Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by Pillar Systems Inc. (the "Consultant") for the benefit of the Town of Stony Plain and GSA Consultants (the "Client") in accordance with the agreed correspondence between Consultant and Client, including the scope of work and fees identified therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):  
- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");  
- represents the Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;  
- may be based on information provided to the Consultant which has not been independently verified;  
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;  
- must be read as a whole and sections thereof should not be read out of such context;  
- was prepared for the specific purposes described in the Report and the Agreement;  
- Subsurface, environmental or geotechnical conditions may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

The Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. The Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

The Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but the Consultant makes no other representations, or any guarantees or warranties whatsoever, whether expressed or implied, with respect to the Report, the Information or any part thereof.

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:  
- as agreed in writing by Consultant and Client;  
- as required by law;  
- for use by governmental reviewing agencies.

The Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than the Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of the Consultant to use and rely upon the Report and the Information. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.
Executive Summary

This report supports the Town of Stony Plain - Old Town Community Plan project. It provides the link between land-use planning and transportation and infrastructure planning. One of the fundamental purposes of this report is to address issues before they become problems; so the Town may adjust accordingly and avoid unnecessary costs, service disruptions, and risk of life and safety to the community.

In the background review of existing conditions, the transportation system is operating under an acceptable level of service (LOS) now and into the future; including parking. Alternatively, much of the subsurface infrastructures (i.e. water and sewer) within the Old Town Community Plan area are either near the end of their service life, undersized, or both. This background analysis predates the prospects of land-use densification, introduced in this study.

The proposed redevelopment area densification planning initiatives will result in a significant parking deficit. This is in part a result of the current Land-use Bylaw (i.e. Bylaw 2576/LUO/17), which has an exception of the C3 – Central Mixed-Use District Zoning. This exception has minimal on-site parking requirements for development in the downtown. The parking demand will also result in significant on-street traffic demand, which may lead to future traffic congestion.

There are two options. One involves the more traditional approach of developing the needed roadway expansion and parking facilities (multi-level) structure to address the projected parking deficit and traffic volumes. This may include revising the bylaw so associated development has to provide on-site parking to meet the demand. The infrastructure upgrades are expected to be very expensive and potentially cost prohibitive to development. With current land-use restrictions, traffic congestion may still be an issue into the future.

The alternative is developing a multi-modal transportation system that will effectively and safely move people downtown while minimizing vehicle traffic. This involves developing active mobility (i.e. multi-use lanes serving pedestrians, bicycles, scooters, etc) along all of the Town’s arterial and collector roadway corridors including protected (elevated) lanes on the boulevard or as an extension into the roadway replacing the parking lane(s). This also involves implementing the public transit plan (in progress) ensuring frequent stops, including stops at three transportation hubs. The functionality of the hubs is to provide transportation mode shifts between pedestrian, bicycle, vehicle, and bus. This would include provision for bike lockers, bike-share, vehicle parking, and bus stops. While the multi-modal transportation alternative will defer the need for costly and roadway and parking infrastructure developments into the future, infrastructure may still be required; potentially to a lesser extent and to a later date. This is dependent on how successful the Town is at implementing an effective active mobility system and public transit system.

The existing transportation functional classification system requires alteration of its arterial and collector road classes so to ensure appropriate connectivity, in particular to connecting to the major destinations and avoiding through traffic movements within local class roadways. In addition to the functional designation, this requires physically building in the functionality of these road classes; including width, lanes, parking, utility accommodation, boulevard use, and active mobility to standard. This in important not only to transportation functionality and deferring the prospects of traffic congestion into the future, but to reduce the risk of safety (i.e. injury and life) to the people of Stony Plain.

One noted issue is the Town’s current downtown streetscape plan, which is sustaining and expanding angle parking on 50th Street in the downtown core. The practice of angle parking is impeding to the functionality of active transportation and is a safety risk. While it is acknowledged that the Town has attempted to compensate through developing a bicycle path within the allies parallel to 50th Street, what has been implemented is substandard and is also a safety risk. While the current downtown streetscape plan is still a
work in progress, the recommended preference is to amend current plans to accommodate safe movements of active transportation through the downtown core of 50 Street. This would however require replacing all or part of the angle parking along this corridor. The interim alternative would construct active mobility lanes on the parallel streets of 49th Street and 51st Street until a time 50th Street can be redeveloped to include active mobility lanes into the future. However, there would be safety and financial advantages to accommodating active mobility on 50th Street earlier than later.

Another issue relating to the Town’s functional classification system is the 49th Avenue corridor currently listed as an arterial road class. With the development of Folkstone Place (west of 50th Street), there are multiple right of way impedances, likely preventing this corridor from functioning as an arterial roadway. To address this, the Town is currently reviewing the functional standard associated with these constraints. As there may be impacts to overall traffic functionality, within this study area and new developments to the west, the Town’s current review may consider provisions for alternate routes to meet the transportation system needs.

This study also includes alternatives to signalized intersections on the main corridors that would reduced traffic delay, reduce operations cost, and improve the aesthetics and ambience of the community.

While the water and sewer utilities are not part of conventional transportation planning, they are an instrumental part of the decision process to land-use development and transportation implementation planning. These subsurface infrastructures within the old town community planning area are currently either nearing the end of their service life, undersized, or both. The proposed densification will further accelerate the capacity deficiencies, requiring significant upsizing not only in the old town community planning area, but potentially in the water mains and sewer trunks leading in the out of the planning area. Addressing the subsurface infrastructures needs to be high priority and completed ahead of the proposed land-use development and any roadway upgrades.
Table of Contents

Statement of Qualifications and Limitations
Executive Summary

1. Introduction ......................................................................................................................................... 1

2. Guiding Principles ............................................................................................................................... 2
   2.1 Remaining Service Life and Capacity ........................................................................................... 2
   2.2 Delay ............................................................................................................................................... 2
   2.3 Connectivity .................................................................................................................................... 2
   2.4 Safety Risk ...................................................................................................................................... 3

3. Background .......................................................................................................................................... 4
   3.1 Utilities (Water and Sewer) .......................................................................................................... 5
   3.2 Transportation ............................................................................................................................... 6
   3.3 Summary of Background Issue and Considerations Moving Forward ........................................ 10

4. Infrastructure Issues and Alternatives .............................................................................................. 11
   4.1 Subsurface Roadway Infrastructures (Water and Sewer) .......................................................... 11
   4.2 Vehicle Network ............................................................................................................................ 12
   4.3 Active Mobility Network .............................................................................................................. 15
   4.4 Transit Network ............................................................................................................................. 16
   4.5 Parking ........................................................................................................................................... 18
   4.6 Integrated Transportation Planning Alternatives ......................................................................... 20

5. Proposed Strategy ............................................................................................................................... 24
   5.1 Vehicle Network Changes (Arterial/Collector Road Network) .................................................... 25
   5.2 Active mobility network changes (Proposed trail network) ....................................................... 25
   5.3 Transportation Hubs, Transit Network and Parking Lots ............................................................ 26

6. Conclusions and Recommendations ............................................................................................... 27
   6.1 Conclusions .................................................................................................................................... 27
   6.2 Recommendations .......................................................................................................................... 29

Appendix A – Background – Historic Utility Investigation Figures
Appendix B – Background – Historic Transportation Investigation Figures
1. **Introduction**

This report supports the Town of Stony Plain - Old Town Community Plan project. It provides the link between land-use planning and transportation and infrastructure planning.

