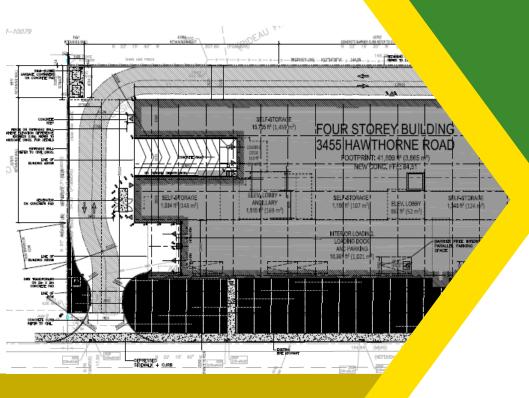
Dymon Group of Companies 3455 Hawthorne Road



Transportation
Impact
Assessment



3455 Hawthorne Road Transportation Impact Assessment

Step 1 Screening Report
Step 2 Scoping Report
Step 3 Forecasting Report
Step 4 Strategy Report

Prepared for:

Dymon Group of Companies 2-1830 Walkey Road Ottawa, ON, K1H 8K3

Prepared by:



June 2021

PN: 2020-53

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3455 Hawthorne Road Transportation Impact Assessment

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1 Screening

This Transportation Impact Assessment has been prepared to support the proposed development at 3455 Hawthorne Road in the City of Ottawa and will include Design Review component of the City of Ottawa Transportation Impact Assessment (TIA) Guidelines. The scope of this TIA has been confirmed with transportation staff from the City of Ottawa during an online meeting on December 1, 2020. Additionally, a Step 1 TIA Screening Form has been prepared and is included in Appendix A, along with the Certification Form for the Study PM.

2 Existing and Planned Conditions

2.1 Proposed Development

The subject property, located at 3455 Hawthorne Road, is zoned as Light Industrial Zone (IL). The property currently serves as an industrial storage site and is currently occupied by a small commercial building, which will be removed as part of this development. The proposed Dymon self-storage facility is 13,457 square metres, including an interior loading and parking area, and a reception area. According to the site plan, total of 14 parking spaces are proposed, out of which 9 parking slots are exterior, and five parking stalls are located in the interior loading / parking area. The site will also include two exterior loading docks.

Access to the site will be accommodated via Hawthorne Road, approximately 70 metres (Site Access #1) and 220 metres (Site Access #2) north of Hawthorne Road and Hunt Club Road intersection, measured from centreline to centreline. Site Access #1 will be restricted to right-in / right-out only due to a centreline median along Hawthorne Road and Site Access #2 will serve as a full-movement access. Trucks will enter the site by via Access #1 and leave the site though the Site Access #2.

