



Final Report

Lake Wilcox Parking Study



Prepared for City of Richmond Hill
by IBI Group

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Appendix A: Parking Utilization Survey Results Memorandum

1 Introduction

The City of Richmond Hill has recently enhanced recreational facilities at Lake Wilcox. With these changes, the area now includes walking trails, picnic areas, Oak Ridges Community Centre, a splash pad, boating facilities, and a youth area consisting of multi-use courts, beach volleyball courts, and a skate park. The numerous park amenities attract high volumes of visitors to the park, which has led to operational issues related to parking and perceived overuse of the park. Residents in nearby neighbourhoods have voiced concerns about Lake Wilcox visitors parking on residential streets, blocking driving lanes and driveways.

The main objectives of this study are to:

- Identify and present findings on issues related to parking operations at Lake Wilcox;
- Develop a strategic parking plan to assist the City with managing parking demand and operations;
- Develop an implementation plan (immediate, short, and long-term) that outlines estimated costs, impacts, and timelines of implementation; and
- Develop a parking utilization monitoring plan to identify when recommendations should be implemented.

To observe the existing parking operations around Lake Wilcox Park, IBI Group has conducted parking utilization and turnover surveys for a typical summer weekend and long weekend. IBI Group also conducted park user surveys, administered both in person and on-line, to gain an understanding of the user demographic that will inform preliminary recommendations.

Technical Memorandum #1 was submitted on October 7, 2019, and presented the findings of the parking demand survey, park user survey, and identified potential issues that could be addressed. As part of the submission, an in-person meeting was held with the Richmond Hill project team on September 17, 2019. The findings presented in Technical Memorandum #1 were presented and preliminary recommendations were discussed with the project team.

Technical Memorandum #2 was submitted on November 15, 2019 which outlined key issues observed and provides recommendations to address those issues. The recommendations were then presented in an implementation plan that outlines implementation timelines and associated costs. The timelines for implementation are comprised of immediate (0-1 years), short-term (1-5 years), and long-term (5 or more years). Similar to Technical Memorandum #1, the findings and recommendations were presented for discussion with City staff.

This Study Report outlines a relationship between the issues identified in Technical Memorandum #1 to the recommendations provided in Technical Memorandum #2. It also contains additional recommendations based on discussions with City staff and explores previously included recommendations in greater detail.

2 Data Collection

To gain an understanding of the existing parking operations at Lake Wilcox two types of parking surveys were conducted. Parking occupancy and turnover surveys were conducted to quantify the parking demand for the parking facilities near Lake Wilcox. Park user surveys were conducted to gain an understanding of park user demographics and to identify issues related to parking that visitors have. This section outlines the methodology and provides a summary of the findings of the parking utilization and user surveys.

2.1 Parking Utilization Surveys

The on-street and off-street parking utilization and turnover studies were conducted to observe parking operations during a typical weekend and long weekend peak times for park visitors.

2.1.1 Study Area

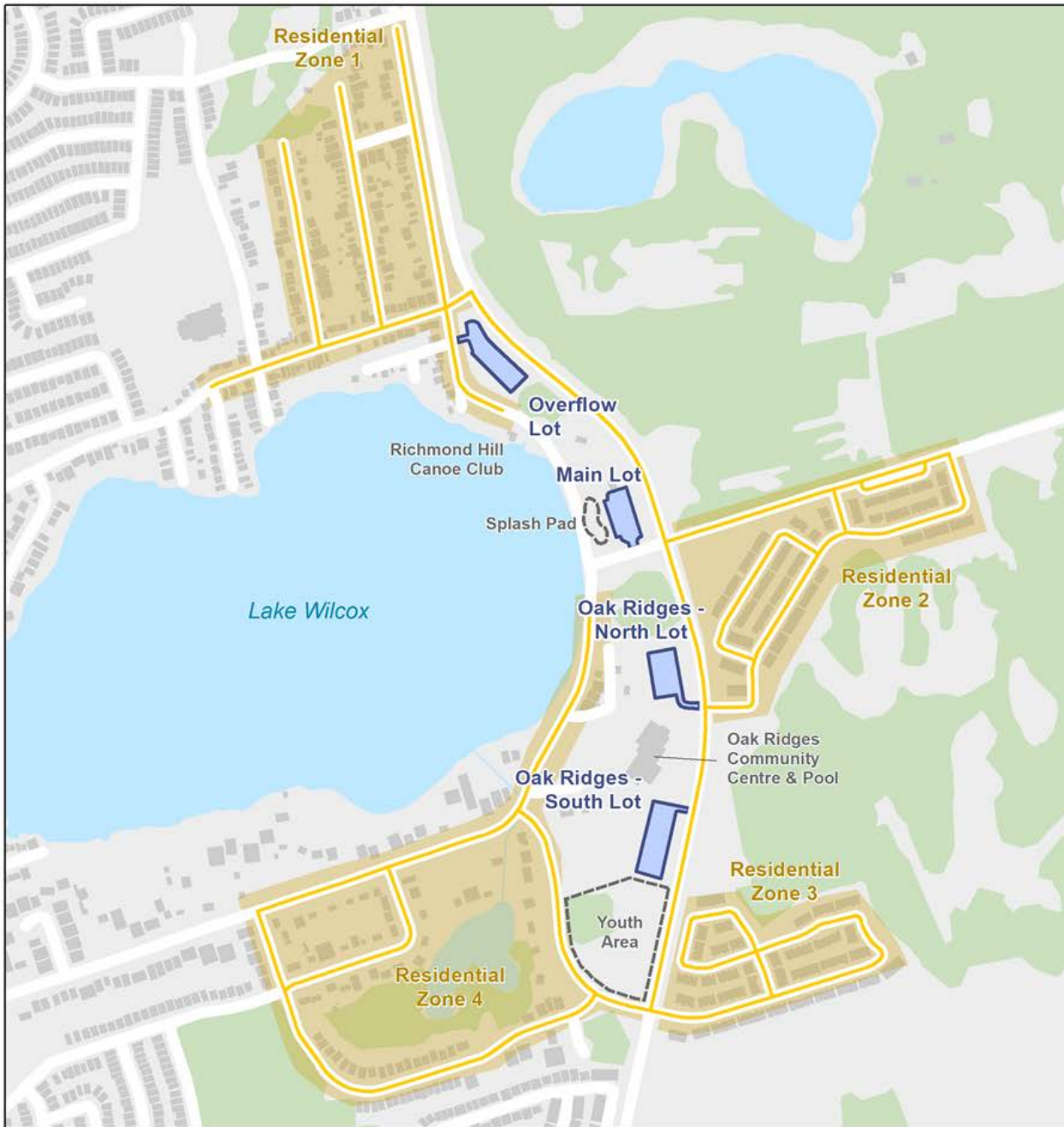
The Lake Wilcox parking system is composed of on-street and off-street parking facilities to serve park users. The parking supply of each parking facility is presented in Exhibit 2-1.

Exhibit 2-1: Parking Inventory

Parking Facility	Description	Capacity
Off-Street		
Main Lot	Adjacent to the splash pad, serves the splash pad and picnic area	91
Overflow Lot	An unpaved lot at the north end of the park, primarily serves the boating area and picnic area	160
Oak Ridges - North Lot	On the north end of Oak Ridges Community Centre, primarily serves the Community Centre, splash pad, and picnic area. The two rows of parking directly outside the main entrance are included as part of this lot	116
Oak Ridges - South Lot	On the south end of Oak Ridges Community Centre, primarily serves the Community Centre and the Youth Area	111
Off-Street Total		478
On-Street		
Residential Zone 1 (North Lake Road Area)	North Lake Road from Bayview Avenue to Willowbank Avenue; the entirety of Olde Bayview Avenue, Moray Avenue, Fergus Avenue, and Lakeside Crescent	278
Residential Zone 2 (Kettle Lakes Club at Anchusa Drive)	Bethesda Side Road from Bayview Avenue to Anchusa Drive; the entirety of Anchusa Drive, Helliwell Crescent, Kohl Street, and Hass Avenue	195
Residential Zone 3 (Kettle Lakes Club at Dariole Drive)	The entirety of Dariole Drive and Denarius Crescent	175
Residential Zone 4 (Bayview Park Lane Area)	Sunset Beach Road from Park Crescent (west) to its east end; the entirety of Bayview Park Lane, Sandbanks Drive, and Park Crescent	386
On-Street Total		1,034
System Total		1,512

A comprehensive parking inventory map that shows the on-street and off-street parking inventory within the study area is shown in Exhibit 2-2.

Exhibit 2-2: Lake Wilcox Study Area



Lake Wilcox	
Parking Area	Capacity (spaces)
Main Lot	91
Overflow Lot	160
Oak Ridges - North Lot	116
Oak Ridges - South Lot	111
Off-street Total	478
Residential Zone 1	278
Residential Zone 2	195
Residential Zone 3	175
Residential Zone 4	386
On-street Total	1034
System Total	1512

Legend

- Surveyed On-street Parking
- Off-street Parking
- Residential Zone

0 150 300 m

As the Overflow Lot is a gravel lot with no pavement markings delineating individual parking spaces, the capacity presented in Exhibit 2-1 was estimated. To estimate the parking capacity of this lot, the total area of the lot was identified using satellite imagery and divided by 30 square metres, the typical area of a parking space including both the space itself and drive aisles throughout the lot. The resultant capacity of the Overflow Lot was estimated to be 160 vehicles, which was confirmed by comparing it to the observed demand from the surveys. In some cases, the observed demand exceeded the capacity, but this was due to drivers parking in areas where parking is not permitted (e.g. double parking, parking on the grass, blocking drive aisles, etc.).

To estimate the total capacity of on-street parking for each zone the total length of each street segment was calculated. Assuming a standard width of 7.31 metres (24 feet), driveway curb cuts were subtracted from the total length. This process was repeated for any curb segments that had parking restriction signage posted. The resulting length was then divided by 7.5 metres, the length of a typical parking spot, to obtain an estimate of on-street parking capacity for each zone.

This method results in a slight overestimation of available parking supply since it only considers the total length of parking along each street segment, but does not take into account where the segments are divided. For example, if there are 2 segments that are 12 metres long, these segments can only fit 2 vehicles, but when their lengths are combined (24 metres), they can accommodate 3 vehicles. This overestimation is minor and should not impact the final recommendations of this study.

Currently, on-street parking is limited to a maximum three hour time limit between the hours of 6:00 AM to 5:00 PM, or 7:00 AM to 5:00 PM from December 1st to March 30th. There is currently no maximum time limit for the four off-street parking lots that serve Lake Wilcox. All facilities assessed in this study do not charge a fee for parking.

2.1.2 Parking Occupancy Survey Methodology

Parking utilization and park user surveys were conducted on the following dates and times:

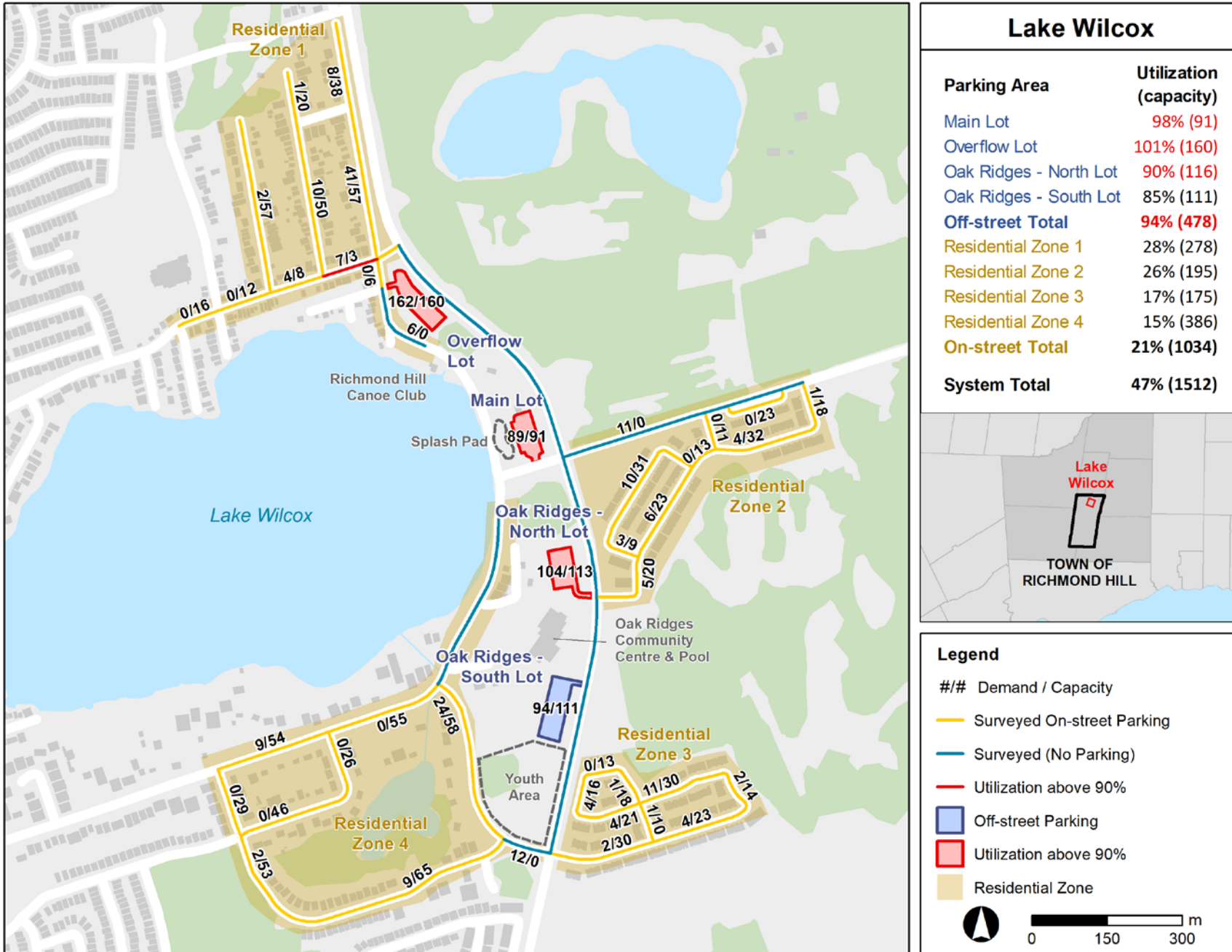
- Typical Summer Weekend: July 27 and 28, 2019 between 7:00 AM to 8:00 PM; and
- Long Weekend: August 3, 4, and 5, 2019 (Civic Holiday) between 7:00 AM to 8:00 PM.

The parking utilization surveys were conducted for all parking lots and on-street segments shown in Exhibit 2-2. Demand was counted in parking lots every 30 minutes, and for on-street segments every 60 minutes. The last four digits of the vehicle license plates were recorded in vehicles parked in off-street lots to keep track of the vehicles that were counted in the previous rounds of the survey to calculate parking turnover.

2.1.3 Parking Utilization Results

Out of the five survey days, the peak hour of parking demand occurred on Sunday, August 4, 2019 between 3:00 PM and 4:00 PM. This is consistent with expectations since Monday, August 5 was the Civic Holiday, and the weather on the surveyed day was 24 degrees Celsius and sunny. A map of the surveyed parking system during the peak hour is shown in Exhibit 2-3.

Exhibit 2-3: Observed Peak Hour Parking Demand (August 4, 2019, 3:00 PM – 4:00 PM)



Based on these observations the following conclusions can be drawn:

- During the peak hour of parking demand, the surveyed parking system operated at 44% utilization, with off-street lots at 94% utilization, and on-street segments at 21%;
- All the off-street parking facilities are operating above 90% utilization at their busiest time, with the exception of the Oak Ridges Community Centre South Lot (85% utilization, or 17 available spaces);
- North Lake Road between Moray Avenue and Olde Bayview Avenue operated at 233% utilization. This is due to the fact that there were vehicles parked on the south side of the street, which is a signed “No Parking” zone;
- There were six vehicles parked on Olde Bayview Avenue between Lakeside Crescent to the Richmond Hill Canoe Club House, which is designated as a “No Parking” zone on both sides of the street;
- There were 11 vehicles parked on Bethesda Side Road between Bayview Avenue and Kohl Street, which is designated as a “No Parking” zone on north side of the street and a “No Stopping” zone on the south side; and
- There were 12 vehicles parked on Bayview Park Lane between Sandbanks Drive and Bayview Avenue, which is designated as a “No Parking” zone on both sides of the street.

Additional results from the parking occupancy surveys are discussed in later sections of this report. A full summary of all parking occupancy and turnover surveys is presented in Appendix A.

2.2 Park User Surveys

The park user surveys were conducted to gain an understanding of the park user demographics and the unique needs of each park user, taking them into consideration when proposing recommendations. The survey consisted questions to find out why visitors come to Lake Wilcox, how long they stay for, where they come from, where they park, and overall opinions of parking operations. There were two types of park user surveys – an in-person survey and an online user survey. The in-person surveys were conducted on the following dates and times:

- Typical Summer Weekend: July 27 and 28, 2019 between 10:00 AM to 6:00 PM; and
- Long Weekend: August 3, 4, and 5, 2019 (Civic Holiday) between 10:00 AM to 6:00 PM.

An overview of results relevant to the formulation of key issues are presented in Section 3. A more detailed description of the data collection methodology and complete results of are provided in Appendix A.

3 Key Issues

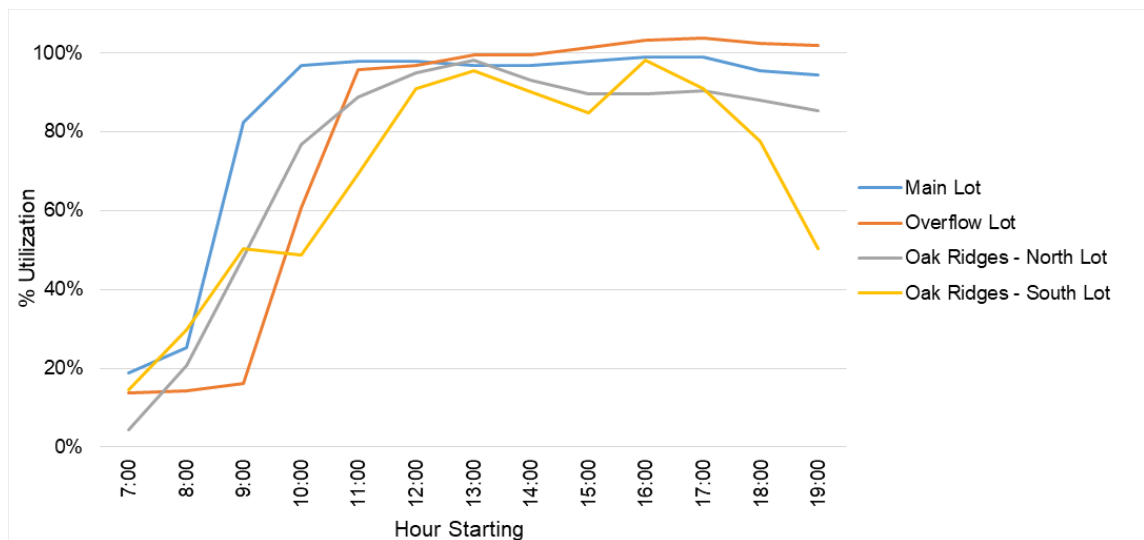
Based on the results of the parking utilization surveys, park user surveys, and surveyor observations, four key issues were identified that related to parking operations. The key issues are listed below, and are discussed in greater detail in the following subsections:

- High parking demand in parking lots;
- Wayfinding and signage;
- Overflow Lot operations; and
- Congestion in the Main Lot.