Part of this study assesses the existing conditions and reviews existing data and reports adopted by the Town. This brings forward existing issues preceding the redevelopment planning.

This report also brings forward proposed changes in land-use planning and further reviews the impacts of the proposed land-use on the infrastructure system. A major impact would be the result of densification, which increases the demand on the various infrastructure groups (i.e. transportation and utilities). While the focus of the infrastructure group is *transportation*, the **water and sewer utilities** serving the redevelopment area is a significant component of the infrastructure planning process. The water and sewer (utilities) asset group is included in the impact analysis.

With the combined current issues and new issues related to redevelopment planning, this study looks at alternatives for the Town to consider in moving forward with infrastructure planning to work in concert with land-use planning. By doing so, the purpose is to **address issues before they become problems**. By doing so, this can save significant costs, service disruptions and risk to life and safety.
2. **Guiding Principles**

Analysis around *transportation and infrastructure* planning typically revolves around the following guiding principles. These items are considered in the interaction between *land-use planning* and *transportation and infrastructure planning*. These are not in isolation of any one asset group. There is also the interaction between *transportation* and *utilities* (water and sewer) asset groups.

### 2.1 Remaining Service Life and Capacity

One of the fundamental asset management elements is the level of infrastructure deterioration and the associated remaining service life. This impacts the timeline for infrastructure renewal. The timelines and decision process is unique for each asset group. As example, the subsurface (i.e. water and sewer) asset groups have a relatively longer theoretical service life in comparison to the surface asset groups (i.e. streets and sidewalks). The timing of the subsurface asset groups is critical and often a leading element in the decision process for infrastructure renewal planning.

The second fundamental asset management element is the size of the infrastructure (i.e. pipe diameter, number of roadway lanes, etc). These define the infrastructure capacity and associated sizing. It is important to design not only for today’s demand but that of the future. Alternatively, upsizing later, after land-use has developed, will be very expensive. Often, there is one-shot to size it right. Over-sizing can also be costly; but less cost impacting over the asset service life in comparison to under sizing the asset.

### 2.2 Delay

Related to capacity, one of the prime fundamentals of transportation engineering is minimizing travel delay (i.e. time). Part of this includes time lost at intersections and through slow moving traffic. The computed time delay provides a traffic volume/capacity ratio that is used to assess the traffic Level of Service (LOS). In reference to the standard, LOS “A” is free flow with no traffic delay and LOS “F” is stand-still traffic with extensive traffic delay.

Delay is often used to describe the overall amount of time commuting. Delay occurs through time travel as well as transfer time in modal shifts (i.e. pedestrian to bus). This is the importance of effective modal connectivity to minimize the overall commute traffic delay. The actual amount of delay determines people’s travel patterns and the mode(s) of transportation they choose.

### 2.3 Connectivity

To minimize travel delay and safety risk, the various transportation elements have to be well connected and inter-connected. This stresses the importance of the appropriate classifications between local, collector, and arterial. Local roadways should not be conducive to permitting significant through traffic movements. Local roadways should feed and yield to collectors. Collectors should distribute traffic unimpeded to the major destinations throughout the community. Collector roadways should always connect to other collector roadways or arterial roadways. Arterial roadways are the highest volume roadways that should collect the traffic from the collector routes and distribute to the external provincial highway routes. Arterial roadways have the highest control of access requirements, which typically prohibits driveway access.

Active mobility requires a safe travel route connecting the local residential streets to the major destinations throughout the community (i.e. schools, playgrounds, recreation centres, commercial districts and the downtown core). Part of this is attained through dedicated multi-use trails on the collector and arterial roadway allowances. These connect to the multi-use trails in the parks. The parks trail system and the roads collector and arterial trail system connect, providing a safe dedicated active mobility corridor throughout the community.
2.4 Safety Risk

Minimizing the risk of safety is also a consideration in the various transportation modes. For this study, a major safety risk issue is the active mobility transportation mode, which is unprotected throughout most of the community. Creating a functional framework that minimizes vehicle to pedestrians and bicycles accident risk will be a focus of the mobility planning for this study.
3. **Background**

Within the Town of Stony Plain, Alberta, the limits of the Old Town Community Plan and the associated area of influence are defined below by the solid lines and dashed lines respectively.

**Project Limits**
3.1 Utilities (Water and Sewer)

In first review of the water distribution capacity, Figure 3.1 in Appendix A shows the existing piping network. In the Old Town District, the pipe diameters range between 100 mm and 300 mm. Corresponding Figure 3.2 highlights the capacity analysis showing 18 locations deficient in fire-flow flows. Corresponding Figure 4.1 illustrates recommended piping upgrades. Within the Old Town Redevelopment Area, there are several blocks of recommended upsizing needed to deliver the water capacity needs, which include fire flow capacity. This figure includes several blocks of upgrade; in many cases going up four (4) pipe sizes (i.e. 100 mm to 300 mm). These are tangible indications of an undersized water distribution system in the Old Town Redevelopment Area.

Complementing this is the water distribution physical condition. In review of the Town’s asset management related records, including Tangible Capital Assets (TCA) and Geographic Information System (GIS), the current age of the Old Town Redevelopment Area piping infrastructure is approximately 65 years. The Town does not complete a piping condition assessment nor has record of pipe material. As such, the Remaining service Life (RSL) of this infrastructure is uncertain. Estimated, the RSL could range from 0-25 years.

In review of the sanitary sewer collection capacity, Figure 3.1 in Appendix A shows the existing piping network. In the Old Town Redevelopment Area, the pipe diameters range between 200 mm and 300 mm. Corresponding, Figure 3.2 highlights the areas of capacity improvements. This primarily involves the main trunk system, which has modest impacts within the Old Town District. However, densification in the Old Town Redevelopment Area may require size upgrades within the local piping network and potentially further size upgrading along the already strained trunk system.

As per condition review for the water distribution system, the sanitary sewer collection physical condition has the same comments. With the Town’s asset management system falling short in condition assessments and infrastructure material properties, the expected RSL is uncertain. Given the age of this piping infrastructure, the RSL could range from 0-25 years.
3.2 Transportation

The fundamentals of an effective transportation planning system are built around the *Transportation Classification Plan*. This involves three basic classification levels:

- Arterial – Highest traffic volume and infrastructure needs
- Collector – Medium traffic volume and infrastructure needs
- Local – Lowest traffic volume and infrastructure needs

The local roadways feed to collectors, which distribute traffic to the high volume arterial roadways. This functionality is applicable to both vehicle traffic and active mobility (i.e. pedestrian, bicycles, etc) traffic. Then, even within the old town community planning area, the functionality has to provide connectivity within adjacent areas and the overarching transportation system.

In reference to the Town’s Municipal Development Plan, Map 4 illustrates the current and proposed transportation network classification system. This plan is contained in Appendix B along with the corresponding *cross section standards* for each classification level. These cross section standards define the roadway, sidewalk, and multi-use trail functionality required. Each roadway within the old town community planning area would have a defined functionality. The deviation to this is the recent concept (streetscape) plan for the *downtown core*. This latest concept plan is currently not defined within the Town’s development standards. However, for the purpose of this study, it may be recognized as an additional cross-section standard.