SITE Road

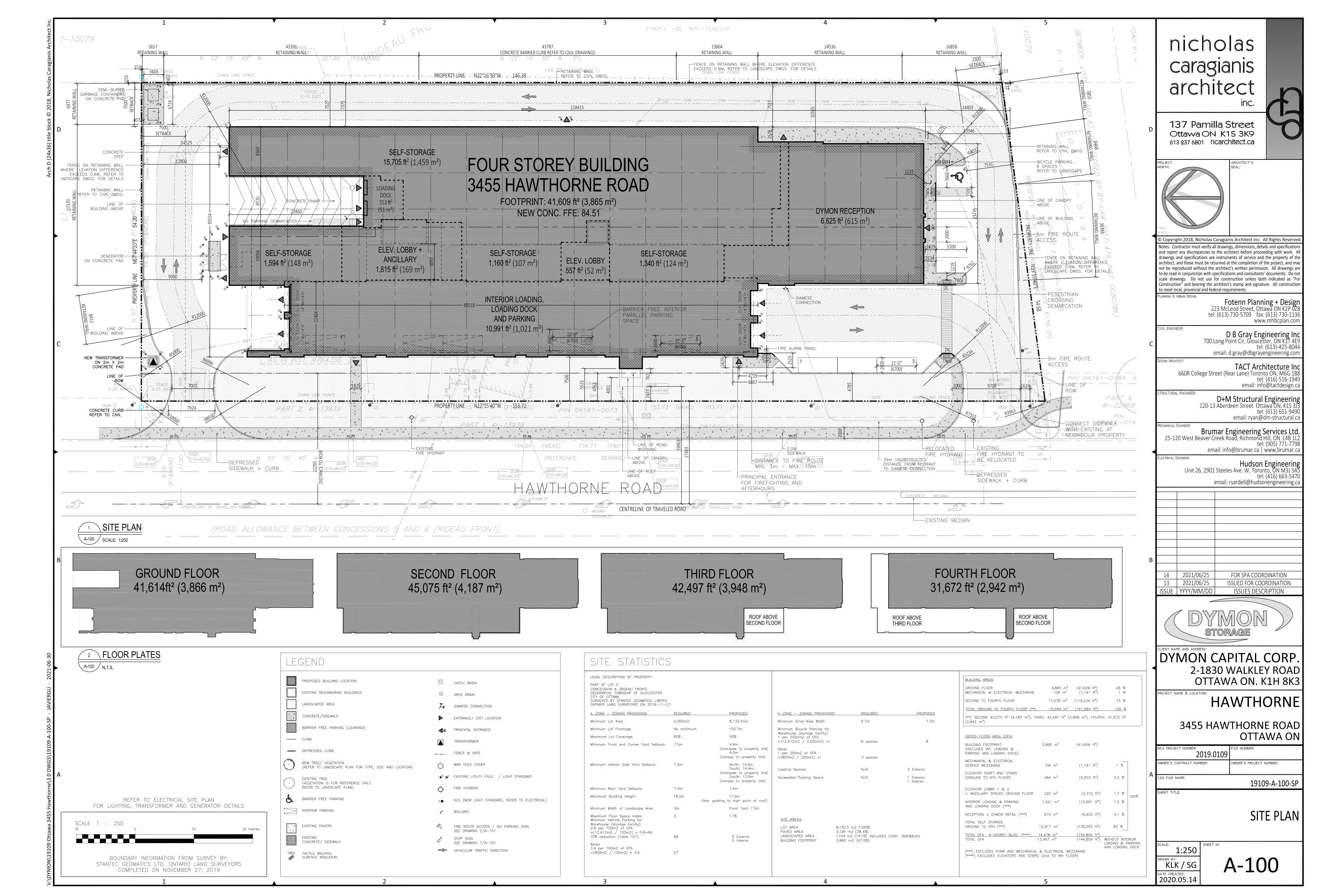
Runt Club Road

Runt Club Road

Figure 1 illustrates the Study Area Context. Figure 2 illustrates the proposed concept plan.

Source: http://maps.ottawa.ca/geoOttawa/ Accessed: December 2, 2020





2.2 Dymon Business Model and Site Context

Dymon offers a unique customer-centric storage solution unlike anything else in the marketplace. Unlike traditional self storage operations, Dymon facilities are located along arterial corridors, in very prominent locations within close proximity to its residential and business customers. With its high level of security, total humidity and climate control environment, and relentless focus on customer service, Dymon offers a reliable extension to people's homes and businesses. The primary access to Dymon's facilities is via an interior loading area (with secure access 24 hours a day) that protects customers from the weather while loading/unloading their possessions. By providing this interior area the reliance on surface parking is significantly reduced, as up to 75% of visitors to the site during any period use the interior loading bay, rather than the provided parking lot. In fact, any visit after the initial visit uses the interior loading area as this is the direct access to the storage lockers. Dymon sites include a reception and a retail area that is not used directly for self-storage. This space has several functions, including allowing space for new customers to come in and rent a storage locker or purchase storage supplies (boxes, tape, bubble wrap, etc.). Recently (Spring 2019) Dymon has expanded the services available in this space to include home storage solutions including closet organizers, under counter shelving, and storage bins. This service is now offered at several Ottawa Dymon locations.

2.3 Existing Conditions

2.3.1 Area Road Network

Hawthorne Road:

Hawthorne Road is a City of Ottawa arterial road with a four-lane cross-section including a sidewalk on the west side, curbside bike lane, centreline medians, and auxiliary lanes at major intersections. The posted speed limit is 70km/h and the City of Ottawa reserves a 44.5 metre right of way north of Hunt Club.

2.3.2 Intersections

Hawthorne Road at Hunt Club Road

The intersection of Hawthorne Road at Hunt Club Road is a signalized intersection with auxiliary left turn lanes and right turn channels on each approach. No turn restrictions were noted.



2.3.3 Cycling and Pedestrian Facilities

Figure 3 illustrates the pedestrian facilities in the study area and Figure 4 illustrates the cycling facilities.



