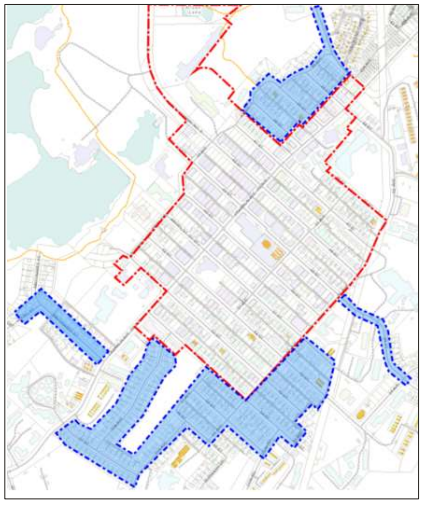
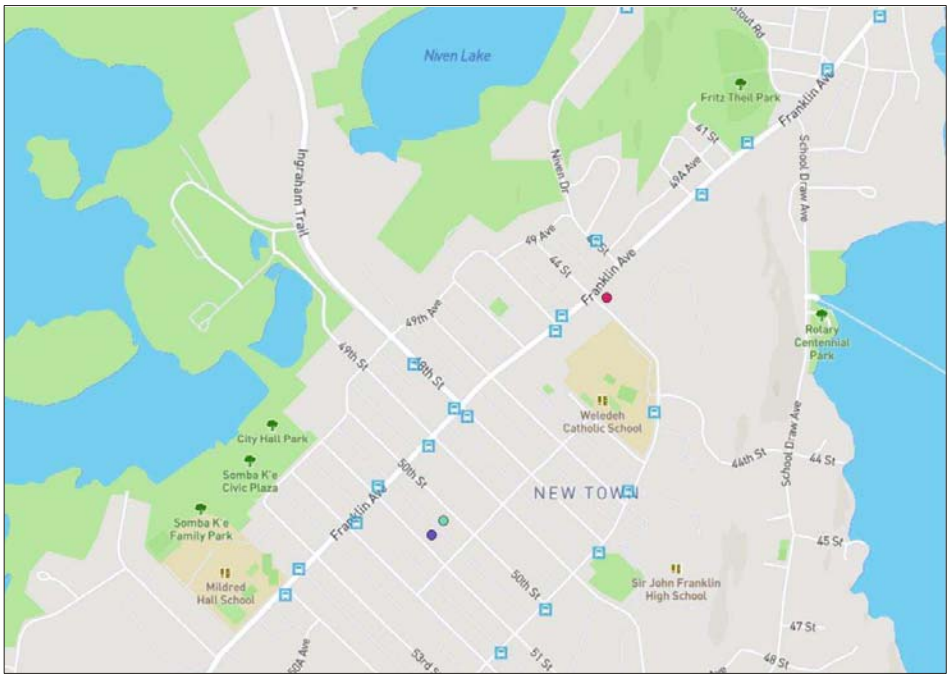
Yellowknife Parkade Feasibility Study

Prepared for:
The City of Yellowknife,
Northwest Territories





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JULY 2021

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YELLOWKNIFE PARKADE FEASIBILITY STUDY

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29 July 2021

File no: 7320-101

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EXECUTIVE SUMMARY

This study was undertaken to complete a high-level assessment of the feasibility and potential viability of a municipally operated parkade structure in downtown Yellowknife.
At the time the study was initiated, considerations for the study included:

- Anticipated future parking demand in downtown Yellowknife, based on background information for the 2020 *City of Yellowknife Community Plan*;
- Alignment with downtown revitalization aspirations; and
- Alignment with goals to be included in the in-progress Zoning By-law Review.

A series of background documents dating from 2008 to 2020 were reviewed to inform the study. These included planning and transportation documents prepared during the City's *Smart Growth Plan*; documents related to updates to the City's Zoning By-law and Development Incentive Program By-law; the 2020 *Community Plan*; the City of Yellowknife *Economic Development Strategy 2020 to 2024* and various parking studies.
The background document review revealed the two significant complications for the tasks of forecasting parking demand and predicting the number of parking stalls required for a future parkade in downtown Yellowknife:

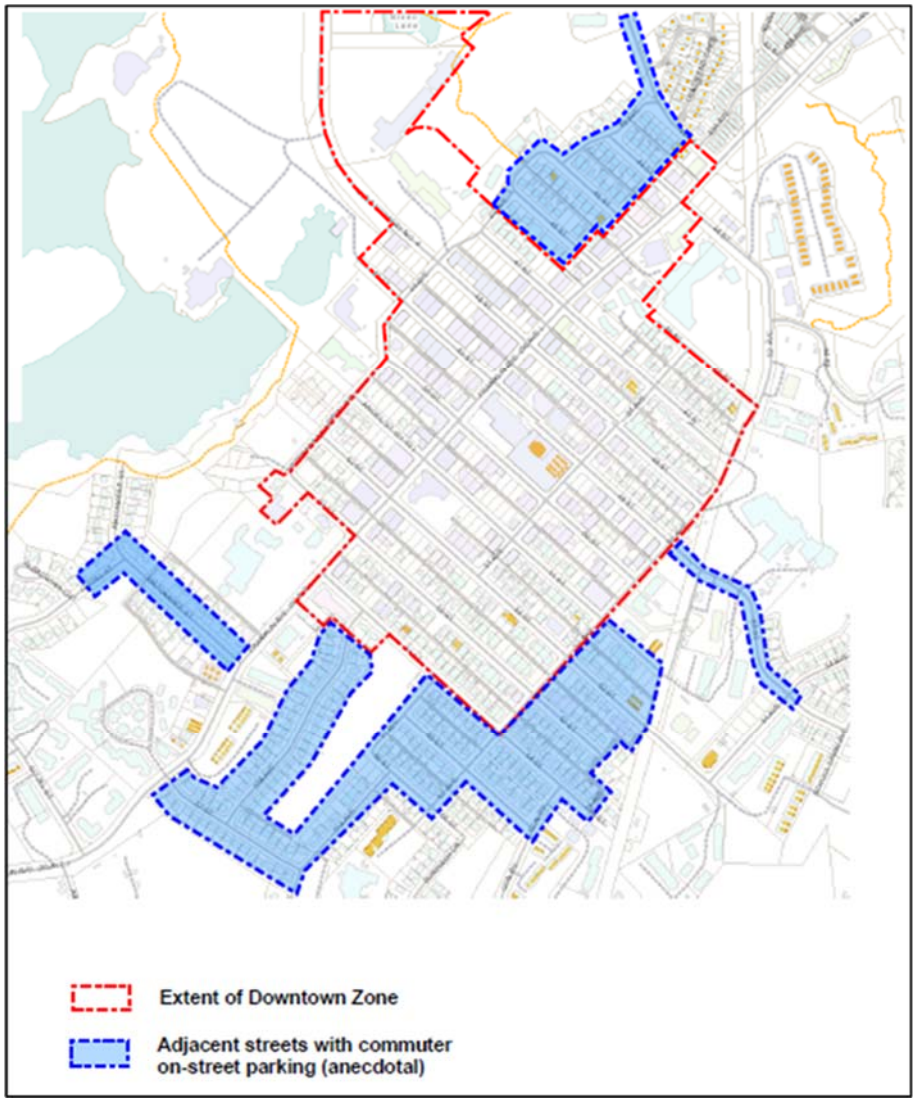
- The 2020 *City of Yellowknife Community Plan* includes direction to eliminate specific minimum parking supply requirements for new developments, introducing significant variability into the quality of additional parking required to be provided in conjunction with new downtown development. In other words, it will no longer be possible to use forecasts of square meters of development floor area to calculated associated parking requirements; and
- The 2020 *City of Yellowknife Community Plan* also includes direction to redevelop surface parking lots to other uses, potentially reducing the supply of downtown parking.

Travel restrictions and closures related to the COVID-19 pandemic also affected parking demand, negating the value of measuring current parking utilization and turnover as part this the study. Parking utilization measured in 2008 and 2013 informed the study, and it is desirable to collect updated data following return to typical travel patterns following vaccination rollout throughout 2021.

As a result, this study did not generate the forecast demand for a downtown parkade, instead identifying a monitoring program to support determining the required size for a parkade in the future.

The study area is illustrated in **FIGURE ES1** and encompassed both downtown Yellowknife (bounded in RED) and key areas adjacent to downtown (in BLUE) where commuters are known to park to avoid parking charges.

FIGURE ES1
STUDY AREA & ROAD NETWORK



The current inventory of parking in downtown Yellowknife is summarized in **TABLE ES1**, which is based on information from City of Yellowknife records and a desktop review of 2019 aerial photography. Currently there are over 4,600 parking stalls in the downtown zone including nearly 1,100 on-street spaces and over 3,500 off-street spaces. In addition, there are over 900 unmetered on-street parking spaces located in the BLUE areas shown in **FIGURE ES1** and which are located within a reasonable walking distance to downtown.

TABLE ES1
DOWNTOWN ZONE YELLOWKNIFE PARKING SUPPLY

Type of Parking	Details	Number of Spaces
On-Street	Metered	534
	Unmetered	558
Off-Street	Surface Lots	2548
	Lanes	465
	Centre Square Mall Parkade	550
Total:		**4655**

Surveys were sent to 16 Canadian jurisdictions that have downtown municipal parkades to ask about details of the parkades, the reasons for constructing them and associated capital and operating costs. Replies were received from six jurisdictions providing details of nine downtown parkades. This information was reviewed, analyzed and supplemented by reviews of Zoning By-law parking requirements, Cash-in-lieu fees, and parking prices for the responding jurisdictions.

Analysis of the survey data and publicly available information about the facilities indicated capital costs (converted to 2020 dollars) from approximately $3.8M to $22.0M. In 2012, the City of Yellowknife's Smart Growth Implementation Committee developed a working cost of $8M to $12M (or $11M to $16M in 2021 dollars) for a downtown Yellowknife parkade, which is consistent with the costs reported in the surveyed jurisdictions. Annual maintenance and operating costs ranging from approximately $40,000 to $1.8M per year.

In all cases of responding jurisdictions surveyed, revenue generated from Cash-in-lieu fees would not be sufficient to cover capital construction costs, indicating supplementary sources of funding were required for the parkades. Assuming moderate to high utilization of the parkades, operating and maintenance costs were less than revenue generated from parking fees, in some cases with surplus revenue generated which could contribute to repaying capital.

Some of the jurisdictions surveyed had good examples of architectural features for parkades which matched the character of neighbouring buildings. Pictures from six such examples are included in the report. In some cases, these examples included ground floor retail and service space, contributing to activation at the street level. The City of Yellowknife's *Downtown Façade Improvement Guidelines* would provide a good reference for the architectural design of a parkade in downtown Yellowknife.

For Yellowknife, ground floor retail could provide a partnership opportunity to help with capital costs. Three potential downtown parkade sites were identified during this study. The parcel sizes were similar to parcel sizes for existing Canadian municipal parkades accommodating 180 to 200 parking stalls, varying from 4 to 6 levels in height. A preliminary review of the parcel frontages indicated that they can accommodate a suitable entry and exit for a parkade. Further investigation of the availability and costs associated with the site would be required to confirm their suitability and identify the best one.

Implementation of the elimination of parking minimums from the Zoning By-law in Yellowknife should be supported by policies which manage the risks of a future undersupply of parking. This study reviewed the City of Edmonton Open Option Parking initiative, which provides a Canadian

example of elimination of parking minimums for new development. The Edmonton Zoning By-law change became effective in July 2020 and ongoing monitoring and reporting of its effects are likely to be published periodically over the next several years. This study also reviewed *Calgary Parking Policies* updated in July 2017 and included policies to support consideration of multi-family residential development with significant reductions of on-site parking, including "zero parking" in the City Centre and other high-density mixed-use areas. Criteria for considering low and no parking residential development proposals from *Calgary Parking Policies* can inform the implementation of Yellowknife's parking requirement changes.

In addition to addressing downtown parking demand requirements, a City of Yellowknife downtown parkade could provide benefits such as secure bicycle parking areas, electric vehicle charging stations, and parking management systems that can provide information on electronic signs in and around the facility and also via the City's *Pingstreet* app. A parkade could also employ an adaptive pricing structure for parking that prioritizes monthly parking that would be attractive to full-time employees but also allow for short-term parking if the location is also attractive for that purpose.

Key conclusions from this study include:

- Indications are that there is surplus parking downtown during peak demand periods, however this should be verified with utilization surveys after travel patterns return to normal, following resolution of the COVID-19 pandemic.
- Implementation processes and rules guiding estimation of parking requirements associated with development proposals would be beneficial to mitigate the risk of future undersupply of downtown parking.
- The changes in development requirements and patterns indicated by the 2020 *Community Plan* are expected to change the progression of downtown parking supply and demand. More relevant forecasts of future downtown parking needs can be developed over the next 3 to 5 years as the changes are embedded into development processes. Monitoring of changes in parking utilization and supply and redevelopment amounts, rates and types over this period of time can inform future forecasts.
- It is expected that Cash-in-lieu revenues will have to be supplemented by other funding sources to generate the capital costs required for a downtown parkade. It is likely that parking fees can generate sufficient revenue to cover operating and maintenance costs.
- Based on current information, it is not certain that a downtown parkade will be required to serve future parking demand in downtown Yellowknife. However, since the *Community Plan* direction includes reducing the supply of downtown parking by redeveloping existing surface parking lots and increasing the demand for parking with increased downtown development, it is important to identify and reserve a potential site in case it is required in the future.

Key study recommendations include:

- Commissioning downtown parking utilization and turnover surveys following the resolution of pandemic related travel restrictions; and
- Monitoring development patterns over the next 3 to 5 years and revisiting the question of whether to continue to reserve a parcel for a downtown parkade.

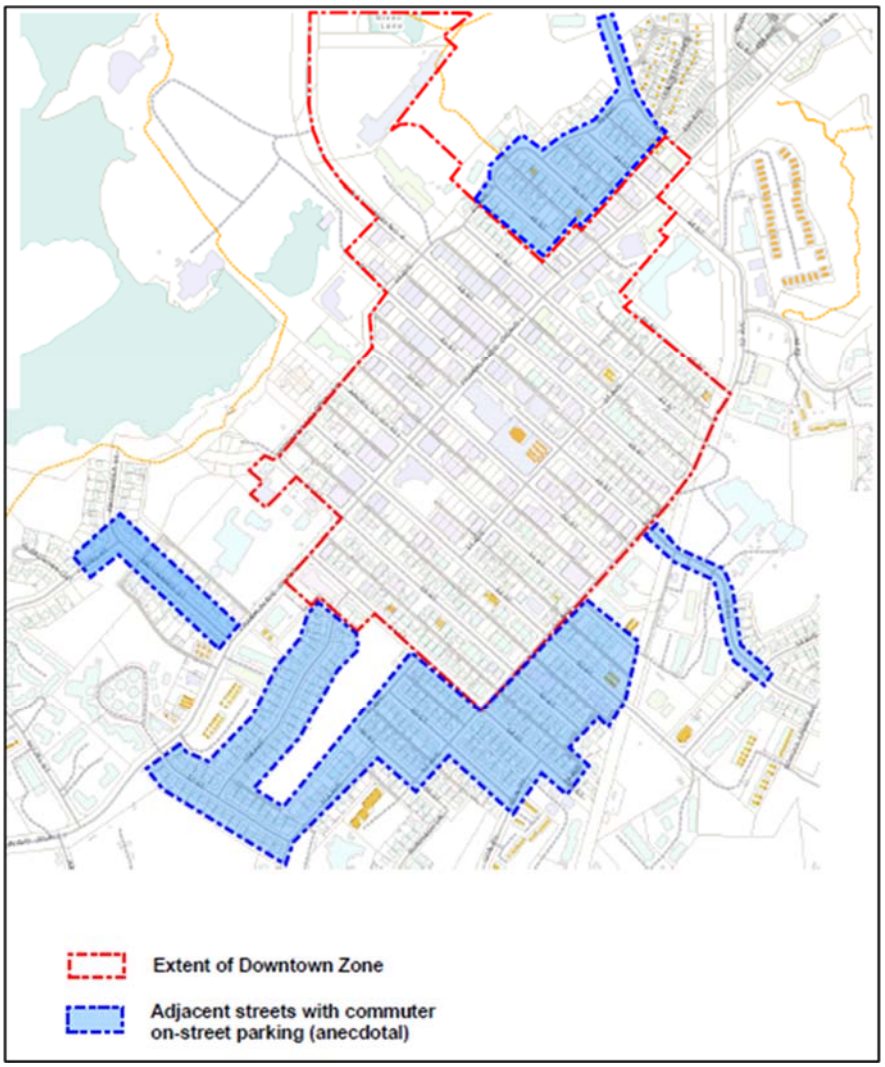
1.0 STUDY PURPOSE AND SCOPE

This study was undertaken to complete a high-level assessment of the feasibility and potential viability of a municipally operated parkade structure in downtown Yellowknife. Considerations for the study included:

- Anticipated future parking demand in downtown Yellowknife, based on background information for 2020 Community Plan;
- Alignment with downtown revitalization aspirations; and
- Alignment with goals to be included in the in-progress Zoning By-law Review.

The areas considered in this study are illustrated in **FIGURE 1**.

FIGURE 1
STUDY AREA



A set of City planning documents and by-laws were reviewed and considered to provide guidance for the study. In addition, a survey was developed and sent to Canadian municipalities of similar sizes or with similar characteristics to Yellowknife, asking about their experiences building and operating municipal parkades. Zoning By-laws for responding jurisdictions were reviewed for supplementary information to what was requested in the survey, to provide a more complete picture of how some Canadian jurisdictions are handling the challenge of providing downtown parking.

