Final Report

Downtown Parking and Accessibility Study

Prepared for Town of Tillsonburg
by IBI Group

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1 Introduction

The Town of Tillsonburg is one of the eight municipalities that make up the County of Oxford. As of 2016, the Town had a population of approximately 16,000 residents and is located approximately 50 km southeast of the City of London. Tillsonburg has historically experienced steady growth, and continued growth is projected into the future. To ensure Tillsonburg continues to meets the growing community's parking needs, the Town of Tillsonburg has initiated the Downtown Parking and Accessibility Study.

Parking is an important component of any municipality's public policy, and is especially important for Downtown cores. Parking policies and operating practices have direct impacts on the travel behaviour of local residents, employees, and visitors of the Downtown core. Therefore, parking also impacts traffic conditions, transit use, public safety, and land use, as well as the economic viability and development of Tillsonburg's Downtown core.

1.1 Study Background and Objectives

The Town of Tillsonburg provides a mixture of off-street and on-street parking within the Downtown core. With the exception of a few privately owned parking lots (e.g. the Metro grocery store off-street lot, funeral homes, etc.), all Downtown parking is owned and managed by the municipality. On- and off-street parking is free for users albeit there are time restrictions (generally two hours) for high demand locations. The municipality has invested significantly in creating and maintaining these parking lots, which have been funded by a combination of general revenues (taxation) and an area specific Parking Levy for commercial properties within the Downtown Business Improvement Area.

The Downtown Parking and Accessibility study is generally limited to the off-street parking lots. However, as value added, IBI Group included the on-street parking spaces along Broadway between Bridge Street to the north and London Street to the south.

The Downtown Parking and Accessibility study's objective is to develop a parking strategy that provides a long term vision for parking within Downtown Tillsonburg with a focus on accommodating users with accessible needs. Section 9 of this strategy includes an action plan for the implementation of short, medium, and long term recommendations. This study:

- Examines existing parking demand to identify parking hot spots and locations with available capacity;
- Projects future parking demand to ensure adequate parking supply is provided long term (overall parking utilization remains below 85% of the maximum capacity);
- Supports existing policies and plans, such as the Official Plan, Downtown Design Study, and related Council and Accessibility Advisory Committee resolutions;
- Optimizes pick-up/drop-off, transit, and pedestrian operations surrounding the Tillsonburg Town Centre Mall; and
- Ensures safe and sufficient parking opportunities are provided for users with accessible needs.

1.2 Study Scope

Tillsonburg's primary reason for initiating the Downtown Parking and Accessibility Study is to review the potential to redevelop existing municipal parking lots. The study is divided into eight primary tasks:

Project Start-up and Existing Conditions Scoping: Confirms the project work plan and schedule.

Data Collection: Collects the necessary data, including an initial data request and the parking inventory and utilization surveys.

Existing Parking Supply and Demand: Examines existing parking operations in Downtown Tillsonburg with the objective of identifying issues, parking hot spots, and locations with available capacity. Strategies for better distributing parking demand throughout the system are examined.

Future Parking Needs: Projects future parking operations with the intent of ensuring sufficient parking opportunities are provided long term.

Tillsonburg Town Centre Mall Review: Examines and improves upon existing pick-up/drop-off activities, transit operations, and pedestrian movements surrounding the Tillsonburg Town Centre Mall.

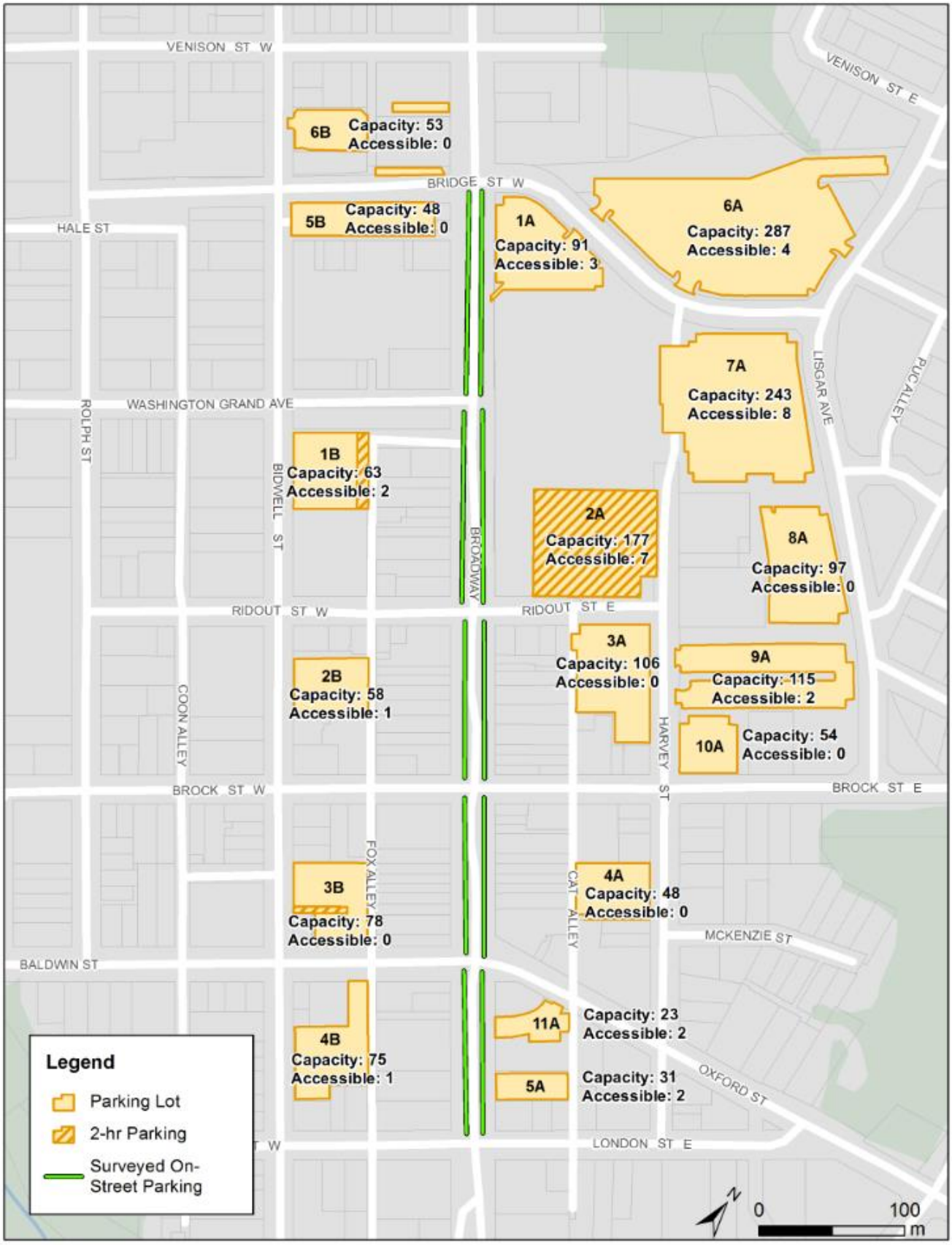
Accessible Parking and E-Vehicle Review: Ensures sufficient on- and off-street parking opportunities are provided for users with accessible needs. Optimal locations for E-vehicle charging stations are also identified.

Accessible On-Street Parking Feasibility Review: Reviews the design of on-street accessible parking spaces.

Conclusions and Recommendations: Summarizes the study's conclusions and recommendations. Additionally, a short, medium, and long term action plan is developed with the intent of guiding Tillsonburg through the implementation process over the next 10 years.

The study area is bound by Venison Street to the north, Lisgar Street to the east, London Street to the south, and Bidwell Street to the east. **Exhibit 1-1** illustrates the study area, as well as the location of all off-street parking lots. Off-street parking lots that provide 2 hour maximum parking opportunities are identified.

Exhibit 1-1: Downtown Study Area



2 Background Document Review

A key task in this study is to understand existing plans, policies, and the overall Downtown parking context. This was completed through a review of all provided background material, the results of which is summarized in this section. The review's intent is to help establish the groundwork for the Downtown Parking and Accessibility Study by examining the Downtown core's parking history, and reviewing the policies and guiding principles to which the study recommendations must adhere. The following documents were reviewed:

- Oxford County Official Plan;
- Town of Tillsonburg Zoning By-Law (No. 3295);
- Tillsonburg Central Area Design Study (2012); and
- Tillsonburg Community Strategic Plan (2014).

A high level summary of each reviewed document is provided, in addition to an explanation on how each document impacts this study.

2.1 Oxford County Official Plan

The Oxford County Official Plan is a policy document that outlines the County's overall land use strategy for the County and its eight municipalities. The Province of Ontario Planning Act indicates that the Official Plan:

Shall contain goals, objectives, and policies established primarily to manage and direct physical change and the effects on the social, economic, and natural environment of the municipality.[1]

The Official Plan's policies and land use schedules set out locational and development review requirements for various land uses throughout the County. With respect to Tillsonburg's Central Area, the area is intended to remain as the Town's most functionally diverse area and a viable regional retail shopping district. Additionally, the area will expand its focus by providing an increasing amount of residential developments.

The central business district (a Central Area sub-district) provides more detailed guidance for the study area. The central business district is intended on being the most intensive and functionally diverse business, administrative, and cultural centre of Tillsonburg. Given this designation, a wide range of land uses are permitted including commercial, office, administrative, cultural, entertainment, recreational, institutional, open space, and residential.

With respect to parking and transportation within the Central Area, the objective is to provide a safe and effective transportation system that promotes alternatives mode of transportation (cycling, public transit, and walking) while continuing to provide sufficient parking opportunities to meet the areas vehicular needs. Considering this objective, the Downtown Parking and Accessibility study will account for a conservative decrease of personal vehicles as a mode of transportation when projecting future parking operations. With a reduction in personal vehicle mode share, parking demand is also anticipated to decrease. Further details regarding the projected future parking situation are provided in Section 5.

2.2 Town of Tillsonburg Zoning By-Law (No. 3295)

The Town of Tillsonburg Zoning By-Law (ZBL) regulates all aspects of development within Tillsonburg. With respect to parking, the ZBL provides details such as required parking spaces based on land use, parking space dimensions, accessible parking requirements, and parking space locations. Note that within the central commercial zone, the change of existing building's use does not require the provision of additional parking supply to meet new use's requirements.

[1] Province of Ontario (1990). *Planning Act, R.S.O. P.13*, Province of Ontario

Considering this exemption, the municipal parking system could be expected to accommodate the additional parking demand generated from the land use conversion of an existing building. The impacts of all known future developments are accounted for in the Future Parking Assessment (Section 5).

Considering the Downtown Parking and Accessibility Study, special attention has been given to ensuring that the future parking supply recommendations support the accessible parking policies set out by the Town's ZBL. Additionally, the Town's accessible parking requirements are compared to the best practice requirements established by the Accessibility for Ontarian's with Disabilities Act (AODA).

2.3 Tillsonburg Central Area Design Study (2012)

The Tillsonburg Central Area Design Study's purpose was to establish a set of urban design guidelines for shaping the design and character of Tillsonburg's Central Area. The following five objectives were established:

1. Elevate and promote Broadway's cultural heritage and built form.
2. Create a vision for Tillsonburg's Central Area that highlights its diverse character while promoting and prioritizing sustainable approaches.
3. Identify unique character areas and develop sub-area specific visions and urban design guidelines.
4. Improve connections within the Central Area and between its surrounding communities.
5. Transform Broadway into a centre for weekday, evening, and weekend activities.

The study provides an extensive list of parking guidelines for surface parking, structured parking, on-street parking, and bicycle parking. These guidelines generally recommend avoiding large areas of interrupted parking, incorporating landscaping aspects, providing pedestrian scaled lighting, improving parking wayfinding, and encouraging cycling, electric vehicles, and carsharing. Special attention is given to ensuring that the study conclusions and recommendations are in line with the guidelines set out by the Central Area Design Study.

