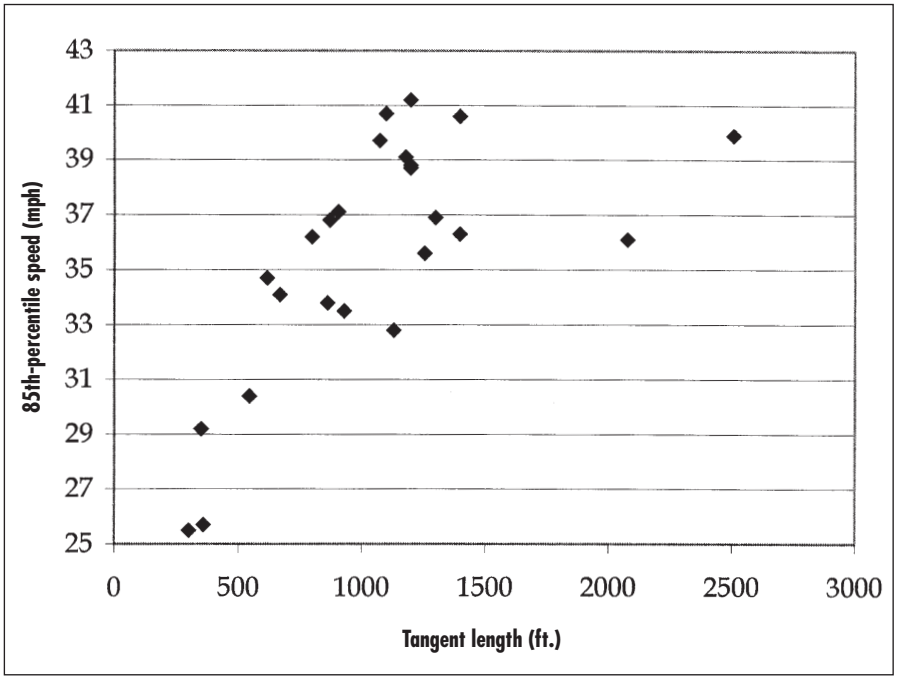


Figure 1. Scatter diagram of the 24 studied road segments on eight residential streets.

A regression analysis was conducted to determine the relationship between operating speeds and the length of tangent segments on residential streets. The model found the following relationship:

$$V = 16.6 + 0.03484\,L - 0.0000138\,L^{\uparrow}$$

V = 85th-percentile speed (mph)

L = length of straight residential street (ft.)

The results of the application of this model, based on Gwinnett County's subdivision street standards, are presented in Table 1. Other results include the following findings:

- The model fits the data well with an R-squared value of 0.83. All residuals are within 1.5 standard error from the expected value.
- The model applies only to straight segments between 300 and 1,400 ft.
- The model found the 85th-percentile speed maximum value (38.6 mph) when the straight segment length is 1,260 ft. To be consistent with the theory that longer segment length generates higher speed, it was decided that the model would use a maximum value of 38.6 mph for segments longer than 1,260 ft.

Table 1. Relationship between tangent length and operating speed on residential streets.

Tangent length (ft.)	Expected operating speed (mph)
300	25.8
400	28.3
500	30.6
600	32.5
700	34.2
800	35.6
900	36.8
1,000	37.6
1,100	38.2
1,200	38.5
1,300	38.6
1,400	38.6

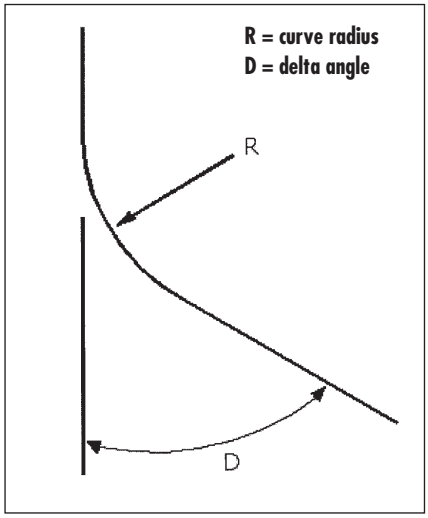


Figure 2. Curve radius and delta angle.