The background documents, municipal survey, and review of practices in other jurisdictions were considered in this study, with the goal of informing:

- Recommendations for parking supply requirements for new developments based on the municipal survey and literature search, for consideration in the Zoning By-law update;
- Potential future parking supply required in downtown Yellowknife;
- Potential form, size, and cost of a downtown parkade to accommodate future demand;
- Evaluation of potential sites for a future downtown parkade; and
- High-level evaluation of the feasibility of a downtown parking structure, to accommodate future parking demand in a revitalized downtown.

This report documents the study.

NOTICE TO READER: *Due to travel restrictions imposed as a result of Covid-19, no fieldwork was possible by CTS project team members as part of this feasibility study. Instead, the work contained in this study relied heavily on the prior fieldwork conducted by CTS staff in downtown Yellowknife for previous traffic engineering studies supplemented by parking information collected and provided by municipal staff in the Fall of 2020.*

2.0 STUDY INPUTS

2.1 Review of Background Materials

Several City documents reviewed as part of the study and these are listed in **TABLE 1**.

TABLE 1
BACKGROUND DOCUMENTS REVIEWED

Document	Topic	Published Date
"By-Law No. 4404"	*Zoning Bylaw*	*December 2008*
Smart Growth Development Plan Recommendations Report	*Planning recommendations*	*July 2010*
Smart Growth Development Plan Transportation Infrastructure Study	*Future transport improvement*	*July 2010*
Urban Design Initiative	*Downtown redevelopment vision*	*June 2010*
Downtown Façade Improvement Guidelines	*Façade design guidelines*	*2010*
Downtown Yellowknife Parking Assessment - Interim and Background Report	*Impacts of different configurations of bike lanes and parking*	*May 2013*
Report to Municipal Services Committee	*Consideration to allow more off-street parking options*	*September 2013*
"By-Law No. 4752"	*Tax abatements for integrated parking*	*September 2013*
Report to Council - Municipal Services Committee	*Parking utilization survey and development parking transfers*	*March 2014*
"By-Law No. 4788 (1)"	*Car sharing, parking structure*	*March 2014*
"By-Law No. 4828"	*Tax abatement for parking structure*	*February 2015*
"By-Law No. 4884"	*Amending Development Incentive Program By-law No. 4534 to eliminate terms for tax abatements*	*December 2015*
Community Plan Background Report	*Varies*	*November 2019*
City of Yellowknife Community Plan	*Future community plan*	*December 2019*
City of Yellowknife Economic Development Strategy 2020 to 2024	*Strategies and Actions to Support Economic Development*	*April 2020*

The background materials and conclusions from these studies and reports indicated a progression of considerations for a potential downtown municipal parkade in Yellowknife. Summarized in the following pages in chronological order, the background reports explain why a downtown municipal parkade warrants consideration to support future growth, intensification, and downtown revitalization in Yellowknife.

Notes summarizing relevant information from each document reviewed are provided in **APPENDIX A**.

Smart Growth Development Plan Recommendation Report, July 2010

The *Smart Growth Development Plan Recommendations Report*, published in July 2010, was developed based on seven smart growth background reports including a Transportation Improvement Study and an Urban Design Initiative. Key downtown parking-related recommendations for the Smart Growth Development Plan included compact development, user-friendly transit, the development of Transit-Oriented Development (TOD) nodes and safe, attractive transportation alternatives to driving.

Relevance: This report established the intention to move toward compact development including transit-oriented development notes and to support safe and attractive transportation alternatives to driving. If the intent is retained going forward, as implementation of this plan proceeds, the rate of parking demand per unit of development will decrease due to the combination of attractive non-auto modes and shorter travel distances. The next report in the review, the *Smart Growth Development Transportation Improvement Study* was completed in conjunction with the report referred to in this summary.

Smart Growth Development Plan Transportation Improvement Study, July 2010

The *Smart Growth Development Plan Transportation Improvement Study*, published in July 2010, looked at transportation needs for the 50 years following 2010. Assumptions for future increases in households, population and jobs were made based on the long-term projections developed in the *Smart Growth Development Plan*. These assumptions are summarized in **TABLE 2**.

TABLE 2
DEMOGRAPHIC GROWTH FOR YELLOWKNIFE
ASSUMED IN SMART GROWTH TRANSPORTATION STUDY

Demographic Measure	Existing (2010)	Long-Term (2060)
Households (Dwelling Units)	*6,890*	*17,140*
Population		*50,000*
Jobs	*10,840*	*27,890*

These assumptions of demographic growth were used in the Smart Growth Transportation study to develop long term forecasts for parking and traffic demand.

The *Smart Growth Development Plan Transportation Improvement Study* included surveys of on-street parking utilization in the downtown, conducted in October 2008. The areas covered by the surveys are indicated in **FIGURE 2**.

FIGURE 2
SURVEY AREAS FOR ON-STREET PARKING UTILIZATION SURVEY

Source: Smart Growth Development Plan Transportation Improvement Study, July 2010.

Off-Street parking was evaluated in the areas listed in **TABLE 3**.

TABLE 3
SURVEY AREAS FOR OFF-STREET PARKING UTILIZATION SURVEY

Zones	Off-Street Locations
B1	▪ 47th Street to 50th Street between 49th Avenue to Franklin Avenue
B2	▪ 50th Street to 53rd Street between 49th Avenue to Franklin Avenue
B3	▪ 48th Street to 51st Street between Franklin Avenue to 51st Avenue

Source: Smart Growth Development Plan Transportation Improvement Study, July 2010.

The utilization surveys found the following:

- On-street parking utilization during the SGD survey was 67% to 79% of available supply for the 3 defined areas in the downtown area.
- Off-street parking utilization 63% to 66% of available supply for 3 defined areas.

During the stakeholder consultation for the study, security concerns related to the existing downtown parkade were noted by stakeholders.

The report predicted that existing surface lots could accommodate future parking demand based on demographic assumptions for long-term development noted in **TABLE 2** with a resulting utilization rate of 82%.

Recommended strategies from the *Smart Growth Development Plan Transportation Improvement Study* included:

- Consider parking caps for future residential and employment in the vicinity of improved transit service and in key areas;
- Address safety concerns related to Centre Square Mall parkade;
- Review pay-parking policies; and
- Change By-law parking requirements for higher density areas to reduce required minimums and implement maximums

Stakeholder input for the study indicated both support and opposition from stakeholders for a downtown parkade.

Relevance: It is noted in the SGD plan that the observed growth in number of households from 2010 to the Statistics Canada Census of 2016 (18,884 people, 7,433 households) was at a lower annual growth rate than the study assumed. Therefore, unless the rate of population growth and household formation increase significantly over the next 30 years, the long-term infrastructure demand is likely overestimated.

Within the additional downtown area covered by the current study, land uses include detached residential, commercial and institutional. Although the study area for the current study is larger, the *Smart Growth Development Plan Transportation Improvement Study* provides an indication of parking demand vs. parking supply in the area of the downtown with the majority of downtown retail and office uses. In particular, the conclusion that there was a surplus parking supply in the commercial area at the time of the study may still apply since population growth has been relatively low.

For the *Smart Growth Development Plan Transportation Improvement Study,* it was assumed when calculating the ability to accommodate future downtown parking demand that existing surface lots would be retained. The current study considers the updated City policy direction toward redeveloping surface parking lots, therefore changing the supply side of the parking utilization equation. Depending upon the rate of redevelopment of parking lots in conjunction with the rate of growth of various land uses in the downtown in the future, a deficiency of downtown parking space is possible in the future.

The stakeholder comments indicating security concerns about existing parkade serve as a reminder that parkade security must be considered in the design and operation of the facility.

Urban Design Initiative

This report recommended a redevelopment vision including general infill and intensification, and specific to the downtown, additional streetscaping and open space. The creation of a major downtown gathering area is identified in the redevelopment vision. Desirable urban design concepts were identified, and these included building cladding, lighting, site landscaping, banners and art.

Relevance: A site for a downtown gathering area could have the effect of both removing surface parking land from the available supply, and creating additional downtown parking demand.

The noted elements of the desirable urban design concepts could be applied to a downtown parkade structure. This would help the structure fit in with adjacent architecture.

Downtown Façade Improvement Guidelines

These guidelines identified desirable design principles and features including designing for a human scale, animating the street edge and facilitating wayfinding and access.

Relevance: These principles and features could be applied to a downtown parkade structure. This would help the structure fit in with adjacent architecture.

City of Yellowknife By-law Amendments

A series of amendments to Development Incentive Program By-law No. 4534 and Zoning By-law No. 4404 were made in 2013 and 2014, to provide developers of downtown commercial and office buildings with options for meeting off-street parking requirements and incentives to incorporate alternatives to surface parking lots.

Research conducted in the development of the By-law amendments (documented by a memorandum to the City's Municipal Services Committee from the Planning & Development Department dated March 3, 2014) indicated that in 2013, 40% of the downtown land area was covered by surface parking lots, and if intensification targets were met and the associated parking supply provided in surface parking lots, that would result in 50% of the downtown used for these facilities.

Extensive consultation was undertaken in conjunction with the changes, including a focus group, consultation with business and agency stakeholders and a citizen survey. A summary of the citizen survey and consultation with business owners, downtown property owners and relevant agencies included the following:

- A perceived shortage of parking near commercial destinations, potentially caused by downtown employees parking for the day in the on-street spaces nearest the retail and commercial
- A desire for free downtown parking
- Some interest in private parking garages
- An estimated cost for a downtown parkade of $8M to $12M indicated in minutes from a meeting of the Smart Growth Implementation Committee, including members from the City Council, Planning and Development Department, Chamber

of Commerce, Dene First Nations and other members at large, dated October 30, 2012). This was projected to $11M to $16M in 2021 dollar costs using an inflation rate of 1.47% (operation and maintenance) and 2% (material costs) as provided by the City of Yellowknife with an additional 1% added by CTS as a contingency, for an average annual rate of 4.47%.

- Owners of private parking lots indicate high use and waiting lists
- Downtown on-street parking utilization survey conducted in November 2013 indicated peak utilization of 69%.

The current By-laws No. 4534 and 4044 include the following changes to content:

- Increase distance away from proposed downtown development that that parking can be provided from 150 meters to anywhere in the downtown.
- Increase the proportion of parking that can be satisfied by cash-in-lieu from 25% to 50%
- Reduce fee per stall for cash-in-lieu from 1.5X cost of providing the space to 1.0X cost of providing the space
- Add an option to provide an equivalent area of land to the City in place of providing parking stalls, subject to satisfaction of the Planning Department
- Add tax abatement for new downtown parking structures

Relevance: These by-law amendments set the City's intention to move away from providing additional downtown parking in surface lots and toward flexibility in meeting parking requirements for downtown developments in shared parking areas including parkades.

The 2013 on-street peak demand parking utilization survey did not indicate an increase in downtown parking demand compared to the 2008 survey conducted as part of the *Smart Growth Development Plan Transportation Improvement Study*. This suggests that growth in downtown parking demand, along with growth in population, was modest during this period.

The details and calculations for the $8M to $12M (or $11M to $16M in 2021 dollars) construction cost estimate for a downtown parkade were not indicated, other than the fact that the Smart Growth Implementation Committee included the estimate in their minutes. This information is documented in this report as a previously developed cost estimate in lieu of other information.

Community Plan and Background Report, December 2019

The *City of Yellowknife Community Plan*, adopted by Council in July 2020 and published in December 2019, provides current information related to the value of a downtown municipal parkade.

The background information reported on on-going work related to the downtown, including:

- Downtown revitalization initiated in 2019 and ongoing
- Changes to the fee structure for downtown on-street parking, initiated in July 2019, that increase the cost of 1- and 2-hour parking near the retail and office development and maintain the previous cost for 9-hour parking further from these destinations. This was intended to encourage downtown employees to park further away, leaving spaces close to the retail and services available for customers.
- Regarding building use and occupancy, the following points were noted:
    - A high downtown vacancy rate for retail spaces in Centre Square Mall (>50%)
    - Lower vacancies, in terms of available leases, for other downtown retail facilities
    - Existing downtown buildings noted to be underutilized and outdated for market needs with many vacant storefronts
    - Major REITS control a significant proportion of downtown properties and leasing models do not currently meet market needs
    - Office vacancy in downtown is near 10%; if the Bellanca building is removed from consideration, vacancy rates are 7% to 8%
    - Class A office/retail is in high demand while a mix of Class B and C office spaces are available.

The following points were raised during public consultation, including some contradictory points:

- Downtown should include gathering and educational/social/recreational/cultural activities mixed with business and retail
- Remove parking requirements in the downtown to open up serviced lots vs. cannot eliminate parking downtown – it is needed for the lifestyle
- Should not allow downtown buildings to be converted into parking vs. should allow for (surface) parking lots to be created and should not restrict landowners' rights to income
- Concern about the location of post-secondary in the downtown related to a lack of parking and a lack of space

The plan forecasted Yellowknife's population to increase by 10.71% over the period from 2018 to 2035 at a rate of 0.5% to 0.7% per year.

Several of the plan's general development goals are supported by policy statements, intended to guide the physical development of Yellowknife, including:

- No new surface parking lots will be permitted
- The City will work with developers to build alternatives for parking that support new development
- The City will work with existing developments to build alternatives for parking if desired
- Off-street parking minimums will be removed
- Zoning will allow for a greater mix of residential, commercial and institutional uses in the downtown city core
- Parking, unless screened by active uses, will not be permitted in buildings at street level as defined in the Yellowknife Zoning By-law

The implementation strategy for the plan included reviewing minimum off-street parking policies and their influence on infill and City Core/Central Residential land intensification.

Relevance: A pricing strategy to deter full day parking in the downtown and leave parking closest to the retail and commercial sites for customers was implemented in May 2019. It will be beneficial to evaluate the impact of this change with an updated parking utilization survey. However, this work will not be worthwhile until after the COVID-19 pandemic effects on downtown activity are resolved.

The community plan provides updated information on demographic changes in Yellowknife. The plan indicates a modest rate of growth in population between 2011 and 2016, and projects modest growth in the future. This information indicates overestimation of demographic growth assumptions in the *Smart Growth Development Plan Transportation Improvement Study*. It also indicates downtown commercial building vacancy, particularly in the Centre Square Mall as a potential issue.

The public consultation component of the study indicates continued diversity in opinions related to how best to plan for future downtown parking, suggesting that any direction taken in the future will require significant consideration of options and support for the recommended direction.

Policy statements in the plan include some details which support planning for a downtown municipal parkade, including: not allowing construction of new surface lots and working with existing developments to build alternatives for surface lots, while encouraging additional residential, commercial and institutional development in the downtown city core.

Forecasting the required size for a future parkade is complicated by the policy to remove off-street parking minimums for development because there then is no common benchmark or independent variable when using land use to forecast future parking requirements. Related to this policy direction is the implementation strategy item to review minimum off-street parking policies and their influence on infill and City Core/Central Residential land intensification. As well, the collection of detailed and current parking demand and turnover data at regular intervals then becomes more critical for future forecasting.

Depending on the land uses for downtown development, the increased demand for parking could be much lower. For example, residential development within walking distance to employment could attract owners and tenants that walk to work and may choose not to own a car, potentially reducing demand for parking in multi-family residential properties and for downtown employment places. Similarly, residential development focused on areas well served by transit to downtown often results in reduced parking demand downtown.

Economic Development Strategy, 2020 to 2024

The *Economic Development Strategy,* which was published on April 3, 2020, developed a strategy to strengthen the economic base of the City and contribute to sustainable prosperity for residents and businesses. The report identified risks to the Yellowknife economy, goals for economic development, specific strategies to realize the goals and a prioritized implementation plan with cost estimates.

The short-term focus of the strategy was intended to mitigate economic impacts from anticipated closures of area mines over the next 20 years. The longer-term vision was to create a more diversified and integrated economy in Yellowknife.
Downtown revitalization is a key component of the strategy, including:

- Working with partners to address social issues
- Working to attract key tenants to the region and increase the number of residents living in the downtown
- Encouraging the establishment of a local Business Improvement Area

The strategy includes supporting the development of a post-secondary institution with a downtown campus.

Relevance: This report supports consideration of lower demographic growth projections for Yellowknife over the next 20 years, such as those assumed in the *City of Yellowknife Community Plan*. It also sets strategies for economic diversity, which could in the longer-term result in increased rates of growth in population, jobs and downtown parking demand.

If a post-secondary institution with a downtown campus is developed, increased downtown parking demand will result. The size and form of the facility is not detailed in the report, therefore the magnitude of the additional parking demand cannot be predicted reliably at this time.

2.2 Review of Current Downtown Parking Supply and Prices

This study considered the parking supply in and adjacent to the Downtown Zone indicated in **FIGURE 1**.

For the Downtown Zone, CTS developed an inventory of all commercial parking spaces in the study area based on:

- counting on-street parking stalls in the study area using aerial imagery (City of Yellowknife GIS, 2019); and
- a count of offsite and off-street parking stalls in surface parking lots collected in 2014 by the City of Yellowknife.

The total count of Downtown Zone parking stalls is summarized in **TABLE 4**.