---

**Town of Stony Plain Functional Cross Section Standard – Major Collector**

[Diagram of Major Collector Residential Cross Section]
Complementing this, from the Town’s master plan, is the proposed bike path system (Appendix B). From a functional perspective, a bike path system should provide a dedicated service on the collector and arterial roadways. For local roadways, with low volume vehicle traffic, bike traffic is appropriately shared with vehicles on the roadway. The Town’s current bike path system is somewhat coordinated with the roadway functional classification plan. However, the Town’s functional classification standards do not address bicycle functionality for the collector class roadways. Bicycle functionality most effectively involves a multi-use trail (i.e. 3m width) as identified within the Town’s current arterial and major collector class standards.

The Town is currently engaged in developing its downtown redevelopment concept (streetscape) plan. While it is aesthetically pleasing, the continued and expanded angle parking practice is impeding to the functionality of active transportation (i.e. multi-use lanes) and poses safety risks. This is an issue further accelerated in the promotion of the continuity and connectivity of the active mobility transportation network.

In review of the Town’s Downtown Parking Plan, there currently exists approximately a 1400 parking stall surplus between parking capacity (2300 stalls) and the demand during the peak period (i.e. 900 stalls). However, the greatest constraint is the downtown core, where there is less surplus capacity during the peak period. Land-use redevelopment planning, in particular to densification, may erode the surplus parking and result in a parking deficit, depending on the degree of densification and the Town’s Land-use Development Bylaw with respect to on-side parking requirements.
The new Tri-Municipal Regional Transit Plan provides a framework for collecting limited local users to tri-municipal and regional connectors. The plan shows a transit line connection point in the old town community planning area. However, the transit plan does not provide a plan for inter-modal connectivity. Currently, there is no connection between pedestrians, bicycles, passenger vehicles, and public transit. This strengthens a need for a potential transportation hub in the old town community planning near the downtown core. This hub would be on a roadway collector, on the active mobility system, provide a means for vehicle parking, and provide a means for bicycle lock-ups.

**Tri-Municipal Regional Transit Plan**

The Town completed a transportation study, including traffic analysis. Industry standard volume/capacity traffic analysis is based on a Level of Service assessment from A to F. LOS A is free flow and LOS F is stand still. Concerns are typically noted when any movement reaches a LOS E.

In reference to the old town community planning area, projections to Year 2030 illustrate the following LOS forecasts. With the Town’s intersection upgrade and signalization development plans, traffic within the old town community planning area is expected to operate at LOS A-C for the foreseeable future; which is deemed to be unimpeded traffic movements. This indicates that the old town community planning area has capacity for some densification. It also indicates that traffic managing measures (i.e. signalization, etc.) will not likely be required within this area under the historic growth projections.

It should be noted that the one intersection with a LOS D in one traffic movement has now been restricted to right-in-right-out traffic movements. As such, the forecast worst traffic movement of any intersection in the old town community planning area is a LOS C, which is considered to be very good. As a result, the traffic related capital improvement needs within the old town community planning area is shown to be none.
## Town of Stony Plain Traffic Forecast Level of Service

<table>
<thead>
<tr>
<th>2030 PM Peak Traffic</th>
<th>Approach LOS</th>
<th>EB</th>
<th>WB</th>
<th>NB</th>
<th>SB</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 Street &amp; 44 Avenue</td>
<td>Signalized</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>48 Street &amp; 47 Avenue</td>
<td>Stop-Controlled</td>
<td>C</td>
<td>D</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>48 Street &amp; 49 Avenue</td>
<td>Signalized</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>48 Street &amp; 50 Avenue N</td>
<td>Stop-Controlled</td>
<td>B</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>48 Street &amp; 50 Avenue S</td>
<td>Stop-Controlled</td>
<td>B</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>48 Street &amp; 51 Avenue</td>
<td>Stop-Controlled</td>
<td>C</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>48 Street &amp; 52 Avenue</td>
<td>Signalized</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>48 Street &amp; 53 Avenue</td>
<td>Stop-Controlled</td>
<td>C</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>48 Street &amp; 54 Avenue</td>
<td>Stop-Controlled</td>
<td>B</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>48 Street &amp; 55 Avenue</td>
<td>Signalized</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>48 Street &amp; 57 Avenue N</td>
<td>Stop-Controlled</td>
<td>C</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>48 Street &amp; 57 Avenue S</td>
<td>Signalized</td>
<td>A</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
</tbody>
</table>
3.3 Summary of Background Issue and Considerations Moving Forward

Based on review of the background information and planning, the following summarizes key issues and recommendations moving forward into the Transportation and Infrastructure components of the “Old Town Area Redevelopment Plan”.

- **Roadway Classification** – Even though the Town has a roadway classification plan, that for the purpose of this study it be readdressed to meet the functional needs of the Old Town Community Plan; so it is well defined which roads within the planning limits will function as *arterial, collector* and *local*.

- **Roadway Cross Section Standards** – The Town’s existing cross section standards enhance the functionality to accommodate the broader perspective of active mobility; in particular to the *collector* and *arterial* road class.

- **Active Mobility Network Plan** – The Town has plans relating to trail systems and bike paths. Such plans may be integrated and adjusted in coordination with the roadway classification plan to provide a connectivity and functionality of active transportation including pedestrians, bicycle, scooters, etc.

- **Downtown Development (Streetscape) Plan** – While the existing plan provides no net loss of vehicle parking, it is not conducive to active mobility. The main issue is preserving *angle parking*, which is impeding and a safety issue. This plan could be adjusted to improve on active mobility transportation and provide a hub to transfer from bicycle to pedestrian movement.

- **Transportation Hub** – While the new transit plan may include a bus-route transfer station in the downtown core, it does not include intermodal transfer between pedestrians, bicycles, passenger vehicles, and public transit. Provision for a transportation hub within close proximity of the downtown core may be included in the Old Town Community Plan. Such may also increase parking availability, which may be required on densification initiatives and/or adjustments to the plan.

- **Water Distribution** – There are many instances where the existing water distribution piping in the old town community planning area is undersized. Redevelopment with densification may further increase the magnitude of the upsizing needs. Concurrently, the piping network is aging. However, the Town’s asset management system falls short of understanding the expected remaining service life (RSL) of underlying infrastructures in the old town community planning area. Based on the information available, the RSL could be between 0-25 years. As such, relatively large scale water distribution infrastructure renewal and upsizing may be expected within the planning area.

- **Wastewater (Sanitary Sewer) Collection** – As with the old town water distribution system, the wastewater collection system RSL is estimated in the range of 0-25 years. The current wastewater capacity assessment primarily indicates upsizing needs of the trunk system leading from the old town community planning area. However, the potential of densification within the old town community planning area could see sanitary system piping needs upsized in addition to additional upsizing needs along the trunk system. Redevelopment staging and coordination with water distribution upgrades, may determine the trigger for wastewater collection improvements either due to physical condition or capacity.
4. Infrastructure Issues and Alternatives

4.1 Subsurface Roadway Infrastructures (Water and Sewer)

As addressed previously, there are two important considerations with respect to the state of subsurface infrastructures and the impact on land-use development and infrastructure renewal planning:

- **Capacity** – This is the size (i.e. diameter) of the piping infrastructure to handle current and additional flows due to redevelopment densification altered land-use patterns.