3.1 High Parking Demand in Parking Lots

Based on the parking utilization surveys, the parking lots serving Lake Wilcox were observed to be essentially full during the peak periods. Exhibit 3-1 shows the utilization for the four off-street lots on Sunday, August 4, 2019, which was the day with the highest observed parking demand.

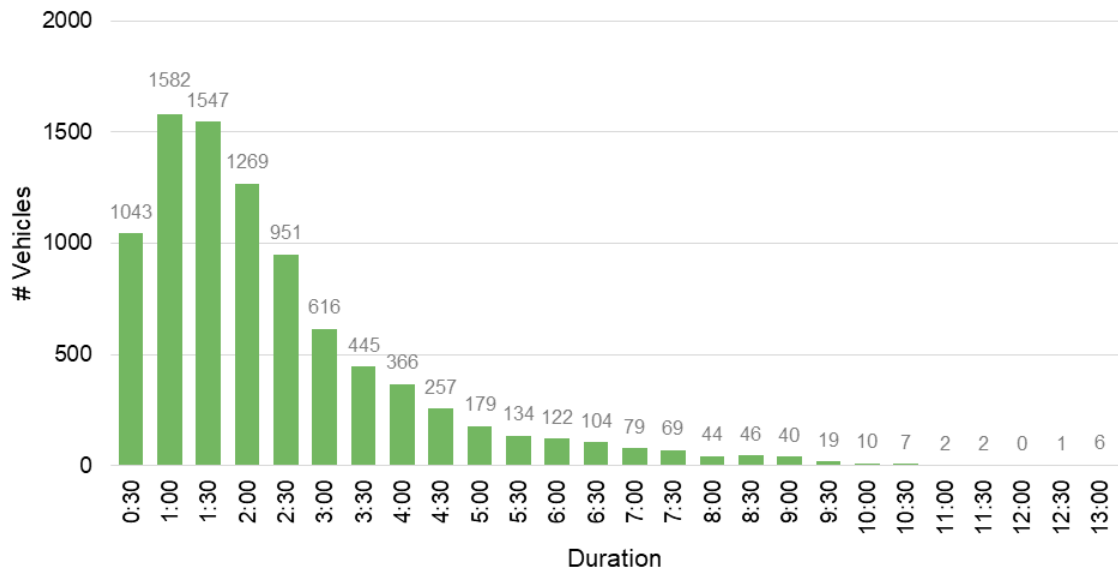
Exhibit 3-1: Off-Street Parking Utilization (Sunday, August 4, 2019 – Long Weekend)



As shown in Exhibit 3-1, three of the parking lots serving Lake Wilcox operated above 90% utilization after 11:00 AM, and all four lots operated above 90% utilization from 12:00 PM to 3:00 PM. This equates to approximately only 10 to 25 unoccupied parking spaces during the observed peak periods, out of a total of 478 spaces. The Main Lot and Overflow Lot were consistently busy throughout the day, while demand in the lots serving Oak Ridges Community Centre began to taper off in the early afternoon.

Exhibit 3-2 shows the observed parking duration for the off-street parking facilities for all five days of the parking surveys.

Exhibit 3-2: Off-Street Turnover (All Survey Days)



The average parking duration was 2 hours and 21 minutes, and the median duration was 2 hours. A total of 8,940 unique vehicles were parked in the off-street lots over the 5 survey days, which equates to an average of 1,788 vehicles served by 478 spaces each day. This suggests that the parking space turnover in the off-street lots is quite high. Visitors are typically not showing up in the morning and staying for the entire day, but they are constantly arriving and leaving throughout the day. 78% of vehicles were parked for less than 3 hours, those vehicles would be eligible to park on surrounding street segments.

While the off-street lots were essentially full during the peak periods there were many on-street parking spaces available. Exhibit 3-3 shows the on-street parking utilization on Sunday, August 4, 2019.

Exhibit 3-3: On-Street Parking Utilization (Sunday, August 4, 2019 – Long Weekend)

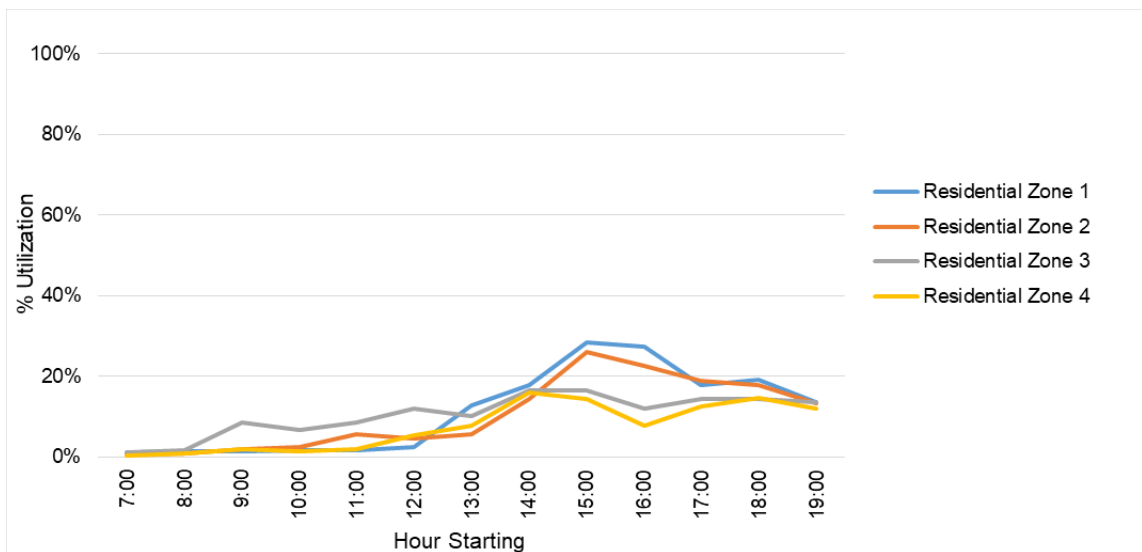


Exhibit 3-3 shows the on-street parking utilization for each of the four residential zones. The parking demand generally started increasing at 11:00 AM and 12:00 PM, which coincides with the time when off-street lots began to reach capacity.

From the park user surveys, 94% of respondents indicated that they prefer to park in an off-street lot. This is likely due to the proximity of the parking lots to key attractions within Lake Wilcox. There may also be some drivers that park in the lots because there is no maximum time limit for how long a vehicle can be parked for.

3.2 Wayfinding and Signage

Based on the results from the park user surveys, many visitors were not aware of all the parking facilities that serve Lake Wilcox. Exhibit 3-4 shows how many lots visitors are aware of in relation to the number of times they visit in the summer.

Exhibit 3-4: Parking Lot Awareness by Frequency of Visit

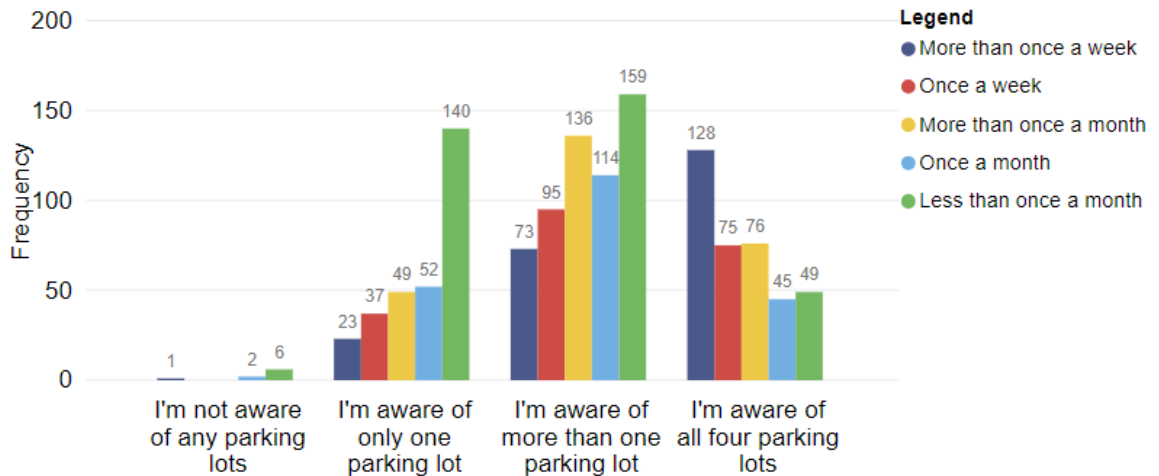


Exhibit 3-4 shows that almost 25% of visitors do not know of more than one parking lot. Of those visitors that don't know more than one parking lot, 60% of them visit less than once a month. There is an opportunity to improve directional signage for the lots that serve Lake Wilcox so that visitors are aware of more parking lots, which may better distribute parking and reduce parking search times.

There were also numerous comments received from the park user surveys that after parking in a lot, many visitors are not aware of where they are located within the park.

3.3 Overflow Parking Lot Operations

Based on field observations noted by IBI Group survey staff and comments received from the park user surveys, the gravel surface in the Overflow Lot presents challenges for visitors, especially cyclists and those who require the use of mobility devices. Another challenge that arises from the fact that the Overflow Lot is not paved is that it leads to driver confusion about the intended operations of the parking lot. Several drivers were observed parking in locations that were not intended for parking, such as in the middle of drive aisles, or on the grass. If the lot was paved, and spaces were delineated, it would clarify the intended operations of the lot, and result in more orderly parking behavior. An image of the observed parking behavior is shown in Exhibit 3-5.

Exhibit 3-5: Observed Parking Behavior



3.4 Congestion in the Main Lot

IBI Group surveyors noted that drivers would frequently circulate within the Main Lot searching for an available parking space. Some drivers would stop to wait for a space, while others would stop to pick-up/drop-off passengers and belongings; this behaviour results in queuing and congestion through the Main Lot. A picture of this observed behavior is shown in Exhibit 3-6.

Exhibit 3-6: Observed Pick-up/Drop-off Activity



Through the park user surveys, several respondents have noted that the addition of a designated pick-up/drop-off area would be beneficial for visitors who have families or many belongings that need to be dropped off in a convenient, central location.

4 Recommendations

Recommendations related to the key issues discussed in Section 3 have been identified. This section presents the proposed recommendation, broken down by key issue.

4.1 High Parking Demand in Parking Lots

Based on the key issues associated with the high parking demand in the four parking lots, the following recommendations are noted:

- Implement paid parking in off-street lots for non-residents and monitor on-street parking activity;
- Designate various on-street segments near the park for Lake Wilcox visitor parking;
- Mitigate potential for spillover parking on residential streets;
- Maintain By-law presence during summer peak months to manage on-street parking and potential spillover into residential areas as necessary;
- Improve pedestrian and cyclist facilities connecting to Lake Wilcox;
- Promote off-site parking facilities; and
- Explore feasibility of expanding parking lots that serve Lake Wilcox.

Each of these recommendations are discussed in greater detail in the following sections.

4.1.1 Implement Paid Parking in Off-street Lots

Currently, there is no fee associated with parking at Lake Wilcox. Due to the high demand observed in the parking lots, an hourly fee is recommended as a method to manage parking demand.

Lake Wilcox is a municipally owned and operated park, which means costs associated with day-to-day operations (e.g. parking and bylaw enforcement, park maintenance, garbage collection, etc.) are paid for by Richmond Hill residents. It was found from the park user surveys that half of the visitors to Lake Wilcox were not residents of Richmond Hill. The implementation of a parking fee may result in visitors reconsidering whether a visit to Lake Wilcox is worth the money and time; therefore, the parking fee must be set appropriately to achieve the desired results. It is proposed that an hourly parking fee be applied to visitors of Richmond Hill that park in off-street lots as a demand management measure, and to help cover the costs of park maintenance and operation.

To account for the fact that it is a municipal park, residents should not need to pay for parking at Lake Wilcox. Based on the results of the park user surveys, 84% of residents reported staying for less than 3 hours, and 94% of residents stayed for less than 4 hours. By maintaining free parking for residents, it is not likely that they would increase the duration of their stays to the point where it would result in lower vehicle turnover compared to what was observed during the surveys.

4.1.1.1 Parking Price

This payment strategy is similar to Sauble Beach, located in the Town of South Bruce Peninsula. Within the Town itself, paid parking is not required for most on-street parking spaces, but a fee was implemented on various on-street segments in close proximity to the beach to help offset costs associated with maintenance and enforcement. Both residents and non-residents are required to pay for parking at Sauble Beach. Currently, parking costs \$3/hour, \$15/day, and \$50 for a season pass (one per vehicle, valid from June 1 to the end of the year). A daily parking rate similar to Sauble Beach is not recommended, as it may result in visitors staying for longer periods of time, which would decrease parking turnover in the lots. A seasonal pass is also not

recommended, as it can also lead to user frustration in a case where a seasonal pass holder is unable to find available parking.

In the Town of Georgina, paid parking in various parks and harbours cost between \$2 and \$7 per hour, and daily rates cost between \$10 and \$35 per day. It should be noted that only one of the five lots charges \$2 per hour, all other lots start at \$4/hour. Through discussions with Town of Georgina Staff, the lot that charges \$2 per hour is a lot leased from a business owner that wanted to maintain lower parking prices to not deter potential customers from parking there. However, residents with a Resident Parking Pass displayed in their vehicle are exempt from paying parking fees at these locations. The passes are tied to a single vehicle, valid for the entire year, and can be picked up at local libraries, pools, the Georgina Civic Centre, and in various parks during certain weekends. This method of distributing residential passes avoids requiring the Town to send out Resident Parking Passes to every household, but still makes the passes easily accessible.

The Town of Innisfil charges non-residents to pay in parking lots located within Innisfil Beach. Depending on the lot, different parking rates apply. Hourly rates are set at \$7 per hour, up to a \$45 daily maximum limit, while other lots charge \$10 per person. Residents are able to pick up a Residential Parking Pass Sticker that is valid for the year at the Town Hall, libraries, arenas, and community centres with valid proof of vehicle ownership that is tied to a municipal address. Since the parking lots in Innisfil can get busy early in the day during the summer peak season, the Town implements some strategies to help keep the beach accessible to residents. Once parking lots are above 80% utilization, the lot will be closed, and only visitors with a Residential Parking Pass Sticker are permitted to enter the lot. In addition, there are two parking lots on the periphery of the park that are reserved for Residential Parking Pass Stickers only to make it easier for residents to find a parking space.

The City of Barrie sends all residents a Resident Waterfront Parking Pass that exempts pass holders from paying for parking in various Waterfront lots. Each household in Barrie is given two parking passes that the user must write the vehicle license plate on to prevent the transfer of the pass. If additional parking passes are needed, the resident can pay \$20 per additional pass. Visitors without the Resident Waterfront Parking Pass need to pay \$3 per hour, up to a daily maximum of \$20. Non-residents can also purchase a Resident Parking Pass for \$90, which never expires. Based on discussions with the City of Barrie, it has been noted that pass holders sometimes transfer the parking pass which leads to abuse of the Resident Parking Pass system.

The price of parking should not be set so high that it incentivizes visitors to park on-street and risk getting a ticket. An example of this incentivization is a scenario where the price of parking is set to \$10/hour and the current fine related to on-street parking exceeding 3 hours is \$30. Visitors planning on parking off-street for more than 3 hours may risk the cost of a ticket to park on-street for free. This scenario would be detrimental to the operations of the on-street parking system. Parking fines should significantly exceed the price of parking to prevent this scenario from occurring.

Since a demand-based parking strategy is being proposed, the parking prices should vary by season, according to the associated parking demand. During the winter and fall seasons, parking could be provided for free, since there are no existing complaints about parking operations outside of the summer peak periods. During the periods of peak visitor demand (between May to September), parking prices would cost \$4 per hour for visitors that are not residents of Richmond Hill. Exhibit 4-1 shows a comparison of prices other Ontario municipalities charge for parking at parks/beaches, and presents the proposed parking rate for Lake Wilcox.

Exhibit 4-1: Hourly Parking Rate Comparison

Municipality	Parking Rate
Town of Bruce Peninsula (Sauble Beach)	\$3 per hour
Town of Georgina	\$2-7 per hour*
Town of Innisfil	\$7 per hour
City of Barrie	\$3 per hour
Richmond Hill (Lake Wilcox – Proposed)	\$4 per hour

**Note: Only one out of five Georgina lots cost \$2 per hour, parking prices for all other lots start at \$4 per hour.*

In an effort to try to limit the peak off-street parking occupancy to 90%, it is recommended that the City conduct annual parking utilization surveys to determine whether the existing parking prices are effectively managing park demand. The surveys do not need to be as comprehensive as the surveys completed for this study, but could be spot checks completed two or three times during typical peak periods (afternoons during weekends/long weekends with good weather). If it is found that the lots are more than 90% utilized, the price for next season could be increased by \$0.25 or \$0.50, or the price could be lowered by \$0.25 or \$0.50 if utilization is less than 60%. This is standard practice in dynamic pricing systems established throughout North America.

The spot check surveys should also note how many vehicles are owned by residents compared non-residents. If the surveys find that the utilization remains the same, but there are fewer non-residents visiting and more spaces are filled by residents, the City may want to consider charging residents for parking at a reduced rate. Many of the survey responses noted that residents actively avoid visiting Lake Wilcox during weekends since it is too busy and difficult to find a spot, but that may change if paid parking deters some number of non-residents from visiting.

4.1.1.2 Payment Technology

Based on discussions with City staff, a Pay and display solution with a supplementary parking app/pay by phone solution is preferred. Pay and display requires drivers to park their vehicle, walk to a pay and display machine, pay for parking for a set duration, and return to the vehicle to display proof of payment. The benefits of the pay and display system are that it is relatively cheap to implement and maintain, since there is a minimal back end system required to implement this technology; the machines add the purchased parking duration to the current time and prints it on the ticket. Hangtag permits could be distributed to various users (e.g. residents, staff, Oak Ridges Community Centre program participants) which let enforcement officers know that the pass holder is exempt from paying for parking. A resident pass distribution method similar to Georgina and Innisfil is recommended, where Resident Parking Passes can be picked up in City Hall, libraries, community centres, or within Lake Wilcox during various weekends.