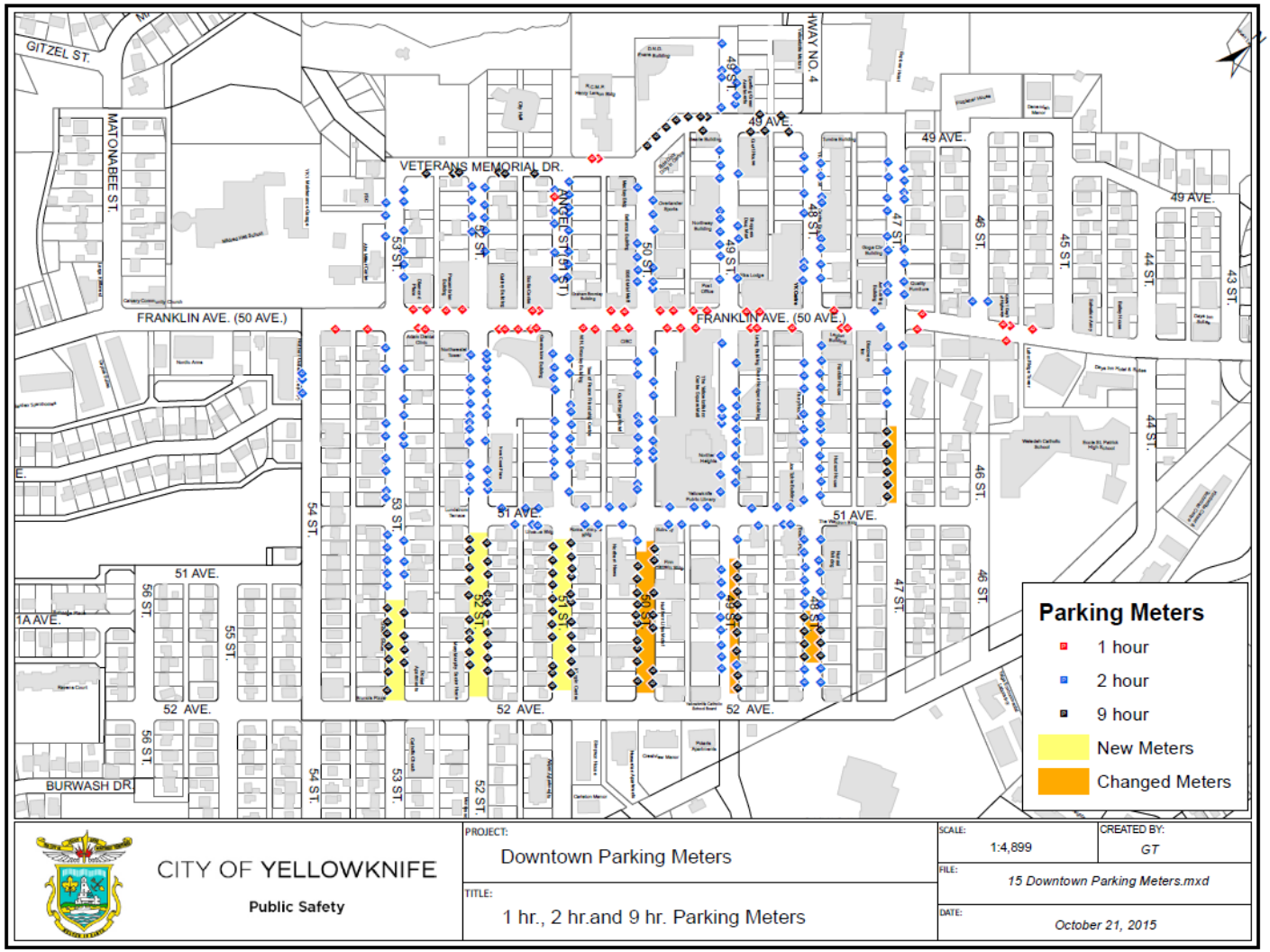
TABLE 4
DOWNTOWN YELLOWKNIFE PARKING SUPPLY

Type of Parking	Details	Number of Spaces
On-Street	*Metered*	*534*
	Unmetered	*558*
Off-Street	*Surface Lots*	*2548*
	Lanes	*465*
	Centre Square Mall Parkade	*550*
Total:		*4655*

As indicated in **TABLE 4**, there are a total of 1,092 (or 23.4%) on-street parking spaces in the downtown zone while the remaining 3,563 (or 76.6%) of the parking spaces are off-street. A more detailed breakdown of this information is provided in **APPENDIX B.**

Locations of on-street parking meters and parking durations allowed at them are illustrated in **FIGURE 3**.

FIGURE 3
MAP OF PARKING METER LOCATIONS



Source: https://www.yellowknife.ca/en/living-here/resources/Parking/Downtown_Parking _ Meters.pdf

As can be seen in **FIGURE 3**, meters allowing parking for 9-hour periods are furthest from Franklin Avenue, providing suitable all-day parking for employees. Along Franklin Avenue, meters allow 1 hour parking only, effectively encouraging turn over for these on-street parking spaces near commercial properties. Most of the area between Franklin Avenue and the 9-hour parking meters has meters allowing 2-hour parking, suitable for longer shop or restaurant visits or downtown meetings.

Current parking prices in Yellowknife are summarized in **TABLE 5**.

TABLE 5
PARKING PRICES

SERVICE	Fee (Effective May 1st 2020)
Parking Meter Time - One (1) and Two (2) hour meters	
One (1) minute	*$0.05*
Three (3) minutes	*$0.10*
Eight (8) minutes	*$0.25*
Thirty (30) minutes	*$1.00*
Sixty (60) minutes	*$2.00*
Parking Meter Time - Nine (9) hour meters	
Sixty (60) minutes	*$0.75*
Parking Pass - Per Month	*$120.00*
Parking Pass - Per Year	*$999.00*
Parking Certificate	
Per Month	*$37.50*
Per Year	*$375.00*
Orderly Use of Highway Permit	*$50.00*
Reserved Parking Meters	
One (1) and two (2) hours meters	*$16/day*
Nine (9) hour meters	*$10/day*
Parking in the City-owned lot at the corner of Franklin Avenue and 50th Street	*$125.00/mth*

As indicated in **TABLE 5**, Parking pricing in downtown Yellowknife is set up to incentivize longer stay parking further from Franklin Avenue and shorter stay parking along and nearer Franklin Avenue. The price of parking at a 9-hour meter would save both money and the inconvenience of topping up the meter for longer stays at the 1 and 2-hour meters. Recent price changes reduced the hourly cost for parking at the 9-hour meters from $1.25 per hour to 0.75 per hour to further support this incentive.

TABLE 6 details the parking meter prices in surveyed municipalities in comparison to Yellowknife. Yellowknife's short-term meter pricing is in line with other municipalities across Canada. However, longer-term meters are higher, especially for the monthly and yearly parking passes.

TABLE 6
PARKING METER PRICE COMPARISON (STUDY MUNICIPALITIES VS YELLOWKNIFE)

Municipality	One/Two/Three/Hour or No Limit Meters						Nine Hour Meters			Parkade/Surface Lots					
	1 Minute	3 Minutes	8 Minutes	12 Minutes	30 Minutes	60 Minutes	60 Minutes	Monthly Pass	Yearly Pass	1 Hour	1 Day	Overnight	24 Hours	1 Month	Year
Yellowknife, NT	$0.05	$0.10	$0.25	-	$1.00	$2.00	$0.75	$120.00	$999.00	-	-	-	-	-	-
Nelson, BC	-	-	-	$0.25	-	$1.25	-	-	-	$1.50	$8.00	$4.00	$12.00	$100.00	-
Banff, AB	-	-	-	-	-	$2.00/3.00 (*1*)	-	-	-	$2.00/3.00 (*1*)	-	-	-	-	-
Kamloops, BC	-	-	-	$0.25	-	$1.25/2.50 (*2*)	-	-	-	$1.00	$4.00 - 6.00	-	-	$40/55/75	-
Kelowna, BC	-	-	-	-	-	$1.25 - $1.50/1.75 (*1*)	-	-	-	$1.00	$6.00	-	-	$81.79	-
Kingston, ON	-	-	-	-	-	$1.50 - 2.00	-	-	-	$1.50 - 2.00	-	-	-	$81.80 - 140.75	-
Medicine Hat, AB	-	-	-	-	-	-	-	-	-	$1.00	$5.00	-	-	$53/58/70.50	$577/661/770
Nanaimo, BC	-	-	-	$0.25	-	$1.25	-	-	-	$1.00	-	-	$6.00/9.00	$60/75/110	-
Prince George, BC	-	-	-	-	-	-	-	-	-	$1.00	$6.00	Free	-	$58.00 - 144.00	-
Regina, SK	-	-	-	-	-	$2.00	-	-	-	-	-	-	-	-	-
Thunder Bay, On	-	-	-	-	-	$1.50	-	-	-	$1.25	$6.00	-	-	$53.00/60.00	$583.00/660.00
Vernon, BC	-	-	-	-	-	$1.00	-	-	-	$0.50	$4.00	-	-	$60.00	-
Victoria, BC	-	-	-	-	-	$1.00 - 3.00	-	-	-	$1.00 - 3.00	$9/12/14.5	-	-	Waitlists Closed	-
Whistler, BC	-	-	-	-	-	-	-	-	-	$2.50/5.00 (*3*)	$6/12/20	-	-	-	-
Winnipeg, MB	-	-	-	-	-	$1.75/2.75	-	-	-	-	-	-	-	-	-

1 On/Off Season Rates

2 Third hour is $2.50

3 Vehicle Size Dependent

Outside of the Downtown Zone, commuters to downtown are known to park on the primarily residential streets adjacent to the downtown illustrated in **FIGURE 1**.

The City of Yellowknife provided an inventory of parking spaces on the streets adjacent to the downtown. The supply of available spaces outside of the downtown boundary is summarized in **TABLE 7**.

TABLE 7
FREE ON-STREET PARKING SUPPLY ADJACENT TO DOWNTOWN

Locations	No. of available parking spaces	
	November - March	All year
North of Downtown	*282*	*282*
South of Downtown	*670*	*645*
Total:	*952*	*927*

While a few hundred meters further from downtown employment, retail and services than metered parking stalls, these spaces have the advantage of being free.

To provide an indication of utilization of these free parking spaces, City of Yellowknife staff observed parking utilization during the following time periods:

- Afternoon of Monday, October 26, 2020 from 2:00 PM to 4:00 PM; and
- Morning of Wednesday, October 28 from 8:45 AM to 11:30 AM.

The information collected during these surveys reflects a single observation with COVID-19 pandemic related restrictions and changes to travel patterns in effect. Therefore, the information indicates parking use patterns but is not intended to be considered representative of non-pandemic conditions.

Parking utilization for the areas observed is summarized in **TABLE 8**.

TABLE 8
PARKING UTILIZATION ADJACENT TO DOWNTOWN

	Area		
	North of Downtown	South of Downtown	
Date Observed	*October 28th, 2020*	*October 26th, 2020*	*October 28th, 2020*
Parking Supply	*282*	*645*	*645*
No. of Vehicles Parked	*137*	*133*	*211*
Percent of Spaces Occupied	*48.6%*	*20.6%*	*32.7%*

Detailed 2020 parking supply and parking utilization data provided by City of Yellowknife staff is provided in **APPENDIX B.**

As **TABLE 8** indicates, utilization of on-street parking in these adjacent areas is relatively low during daytime hours. Since the data was collected during COVID-19 pandemic conditions with reduced travel, this use of parking may include nearby residents and some commuters.

If this downtown adjacent parking activity is found to become a problem in the future, or if it is desirable to force people parking in these downtown adjacent areas to park within the paid parking areas, metered parking with residential parking passes where required could be implemented in these areas.

Relevance: Background documents reviewed for this study indicated the perception that parking spaces closest to commercial establishments had low vacancy rates due to use by employees. The use of policy and pricing for parking depending on distance from Franklin Avenue is a common practice in municipal parking policy and is expected to increase the availability of parking along Franklin Avenue and the adjacent blocks by attracting full day parking to the more cost-effective spaces further away and increasing turnover of spaces nearest the commercial properties.

Since downtown travel demand has been reduced by the COVID-19 pandemic, follow up surveys to measure utilization of parking in the 1-hour vs. 2-hour vs. 9-hour zones has not been completed at this time. If future surveys indicate some limited success with these adjustments, further adjustments to pricing may be tested.

Parking fees for a future parkade would have to align with this incentive system in order to attract customers.

There is a significant supply of free parking adjacent to the metered parking downtown, and budget conscious commuters are likely taking advantage of this. Follow up surveys after COVID-19 related restrictions are lifted can provide an indication of the commuter parking demand that is currently being served outside of the metered spaces.

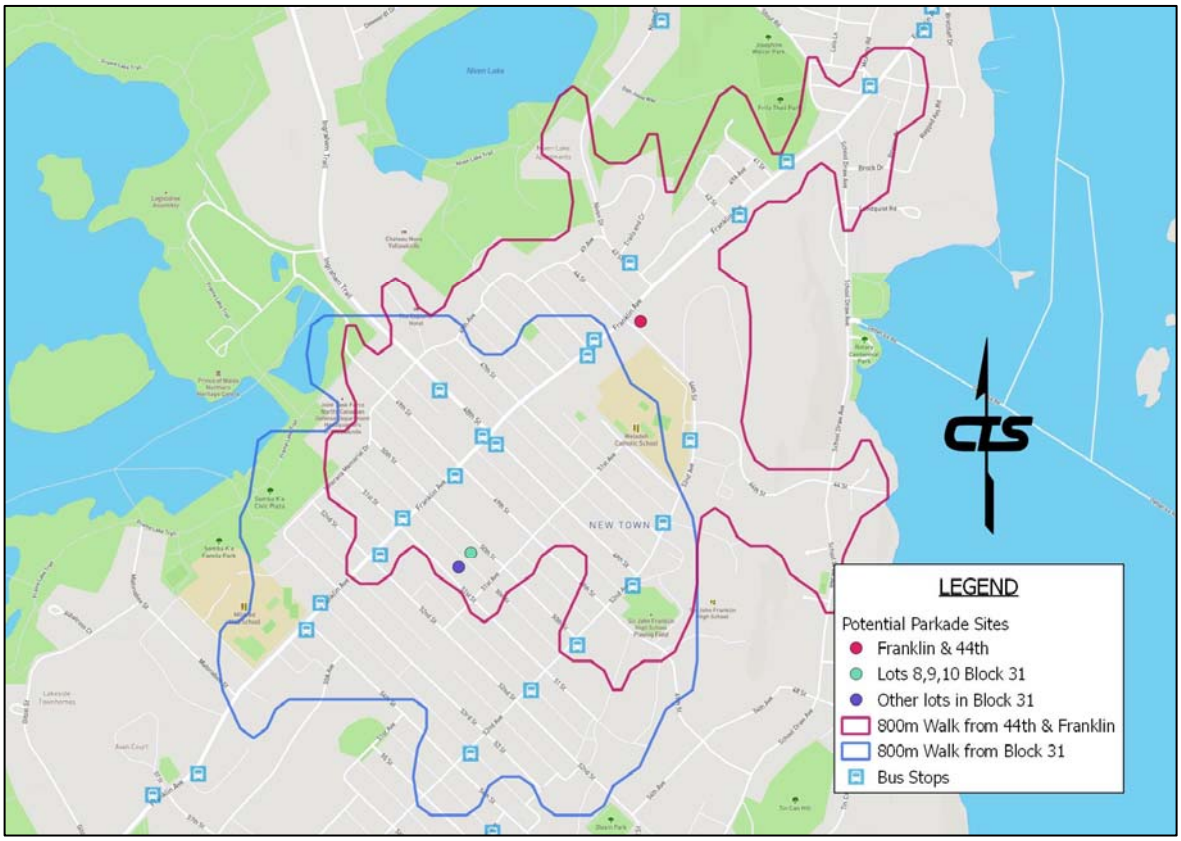
The combined supply of parking in and adjacent to the downtown is estimated to be 5,582 spaces and the most recent utilization survey indicated 69% utilization during peak demand. This information, combined with the policy direction to redevelop surface parking lots, not develop additional lots, and attract additional tenants and development to the downtown, should increase parking space utilization in the downtown zone. From a contingency planning point of view, consideration for a future off-street parking structure should be considered in the event that parking utilization rates in the downtown zone increase significantly.

2.3 Identified Potential Locations for Downtown Parkade

The background materials, listings of properties for sale in downtown Yellowknife were reviewed to identify some potential sites for a municipal parkade. City staff also identified a potential location where there may be an opportunity for the City and Government of the Northwest Territories to collaborate to develop a mixed-use site.

FIGURE 4 illustrates three potential locations.

FIGURE 4
POTENTIAL SITES FOR DOWNTOWN PARKADE



(Base Map Source: MapBox sites & data referenced from Yellowknife)

The dimensions of these sites were measured and compared to parkade sites in other Canadian jurisdictions.

A potential parkade at Arthur Laing Building would have an approximate parcel footprint of 1,465 meters square while a potential parkade at either site on Block 31 would have an approximate parcel footprint of 1,390 meters square. **TABLE 9** summarizes parkade dimensions for similar sized lots in other jurisdictions.

TABLE 9
PARKADE DIMENSIONS WITH SIMILAR FOOTPRINTS
TO PROPOSED SITE IN YELLOWKNIFE

Municipality	Parkade	Parcel Area (m^2)	Levels	Number of stalls	Access
City of Nelson	*Nelson Parkade*	*1,200*	*6*	*192*	*1 entrance/exit*
City of Kelowna	*Library Extension Parkade*	*1,200*	*5*	*197*	*1 entrance, 1 exit*
City of Vernon	*The Parkade*	*1,700*	*4*	*180*	*1 entrance/exit, 1 entrance only*

As shown on **TABLE 9**, parkades on a similar sized land parcel typically have 5-6 levels of parking available and can accommodate close to 200 parking stalls. It should be noted that Vernon has a slightly bigger parcel area and a ground floor consisting of only commercial space.

The parkades also have a no more than 1 entrance and 1 exit ramp. Potential accesses on Block 31 would have to be on 50, 51 or 52 Streets to avoid impacting the Service Canada parking lot or cause queueing along the short block length along 51 Avenue.