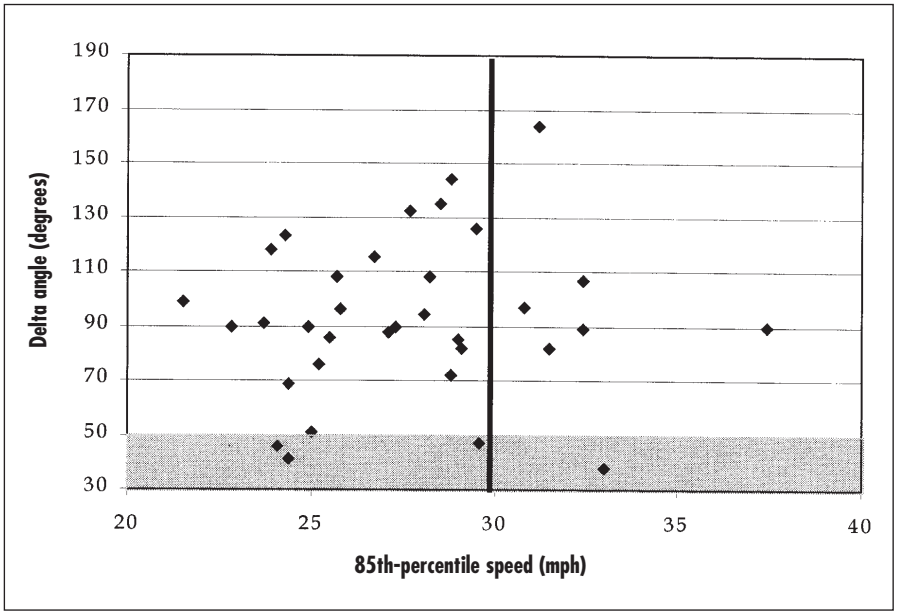


Figure 3. Scatter diagram of the 35 studied curves on eight residential streets.

Table 2. Curve values required to maintain 25–30 mph operating speeds.

Delta angle (must be greater than 30 degrees)	Radius
30 degrees – 40 degrees	100 ft.
41 degrees – 50 degrees	120 ft. (minimum) – 130 ft. (maximum)
Greater than 51 degrees	120 ft. (minimum) – 150 ft. (maximum)

Speed Control Points

Speed control points are defined as the design elements at the end of tangent sections that can be negotiated safely only at operating speeds of 25–30 mph or less. These include horizontal curves, breaks in continuity and traffic calming devices.

Horizontal Curves. As shown in Figure 2, the two most important curve characteristics influencing operating speed are delta angle and radius. (This assumes super-elevation rate e = o, which is the standard for Gwinnett County's residential streets.)

To determine the effect of horizontal curves on operating speed, a statistical analysis was performed on data collected on eight residential streets. The data included operating speed, delta angle and radius for 35 horizontal curves. The curve data were obtained from final subdivision development plats. Operating speeds in the study ranged from 21.5 to 37.4 mph and were measured at the point of curvature or point of tangency to determine the effect of the curve on speed. In addition, data were collected using automatic 24-hour traffic counters with rubber tubes. Vehicles needed to hit the tubes perpendicularly to obtain accurate readings. The delta angles ranged from 37 to 164 degrees and the curve radii ranged from 51 to 426 ft.

Figure 3 shows a scatter diagram of the 35 studied curves. Most of the data points are left of the 30-mph marker, showing possible curve designs of less than 30 mph using different delta angles. There is a very strong correlation between delta angle and curve length (correlation coefficient equals 0.94), because the radius (or curve length) usually is not chosen independently once the delta angle is determined; it often is determined on the basis of design criteria. Due to the strong correlation between delta angle and curve length, the speed prediction model based on the regression analysis would have only one of the two as an independent variable.

Both analysis of variance and regression analysis were conducted to determine the relationship between operating speed and horizontal curve design on residential streets. No model could be found because all relationships were statistically insignificant (best R-squared equals 0.66). The study plotted all data points on a graph and drew a line at 30 mph, as shown in Figure 3. The reasonable grouping of data points was used. Based on this study, Table 2 shows curve values required to maintain operating speeds in the 25–30 mph range.