The main disadvantage of a pay and display system is that many visitors are unsure of how long they intend to stay for, and in order to extend their parking time would require visitors to go back to the machine and purchase additional time. This issue could be mitigated with a pay by app solution, which would allow users to pay for and extend parking time remotely through the app without needing to walk back to the machine and their vehicle. To implement a pay by app solution, the City should engage various parking app vendors (e.g. Honk Mobile, Hotspot Parking, Paybyphone, Passport, and others) to get an idea of what each system offers and make sure that all requirements can be fulfilled by the software provider. Through discussions with Honk Mobile, we understand that they will take care of the majority of the required start-up costs (system/app set up, signage, etc.), and charge approximately \$0.25 per transaction made through the system.

City of Richmond Hill staff has indicated that they have been exploring potential vendors for pay and display machines for the off-street parking facilities.

4.1.2 Designate On-Street Segments for Lake Wilcox Visitor Parking

A number of respondents to the online survey noted that there was not enough parking at Lake Wilcox, and additional parking should be added (either surface lots or a structure) to accommodate the parking demand. A parking expansion/structure would be costly, and would limit the amount of park space within Lake Wilcox. The cost of building a parking structure would likely be funded (in part or wholly) by Richmond Hill taxpayers, and it would be more sustainable and a more efficient use of existing infrastructure to encourage parking in the existing on-street segments where there is excess capacity. In addition, the parking facilities are underutilized outside of the summer so the new parking structure would be underutilized for the majority of the year, which is an inefficient use of resources and park space.

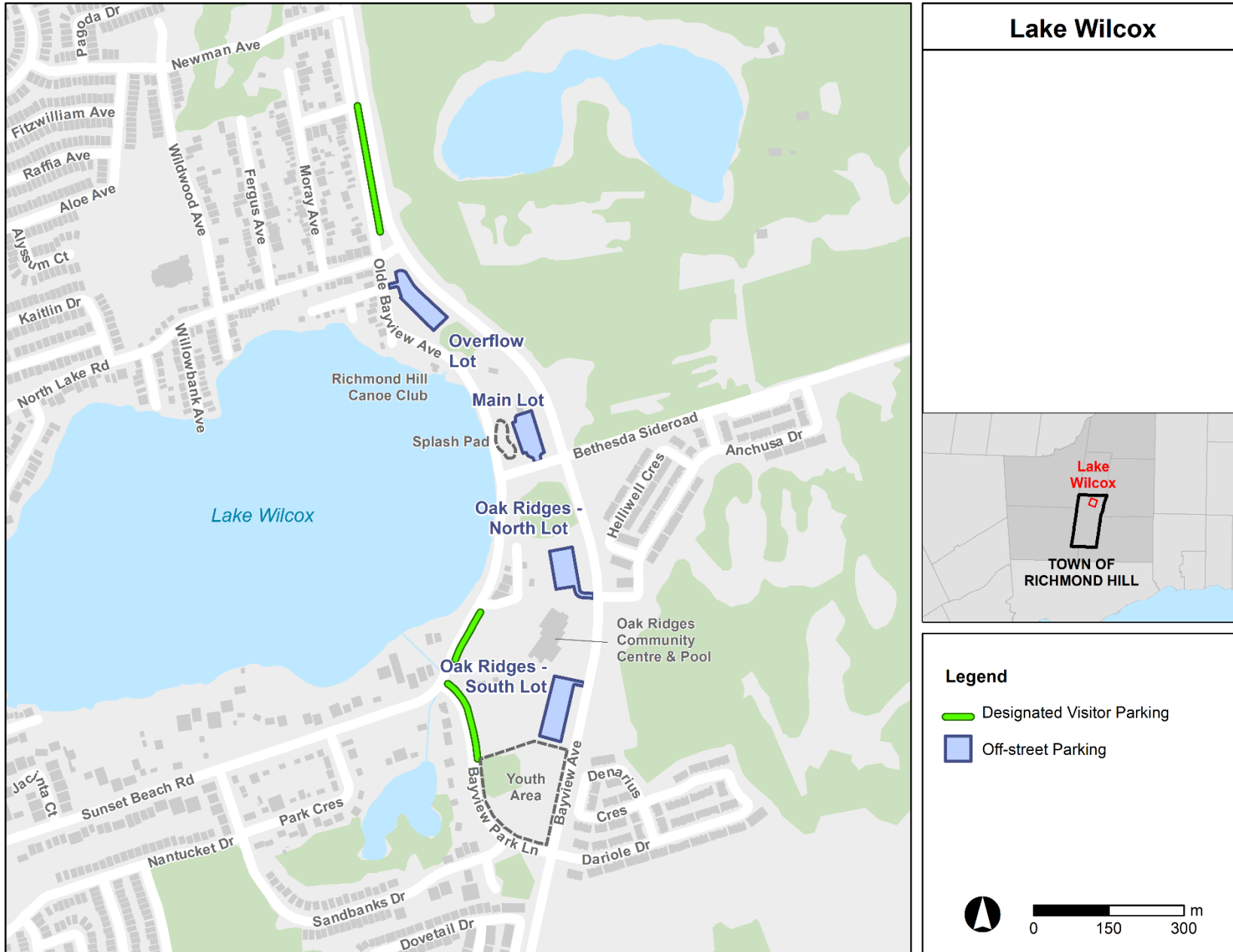
To avoid visitors that are pushed from off-street lots to on-street segments parking in undesirable areas negatively impacting residential parking and traffic operations, the City should promote various on-street segments for visitor parking. Streets that are in close proximity to Lake Wilcox, have low existing parking demand, and lower driveway density should be considered. To prevent parking blocking the traffic lanes, "Parking by Permit Only" signs should be installed on one side of the road (discussed further in Section 4.1.3). Some potential on-street locations and approximate capacities are listed below and are shown in Exhibit 4-2:

- East side of Bayview Park Lane (approximately 100 metres north of Sandbanks Drive): 20 spaces;
- East side of Sunset Beach Road (approximately 40 metres north of Bayview Park Lane): 15 spaces; and
- East side of Olde Bayview Avenue 50 metres north of North Lake Road to Capelle Street: 30 spaces.

The proposed on-street segments along Bayview Park Lane and Sunset Beach Road are in close proximity to the Youth Area, Oak Ridges Community Centre, and the lakefront trail. The limits of the designated parking area should be set so as to not impede driver sightlines or existing transit operations along the north end of the street segment. Sidewalks also need to be added along Bayview Park Lane to facilitate pedestrian connections between the designated parking areas and Lake Wilcox. The on-street segment along Olde Bayview Avenue is already currently being used by visitors when the Overflow Lot is full, so letting more people know about the presence of a designated parking area would help alleviate spillover parking from other on-street segments.

An additional 65 on-street spaces could be available for Lake Wilcox visitors if the above on-street parking segments were encouraged, which would help alleviate the high parking demand observed in the off-street parking lots. This would also prevent drivers from parking in high-traffic areas, or from blocking residential driveways.

Exhibit 4-2: Designated Visitor Parking Areas



Another location where designated visitor parking could be considered is on Bethesda Sideroad, east of Bayview Avenue. During the parking surveys, visitors were observed to park on the shoulder or grass, and cross Bayview Avenue to access Lake Wilcox; this behavior was also confirmed by City staff. This segment is shown in Exhibit 4-3.

Exhibit 4-3: Bethesda Sideroad Potential Parking Location



If this segment was designated for Lake Wilcox visitor parking, the surface would need to be paved so it is suitable for pedestrian and vehicle use. There is currently a cycle lane on the east side of Bethesda Sideroad, which would result in conflicts between cyclists and drivers pulling into a parking space. This potential conflict should be carefully examined if this area is designated for Lake Wilcox visitor parking. Another barrier associated with designating this on-street segment for visitor parking is the lack of a signalized pedestrian crossing facility connecting into Lake Wilcox. Currently, pedestrians wait for gaps in traffic to cross Bayview Avenue which presents a major safety risk. Until provisions are made to provide a signalized facility to cross Bayview Avenue, the City is not recommended to designate this segment of Bethesda Sideroad for visitor parking. The City has indicated that Bethesda Sideroad is currently being redesigned, with construction to begin in 2021. If a signalized crossing facility is included at Bayview Avenue, the inclusion of designated on-street parking could be included as part of the final design.

Through discussions with City staff, the concept of charging visitors to park in these designated on-street parking segments was considered. This would be beneficial since the curb space is owned by the City, and revenue gained from these parking spaces could contribute to the maintenance of the road segments and additional enforcement required to limit spillover into surrounding neighbourhoods.

Conversely, if parking prices are implemented on these road segments, it may force visitors to park in surrounding residential streets where parking is not permitted. This would exacerbate the complaints that the City has already received from nearby residents. Additionally, pay and display or other machines would need to be implemented for 65 spaces, which might not be practical or cost effective. It is recommended that the designated on-street segments are not charged for parking, and maintain the existing three hour maximum time limit.

4.1.3 Mitigate Potential for Spillover Parking on Residential Streets

A recommendation to help prevent Lake Wilcox parking demand spilling over into the non-visitor parking on-street segments would be to restrict parking on surrounding residential street

segments. A majority of the residential streets in the study area are within 500 metres of an attraction within Lake Wilcox (picnic area, Oak Ridges Community Centre, or the Youth Area). Industry standards suggest that visitors may be willing to walk from these spaces, especially if it allows them to avoid paying for parking. To address this issue, the City should explore implementing a new permit system to restrict on-street parking to residents and their guests, with the exception of the designated visitor areas shown in Exhibit 4-2. The Lake Wilcox Area Residential Street Permits should be available to all residents within the residential zones contained within the project study area. The on-street segments should have signage installed indicating "Parking by Permit Only, Saturdays, Sundays and Statutory Holidays, 7 AM to 11 PM, June 1 to September 30".

4.1.4 Increased Parking Enforcement in Peak Summer Months

If paid parking is implemented in off-street lots, there will likely be an increase in on-street parking demand. This would result because drivers who do not want to pay for parking may look to park in the surrounding neighbourhoods. Residents living nearby may be unhappy with the increased parking activity outside their homes, as the City has already received complaints about residential parking stemming from Lake Wilcox activity. Proactive enforcement to verify that drivers parked on-street are parking within designated visitor areas, or have a Lake Wilcox Area Residential Street Permit. Enforcing on-street parking in the surrounding neighbourhoods will be essential to ensure compliance with parking restrictions, as well as adhering to the maximum three hour time limit for the designated visitor spaces. If these measures are enforced, it will help to ensure that on-street parking will not negatively impact traffic operations, and to maintain required travel lane widths.

To improve the efficiencies of parking enforcement for City staff, new technologies should be explored, such as License Plate Recognition (LPR). An LPR system can be implemented using handheld devices, where enforcement officers walk through off-street lots and on-street segments (often in defined routes) and photograph vehicle license plates with the handheld device. The license plate data is recorded and temporarily stored, and the system flags when a vehicle is parked for longer than the maximum time limit. To increase the coverage of a single enforcement officer, video cameras can be mounted on a vehicle to perform the same license plate check. The footage is analysed by the LPR system, which identifies which vehicles have paid, and how long each vehicle has been parked for. This vehicle-based LPR system is currently used by the ParkPlus parking system in the City of Calgary, for example.

4.1.5 Improve Pedestrian and Cyclist Facilities Connecting to Lake Wilcox

To encourage local residents to use non-auto modes to travel to Lake Wilcox, additional pedestrian and cyclist facilities should be added to encourage active transportation into the park. A large percentage of these residents live within 1 km of the park, a distance which is well suited to walking or cycling trips. Pedestrian crossovers or an intersection signal should be considered at the intersection of Bayview Avenue at Bethesda Sideroad, and Bayview Avenue at Anchusa Drive, to enable park connections for residents living nearby that currently do not have a safe pedestrian path to Lake Wilcox. Previously, there have been signal warrants conducted by York Region for the intersections along Bayview Avenue, but it was found that they were not warranted based on existing demand. York Region has acknowledged that traffic volumes were collected on a typical weekday, which does not capture the periods of peak demand for the park.

According to the Active Transportation Network found in the Richmond Hill Transportation Master Plan Draft, there are proposed off-road trail facilities for cyclists along Bayview Avenue as part of the Lake to Lake Cycling Route and Pedestrian Trail. In addition, there is a proposed signed bike route along Bethesda Sideroad. These proposed facilities will encourage local residents to use non-auto modes of transportation to travel to Lake Wilcox, which will help reduce the observed parking demand. The revenue collected from paid parking (if implemented) could assist with funding these improvements.

The City is planning to install a pedestrian crossover at the intersection of Bayview Park Lane at Sandbanks Drive. This will provide a safer crossing environment for pedestrians who park on-street and are crossing Bayview Park Lane to access the Youth Area.

4.1.6 Promote Off-site Parking Facilities

The area surrounding Lake Wilcox is well served by a cycling network that is composed of designated cycling facilities, shared cycling facilities, or multi-use trails. A number of City owned off-street parking facilities are connected to Lake Wilcox through the cycling network. If these locations are promoted to visitors to park in and cycle to Lake Wilcox, it would promote active transportation for visitors, and alleviate parking demand for the lots that are located within Lake Wilcox. Some potential locations for off-site parking, approximate parking supply, and approximate cycling distance to Lake Wilcox are shown in Exhibit 4-4. The distances presented are based on routes that are included as part of the cycling network.

Exhibit 4-4: Potential Off-site Parking Facilities

Off-Site Facility	Facility Type	Approximate Parking Supply	Distance to Lake Wilcox
Lake Wilcox School*	School	50 spaces	800 m
Bond Lake Public School*	School	50 spaces	1,900 m
Russel Tilt Park (Dr. Bette Stephenson Centre for Learning)	Public Park and School	450 spaces	3,300 m
Bond Lake Arena	Arena	130 spaces	2,200 m

**Note: School sites are not owned by the City of Richmond Hill. Discussions with the York Region District School Board are required prior to further exploring the feasibility of including these sites.*

While there are several parking facilities within a 15 minute bike ride, the parking demand during a typical weekend are not known. Of four identified sites, two serve schools, which would likely have low parking demand on a weekend. Since the school sites are owned by the York Region District School Board, additional discussions are required to have permission to access the school sites.

The other parking facilities serve a public park and an arena, which would likely have higher parking demand during weekends. If the City decides to pursue this recommendation further, parking utilization surveys should be conducted for potential sites to determine if there is sufficient capacity for additional parking demand from Lake Wilcox visitors.

4.1.7 Explore Feasibility of Expanding Parking Lots within Lake Wilcox

If all other options to reduce or redistribute visitor parking demand at Lake Wilcox have been exhausted and if ongoing monitoring identifies the need, the City could explore feasibility of expanding parking lots within Lake Wilcox. The City should examine relevant planning documents and determine if a parking expansion to any of the lots are viable. Based on the available land for parking expansion, the City should then determine if the additional parking spaces is worth the associated planning and construction costs. Parking expansions can be extremely costly, and should only be considered as a last resort if no other solutions are successful in managing or redistributing parking demand at Lake Wilcox.

4.2 Wayfinding and Signage

Based on the findings from the park user surveys that found many visitors did not know of all the parking facilities serving Lake Wilcox, and where in the park they are located, the following recommendations are noted:

- Addition of directional signage for lots; and
- Addition of pedestrian signage at park entrances.

These recommendations are discussed in greater detail in the following sections.

4.2.1 Addition of Directional Signage for Lots

The City should add directional signage upstream of each parking lot entrance to notify drivers of the locations of all parking lots that serve Lake Wilcox. There would be a total of eight directional signs installed upstream of each parking lot (four in the northbound direction, and four in the southbound direction). These signs would let visitors know the relative location of all four lots that serve Lake Wilcox, addressing the issue that 25% of visitors knew of only one parking lot. Exhibit 4-5 shows an example of the directional signage that is proposed.

Exhibit 4-5: Sample Directional Signage



An additional measure that could be implemented is the addition of variable messaging signage (VMS) that lets drivers know how many spaces are available in each of the lots. This system would allow drivers to know precisely how many spaces are available in each lot, so drivers can proceed directly to those lots instead of driving through full lots before proceeding to the next. Some limitations to this system are that it is expensive to implement, as real-time utilization data needs to be available. This data can be collected through pavement sensors or video detection, both of which are quite costly. If pay on exit is the preferred payment technology, gate data can also be used to gather real time availability by comparing the number of times the gates open for entry compared to the number of times the gates open for exit. A challenge with dynamic parking signage is that during peak periods the system might display low numbers (e.g. 5-10 vehicles or fewer for each lot), which will not help drivers find underutilized lots, but could advise drivers to find parking on-street.

Additional signage should also be placed outside of the Main Lot to prohibit school buses from entering the lot and unloading passengers, which blocks the entrance and causes congestion. This addresses an issue that has been brought forward by City staff that is known to occur on summer weekdays, and therefore was not noted by IBI Group during their surveys.

4.2.2 Addition of Pedestrian Signage at Park Entrances

Pedestrian signage and a site context map should be installed at entrance locations to help orient visitors of their location relative to key attractions in the park. There is existing signage at the Youth Area that effectively shows the layout of the park the map is shown in Exhibit 4-6; additional signs should be installed throughout the park near key entry locations. The site context maps should include locations of bicycle parking to raise awareness of those facilities for cyclists.

Exhibit 4-6: Existing Pedestrian Signage



4.3 Overflow Parking Lot Operations

The Overflow Lot is currently owned by the Toronto and Region Conservation Authority (TRCA). The City has indicated that it is possible to come to agreement with the TRCA to manage and pave the Overflow Lot without needing to transfer ownership. Prior to implementation of any recommendations related to the Overflow Lot, this agreement should be confirmed with the TRCA.

4.3.1 Pave and Stripe Overflow Lot

To improve operations in the Overflow Lot, the lot should be paved, and pavement markings should be added to delineate parking spaces and clarify intended operations. The lot should be clearly marked for one-way circulation, similar to the Main Lot to reduce congestion. With a paved surface, it will be easier for visitors that have mobility devices, bicycles, or carts when entering the park.

Paving and delineating individual spaces may result in a reduction of parking spaces, but the overall capacity of the lot should not be significantly impacted. The City has noted there are plans to install a maintenance building in the Overflow Lot, which would further reduce the capacity. Design alternatives should be explored to limit the impact on parking supply that the planned maintenance building will have, since the Overflow Lot currently operates at capacity during peak periods.

The City has noted that portions of the Overflow Lot are located on protected lands, so environmental assessments and studies would be required prior to any construction work. In addition, the parking lot should be designed with low impact development considerations to limit the environmental impacts of the final lot design (i.e. stormwater runoff, hydrology/environmental impacts, etc).

4.4 Congestion in the Main Lot

Based on the observed issues with congestion in the Main Lot, the following recommendations are presented:

- Addition of a designated pick-up/drop-off area in the Main Lot; and
- Promote the use of the Richmond Hill Canoe Club pick-up/drop-off.