The proposed site at Arthur Laing Building may require separate right-in, right-out entrance / exit ramps to minimize delays caused by left turning traffic along Franklin Avenue or 49 Street.

2.4 Municipal Survey

Canadian jurisdictions of similar characteristics to Yellowknife were reviewed to identify candidate municipalities to survey regarding their municipal parkades.

Prior to the survey being distributed, a longer list of jurisdictions was considered, and publicly available information was reviewed to determine which have municipal parkades. The cities considered included cities similar in size and character to Yellowknife, plus other Canadian cities known to have a downtown municipal parkade.

TABLE 10 indicates municipalities that were found to have a municipal parkade.

TABLE 10
SAMPLE JURISDICTIONS WITH MUNICIPAL PARKADES

Municipality	Province	Population
Yellowknife	*NT*	*19,569*
Banff	*AB*	*7,847*
Calgary	*AB*	*1,336,000*
Edmonton	*AB*	*981,280*
Kamloops	*BC*	*90,280*
Kelowna	*BC*	*132,084*
Kingston	*ON*	*136,685*
Medicine Hat	*AB*	*63,260*
Nanaimo	*BC*	*90,505*
Nelson	*BC*	*10,664*
Prince George	*BC*	*74,003*
Regina	*SK*	*228,928*
Thunder Bay	*ON*	*110,172*
Vernon	*BC*	*40,116*
Victoria	*BC*	*92,141*
Whistler	*BC*	*11,894*
Winnipeg	*MB*	*749,534*

As **TABLE 10** indicates, a few Canadian jurisdictions with smaller populations than Yellowknife, including Banff, AB, Nelson, BC, and Whistler, BC have downtown parkades. Each of these municipalities has tourism as a significant contributor to their economy, similar to Yellowknife. Another common factor for each of these municipalities is land constraints including mountains and rivers that necessitate compact downtown development patterns. Several small and medium sized cities, larger in population than Yellowknife, were also found to have downtown municipal parkades.

TABLE 11 is a summary of Canadian jurisdictions of similar population and character to Yellowknife that do not have a downtown municipal parkade.

TABLE 11
SAMPLE JURISDICTIONS WITHOUT MUNICIPAL PARKADES

Municipality	Province	Population
Brandon	*MB*	*48,859*
Brooks	*AB*	*14,451*
Camrose	*AB*	*18,742*
Cold Lake	*AB*	*14,961*
Courtenay	*BC*	*25,599*
Cranbrook	*BC*	*19,259*
Grande Prairie	*AB*	*63,166*
Lacombe	*AB*	*13,057*
Lloydminster	*AB/SK*	*31,410*
Prince Rupert	*BC*	*12,220*
Steinbach	*MB*	*15,829*
Swift Current	*AB*	*16,604*

As indicated in **TABLE 11**, many jurisdictions with similar populations to Yellowknife do not have downtown parkades.

To gain additional information about existing municipal parkades, surveys were sent to each of the jurisdictions that have parkades. Survey questions asked about the sizes and types of their facilities, the rationale behind construction, capital and operating costs and information about architectural features included in the design. A sample of the questionnaire is provided in **APPENDIX C**.

Detailed responses were received from the Cities of Nelson, BC; Prince George, BC; Thunder Bay, ON; Kelowna, BC, Vernon, BC and Calgary, AB.

TABLE 12 provides a summary of the responses.

Completed surveys and related correspondence are provided in **APPENDIX D**.

TABLE 12
SUMMARY OF PARKADE SURVEY RESPONSES

Municipality	Parkade Name	Location	Type of Facility	Plot GFA	No. Spaces	Operational Year	Capital Construction Cost			Reason for Construction	Architectural Features
							Construction Cost	Cost Inflated to 2020 Dollars	Annual op/main cost		
City of Nelson	Nelson Parkade	420 Vernon St	Above Ground	1200 m2	192	1970's	$560,000	$3,774,400 (1)	$40,000	Purpose is to generate revenues, and provide needed monthly parking opts. for downtown workers and daily parking.	Bare-bones parking structure, probably commonplace at the time: grnd flr slightly below grade, five above grnd flrs, top lvl uncovered.
City of Prince George	George St Parkade	Downtown	Underground parkade & above ground lot	Not open	141 (to rent) 210 (residential)	2021 (likely January)	$17,900,000	$17,900,000.00	Operating: $64k Maintenance: $30k Security:	Development in the downtown - new condo facility, will also have a daycare centre. Parkade is split between residential and city use	Part of new development next to City Hall. A condo building, daycare centre, commercial, above/underground parking
Thunder Bay, ON	Victoriaville Parkade	135 Syndicate Avenue S	Above Grade	6200 m2	620	1978	Unknown	Unknown	$440,000	Provide high-density parking in downtown cores where Planning regs do not require developers to provide min parking	Unknown
Thunder Bay, ON	Waterfront District Parkade	18 Court St N	Above Grade	5200 m2	720	1995	Unknown	Unknown	$500,000	Provide high-density parking in downtown cores where Planning regs does not require developers to provide parking minimums	Unknown
City of Kelowna	Chapman Parkade	345 Lawrence Avenue	Above Grade	3400 m2	480	2002	Unknown	Unknown	Unknown	Unknown	Unknown
City of Kelowna	Memorial Parkade	1420 Ellis St	Mixed use	2500 m2	566	2016	$19,247,850	$21,961,797 (2)	Unknown	Provides public parking (139 stalls), health authority (380 stalls) and City Fleet Parking (17 stalls) Also 2 floors of office space for City Employees.	Unknown
City of Kelowna	Library Parkade Extension	1360 Ellis St	Above grade/mixed use	1200 m2	197	2015	$6,496,000	$7,860,160 (2)	Unknown	Provide additional stalls to existing Library Parkade, providing more weekend/evening parking. Will replace the surface parking lots on the south side of Memorial Arena and east corner of Doyle & Ellis. 197 addition to existing 471.	Unknown
City of Vernon	The Parkade	31st Ave & 33rd St, SE Corner	Above grade	1700 m2	180	1981	$1,950,000	$5,089,500 (2)	100,000	Primary reason to provide additional parking supply, do not have the details available if there were other reasons	Ground floor commercial (Vernon Art Gallery) and Bylaw Department Office
City of Calgary	Centennial Parkade	620-9 Avenue SW	Above grade, enclosed	25000 m2	1,007	1996	Unknown	Unknown	$1,800,000	Structured parking for the downtown. The original structure (5 Levels) eas constructed in 1996 and an additional level was added around 2006	Brick exterior, windows and other exterior 'décor' to make the lot appear as something other than a parking structure

Footnotes:
(1): Pre-1981 uses Canadian Dollar inflation
(2): Post-1981 uses the Building Construction Price Index (BCPI, Statistics Canada)

In general, for the municipalities responding to the survey, the reasons indicated for constructing the parkades were related to increasing the available parking supply, sometimes to accommodate a specific proposed development and sometimes to address more general future needs. Four of the five responding had above-ground parkades and one had an underground parkade.

The number of spaces provided in each parkade ranged from 180 to 1007. Construction costs, adjusted to estimate 2020 dollars, range from approximately $3.8M to approximately $22.0M. Annual operating and maintenance costs were significant, ranging from $40,000 to $1.8M, with the values between the high and low costs near or exceeding $100,000 per year.

The information provided by individual municipalities was used to calculate a per parking stall cost for the parkade. This information is summarized in **TABLE 13**.

TABLE 13
ESTIMATED PARKING COST PER STALL

Municipality	Parkade	Construction Year	No. of Stalls	Cost	2020 Est.	Cost per Stall
Nelson	*Nelson Parkade*	*1970's*	*192*	*$560,000*	*$3,774,400*	*$19,658*
Prince George	*George St Parkade*	*2021 (est.)*	*351*	*-*	*$17,900,000*	*$50,997*
Kelowna	*Memorial Parkade*	*2016*	*566*	*$19,247,850*	*$21,961,797*	*$38,802*
Kelowna	*Library Parkade Extension*	*2015*	*197*	*$6,496,000*	*$7,860,160*	*$39,899*
Vernon	*The Parkade*	*1981*	*180*	*$1,950,000*	*$5,089,500*	*$28,275*

TABLE 13 indicates a range of costs per space varying from approximately $20,000 to approximately $51,000. Parkades constructed in the past 10 years have higher per stall construction costs than the older structures.

Relevance: Based on the jurisdictions investigated, topographic constraints to expanding the size of a municipality appear to be a consideration in the decision to construct a municipal parking structure.

Based on the survey responses, the usual reason for providing a downtown parkade was to increase downtown parking.

In addition to capital costs, operating and maintenance costs were significant.

2.5 Review of By-laws and Practices in Other Municipalities

Internet searches were undertaken to determine relevant information related to parking and parkades in other municipalities, including parking supply requirements for new developments, fees per parking stall associated with cash-in-lieu provisions for proposed developments and examples of urban design and architectural treatments.
Parking requirements associated with new developments in selected Cities are summarized in **TABLE 14**.

TABLE 14
PARKING REQUIREMENTS FOR OTHER MUNICIPALITIES

Municipality	Zone	Commercial	Office	Gov. Agency/Service
Yellowknife	*All*	*1.5 per 100 m2 GFA in CC/DT zones, 2 per 100 m2 in other zones*		
Kelowna	*C4/C7*	*1.3 (C4) or 0.9 (C7) per 100m2 GFA*		
Thunder Bay	*All*		*1 per 30m2 GFA*	
Prince George	*All*		*3.4 per 100m2 GFA*	
Vernon		*2 per 100m2 GFA*		*3 per 100m2 GFA*
Banff	*All (exc. CS)*	*2.5 per 100m2 GFA*		
Victoria	*Core Area*		*1 per 70m2 floor area*	
Winnipeg			*1 per 750sq.ft. Floor area, not less than 2 per tenant*	
Whistler	*Outside core*	*4 per 100m2 GFA of Comm. Use*	*3 per 100m2 GFA*	
Nanaimo	*All*		*1 per 22m2 NFA for first 1000m2. 1 per 25m2 after*	
Medicine Hat	*All*	*2 per 100m2 GFA*		
Nelson	*All*		*1 per 30m2 GFA*	
Kingston	*Downtown*		*1.45 per 100m2 GFA*	

Cash-in-lieu fees and related conditions for new developments are summarized in **TABLE 15**.

TABLE 15
CASH-IN-LIEU FEE IN OTHER MUNICIPALITIES

Municipality	Cash-In-Lieu Per Stall	Notes	Source
Yellowknife	*1.0 times cost**	**Cost of land and construction (incl paving) of a 31m2 stall*	*City of Yellowknife Zoning By-law No. 4404*
Nelson	*$10,000*		*Off-Street Parking and Landscape By-law No. 3274, 2013*
Vernon	*$10,000*	*Amount of spaces in-lieu depends on zoning area*	
Nanaimo	*$10,000*	*No more than 10% of the required parking space may be substituted*	*By-law No. 7266*
Banff	*$21,000*		*Policy C17 - Parking Cash-In-Lieu*
Kingston	*$3,000*		*Parking Exceptions By-Law No. 88-270*
Kelowna	*$33,000*	*Rutland Urban Area Centre is $9,500*	*By-law No. 8125*

As **TABLE 15** indicates, the fee for cash-in-lieu parking stalls ranges from $3,000 to $33,000 per stall, with approximately $10,000 per stall used for the majority of facilities.

Current parking prices for municipalities that operate a downtown parkade are summarized in **TABLE 16.**

TABLE 16
PARKADE PRICING FOR MUNICIPAL PARKADES IN SAMPLED JURISDICTIONS

Municipality	Pricing				
	Hourly	**Daily**	**Overnight**	**24 Hr**	**Monthly**
Nelson	*$1.5 (min)*	*$8 (6am - 6pm)*	*$4 (6pm - 6am)*	*$12 (min stay 3 days)*	*$100 (floors 2-6)*
Prince George	*$1*	*$6 (7am - 5pm)*	*Free (5pm - 7am)*	*-*	*$57 - $141 (parkade dependant)*
Thunder Bay	*$1.25*	*$6 (max)*	*-*	*-*	*$60 (further discount for multi-month)*
Kelowna	*$1*	*$6 ($5 on event days)*	*Free (5pm - 9am)*	*-*	*$81.79*
Vernon	*$0.50*	*$4*	*Free (5pm-9am)*	*-*	*$60*
Nanaimo	*$0.75 (up to 3 hrs, $1 thereafter)*	*$7 (12hr)*	*Free (select parkades)*	*$9*	*$60 - $110*
Calgary	*$4 (per 0.5 hr, max 2hr)*	*Maximum of $28*	*$1 per 0.5hr (max $2, 6pm - 6am)*	*-*	*$485 ($550 reserved)*

Source: CTS, By-law review for select municipalities

Relevance: These findings were considered in the Analysis section of this report.

For the jurisdictions that provided annual operating cost estimates in the municipal survey, the potential revenue that could be generated by sale of all available parking in municipal parkades was calculated based on hourly parking and monthly parking and compared to annual operating costs. This calculation will provide an indication of whether parking revenues could potentially cover annual operating expenses. Maximum sales of the monthly parking spaces and 50% use of the hourly parking spaces were assumed for the calculation, to indicate maximum expected revenue.
These calculations are included in **TABLE 17**.

TABLE 17
POTENTIAL ANNUAL PARKING REVENUE VS COSTS

Municipality	Number of Parking Spaces	Potential Annual Parking Revenue				Annual Operating Cost
		Hourly Parking		Monthly Parking		
		Fee	Revenue *	Fee	Revenue	
Nelson	*192*	*1.50*	*449,280.00*	*100.00*	*230,400.00*	*40,000.00*
Prince George	*351*	*1.00*	*547,560.00*	*141.00*	*593,892.00*	*94,000.00*
Thunder Bay	*720*	*1.25*	*1,404,000.00*	*60.00*	*518,400.00*	*500,000.00*
Vernon	*180*	*0.50*	*140,400.00*	*81.79*	*176,666.40*	*100,000.00*
Nanaimo		*0.75*	*-*	*60.00*	*-*	
Calgary	*1007*	*4.00*	*6,283,680.00*	*485.00*	*5,860,740.00*	*1,800,000.00*

** assume series of hourly parkers on the hour from 6AM to 6PM weekdays X 50% of spaces*

As TABLE 17 indicates, for each of the parkades considered, sale of all available space in the parkade for either 100% monthly parking filled 100% of the time or 100% hourly parking filled 50% of the time with constant turnover would generate revenue exceeding the annual operating and maintenance costs. For all but one parkade, the lowest revenue option would generate at least 140% of the operating and maintenance costs.

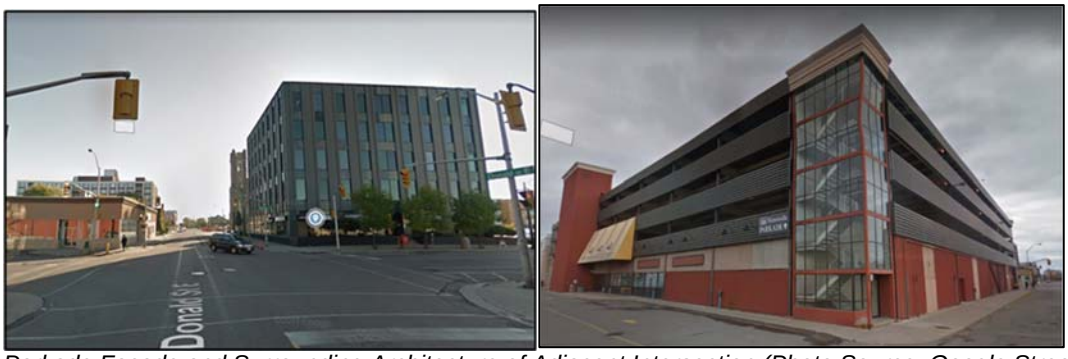
Since all parkades offer both monthly and hourly parking options, it is likely that the revenue comes from a mix of both types of parking. A mix of parking types is likely, as is revenue between the monthly and hourly potential values. Based on this comparison, potential revenue for these parkades is sufficiently higher than annual operating costs, providing the potential for a positive revenue stream.

Relevance: These examples indicate the potential for parking fee revenue to cover operating and maintenance costs and potentially generate additional revenue.

2.6 Examples of Architectural Features

Examples of architectural and urban design treatments for parkades in other municipalities are provided in **FIGURE 5**, **FIGURE 6**, **FIGURE 7**, **FIGURE 8**, **FIGURE 9** and **FIGURE 10**. This series of figures features pictures of the example parkade and adjacent buildings, to illustrate how the look of the parkades matches the urban design for the area.