Breaks in Continuity. Conditions that require a motorist to come to a complete stop include a T intersection or a stop-controlled intersection between a residential street and a collector or arterial road. These conditions do not include unwarranted multi-way stop control at an intersection between local subdivision streets. (Section 2B.05 of the *Manual on Uniform Traffic Control Devices* states that, "Stop signs should not be used for speed control." Experience has shown this to be a sound policy, which the Gwinnett County DOT supports).[3]

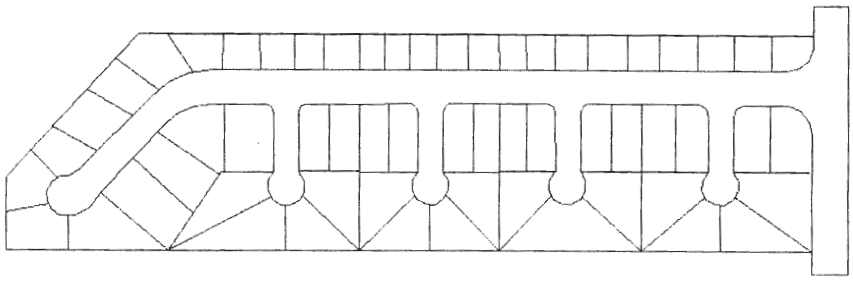
Traffic Calming Devices. While there are various traffic calming devices available, those now considered for use in Gwinnett County are limited to speed humps, traffic circles, median islands and roundabouts.[4] Design details for these devices will be presented in the "Traffic Calming Guide for the Approved Design and Spacing of Traffic Calming Devices," currently under development. Design guidelines for roundabouts are contained in the Federal Highway Administration guidelines.[5]

TRAFFIC CALMING CRITERIA FOR NEW RESIDENTIAL STREETS

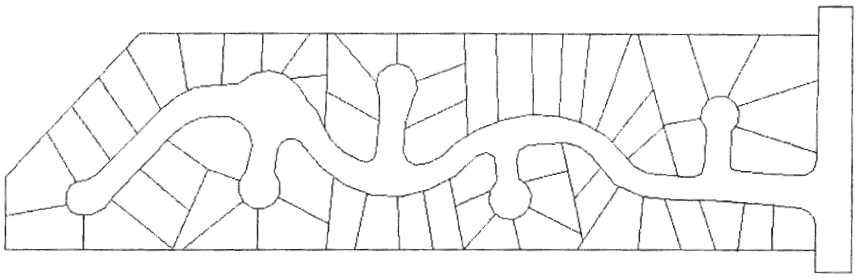
With this research to serve as background, very simply stated criteria have been developed to govern low-speed design of residential streets in new developments. As such, subdivision streets should be designed to encourage and maintain 85th-percentile speeds in the 25–30 mph range. To achieve this objective, the maximum length of a roadway section between speed control points should be 500 ft. A speed control point is defined as any one of the following:

- Any design condition that requires a complete stop, such as the intersection of a local residential street with a collector or arterial road or a T intersection between local streets. (Unwarranted stop-sign control at an intersection between local streets does not qualify.)
- A horizontal curve with the design features shown in Table 2.
- A traffic calming device of which the design is subject to review and approval by the Department of Transportation. (See the "Traffic Calming Guide for the Approved Design and Spacing of Traffic Calming Devices," currently under development.)

4a. Traditional subdivision street layout.



4b. Traffic calming achieved through curvilinear design involving application of short tangent lengths and low-speed curves.



4c. Traffic calming achieved by inclusion of traffic calming devices in design. In this case, landscaped traffic circles were used.

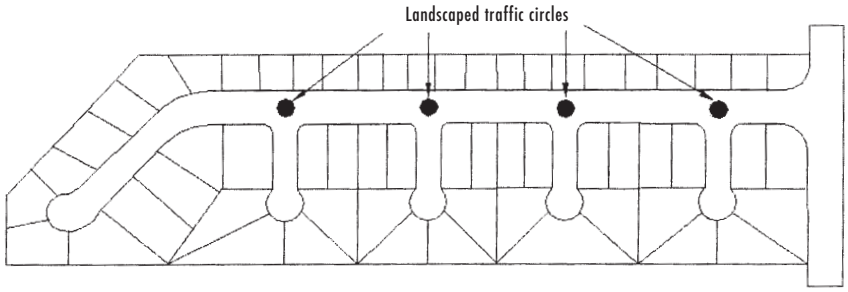


Figure 4. Application of traffic calming design standards to a new residential subdivision.