It should be noted that the above recommendations focus on reducing congestion due to pick-up/drop-off activity, instead of vehicles circulating the lot in search of a parking space. The objectives of the recommendations in the previous sections are to better manage and distribute parking demand which should reduce the search times and associated congestion observed in the Main Lot.

4.4.1 Addition of a Designated Pick-up/Drop-off in the Main Lot

Currently, there are traffic cones set up to accommodate the ice cream truck. This space could be utilized for a designated pick-up/drop-off area. With the existing layout of the parking lot, there is space for three or four vehicles to utilize the pick-up/drop-off area at any one time. This solution would result in a reduction between three to five vehicle parking spaces in the northeast corner, due to additional space needed for safe vehicle manoeuvring in the pick-up/drop-off area. This may create additional congestion through the Main Lot; therefore, clear signage and staff monitoring are required to keep drivers from mis-using the pick-up/drop-off area by parking for extended periods. The ice cream truck could potentially be relocated to the concrete pad just northeast of the current location, which is blocked by bollards. The concrete pad could also be expanded to allow for additional space, pending confirmation from Richmond Hill Operations staff.

IBI Group examined signage and other measures that are typically implemented at pick-up/drop-off areas in other parks and community centres. The provisions found vary widely between municipalities, but the measures generally consisted of signage, pavement markings, and additional enforcement. The signage found at the pick-up/drop-off areas are custom signs that restrict parking to allow for pick-up/drop-off activity. There are typically curb cuts for the length of the pick-up/drop-off area to allow for easier access for visitors that are loading or unloading their belongings. A sample sign is shown in Exhibit 4-7.

Exhibit 4-7: Sample Pick-up/Drop-off Sign



A conceptual sketch of the proposed pick-up/drop-off area is shown in Exhibit 4-8. The final design of the pick-up/drop-off area and associated number of parking spaces lost are subject to detailed design considerations.

Exhibit 4-8: Proposed Main Lot Pick-up/Drop-off Area Conceptual Sketch

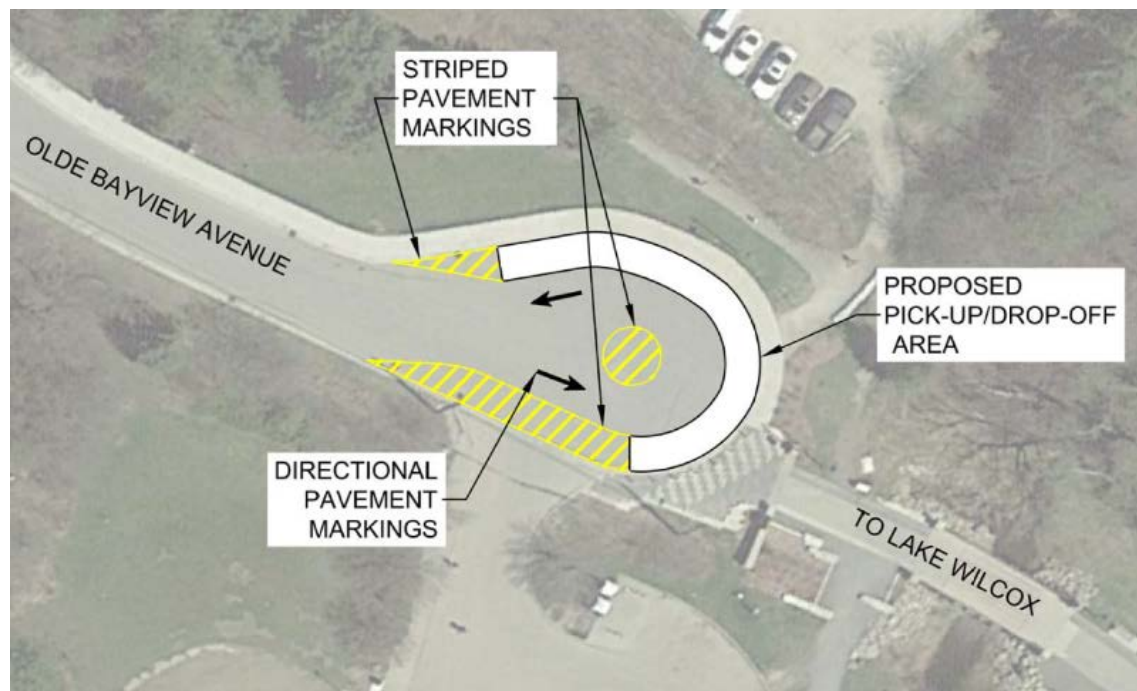


If the location of the proposed pick-up/drop-off area is not feasible, another location that could be explored is inside the Overflow Lot if it is paved.

4.4.2 Addition of a Designated Pick-up/Drop-off on Olde Bayview Avenue

A lower cost solution to the observed congestion should be to promote use of the pick-up/drop-off area that serves the Richmond Hill Canoe Club and the docks, located in the cul-de-sac at the end of Olde Bayview Avenue (not the Canoe Club's private driveway). Although this location is not as central as the Main Lot, it is located approximately 150 metres west of the picnic area, and 300 metres west of the Splash Pad. This would be a lower cost option compared to constructing a pick-up/drop-off area in the Main Lot, since it would be making use of existing infrastructure. In addition, it would not result in the loss of parking spaces, or the risk of additional congestion within the Main Lot. Similar to the above alternative, this would require additional enforcement to prevent drivers from parking or stopping in this area for long periods of time. Exhibit 4-9 shows a proposed configuration for the pick-up/drop-off facility.

Exhibit 4-9: Proposed Olde Bayview Avenue Pick-up/Drop-off Configuration



Similar to the Main Lot, curb cuts and signs to indicate a pick-up/drop-off area are recommended to be installed over the length of the pick-up/drop-off area. Directional pavement markings have been proposed to indicate to drivers the intended circulation through the cul-de-sac, so drivers can enter and exit in an orderly fashion. Additional striped pavement markings are suggested along the curb to prevent drivers from blocking circulating traffic and to keep the Canoe Club's private access unobstructed. The final design of the pick-up/drop-off facility is subject to detailed design considerations.

5 Next Steps

This section presents the next steps for the study, which presents the recommendations presented in Section 4 in an implementation plan, and also proposes a follow-up survey and monitoring plan.

5.1 Implementation Plan

An implementation plan was developed that presents all of the recommendations proposed in Section 4, along with a timeline for implementation, anticipated impact on parking operations, and

a cost estimate to implement the recommendation. The timelines for implementation are comprised of immediate (0-1 years), short-term (1-5 years), and long-term (5 or more years). The plan also contains metrics to monitor operations, and potential changes that could be made based on the results of those metrics. The recommendations have been sorted by timeline of implementation, from immediate to long-term. The plan is shown in Exhibit 5-1.

Exhibit 5-1: Implementation Plan

ISSUE	RECOMMENDATION	MAGNITUDE OF IMPACT	CITY GROUP	COST ESTIMATE
Implementation Timeline: Immediate (0-1 Years)				
Wayfinding and Signage	Addition of directional signage for off-street lots. Signage should be located upstream of the each lot entrance.	Medium	Parks Operations	\$2,000 to \$5,000 per sign
Wayfinding and Signage	Addition of pedestrian signage at park entrances.	Low	Parks Operations	\$2,000 to \$5,000 per sign
High Parking Demand in Parking Lots	Mitigate potential for spillover parking on residential street segments to maintain travel lane widths, clear driveway accesses, and provide sufficient capacity for Lake Wilcox visitors.	High	Parking Control Enforcement, Communications	\$45,000 to \$55,000 for signage
High Parking Demand in Parking Lots	<p>Implement paid parking in off-street lots, with residents of Richmond Hill receiving free parking. The parking revenue should be used to help fund maintenance activities or enhance facilities associated with Lake Wilcox operations. The payment technology should be pay and display.</p> <p>Parking utilization surveys should be conducted to determine if the peak parking utilization has changed, and adjust the price accordingly.</p> <p>Dependencies: <i>agreement with TRCA to manage the Overflow Lot</i></p>	High	Parks Operations	<p>Pay and display: \$50,000 to \$60,000¹</p> <p>Pay by plate: \$30,000 to \$35,000²</p> <p>Pay on exit: \$160,000 to \$200,000³</p> <p><i>Estimates do not include back end system or ongoing maintenance costs</i></p>

¹ 7 machines (2 per lot, 1 for the Main Lot)

² 4 machines (1 per lot)

³ 8 machines (2 per lot, 1 entry and 1 exit)

ISSUE	RECOMMENDATION	MAGNITUDE OF IMPACT	CITY GROUP	COST ESTIMATE
Implementation Timeline: Short-Term (1-5 Years)				
Congestion in Main Lot	Addition of a designated pick-up/drop-off area in the Olde Bayview Avenue cul-de-sac.	Low	Parks Operations, Communications	\$25,000 to \$100,000
Congestion in Main Lot	Addition of a designated pick-up/drop-off area through the relocation of the ice cream truck.	Medium	Parks Operations	\$50,000 to \$150,000
High Parking Demand in Parking Lots	Promote off-site parking facilities. Designated parking facilities should be accessible for cyclists, and have low existing parking demand during periods of peak parking demand at Lake Wilcox. <i>Dependencies: agreement with the York Region District School Board for permission to access parking lots.</i>	Low	Parks Operations, Communications	Relatively low cost
High Parking Demand in Parking Lots	Designate various on-street segments to be used for Lake Wilcox visitor parking. Designated streets should be in close proximity to the park, have low existing parking demand, and low residential driveway density. All other on-street segments within the study area should be restricted for permit parking only. <i>Dependencies: implementation of paid parking in off-street lots</i>	Medium	Transportation, Communications	\$500 to \$1,000 per sign
High Parking Demand in Parking Lots	Mitigate potential for spillover parking on residential roads by implementing Lake Wilcox Area Residential Street Permits, with accompanying signage that restricts parking by permit only during peak periods of parking demand.	High	Parking Control Enforcement, Communications	\$500 to \$1,000 per sign
High Parking Demand in Parking Lots	Increased parking enforcement to verify that drivers parked in off-street lots have paid, and to limit undesirable, lengthy parking behaviour in on-street segments. The number of parking infractions should be noted. If the volume does not change or even increases, additional enforcement or improved enforcement technologies may be updated. Parking fines can also be increased to deter undesirable behavior. <i>Dependencies: implementation of paid parking in off-street lots</i>	High	Parking Control Enforcement, Communications	Additional hourly pay for 8 hours (4 hours for each weekend day) between June 1 to September 15
Overflow Lot Operations	Pave and Stripe Overflow Lot to formalize operations and improve conditions for cyclists and visitors with mobility devices. <i>Dependencies: agreement with TRCA for permission to manage/pave the lot</i>	Medium	Parks Operations, Infrastructure Delivery	\$425,000 to \$1,000,000

ISSUE	RECOMMENDATION	MAGNITUDE OF IMPACT	CITY GROUP	COST ESTIMATE
Implementation Timeline: Long-Term (5+ Years)				
High Parking Demand in Parking Lots	<p>Explore feasibility of expanding parking supply of the lots serving Lake Wilcox. This should only be considered if all other recommendations to manage or redistribute parking demand have been exhausted, and is supported by parking occupancy survey results.</p>	Medium	Parks Operations, Infrastructure Delivery	\$8 to \$20/sqft of expanded area
Wayfinding and Signage	<p>Addition of VMS that lets drivers know how many spaces are available in each lot (as needed if the parking demand does not redistribute between lots). Dependencies: <i>capability to measure or estimate real-time parking utilization</i></p>	High	Parks Operations, Infrastructure Delivery	\$25,000 to \$30,000 per dynamic sign <i>Estimates do not include back end system or ongoing maintenance costs</i>

5.2 Follow-up Recommendations Survey

Similar to the online surveys conducted in the early stages of the Lake Wilcox Parking Study, IBI Group staff proposes to host an online survey to help inform Richmond Hill residents about the changes and to receive feedback on the proposed changes. IBI Group will prepare a one-page information pamphlet outlining the purpose of the study, and high-level findings and recommendations. The pamphlet will direct residents to a web link where they are able to view a comprehensive list of recommendations, and complete a survey about the proposed recommendations.

The first page of the survey will include information on the proposed changes and will aim to educate residents as to why these changes are taking place. The survey will then ask residents for their qualitative opinions of the proposed recommendations. The questions will ask residents to identify recommendations that they are in favour of, any recommendations that they think may need to be revised, and whether or not the residents feel like the proposed recommendations would effectively improve parking operations around Lake Wilcox.

The survey will be live for approximately four months, after which time IBI Group will provide a summary of public opinions to the City for consideration to update any recommendations, if required, prior to implementation.

5.3 On-going Monitoring

The City of Richmond Hill should continually monitor operations through conducting parking utilization and park user surveys to collect information on park operations. These surveys will help the City take a data-driven approach to decision making on matters relating to Lake Wilcox. This would also help to gain an understanding of how the proposed recommendations impact parking operations and overall public opinion of visitor experience at Lake Wilcox. The City should conduct annual parking utilization and park user surveys during the following periods:

- Once a summer for off-street lots to determine whether the parking prices are appropriate; and
- Once a summer for on-street segments to determine how much parking demand is shifting to on-street because of the parking fees.

It would cost approximately \$5,000 to \$6,000 to conduct one weekend (two days) of parking utilization surveys of the same study area shown in Exhibit 2-2. This cost estimate is for manual data collection and analysis of results.

The park user surveys should ask questions similar to the questions that IBI Group surveyors asked park users, so there is a baseline for comparison before recommendations were implemented. If a multi-year approach is implemented for the surveys, it would provide a year-over-year comparison of public feedback which would greatly assist City staff in quantifying the impacts of the recommendations as they are implemented. The cost of conducting one weekend (two days) of in-person park user surveys and analysing results would be approximately \$5,000 to \$6,000.

6 Conclusions

Lake Wilcox Park offers visitors a variety of facilities consisting of walking trails, picnic areas, Oak Ridges Community Centre, a splash pad, boating facilities, and a youth area consisting of multi-use courts, beach volleyball courts, and a skate park. During peak times (summer weekends), these amenities attract a large number of visitors, which has led to operational issues related to parking and perceived overuse of the park. Residents in nearby neighbourhoods have voiced concerns about Lake Wilcox visitors parking on residential streets, blocking driving lanes and driveways. The main objectives of this study were to identify issues related to parking operations at Lake Wilcox, develop recommendations to address the identified issues, and develop an implementation and monitoring plan to assist City staff in implementing the proposed recommendations.

To gain an understanding of the existing parking operations and identify the needs and opinions of visitors to Lake Wilcox, IBI Group conducted parking surveys and park user surveys. The parking surveys examined the parking utilization and turnover of the off-street parking lots that serve Lake Wilcox as well as parking utilization in the surrounding on-street segments. The park user surveys were conducted both in-person and online to gain an understanding of the park user demographic, and the parking issues that park users experience.

Based on the results of the data collection tasks, IBI Group identified a number of key issues that were impacting parking operations. The key issues related to high parking demand in off-street lots, wayfinding and signage, Overflow Lot operations, and congestion in the Main Lot. A summary of the issues identified are presented below:

- **High parking demand in off-street lots:** during the peak period of parking demand, 94% of the spaces in off-street lots were occupied, which makes it difficult for visitors to find a parking space;
- **Wayfinding and signage:** based off of the park user surveys, almost 25% of visitors did not know that there was more than one parking lot that served Lake Wilcox. Many of these respondents were not regular visitors to Lake Wilcox;
- **Overflow Lot operations:** drivers parking in the Overflow Lot were observed to park in the drive aisles, on the grass, or other undesirable areas. This is likely due to lack of pavement markings that delineate individual parking spaces and clarified intended operations. Other survey respondents noted accessibility issues due gravel parking lot surface; and
- **Congestion in the Main Lot:** drivers in the Main Lot were observed to circulate in the Main Lot when searching for an available parking space, while other drivers stopped to pick-up/drop-off passengers and belongings. This behavior resulted in queueing and congestion in the Main Lot.

IBI Group proposed recommendations to address the key issues identified above. Each recommendation was presented in detail, and considered the benefits and challenges of implementation for both City staff and visitors. The recommendations were presented in an implementation plan that presented the key issue, timeline of implementation, associated costs, and City groups that would be responsible for the implementation.

Appendix A

Parking Utilization Survey Results Memorandum



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Memorandum

To/Attention	Jason Dahl, City of Richmond Hill Richard Hui, City of Richmond Hill Hubert Ng, City of Richmond Hill	Date	March 24, 2020
From	Peter Richards, IBI Group Adam Wenneman, IBI Group Stefan Tsang, IBI Group Mike Corby, IBI Group	Project No	121638
Subject	Lake Wilcox Parking Study Technical Memorandum #1 FINAL		

1. Introduction

The City of Richmond Hill has recently enhanced recreational facilities at Lake Wilcox. With these changes, the area now includes walking trails, picnic areas, Oak Ridges Community Centre, a splash pad, boating facilities, and a youth area consisting of multi-use courts, beach volleyball courts, and a skate park. The numerous park amenities attract high volumes of visitors to the park, which has led to operational issues (related to parking) and perceived overuse of the park. Residents in nearby neighbourhoods have voiced concerns about Lake Wilcox visitors parking on residential streets, blocking driving lanes and driveways.

The main objectives of this study are to:

- Identify and present findings on issues related to parking operations at Lake Wilcox;
- Develop a strategic parking plan to assist the City with managing parking demand and operations;
- Develop an implementation plan (immediate, short, and long-term) that outlines estimated costs, impacts, and timelines of implementation; and
- Develop a parking utilization monitoring plan to identify when recommendations should be implemented.

To observe the existing parking operations around Lake Wilcox Park, IBI Group has conducted parking utilization and turnover surveys for a typical summer weekend and long weekend. IBI Group also conducted park user surveys, administered both in person and on-line, to gain an understanding of the user demographic that will inform preliminary recommendations.

Technical Memorandum #1 will present the findings of the parking demand survey, park user survey, and identify potential issues that can be addressed through the implementation plan. Technical Memorandum #2 will provide recommendations and an implementation plan to mitigate the existing parking issues at Lake Wilcox.

IBI GROUP MEMORANDUM

City of Richmond Hill – March 24, 2020

2. Parking Utilization and Turnover

The on-street and off-street parking utilization and turnover studies were conducted to observe parking operations during a typical weekend and long weekend – peak times for park visitors. This section outlines the methodology and findings of the surveys.

2.1. Existing Parking Inventory

The Lake Wilcox parking system is composed of on-street and off-street parking facilities to serve park users. The parking supply of each parking facility is presented in Exhibit 2.1.