- **Physical Condition** – This is a reflection of deterioration through the natural lifecycle. This is largely depended on the infrastructure material type and historic preservation maintenance strategy through the Town’s asset management program.

In the old town community planning area, the pipe diameters range between 100 mm and 300 mm. Capacity analysis today shows 18 locations deficient in fire-flow flows. This requires several blocks of upsizing needed to deliver the water capacity needs, which include fire flow capacity.

Complementing this is the water distribution physical condition. In review of the Town’s asset management related records, including Tangible Capital Assets (TCA) and Geographic Information System (GIS), the current age of the old town community planning area piping infrastructure is approximately 65 years. The Town does not complete a piping condition assessment nor has record of pipe material. As such, the Remaining service Life (RSL) of this infrastructure is uncertain. Estimated, the RSL could range from 0-25 years.

In review of the sanitary collection capacity, the old town community planning area pipe diameters range between 200 mm and 300 mm. In many areas today, these pipe sizes are too small for the projected peak flows. The capacity issues flow further down the sewer trunk main leading away from the planning area.

As per condition review for the water distribution system, the wastewater collection physical condition shares the same concerns. Given the age of this piping infrastructure, the RSL could range from 0-25 years.

Accelerating the water and wastewater system capacity deficiencies is the planned redevelopment (i.e. densification), which will require more immediate and upsizing of the piping infrastructures. This will require more comprehensive engineering analysis to determine the upsizing needs; which needs to be sized for the future (post build-out) water demand, not the existing. As the life of the current water and sewer construction materials is now greater than 100 years, there is one chance to get it right without upsizing later; which would be very expensive and disruptive. **These works need to precede land-use development and precede streetscape and other roadway upgrades.**
4.2 Vehicle Network

Based on review of the Town’s traffic assessment and forecasting models, the Town is operating at an acceptable level of service and is forecast as well into the future. However, this is subject to change with proposed redevelopment and densification, in particular to the downtown. A proactive congestion management alternative is required today to address these issues before they become expensive and disruptive problems into the future.

Currently, the lowest level of service is the augmented intersection at Hwy 779 (48 Street) and 52nd Avenue. The Town is currently addressing this through realignment and signalization.

Town of Stony Plain Proposed Intersection Upgrade Hwy 779 and 52 Avenue
While the Town of Stony Plain is projecting an acceptable traffic level of service with its intersection signalization strategy, there can be increased delay created by the signalization (i.e. waiting at the red light).

A more effective solution may be the use of roundabouts as an alternative to traffic lights. Roundabouts can have much lower traffic delay, they are operationally less expensive, and they are more aesthetically pleasing.

One example is the City of Spruce Grove is engaging in a roundabout on similar 4-lane volume traffic as Hwy 779. It is functioning very well.

Another example is the City of Sedona, Arizona that uses roundabouts throughout its interconnecting highway corridor through the community and through adjacent communities. These intersections are functioning very effectively and add to the ambience of this pristine and beautiful community.
In the Town of Stony Plain, the primary issue is the network functionality. As described earlier, roadways are structured around the following functional classifications:

- **Arterial** – Highest traffic volume and infrastructure needs. They connect to other arterial class roadways, including highway corridors. Roadways are typically 4-lane or greater and have relatively limited control of access. Full access is attained off the collector roadways. Local roadways may only have partial access. There is typically no driveway or private access.

- **Collector** – Medium traffic volume and infrastructure needs. Collectors draw the traffic from the local roadways and distribute throughout the Town and to the arterial roadways. Collector roads have a geometric standard conducive to achieving this functionality including greater width, and some access restrictions. They connect to arterial and other collector roadways.

- **Local** – Lowest traffic volume and infrastructure needs. These are typically the roadways that serve only the local residents. They are not expected to serve through traffic movements. Through traffic movements are discouraged and in some cases include traffic calming measures to divert through traffic movements to the collector roadways.

The Town of Stony Plain’s functional classification standard defines the geometric characteristics of each of the above functional classifications. For the most part they are appropriate, subject to minor modification in some cases. The issue is implementation. Throughout the old town community planning area, there is substandard connectivity and functionality between the local, collector, and arterial roadway classes. The roadway does not often contain the geometric and control of access characteristics of the standard it should be constructed under. As a result, the vehicle network operates under a cluster of roads, resulting in through traffic movements through local residential roadways, not designed or intended to operate under these higher traffic movement conditions.

The Old Town Community Plan needs to provide a functional vehicle roadway network. This would include improved definition between the local, collector, and arterial roadway classes; including the appropriate connectivity between. Part of this is to ensure the collector roadways all connect to other collector roadways or Arterials; and the Arterials connect to the external higher volume provincial highway network.

One specific future roadway development issue would be development of 49th Avenue corridor to an Arterial standard west of Hwy 779. Due to development around Folkstone Place, provision for any roadway development around this subdivision may be fully or partially impeded. The Town realizes a restricted Right of Way (ROW) corridor of 35m, including an 18m pinch point restriction on one side and a full restriction on the other due to private development. There is reasonable chance there is insufficient ROW to physically build an arterial functioning roadway or any roadway at all. The Town is addressing this issue through review of its standards it may apply to what type of transportation functionality can be provided. The impact of this investigation is important not only to the transportation functionality of the old town community planning area, but to that of land-use developments to the west.
4.3 Active Mobility Network

Active mobility includes pedestrians, bicycles, skateboards, roller skates, scooters, segways, wheelchairs, and other related active transport forms. This may even include kick sleds during the winter seasons.

An effective active mobility network provides safe connectivity between the residential neighbourhoods and the major destinations (i.e. schools, parks, recreation centres, commercial districts, and the downtown core). This also includes connection to transportation hubs, in which active mobility may transfer to another transportation mode (i.e. bus).

Typically, active transportation can be reasonably accommodated on sidewalks and streets (i.e. shared use with vehicles) of the local class roadways. This is due to the relatively low traffic volumes if these roads are not used for through traffic movements. This does not require additional infrastructure to support active mobility.

Alternatively, higher volume collector and arterial roadways require a dedicated pathway to safety accommodate all forms of active mobility, including bicycles. By Transportation Association of Canada (TAC) standards, a 3 m wide (minimum) multi-use trail can accommodate two-way traffic of all active mobility modes. This functionality is illustrated in the following Town of Stony Plain cross-section standard.
The application of the 3m (minimum) multi-use trail is site specific. This includes eliminating sight line restriction between crossing vehicle traffic and the active mobility traffic.

A current major issue is that the existing active mobility transportation network is significantly fragmented. While there is a trail network through the parks, there is limited connectivity throughout the community. This impedes active mobility use in favour of vehicle transportation modes.

What is required is for the Park’s trail network to connect to the appropriately designated collector and arterial roadways. These roadways should provide for the 3.0 m (minimum) active mobility trail. These roadways should connect to the major destinations. Together, this provides Town-wide active mobility connectivity.