The study also recommended realigning Harvey Street within Lot 7A (immediately east of Town Centre Mall) and removing the perpendicular parking spaces along the Shoppers Drug Mart Entrance. This area was identified as a hotspot for Town Centre Mall pick-up/drop-off activity, transit operation, and pedestrian movement issues through discussions with Tillsonburg staff, and is further examined in Section 6.

2.4 Tillsonburg Community Strategic Plan (2014)

The Tillsonburg Community Strategic Plan established a vision for Tillsonburg's future that reflects the desired community goals and ideas:

Tillsonburg is a family-friendly community known for its historical charm, thriving businesses, and modern lifestyle amenities. It is a regional hub for employment, recreation, and culture.[2]

Considering the vision, the strategic plan identified the following four goals:

- Excellence in Local Government;
- Economic Sustainability;
- Demographic Balance; and
- Culture and Community.

[2] MMM Group (2014): *Tillsonburg Community Strategic Plan*, Town of Tillsonburg

These four goals provide a direction for Tillsonburg's future growth and development. A significant component in projecting Tillsonburg's future parking situation are the planned and anticipated future developments. Therefore, Tillsonburg's Community Strategic Plan plays a significant role in influencing the Downtown core's future parking needs. Through discussions with Tillsonburg staff, planned and anticipated future developments were determined which are accounted for in the future parking needs assessment in Section 5.

3 Existing Parking Supply and Demand

The parking inventory and demand surveys were conducted during the following days and times:

- Thursday January 18, 2018 between 8:00 AM and 10:00 PM; and
- Saturday January 20, 2018 between 10:00 AM and 6:00 PM.

The weather conditions for both surveys were suitable with partly cloudy conditions and no weather events. Therefore, the results are assumed to represent typical operations.

Parking patterns are known to vary throughout the calendar year. For example, parking demand may be slightly lower during the winter months due to heavy snow fall, keeping people from visiting the Downtown core. Considering that the collected parking demand data represents a one day snap shot of Tillsonburg's winter parking demand, a sensitivity assessment was conducted to determine the impact day-to-day and seasonal parking demand fluctuations have on the system's performance. Tillsonburg's Downtown parking performance was evaluated assuming a 15% increase in observed parking demand.

3.1 Parking Inventory

Tillsonburg staff provided an inventory of off-street parking supply which IBI Group attempted to verify during the parking inventory and demand surveys. Due to snow obscuring pavement markings, difficulty was experienced in completely validating the parking inventory provided by Tillsonburg staff. Therefore, the provided supply data was verified using site observations and Google aerial imagery. The existing parking supply for each lot is summarized in **Exhibit 3-1**. The parking supply is divided into general and accessible spaces.

Exhibit 3-1: Downtown Parking Inventory

Location	General	Accessible	Total
Off-Street Parking			
Lot 1A	88	3	91
Lot 2A	170	7	177
Lot 3A	106	0	106
Lot 4A	48	0	48
Lot 5A	29	2	31
Lot 6A	283	4	287
Lot 7A	235	8	243
Lot 8A	97	0	97
Lot 9A	113	2	115
Lot 10A	54	0	54
Lot 11A	21	2	23
Lot 1B	61	2	63
Lot 2B	57	1	58
Lot 3B	78	0	78
Lot 4B	74	1	75
Lot 5B	48	0	48
Lot 6B	53	0	53
Off-Street Total	1,615	32	1,647

Location	General	Accessible	Total
On-Street Parking			
Broadway	161	5	166
System Total			
System Total	**1,776**	**37**	**1,813**

The Downtown Tillsonburg off-street parking system is composed of 1,647 parking spaces, including 32 accessible spaces. In addition to off-street parking, 166 on-street parking spaces along Broadway were surveyed, including 5 accessible spaces. While not included in the study scope, additional on-street parking is available on various other streets throughout the Downtown core.

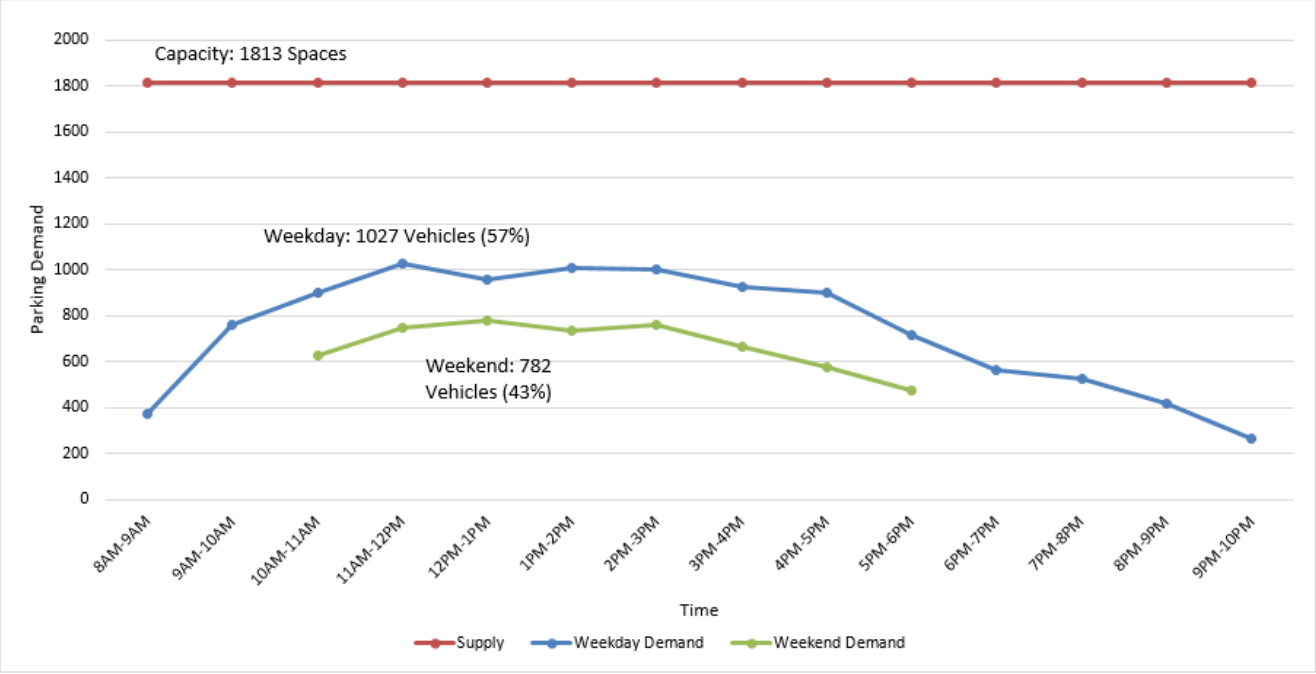
3.2 Parking Utilization

Using the parking occupancy data collected during the parking demand survey, a complete review of the study area's existing parking utilization was undertaken for the weekday and weekend periods (how much parking is used and when).

Parking systems are considered "effectively full" at an occupancy of approximately 85%, depending on lot size and characteristics. This represents the point where finding a space becomes challenging for drivers, resulting in an increased likelihood of a driver having to search for an available parking space. Using the collected utilization data and the 85% effective capacity threshold, IBI Group evaluated the Downtown Tillsonburg parking system's overall performance, identified locations where parking operates near capacity, and where excess capacity is available.

Exhibit 3-2 illustrates the system wide hourly parking patterns during the weekday and weekend periods. Similar figures for each off-street lot and for on-street parking along Broadway are located in Appendix A.

Exhibit 3-2: System Wide Parking Utilization



When considering the study area as a whole, the following observations are made:

- In general, parking demand was observed to increase during the morning, peak during the midday, and gradually decrease throughout the evening;
- Weekday parking demand is generally higher than weekend demand; and
- The following peak parking demands were observed:
  - Weekday: 1,027 vehicles parked between 11:00 AM – 12:00 PM (57% utilization); and
  - Weekend: 782 vehicles parked between 12:00 PM – 1:00 PM (43% utilization).

Considering these results, the current Downtown parking supply is considered sufficient to accommodate the parking demand at all times.

While sufficient parking opportunities are provided system wide, several individual lots were observed to operate near or at capacity. **Exhibit 3-3** presents a lot-by-lot breakdown of parking utilization and the utilization of Broadway on-street parking during the periods of peak weekday and weekend demand. Lots operating above the 85% effective capacity threshold are highlighted.

Exhibit 3-3: Peak Weekday and Weekend Utilization

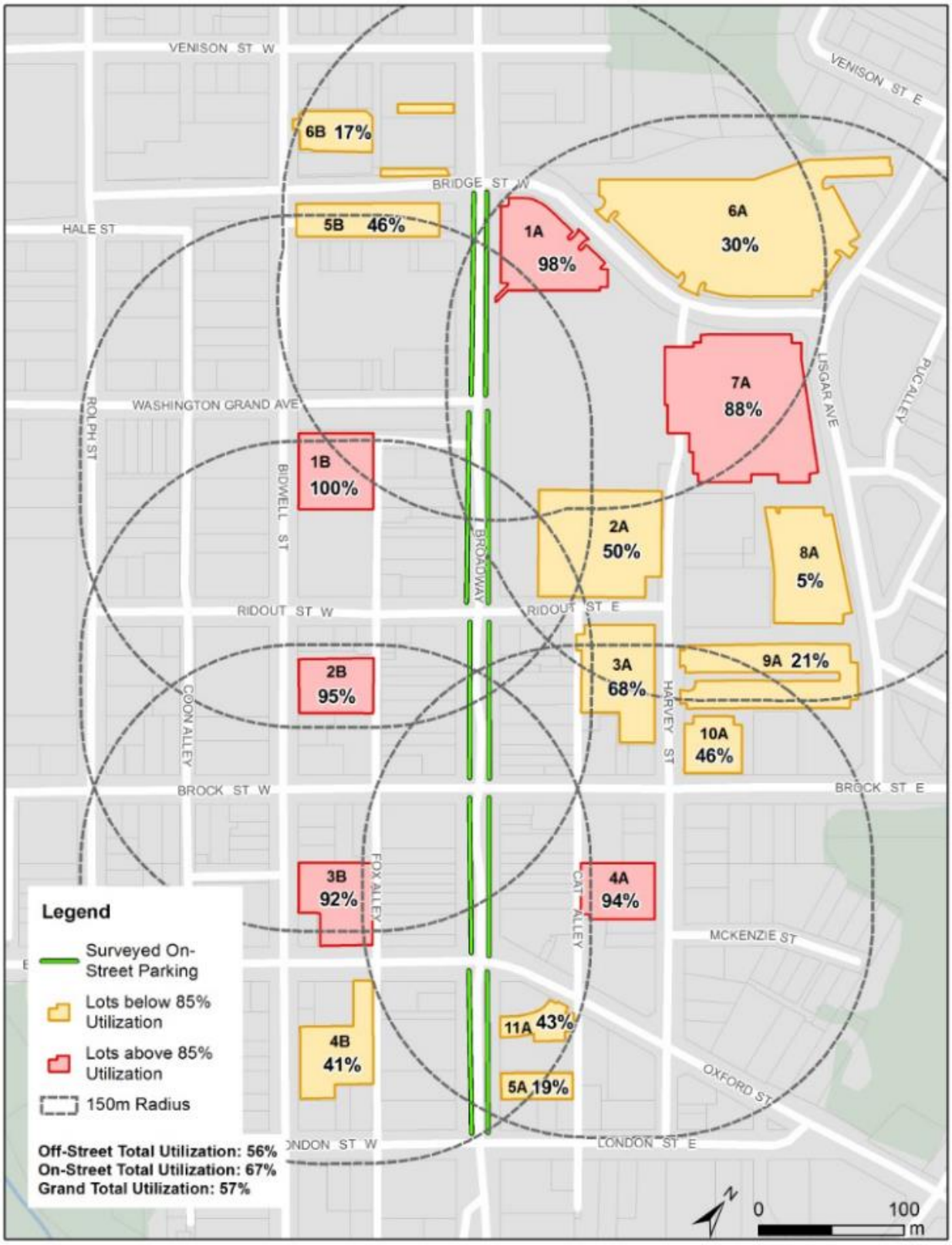
Parking Lot	Supply	Weekday System Peak (11:00 AM to 12:00 PM)		Weekend System Peak (12:00 PM to 1:00 PM)	
		Demand	% Utilization	Demand	% Utilization
Off-Street Parking					
Lot 1A	91	89	98%	71	78%
Lot 2A	177	89	50%	80	45%
Lot 3A	106	72	68%	57	54%
Lot 4A	48	45	94%	22	46%
Lot 5A	31	6	19%	6	19%
Lot 6A	287	85	30%	83	29%
Lot 7A	243	214	88%	180	74%
Lot 8A	97	5	5%	5	5%
Lot 9A	115	24	21%	15	13%
Lot 10A	54	25	46%	1	2%
Lot 11A	23	10	43%	10	43%
Lot 1B	63	63	100%	39	62%
Lot 2B	58	55	95%	39	67%
Lot 3B	78	72	92%	18	23%
Lot 4B	75	31	41%	13	17%
Lot 5B	48	22	46%	17	35%
Lot 6B	53	9	17%	17	32%
Off-Street Total	1647	916	56%	673	41%
On-Street Parking					
Broadway	166	113	68%	120	72%
System Total					
System Total	**1813**	**1027**	**57%**	**782**	**43%**