Exhibit 2.1: Parking Inventory

Parking Facility	Description	Capacity
Off-Street		
Main Lot	Adjacent to the splash pad, serves the splash pad and picnic area	91
Overflow Lot	An unpaved lot at the north end of the park, primarily serves the boating area and picnic area	160
Oak Ridges - North Lot	On the north end of Oak Ridges Community Centre, primarily serves the Community Centre, splash pad, and picnic area. The two rows of parking directly outside the main entrance are included as part of this lot	116
Oak Ridges - South Lot	On the south end of Oak Ridges Community Centre, primarily serves the Community Centre and the Youth Area	111
Off-Street Total		478
On-Street		
Residential Zone 1 (North Lake Road Area)	North Lake Road from Bayview Avenue to Willowbank Avenue; the entirety of Olde Bayview Avenue, Moray Avenue, Fergus Avenue, and Lakeside Crescent	278
Residential Zone 2 (Kettle Lakes Club at Anchusa Drive)	Bethesda Side Road from Bayview Avenue to Anchusa Drive; the entirety of Anchusa Drive, Helliwell Crescent, Kohl Street, and Hass Avenue	195
Residential Zone 3 (Kettle Lakes Club at Dariole Drive)	The entirety of Dariole Drive and Denarius Crescent	175
Residential Zone 4 (Bayview Park Lane Area)	Sunset Beach Road from Park Crescent (west) to its east end; the entirety of Bayview Park Lane, Sandbanks Drive, and Park Crescent	386
On-Street Total		1,034
System Total		1,512

As the Overflow Lot is a gravel lot with no pavement markings delineating individual parking spaces, the capacity presented in Exhibit 2.1 was estimated. To estimate the parking capacity of this lot, the total area of the lot was identified using satellite imagery and divided by 30 square metres, which represents the typical area of a parking space including both the space itself and drive aisles throughout the lot. The resultant capacity of the Overflow Lot was estimated to be 160

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vehicles. The capacity of the Overflow Lot was confirmed by comparing it to the observed demand from the parking surveys. In some cases, the observed demand exceeded the capacity, but this was due to drivers parking where they shouldn't (e.g. double parking, parking on the grass, blocking drive aisles, etc.).

To calculate the total capacity of on-street parking for each zone, the total length of each street segment was first summed. Assuming a standard width of 7.31 metres (24 feet), driveway curb cuts were subtracted from the total length as well as any curb segments that had parking restriction signage posted. This resulting length was then divided by 7.5 metres, the length of a typical parking spot, to obtain the estimated on-street parking capacity of each zone.

This method results in a slight overestimation of available parking supply since it only considers the total length of parking along each street segment, but does not take into account where the segments are divided. For example, if there are 2 segments that are 12 metres long, these segments can only fit 2 vehicles, but when their lengths are combined (24 metres), they can accommodate 3 vehicles. This overestimation is minor and should not impact the final recommendations of this study.

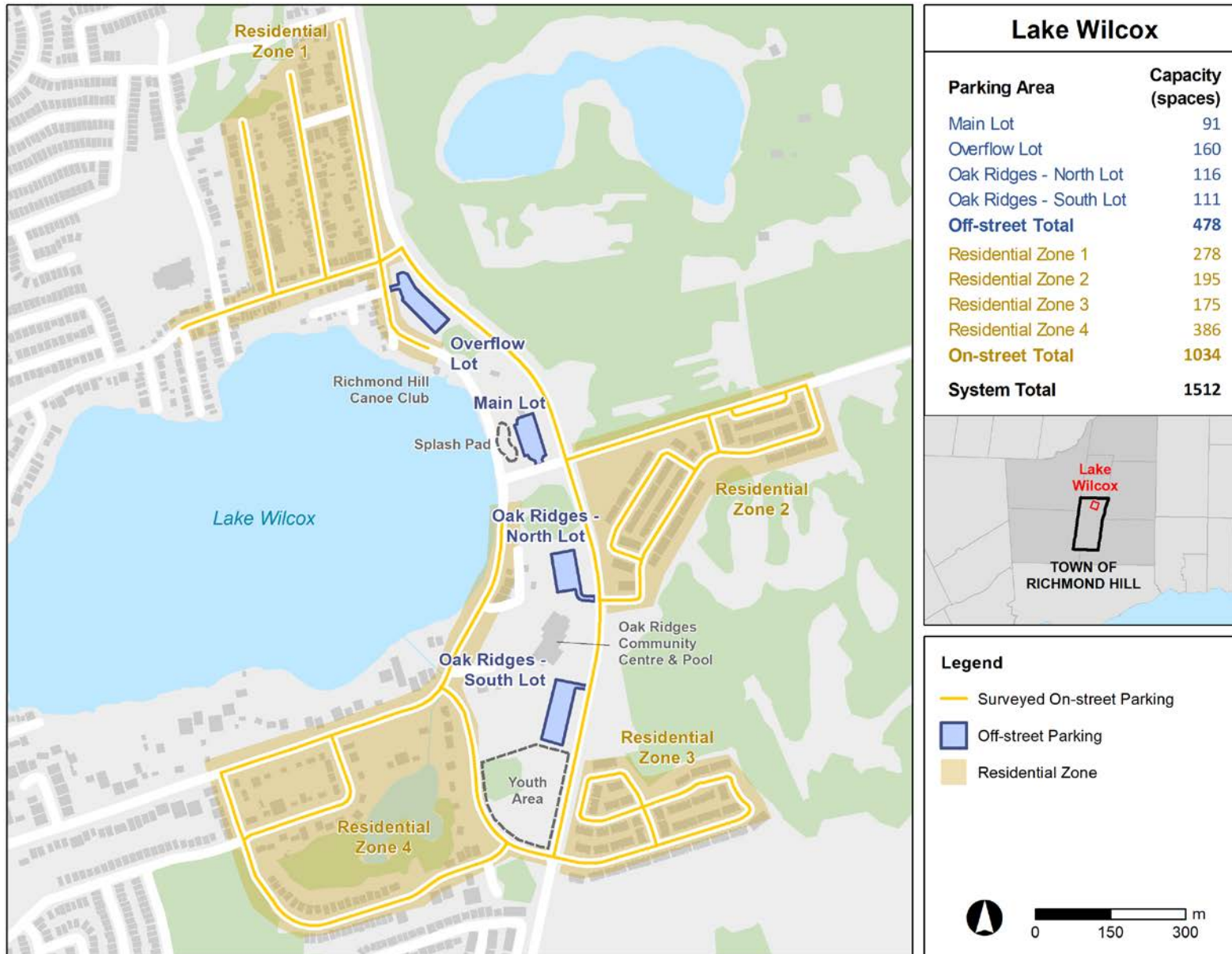
On-street restrictions are discussed further in Section 2.2.

A comprehensive parking inventory map was developed to provide an overview of the on-street and off-street facilities that were surveyed and considered as part of this study, which is shown in Exhibit 2.2.

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Exhibit 2.2: Lake Wilcox Study Area



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2.2. On-Street Parking Regulations

The parking regulations covering the Lake Wilcox area that were put in place by Richmond Hill can be broken into two main groupings – general regulations and street-by-street restrictions. There are several blanket restrictions that apply to all streets in Richmond Hill. These are as follows:

- No Parking: 3:00 AM to 6:00 AM;
- No Parking: 1:00 AM to 7:00 AM, from December 1st to March 30th of the following year;
- 3 Hour Parking: 12:01 AM to 5:00 PM (above restrictions take precedent); and
- Parking, No Time Limit: 5:00 PM to 12:00 AM.

Additionally, there are a few streets that have specific restrictions preventing parking at all times. This includes Bayview Avenue and Bethesda Side Road on both sides, as well as North Lake Road on the south side. Due to the fact that park users are typically visiting during the day, the only restrictions affecting their ability to park on street are the “No Parking” zones previously mentioned. They are also affected if they plan to park on-street for more than three hours, although the lack of signage indicating 3 hour limits likely means this is not taken into a user’s consideration when parking, unless drivers are familiar with parking regulations in Richmond Hill.

It should be noted that there was a discrepancy observed along Bayview Avenue, which is due to the fact that Bayview Avenue is under regional jurisdiction, therefore restrictions would not contained in the Municipal Code.

To compare posted signage with Richmond Hill’s by-law regulations a digital curb layer was created based on the restrictions in *Chapter 1116 Traffic - Parking* of the Municipal Code dated August 2019. This curb layer was then compared using GIS tools to the observed signage locations noted by surveyors on-site as part of the on-street parking utilization survey.

There were some other discrepancies observed by IBI Group staff, but they were likely due to the fact that the by-law was updated after the data collection phase was completed. The City of Richmond Staff have noted that all discrepancies have been addressed. The parking restrictions based on signage and by-law regulations are shown in Appendix A.

2.3. Parking Demand Survey Methodology

Parking utilization surveys were conducted on the following dates and times:

- Typical Weekend: July 28 and 29, 2019 between 7:00 AM and 8:00 PM; and
- Long Weekend: August 3, 4, and 5, 2019 (Civic Holiday) between 7:00 AM and 8:00 PM.

The parking utilization and turnover surveys were conducted for all parking lots and on-street segments shown in Exhibit 2.2. Demand was counted in parking lots every 30 minutes, and for on-street segments every 60 minutes. The last four digits of the vehicle license plates were recorded to keep track of the vehicles that were counted in the previous rounds of the survey to calculate parking turnover.

2.4. Existing Parking Demand

Using the collected data, parking utilization analysis was conducted to identify locations where the parking facilities operate at or near capacity. Parking systems are considered “effectively full” at

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an occupancy of approximately 85-90%, depending on lot size and drive aisle characteristics. For the purpose of this parking study, parking facilities will be considered effectively full when occupancy exceeds 90%; this number is higher than typical municipal parking studies due to the fact that Lake Wilcox is a popular destination, and drivers may be more likely to search for parking for a longer time before leaving. The observed off-street and on-street parking demand is shown in Exhibit 2.4 and Exhibit 2.5, respectively.

Exhibit 2.3: Off-Street Parking Demand

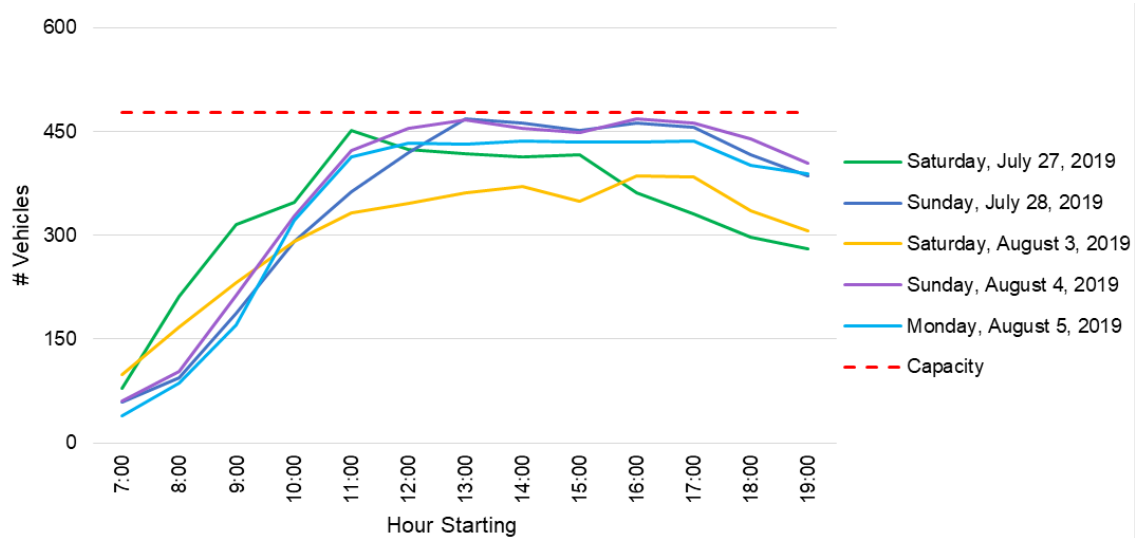
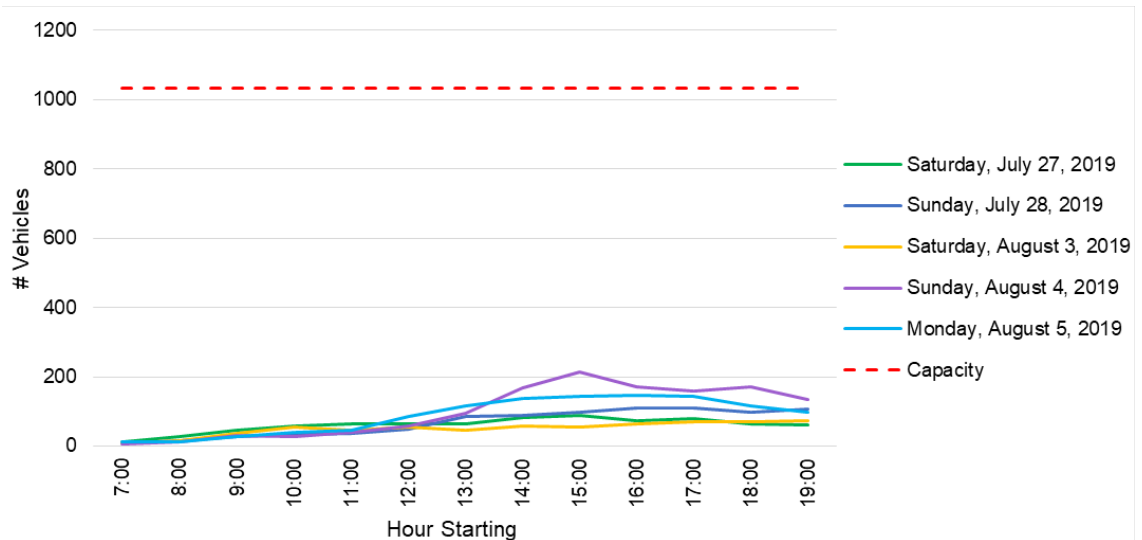


Exhibit 2.4: On-Street Parking Demand



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As shown in Exhibit 2.4 and Exhibit 2.5, the following observations can be made:

- The observed parking demand patterns were fairly consistent between each of the survey days. Generally, parking demand seemed to be lower on Saturdays;
- The peak parking demand for the off-street system occurred on Sunday, August 4, 2019 at 4:00 PM. The off-street parking supply was 98% utilized, with only 10 spaces available between the four parking lots; and
- The off-street parking demand was low at the start of the data collection period but increased every hour until approximately 11:00 AM, where parking demand reached its peak and would remain constant until late early evening;
- The peak parking demand for the on-street system occurred on Sunday, August 4, 2019 at 3:00 PM where the on-street system was 21% utilized; and
- The on-street parking demand would remain relatively low throughout the morning, and began increasing between 12:00 PM and 1:00 PM, which corresponds to the times when the off-street parking lots were approaching capacity. It should be noted that based on the locations where on-street parking demand was observed there was some on-street residential parking demand not related to Lake Wilcox visitors.

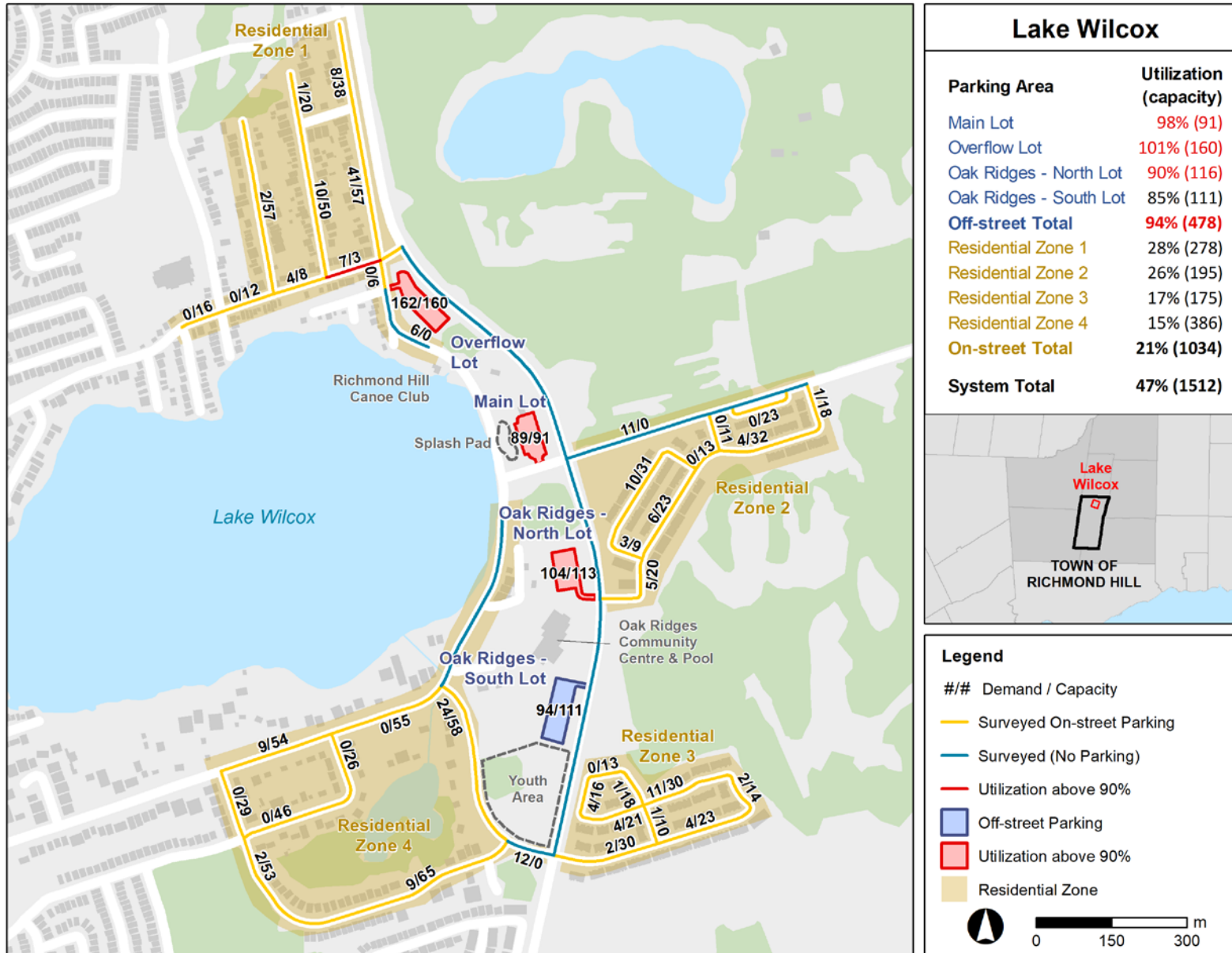
The peak hour of parking demand occurred on Sunday, August 4, 2019 at 3:00 PM. Throughout the remainder of this report, the results of the parking demand survey will be presented for the system peak hour.

A map of the surveyed parking system during the peak hour is displayed in Exhibit 2.6.