Sidewalk is provided along the west side of Hawthorne Road. On the east side of Hawthorne Road, a sidewalk is extended north of Hunt Club Road intersection to the southern edge of the subject property line. Cycling facilities include curbside bike lanes along both sides of Hawthorne Road.



Figure 3: Study Area Pedestrian Facilities

Source: http://maps.ottawa.ca/geoOttawa/ Accessed: December 2, 2020



Figure 4: Study Area Cycling Facilities

Source: http://maps.ottawa.ca/geoOttawa/ Accessed: December 2, 2020

Exemption Review

Based on discussions with the City of Ottawa staff, the magnitude of this development, and the anticipated access locations, a reduced scope TIA has been prepared documenting the trip generation, accesses, site circulation, and parking.



4 Development-Generated Travel Demand

4.1 Trip Generation

To better understand the trip generation of the proposed development, a proxy site trip generation survey has been undertaken at three established, comparable Dymon sites in Ottawa. These sites have been selected as they are similar in size to the proposed development and have similar features (GFA, Land Uses, Arterial Road Access). The selected sites include the new Dymon retail functions and sell the home storage solutions discussed previously. These will operate in the same manner as the proposed site plan at 3455 Hawthorne Road and are appropriate proxy sites for comparison. Table 1 summarizes the site statistics for the surveyed and proposed sites. The number of parking stalls per the approved Site Plan have been documented in Table 1, however the parking provisions will be discussed further in later sections of this letter.

Table 1: Site Statistics Comparison

Site	Reception/Retail GFA(m ²)	Self-Storage GFA (m ²)	Total GFA (m ²)	Parking Stalls (SPA)
1554 Carling Avenue	2,714	18,204	21,685	59 Exterior (4 Loading Area)
323 Coventry Road	867	11,484	12,351	44 Exterior ¹
300 Greenbank Road	~700	8,495	9,195	9 Exterior (4 Loading Area)
3455 Hawthorne Road	615	12,842	13,457	9 Exterior (5 Loading Area)

Note 1: some of these parking stalls are restricted due to truck movements. This will be discussed further below.

Table 2 summarizes the surveyed trip generation for 1554 Carling Avenue, 323 Coventry Road (two survey dates), and 300 Greenbank Road.

Table 2: Proxy Site Trip Generation

C:t-	AM Peak Hour			PM Peak Hour			Sat Peak Hour		
Site	In	Out	Total	In	Out	Total	In	Out	Total
1554 Carling	6	2	8	13	9	22	-	-	-
323 Coventry (May Counts)	14	9	23	17	19	36	-	-	-
323 Coventry (June Counts)	7	5	12	11	15	26	11	15	26
300 Greenbank	7	4	11	10	10	20	14	18	32

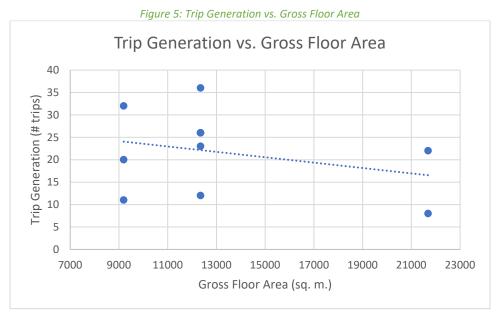
The selected sites have a wide range of gross floor areas. To accurately compare these sites to the proposed site, the trip generation rate has been determined for each survey in terms of vehicle trips generated per 1000 square metres. Table 3 summarizes the trip generation rates for each site. Appendix B includes the trip generation proxy counts and site plans for each surveyed site.

Table 3: Proxy Site Trip Generation Rates

Site	GFA (m²)	AM Peak Hour Rate (/1000 sm gfa)	PM Peak Hour Rate (/1000 sm gfa)	Sat Peak Hour Rate (/1000 sm gfa)
1554 Carling	21,685	0.37	1.01	N/A
323 Coventry (May)	12,351	1.86	2.91	N/A
323 Coventry (June)	12,351	0.97	2.11	2.11
300 Greenbank	9,195	1.20	2.18	3.48
Average Rate	-	1.10	2.05	2.79



The trip generation rates above have been examined and these sites do not have a strong correlation between increased gross floor area and increased trip generation. Figure 5 is a graph illustrating the relationship between trip generation and gross floor area. Multiple data points for a single GFA value represent trip generation at a proxy site during different peak hour periods. A linear trendline has been added to the graph to illustrate the general correlation between GFA and trip generation, however, given the number of sites surveyed, and the various survey dates, an average of the trip generation rates has been calculated for each peak hour period.