Based on the results displayed in **Exhibit 3-3**, Lots 1A, 4A, 7A, 1B, 2B, and 3B operate above effective capacity during peak weekday operations. While the majority of lots experienced a peak demand coinciding with the system wide peak demand (11:00 AM to 12:00 PM), this was not necessarily the case. No operational issues are anticipated for lots experiencing a peak demand outside of the system wide peak, as these localized peak demands were only marginally higher than the respective demand experienced during the system wide peak.

As previously discussed, parking demand was generally observed to increase during the morning, peak during the midday, and gradually decline throughout the evening. All lots followed this trend with the exception of Lot 6B, which generally serves customers of the local Kelsey's restaurant. As expected for lots serving restaurants, parking demand was low throughout the morning with a slight peak during the lunch hour (12:00 PM to 1:00 PM). Demand remained low throughout the afternoon followed by a sudden increase during the evening. Parking demand peaked at approximately 70% utilization between 8:00 PM and 9:00 PM.

The lot-by-lot parking utilization observed during the period of peak parking demand is displayed geographically in **Exhibit 3-4**.

Exhibit 3-4: Existing Peak Parking Utilization Map (Weekday 11:00 AM to 12:00 PM)



The near-capacity lots are fairly well distributed geographically throughout the Downtown parking system. It's anticipated that the high demand is a result of popular trip end destinations in close proximity, such as the Town Centre Mall for lots 1A and 7A. All lots operate below effective capacity during peak weekend operations.

Based on industry research, the publically accepted walking distance between a parking space and the user's final destination ranges between 300 – 400 metres. Considering the size of Tillsonburg's Downtown core, a distance of 300 metres would normally be considered most appropriate. While several lots are observed to operate above effective capacity, there are sufficient parking opportunities within walking distance to accommodate any excess demand. Therefore, a parking supply expansion is not considered necessary. Parking wayfinding technologies that help improve the distribution of parking demand throughout a parking system are investigated in Section 4.1.

Considering Tillsonburg's unique demographics (higher than average percentage of elderly residents), a sensitivity analysis was conducted evaluating whether sufficient parking opportunities are provided within 150 metres of parking lots operating above effective capacity. A 150 metre radius surrounding lots operating above effective capacity is displayed in **Exhibit 3-4**. The assessment revealed that sufficient parking opportunities are available for all lots with the exception of Lots 1B and 2B. In the event Tillsonburg desires to provide sufficient parking opportunities at a reduced walking distance of 150 metres, parking supply expansions are considered warranted for Lots 1B and 2B.

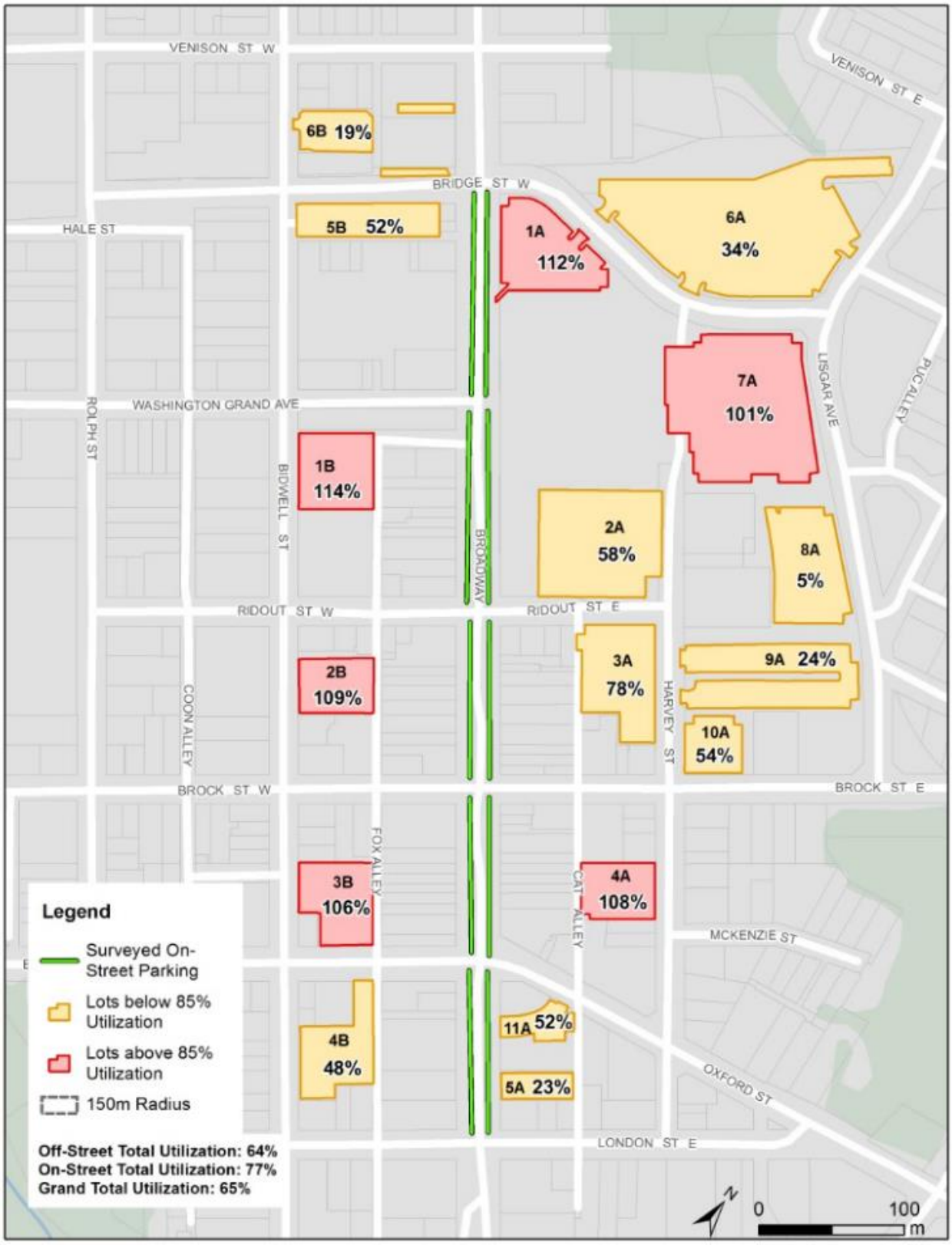
Alternatively, Tillsonburg could dedicate several Lot 1B and 2B parking spaces as "age friendly" parking spaces reserved for Tillsonburg's senior citizens. The intent is to ensure that if parking demand exceeds the supply, the excess vehicle drivers are capable of walking the publically accepted 300 metres. Tillsonburg could consider initially implementing 2-3 senior citizen parking spaces, and if warranted, increase the supply at a later time. Tillsonburg could also consider installing "family friendly" parking spaces to provide priority parking for new families or expectant mothers. Note that these priority parking spaces typically operate under an honour system and are not enforceable. **Exhibit 3-5** illustrates a sample senior citizen and family friendly parking signs.

Exhibit 3-5: Senior Citizen Parking Sign

3.3 Daily Parking Demand Fluctuation Assessment

Considering that the collected parking demand data represents a one day snap shot of Tillsonburg's Downtown parking demand, a sensitivity assessment was conducted to determine the impact day-to-day parking demand fluctuations have on the system's performance. Tillsonburg's Downtown parking performance was evaluated considering a 15% increase in observed parking demand. The sensitivity assessment's lot-by-lot parking utilization is displayed geographically in **Exhibit 3-6**.

Exhibit 3-6: Sensitivity Assessment Parking Utilization



Based on the results presented in **Exhibit 3-6**, Lots 1A, 4A, 7A, 1B, 2B, and 3B are all anticipated to operate above 100% capacity. In an attempt to maintain parking demand below the 85% effective capacity threshold in all lots, parking demand is redistributed from lots operating above effective capacity to lots within 300 metres with available capacity:

- Excess vehicles from Lot 1A redistributed to Lot 6A;
- Excess vehicles from Lot 4A redistributed to Lot 10A;
- Excess vehicles from Lot 7A redistributed to Lot 2A;
- Excess vehicles from Lot 1B redistributed to Lot 5B and 6B;
- Excess vehicles from Lot 2B redistributed to Lot 2A and 3A; and
- Excess vehicles from Lot 3B redistributed to Lot 4B.

Note that this redistribution is strictly a planning exercise to evaluate whether sufficient parking supply is available in close proximity to lots operating near or at capacity, and to determine whether a parking supply expansion would be beneficial. Section 4 evaluates potential parking management strategies Tillsonburg could adopt to better distribute parking demand within the Downtown core.

Exhibit 3-7 presents the redistributed parking demand on a lot-by-lot basis.

Exhibit 3-7: Redistributed Parking Demand

Parking Lot	Supply	Weekday System Peak (11:00 AM to 12:00 PM)	
		Demand	% Utilization
Off-Street Parking			
Lot 1A	91	77	85%
Lot 2A	177	148	84%
Lot 3A	106	90	85%
Lot 4A	48	41	85%
Lot 5A	31	7	23%
Lot 6A	287	123	43%
Lot 7A	243	207	85%
Lot 8A	97	6	6%
Lot 9A	115	28	24%
Lot 10A	54	40	74%
Lot 11A	23	12	52%
Lot 1B	63	53	84%
Lot 2B	58	49	84%
Lot 3B	78	66	85%
Lot 4B	75	53	71%
Lot 5B	48	41	85%
Lot 6B	53	13	25%
Off-Street Total	1647	1054	64%
On-Street Parking			
Broadway	166	128	77%
System Total			
System Total	**1813**	**1182**	**65%**

As shown in **Exhibit 3-7**, parking demand from lots operating above capacity can be redistributed in a manner where demand remains below the 85% effective capacity threshold. Therefore, the existing parking system can accommodate a 15% increase in parking demand due to daily fluctuation without experiencing operational issues. A parking supply expansion is not considered necessary.

4 Parking Management Strategies

This section investigates potential parking management strategies Tillsonburg could adopt to better distribute parking demand within the Downtown core including:

- Improved parking wayfinding;
- Paid parking operations;
- Parking time restrictions; and
- Parking user restrictions.

4.1 Improved Parking Wayfinding

The parking utilization assessment concluded that the overall Downtown parking supply is sufficient to accommodate the peak weekday and weekend parking demand. However, while the overall parking supply is sufficient, several off-street lots were observed to operate near or at capacity while other nearby parking lots had excess supply.