FIGURE 5
VICTORAVILLE PARKADE, THUNDER BAY, ON



Parkade Facade and Surrounding Architecture of Adjacent Intersection (Photo Source: Google Street View)

FIGURE 6
WATERFRONT DISTRICT PARKADE, THUNDER BAY, ON

Parkade Facade and Surrounding Architecture (Photo Source: Google Street View)

FIGURE 7
CHAPMAN PARKADE, KELOWNA, BC

Parkade Facade and Surrounding Architecture of Adjacent Intersection (Photo Source: Google Street View)

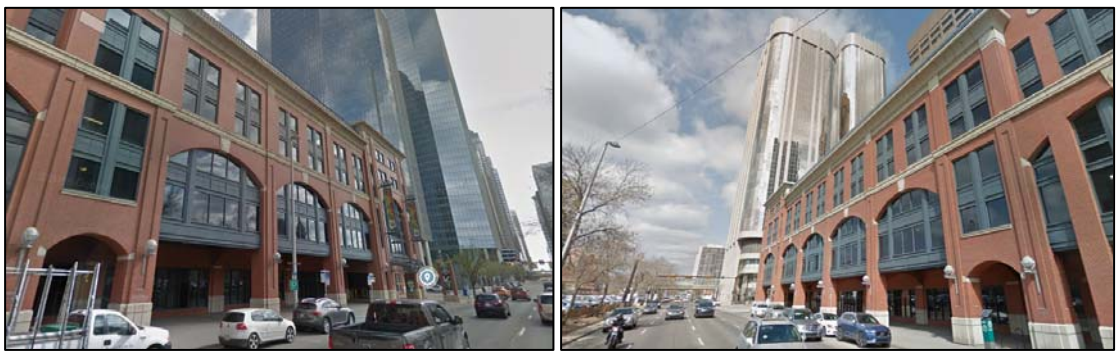
FIGURE 8
MEMORIAL PARKADE, KEKOWNA, BC

Parkade Facade and Surrounding Architecture (Photo Source: Google Street View)

FIGURE 9
LIBRARY PARKADE, KELOWNA, BC

Parkade Facade and Adjacent Library Building Architecture (Photo Source: Google Street View)

FIGURE 10
CENTENNIAL PARKADE, CALGARY, AB



Parkade Facade and Adjacent Building Architecture (Photo Source: Google Street View)

2.7 City of Edmonton Open Option Parking

Effective July 2, 2020, minimum on-site parking requirements were removed from the City of Edmonton Zoning By-law, allowing developers, homeowners and businesses to decide how much parking to provided based on on-site operation, activities or lifestyle. Barrier-free parking requirements were not changed and bicycle parking requirements were increased. Design requirements for parking were developed and opportunities were created to share or lease out parking to nearby properties.

A technical study undertaken to support the changes found that there is an existing surplus of parking spaces in Edmonton (both in the City's Central Core and city-wide). There were cases of up to 90 percent utilization, but this was in a minority of cases and these were only full for a portion of a day or week. The survey indicates that the parking requirements at the time resulted in oversupply. Edmonton's current parking supply requirement rates vary by location and land use, however the study found that there is no consistency between the rates. "Even when controlling for a range of factors like location and nearby population density, there were no variables that could predict the level of parking demand at different sites".

Without minimum parking supply requirements, the supply of parking provided in conjunction with new development will be determined by the development proponent based on market considerations and may include opportunities such as shared parking between sites.

A summary of the format and benefit for Open Option Parking in the City of Edmonton is provided in **APPENDIX E**.

Relevance: This recent Zoning By-law change for the City of Edmonton provides an example of a zoning by-law without parking minimums that could inform the City of Yellowknife's Zoning By-law.

2.8 City of Calgary Parking Policies

Calgary Parking Policies, July 2017, includes parking strategies and policies which guide the various aspects of parking in Calgary. The Calgary Transportation Plan and Municipal Development Plan identify increased use of walking, cycling and transit and reduced reliance on auto travel. To align with these goals, in 2017 the City developed policy to support consideration of multi-family residential development with significant reductions of on-site parking, including "zero parking" in the City Centre and other high-density mixed-use areas.

The policy includes specific criteria and conditions that must be met for the proposed development to qualify. These include:

- proximity to frequent transit
- proximity to public parking
- parking management programs in place in adjacent areas to manage impacts on neighbouring roads
- active facilitation of other transportation modes through such incentives as transit passes, additional on-site bicycle parking, on-site car share parking, etc.
- completion of a parking study to determine any impact of area business activities

At the time of writing, one 167-unit building had been constructed with zero parking and others were at various stages of the application process.

Relevance: This policy work in the City of Calgary provides example policies and processes that could support the elimination of parking minimums in Yellowknife.

3.0 Review SITE TRAFFIC VOLUMES

3.1 Zoning By-law Parking Supply Requirements

Parking requirement rates for development in other municipalities, with the requirements compared to the City of Yellowknife, are summarized in **TABLE 18**. For comparison purposes, rates from municipal By-laws have been converted to number spaces per 100 square meters of floor area.

As **TABLE 18** indicates, the current range of parking spaces required for downtown development is from 1.3 spaces per hundred square meters to 4.55 spaces per 100 square meters. In comparison, Yellowknife requires 1.5 spaces per 100 square meters. Four jurisdictions have lower requirements and 8 have higher requirements. Yellowknife requirements are generally in the middle.

The background reports that this study considered indicate peak utilization of downtown parking generally under 70% in the areas surveyed. Vacant retail properties and offices in downtown were also indicated in the background studies and may have contributed to lower parking utilization. Given the large downtown parking supply, it is unlikely that the vacancies would account for enough reduction in demand to result in a shortage of parking. This suggests that parking demand generated by downtown development is likely at or below the required supply. The City of Yellowknife Community Plan includes direction to eliminate parking minimums.

The City of Edmonton has incorporated an open parking option into their Zoning By-law to allow development applicants to determine parking requirements for their site, rather than applying a formula that applies to a broadly defined land use. The supporting rationale for development applications submitted under the Zoning By-law changes may include Transportation Demand Management Strategies and other studies verifying the applicability of the proposed parking supply. Edmonton will be monitoring the impacts of this change, and the staff are expected to report back to Council on this matter in early 2021. The City of Vancouver is also contemplating this option.

The City of Calgary has developed policies to consider individual applications for residential development with significantly reduced or zero parking supply. These policies provide examples of criteria to consider in conjunction with such applications.

In conjunction with elimination of parking minimums in Yellowknife, supporting policies and procedures to manage and mitigate risks of undersupply of parking would be beneficial. The referenced studies and documents from the Cities of Edmonton and Calgary provide a starting point for the City of Yellowknife.

TABLE 18
COMPARISON OF MUNICIPALITY PARKING REQUIREMENTS FOR DEVELOPMENTS

Municipality	Zone	Commercial	Office	Gov. Agency/ Service	Conversion to Yellowknife's standard units (spaces per 100m2 of building floor area)		
					Commercial	Office	Gov. Agency/ Service
Kelowna	*C4/C7*	*1.3 (C4) or 0.9 (C7) per 100m² GFA*			*1.3 (C4) or 0.9 (C7) per 100m² GFA*		
Thunder Bay	*All*		*1 per 30m² GFA*			*3.33 per 100m² GFA*	
Prince George	*All*		*3.4 per 100m² GFA*			*3.4 per 100m² GFA*	
Vernon		*2 per 100m² GFA*		*3 per 100m² GFA*	*2 per 100m² GFA*		*3 per 100m² GFA*
Banff	*All (exc. CS)*	*2.5 per 100m² GFA*			*2.5 per 100m2 GFA*		
Victoria	*Core Area*		*1 per 70m² floor area*			*1.43 per 100m² floor area*	
Winnipeg			*1 per 750sq.ft. Floor area, not less than 2 per tenant*			*1.44 per 100m² floor area, not less than 2 per tenant*	
Whistler	*Outside core*	*4 per 100m² GFA of Comm. Use*	*3 per 100m² GFA*		*4 per 100m² GFA of Comm. Use*	*3 per 100m² GFA*	
Nanaimo	*All*		*1 per 22m² NFA for first 1000m2. 1 per 25m² after*			*4.55 per 22m² NFA for first 1000m2. 4 per 100m² after*	
Medicine Hat	*All*	*2 per 100m² GFA*			*2 per 100m² GFA*		
Nelson	*All*		*1 per 30m² GFA*			*3.33 per 100m² GFA*	
Kingston	*Downtown*		*1.45 per 100m² GFA*			*1.45 per 100m² GFA*	
Yellowknife	*All*	*1.5 per 100 m² GFA in CC/DT zones, 2 per 100 m² in other zones*			*1.5 per 100 m² GFA in CC/DT zones, 2 per 100 m² in other zones*		

3.2 Future Downtown Municipal Parkade Demand

Demand for a future downtown municipal parkade will depend upon how the amounts of office, commercial and residential development realized in the future, as well as whether patterns of travel mode choice to downtown destinations remains consistent with current demand or shifts to ride-sharing, transit, cycling and walking. Mode choice will, in turn, be influenced by distances between trip ends, for example, whether work and home are within a reasonable walking distance, and the facilities for, user costs and relative convenience of transit, cycling and walking.

Background information provides indications of future demand. The *2010 Smart Growth Development Plan Transportation Improvement Study* indicates that in the long term, parking utilization for downtown will increase from 65% to 82% via current surface lots based on existing surface lot supply. Research related to City of Yellowknife By-law amendments indicates that future parking demand, if supplied through surface lots would result in the downtown area covered by surface lots to increase from 40% to 50%.
The *Community Plan* and its background reports indicate the intent to redevelop existing surface lots for higher and better uses to support intensification. The Community Plan also indicates the elimination of parking minimums for development, which has many benefits but complicates the potential to predict a quantity of parking that will be required in conjunction with future development.

The current forecast rate of population growth in Yellowknife is modest. The need for a municipal parkade would be dependent on a number of factors including population growth rate increases, the rate of redevelopment of surface parking lots resulting in a loss of parking and/or a change in travel behaviour by residents that commute to downtown. Therefore, the timing for a possible municipal parkade in downtown Yellowknife is unknown at this time and there is the possibility that it may never be required. However, given the policy direction for additional downtown development and reuse of surface parking lots for other development, identification of a candidate site would constitute good planning and good alignment with the *Community Plan*.

3.3 Costs

The municipal survey indicated that costs, adjusted to 2020 dollars, ranged from $3.8M to $22M. On a cost per parking space basis, this ranged from approximately $20,000 per stall to approximately $51,000 per stall. Variation in the capital costs appears to be related to features of the structures such as ground-floor commercial, integration with other uses, and other features. The $8M to $12M range for a Yellowknife parkade identified during the stakeholder consultation is higher than the range excepting the $22M facility, however construction costs are known to be higher for Yellowknife compared to the northern parts of the provinces, this figure seems valid as a working range.

Annual operating costs, where reported by the municipality, range widely from $40,000 to $1.8M. One model for covering operating and maintenance costs is to apply parking fees directly to this expense.

Yellowknife's Zoning By-law indicates a fee of 1X the cost of providing a parking stall, however, an actual figure is not provided in the by-law. Cash-in-lieu fees vary among surveyed jurisdictions, with several at about $10,000 per parking stall, up to $21,000 in

Banff and $33,000 in Kelowna. The $8M to $12M range for Yellowknife is higher than the capital costs of some of the proposed parkades adjusted to 2020 dollars, however as construction costs are known to be higher for Yellowknife compared to the northern parts of the provinces, this figure seems valid as a working range.

The estimate was not associated with a number of stalls, however if 200 spaces is assumed, this results in a cost per stall of $40,000 to $60,000. It is likely that the capital cost would result in a per stall cost greater than the typical cash-in-lieu fees from other jurisdictions of $10,000 to $21,000. Other sources of capital besides cash-in-lieu fees may be required to fund the construction.

3.4 Urban Design

By following the *Downtown Façade Improvement Guidelines* and recommendations from the *Urban Design Initiative* report associated with the Smart Growth recommendations, based on the examples from other jurisdictions, there is potential for a parkade design that fits in with the character of the area. A parkade would introduce opportunities for features and amenities such as a parking management system, that keeps an active count of available spaces, wayfinding benefitting the broader area, banners and decorative lighting.

3.5 Potential Sites

The review associated with this report identified three potential sites that are either vacant or have been flagged as potential sites for a future parkade. Over time, with the redevelopment of the downtown and Zoning By-law mechanisms in place to facilitate the transfer of land and cash to develop a land bank and capital fund for a parkade, additional options can be identified and a more detailed evaluation of options can be undertaken.

3.6 Opportunities Associated with Municipal Parkade

In addition to providing covered vehicle parking, a municipal parkade can provide benefits such as secure bicycle parking areas, electric vehicle charging stations, and parking management systems that can provide information on electronic signs in and around the facility and also via the City's *Pingstreet* app. The interior and exterior of the building can support wayfinding in the area with maps and signs. In addition, the site can include landscaping, decorative lighting and other architectural features to align with the City's downtown revitalization goals.

As evident in the Architectural Features section of this report, parkades in some jurisdictions are built above ground floor retail, which may result in cost efficiencies and activates the street. Partnerships with private developers or developing and leasing retail space are options to consider if beneficial agreements can be made.

A parkade can also have an adaptive pricing structure for parking that prioritize monthly parking that would be attractive to full-time employees but also allow for short-term parking if the location is also attractive for that purpose.

3.7 General Feasibility and Viability

To achieve alignment with the 2019 Community Plan, including goals for intensification of the City Core and additional use of space in the downtown for open space, gathering spaces, a post-secondary institution and less land coverage by surface parking lots, a parkade is a logical option. Several Canadian municipalities have successfully constructed and are operating municipal parkades, as indicated by this review.

Changes to parking-related by-laws that enable contributions of land and cash in place of providing parking on a site-by-site basis are a starting point for developing more concrete plans for the location of a downtown parkade. Further investigation into the available bank of land, accumulation of cash-in-lieu payments and potential sites would be beneficial to the evaluation of potential sites.

The number of spaces needed in a municipal parkade would be subject to many considerations, including how much existing parking is eliminated through redevelopment, the impacts of elimination of parking minimums for new developments, residential intensification in the core (attracting more walk to work trips), improved transit service (attracting more bike to work trips) and the pace of new commercial, office and residential development in the downtown.

The need for and viability of a municipal parkade in future can be determined through monitoring by periodically assessing the following:

- impacts of 2019 changes to parking pricing on drivers' choice of location for all-day parking
- parking supplies associated with new development after the elimination of parking minimums
- rate of redevelopment of surface parking lots
- changes to the mix of development in the downtown that reduce demand for parking (for example more residential within walking distance to employment and commercial)
- whether a post-secondary institution is constructed in the downtown

At the current time, identification, acquisition, and preservation of a potential site, potentially with a temporary use as a surface parking lot, is supported. Monitoring will provide a better indication of the need for and desired size for a parkade in the future.

The additional vehicle trips generated from the study site was subsequently assigned to the road network using the trip distribution parameters in **TABLE 3**. **FIGURE 6** illustrates the site generated traffic volumes on the road network for the weekday afternoon peak hours in the year 2021, respectively.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The following conclusions were drawn from this study:

1. Regarding Zoning By-law parking supply requirements for new developments:

    a. Yellowknife parking supply requirements in the current Zoning By-law are generally in the middle of the parking supplies required by the Canadian jurisdictions compared; some are higher and some are lower.

    b. Parking utilization surveys taken in 2008 and 2013 indicated peak parking utilization ranging from 69% to 72% in the downtown area.

    c. Although it was not possible to collect typical parking demand due to the COVID-19 pandemic and related restrictions, it is likely that there is still a surplus of available parking because growth in population and downtown development in Yellowknife have been modest since 2013. The best approach to verify this assumption would be a follow up parking utilization survey after restrictions are lifted.

    d. The 2020 Community Plan indicates elimination of parking minimums.

    e. A process and rules for considering proposed parking supply for development applications will help manage the risk of future under supply of parking. Some sources to consider include:

        i. The City of Edmonton removed minimum parking requirements from their Zoning By-law in July 2020. The By-law and associated considerations (for example not changing handicapped parking requirements and increasing bicycle parking requirements) provide examples that the City of Yellowknife can consider when drafting their By-law and implementation rules.

        ii. The City of Calgary adopted a parking policy to support significant reduction or elimination of parking requirements for City Centre residential developments in *Calgary Parking Policies,* July 2017. The policy provides specific criteria and conditions to support such applications. Elimination of parking minimums for new developments in the City of Yellowknife can consider these criteria when evaluating development proposals.

2. The estimated supply of parking in downtown Yellowknife, including metered and free on-street parking, surface lots, lanes and the Centre Square Mall Parkade is 4,655 spaces. In addition, in the areas north of and south of the downtown area, there is space for approximately 927 parked vehicles on the streets.

3. The future parking demands in downtown Yellowknife will be affected by several factors including:

    a. Influences on mode choice for travel downtown, such as the price of parking and the attractiveness of non-auto modes including transit, cycling and walking (indicated as a priority in the *Community Plan*);

    b. The types of downtown development, since residential development constructed

within walking distance of the existing employment and commercial development will result in reduced need for downtown parking, while more employment and commercial development will attract drivers from suburban communities and therefore increase parking demand;

c. Addition of a significant parking generator such as a post-secondary institution;

d. The rate of redevelopment and new development in the downtown;

e. Measures to discourage parking on the streets adjacent to downtown (such as implementing parking meters) and thereby remove the incentive to park further from the middle of downtown;

f. Implementation of the elimination of parking minimums in the Zoning By-law.

4. Estimating future parking demand for downtown Yellowknife has not been done at this time. This exercise will yield more meaningful results as the policies of the *Community Plan* including the elimination of parking minimums are implemented. Monitoring the implementation of these policies will provide clearer indications of which new policies have the most significant impacts on parking demand.

5. In addition to expected increases in future parking demand, a reduction of the current supply is indicated by the *Community Plan* policy directions to reduce the current supply of surface parking. Although it is possible that future parking demand in Yellowknife can be provided without a municipal parkade, given the policy direction to redevelop existing surface lots, identification, acquisition and preservation of a site should be considered at this time.

6. This report has identified examples of forms, sizes and costs for parkades, and relevant municipal policies, for 6 Canadian municipalities.

   a. Information was gathered for parkades ranging from 180 stalls to 1,007 stalls.

   b. Capital costs converted to 2020 dollars ranged from $3.8M to $22.0M.

   c. Annual maintenance and operating costs ranged from $40,000 to $1.8M.

   d. Cash-in-lieu parking policies are widely used in Canadian municipalities.

   e. Some structures were incorporated with ground floor retail.