The average trip generation rate has been applied to the proposed site to determine the anticipated trip generation of the subject development. Table 4 summarizes the projected trip generation for the proposed development of a Dymon storage facility at 3455 Hawthorne Road.

Table 4: Projected 3455 Hawthorne Site Trip Generation

Site		AM Peak Ho	ur	Р	PM Peak Hour			Sat Peak Hour		
Jite	In	Out	Total	In	Out	Total	In	Out	Total	
Average Rate	10	5	15	14	14	28	16	22	38	

For comparison ITE Trip Generation Rates for ITE Land Use Code (LUC) 151 Mini Warehouse have also been used to calculate the trip generation. It should be noted that the ITE 10th Edition Trip Generation Manual only has a single sample for the Saturday, Peak Hour of Generator data set. This data set has been documented herein but is not reliable and should not be used in traffic analysis. Table 5 summarizes the ITE Trip Generation rates for LUC 151 Mini-Warehouse. Appendix C includes a summary of the description of LUC 151. Table 6 summarizes the trip generation for the proposed site based on the ITE LUC 151 rates.

Table 5: ITE Trip Generation LUC 151 Mini-Warehouse

	AM Peak	PM Peak	Sat Peak*
Average Rate (/1000 sf gfa)	0.10	0.17	0.31*
In/Out	60%/40%	47%/53%	59%/41%*

^{*}Small Sample Size, Data should be used with caution. Single data set provided in ITE Trip Generation Manual 10th Edition.



Table 6: ITE LUC 151 Trip Generation

Land Use	А	M Peak Ho	ur	PM Peak Hour			Sat Peak Hour		
Luna Osc	In	Out	Total	In	Out	Total	In	Out	Total
LUC 151 Trip Gen	8	6	14	12	13	25	27	18	45

The proxy site trip generation results are similar to the projections created using ITE trip rates. The Saturday peak hour should not be relied on as the ITE 10th Edition Trip Generation Manual contains a single sample for this LUC.

Based on the proxy site trip generation exercise there is no need to undertake a TIA for the proposed development, as the total number of trips generated is less than 60 in any peak hour which is the threshold for undertaking a TIS in the City of Ottawa TIA Guidelines.

5 Development Design

5.1 Site Access

Site Access #1 and Site Access #2 will be located along Hawthorne Road, approximately 70 and 220 metres north of Hawthorne Road and Hunt Club Road intersection, respectively. Site Access #1 will be restricted to right-in / right-out and Site Access #2 will serve as a full-movement access. The median along Hawthorne Road extends four metres past the northern edge of Site Access #1 which is adequate to restrict left movements in and out of the site. Additionally, appropriate signage will be installed to prohibit vehicles from making left turns at Site Access #1. The drawing identifying the type and location of the proposed signage is shown in Appendix D. In a case where a patron or an employee arrives from north or leaves towards south, the desired turning movement can be made at Site Access #2, where no turning restrictions apply.

The suggested minimum corner clearance between Hunt Club Road and Site Access #1 is 35 metres according to Figure 8.8.2 in TAC Geometric Guide for Canadian Roads. As the distance between Site Access #1 and Hunt Club Road is approximately 70 metres, this requirement is met.

South of the subject properly line there is a right-in / right-out access to a gas station, including a northbound right turn taper. This access is located approximately 6.5 metres south of Site Access #1 measured from edge to edge. As previously mentioned, Site Access #1 is also restricted to right-in / right-out only due to the centreline median along Hawthorne Road. Although the distance between Site Access #1 and the right-in / right-out access to the gas station is shorter than the City of Ottawa Private Approach Bylaw requirement, the northbound right turn taper into the gas station creates clarity for outbound drivers about whether the northbound vehicles will be accessing the gas station or the self-storage facility. For example, if an approaching northbound vehicle has a right turn indicator, but is not using the taper, the drivers egressing the gas station will be certain to not proceed onto Hawthorne Road. The northbound right turn taper to the gas station also allows for better line of sight for outbound vehicles at both the gas station and the subject self-storage facility, when compared to landscaping features, bus shelters, or other elements which could be located along the neighboring property line, if the right turn taper were not in place.