Parking wayfinding technologies have the potential to guide users to parking lots that are underutilized, which will help better distribute the overall parking demand. This section examines Tillsonburg's existing wayfinding technologies and proposed potential improvements for consideration.

4.1.1 Existing Wayfinding

Currently, Tillsonburg's wayfinding strategy consists of the following static wayfinding signage:

- Directional: Signs that direct drivers to parking areas throughout the Downtown core; and
- Identification: Signs placed at parking lot entrances identifying the lot.

Example directional and identification signs currently deployed in Tillsonburg are displayed in **Exhibit 4-1** and **Exhibit 4-2**.

Exhibit 4-1: Tillsonburg Parking Directional Sign

Exhibit 4-2: Tillsonburg Parking Lot Identification Sign

Potential parking technologies that could aid users in navigating the Downtown core's parking system include static wayfinding signs, dynamic wayfinding technologies, or a combination of both.

4.1.2 Static Wayfinding Signs

For the static signage strategy, there are four fundamental parking sign types that increase drivers' and pedestrians' wayfinding experience.

Introduction: The first level of parking signage alerts drivers approaching the parking areas. The signage should be distinct in both colour and size, and it can be characterized by unique logos. The signs are located on the street, mounted on poles of standard height, and should display the names of off-street lots.

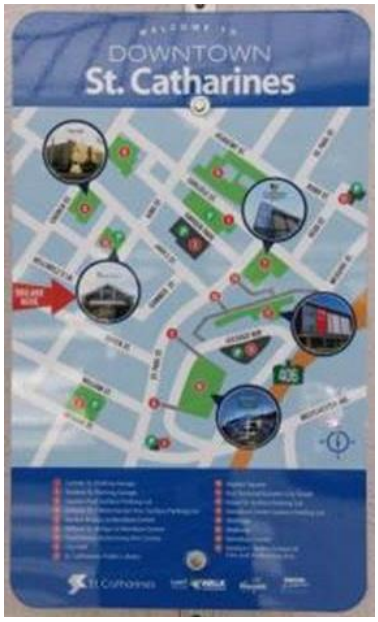
Directional: Directional parking signage is distinct in colour, size, and logo, and directs drivers to the parking areas. The signs are mounted on poles at standard heights and located on the street.

Identification: Identification signage is placed at the entry of each parking lot and the name of the parking facility is identified. The identification signage is distinctive in colour and size, and it is located on a pole at a lower height.

Pedestrian Wayfinding: Wayfinding signs are placed at the points of pedestrian entry / exit to parking facilities. These types of signs are placed at locations easily found by a pedestrian and are intended to help that person orient themselves to the Downtown core.

Sample introduction and pedestrian wayfinding signs are illustrated in **Exhibit 4-3**.

Exhibit 4-3: Sample Introduction and Pedestrian Wayfinding Signs



The qualities of good signage include the following aspects:

- The appearance of all signage is consistent;
- Use of common logos and colours;
- Placement at or near eye level;
- Use of reflective and durable material;
- All four wayfinding sign types (introduction, directional, identification, and pedestrian) used to guide motorist and pedestrian activity;
- All primary entrances to the Downtown need to have introduction signage;
- All major routes through the Downtown need to have directional signage;
- All parking areas need to have identification signage;
- All pedestrian routes to and from major parking areas need to have wayfinding signs;
- The identification signs located at parking areas need to convey parking rates, hours of operation, and maximum durations; and
- Usually have a lettering height of about 10 centimeters for urban streets (varies according to traffic speed).

4.1.3 Dynamic Wayfinding Technologies

While improved static signage helps distribute parking demand, more powerful tools are available through dynamic wayfinding systems that display real time parking availability data, including:

- Dynamic wayfinding signs;
- Smart phone application; and
- Website parking map.

Dynamic wayfinding systems provide users with real time parking occupancy data allowing them to target the underutilized lots, and with directional information to assist in wayfinding. **Exhibit 4-4** illustrates an example dynamic wayfinding sign that displays the number of spaces available per level within a parking garage.

Exhibit 4-4: Dynamic Wayfinding Sign

There are four main components in an advanced parking information system:

- **Automated Data Collection System** for recording the number of vehicles entering and leaving parking facilities;
- **Distribution System** capable of displaying a set of static and variable messages with information links to the parking facilities and external systems;
- **Central System** that processes data on parking facility occupancy and controls the display of information, typically located at a Control Centre; and
- **Communications System** to enable the transfer of information between the parking facilities, the central system, and the distribution technologies.

The City of Stratford has recently initiated a Smart Parking Pilot Project which involves the deployment of 78 parking sensors for on-street parking spaces along Wellington Street, Downie Street, and Albert Street. The sensors have the capability of automatically tracking occupancy which will be used by City staff to help make educated parking related decisions, and with plans to make real time parking occupancy data available to the general public. The pilot project has a budget of $100,000. Similar to Stratford, the City of Burlington has begun installing sensors throughout Downtown streets and lots.

4.1.4 Tillsonburg Recommendation

Specific to Tillsonburg, there is little in the way of advanced guidance when approaching or within the Downtown core. Tillsonburg is recommended to implement the four layers of static wayfinding signs. Introduction signs can be placed at major entry points into the Downtown, directional signs placed along the major routes, identification signs placed at parking facility entrances, and pedestrian wayfinding signs placed at each facility's pedestrian access points. Further study is recommended as part of a broader Downtown wayfinding strategy to evaluate the specific sign locations and designs.

Additionally, Tillsonburg is recommended to implement *parking overflow* signage at lots 1B, 2B, and 3B that direct drivers to alternative nearby lots. Lots 1B, 2B, and 3B are selected as these

lots were observed to operate near or at capacity under existing conditions and nearby parking opportunities may not be apparent.

Dynamic wayfinding technologies are not recommended for Tillsonburg as it would require expensive parking technology upgrades capable of tracking vehicle occupancy.

To minimize visitor confusion, Tillsonburg is recommended to rename all lots to simple nomenclature (Lot A, B, C, etc.). This strategy will help when communicating time limit strategies and general user information.

As Tillsonburg's population continues to grow over time, a parking wayfinding strategy will steadily become more important. Section 5 further explores Tillsonburg's projected future parking situation.

4.2 Paid Parking Operations

Parking demand can be strategically managed through the implementation of paid parking operations. In the event paid parking operations were implemented, the system wide parking demand would be anticipated to decrease. According to Canadian Parking Association, the price elasticity of parking demand is generally in the order of -0.37, meaning a 1% increase in the price of parking would result in a 0.37% decrease in the demand for parking. This value is anticipated to be smaller for Tillsonburg as alternatives modes of transportation may not be an option for a large portion of travellers.

Considering the parking system is sufficient to accommodate the current demand, paid parking operations are not considered appropriate for system wide implementation. However, as Tillsonburg continues to grow, paid parking operations can strategically be adopted in areas experiencing the highest parking demand. These locations could include Lots 1A, 1B, and 2B, and on-street parking spaces along Broadway. This strategy is anticipated to improve the distribution of parking demand as some drivers are anticipated to target the free and lesser utilized parking lots.

Tillsonburg is recommended to collect further parking demand data across the Downtown system when considering the implementation of paid parking operations.

4.3 Parking Time Restrictions

On-street parking in Tillsonburg is currently limited to 2 hours per visit, which is considered appropriate. The intent is to reserve the limited on-street parking supply for transient parking, with long term parking opportunities provided in off-street lots for employees and visitors travelling Downtown for periods longer than a few hours.

In addition to on-street parking, a small portion of Lots 1B and 3B and all of Lot 2A is also reserved for visits 2 hours or less. The intent of this off-street 2 hour limit is to balance the parking supply between short and long term visitors and ensure that both groups have well distributed and sufficient parking opportunities to meet the existing demand.

With the intent of better distributing parking demand throughout the Downtown off-street lots, Tillsonburg could consider expanding the number of 2 hour transient parking in Lot 1B and implementing several spaces in Lot 2B. To maintain the existing balance between short and long term parking opportunities, the 2 hour limit could be rescinded for a portion of Lot 2A parking spaces. These conversions are anticipated to shift a small amount of long term parkers from Lots 1B and 2B to Lot 2A which would decrease the demand in the highly utilized Lots 1B and 2B while increasing the demand in the underutilized Lot 2A. Lot 2A is also considered within acceptable walking distance from both Lots 1B and 2B. A similar shift in demand is anticipated between the highly utilized Lot 3B to the underutilized Lot 4B.

Note that Lot 2A is maintained by the Tillsonburg Town Centre Mall, therefore Town staff would be required to coordinate with the mall to implement this strategy.

4.4 Parking User Restrictions

An alternative strategy for improving the distribution of parking demand within the Downtown core is restricting the user groups that are granted access to certain lots. For example, Lot 1B could be restricted to visitors of the Tillsonburg public library. Gated access would be required to ensure the intended restrictions were obeyed. Such restrictions are anticipated to decrease the utilization of targeted lots while increasing the utilization of nearby lots.

Parking user restrictions are currently not considered appropriate for Tillsonburg given that less restrictive and less expensive strategies are available to improve the distribution of Downtown parking demand, such as the strategies discussed above. However, as Tillsonburg continues to grow, and alternative strategies become less effective, parking user restrictions is a strategy Tillsonburg staff could consider.

5 Future Parking Assessment

While the existing Downtown parking supply is sufficient to meet the current parking demand, the Downtown core is anticipated to experience modest growth over the next 10 years. This section evaluates Tillsonburg's future parking situation to ensure the parking supply remains sufficient to accommodate the future demand. Future parking demand within the Downtown core is anticipated to be impacted by the following factors:

- Parking demand growth due to population growth outside the Downtown core (6.10% over 10 years);
- Personal vehicle modal split reduction (assumed 2% over the 10 year horizon);
- New developments within the Downtown study area;
- Parking supply losses; and
- Accessible parking conversion.

5.1 Increased Activity of Existing Land Uses

The Downtown core's future parking demand is anticipated to grow, even if there are no new developments within the study area. This occurs because the activity drawn by the existing land uses is anticipated to grow as a function of population growth outside the study area. The Tillsonburg population growth projections are based on the Oxford County Population Household and Employment Forecasts and Employment Lands Study. Using the data obtained from the study, Tillsonburg's population is anticipated to grow by 6.10% by 2028. It is assumed that an increase in population will result in a proportional increase in parking demand.

Note that while population is a significant contributor to parking demand, parking demand growth is not directly proportional to population growth. For the purposes of this planning exercise, the estimated growth in demand is considered a conservative forecast. Tillsonburg is recommended to monitor the parking situation moving forward and adjust the projections as necessary.

Exhibit 5-1 presents the projected weekday parking demand growth when accounting for growth outside the study area.

Exhibit 5-1: Weekday Parking Demand Growth due to Increased Activity

Type	Existing Peak Demand (11:00 AM-12:00 PM)	Factor	Demand Growth
Off-Street	916	6.1% growth over 10 years.	56
On-Street	111		7
System Total	**1027**		**63**

Considering the Downtown parking system as a whole, parking demand is anticipated to grow by about 63 vehicles over the 10 year analysis period due to town-wide growth increasing the activity of existing Downtown land uses.

5.2 Modal Split Reduction

The Official Plan's main parking related objective is to ensure sufficient parking opportunities are provided to meet the existing and future demand while promoting alternative modes of transportation (transit, cycling, and pedestrian). Considering this goal, the future single occupant personal vehicle mode share is anticipated to be slightly lower than existing conditions, resulting in reduced parking demand. No single occupancy vehicle modal split reduction target was specified, therefore a conservative low transportation demand management (TDM) reduction of 2% was assumed over the 10 year analysis period. Note that 2% is a modest reduction and it supports the Official Plan main parking related objective (provision of sufficient parking opportunities while promoting alternative modes of transportation).

Exhibit 5-2 presents the parking demand reduction due to the anticipated modal split changes.