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Exhibit 2.5: Observed Peak Hour Parking Demand (August 4, 2019, 3:00 PM – 4:00 PM)



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Based on Exhibit 2.6, the following conclusions can be drawn:

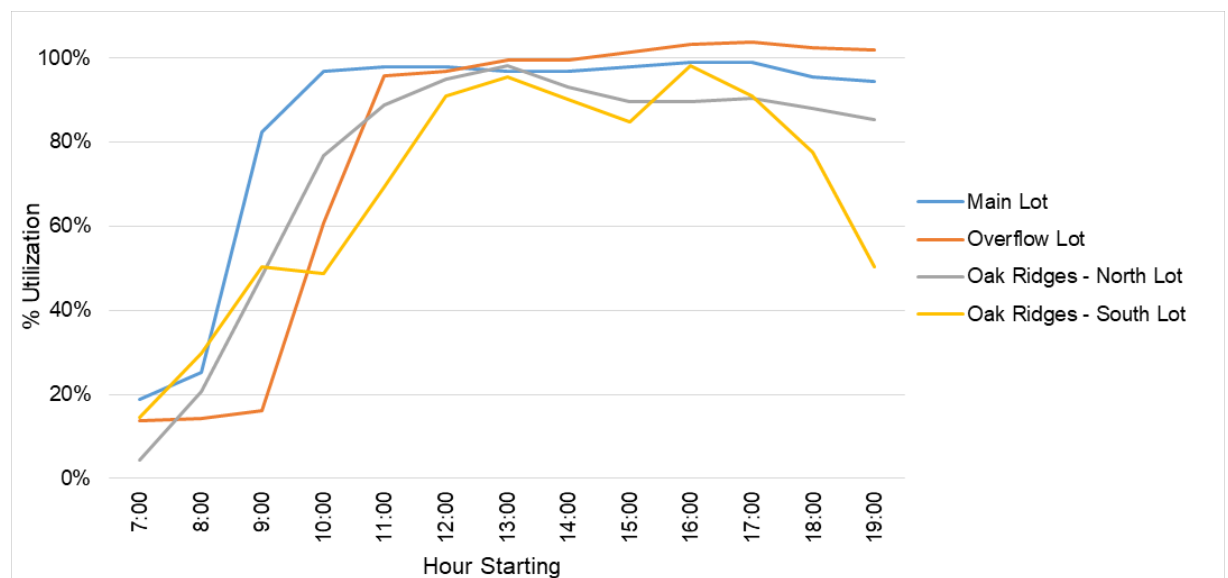
- During the peak hour of parking demand, the surveyed parking system operated at 44% utilization, with off-street lots at 94% utilization, and on-street segments at 21%;
- All the off-street parking facilities are operating above 90% utilization at their busiest time, with the exception of the Oak Ridges Community Centre South Lot (85% utilization, or 17 available spaces);
- North Lake Road between Moray Avenue and Olde Bayview Avenue operated at 233% utilization. This is due to the fact that there were vehicles parked on the south side of the street, which is a signed “No Parking” zone;
- There were six vehicles parked on Olde Bayview Avenue between Lakeside Crescent to the Richmond Hill Canoe Club House, which is designated as a “No Parking” zone on both sides of the street;
- There were 11 vehicles parked on Bethesda Side Road between Bayview Avenue and Kohl Street, which is designated as a “No Parking” zone on north side of the street and a “No Stopping” zone on the south side; and
- There were 12 vehicles parked on Bayview Park Lane between Sandbanks Drive and Bayview Avenue, which is designated as a “No Parking” zone on both sides of the street.

The on-street and off-street parking systems will be examined in further detail in the upcoming sections of this memorandum.

2.4.1. Off-Street Parking Demand

Exhibit 2.7 shows the off-street parking utilization observed on Sunday, August 4, 2019, which was the day that experienced the highest parking demand. This was one of the Long Weekend survey dates.

Exhibit 2.6: Off-Street Parking Utilization (Sunday, August 4, 2019 – Long Weekend)



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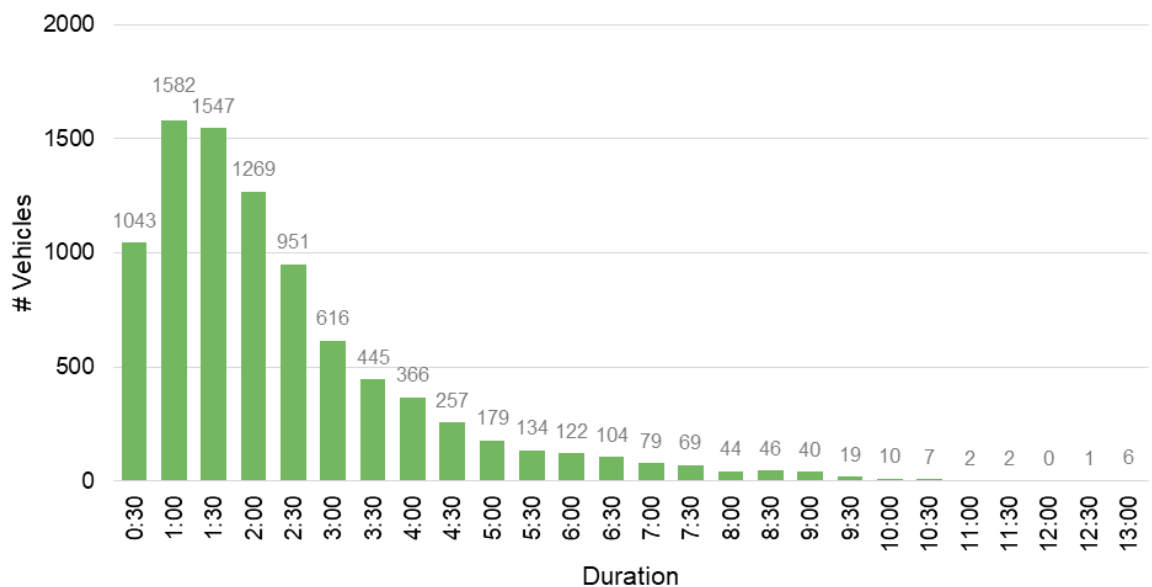
Based on Exhibit 2.7, the following conclusions can be drawn:

- Parking demand begins to increase between 8:00 AM and 9:00 AM;
- At 11:00 AM, the combined off-street parking demand was operating at 88% utilization. The Oak Ridges Community Centre South Lot operated at 69%, all other lots were above 89% utilization;
- At 12:00 PM, the combined off-street parking demand was 95%, all lots had at least 91% utilization; and
- After 12:00 PM, parking utilization remained above 90%, until 7:00 PM.

There was high parking demand for all off-street parking lots for all five parking survey days. With the exception of Saturday August 3, 2019, utilization for the off-street system reached 90% in the afternoon.

Exhibit 2.8 shows the observed parking duration for all off-street parking facilities for all five days of the parking surveys.

Exhibit 2.7: Off-Street Parking Turnover (All Survey Dates)



Based on Exhibit 2.8, the following conclusions can be drawn:

- As parking duration increases, the number of vehicles that are parked decrease;
- A total of 8,940 unique vehicle license plates were recorded over the five day survey period;
- The most frequent parking duration was between 1 hour and 1 hour and 30 minutes, with 1,582 vehicles that parked within that time period;
- The average parking duration was 2 hours and 21 minutes, and median duration was 2 hours; and
- 22% of drivers parked in a lot for more than 3 hours.

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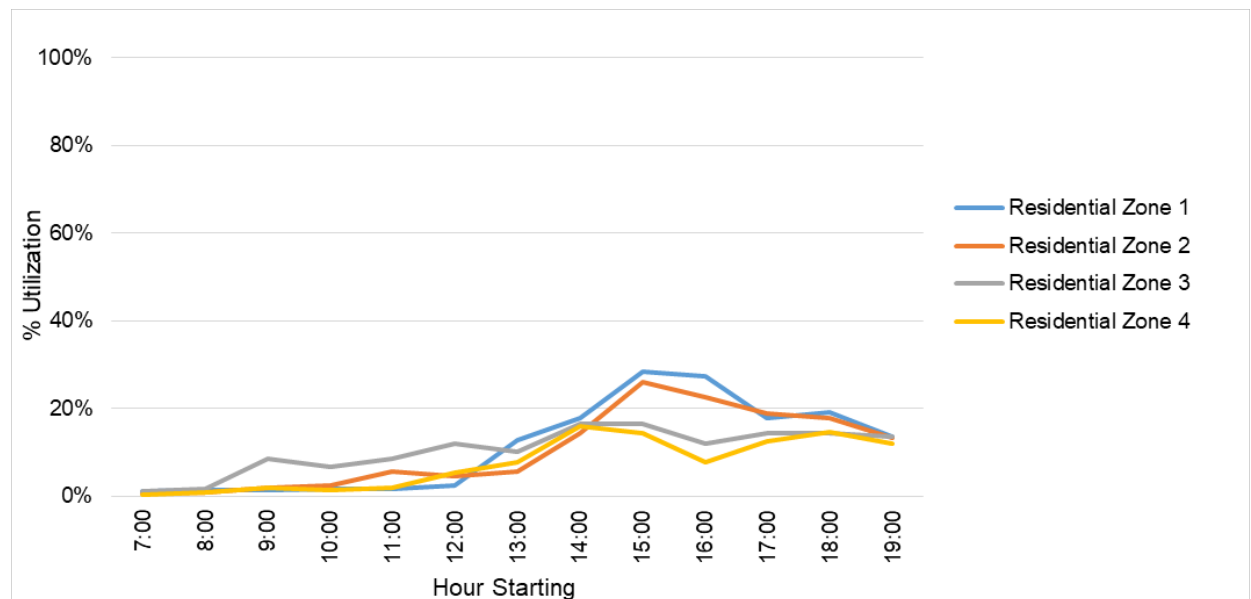
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Each of the individual parking lots experienced similar turnover patterns and averages as the off-street system, with the exception of drivers in the Overflow Lot. Vehicles in the Overflow lot were parked for an average of 2 hours and 42 minutes, and 29% were parked for more than 3 hours. This may be due to users of the picnic area that park in the Overflow Lot and stay for longer periods of time.

2.4.2. On-Street Parking Demand

Exhibit 2.9 shows the on-street parking demand observed on Sunday, August 4, 2019.

Exhibit 2.8: On-Street Parking Demand (Sunday, August 4, 2019 – Long Weekend)



Based on Exhibit 2.9, the following conclusions can be drawn:

- Parking demand generally started increasing at 11:00 AM;
- Residential Zone 3 and 4 experienced an increase of parking demand earlier in the day compared to Residential Zone 1 and 2. This may be because Zones 3 and 4 are on the south end of the park which serves the Youth Area. Residential Zone 1 and 2 are on the north end of the park which serves the splash pad and the picnic areas; and,
- In general, the largest increase in parking demand compared to the previous hour occurred at 12:00 PM or 1:00 PM for the three other residential zones. This period corresponds to the time when the off-street lots were operating at 90% utilization, and suggests that Lake Wilcox parking spills over into the residential neighbourhoods when off-street lots are approaching capacity.

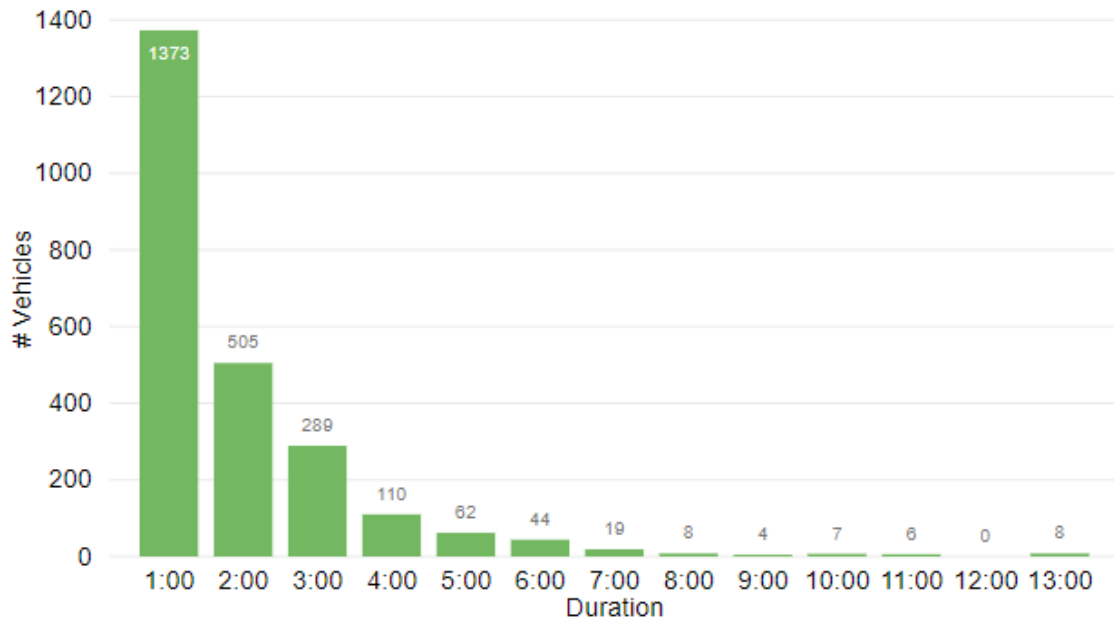
It should be noted that Exhibit 2.9 shows all the Residential Zones in terms of utilization to normalize the axis. The parking utilizations were examined to determine whether parking demand from visitors is spilling over into the neighbouring on-street segments, instead of noting the excess capacity on-street that can accommodate parking for Lake Wilcox.

Exhibit 2.10 shows the parking turnover for the surveyed on-street parking over the five days of surveys.

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Exhibit 2.9: On-Street Parking Turnover (All Survey Dates)



Based on Exhibit 2.10, the following conclusions can be drawn:

- As parking duration increases, the number of vehicles that are parked decrease;
- A total of 2,435 unique vehicle license plates were recorded over the five day survey period;
- The most frequent parking duration was less than one hour, with 1,373 vehicles that parked for that time period;
- The average parking duration was 1 hours and 56 minutes; and
- 11% of drivers parked on-street for more than 3 hours.

Compared to the off-street parking durations, drivers who parked on-street were there for a shorter period of time. This may be due to the 3-hour on-street parking limit, which results in drivers visiting Lake Wilcox for longer periods search for a space in parking lots instead.

2.4.3. Summary of Findings

A total of 1,512 parking spaces were surveyed (478 off-street and 1,034 on-street) between 7:00 AM and 8:00 PM to find the parking demand and duration in each facility. Off-street parking spaces were surveyed every 30 minutes, and on-street parking spaces were surveyed every 60 minutes.

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Some key findings from the parking utilization and turnover surveys are as follows:

- The system peak hour of parking demand occurred on Sunday August 4, 2019 at 3:00 PM, where 47% of parking spaces were occupied;
- Off-street parking was 94% utilized during the system peak hour, and would be operating at effective capacity by 11:00 AM or 12:00 PM. The Overflow Lot and Main Lot were generally busier compared to the two lots that serve the Oak Ridges Community Centre;
- On-street parking was 21% utilized during the system peak hour. The on-street segments experienced the largest increase in parking demand compared to the previous hour at 12:00 PM or 1:00 PM, which is just after the off-street lots reach effective capacity. This suggests parking demand is spilling over into the neighbouring on-street segments;
- There were discrepancies noted between the by-law regulations and on-street signage on Olde Bayview Avenue, Lakeside Crescent, Bayview Park Lane, Sandbanks Drive, and Bayview Avenue; and
- Vehicles in off-street lots and on-street segments would be parked for an average of 2 hours and 21 minutes and 1 hour and 56 minutes, respectively. On-street parking has a shorter duration likely due to the 3-hour time limit, of which 11% of drivers were observed to exceed.

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3. Park User Surveys

This park user surveys were conducted to gain an understanding of the park user demographics, and the needs of all park users. There were two types of park user surveys – an in-person survey conducted on two summer weekends, and an online survey. The findings from this section will be considered when proposing recommendations to improve parking operations in the next phase of the study. This section presents the findings of the park user surveys.

3.1. Survey Methodology

The in-person surveys were conducted on the same days as the parking utilization surveys, on the following dates and times:

- Typical Weekend: July 28 and 29, 2019 between 10:00 AM to 6:00 PM; and
- Long Weekend: August 3, 4, and 5, 2019 (Civic Holiday) between 10:00 AM to 6:00 PM.

The survey consisted of 11 questions that would help identify patterns and trends of how visitors use the park. The questions are listed below:

1. How did you get here today?
2. What is the purpose of your visit?
3. Including yourself, how many people were in the car you arrived in?
4. How long do you plan on staying today?
5. Did you park on-street or in a parking lot?
6. Did you have any issues finding a parking space or getting to the parking lot?
7. Please rate your experience with parking at Lake Wilcox on a scale of 1 to 5;
8. Are you aware of the various parking lots that serve Lake Wilcox Park?
9. How often do you visit Lake Wilcox in the summer?
10. Are you a resident of Richmond Hill?
11. Can you provide the first three digits of your postal code?

The surveyors would ask park users the above list of questions, and their responses would be grouped under specific responses. A list of the questions and possible responses are shown in Appendix B. During the project team meeting it was noted that IBI Group staff would be positioned at the parking lots to survey visitors, but after further office review it was determined that not all visitors would be captured if surveyors were positioned at key parking lot entrances. Instead, survey staff walked throughout the park to improve the survey response rate.

In addition to the in-person surveys, an online survey was available on the Richmond Hill website. A communications email was also sent out to the mailing list of all Oak Ridges Community Centre program participants. The survey was launched on July 27, 2019; all responses received up until August 20, 2019 were included as part of this memorandum. The survey will remain active, but responses received after August 20 are not included as part of this memorandum. Any responses received after this date will be examined to determine if they differ greatly compared to the responses considered in this memorandum; they will be included if so. The questions asked in the online survey were the same as the ones asked for the in-person surveys.

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A total of 1,518 responses were collected (1,225 from the in-person survey, and 293 from the online survey). Due to the diverse background of park users, there were approximately 40 surveys that were not completed due to language barriers.

3.2. Survey Findings

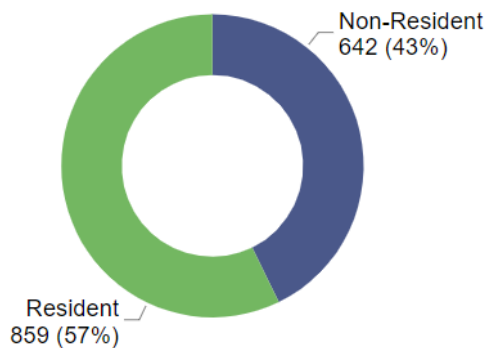
The subsections below are divided to show the results from the park user surveys. It should be noted that since more than 90% of the online responses came from the Oak Ridges Community Centre mailing list, the responses may experience a bias towards Community Centre users. The responses received through this channel were compared to the rest of the survey responses; these responses will be included with the others, but will be noted if there is a meaningful difference in responses.