Both site accesses were designed to minimize the throat width, which resulted in a minimum width of 9.7 metres, and 7.0 metres at Site Access #1, and Site Access #2, respectively. At the centreline of the sidewalk, which is located adjacent to the roadway due to drainage constraints within the City's ROW, the access widths are 13.6 metres at Site Access #1 and 22.9 metres at Site Access #2. This is the shortest distance that could be achieved, while allowing the largest design vehicle (WB-20) to make turning movements at these accesses. Turning Movement Paths are discussed further in Section 5.2.



The TAC Geometric Design Guide throat length recommendations do not include a self-storage facility land use. Therefore, a first principles exercise was undertaken to ensure that the provided throat lengths are sufficient. Firstly, the maximum trip frequency to or from the proposed self-storage facility was calculated to be one trip every three minutes in the peak direction. When looking at each access in isolation, the trip frequency could be even lower depending on which access is utilized more. As such, the probability of one vehicle entering the site while another vehicle departs is very low. However, in rare case when this occurs a drawing for each of the site accesses was prepared illustrating that the available throat lengths can accommodate the entire length of the appropriate design vehicles prior to the first conflict point with opposing traffic and can be seen in Figures 6-8.



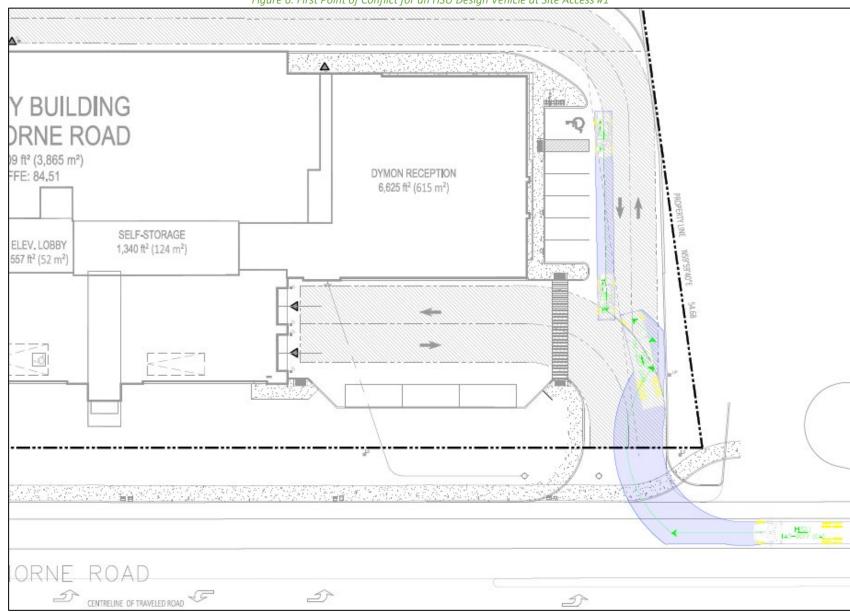
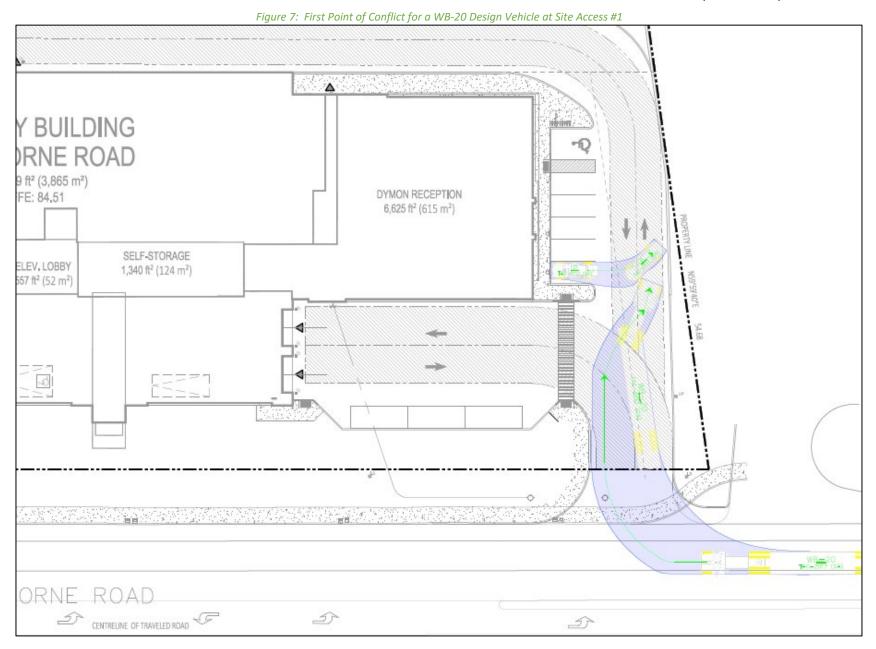