Exhibit 5-2: Weekday Parking Demand Reduction due to Modal Split Changes

Type	Existing Peak Demand (1:00-2:00 PM)	Factor	Demand Reduction
Off-Street	916	2% reduction over 10 years.	-18
On-Street	111		-2
System Total	**1027**		**-20**

Assuming a 2% reduction in personal vehicle mode split, parking demand within the study area is anticipated to decrease by approximately 20 vehicles over the 10 year horizon.

5.3 Parking Supply Losses and New Developments

While the increased activity of existing land uses and modal split reduction of personal vehicles are anticipated to result in an overall change in parking demand across the entire Downtown study area, the impact of new developments and parking supply changes is anticipated to impact parking operations in localized areas. Therefore, a micro level assessment of each potential future development and parking supply change was undertaken to gain an understanding of the anticipated parking impacts.

A list of planned/anticipated future developments and potential parking supply losses was identified through discussions with the Town staff. Additionally, the parking requirements of future developments and the proposed parking supply were quantified. As a worst case scenario, all parking supply deficiencies are assumed to be accommodated by the municipal parking system. The parking supply losses and planned/anticipated future developments, and their anticipated impacts on the municipal parking system is displayed in **Exhibit 5-3**.

Exhibit 5-3: Planned/Anticipated Future Developments and Parking Supply Losses

Location	Development	Municipal Parking System Impact*
Municipal Parking Supply Changes		
Lot 6B	Partial closure for new development	13 parking spaces lost
SUB-TOTAL		**13 parking spaces lost**
Planned and Anticipated Future Developments		
253 Broadway	Ground floor commercial with 28 residential units	Proposed development potentially deficient 11 parking spaces
131 Bidwell Street	Stationview Retirement Development (120 unit retirement home)	No impact, all required parking provided onsite
83 Rolph Street	49 unit residential development	No impact, all required parking provided onsite
SUB-TOTAL		**11 parking spaces lost**
SYSTEM WIDE TOTAL		**24 parking spaces lost**

*Note: the estimates presented in **Exhibit 5-3** are current as of February 2018 and are subject to change as project details are finalized.

For each parking stall lost, the available parking supply within an acceptable walking distance was assessed to determine whether sufficient parking supply is available nearby to accommodate the displaced parking demand. Considering the parking supply losses and new developments presented in **Exhibit 5-3** and the off-street parking facilities in close proximity, parking demand was redistributed in the following manner:

- Lot 6B partial closure: No redistribution necessary since the reduced parking supply is sufficient to accommodate the peak observed parking demand; and
- 253 Broadway: Excess parking demand allocated to Lot 6B.

Strategies to improve the Downtown parking demand distribution are investigated in Section 4.

5.4 Accessible Parking Conversion

With the objective of meeting Tillsonburg's accessible parking standards, Section 7.1 evaluates the accessible parking surplus/deficiency of Tillsonburg off-street parking supply. In the event a lot is deficient, Tillsonburg is recommended to convert general parking spaces to accessible in order to meet the standards. The future parking assessment accounts for this conversion through by estimating the number of general parking spaces lost. Based on the parking space width requirements outlined in Tillsonburg's Zoning By-Laws, 3 general parking spaces are to be lost for each pair of accessible parking spaces:

- 3 general parking spaces = 2.7m x 3 = 8.1m wide; and
- Type A + Type B + access aisle = 3.4m + 2.7m + 1.5m = 7.6m wide.

The access aisle width can be increased to 2.1m to maintain the overall width. To facilitate the conversion of off-street accessible parking spaces, 52 general parking spaces are anticipated to be lost across the off-street parking system. Additionally, 16 general on-street parking spaces are anticipated to be lost.

5.5 Projected Parking Situation

This section consolidates all parking supply and demand changes outlined in the previous sections, and examines the Downtown parking system's projected future performance.

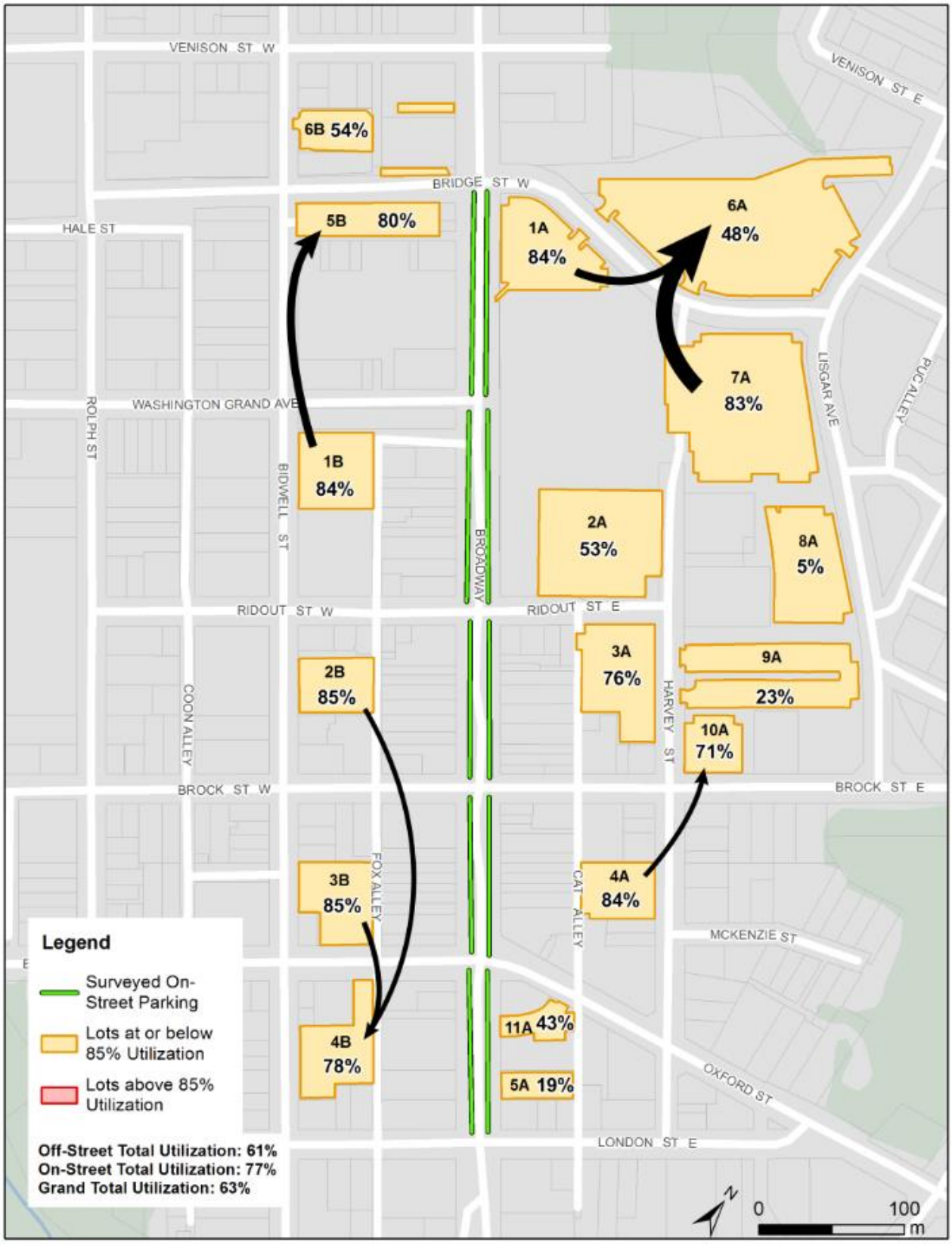
Lots 1A, 4A, 7A, 1B, 2B, and 3B were determined to operate above the 85% effective capacity threshold. To determine whether the existing parking supply is sufficient to accommodate the projected parking demand, demand from these lots were attempted to be redistributed to lots

within 300m walking distance while maintaining under 85% utilization at all lots. Parking demand was redistributed in the following manner:

- Lot 1A: 16 vehicles reallocated to Lot 6A;
- Lot 4A: 9 vehicles reallocated to Lot 10A;
- Lot 7A: 30 vehicles reallocated to Lot 6A;
- Lot 1B: 13 vehicles reallocated to Lot 5B;
- Lot 2B: 10 vehicles reallocated to Lot 4B; and
- Lot 3B: 14 vehicles reallocated to Lot 4B.

Exhibit 5-4 illustrates the projected future parking utilization during the period of peak demand. The arrows illustrate the redistribution exercise.

Exhibit 5-4: Projected Future Parking Situation



In summary, the assessment of Tillsonburg's future parking situation based on known and potential parking supply changes and redevelopment projects revealed the following:

- During the period of peak demand, following peak parking demands are projected:
  - Off-street: 961 vehicles (61% utilization);
  - On-street: 115 vehicles (77% utilization); and
  - System total: 1,076 vehicles (63% utilization).
- While several off-street lots are projected to operate above the 85% effective capacity threshold, sufficient capacity remains available in nearby lots to accommodate the excess demand; and
- On-street parking along Broadway continues to operate below effective capacity.

Based on these results, the Downtown Tillsonburg parking system is considered sufficient to accommodate the projected 10 year parking demand and no increases in parking supply are considered necessary. In the event Tillsonburg were to consider a parking supply expansion, the most beneficial area would be in close proximity to Lots 1B and 2B.

This estimate is based on all known and potential redevelopment projects identified at the time this report was prepared, and is therefore subject to change as the details of these projects affecting the Downtown core's parking supply are finalized.

5.6 Parking Lot Redevelopment

Through discussions with Tillsonburg staff, it was determined that one or more off-street lots may potentially be sold and redeveloped in the future. This section is intended to provide strategic decision making guidance to ensure the Downtown parking supply remains sufficient to meet the parking demand if a lot was redeveloped.

As an overarching strategy, the following guidelines are proposed when deciding whether the parking supply lost to redevelopment should be replaced elsewhere:

- >85% existing utilization: Minimum 100% of parking spaces lost to be replaced;
- 70-85% existing utilization: Minimum 75% of parking spaces lost to be replaced;
- 50-70% existing utilization: Minimum 50% of parking spaces lost to be replaced; and
- <50% existing utilization: parking space replacement may not be necessary.

Note that the quantity of parking spaces replaced is not intended to entirely accommodate the existing parking demand. In other words, there is anticipated to be excess parking demand that may not be accommodated in the new lot. Therefore, when deciding upon the replacement strategy, Tillsonburg is recommended to collect new parking utilization data for the lot in question and the surrounding parking system within 150m. The available parking opportunities within close proximity should be determined to evaluate whether the excess demand from the replaced lot can be accommodated elsewhere. In the event the surrounding parking system is determined to not have sufficient capacity to accommodate the excess vehicles, the replacement parking lot's capacity is recommended to be increased in a manner that targets an overall 85% utilization. Consideration is also recommended to be given to the area's planned developments to ensure the parking supply remains sufficient in the foreseeable future.

With this approach, the lower thresholds are taken as a starting point, the surrounding parking system's utilization is investigated, and the replacement lot's capacity is only increased if needed. By not providing excess parking supply, this approach supports the Official Plan objective of continuing to provide sufficient parking opportunities to meet the areas vehicular needs while promoting alternative modes of transportation.

The parking space replacement criteria is in addition to the development's parking requirement.