3.2.1. Residency

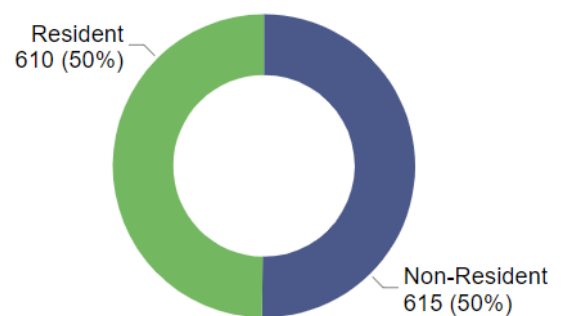
Exhibit 3.1 shows the gathered responses when participants were asked if they were residents of Richmond Hill. The figure on the left shows all responses received, which includes the responses from the Oak Ridges Community Centre email link. 93% (241 out of 258) of respondents from the email list indicated they were residents of Richmond Hill, which significantly skews the result. When those responses were filtered out, there is almost a 50/50 split between residents and non-residents that visit Lake Wilcox.

Exhibit 3.1: Residency

All Responses



In-Person Surveys



Survey respondents were also asked for their forward sortation area (FSA), which is the first three digits of a postal code. The 10 most frequent FSAs are shown in Exhibit 3.2.

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Exhibit 3.2: Forward Sortation Areas

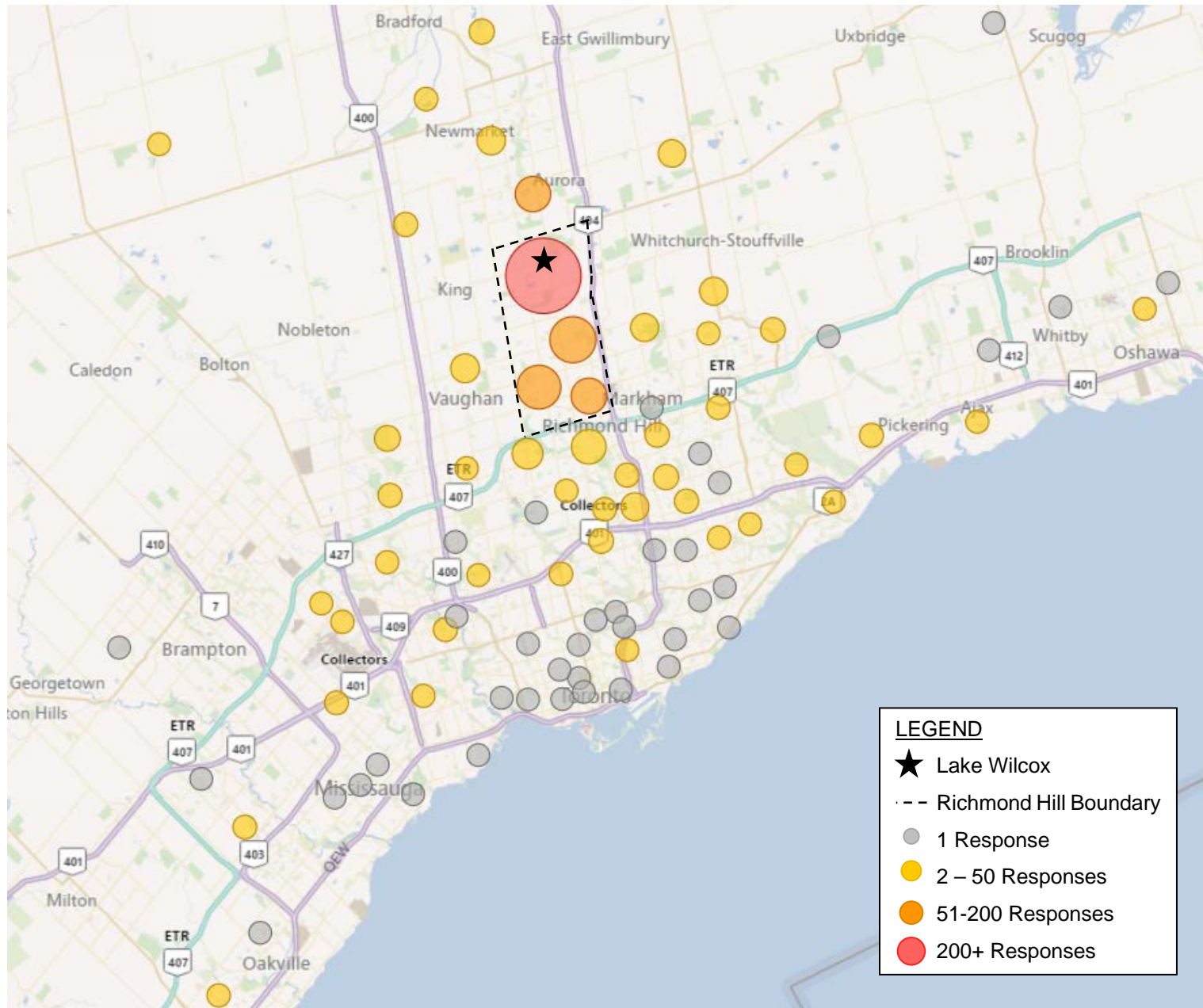
Forward Sortation Area	Municipality	Frequency	% of Responses
L4E	Richmond Hill	208	17%
L4S	Richmond Hill	93	8%
L4C	Richmond Hill	84	7%
L4B	Richmond Hill	52	4%
L4G	Aurora	51	4%
L3T	Thornhill	48	4%
L4J	Thornhill	33	3%
L6A	Maple	25	2%
L3X	Newmarket	24	2%
L3P	Markham	22	2%

The four most frequent FSAs contained respondents that noted they were residents of Richmond Hill. The FSAs were mapped and are shown in Exhibit 3.3. The size and colours of the circles are scaled based on the frequency of each FSA. The grey circles represent FSAs that only appeared once.

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Exhibit 3.3: Forward Sortation Area Map



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3.2.2. Modal Split

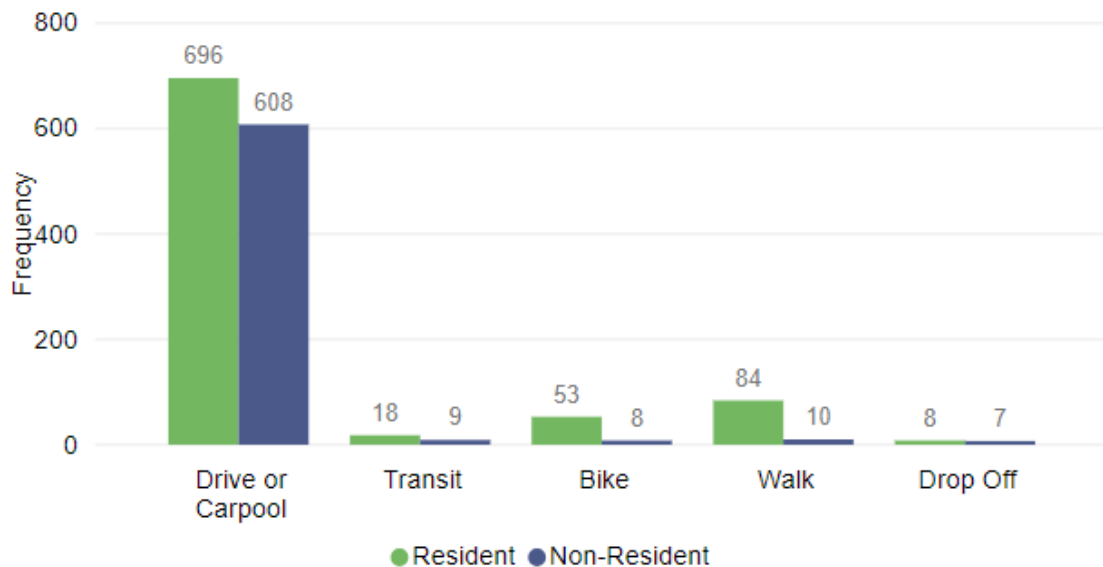
The different modes of transportation that visitors used to get to the park were divided into the bins, with frequencies and percentages shown in Exhibit 3.4. It should be noted that the “Drop Off” response was used for visitors who were dropped off at Lake Wilcox, but the driver did not park on site (i.e., parent drop off, taxi, Uber, etc.). If the respondent answered any choice other than “Drive or Carpool”, the survey was ended since the purpose was to survey visitors that used the parking facilities at Lake Wilcox.

Exhibit 3.4: Mode Share Table

Mode	Frequency	% of Responses
Drive or Carpool	1,319	87%
Transit	28	2%
Bike	62	4%
Walk	94	6%
Drop Off	15	1%

The majority of visitors travel to Lake Wilcox by car. The visitor mode share was compared to whether or not the respondent was a resident of Richmond Hill, and is shown in Exhibit 3.5.

Exhibit 3.5: Mode Share by Residency



As shown in Exhibit 3.5, almost all visitors from outside Richmond Hill travel to Lake Wilcox by car, likely due to the long distances that limit use of active or public transportation to access the park.

Of the residents that responded to the survey, 82% travelled to the park by car, and 18% by active transportation plus public transit. This is slightly higher than the active transportation plus public

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transit mode share of trips originating in or destined for the City of Richmond Hill. 70% of residents that used non-auto modes to visit are from the same FSA as Lake Wilcox. This suggests that the park is heavily frequented by residents that live within a short distance that treat Lake Wilcox as a neighbourhood park.

3.2.3. Purpose of Visit

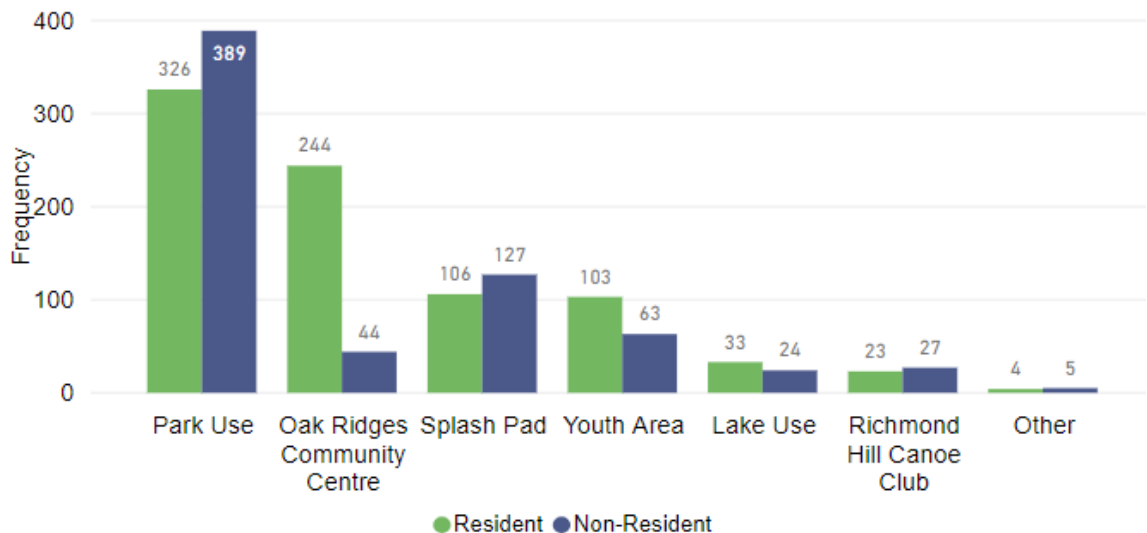
When asked what the purpose of visiting Lake Wilcox was, responses were grouped into the following categories shown in Exhibit 3.6. It should be noted that the question was phrased in a way that allowed for multiple responses from visitors, which is why the total number of responses exceeds the number of people that answered this question.

Exhibit 3.6: Purpose of Visit Table

Purpose	Frequency	% of Responses
Park Use (picnic area, walking, cycling)	717	47%
Oak Ridges Community Centre (pool, gymnasium, fitness centre)	290	19%
Splash Pad	235	15%
Youth Area	168	11%
Lake use	57	4%
Richmond Hill Canoe Club	50	3%

The responses compared between Richmond Hill residents and non-residents are shown in Exhibit 3.7.

Exhibit 3.7: Purpose of Visit by Residency



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The most frequent response was park use, which included visitors in the picnic area, playground, and boardwalk. There may also be higher numbers since respondents may have answered with “Park use” as a catch all for spending time at Lake Wilcox.

As expected, over half of the respondents that filled out the email survey responded that they used the Oak Ridges Community Centre. Based on survey responses, the Community Centre was mainly used by Richmond Hill residents. The Youth Area also had significantly more use from Richmond Hill residents compared to non-residents.

3.2.4. Car Occupancy

When asked what how many people were in the car, responses were grouped into the following categories shown in Exhibit 3.8.

Exhibit 3.8: Car Occupancy Table

Car Occupancy	Frequency	% of Responses
1	225	17%
2	403	31%
3	299	23%
4+	387	29%

The car occupancy rates for visitors to Lake Wilcox are quite high, with over half of all respondents indicating they typically have three or more people in the car when visiting the park. This number is logical given the large number of families and groups that were seen at in the park.

Off all responses received, the average car occupancy was 2.6 people per car. This number is underestimated due to the grouping of the survey answers, with “4+” being the largest bin; when calculating the average car occupancy a value of 4 was used, when in reality there could be up to 7 people in the car. The high car occupancy numbers may limit the success of any carpool incentive programs, as visitors are typically not arriving in single occupant vehicles. This will be further explored throughout the remainder of this study.

A breakdown of car occupancy compared to Richmond Hill residents is shown in Exhibit 3.9.

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Exhibit 3.9: Car Occupancy by Residency

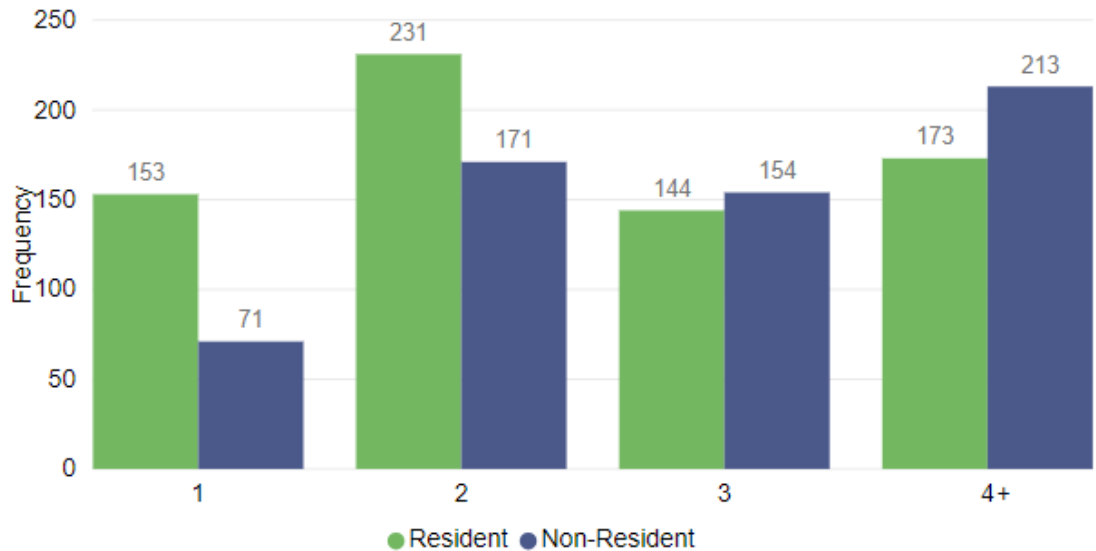


Exhibit 3.9 shows that Richmond Hill residents drive to the park with fewer people in the car (average 2.5 occupants) compared to non-residents (average 2.8 occupants). This is expected since people from out of town may arrange rides or bring the entire family if they are spending the day at Lake Wilcox, compared to residents that travel in smaller groups due to a shorter drive.

3.2.5. Duration of Stay

When asked how long park users were planning to stay for, responses were grouped into the following categories shown in Exhibit 3.10. On average, visitors stay at the park for 2 hours and 18 minutes.

Exhibit 3.10: Duration of Stay Table

Duration of Stay	Frequency	% of Responses
Less than an hour	142	11%
1-2 hours	500	38%
2-3 hours	358	27%
3-4 hours	179	14%
4-5 hours	79	6%
5-6 hours	28	2%
6-7 hours	16	1%
More than 7 hours	11	1%

Exhibit 3.11 compares the length of the visitor's stay to whether the visitor is a resident of Richmond Hill. The recorded length of stay aligns with the results from the parking turnover surveys, which was an average of 2 hours and 28 minutes.

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Exhibit 3.11: Duration of Stay by Residency

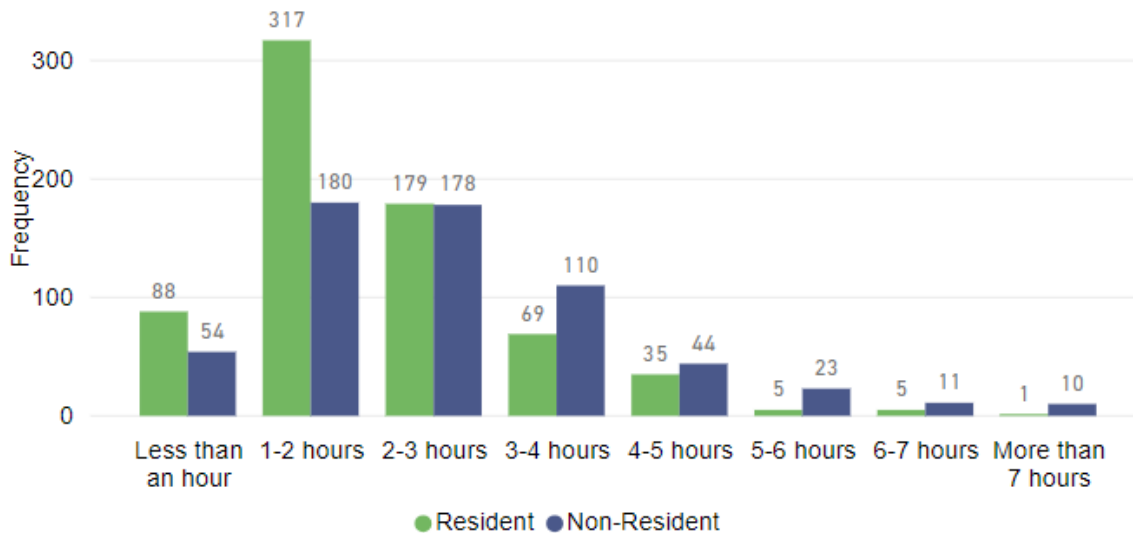


Exhibit 3.11 shows that for duration of stays up to three hours, there are more residents than non-residents. Once the duration exceeds three hours, there are more non-residents compared to residents. This is intuitive since non-residents need to travel a longer distance to access Lake Wilcox, they are more likely to spend more time at the park. The average time spent at Lake Wilcox for residents and non-residents was 2 hours and 2 hours and 36 minutes, respectively.