Figure 6: First Point of Conflict for an HSU Design Vehicle at Site Access #1







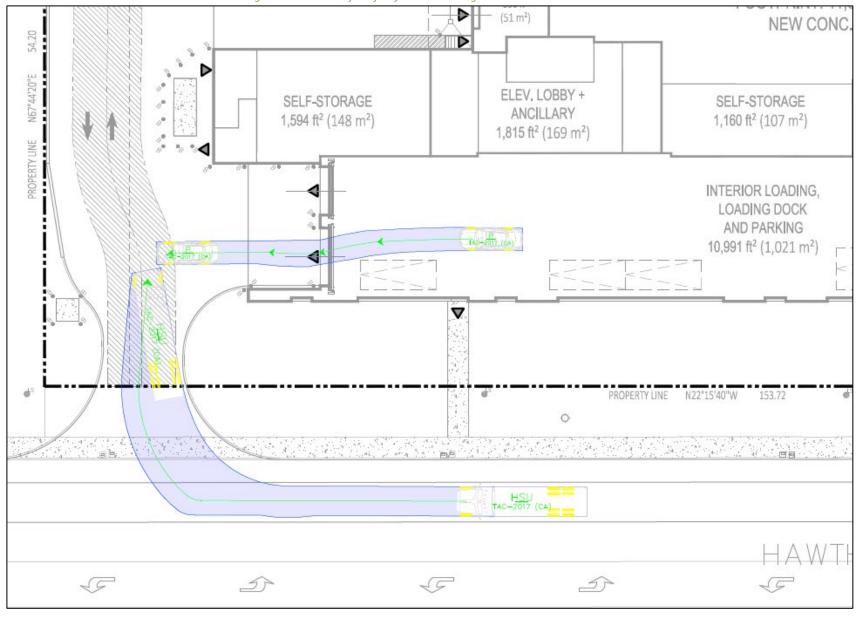


Figure 8: First Point of Conflict for an HSU Design Vehicle at Site Access #2



At Site Access #1, Figure 6 shows that the entire length of an HSU vehicle can be accommodated within the site, in case where an HSU needs to yield to oncoming traffic before turning left towards the interior loading area. WB-20 trucks entering the site will not access the interior loading area but may need to yield to vehicles reversing from parking stalls located at the southern end of the self-storage building. Therefore, more waiting area is available for a WB-20 truck within the site when compared to an HSU. Figure 7 shows that a WB-20 truck could also be fully stopped within the site boundaries at Site Access #1 without impacting the traffic flow along Hawthorne Road.

Figure 8 shows that at the first point of conflict an HSU vehicle is almost entirely stopped within the site boundaries. Additionally, at Site Access #2, although the first conflict point was conservatively set to be along the exit path from the interior loading area, the northbound left turning traffic exiting the indoor loading area will come to a full stop and yield to vehicles entering the site as a result of metering effects of the overhead garage doors. Thus, it is more likely that the first conflict point for vehicles entering at Site Access #2 and proceeding towards the back end of the self-storage building is along the exit path of the exterior loading area. This distance is equal to 36 metres and can accommodate multiple stopped HSU vehicles at once.

5.2 Turning Template Analysis

The 3455 Hawthorne Road site plan has been reviewed using an HSU (standard delivery truck) and WB-20 tractor trailer (infrequent delivery truck) to ensure that the turning movements through the site as well as in and out of the loading bays can be made by the design vehicles accessing the proposed development. Appendix E includes drawings illustrating the turning paths for all design vehicles. All turning paths are accommodated by the proposed curbs and driveways. The turning templates show that although the width of the aisle accessing the loading space is less than the 17-metre requirement outlined in the City of Ottawa Zoning Bylaw, the proposed loading bay and drive aisle design at 3455 Hawthorne Road allow for the largest design vehicle to pull in and drive out of the exterior loading bay. The turning template analysis has also shown that moving the garbage bins behind the building is not feasible as it would encroach onto the turning path of a WB-20 tractor trailer making a northbound left turn near the north-east corner of the proposed building. Therefore, garbage bins have been placed outside of the design vehicle turning path, at the northeast corner of the subject property.