6 Tillsonburg Town Centre Mall Review

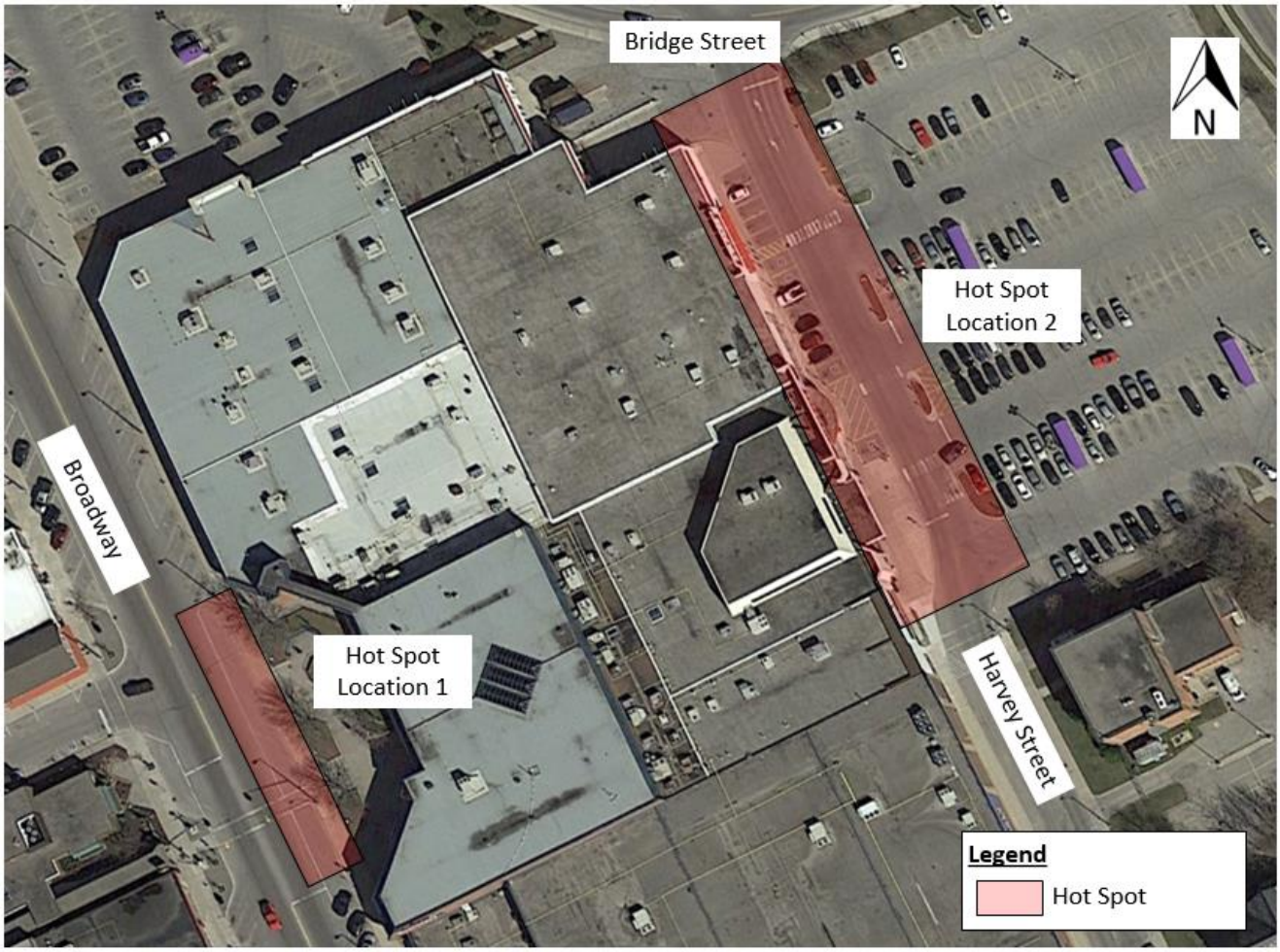
6.1 Existing Operational Issues

This section reviews the vehicle, pedestrian, and transit operations in close proximity to the Tillsonburg's Town Centre Mall. Following the project kick-off meeting on December 12, 2017, IBI Group and Tillsonburg staff completed a site walk-about with the intent of observing existing operational issues. The follow two hot spot locations were identified:

- Location 1: The loading zone located near the mall's front entrance (adjacent to Broadway); and
- Location 2: The pedestrian crossing area located at the mall's back entrance (Lot 7A) and the adjacent parking spaces:
    - The pedestrian crossing area is considered a high conflict area with pedestrian, passenger pick-up/drop-off, transit, and vehicular traffic activities all in close proximity.
    - The parking spaces adjacent to the Shoppers Drug Mart are perpendicular to the aisle which is often used as a roadway connecting Harvey Street and Bridge Street.

The existing hot spot locations are illustrated in **Exhibit 6-1**.

Exhibit 6-1: Tillsonburg Town Centre Mall Hot Spots



6.2 Proposed Operations

The following uses are recommended to be accommodated by the two hot spot locations:

- Transit stop,
- Additional accessible parking,
- Passenger pick-up and drop-off activities,
- Taxi stand, and
- Commercial loading zone.

This section investigates proposed adjustments to existing Location 1 and 2 layout and operations intended on addressing the operational issues and finding optimal locations for each use.

6.2.1 Location 1: Town Centre Mall Front Entrance

Broadway is the major arterial through the Downtown core with many immediately adjacent popular destinations, and is known to experience the largest pedestrian activity. In addition to the existing commercial loading zone, Location 1 is therefore considered an optimal location for a shared transit stop and passenger pick-up/drop-off zone.

The four on-street parking spaces immediately north of the existing loading zone can be removed to accommodate the shared transit stop and passenger pick-up/drop-off zone. Based on the parking demand assessment, parking demand along Broadway between Bridge Street and Washington Grand Avenue is anticipated to peak at 18 of 28 spaces occupied (75% utilization). Therefore, no operational issues are anticipated with the removal of 4 on-street parking spaces. The proposed Location 1 concept is illustrated in **Exhibit 6-2**.

Exhibit 6-2: Proposed Location 1 Concept

The proposed Location 1 adjustments are anticipated to be implemented without major infrastructure requirements. The transit stop would require signage and pavement paint. No additional infrastructure requirements are necessary with the exception of an optional transit shelter.

Note that shared transit and passenger pick-up/drop-off activities are recommended to be operated in a manner that does not disrupt regular transit operations. In the event shared operations are determined to not be feasible, a transit stop is recommended to take priority.

6.2.2 Location 2: Town Centre Mall Back Entrance

With Location 1 providing dedicated space for a transit stop, pick-up/drop-off activities and a commercial loading zone, Location 2 is recommended to provide space for a taxi stand and additional transit stop, passenger pickup/drop-off activities, and accessible parking. The following recommendations are proposed:

- Remove the existing perpendicular parking spaces immediately adjacent to the Town Centre Mall to provide space for the taxi stand and a shared transit stop and passenger pick-up/drop-off zone. Note that shared transit and passenger pick-up/drop-off activities are recommended to be operated in a manner that does not disrupt regular passenger pick-up/drop-off activities. In the event shared operations are determined to not be feasible, the passenger pick-up/drop-off zone is recommended to take priority;
- Orient the taxi stand and shared transit stop and passenger pick-up/drop-off zone to be parallel to the parking aisle rather than perpendicular;
- Potentially implement an additional row of accessible parking spaces immediately east of the parking aisle now that the aisle has been shifted slightly westwards;
- Relocate the existing southbound parking aisle stopbar upstream of the pedestrian crosswalk to prevent vehicles from stopping on the crosswalk;
- Potentially convert Harvey Street to one-way southbound between the Lot 7A access and Ridout Street; and
- With one way operations, additional curbside space would be gained on the south end of the existing commercial loading zone for additional taxi stands. Note that the existing commercial loading zone is intended to be retained, the additional taxi stand can be accommodated between the loading zone and the Harvey Street and Ridout Street intersection.

The recommended Location 2 concept is illustrated in **Exhibit 6-3**.

Exhibit 6-3: Proposed Location 2 Concept

Exhibit 6-3 simply illustrates the proposed conceptual operations, and detailed design and dimensioning is required. Prior to implementing a design concept, Tillsonburg is recommended to consult the Town Centre Mall, Shoppers Drug Mart, and Staples.

With the intent of improving pedestrian safety and Bridge Street crossing operations, Tillsonburg is recommended to consider installing either a signalized pedestrian crossing or flashing pedestrian crossover lights between Lots 6A and 7A. The crossing will improve pedestrian safety and increase the appeal of Lot 6A.

7 Accessible Parking and E-Vehicle Review

Tillsonburg's existing on- and off-street accessible parking supply is evaluated in this section. Additionally, the optimal locations for E-vehicle charging stations are evaluated.

7.1 Off-Street Accessible Parking

With the intent of determining whether sufficient accessible parking spaces are provided, Tillsonburg's accessible parking Zoning By-Law requirements are applied on the Downtown off-street parking system on a lot-by-lot basis. Tillsonburg's off-street accessible parking requirements are consistent with those of Accessibility for Ontarians with Disability Act (AODA), and are as follows:

- 1 to 12 general parking spaces require 1 accessible space;
- 13 to 100 general parking spaces require 4% of total parking spaces are required to be accessible;
- 101 to 200 general parking spaces require 1 parking space plus 3% of total parking spaces are required to be accessible;
- 201 to 1000 general parking spaces require 2 parking spaces plus 2% of total parking spaces are required to be accessible; and
- 1001+ general parking spaces require 11 parking spaces plus 1% of total parking spaces are required to be accessible.

The accessible parking provisions in Tillsonburg also specify that an even number of Type A and Type B accessible parking spaces must be provided with an extra Type B space provided if an odd number of accessible parking spaces are required.

- Type A: Minimum 3.4m width and minimum 5.5m length; and
- Type B: Minimum 2.7m width and minimum 5.5m length.

The accessible parking assessment results are summarized in **Exhibit 7-1** with surpluses/ deficiencies noted. The suggested accessible parking space locations are based on assumed trip destinations and the *Tillsonburg Central Area Design Study* pedestrian circulation assessment. The suggested locations are recommended to be confirmed and finalized through discussions with the Accessible Advisory Committee (AAC).

Exhibit 7-1: Off-street Accessible Parking Supply Assessment

Parking Lot	Supply	Accessible Parking Supply	Accessible Parking Requirement	Surplus / Deficiency	Suggested Location

Parking Lot	Supply	Accessible Parking Supply	Accessible Parking Requirement	Surplus / Deficiency	Suggested Location
Lot 1A	91	3	4	-1	Spaces closest to Town Centre Mall entrance
Lot 2A	177	7	7	0	-
Lot 3A	106	0	5	-5	North aisle adjacent to Ridout Street
Lot 4A	48	0	2	-2	East aisle adjacent to Harvey Street
Lot 5A	31	2	2	0	-
Lot 6A	287	4	8	-4	North aisle closest to Canadian Tire entrance
Lot 7A	243	8	7	1	-
Lot 8A	97	0	4	-4	East aisle adjacent to Lisgar Avenue
Lot 9A	115	2	5	-3	North aisle closes to the United Church's entrance
Lot 10A	54	0	3	-3	South aisle adjacent to Brock Street
Lot 11A	23	2	1	1	-
Lot 1B	63	2	3	-1	East aisle adjacent to Fox Alley closest to Library Lane
Lot 2B	58	1	3	-2	Adjacent to existing accessible space
Lot 3B	78	0	4	-4	Lot's southeast corner
Lot 4B	75	1	3	-2	North aisle closest to Around the Corner Variety
Lot 5B	48	0	2	-2	South aisle closest to Fox Alley
Lot 6B	53	0	3	-3	North aisle closest to Fox Alley
Off-Street Total	**1647**	**32**	**66**	**-34**	**-**

Based on the results presented in **Exhibit 7-1**, only Lots 2A, 5A, 7A, and 11A provide sufficient accessible parking to meet Tillsonburg's Zoning By-law requirements. Overall, there is an accessible parking supply deficiency of 34 spaces across the Downtown parking system.

As a minimum, Tillsonburg is recommended to implement accessible parking spaces that meet the Zoning By-law requirements. The future parking assessment accounts for the conversion of general parking spaces to accessible. Note that while Lot 6B is considered deficient 3 accessible parking spaces, 4 accessible parking spaces are provided within the Kelsey's owned portion of the lot. Recognizing that accessible parking spaces are provided in the private portion while still providing additional opportunities in the municipally owned portion, Tillsonburg could convert 3 general parking spaces to 2 accessible spaces.