7. For the jurisdictions responding to the survey, current cash-in-lieu amounts would not generate sufficient funds to cover the capital costs of parkade construction. This suggests that additional funding sources will be required to construct a parkade in Yellowknife.

8. During stakeholder consultation related to amendments to the Development Incentive Program By-law No. 4534 and Zoning By-law No. 4404, the Smart Growth Implementation Committee recorded in their meeting minutes a cost estimate of $8M to $12M for a downtown Yellowknife parkade. This cost estimate is consistent with construction costs incurred in other jurisdictions and provides a working figure until a more rigorous cost estimate is made.

9. A potential source of a capital cost contribution for a new parkade would be a development partner interested in providing ground for retail to be topped by a parkade.

10. Parkades captured in the survey have the potential to more than cover operating expenses with parkade revenue.

11. Three candidate parcels in downtown Yellowknife were identified during this study.

    a. In the East quadrant of Franklin Avenue & 49 Street.
    b. Lots 8, 9 & 10 on Block 31 (50 Street North of 51 Avenue).
    c. Lots 15, 16 & 17 on Block 31 (51 Street North of 51 Avenue).

12. For these parcels,

    a. The municipal survey indicated parkades on similarly sized parcel in 3 jurisdictions. These existing parkades in other Canadian cities have between 180 and 197 parking spaces and are between 4 and 6 levels in height.
    b. A preliminary review of the parcels and access options for them indicates that all 3 are suitable for further consideration.

13. Based on current information, it is not certain that a downtown parkade will be required to serve future parking demand in downtown Yellowknife. However, since the *Community Plan* direction includes reducing the supply of downtown parking by redeveloping existing surface parking lots and increasing the demand for parking with increased downtown development, it is important to identify and reserve a potential site in case it is required in the future. The reserved site can be used for surface parking until such time as the need for a parkade is confirmed. If future monitoring indicates that the need has not been realized, other uses can be found for the site.

4.2 Recommendations

Recommendations relating to the feasibility of a parkade in downtown Yellowknife:

1. It is recommended that the City of Yellowknife commission a study of parking utilization in the downtown and adjacent area following relaxation of COVID-19 pandemic related restrictions to:

    a. Evaluate any changes in parking behaviour between the 1-, 2- and 9-hour parking meter areas since the changes in parking pricing in 2019 and 2020;

    b. Confirm that there is surplus parking in the downtown area as indicated in the 2008 and 2013 parking surveys;

    c. Measure parking utilization and turnover in the areas adjacent to downtown to inform determining the potential to influence drivers to relocate to a downtown parkade.

2. It is recommended that the City of Yellowknife further investigate the availability and costs for the three potential downtown parkade sites and engage qualified professionals to develop concepts for development at any of these sites found suitable for investigating further.

3. It is recommended that the City closely monitor development and redevelopment in the downtown area to track the following:

    a. Redevelopment of existing surface parking.

    b. Specific types and sizes of development, in particular residential development vs. office development vs. retail and service development.

4. It is recommended that the City plan for periodic surveys of parking utilization in the downtown and analyze in conjunction with the information about changes in development, with the frequency guided by one of the following:
    a. Construction of a large new development or several small/medium sized developments;

    b. Removal of several surface parking lots;

    c. A combination of surface lot removal and construction of new parking generators.

5. It is recommended that the City require post-implementation survey of parking utilization as a condition of approval for large developments if none to limited off-street parking is provided to validate the site specific parking strategy.

Appendix A
Summary of Documents Reviewed

Smart Growth Development Plan Recommendations Report

City of Yellowknife, July 2010

- Key recommendations include:
    - Compact development
    - User friendly transit
    - Transit Oriented Development (TOD) nodes
    - Safe, attractive transportation alternatives to driving

Smart Growth Development Plan Transportation Improvement Study

HDR iTRANS, July 2010

- Assumes population of 50,000 in 50 years (from 2010)

Demographic Measure	Existing	Long-Term
Households	6,890	17,140
Jobs	10,840	27,890

- Includes a parking inventory for downtown and a utilization study showing supply exceeding demand
    - On street parking utilization during the survey was 67% to 79% of available supply for 3 defined areas
    - Off street parking utilization 63% to 66% of available supply for 3 defined areas
- Notes that enclosed parking for Centre Square Mall is often underutilized due to perceived security concerns
- Different geographical development scenarios – compact, hybrid & dispersed – were considered and have significant differences in geographic distribution of homes and jobs – which will affect trip lengths and mode choices
- Based on existing ratios of downtown parking stalls in demand to households and downtown parking stalls to jobs, future (2060) downtown parking demand is forecast to be 1162 stalls
- If existing supply remains the same, occupancy is forecast to be 82%
- Recommended Strategies include:
    - Consider parking caps for future residential and employment in the vicinity of improved transit serve and in key areas
    - Address safety concerns related to Centre Square Mall parkade
    - Review pay parking policies
    - Change By-law parking requirements for higher density areas to reduce required minimums and implement maximums
- Stakeholder input – there was support for a downtown parkade

Urban Design Initiative

EIDOS Consultants Incorporate, ONPA Architects, Hilderman Thomas Rank Cram Landscape Architecture, Bob Robertson Communications, June 2010

- Redevelopment vision for the Downtown illustrated

- Notable features for redevelopment vision
    - General infill and intensification of uses
    - General streetscape and open space development
    - Creation of a major downtown gathering area
    - Introduction of new mid-block connections to increase pedestrian connectivity
- Guiding principles of urban design include longer store opening hours for the Downtown
- Redevelopment Vision includes redevelopment of parking lots for other uses
- Other uses for 50/50 lot are identified; parking is not included in the potential identified uses
- Illustrations of concepts for urban design are provided, and include attention to:
    - Building cladding
    - Lighting
    - Site landscaping
    - Banners
    - Art
- Capital budget estimates for streetscaping are provided for the following Downtown street sections:
    - Franklin Avene between 51st Street and 52nd Street
    - 52nd Street between Franklin Avenue and 49th Street

Downtown Façade Improvement Guidelines

EIDOS Consultants Incorporate, ONPA Architects, Hilderman Thomas Rank Cram Landscape Architecture, Bob Robertson Communications, 2010

- Design principles are identified
- Features include:
    - Create visual interest
    - Design for human scale
    - Animate the street edge
    - Facilitate wayfinding and access
- Façade improvement examples are provided

Downtown Yellowknife Parking Assessment - Interim and Background Report

IBI Group, May 2013

- Considered impacts of different configurations of bike lanes and parking on 47th, 48th, 49th, 50th, 51st, 52nd and 53 Streets between 52nd and 49th Avenues

Report to Municipal Services Committee

City of Yellowknife Planning Department, Sept 3, 2013

- Report considering whether to amend ZBL 4534 and ZBL 4404 to allow for more options for meeting Downtown off-street
    - 4534 – provide incentives for parking designs
    - 4404 – provide more options for meeting off-street parking requirements
- Report included significant consultation and research and found:
    - At the time, 40% of downtown was covered by surface parking lots and the report indicated that if surface lots were provided while meeting intensification targets, they would cover 50% of downtown
    - Engagement with citizens and businesses indicated a perception that availability of parking in downtown is limited
    - A stakeholder focus group identified an interest in exploring a downtown parking structure because it would use less land than surface lots
    - An Ipsos Reid survey about downtown travel and parking patters indicated
        - Perceived shortage of downtown parking, noting that some people give up looking for a spot and go elsewhere
        - Free street parking desired
        - Some interest in private parking garages
    - A stakeholder report indicates $8M to $12M construction cost
    - There is a perception that downtown employees take up parking for the day, not leaving parking for retail/commercial
    - A potential site for a parkade was identified as the land behind the Laing building
    - A few of the privately owned parking facilities have waiting lists for spaces
    - Huntingdon operates a downtown parkade and indicates that it is typically 100% occupied, with seasonal variations
    - The concept of public/private partnership with private construction, shared ownership and security provided by City was raised
- Key changes to by-law:
    - Increase distance from site where parking can be provided from 150 meters from the site to anywhere in the downtown
    - Increase cash-in-lieu option for parking provision from 25% of spaces to 50%
    - Reduce fee for cash-in-lieu from 1.5X cost of a parking stall to 1X cost of a parking stall

By-law 4752 – amendment to 4534

- Came into effect September 23, 2013
- Adds reference to an Integrated Parking Structure Incentive to promote innovative design options that integrate the required parking within the footprint of the downtown building, with a 100% tax abatement for one year

Report to Council

Yellowknife Municipal Services Committee, March 3, 2104

- Recommended items from September 3, 2020 Planning Report to Committee, plus
    - Allow previously approved developments to apply to transfer required parking to a structure downtown
- Included occupancy survey of on-street downtown parking from November 4, 2013, indicating 69% occupancy

By-law 4788 – amendment to By-laws 4534 and 4404

- Came into effect March 24, 2014 (following on March 3, 2014 Municipal Services Committee report)
- Adds references to off-site parking requirements, cash-in-lieu requirements, land contributions in downtown zone
- Amount paid per parking staff for cash-in-lieu

By-law 4828 – amendment to 4534

- Came into effect February 23, 2015
- Add residential intensification incentive – tax abatement for improvement or development of ground floor commercial
- Apply declining 5-year abatement to downtown parking structure (100/80/60/40/20%)

By-law 4884 – amendment to Development Inventive By-law 4534

- Came into effect December 14, 2015
- Deleted Section 20 about Term Program Application and Abatements

Community Plan Background Report

Dillon Consulting, October 2019

- From 2016 Census for Yellowknife
    - Trip to Work Information
        - 60% drive
        - 10% ride in private vehicle
        - 20% walk
        - 1.8% take transit
        - 5.9% use other means
    - Vehicles per household = 3
    - Vehicle per driver = 1.1

    - Increase in business licenses for 2012 to 2018 = +67%
- Downtown retail revitalization began in 2019 and is ongoing
- Parking payment through the City's free mobile app was made available in January 2018 and all meters upgraded by March 2018 to accept payment through the app
- In July 2019, changes to fee structure for parking increased cost for 1 and 2 hour metres compared to 9 hour meters further from the downtown to encourage people parking for the day (mostly employees) to leave attractive parking spaces for retail available for short term parking
- Population growth from 2018 to 2035 is projected to be from 0.5% to 0.7% per year – for a 10.71% increase for the period
- Additional residential land demand is expected to require 43.4 hectares
- Downtown retail was estimated to have very low occupancy in Spring 2019 except in Centre Square Mall with >50% vacancy
- However existing buildings are underutilized and outdated for market needs, with many vacant storefronts
- Major real estate investment trusts control much of the downtown retail space and their leasing models do not currently meet market needs
- Office vacancy in downtown near 10%; if Bellanca building is removed from consideration, vacancy rates would be 7% to 8%
- Class A Office/Retail is in high demand while a mix of Class B and C office spaces are available
- Implementation Strategy includes:
    - Review minimum off-street parking policies and their influence on infill and City Core/Central Residential land intensification
- Public consultation points
    - Downtown should include gathering and educational/social/recreational/cultural activities mixed with business/retail
    - Remove parking requirements downtown to open up serviced lots within Downtown vs. cannot eliminate parking downtown, it is needed for the local lifestyle
    - Should not allow downtown buildings to be converted into parking vs. should allow for parking lots to be created; should not restrict land owners rights to income
    - Concern about locating a future post-secondary institution in the downtown related to the perceived lack of parking and lack of space

Community Plan

City of Yellowknife, December 2019

- Purpose – create a policy framework that sets out a vision for future growth and development for Yellowknife over 20 years
    - Creates land use designations for different areas
    - Establishes land use objectives and strategies to guide Council decision
    - Provides a policy framework with regard to sustainability, the environment, and economic social and cultural development of the community
- Objectives and related policies include:

- Reduce vacant parcels int eh core by encouraging development of multi-residential, multiple storey commercial or office
- Reduce surface parking lots and incorporate on-site parking into building design
  - No new surface parking lots permitted
  - City will work with developers to build alternatives for parking
  - City will work with existing developments to build alternatives if desired
- Increase trips to and within the City Core by walking, cycling and public transit
- To increase flexibility for a variety of land uses that support the City's downtown revitalization strategy
  - Remove off-street parking minimums
- Encourage active uses at street level
  - No parking at street level unless screened with active uses
- Enhance open spaces in the core to support community events, traditional activities and passive recreation
- Utilize existing infrastructure for land develop
  - Prioritize vacant lot within the City for redevelopment before greenfield development
  - Consult with private owners of vacant land to incentivize develop that aligns with City's general development goals
- Focus on infill opportunities for City Core
- Development incentives for under-utilized sites in the City Core
- Encourage sale of parcels in downtown to encourage mixed use commercial/residential

Economic Development Strategy, 2020 to 2024

City of Yellowknife, April 3, 2020

- Summarizes economic changes expected over the period covered, including anticipated declines in production for area mines over the next 20 years and the potential for growth in new sectors and outlines a recommended strategy for going forward
- The short-term focus for the strategy will be to mitigate the impact of the anticipated mine closures
- The longer term vision is to create a more diversified and integrated economy in Yellowknife
- Downtown revitalization is a key component of the strategy, including:
  - Working with partners to address social issues
  - Working to attract key tenants to the region and increase the number of residents living in the downtown
  - Encouraging the establishment of a local Business Improvement Area
- The strategy includes supporting the development of a post secondary institution with a downtown campus

Appendix B
Detail Parking Supply & Demand Data

Detailed Inventory of Count Data from GIS Review & City of Yellowknife Data

Location	On Street*		Off-Street			Total
	Unmetered	Metered	Lots**	Lanes***	Parkade	
43rd St	15	-	6	-	-	21
44th St	41	-	38	-	-	79
45th St	31	-	35	26	-	92
46th St	47	3	72	47	-	169
47th St	49	42	331	53	-	475
48th St/HWY 4	34	42	468	62	-	606
49th St	0	87	223	-	550	860
50th St	0	76	369	25	-	470
51st St	49	55	306	83	-	493
52nd St	70	45	289	62	-	466
53rd St	79	24	288	107	-	498
54th St	54	5	123	-	-	182
49th Ave	-	37	-	-	-	37
Franklin Ave	-	68	-	-	-	68
51st Ave	-	50	-	-	-	50
52nd Ave	89	-	-	-	-	89
Total:	558	534	2548	465	550	4655

Footnote:

* 46th St to 52nd Ave: Data obtained from Yellowknife Municipal Services Committee Agenda March 3 2014 (See Appendix B page 2)

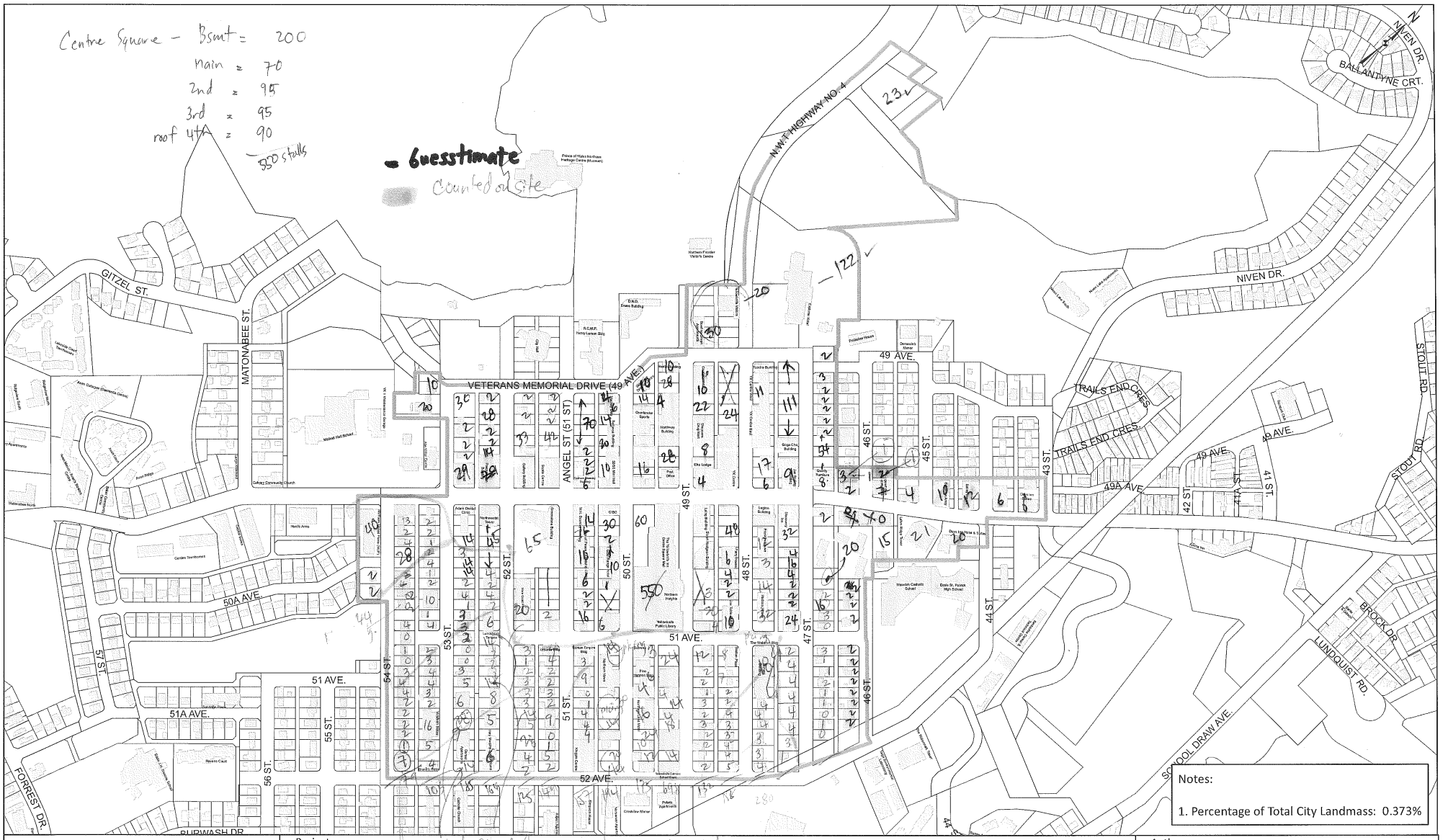
* 43rd St to 45th St: Data obtained by CTS from Aerial imagery and Google Street View