3.2.6. Parking Location

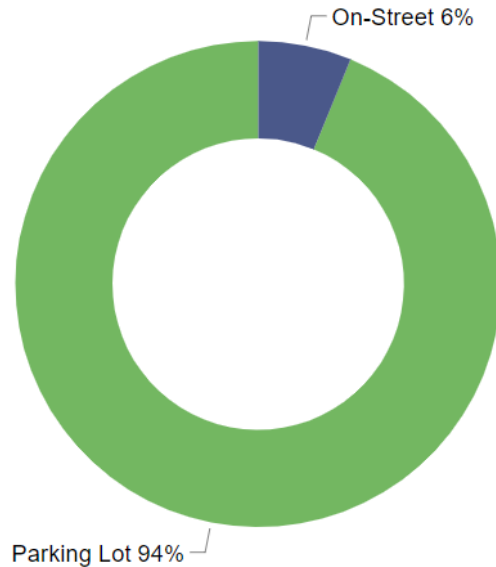
Exhibit 3.12 shows the split between visitors who park on-street compared to those that park in parking lots. The vast majority (94%) of visitors use parking lots, while 6% of visitors park on-street.

While the surveyed on-street parking system has more than twice the capacity of the off-street parking system, park users have a strong preference towards parking in the off-street lots that serve Lake Wilcox. This is likely due to a shorter walking distance to destinations within the park, as well as there being no maximum parking duration. The surveyed parking system has approximately 1,500 parking spaces, but there are fewer than 500 off-street spaces that most visitors prefer to use.

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Exhibit 3.12: Parking Location



3.2.7. Parking Issues

When asked if respondents had any issues finding parking or getting to a parking lot, responses were grouped into the following categories shown in Exhibit 3.13.

Exhibit 3.13: Parking Issues Table

Issues with Parking?	Frequency
Yes, busy or difficult	174
Yes, had to search or wait	115
Yes	70
Yes, unsure where to find parking	15
Yes, had to park in overflow or park far	12
Yes, not enough accessible parking	6
Total	392

Issues with Parking?	Frequency
No	668
No, came early	99
No, unusual	25
No, but it was busy	9
No, accessible permit	3
-	
Total	804

Based on Exhibit 3.13, approximately two-thirds of visitors said they did not have any issues related to parking at Lake Wilcox. The most common responses from visitors that expressed issues or difficulty with finding parking was that the lots were busy, or that they needed to park in another lot since their preferred lot was full. There were 99 visitors that noted they didn't have issues with parking because they either get to the park early on, or avoid visiting the park during peak times (typically evenings and weekends); a majority of these responses came from Richmond Hill residents that likely know the demand patterns at Lake Wilcox.

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The responses received from the surveys may take into account the fact that parking is known to be an issue at Lake Wilcox, and when compared to user expectations it resulted in there being no issues. The surveys may also be biased towards people that were able to find parking; parties that failed to find parking and left were not captured in these surveys.

Residents and non-residents answered the question the same, there was not much variation in proportions of responses between groups. Anecdotally, residents who expressed issues with parking operations seemed to have more complaints and issues compared to non-residents.

3.2.8. Parking Satisfaction

Respondents were asked to rate their parking experience on a scale of 1 to 5, 1 being very dissatisfied, and 5 being very satisfied. The responses and frequencies are shown in Exhibit 3.14.

Exhibit 3.14: Parking Satisfaction table

Parking Satisfaction	Frequency	% of Responses
5 – Very satisfied	498	38%
4 – Somewhat satisfied	401	31%
3 – Neither satisfied nor dissatisfied	245	20%
2 – Somewhat dissatisfied	110	8%
1 – Very dissatisfied	39	3%

Overall, it seemed like park visitors are satisfied with the parking experience at Lake Wilcox, with 69% of the respondents answering that they were satisfied with parking. On a scale of 1 to 5, the average response was 3.9.

3.2.9. Visit Frequency

When asked how often users visited the park, responses were grouped into the following categories shown in Exhibit 3.15.

Exhibit 3.15: Visit Frequency Table

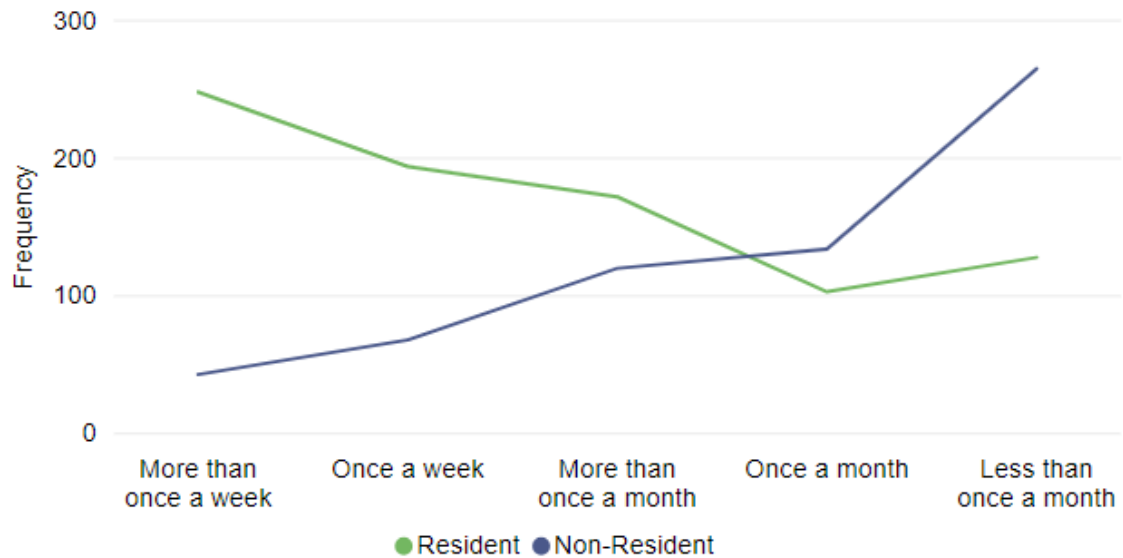
Visit Frequency	Frequency	% of Responses
More than once a week	291	20%
Once a week	262	18%
More than once a month	292	20%
Once a month	237	16%
Less than once a month	393	26%

The responses were fairly evenly distributed, but with a slight increase in park users that visit less than once a month. Exhibit 3.16 shows the visit frequency broken down by residents and non-residents of Richmond Hill.

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Exhibit 3.16: Visit Frequency by Residency



For non-residents, as the visit frequency decreases (moving left to right on the graph), the number of responses for each category increase. The opposite is the same for the Richmond Hill residents, but with an uptick for the “Less than once a month” category, which captures the residents that typically don’t visit Lake Wilcox.

3.2.10. Parking Lot Awareness

When asked how many parking lots Lake Wilcox is served by, responses were grouped into the following categories shown in Exhibit 3.17.

Exhibit 3.17: Parking Lot Awareness Table

How Many Lots do you Know of?	Frequency	% of Responses
I’m not aware of any parking lots	9	1%
I’m only aware of one parking lot	301	24%
I’m aware of more than one parking lot	580	46%
I’m aware of all four parking lots	376	29%

Despite the majority of visitors knowing of more than one parking lot, there is still 25% of visitors that do not know of more than one parking lot. Exhibit 3.18 compares how many lots visitors know of compared to how often they visit the park.

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Exhibit 3.18: Parking Lot Awareness by Frequency of Visit

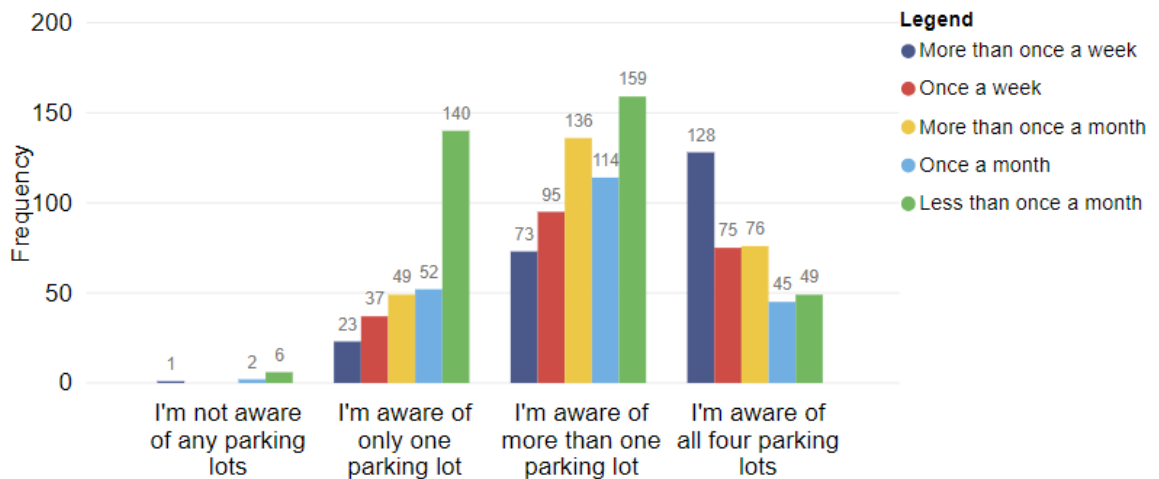


Exhibit 3.18 shows that more than 60% of the visitors that are not aware of more than one lot are non-frequent visitors (once a month or less often). This presents an opportunity to improve signage for parking lots that serve Lake Wilcox, so visitors are aware of the locations, and may reduce their parking search times. As expected, the park users that frequent the park more often generally know of more parking lots compared to those that do not visit as often.

3.3. Summary of Findings

In addition to parking demand surveys, in-person and online surveys were conducted to identify the needs of the various park users. A total of 1,518 responses were collected (1,225 from the in-person survey and 293 from the online survey). Some key findings of the park user surveys are listed below:

- Park visitors were divided evenly between residents and non-residents;
- 87% of visitors travelled by car to Lake Wilcox. The 13% that used active transportation or were dropped off were primarily residents of Richmond Hill, likely due to shorter travel distances that allowed for convenient use of other modes;
- The average car occupancy rate for visitors who drove to the park was 2.6 people per car. This will likely limit the effectiveness of any carpool incentive programs;
- On average visitors would stay for 2 hours and 20 minutes, which aligns with results from the parking turnover study. Non-residents would typically stay for longer periods of time compared to Richmond Hill residents;
- 94% of respondents indicated they typically park in parking lots instead of on-street segments;
- 67% of respondents did not have any issues with their parking experience at Lake Wilcox. The respondents that did note issues with how busy the parking lots were or were frustrated they needed to park far away to walk to their destination; and
- Many of the park users that visit less frequently do not know of more than one parking lot that serves Lake Wilcox. There is an opportunity to improve signage and messaging so all park users know of the various parking options.

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4. Field Observations




This section presents findings and observations from IBI Group survey staff when they were on site conducting surveys at Lake Wilcox. Exhibit 4.1 displays photos taken by surveyors along with a description and location of what is shown.

Exhibit 4.1: Field Observations

Description	Photo
<p><u>Overflow Lot</u></p> <p>Lack of pavement markings leads to disorganized parking behavior.</p> <p>Residents have noted that the unpaved surface creates challenges for visitors with mobility devices or bicycles. There have also been complaints that the dust and dirt gets blown around when it is windy.</p>	 A photograph showing a white SUV parked in a dirt overflow lot. The lot is unpaved and lacks markings. Other cars are visible in the background, and there are trees and a utility pole in the distance.
<p><u>Main Lot</u></p> <p>Drivers often use the Main Lot to pick up or drop off passengers, which can lead to queuing and congestion in the lot.</p> <p>Some residents have proposed that a pickup/drop-off area would be useful for people to drop off their families in a central location.</p>	 A photograph showing a man in a black tank top and shorts pushing a green cart in a paved main lot. Several cars are parked in the background, and there are trees and a utility pole in the distance.

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Description	Photo
<p><u>Main Lot</u></p> <p>Drivers circle the lot in search of a parking space; drivers may stop to wait for a car to leave, which creates queuing and congestion in the lot.</p> <p>The cones pictured were placed to block off a section of the parking lot where an ice cream truck was located.</p>	
<p><u>Oak Ridges Community Centre – North Lot</u></p> <p>Vehicles observed parking in drive aisles when drivers could not find available parking.</p>	
<p><u>Bayview Park Lane</u></p> <p>Vehicles parked on the side of the street block the travel lane, resulting in moving traffic using the centre median to pass. This also results in increased risk of pedestrian collisions when crossing the road to access the Youth Area.</p>	

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Some other comments and observations that were gathered through the online surveys and field observations are listed below:

- The number of accessible parking spaces is not sufficient, and have requested that more accessible spaces be included;
- The lighting in the Oak Ridges Community Centre lots is not sufficient at night time, it leads to concerns of safety and visibility for users;
- The pedestrian signage after leaving the parking lots is not very clear, it is difficult for new visitors to find where to go; and
- Youth Area users have noted that additional parking is required at the south end of the park; the Community Centre South Lot is often full, which results in visitors needing to find space to park on-street.

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5. Summary and Next Steps

The purpose of this technical memorandum was to present findings of existing parking operations at Lake Wilcox based on the parking demand surveys and park user surveys that have been completed thus far. The parking demand surveys helped identify the facilities that visitors park in, how busy they are, and for how long vehicles are parked for. The park user surveys helped to gain an understanding of the park user demographic by asking questions related to why visitors come to Lake Wilcox, what they use the park for, and whether they are residents of Richmond Hill. The information presented in this technical memorandum will feed into the next phase of the project, where recommendations will be presented to improve issues with parking operations at Lake Wilcox.

5.1. Summary

Based on the work that has been completed, some key findings are:

- Off-street parking demand operates almost at capacity for most of the surveyed days during the afternoon;
- There is excess capacity in the surrounding on-street segments, but visitors strongly prefer to park in the off-street lots;
- Visitors generally visit Lake Wilcox for two hours, this was supported through the parking duration surveys as well as the park user surveys;
- There is an even mix between Richmond Hill residents and non-residents that visit the park;
- Most visitors drive to Lake Wilcox, the average vehicle occupancy based on surveys was found to be 2.6 people per vehicle; and
- Many park users, especially those that do not visit often, are not aware of the four parking lots that serve Lake Wilcox.

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5.2. Next Steps

The next steps for the project are:

- City of Richmond Hill to review Technical Memorandum #1 and provide one round of consolidated comments to IBI Group;
- IBI Group to present findings of Technical Memorandum #1 to the Project Working Group;
- IBI Group to finalize Technical Memorandum #1 based on City comments and discussions from the Project Working Group meeting; and
- IBI Group to develop recommendations to improve observed issues and deficiencies, with recommendations to be presented in Technical Memorandum #2.

Appendix A


On-Street Signage and By-law Parking Restrictions


Lake Wilcox




Legend

By-Law Restrictions

 Parking

 No Parking

 Off-street Parking

 Residential Zone



0 150 300 m



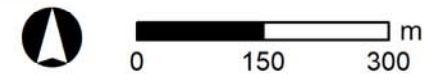
Lake Wilcox



Legend

Posted Sign Restrictions

- Parking
- No Parking
- No Stopping
- Off-street Parking
- Residential Zone



Appendix B

In-Person Survey Questions



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Memorandum

To/Attention Jason Dahl, City of Richmond Hill
Richard Hui, City of Richmond Hill

From Peter Richards, IBI Group **Project No** 121638

cc Mike Corby, IBI Group
Adam Wenneman, IBI Group
Stefan Tsang, IBI Group

Subject **Lake Wilcox Parking Study Data Collection: Park User Surveys**

Introduction

The City of Richmond Hill initiated the Lake Wilcox Park Parking Study to assess the existing parking demand and to develop a strategic plan to effectively manage it. To gain an understanding of the existing parking operations around Lake Wilcox Park, IBI Group will conduct parking utilization surveys for a typical weekend and long weekend. In addition, there will be surveyors present in each of the four off-street parking facilities to ask park users questions. The questions will provide a qualitative assessment of the parking demographics to help inform study recommendations.

Surveyors will be on site for eight hours over a five day period (July 27, July 28, August 3, August 4, and August 5). Questions will be asked in person and the survey will also be available online for those who are unable to answer the questions on the spot. Park users who don't visit on weekends can complete the online survey which will be distributed via email to those registered in programs at the Community Centre and via City of Richmond Hill social media channels.

Survey Questions

The following are proposed questions to ask park users when surveys are being conducted. The survey questions are split up between the in -person survey and the online survey.

The final survey questions will be revised to reflect comments from City staff.

In-person Survey

Hi, my name is [SURVEYOR] and I work for IBI Group, a transportation consulting firm. We are assisting the City of Richmond Hill in examining the parking at Lake Wilcox Park. Do you have a few minutes to answer some quick questions to help inform our study?

1. How did you get here today? *[If anything other than car, skip to question 9.]*
 - a. Drive or carpool
 - b. Transit
 - c. Bike
 - d. Walk
 - e. Other (taxi, uber, dropped off) [please specify]

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Richard Hui, City of Richmond Hill

2. What is the purpose of your visit?
 - a. Richmond Hill Canoe Club
 - b. Park use (picnic areas, walking, cycling)
 - c. Lake use (boating, fishing)
 - d. Splash Pad
 - e. Oak Ridges Community Centre (swimming pool, fitness centre, gymnasium)
 - f. Youth area (skate park and sports courts)
 - g. Other (please specify)
3. Including yourself, how many people were in the car you arrived in?
 - 1
 - 2
 - 3
 - 4+
4. How long do you plan on staying today?
 - a. Less than an hour
 - b. 1-2 hours
 - c. 2-3 hours
 - d. 3-4 hours
 - e. 4-5 hours
 - f. 5-6 hours
 - g. 6-7 hours
 - h. More than 7 hours
5. Did you park on-street or in a parking lot?
 - a. On-street
 - b. Parking lot [ask which lot they parked in]
6. Did you have any issues finding a parking space or getting to the parking lot? [specify on sheet]

Jason Dahl, City of Richmond Hill
Richard Hui, City of Richmond Hill

7. Please rate your experience with parking at Lake Wilcox Park [list options]
 - 5 – very satisfied
 - 4 – somewhat satisfied
 - 3 – neither satisfied nor dissatisfied
 - 2 – somewhat dissatisfied
 - 1 – Very dissatisfied
8. Are you aware of the various parking lots that serve Lake Wilcox Park [show the map]?
 - a. I'm aware of all four parking lots
 - b. I'm aware of more than one parking lot
 - c. I'm aware of only one parking lot
 - d. I'm not aware of any parking lots
9. How often do you come to Lake Wilcox Park in the summer?
 - a. More than once a week
 - b. Once a week
 - c. More than once a month
 - d. Once a month
 - e. Less than once a month
10. Are you a resident of Richmond Hill? [Y/N]
11. Can you provide me with the first three digits of your postal code? We're collecting this information to see what areas visitors are coming from. [specify on sheet]

Thank you for taking the time to answer these questions, have a great day!

[If respondent inquires further about the study] If you have any questions about this study, please contact Jason Dahl at jason.dahl@richmondhill.ca.