APPLICATION OF TRAFFIC CALMING CRITERIA

Figure 4 shows how traffic calming criteria might be applied to a new residential subdivision. Figure 4a illustrates a subdivision that was submitted for development review. Although it was a small subdivision, the straight tangent length of its principal street (greater than 1400 ft.) was certain to generate operating speeds in excess of 30 mph—beyond the threshold at which residents express concerns about residential speeding.

Figure 4b illustrates a conceptual redesign of the subdivision utilizing short tangent lengths and curves to ensure operating speeds less than 30 mph. Figure 4c illustrates how the same objective can be achieved by retaining the original street layout but adding strategically placed traffic calming devices such as traffic circles.

Another solution might be a combination of curvilinear design and traffic calming devices. This offers developers maximum flexibility and ensures that traffic calming measures can be accommodated with little or no loss in lot yield.

The preferred solution is a curvilinear design that encourages a constant and reasonable speed; this design does not require vehicles to accelerate and decelerate frequently, which results in wasted fuel and increased noise and air pollution. In addition, a curvilinear design eliminates the maintenance requirements associated with traffic calming devices. This not only ensures acceptable operating speeds but also improves the aesthetics of the area, contributing to a better quality of life for residents.

SUMMARY

There are various proven and well documented ways to implement traffic calming measures in existing residential areas. However, for new residential developments, it is far preferable to design streets to maintain acceptably low operating speeds rather than to face the need to retrofit traffic calming devices, with all the attendant disruption and controversy it often entails. To achieve wide acceptability, traffic calming, or low-speed design, should satisfy the following criteria:

- When applied, the standards should result in 85th-percentile speeds in the 25–30 mph range.
- The standards should be specific, yet simple and easy to understand and apply.

- The standards should offer maximum flexibility and choice to subdivision designers and developers. ■

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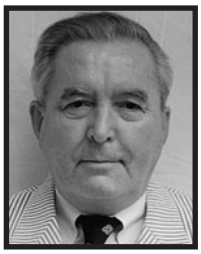

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Appendix C

Public Event Engagement Report, April 2018

TRANSPORTATION MASTER PLAN

PUBLIC EVENT ENGAGEMENT REPORT

April 2018

twenty20 COMMUNICATIONS

TABLE OF CONTENTS

A. PROJECT OVERVIEW

In Fall 2016, the City of Fort Saskatchewan began a study to update the Transportation Master Plan (TMP) last updated in 2008. The Plan will identify where and when the City requires road, sidewalk and trail improvements for the next 20 years. With a population of just under 24,500 in 2016 and an annual growth rate around five percent over the last seven years, the plan needs updating.

B. PUBLIC ENGAGEMENT PROCESS

The City contracted ISL Engineering and Land Services Ltd. and Twenty/20 Communications to conduct an online survey to gather public input on citizens' use, knowledge, issues and concerns with transportation network. The survey was available for input between September 7 and October 11, 2016.

Input from the survey was used to shape the draft TMP in specific areas: Safety, Traffic Operations/Congestion, Sidewalks Links, Trail Links and Other Issues.

The draft TMP was shared at a public open house on April 4, 2018. The event was held in Lang Room of the Fort Saskatchewan City Hall (10005 – 102 Street) from 4:00 – 7:30 p.m. Visitors were invited to review display boards which shared details of the draft TMP, and discuss the project and ask questions of the project team. Comments could be provided on a comment form which was available in a hard copy at the event or could be completed on the City's project webpage (fortsask.ca/publicengagement) for two weeks following the event (April 4, 2018).

C. VERBATIM COMMENTS

The comment form asked one open-ended question: *Please share your comments on the draft Transportation Master Plan.*

With the small number of responses, themes cannot be identified, however the comments are sorted into categories, as follows:

Pedestrian Connections: Sidewalks and Trails

- Are there any plans to complete the walkway on the east side of Highway 21 between 84 Street and the Home Depot? With the new school opening behind the Dow Center, pedestrian traffic should increase in that area.
- There is no sidewalk along 106 Street from 99 Avenue. Continuing onto 100 Avenue at the corner, you have to walk out onto the road. The new chiropractor office is there. (See suggested image provided in drawing in Appendix A).