** Used off-site count provided by City of Yellowknife (See Appendix B page 3)

*** Used lane count provided by City of Yellowknife (See Appendix B page 4-9)

Table 1: Peak-Hour Parking Counts (2013)

Street/Avenue	Metered Spaces	Metered Utilization	Non-Metered Spaces	Non-Metered Utilization	Total Spaces	Total Street Utilization
46th Street	3	66.7%	47	94.7%	50	93.0%
47th Street	42	39.0%	49	92.9%	91	68.0%
48th Street	42	59.3%	34	95.6%	76	75.5%
49th Street	87	66.4%	NA	NA	87	66.4%
50th Street	76	49.6%	NA	NA	76	49.6%
51st Street	55	38.9%	49	89.8%	104	62.9%
52nd Street	45	80.0%	70	95.7%	115	89.6%
53rd Street	24	54.2%	79	90.5%	103	82.0%
54th Street	5	100.0%	54	87.0%	59	88.1%
49th Avenue	37	45.9%	NA	NA	37	45.9%
50th Avenue	68	52.9%	NA	NA	68	52.9%
51st Avenue	50	62.0%	NA	NA	50	62.0%
52 Avenue	NA	NA	89	60.7%	89	60.7%
Total/Overall	534	60%	471	88%	1005	69%



CITY OF YELLOWKNIFE

Project: Downtown Metrics

Title: Downtown Metrics Defined Area Map

Author

File

Date

Laneway Parking Survey (City of Yellowknife)

APRIL 2, 2014

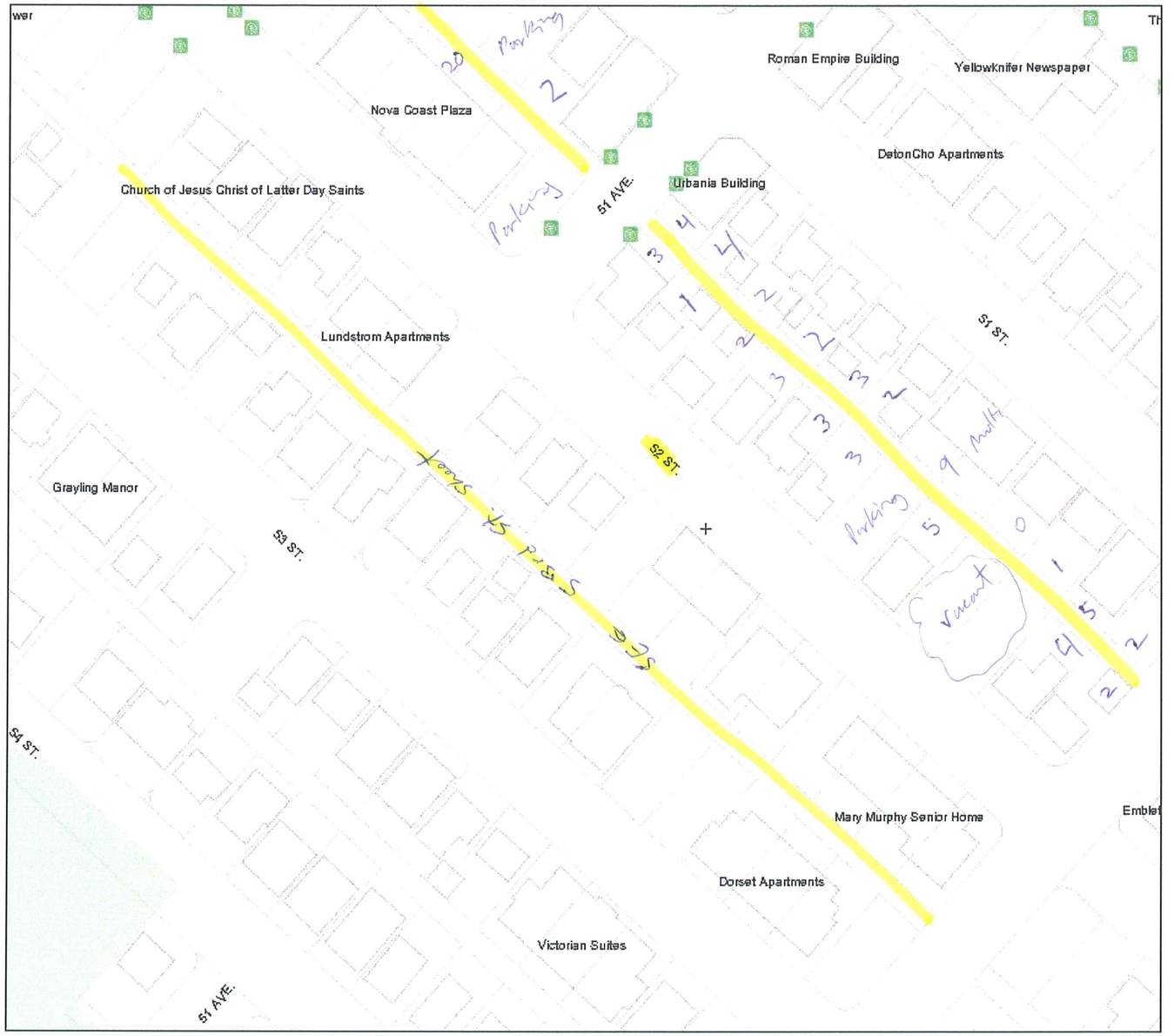
53rd Street

Dwelling Count
+
Parking

NOTE:

- Lots of junk that if removed or rearranged could create additional spaces
- Some properties have access from Frontage on Street and Lane.

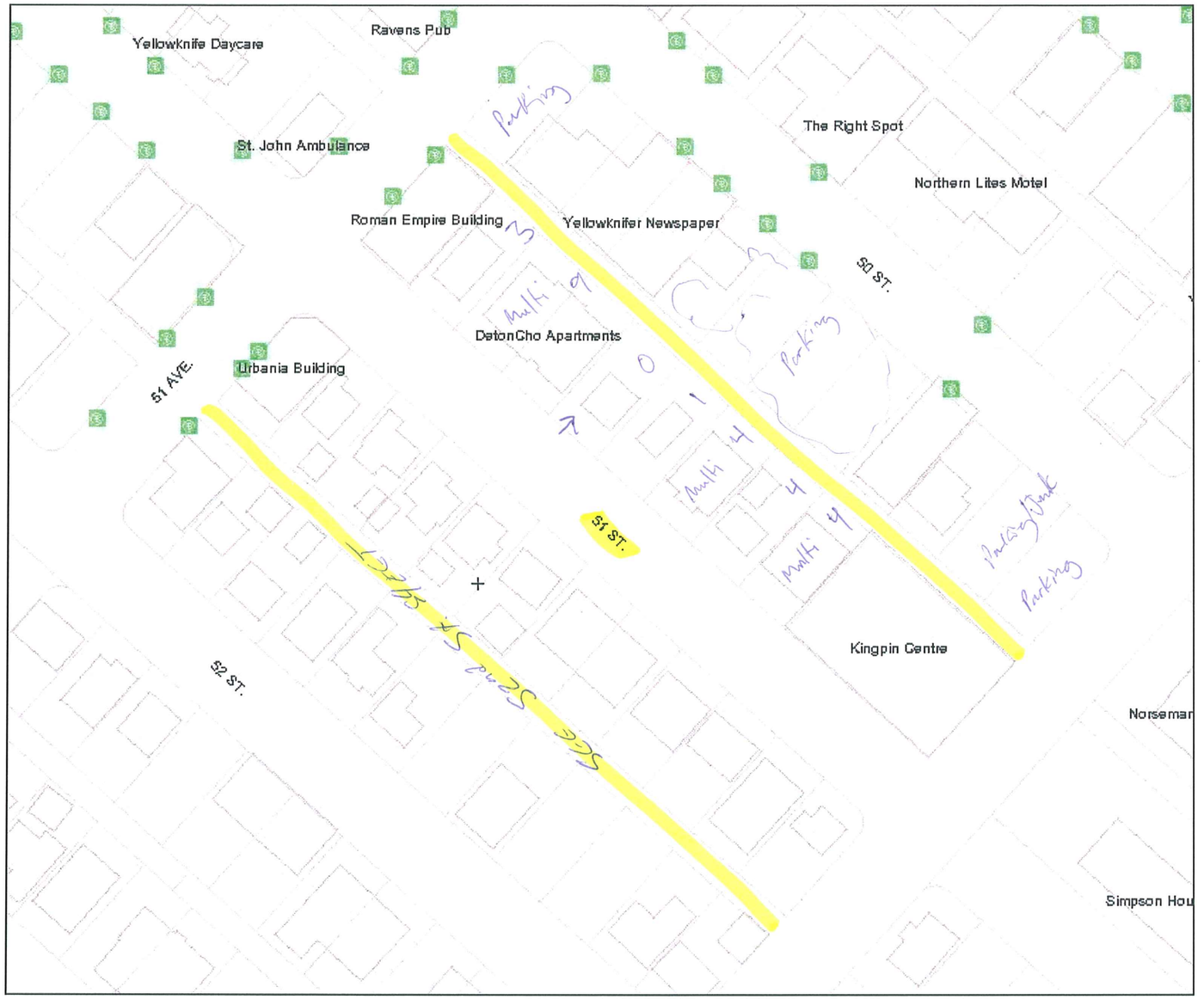
52nd Street



Dwelling Count
+
Parking

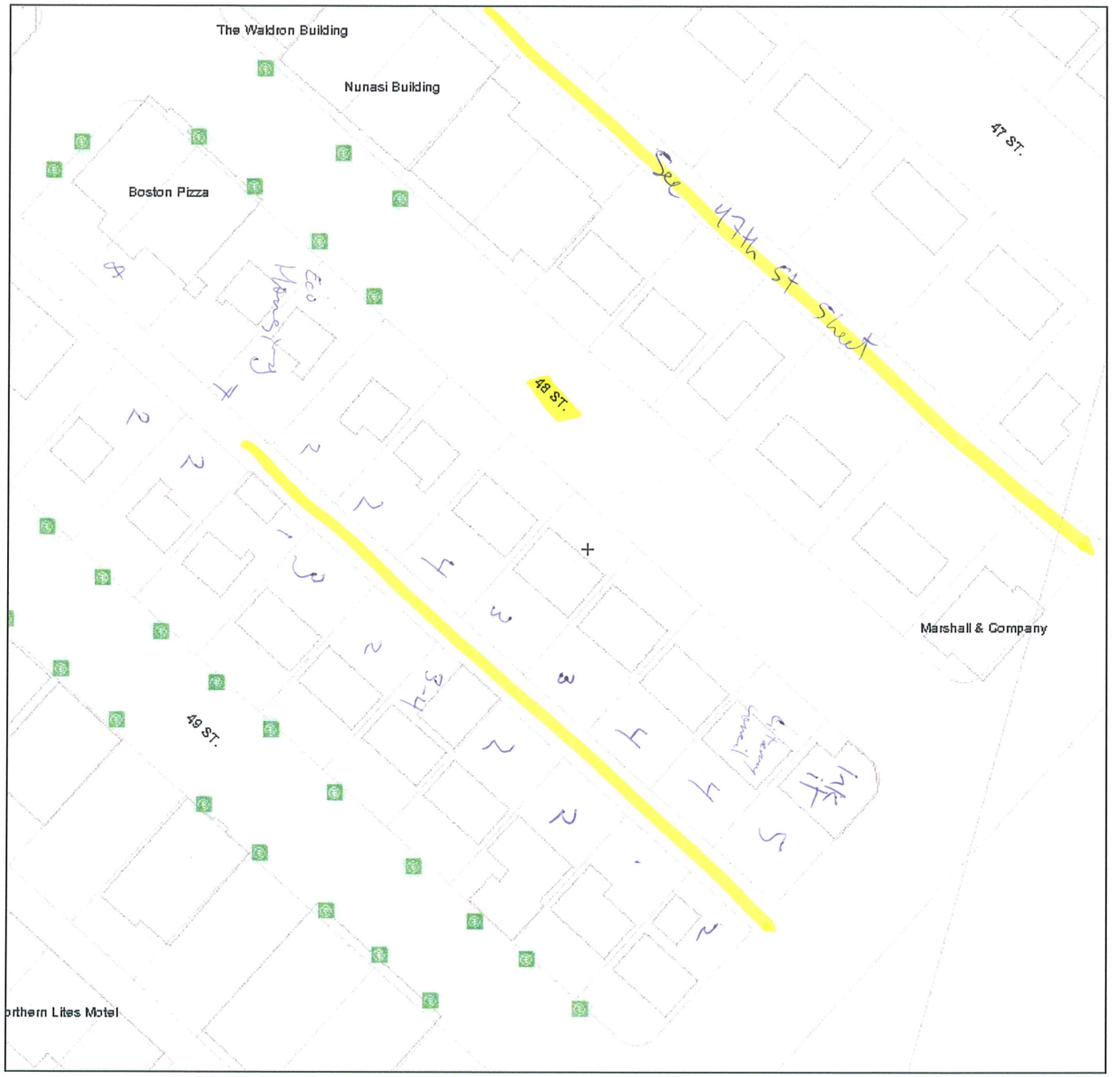
NOTE
- Garages not used for parking in some instances (it seemed)

51st Street



Dwelling Count
+
Parking

48th Street



Dwelling Count
+
Parking

47th Street

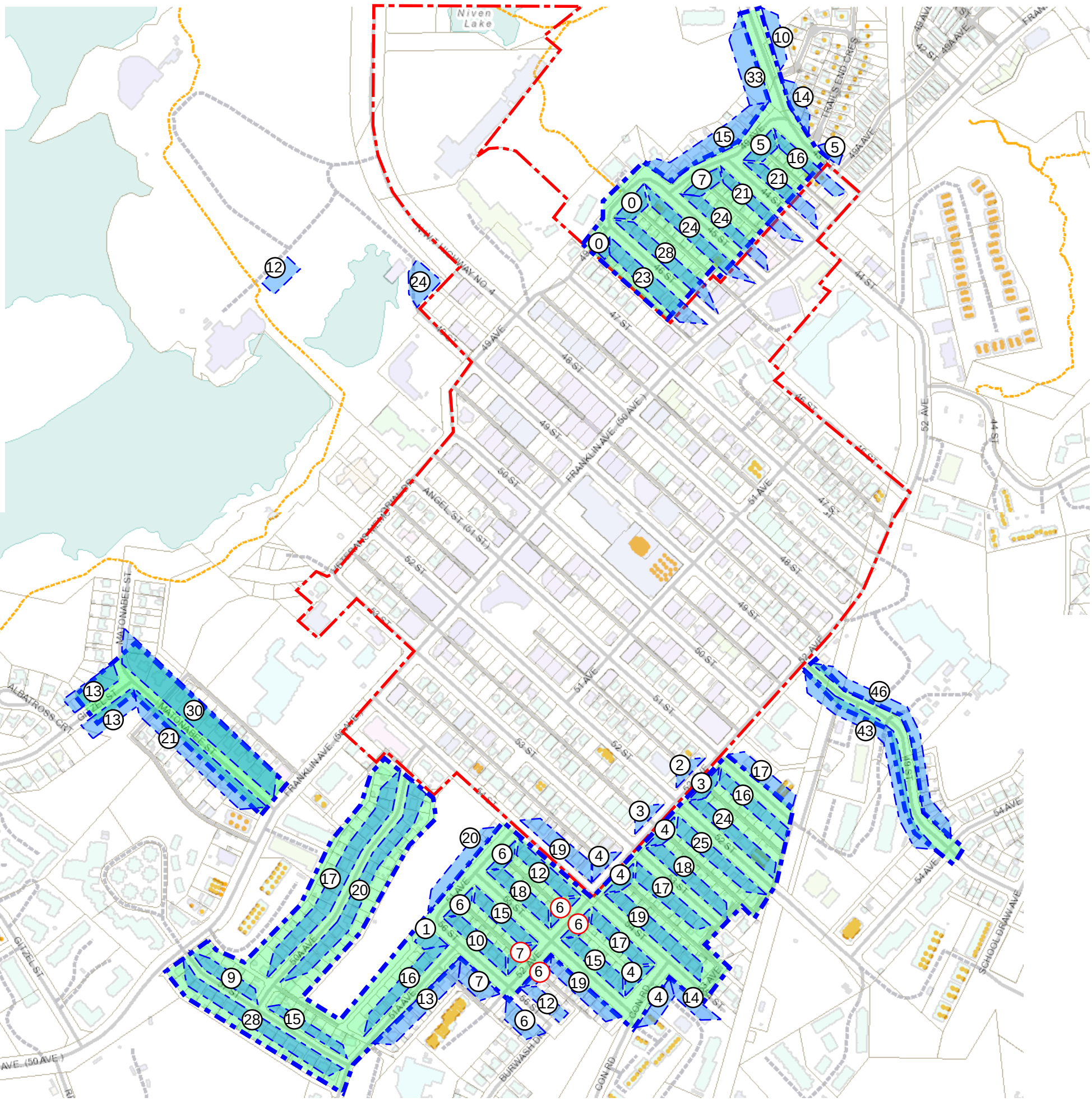
Dwelling Count
+
Parking

- Some garages not used as parking & other storage limits lane parking access
- Some have street driveway (parking) + lane access.