4.4 Transit Network

The Town currently does not have a public transit system. However, the Town is planning one, which would provide some local transit functionality, a link to the City of Spruce Grove, and a regional link to major destinations within the City of Edmonton (NAIT, U of A, downtown). From the downtown Edmonton core, there is further connectivity to other transit services serving the Edmonton International Airport (i.e. Route 747) and the City of Calgary (i.e. Red Arrow).
While the Stony Plain old town community planning area is connected to the future transit route, there are gaps that should be addressed. One is the route, which should all accommodate the Old Town schools, recreation district, and downtown. In addition, the Heritage Park area does not have a link to the downtown core.

While the current plan has a transportation connection point, an appropriate transportation hub would contain the full modal transfer functionality between most active mobility modes (i.e. pedestrians, bicycles, etc.), vehicles, and busses. This reemphasises the connectivity needs discussed above for the vehicle network and active mobility network in getting to these transportation hubs.
4.5 Parking

The Town of Stony Plain conducted a Downtown Parking Study in July, 2009. The locations of these parking areas are illustrated in the following figure.

**Parking Areas in Downtown Stony Plain**

![Parking Areas Map](image)

**Legend**

- **Red**: Main Street Angle Parking Area
- **Green**: Off-Street Private Parking Area
- **Yellow**: Off-Street Town Owned Parking Area
- **Blue**: On Street Parallel Parking Area
- **Green**: Town Office Parking Area
- **Red**: Downtown Parking Study Boundary

Labels show number of parking spaces in each parking area. The total number of parking spaces were counted from an aerial photo taken in 2007. Parallel parking was estimated as one space for every eight metres of street frontage excluding driveway, alley and street accesses and no parking zones.

Last Updated: July 6, 2009

Source: Town of Stony Plain, Alberta Land Titles

Map by: MC
As per the background review, described earlier, there is currently an overall surplus of approximately 1400 parking stalls throughout the downtown.

With the proposed residential, commercial, office, and institutional redevelopment and densification planning, the following chart illustrates the projected parking needs in comparison to on-site parking required under the current Land-use Bylaw (i.e. Bylaw 2576/LUO/17).

**New Development – Parking Needs Vs Provided (off-street)**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Residential</th>
<th>Commercial Office &amp; Institutional</th>
<th>Net Surplus/(Deficit)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Res Units</td>
<td>Parking Needs Rate (Stalls/Unit)</td>
<td>Parking Needs (Stalls)</td>
</tr>
<tr>
<td>Highway Commercial</td>
<td>330</td>
<td>1.7 1.561 1.35 446</td>
<td>46,433 0 1.04 1.90 2.25 519 1.00 929</td>
</tr>
<tr>
<td>Intensified Residential</td>
<td>330</td>
<td>1.7 4,156 1.90 2.25 219 0.00 0 1,775 1,775</td>
<td></td>
</tr>
<tr>
<td>Main Street</td>
<td>83</td>
<td>1.7 1.41 1.83</td>
<td>4,156 1.416 3.00 1.90 2.25 1,765 1.00 665 23 0</td>
</tr>
<tr>
<td>New Main Street Commercial</td>
<td>114</td>
<td>1.7 1.194 1.14</td>
<td>5,952 5,352 3.00 1.90 2.25 282 0.00 0 1,329 1,329</td>
</tr>
<tr>
<td>Mature Residential</td>
<td>371</td>
<td>1.7 0 1.35 0</td>
<td>1,274 0 1.50 1.90 2.25 21 1.00 25 5 0</td>
</tr>
<tr>
<td>Institutional</td>
<td>24</td>
<td>1.7 1,204 1.204</td>
<td>1,204 1.204 1.50 1.90 2.25 44 1.00 48 (4) (4)</td>
</tr>
<tr>
<td>Main Street South</td>
<td>395</td>
<td>1.7 2,625 1.50 2.25 476 1.00 591 11 0</td>
<td></td>
</tr>
<tr>
<td>New Main Street Commercial</td>
<td>52</td>
<td>1.7 2,579 2,579</td>
<td>2,579 2,579 1.50 1.90 2.25 94 1.00 103 (9) (9)</td>
</tr>
<tr>
<td>Old Town North</td>
<td>1,633</td>
<td>1.7 0 1.35 0</td>
<td>19,905 0 1.04 1.90 2.25 223 0.00 0 (223) (223)</td>
</tr>
<tr>
<td>Highway Commercial</td>
<td>511</td>
<td>1.7 2,542 2,542</td>
<td>25,542 25,542 1.50 1.90 2.25 934 0.00 0 (1,291) (1,291)</td>
</tr>
<tr>
<td>Intensified Residential</td>
<td>1,122</td>
<td>1.7 56,114 56,114</td>
<td>56,114 56,114 1.50 1.90 2.25 2,051 0.00 0 (2,837) (2,837)</td>
</tr>
<tr>
<td>New Main Street Commercial</td>
<td>907</td>
<td>1.7 2,849 2,849</td>
<td>2,849 2,849 3.00 1.90 2.25 150 0.00 0 (190) (190)</td>
</tr>
<tr>
<td>Town Core</td>
<td>929</td>
<td>1.9 47,325 47,325</td>
<td>47,325 47,325 3.00 1.90 2.25 2,096 0.00 0 (2,932) (2,932)</td>
</tr>
<tr>
<td>Total</td>
<td>3,725</td>
<td>6,683 4,067</td>
<td>304,093 131,892 12,752 9,192 2,356 -9,452 -9,900</td>
</tr>
<tr>
<td>Main and Town Core</td>
<td>1,391</td>
<td>2,716 1,488</td>
<td>105,017 29,953 12,752 4,308 0 -5,536 -5,536</td>
</tr>
</tbody>
</table>

Overall, the development plan will create a projected net deficit of 9900 parking stalls. In the Main Street (i.e. 50th Street) and town core areas, the projected net deficit will be 5536 stalls. Considering the existing surplus of 1400 stalls in the downtown, the following chart illustrates the projected deficit over time with build-out for the core of the downtown area; which is a deficit of 4136 stalls. While the critical time period is 25 percent build-out, action is require today to address the issues before they become problems.

**Parking Projected Deficit Vs Redevelopment Build-out**

<table>
<thead>
<tr>
<th>Main Street &amp; Town Core</th>
<th>Build-out</th>
<th>Parking Needs (Stalls)</th>
<th>Parking Available (Stalls)</th>
<th>Surplus/Deficit (Stalls)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>900</td>
<td>2,300</td>
<td>1,400</td>
<td></td>
</tr>
<tr>
<td>25%</td>
<td>2,656</td>
<td>2,672</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>4,412</td>
<td>3,044</td>
<td>(1,368)</td>
<td></td>
</tr>
<tr>
<td>75%</td>
<td>6,168</td>
<td>3,416</td>
<td>(2,752)</td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td>7,924</td>
<td>3,788</td>
<td>(4,136)</td>
<td></td>
</tr>
</tbody>
</table>

The deficit is a result of the difference between parking requirements under the existing bylaw for the C3 – Central Mixed Use District Zoning, which only requires one (1) on-site parking stall for residential developments and no on-site parking for commercial, institutional, and office developments.