6 Parking

6.1 Parking Generation / Supply

The proposed development will include 9 exterior parking stalls, five defined interior parking stalls, two exterior loading docks, and space in the interior loading area for additional overflow parking / unloading vehicles. The zoning requirements and parking provisions are summarized in Table 10.

Table 10: Vehicle Parking Requirement Zoning By-L	Law Approach
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Land Use	GFA (s.m.)	Parking Rate (Required)	Parking Spaces (Required)	Parking Spaces (Provided)	Difference
Self-Storage Warehouse	13,457	N95: 0.8 per 100 square metres of gross floor area; 10% reduction (table 101)	97	14	-83

As noted above the proposed site does not include the number of parking stalls prescribed by the zoning by-law. The proposed site includes 14 parking spaces, where as the requirement is 97 parking spaces.



To support the proposed parking variance, a parking survey has been undertaken at two of the proxy sites used for the Trip Generation. The Parking Surveys were undertaken on the same dates, and locations as the Trip Generation Proxy Surveys. Appendix F contains the proxy parking generation counts and calculation sheets for 323 Coventry Road and 300 Greenbank Road.

323 Coventry includes parking operations that will not be present on the proposed 3455 Hawthorne Road site. 323 Coventry currently has parking stalls reserved for long term parking. While these are reserved for this use it is possible for vehicles to park in these stalls throughout the day. To ensure that the daily, short-term, high turnover parking requirements are accurately captured the parking survey for this site was undertaken starting 30 minutes prior to the opening of the site and ending 30 minutes after the site closed for business. This was done for both the weekday and weekend survey periods. The minimum number of parking stalls occupied throughout the entirety of each survey period was noted. This was then subtracted from the maximum total parking demand. This represents the maximum short-term demand. Additionally, as noted on the approved site plan there are 11 parking stalls that are not in use to accommodate truck turning movements. Through the site survey it was determined that eight parking stalls are not in use in this area and are signed to prohibit parking. Table 11 below summarizes the total parking provisions for 323 Coventry Road.

Table 7: 323 Coventry Road Parking Provisions

Total Parking Stalls	Unsecured Parking Stalls	Secured Parking Stalls	Restricted to Accommodate Truck Movements	
44	18	26	8	

The 18 unsecured parking stalls noted above are potentially available for short-term parking (the secured parking is reserved for long-term parking). However, the survey found that four of the unsecured parking stalls were occupied at the start / end of the survey and are therefore not available for use as short-term parking stalls. The remaining 14 parking stalls were assumed to be available for short-term parking use.

300 Greenbank Road does not accommodate long term parking, as a result there was no need to account for the impact in the counts, and the peak periods were surveyed to capture a relevant data set.

Table 12 summarizes the parking supply and parking demand for the two sites as well as the calculated parking supply rate and parking demand rate. The exterior parking supply has been included. For 323 Coventry Road this supply has been calculated based on the number of parking stalls not in use for long-term parking.

As Dymon's business model makes use of an interior loading space, that can accommodate more vehicles than the defined parking stalls, the interior parking supply has been tabulated based on the maximum demand for interior parking observed at each site.

Table 8: Parking Survey Summary

Site	GFA Storage & Retail (m²) GFA Parking Supply (Exterior		Parking Supply (Max Interior Usage)	Parking Demand	Parking Demand Rate
323 Coventry	12,351	14	7	11	0.09 / 100 m ²
300 Greenbank	9,195	9	5	11	0.12 / 100 m ²



Similar to the trip generation it was found that an increase in parking demand is not strongly correlated to an increase in gross floor area. Based on the proposed site plan for 3455 Hawthorne Road the gross floor area, and parking stall provisions, the parking rate provided for the proposed development has been calculated. Table 13 summarizes the 3455 Hawthorne Road parking provisions.

Table 9: 3455 Hawthorne Road Parking Provisions – Dymon

Use	GFA (m²)	Parking Provided	Parking Rate (Provided)
Self-Storage Warehouse, Reception & Retail	13,457	14	0.10/ 100 m ²

It has been calculated that parking is proposed to be provided at a rate of 0.10 per each 100 square metres of gross floor area. While this is less than the parking rate requested by the City of Ottawa, this demand rate is similar to the surveyed parking rate at an Ottawa Dymon site of comparable size.