Considering Tillsonburg's higher than average elderly population, Tillsonburg could also consider exceeding the accessible parking space requirements in several strategically located parking lots. Lots 1A, 2A, 6A, and 7A are considered optimal candidates since they are located near popular destinations and all accessible parking spaces were at one point observed to be fully utilized during the parking demand surveys.

The suggested off-street accessible parking space locations are further illustrated in **Exhibit 8-3**.

7.2 On-Street Accessible Parking

With respect to on-street parking, neither the Town of Tillsonburg Zoning Bylaws nor AODA dictates the number of accessible spaces needing to be provided. AODA simply requires the municipality to consult with its AAC when implementing on-street accessible spaces. On January 23, 2018, IBI Group attended a meeting with Tillsonburg's AAC to determine existing issues and desired study outcomes. The following key meeting outcomes were noted:

- Additional on-street accessible parking spaces are desired. Specific locations include Broadway between Ridout Street and Brock Street, Broadway between Washington Grand Avenue and Ridout Street, and Brock Street between Broadway and Bidwell Street;
- A sidewalk curb ramp is requested for each on-street accessible parking space as individuals with accessible needs must travel on-street to the nearest intersection crosswalk to access the sidewalk;
- The Broadway on-street accessible parking spaces at the end of the parking lane are known to experience snow clearing issues. These spaces are desired to be relocated to a midblock location;
- Additional off-street accessible parking spaces are desired in Lots 1A and 7A. Section 7.1 further explores optimal locations of addition off-street accessible spaces; and
- The accessible parking spaces adjacent to the Shoppers Drug Mart in Lot 7A are considered dangerous. Through discussions with Tillsonburg staff, this area was identified as a hot spot for vehicle, pedestrian, and transit operational issues and was further examined in Section 6.

Section 8 further explores optimal on-street accessible parking space supply, location, and design.

7.3 E-Vehicle Review

While not directly reducing travel or parking demand, electric vehicles, also called e-vehicles (EV), and e-bikes (EB) have no emissions compared to typical motorized vehicles. The lack of emissions can help support the broader sustainability and environmental goals by improving air quality in Downtown and across the Town.

Through discussions with Town staff, IBI Group determined that Tillsonburg will be provided with two EV charging stations with the potential for additional stations. EV and EB parking and charging stations are optimally located in the Downtown areas that experience the highest parking demand and activity. This strategy maximizes the parking space's utilization, and promotes more sustainable and environmentally friendly travel patterns.

Through the parking demand surveys, IBI Group identified the off-street lots that operate near or at capacity, which are considered prime locations for EV and EB parking and charging stations. In an attempt to distribute the EV charging stations throughout the Downtown parking system, Tillsonburg is recommended to locate the first two charging stations in Lots 7A and 3B as illustrated in **Exhibit 8-3**. Of the lots operating above the 85% effective capacity threshold during the period of peak parking demand, Lots 7A and 3B are two the largest lots in terms of capacity, and located on opposite ends of the study area. This strategy allows Tillsonburg to place the two EV charging stations in highly occupied lots that are well distributed spatially within the Downtown system. Additionally, given their larger sizes, the loss of one general parking space is anticipated to have the smallest relative impact on operations. The recommended e-vehicle charging station locations should not preclude any existing stations.

Through discussions with Tillsonburg staff, it was determined that the Town has received funding for a dual EV changing station in Lot 5B. In the event additional charging stations are procured, Lot 4A and the Broadway on-street parking spaces immediately adjacent to the Town Centre Mall are considered optimal candidates. These locations optimize the distribution of EV charging stations within the Downtown core while being located in areas experiencing high parking demand.

8 On-Street Accessible Parking Feasibility Review

8.1 Existing Parking Spaces

Tillsonburg provides a variety of on-street parking spaces including angled parking spaces along Broadway and a mix of angled, perpendicular, and parallel parking spaces along various streets intersecting with Broadway. The feasibility review focuses on the angled parking spaces along Broadway as these spaces are considered premium spaces and are centrally located.

8.2 On-Street Parking Space Standards

AODA provides best practice requirements for accessible friendly infrastructure. However, the regulation does not provide specific requirements for on-street parking. Therefore, a literature review was conducted to establish best practice design criteria suitable for Tillsonburg. The following guidelines were considered:

- AODA (off-street);
- City of London Facility Accessibility Design Standards, 2007 (COL FAD); and
- Canadian Standards Association Barrier Free Design, 1996 (CSA BFD).

COL FAD was consulted as it represented the largest municipality within close proximity to the Town of Tillsonburg. Although this standard included guidelines for on-street parallel and perpendicular parking spaces, it did not mention angular parking spaces.

8.3 Technical Criteria

The reviewed on-street accessible parking space standards are presented in **Exhibit 8-1**. The criteria are sub-divided into two parking space types in accordance with AODA, Type A (Van Accessible parking space) and Type B (standard accessible parking space). The access aisle is required to provide users with sufficient space to enter and exit their vehicle comfortably, and the curb ramp provides immediate sidewalk access.

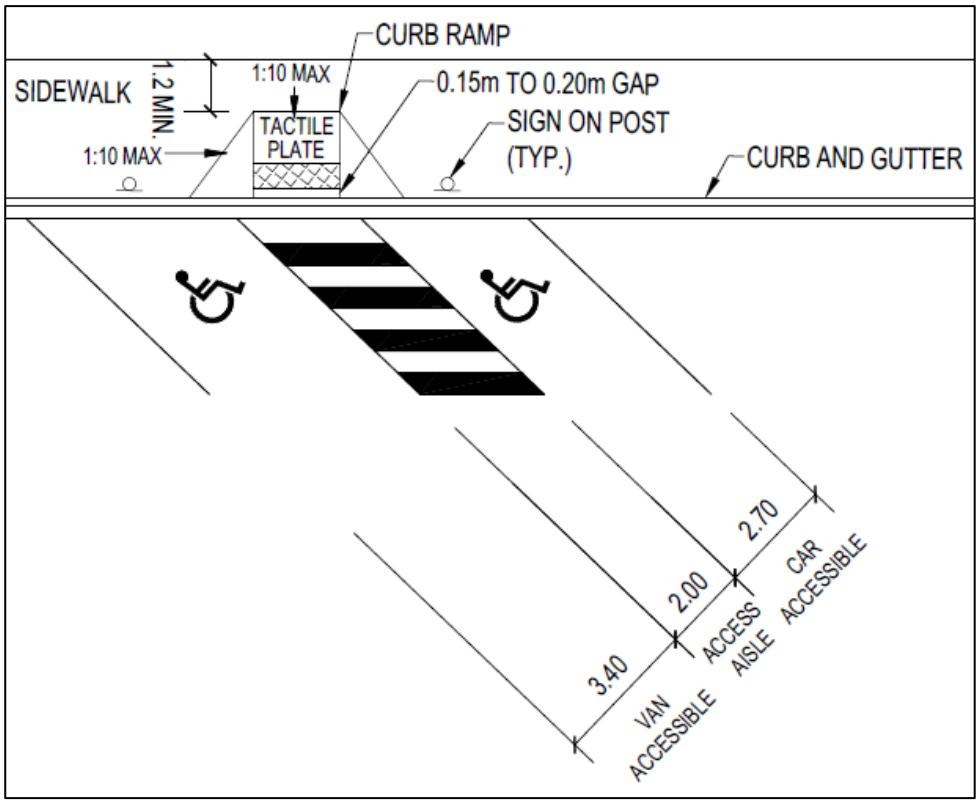
Exhibit 8-1. On-street Accessible Parking Design Criteria

		AODA (Off-street)	COL FAD	CSA BFD	Notes	Proposed
Type A, Van Accessible	**Parking space width**	3.4m	No information provided	3.1m 2.6m	Perpendicular Parallel	3.4m
	Parking space length	No information provided	No information provided	- 5.4m	Perpendicular Parallel	Maintain existing
Type B, Car Accessible	**Parking space width**	2.4m	- 2.7m 3.9m	2.4m 2.4m 3.9m	Angled Perpendicular Parallel	2.7m
	Parking space length	No information provided	- 5.5m 5.4m	- - 5.5m	Angled Perpendicular Parallel	Maintain existing
Access aisle width		1.5m	2.0m	1.5m	-	2.0m
Curb ramp slope		1:10	1:20	1:20	-	1:10

more conservative measurement is considered appropriate. As there are similarities between angled spaces and perpendicular spaces, the greater of those 2 values were chosen. A maximum of curb ramp slope of 1:10 was selected as this slope is consistent with AODA.

The proposed on-street accessible parking space design is illustrated in **Exhibit 8-2**.

Exhibit 8-2. Proposed Accessible On-Street Parking Design

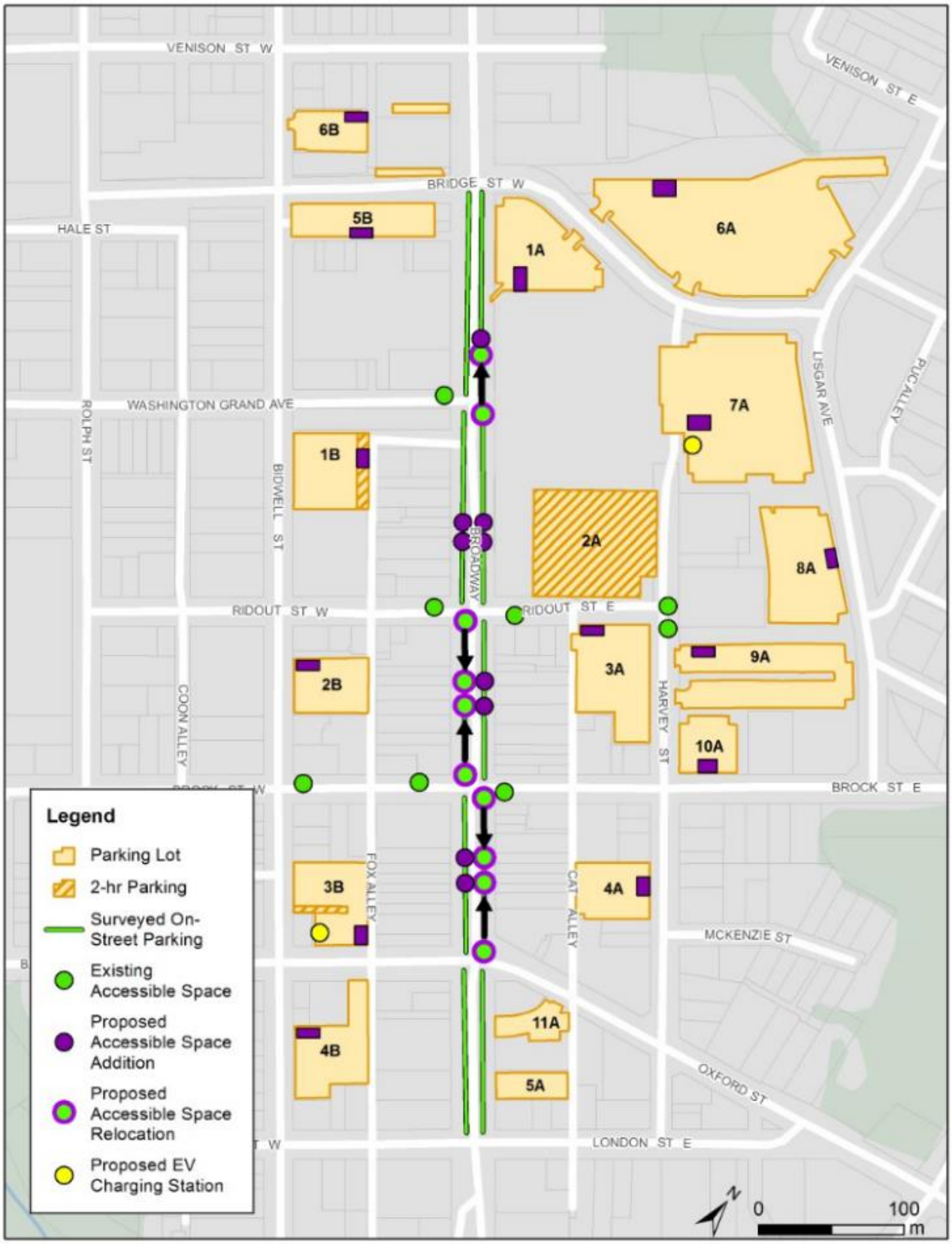


Currently, all accessible on-street parking spaces along Broadway are located at either the beginning or end of the angled parking lane. Tillsonburg is recommended to replace the existing configuration with the proposed configuration displayed in **Exhibit 8-2**. This strategy optimizes the access aisle as each aisle serves two accessible parking spaces rather than one. Additionally, drivers can strategically target either parking space depending on the vehicle side the person with accessible needs is sitting. Based on industry best practices and on public feedback, a curb ramp is recommended to be implemented for each pair of on-street accessible parking spaces.