With the additional significant parking demand, this will also realize significant roadway traffic demand, which will further constrain the roadway traffic capacity and level of service if not addressed.
4.6 Integrated Transportation Planning Alternatives

There are two options to addressing the parking deficit. One is through traditional measures of increasing the parking supply. This would be attained through amending the existing bylaw to remove provision 4.11.1b, which excludes the C3 – Central Mixed Use District Zoning from the off-street parking requirements contained in Tables 4.1.1.a (Residential) and 4.1.1.b (Non-Residential). However, this approach will be costly to developers as surface parking will not be sufficient to address this deficit. Each development would have to include multi-level parkade style structures within their development. It is not certain if this is physically possible. The on-site parking requirement may discourage development from occurring, resulting in a lengthy timeline for full build-out. In addition, this would not address the traffic generation, which would probably create traffic congestion in the downtown.

The alternative is adopting practice from the Alberta “Congestion Management – Vital Component of Today’s Infrastructure Planning” report. This document was provided by the Alberta Economic Development Authority as a policy and guiding principles for the Province and Municipalities to cost effectively address such related issues.

The Alberta Congestion Management Report was based on international best practices applied to the Alberta environment. Fundamentally, it looks at addressing congestion management through a three stage approach.

The first stage of “Reducing Demand” – (short term and low cost) reduces the vehicle traffic, which are the most immediate solution and the lowest cost. This involves getting people downtown without the use of conventional passenger vehicles. This requires incentives to not use the passenger vehicle downtown and incentives for a multi-modal solution (i.e. active mobility and public transit).

To effectively move people to the downtown core, it has to develop an effective active mobility network, including the provision for dedicated protected bicycle lanes on the entire Town’s arterial and collector roadways. The Town partially provides for this in its functional standard for roadways. However, the application is case specific. In many cases, the 3 m (minimum) multi-use lane (i.e. pedestrians, bicycles, scooters, etc.) would be extended into the roadway replacing vehicle parking on one or both sides. This would maximize safety due to increasing sight lines, in particular on collector roadways with multiple driveway access to residential properties. These multi-use trails, within the roadway system need to connect to the off-street trail network and all the major destinations throughout the Town (i.e. schools, parks, recreation facilities, commercial districts, and the downtown).
The following are photos of the raised multi-use lane replacing the parking lane. One scenario is it is located adjacent to the sidewalk. The other scenario is it separated from the sidewalk. These scenarios provide the active mobility lane width to accommodate bicycle traffic and pedestrians in both directions. They provide the needs sight lines to vehicles from intersecting streets, lanes, and driveways. Both are functional and applicable to Stony Plain and case dependent to the neighbourhood.

**Effective Active Mobility Lane Examples – City of Edmonton**

In comparison, the Town’s streets with angle parking provide no provision for safe movement of active mobility due to the impeded vehicle backing movements. The parallel alley ways, that currently stamp a 1.5m active mobility travel way, is inadequate for two-way movement. There are also impeding sight lines and competing movements with industrial waste collection vehicles and residential vehicles.

**Active Mobility Safety Issues – Town of Stony Plain**

The Town’s active mobility functionality and safety would be greatly improved by the following:

- Removing the existing substandard active mobility lanes currently located in the alleys parallel to 50th Street
- Incorporating active mobility lanes within the streets, meeting the national geometric standards, including removing all or part of angle parking to provide for this functionality
Concurrently, the future public transit system needs to be effective, including a short frequency between busses at stops and connectivity to the major destinations. The bus service needs to connect to the downtown at “Transit Hubs”. This provides another mode of transportation to the downtown, reducing the demand for vehicle transportation and parking.

The second stage of “Managing Demand” – (mid-term and medium cost), involves improved traffic systems. If the demand for parking increases, it too will increase the overall traffic generation on the roads. The roads could become congested; requiring additional traffic control systems as an intermediate measure to upsizing the roadway corridors.

The third stage of “Increasing Supply” – (long-term and high cost) is the most costly and often unattainable due to budget constraints. It is typically the last resort if vehicle traffic demand cannot be minimized or managed further. This would involve building multiple parkade structures throughout the downtown and widening roadways to carry the increased traffic. Due to cost impediments, the result is often a congested traffic environment, which is documented to result in loss to the business community. This loss is estimated by the Organization of Economic and Cooperative Development (OECD) as 3% off the Gross Domestic Product (GDP).
In summary, an integrated transportation alternative that works to minimize the demand for vehicle traffic to the downtown, will be significantly lower cost and provide a greater level of service than the alternative of building new infrastructure to accommodate vehicle traffic.

A functional active mobility’ network and a functional public transit network will ultimately be more cost effective than upsizing the roadway network and parking network to meet the vehicle demands associated with the proposed land-use redevelopment plan. This alternative will also lead to a more vibrant and safe community and better quality of life for all. The alternative of not addressing this early through these alternative transportation measures will accelerate the timeline for traffic congestion to the downtown, resulting in economic loss to the community, and expensive major infrastructure upgrades later.

This strategy may in part influence existing downtown streetscape planning that is maintaining angle parking at the expense of an effective active mobility network. While the active mobility plan will reduce some on-street parking at various locations through the Towns arterial and collector roadway corridors, it will provide greater effectiveness in reducing the overall vehicle demand and improving the overall transportation functionality and level of service.
5. **Proposed Strategy**

The following figure illustrates the proposed mobility strategy. The narrative following illustrates each modal component within. These changes are deemed required to mitigate congestion due to the proposed redevelopment plan for densification. If these issues are not addressed, the community could expect earlier travel delay and expensive infrastructure upsizing needs for both road widening and multi-level parking structures.
5.1 **Vehicle Network Changes (Arterial/Collector Road Network)**

Based on previous transportation planning principles discussed earlier, the above figure illustrates the recommended *arterial* (dark blue) and *collector* (yellow) roadway network. The proposed functional classification network provides the internal Town connectivity linking the community to the major destinations within the collector road network and the external provincial highway network through the arterial corridors.

As highlighted in the map, 49th Avenue is currently designated as arterial class roadway. However, due to the Folkstone Place land development, that functionality may no longer be available. While 49th Avenue can still be developed as an arterial roadway east of Hwy 779, it is highly probable it can no longer meet the full arterial standard functionality West of Hwy 779. This is important for future land-use planning, and the traffic carrying capacity 49th Avenue can accommodate into the future. This issue is being reviewed by the Town, which may include determining the functional standard appropriate for this corridor and what is physically probable.

The intent is to have a select spacing and few collector roadways that would accommodate the higher volume traffic. These would draw traffic from the local roadways, in which the local roads are not intended for through traffic movements. Some local roads may want to incorporate *traffic calming* measures preventing such through traffic movements. As example, this may include 52nd Avenue, between 50th Street and 52nd Street. Another would be 53rd Avenue between Hwy 779 and 52nd Street.

Modern day transportation planning practices often utilize roundabouts as an alternative to signalization, including some higher volume arterial and collector roadways. In most cases, they result in lower overall traffic delay, lower operations costs, and are aesthetically more pleasing than signal structures. This would likely be appropriate for the Hwy 779 arterial corridor through Stony Plain.

5.2 **Active mobility network changes (Proposed trail network)**

This plan can accommodate development of added multi-use trails to the Parks trail network. The key component of the proposed Active Mobility Strategy, builds in the multi-use trail functionality within the collector and arterial road network. Future development of any parks multi-use trails should begin and end with connection to an arterial or collector roadway that includes a multi-use trail within.