46th Street

Dwelling Count
+
Parking

Parking Adjacent to Downtown Yellowknife (City of Yellowknife)



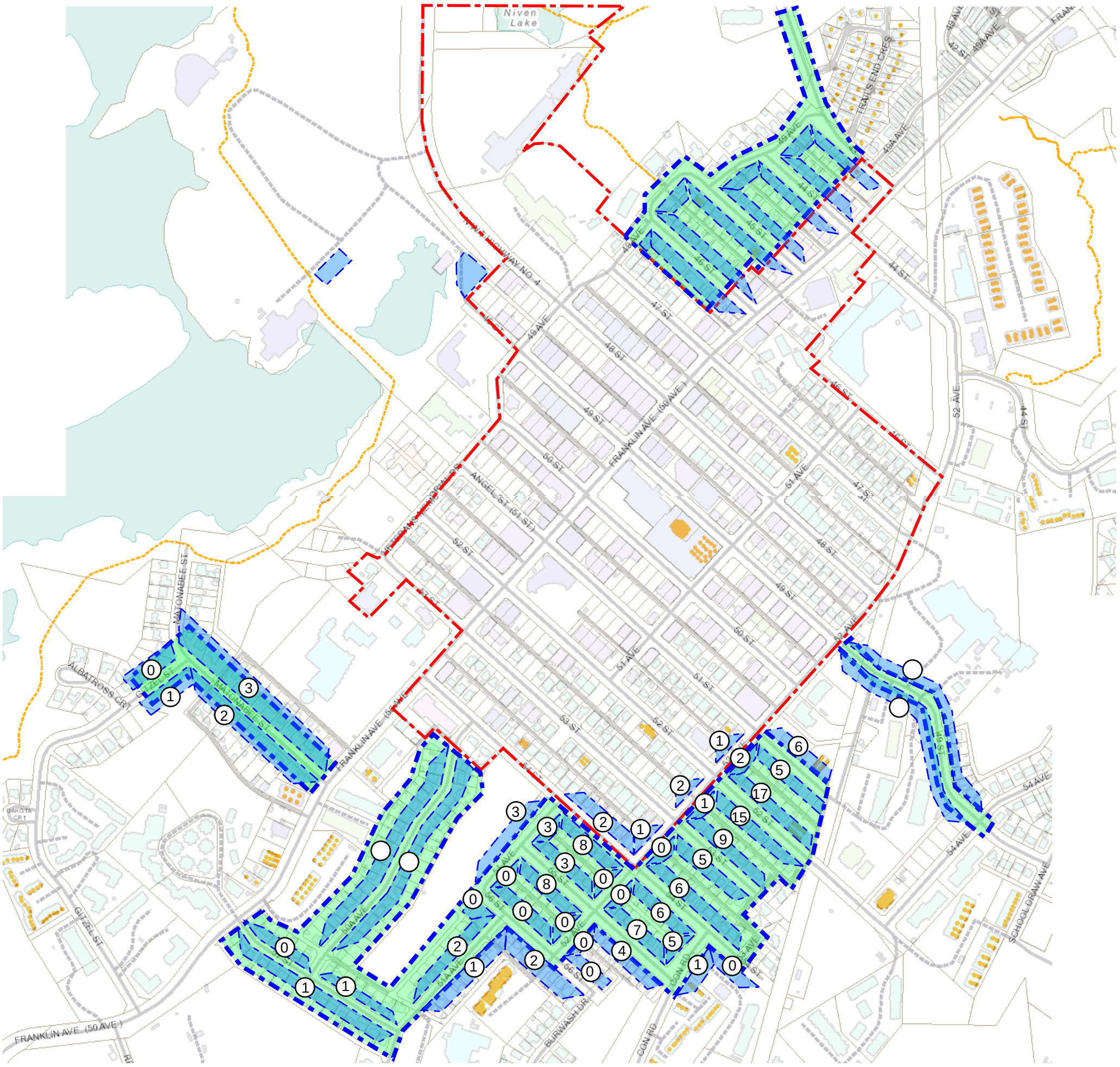
Estimated Parking Maximums using 2019 Aerial Photography

Extent of Downtown Zone

Adjacent streets with commuter on-street parking (anecdotal)

Portion along 52 Ave with seasonal No Parking signs (No Parking from April-October)

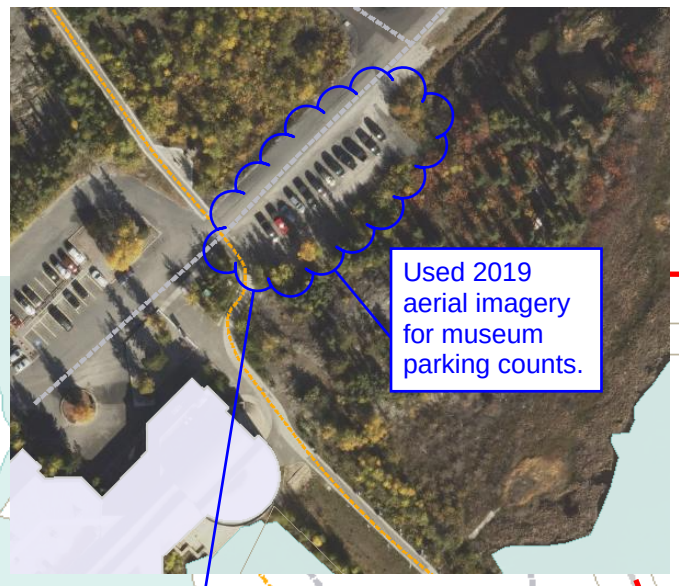
Notes: 1) 52 Avenue has a bike lane
2) No Parking signs were factored in the maximum count estimations.



Afternoon Vehicle Counts taken on Monday, October 26, 2020 (2:00pm-4:00pm)

Extent of Downtown Zone

Adjacent streets with commuter on-street parking (anecdotal)



Morning Vehicle Counts taken on Wednesday, October 28, 2020 (8:45am-11:30am)

Extent of Downtown Zone

Adjacent streets with commuter on-street parking (anecdotal)

Appendix C
Parkade Questionnaire

Yellowknife Downtown Parkade Feasibility

Municipal Questionnaire

1. Municipality

2. Location of parkade

3. Name of parkade

4. Type of parking facility (above grade, below grade, mixed use)

5. Number of parking spaces provided

6. Year that the facility became operational

7. Final construction cost of the facility

8. Estimated annual operations and maintenance costs

9. Cost per parking space “purchased” as part of a cash-in-lieu program offered to developers (if applicable)

10. What was the primary reason was for the construction of the municipal facility?

11. Information on any architectural features that were included in the design (e.g. cladding, ground floor commercial retail, etc.) to help make the parking structure “blend in” to a downtown setting

Appendix D
Completed Questionnaires

EMAIL RESPONSES FROM SURVEYED MUNICIPALITIES

The following text quotes email summaries sent by some municipalities, to accompany their survey response form.

City of Nanaimo

"Our City owns and operates three parkades downtown, in addition to numerous surface lots. Only one Parkade is a stand-alone facility, and it was constructed 40 years ago with an addition added 20 years later. Our two newer parkades were part of the infrastructure of large projects, including our conference centre. I don't know that we could readily determine the construction costs of just the parkade portions. These facilities are expensive to operate and maintain."

[Municipality was unable to return a filled survey form].

City of Calgary

"[We] cannot find per space rates going back that far, but we updated the formula to $44,000/space in 2016 and have generally used inflation as the modifier, recalculating from averages in construction data every 10-15 years."

Resort Municipality of Whistler

"Whistler hasn't built a parkade in decades. Most of the parking in the Village is privately owned. There are a few parking areas that are publicly owned such as the Day Skier lots.

Whistler Creekside Parkade was built in 2000-2001 as part of the Franz's Trail development by Intrawest. It supported their real-estate development at the base of the Creekside Gondola. [The details of this development are not available publicly].

Our most recent Transportation/Parking monitoring program was just presented to Council on November 17,2020."

"https://pub-rmow.escribemeetings.com/Meeting.aspx?Id=4f52f72d-5832-405b-beaf-6a2ed6813dad&Agenda=Agenda&lang=English

Previous year's monitoring reports at www.Whsitler.ca/MovingWhistler"

City of Kelowna

Most of the information requested in your survey is publicly available on our website, on the internet in general or by using google street view.

[The City was unable to fill out survey responses as they were in a lengthy budget preparations exercise at the time of surveying].

www.kelowna.ca/parking

https://www.kelowna.ca/roads-transportation/parking/parking-details-rates

https://www.kelowna.ca/roads-transportation/parking/parking-management-strategy

Yellowknife Downtown Parkade Feasibility

Municipal Questionnaire

1. Municipality

   City of Nelson

2. Location of parkade

   Downtown

3. Name of parkade

   Nelson Parkade

4. Type of parking facility (above grade, below grade, mixed use)

   Above ground

5. Number of parking spaces provided

   192

6. Year that the facility became operational 1970's. City took over operations in 2019.

7. Final construction cost of the facility est $560,000

8. Estimated annual operations and maintenance costs $40,000

9. Cost per parking space “purchased” as part of a cash-in-lieu program offered to developers (if applicable)

10. What was the primary reason was for the construction of the municipal facility?

    Unsure of the rationale at the time. Currently the purpose is to generate revenues, and provide much needed monthly parking options for downtown workers and daily parking for business customers.

11. Information on any architectural features that were included in the design (e.g. cladding, ground floor commercial retail, etc.) to help make the parking structure “blend in” to a downtown setting

    Very bare bones parking structure, that was probably commonplace at the time: ground floor slightly below grade, with five above ground floors, the top level uncovered.

Yellowknife Downtown Parkade Feasibility

Municipal Questionnaire

1. Municipality
   City of Prince George
2. Location of parkade
   Downtown
3. Name of parkade
   George Street Parkade
4. Type of parking facility (above grade, below grade, mixed use)
   underground parkade + above ground lot
5. Number of parking spaces provided
   141 stalls (municipal to rent) 210 (residential for condo complex)
6. Year that the facility became operational
   2021 opening (likely January)
7. Final construction cost of the facility
   17.9 million
8. Estimated annual operations and maintenance costs
   Operating - $64,000 Maintenance $30,000, Security $60,000
9. Cost per parking space "purchased" ~~as part of a cash-in-lieu program offered to developers~~ NA ~~(if applicable)~~
   monthly cost to parkers $1.41 + 7.05 gst = $148.05
10. What was the primary reason was for the construction of the municipal facility?
    development in the downtown - new condo facility, will also have a day care centre. Parkade to split between residential and City use
11. Information on any architectural features that were included in the design (e.g. cladding, ground floor commercial retail, etc.) to help make the parking structure "blend in" to a downtown setting
    - parkade is part of a new development in downtown located next to City Hall. It is a condo building, daycare centre, some commercial, above and Underground parking

Yellowknife Downtown Parkade Feasibility

Municipal Questionnaire

1. Municipality

   Thunder Bay, ON

2. Location of parkade

   135 Syndicate Ave. S

3. Name of parkade

   Victoriaville Parkade

4. Type of parking facility (above grade, below grade, mixed use)

   above grade

5. Number of parking spaces provided

   620

6. Year that the facility became operational

   1,978

7. Final construction cost of the facility

8. Estimated annual operations and maintenance costs

   444,000.00

9. Cost per parking space “purchased” as part of a cash-in-lieu program offered to developers (if applicable)

10. What was the primary reason was for the construction of the municipal facility?

    to provide high-density parking in the downtown cores where Planning regulations does not require developers to provide parking minimums

11. Information on any architectural features that were included in the design (e.g. cladding, ground floor commercial retail, etc.) to help make the parking structure “blend in” to a downtown setting

Yellowknife Downtown Parkade Feasibility

Municipal Questionnaire

1. Municipality

   Thunder Bay, ON

2. Location of parkade

   18 Court St. N

3. Name of parkade

   Waterfront District Parkade

4. Type of parking facility (above grade, below grade, mixed use)

   above grade

5. Number of parking spaces provided

   720

6. Year that the facility became operational

   1,995

7. Final construction cost of the facility

8. Estimated annual operations and maintenance costs

   500,000.00

9. Cost per parking space “purchased” as part of a cash-in-lieu program offered to developers (if applicable)

10. What was the primary reason was for the construction of the municipal facility?

    to provide high-density parking in the downtown cores where Planning regulations does not require developers to provide parking minimums

11. Information on any architectural features that were included in the design (e.g. cladding, ground floor commercial retail, etc.) to help make the parking structure “blend in” to a downtown setting

Yellowknife Downtown Parkade Feasibility

Municipal Questionnaire

1. Municipality

   City of Vernon

2. Location of parkade

   31st Ave and 33rd St, SE corner

3. Name of parkade

   The Parkade

4. Type of parking facility (above grade, below grade, mixed use)

   Above grade.

5. Number of parking spaces provided

   180

6. Year that the facility became operational

   1,981

7. Final construction cost of the facility

   1,950,000.00

8. Estimated annual operations and maintenance costs

   100,000.00

9. Cost per parking space “purchased” as part of a cash-in-lieu program offered to developers (if applicable)

   10,000.00

10. What was the primary reason was for the construction of the municipal facility?

    The primary reason would have been to provide additional parking supply, but we do not have the details available if there were other reasons.

11. Information on any architectural features that were included in the design (e.g. cladding, ground floor commercial retail, etc.) to help make the parking structure “blend in” to a downtown setting

    Ground floor commercial (Vernon Art Gallery) and our Bylaw Department office.

Yellowknife Downtown Parkade Feasibility

Municipal Questionnaire

1. Municipality

   Calgary

2. Location of parkade

   620-9 Avenue SW

3. Name of parkade

   Centennial Parkade

4. Type of parking facility (above grade, below grade, mixed use)

   Above Grade, enclosed

5. Number of parking spaces provided

   1,007

6. Year that the facility became operational

   1,996

7. Final construction cost of the facility

8. Estimated annual operations and maintenance costs

   1,800,000.00

9. Cost per parking space “purchased” as part of a cash-in-lieu program offered to developers (if applicable)

10. What was the primary reason was for the construction of the municipal facility?

    Structured parking for the downtown. The original structure (5 levels) was complete in 1996 and an additional level was added around 2006.

11. Information on any architectural features that were included in the design (e.g. cladding, ground floor commercial retail, etc.) to help make the parking structure “blend in” to a downtown setting

    Brick exterior, windows and other exterior 'decor' to make the lot appear as something other than a parking structure.

Appendix E
Edmonton Open Option Parking

City of Edmonton Open Option Parking

On June 23rd, 2020 the Edmonton City Council voted to enable Open Option Parking starting July 2nd 2020. This means that on-site minimum parking requirements has been removed from Edmonton's Zoning Bylaw. This allows developers, businesses and homeowners to decide on the amount of parking they need, as they know what parking is required for their respective properties best. This approach will more likely result in the "right amount" of parking being provided. Barrier free parking will continue to be provided at the rate it is today, and bicycle parking has increased. Maximum parking requirements has been kept in the City's downtown areas, and expanded in Transit Oriented Development (TOD) and main street areas.

Design requirements for surface and underground parking facilities have been enhanced, and opportunities for homeowners and businesses to share or lease parking spaces to nearby properties. The changes will be gradual, only coming into effect as new developments are proposed or redevelopments happen throughout the city. The City will monitor the impacts and report back to the council with finding in early 2021.

Benefits of Open Option Parking:

"Designing our city around parking amenities instead of people has resulted in wasted space and wasted business opportunities. Eliminating parking minimums is a practical, fiscally responsible move that delivers significant long-term benefits for Edmonton", including:

- Improving choice and flexibility in how businesses and homeowners use their properties and meet their parking needs.
- Moving us closer to achieving the vibrant, walkable and compact city envisioned in ConnectEdmonton and the draft City Plan. Parking can take up a lot of space, making neighbourhoods more spread out and less walkable. Removing minimums enables more walkable main street shopping areas and local amenities, such as neighbourhood coffee shops, that Edmontonians have told us they want.
- Removing an economic barrier to new businesses and more diverse, affordable housing options. Parking is expensive, running anywhere from $7,000 to $60,000 per stall. This cost gets passed down in the rent or mortgage Edmontonians pay, goods bought and services used.
- Supporting more diverse transportation options and climate resilience. Transportation contributes more than 30 per cent of greenhouse gas emissions in Edmonton and is responsible for more than 40 per cent of energy use. Open Option Parking helps open the door for the possibility of a less auto-centric future.
- Enabling opportunities for businesses and homeowners to share parking or lease out space to nearby properties. Edmonton has a long history of allocating a disproportionate amount of space to automobiles, which has led to a greater than 50 per cent oversupply of on-site parking city-wide. Allowing developments to share or lease out parking makes more efficient use of this existing oversupply.

Other information:

Based on public engagement surveys, the residents of Edmonton (those surveyed), 47% of responders prefer or recommend Open Option Parking, with minimum and maximum parking requirements receiving 31% and 17% respectively.

A technical study in an early phase of the research found that there is an existing surplus of parking spaces in Edmonton. There are cases of up to 90 percent occupancy, but this was in a minority of cases and these were only full for a portion of a day or week. As a result, the existing parking requirements at the time resulted in oversupply. Edmonton's current parking supply requirement rates vary on location and land uses, however the study found that there is no consistency between the rates. "Even when controlling for a range of factors like location and nearby population density, there were no variables that could predict the level of parking demand at different sites".