- No trail connecting 100 Avenue sidewalk to river trails. You have to walk on the road and traffic does not always slow down. (See suggested image provided in drawing in Appendix A).
- With the new Southpointe School, there is a great need for the continuation of the walking paths from Southfort Estates, all the way to the school. Currently the path ends at the Range Road which is 92 Street, which forces the children to walk unsafely on a narrow side road with no shoulders, where most vehicles are exceeding the speed limit of 50km/h.
- Since there are no sidewalks in Southfort Estates, the walking paths are the safest way to travel for these children, so I feel it is extremely important to continue this path to provide a safe route for everyone.
- I would also like to recommend that this same pathway gets cleared of snow in the winter, as again, due to no sidewalks, the path is the safest way to get to the school.

Speed

- I feel that the speed limit on 100 Avenue between 106 Street and 101 Street should be 30km/h during peak weekday hours and possibly Saturday. 50km/h is far too fast. People use 100 Avenue to connect from the highway to 101 Street.

Parking

- Why is there no parking on 106 Street (Downtown) all along the back edge of Giant Tiger mall? It would provide much needed parking for the mall/united church/courthouse and new chiropractor office. It would take some of the excess parking away in the residential areas. (See suggested image provided in drawing in Appendix A).

Industrial Bypass

- I attended the open house at City Hall on April 4, my primary focus with the Transportation Master Plan was in regards to the Industrial Bypass that was identified at Range Road 223. The Industrial Bypass is also described as "between Range Road 222 and 223 a north-south alignment, then follow the rails to Township Road 540."

  After a brief discussion with Grant we determined that the reason this area is defined as the location for the Industrial Bypass is because this is the scope boundary for the plan. It should be noted in the plan that that was the only reason this area was identified as the location for the Bypass. As discussed with Grant I feel that the Range Road 222 is a much better choice for the bypass as it is already identified to become Secondary Highway 824 and will connect with Highway 16 at the Ardrossan overpass. The infrastructure is already partially in place.

Traffic Signals

- Synchronization of the traffic lights along Veterans Way would also reduce some of the congestion in my opinion. If I am travelling at the speed limit, or just slightly under it, I should be able to hit every green light. I understand that there could be some challenges due to distance between intersections.
- 89 Avenue - 101 Street also affecting Hwy 21/15. After about 9:00pm there is much lighter traffic. Some time while turning you sit there for a couple light sequences. Why can't we make it a green solid turn for late evening hours?
- 99 Avenue - 101 Street. The current signal system seems extremely odd. Having a turn light AFTER the light has gone red leaves many not paying attention. Maybe put the turn at the start of the light sequence?
- One other comment and I'm not sure if it fits here is that I do not understand why the acceleration lanes or merge lanes are being removed. A couple of examples of this are 101 Street southbound turning West (?) onto Veterans Way. The intersection at 101 Street southbound and S. Fort Drive/ 86 Avenue. I tend to find these intersections dangerous as you were forced to make abrupt stops or are thrust into mainstream traffic rather than free flowing in to the traffic.
- 89 Avenue (Hwy 15) traveling NE, turning on to 101 Street. Currently, the left lane is designated to go straight or turn on to 93 Avenue. Why don't we make the right lane straight with left a merge (to go straight) or turn left? Currently majority are using only left turn from 89 Avenue causing greater back-ups at the lights.

Other

- Great to see highway widening and it's 10-year phase in.
- I'd like to see lower landscaping in the Cornerstone commercial area, especially at the end of the parking lot to Walmart. We don't all drive trucks so sometimes when turning, I can't see on-coming traffic in a car.

Transit

- Please make bus stops more visible so they can be easily spotted especially in the dark (as in winter). Suggestions- solar panel on sign, shelter and seat by sign(!) all below signs with reflectors on.
- Please fix noon "gap" on bus line (especially Red). 11:55am to 1:22pm is too long.
- Please another Fort Saskatchewan #440 (Dow to Clareview) before 1:58 pm (i.e., about 1:00pm). Many doctor’s offices want appointments all by 3:00pm (i.e., Vein Clinic) and maybe also Friday evening later; not enough time.

APPENDIX A – DRAWING PROVIDED