In reference to the Town’s cross section standard, as illustrated above, in most cases multi-use trail functionality, within the arterial and collector class roadways active transportation may be accommodated within the roadway right-of-way (i.e. boulevard). However, where the boulevard is impeded (e.g. large tree growth) or sight impedances (i.e. driveway access), the alternative exists to replace the on-street parking with the multi-use trail. This improves active mobility safety, which is a key element in developing an effective active mobility network.

On main issue is the current and proposed downtown development (streetscape) planning of angle parking on Main Street (i.e. 50th Street). The proposed strategy for this plan would replace the angle parking concept with parallel parking. This would provide for wider sidewalks to encourage more active mobility in the downtown core. This would also provide for continuation of the multi-use trail through the downtown core; providing for improved safety an active mobility functionality. In addition, replacing downtown angle parking with parallel parking and provision for active mobility would improve connectivity to the downtown core and north to Heritage Park.

Overall, the active mobility requires the functionality built into the infrastructure and not just designated shared use traffic between vehicles and pedestrians/bicycles.
5.3 Transportation Hubs, Transit Network and Parking Lots

This plan does not require any specific transit routes within the Town’s on-going transit planning for future development of a public transit system. What this plan includes is location of transportation hubs (TH), which would be considered in on-going public transit route planning. The functionality of these transportation hubs would in part include a bus stop. The primary focus would be the regional transit connection. A key component of the transportation hub is the modal shift between active transportation (i.e. pedestrians and bicycles), vehicles, and public transit. The transportation hub functionality includes a parking lot and bike lock-up facilities. Bike lock-up facilities can include a variety of options from open bike racks to bike lockers to indoor operated facilities.

A related alternative includes establishing a bike share option, which bikes can be rented electronically and dropped off anywhere in the Town. In this application the user only pays for the time usage on the pay as you use bike. It is very effective in the use of transportation hubs, where the user is transferring modes from bicycle to regional transit. This is complemented by a well connected multi-use trail system including both parks and streets (arterials & collectors).

This study includes three locations of transportation hubs within the old town redevelopment area. One location serves the recreation area and schools to the south. A second is immediately north of the downtown core. The third serves the Heritage Park area.

Each transit hub is located where a parking lot would be required or exists. Each would have direct access to a collector or arterial roadway. Each would be served by a future regional commuter route either providing direct access to the bus serving the Edmonton major destinations (i.e. Edmonton downtown, U of A, NAIT) or the Spruce Grove – Stony Plain Regional Commuter Station (currently located at the "Agrena" in Spruce Grove).

The greatest public transit effectiveness will be realized through its commuter route service (i.e. serving the City of Edmonton major destinations). This is the primary importance of the strategy for this study. Based on other municipalities of similar size and nature to Stony Plain, an internal Public Transit system is not expected to be effective utilized and will most likely need to be run under significant subsidization. From our understanding of other municipalities, an internal public transit system would operate at capacity during the school hour peak period peak periods. Through the rest of the day, running near empty. Such operations have become burdensome to taxpayers and other programs that may need to be cut or cut-back to supplement the public transit subsidy needs. This study illustrates bus stop locations at the school and major commercial locations should the Town precede further with implementation of internal public transit routes. However, for this study, the transportation hubs are the primary importance to providing the inter-modal connectivity (i.e. Regional transit, vehicle, and active mobility (pedestrian and bicycle)).

The parking strategy includes development of three transportation hubs in the old town community planning area, in which each includes a parking lot within each transportation hub. One transportation hub is proposed for the downtown core. This will add to the existing surplus in available downtown parking. However, the proposed higher density will generate a significant amount of parking. The proposed densification will create a significant amount of parking demand much greater than the existing land-use bylaw requires for on-site parking.

While a public parking structure will address a small component of the expected parking demand, the most practical solution would work to reduce the vehicle traffic and parking demand through planning and development of an effective active mobility and public transit system. This would include the development of a well connected active mobility network through the arterial and collector roadway system safely leading to the major destinations (i.e. schools, recreation facilities, health care, downtown, festival, shopping, etc.) throughout the community.
6. Conclusions and Recommendations

6.1 Conclusions

The following presents the highlighting conclusions of this report:

- The proposed Old Town Community Plan densification will generate a significant amount of parking demand. The existing Land-use Bylaw (i.e. Bylaw 2576/LUO/17), has special exclusion of on-site parking for “C3 – Central Mixed Use District Zoning”. This will create a significant deficit in available vehicle parking on full build-out. The forecast parking deficit threshold is approximately 25 percent build-out, which can occur earlier or later. With the increased parking demand, will also result in increased on-street traffic, which will eventually lead to traffic congestion. Mitigating these issues requires the use of congestion management planning today to minimize and defer extremely expensive infrastructure supply costs into the future.

The congestion management approach would mitigate the forecast parking and associated traffic congestion issues through enhancement and development of alternative transportation modes including active mobility and public transportation. This would include enhancement of the current functional classification plan to be more functional with respect to arterial and collector roadway functionality. This would include the appropriate functionality of the active mobility network built into the arterial and collector roadways; in which the Town physically builds in this functionality to all its designated arterial and collector road classes. The effectiveness of this alternative is dependent on how successful the Town develops the alternative transportation modes. While this may defer the timeline and magnitude of future expensive infrastructure (parking and roadway) supply needs, it may not fully eliminate these needs.

- Future transportation planning needs to provide intermodal (i.e. pedestrian, bicycle, vehicle, bus, etc.) connectivity between the various modes of transportation. This is the importance of transportation hubs that can serve as park (i.e. bicycle and vehicle) and ride (i.e. bus) facilities. This must keep in mind both the local and the regional transportation needs of major destinations into Edmonton including post-secondary (i.e. NAIT, U of A, etc) and the business district.

- While the downtown redevelopment concept (streetscape) plan is aesthetically appealing and does not result in net loss of vehicular parking, the angle parking is impeding to the safety and connectivity of the active transportation network. If implemented properly, the active transportation network will be more effective to congestion management in the downtown core than the loss of the angle parking stalls. It will also improve safety, in particular to the continued draw of active mobility traffic to the downtown core as a major destination and corridor connecting the Town.

The 1.5m unprotected active mobility lanes within the allies parallel to 50th Street are substandard in width (i.e. 3.0m minimum standard) and protection (i.e. barriers or raised); there are sight line constraints (between active mobility users and vehicles); and the usage is effectively shared with commercial waste collection vehicles and residential vehicles. While it is recognized that these lanes provide an alternative to accommodating active mobility transportation where the angle parking on 50th Street is prohibitive, these lanes also result in safety risk and need to be relocated where national geometric standards can be applied.

While it is recognized that the downtown redevelopment concept (streetscape) plan is a work in progress, it may be logistically challenging to change direction of the functionality of this plan. It is recognized that providing the active mobility functionality on the parallel streets of 49th Street and 51st Street, may serve as
an *interim* alternative until it is opportune to incorporate active mobility functionality on 50th Street; in which all or part of the angle parking would be replaced with parallel parking and protected active mobility lanes. However, as angle parking is a safety hazard to active transportation, and it is not possible to fully control active transportation travel patterns to avoid these locations, a sooner than later implementation to replace angle parking with parallel parking and active mobility protected lane functionality will have financial and safety advantages.