8.4 Location & Supply of On-Street Accessible Parking Spaces

An inventory of the existing on-street accessible parking spaces was collected to determine the optimal proposed locations. Tillsonburg is recommended to provide accessible on-street parking spaces along Broadway as outlined in **Exhibit 8-3**. With the intent of avoiding snow build up in the accessible parking spaces during the winter months, accessible parking spaces are recommended to be located midblock rather than at the end of the parking lane.

Exhibit 8-3 Proposed EV Charging Stations and Accessible Parking Spaces



With this strategy, 14 accessible on-street parking spaces would be provided along Broadway between Bridge Street to the north and Baldwin Street to the south, compared to the existing 5 spaces. This strategy would meet the Broadway on-street accessible parking requests discussed with the AAC.

Note that due to dimensioning, 3 general parking spaces are anticipated to be lost for each accessible parking space pair (21 general parking spaces lost total). However, the 5 existing accessible on-street spaces can be replaced with general parking, resulting in a net loss of 16 general parking spaces. Considering the peak on-street parking demand observed along Broadway, no operational issues are anticipated from the parking supply loss.

When evaluating the need for additional accessible on-street parking spaces, AODA recommends each municipality consult the local accessibility advisory committee (AAC). Prior to implementing the recommend on-street accessibility parking spaces, Tillsonburg is recommended to consult the AAC to ensure the strategy meets the needs of Tillsonburg's accessible needs community.

To determine whether the proposed parking space concept can be accommodated by Broadway's existing profile, a feasibility assessment was completed. AODA requirements for exterior paths of travel were compared to measured sidewalk and curb dimensions collected by Tillsonburg staff. AODA requires the following:

- 1.2m clearance between the curb ramp and the adjacent building; and
- Maximum curb ramp slope of 1:10 where elevation is 75mm or greater and 200mm or less. Where curb elevation is greater than 200mm, a maximum curb ramp slope of 1:15 is permitted.

The following Broadway sidewalk width and curb height measurements were collected:

East Side

- Bridge Street to Ridout Street – 4.0m sidewalk width and 0.15m curb height;
- Ridout Street to Brock Street – 3.8m sidewalk width and 0.20m curb height; and
- Brock Street to Baldwin Street – 3.8m sidewalk width and 0.20m curb height.

West Side

- Bridge Street to Ridout Street – 3.8m sidewalk width and 0.20m curb height;
- Ridout Street to Brock Street – 3.8m sidewalk width and 0.20m curb height; and
- Brock Street to Baldwin Street – 3.7m sidewalk width and 0.23m curb height.

Based on the measured curb heights, the maximum curb ramp slope, and the 1.2m minimum clearance, the required sidewalk widths are as follows:

- 0.15m curb height: 2.7m sidewalk width required;
- 0.20m curb height: 3.2m sidewalk width required; and
- 0.23m curb height: 4.6m sidewalk width required.

Therefore, when comparing the measured sidewalk widths to the required widths, all locations can accommodate the proposed concept with the exception of Broadway's west side between Brock Street and Baldwin Street. The existing sidewalk would need to be extended by approximately 1m or the curb height would need to be reduced by 0.03m.

The proposed accessible parking space concept is illustrated in **Exhibit 8-4**. All field measurements are recommended to be confirmed before or during the detailed design stage.

Exhibit 8-4. Accessible Parking Space Concept

8.5 Cost Estimate

To estimate the overall cost of each pair accessible parking spaces, IBI Group researched the costs associated with the following items: pavement paint stripping, curb cuts, new pavement paint, access aisle pavement markings, sign posts, tactile plates, and curb ramps. The resultant cost estimate is approximately $3,500 - $4,000 + HST per pair of accessible parking spaces. Considering the 7 pair of accessible parking spaces proposed, a total cost of $24,500 - $28,000 + HST is estimated.

Note that this estimate assumes the existing sidewalk is wide enough to accommodate the curb ramp while maintaining the minimum 1.2m clearance between the ramp's edge and the adjacent building. In the event this clearance requirement is not met, additional costs are anticipated for sidewalk widening or curb elevation reduction.

9 Conclusions and Recommendations

Based on the study findings, the following conclusions and recommendations are drawn:

Study Background

- Tillsonburg has a strong policy planning framework to help guide parking related decisions. The overarching parking related policy is to continue providing sufficient parking opportunities to meet the demand while promoting alternative modes of transportation (cycling, transit, and walking).

Existing Parking Supply and Demand

- The municipal off-street parking supply consists of 1,647 parking spaces including 32 accessible spaces. In addition to off-street parking, 166 on-street parking spaces are provided along Broadway including 5 accessible spaces. Additional on-street parking opportunities are provided on various street intersecting with Broadway.
- Parking demand was observed to peak at 1,207 vehicles (57%) during the weekday and 782 vehicles (43%) during the weekend. In general, parking demand was observed to increase during the morning, peak during the midday, and gradually decrease throughout the evening.
- While sufficient parking opportunities are provided system wide, Lots 1A, 4A, 7A, 1B, 2B, and 3B were observed to operate near or at capacity during peak weekday operations. There are sufficient parking opportunities within an acceptable walking distance (300m) to accommodate any excess demand.
    - **Recommendation**: A parking supply expansion is not considered necessary.
- If the publically accepted walking distance is reduced to 150m, sufficient parking opportunities are **not** provided near Lots 1B and 2B to accommodate any excess demand. Tillsonburg could consider implementing 2-3 "age friendly" parking spaces in Lots 1B and 2B reserved for senior citizens. Additionally, a few "family friendly" parking spaces could also be installed to provide priority parking for new families or expectant mothers.
- The daily parking demand fluctuation assessment determined that the existing Downtown parking system can accommodate a 15% increase in parking demand without experiencing operational issues.
    - **Recommendation**: Additional parking surveys are not considered critical.

- To promote the better distribution of parking demand within the Downtown core, Tillsonburg could consider the following parking management strategies:
    - Improved parking wayfinding;
    - Paid parking operations;
    - Parking time restrictions; and
    - Parking user restrictions.

Future Parking Assessment

- 2028 future parking demand within the Downtown core is anticipated to be impacted by the following factors:
    - Parking demand growth due to population growth outside the Downtown core: 6.1% growth over 10 years;
    - Personal vehicle modal split reduction: 2% reduction over 10 years assumed;
    - New developments within the study area: parking demand increase of 11 vehicles; and
    - Parking supply changes: 13 parking spaces lost in Lot 6B.
    - Accessible parking conversion: 52 general off-street parking spaces are lost and 16 general on-street spaces are lost.
- During the period of peak parking demand (weekday 11:00 AM – 12:00 PM), the following peak parking demand is projected:
    - Off-street: 961 vehicles (61% utilization);
    - On-street: 115 vehicles (77% utilization); and
    - System total: 1,076 vehicles (63% utilization).
- While several off-street lots are projected to operate above the 85% effective capacity threshold, sufficient capacity remains available in nearby lots to accommodate the excess demand.
- On-street parking along Broadway continues to operate below effective capacity.
- **Recommendation**: The Downtown Tillsonburg parking system is considered sufficient to accommodate the projected 10 year parking demand and no increases in parking supply are considered necessary. In the event Tillsonburg were to consider a parking supply expansion, the most beneficial area would be in close proximity to Lots 1B and 2B.
- The strategic redevelopment of existing municipal parking lot(s) appears to be supportable as long as a case by case assessment determines that the resultant parking supply is sufficient to accommodate the demand.

Tillsonburg Town Centre Mall Review

- **Recommendation**: Location 1 (Town Centre Mall front entrance) is considered an optimal location for a shared transit stop and passenger pick-up/drop-off zone in addition to the existing commercial loading zone.
- **Recommendation**: Location 2 (Town Centre Mall back entrance) is recommended to provide space for a taxi stand, shared transit stop and passenger pickup/drop-off zone, and accessible parking. The following changes are proposed:

- Remove the existing perpendicular parking spaces immediately adjacent to the Town Centre Mall to provide space for the taxi stand and a shared transit stop and passenger pick-up/drop-off zone;
- Orient the taxi stand and shared transit stop and passenger pick-up/drop-off zone to be parallel to the parking aisle rather than perpendicular;
- Potentially implement an additional row of accessible parking spaces immediately east of the parking aisle now that the aisle has been shifted slightly westwards;
- Relocate the existing southbound parking aisle stopbar upstream of the pedestrian crosswalk to prevent vehicles from stopping on the crosswalk;
- Potentially convert Harvey Street to one-way southbound between the Lot 7A access and Ridout Street; and
- With one way operations, additional curbside space would be gained on the south end of the existing commercial loading zone for additional taxi stands. Note that the existing commercial loading zone is intended to be maintained, the additional taxi stand can be accommodated between the loading zone and the Harvey Street and Ridout Street intersection.

Accessible Parking and E-Vehicle Review

- Overall, there is an accessible parking supply deficiency of 34 spaces across the Downtown off-street parking system. Only Lots 2A, 5A, 7A, and 11A provide sufficient accessible parking to meet Tillsonburg's Zoning By-law requirements.
    - **Recommendation**: Implement accessible parking spaces that meet the Zoning By-law requirements. Tillsonburg could consider exceeding the accessible parking space requirements in several strategically located parking lots, including Lots 1A, 2A, 6A, and 7A.
- With respect to accessible on-street parking along Broadway, several existing issues were determined through discussions with the AAC and Tillsonburg staff.
    - **Recommendation**: Through a literature review, an on-street accessible parking space design considered appropriate for Broadway was developed. A pair of accessible on-street parking spaces is recommended in 7 locations along Broadway between Bridge Street and Baldwin Street. A total cost of approximately $24,500 - $28,000 + HST is estimated. Note that to accommodate the proposed concept, the existing sidewalk would need to be extended by approximately 1m or the curb height would need to be reduced by 0.03m on the west side between Brock Street and Baldwin Street. Additional costs would be required.
- **Recommendation**: Tillsonburg is recommended to locate the first two charging stations in Lots 7A and 3B. In the event additional charging stations are procured, Lot 4A and the Broadway on-street parking spaces immediately adjacent to the Town Centre Mall are considered optimal candidates.

The proposed recommendations are divided into short term (1 – 2 years), medium term (3 – 5 years), and long term (5 – 10 years). The proposed implementation timetable is presented in **Exhibit 9-1**.

Exhibit 9-1: Implementation Timetable

Recommendation	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Implement parking management strategies (wayfinding, time restrictions, etc.)										
Implement transit stop and taxi stand near the Town Centre Mall front entrance										
Increase off-street accessible parking opportunities										
Redesign operations near the Town Centre Mall back entrance										
Replace existing Broadway on-street accessible parking with paired midblock spaces										
Implement E-vehicle charging stations in Lots 7A and 3B										
Consider adopting paid parking operations in strategic locations										