- While the Town’s current traffic and transportation planning is forecasting acceptable level of service through traffic signalization, roundabouts may further enhance the functionality with reduced traffic delay, operations costs, and improved aesthetics.

- Due to the existing Folkstone Place land development, the functionality of 49th Avenue west of Hwy 779, which is planned to be developed to an arterial class roadway, may be compromised. While the Town is further investing this through a functional standard review, there is high probability this corridor will not function as an arterial roadway as currently planned. This may affect the current and future land-use planning requiring a major transportation corridor to serve the collective transportation demands. Alternative routes to meet the overall transportation functional needs many be considered.

- Much of the subsurface infrastructures (i.e. water and sewer) in the old town community planning area is either nearing the end of its service life, undersized, or both. The Capacity (sizing) is greatly magnified by the proposed densification planning. The exact sizing needs to be determined through more detailed hydraulic design engineering. It is critical these works precede the land-use development and any roadway development. It is even more critical the sizing of these infrastructures is to the full build-out of the expected development; as it is extremely expensive and disruptive to come back later to upsize.
6.2 Recommendations

Based on the above conclusions, the following presents the corresponding recommendations:

- That the Town of Stony Plain updates its roadway functional classification plan to the appropriate connectivity within the arterial and collector classes.

- That according to the functional classification plan, the Town of Stony Plain builds in the functionality of active mobility using appropriately sized multi-use lanes for safe and effective transportation of pedestrians, bicycles, and scooters leading from residential neighborhoods to the Town’s major destinations (i.e. schools, recreation facilities, parks, downtown, shopping, heritage park, etc) and transportation hubs.

- That the Town of Stony Plain implements its public transit plan in line with the locations of the transportation hubs and the bus stops illustrated in this report; the that the future of the public transit system operate under the principles of bus stop frequency and effective connectivity to the major destinations throughout the community. That the public transit plan is regional focused including consideration of the Edmonton major destinations including post secondary (i.e. NAIT, U of A, etc) and the business district.

- That the Town of Stony Plain implements the three designated transportation hubs that will provide for the modal transfer between pedestrians, bicycles, vehicles, and buses).

- That the Town of Stony Plain reviews the angle parking within the downtown redevelopment concept (streetscape) plan. If possible, with in the current implementation, that it incorporate active mobility along 50th Street (i.e. Main Street) corridor in part though replacing the angle parking with parallel parking and protected active mobility lanes according to national geometric standards.

   Alternatively, as an interim measure, that the Town of Stony Plain develops the downtown parallel streets of 49th Street and 51st Street to accommodate active mobility until the time in the future, 50th Street can accommodate active mobility into its functionality.

   That the Town of Stony Plain removes the substandard active mobility lane markings in the allies parallel to 50th Street due to safety issues.

- That the Town of Stony Plain complements its functional standards review of the future roadway corridor along 49th Avenue west of Hwy 779 with a functional design and consideration of an alternative route to meet the Town’s future transportation functional needs.

- That the Town of Stony Plain considers alternatives to traffic signals along major roadway corridors, including roundabouts, when planning future intersection upgrades.

- That the Town of Stony Plain conduct an comprehensive water and sewer asset management analysis determining upgrade strategy for old town community planning area and major water mains and sewer trunks leading in and out of the area. That the Town plans the infrastructure sizing needs to accommodate the full build-out of the redevelopment plan.
Appendix A

Historic Utility Investigation Figures
**SANITARY SEWER SYSTEM MASTER PLAN UPDATE**

**EXISTING SYSTEM**

**LEGEND:**

- **EXIST. 200mmØ**
- **EXIST. 250mmØ**
- **EXIST. 300mmØ**
- **EXIST. 400mmØ**
- **EXIST. 450mmØ**
- **EXIST. 500mmØ**
- **EXIST. 600mmØ**
- **EXIST. 750mmØ**
- **EXIST. 900mmØ**
- **EXIST. 1050mmØ**
- **EXIST. PARKLAND TRANSMISSION SYSTEM**
- **MAJOR SANITARY CATCHMENTS**
- **EXIST. TOWN BOUNDARY**

**SCALE:** 1 : 25,000

**JANUARY, 2006**

**FIGURE 3.1**
Appendix B

Historic Transportation Investigation Figures
The Town of Stony Plain does not guarantee the accuracy of this map. All information on the map should be verified by consulting the text of the M.D.P., relevant statutory plans, and the Land Use Bylaw.
4 LANE URBAN DIVIDED ARTERIAL ROADWAY

1.8m WOOD SCREEN FENCE (TYP.)

MAX: 2.5m
MIN: 1.6m

4%

0.50m 1.75m 8.40m 4.70m 8.40m 0.50m 0.50m 0.50m

2.5%

F.O.C. (TYP.)

PAVEMENT STRUCTURE (TYP.)

PREPARED SUBGRADE (TYP.)

PLACE WALK DRAIN AND CONNECT TO CATCH BASIN.
(TYPICAL BOTH SIDES)

4 LANE URBAN UNDIVIDED ARTERIAL ROADWAY

1.8m WOOD SCREEN FENCE (TYP.)

MAX: 3.0m
MIN: 1.6m

4%

0.50m 1.75m 7.90m 7.95m 2.5m 2.5m 0.50m 0.50m 0.50m

2.5%

F.O.C. (TYP.)

PAVEMENT STRUCTURE (TYP.)

PREPARED SUBGRADE (TYP.)

PLACE WALK DRAIN AND CONNECT TO CATCH BASIN.
(TYPICAL BOTH SIDES)

TOWN OF STONY PLAIN

URBAN ARTERIAL ROADWAYS

Scale: Not To Scale

Drawn By: S.M.

Checked By: P.M.

Approved: P.M.

Date: MARCH, 2006
URBAN INDUSTRIAL.COMMERCIAL LOCAL ROADWAY

URBAN INDUSTRIAL.COMMERCIAL COLLECTOR ROADWAY

TOWN OF STONY PLAIN

URBAN INDUSTRIAL/COMMERCIAL LOCAL AND COLLECTOR ROADWAYS
MINOR COLLECTOR RESIDENTIAL

MAJOR COLLECTOR RESIDENTIAL
SEPARATE WALK

MONO-WALK
Long Term Network Strategy
- Developed to align with community long term (20+ year) land use and road network plans.
- Shows key corridors/areas to be served and types of service.
- Organized by “layers” – different service types serve different passenger needs and land use patterns.

Neighbourhood (green) routes connect to higher order services and offer slightly lower levels of frequency and operating hours.

Regional Connector (red) routes provide service between key Tri-Municipal connection points and Edmonton.

Areas of on-demand service (green shaded areas) and targeted connection (orange dotted lines) connect to other routes to meet specific passenger needs.

Specialized transit service area (grey shaded area) to ensure mobility option for registered users unable to use fixed-route service some or all of the time (exact area TBD).

Separate connection from Enrich Green Nanton to West Edmonton Mall also possible but as a separate discussion with Edmonton Transit System; tradeoffs between frequency and directness should be considered.