In addition to the above, patrons will utilize the interior loading space more efficiently than other areas of the site as they will park within the interior loading area to facilitate loading and unloading. On the surveyed sites more than 40% of all parked vehicles utilized the interior loading area for parking.

As a supplementary analysis, the number of vehicles entering the interior loading area, versus the rest of the site was counted. Table 14 summarizes the interior loading bay usage.

Table 10: Interior Loading Bay Usage

Site	Weekday Exterior% Interior%		Saturday		
Jite			Exterior%	Interior%	
323 Coventry	57%	43%	58%	42%	
300 Greenbank	42%	58%	54%	46%	

As shown above the interior loading area is of critical importance to the parking operations of the site.

In summary the parking provisions for the Dymon self-storage use is adequate. Table 15 summarizes the total parking demand based on the proxy site surveys.

Table 11: Parking Requirement – Demand Approach

Land Use	GFA (s.m.)	Parking Rate (Required)	Parking Spaces (Required)	Parking Spaces (Provided)	Difference
Self-Storage Warehouse, Reception & Retail	13,457	0.10/100 s.m.	14	14	0

As shown above, the parking provided on the site will satisfy the projected parking demand, based on the proxy site surveys. Therefore, based on the provided interior and exterior parking the site will provide adequate parking to support the proposed use.

6.2 Bicycle Parking

Bicycle parking requirements and provisions are summarized in Table 16.



Table 12: Bicycle Parking Requirement - Zoning By-Law Approach

Land Use	GFA (s.m.)	Parking Rate (Required)	Parking Spaces (Required)	Parking Spaces (Provided)
Self-Storage Warehouse	13,457	1 per 2000 square metres of gross floor area	7	8

As shown above, the zoning by-law requirement for bicycle parking is met in excess of one space.

7 Conclusion

Based on the key requirements of the agreed to scope, the following conclusions are made for this site:

- The trip generation analysis demonstrates that this site will not trigger the need for a TIS.
- The site accesses have been checked against the City of Ottawa Private Approach By-Law and TAC Geometric Design Guide. While some of the typical design parameters are not met, the site accesses have been designed using first principles approach to ensure that the site-specific transportation operations are appropriate.
- Truck turning templates have been performed to ensure that the site access and drive aisles can be
 navigated by the design vehicles for the site. All turning paths are accommodated by the proposed curbs
 and driveways.
- Based on the proxy site parking surveys the provided parking will adequately serve the proposed Dymon self-storage facility.

Based on this Transportation and Parking Summary, the proposed development should be approved, from a transportation perspective.

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Appendix A

TIA Screening Form and PM Certification Form





City of Ottawa 2017 TIA Guidelines Step 1 - Screening Form Date: 16-Mar-21
Project Number: 2020-53
Project Reference: Dymon 3455 Hawthorne

1.1 Description of Proposed Development	
Municipal Address	3455 Hawthorne Road
Description of Location	Located along Hawthorne Rd. approximately 70 metres north of Hawthorne Rd. at Hunt Club Rd.
Land Use Classification	IL
Development Size	16,000 Square Metres
Accesses	Two accesses on Hawthorne Rd.
Phase of Development	Assumed 1 Phase for TIA
Buildout Year	2023
TIA Requirement	Design Review Component

1.2 Trip Generation Trigger	
Land Use Type	Self-Storage Warehouse
Development Size	16,000.00 G.F.A
Trip Generation Trigger	Fever than 60 total peak hour trips will be generated by the proposed development. The trip generation will be further discussed in detail as part of the TIA Report.

1.3 Location Triggers	
Does the development propose a new driveway to a boundary street that is	
designated as part of the City's Transit Priority, Rapid Transit or Spine	Yes
Bicycle Networks?	
Is the development in a Design Priority Area (DPA) or Transit-oriented	No
Development (TOD) zone?	No
Location Trigger	Yes

1.4. Safety Triggers	
Are posted speed limits on a boundary street 80 km/hr or greater?	No
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	No
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	Yes
Is the proposed driveway within auxiliary lanes of an intersection?	No
Does the proposed driveway make use of an existing median break that serves an existing site?	No
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	No
Does the development include a drive-thru facility?	No
Safety Trigger	Yes



TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

- 1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
- 2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
- 3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
- 4. I am either a licensed¹ or registered² professional in good standing, whose field of expertise [check $\sqrt{\text{appropriate field(s)}}$] is either transportation engineering $\sqrt{\text{or}}$ or transportation planning \square .
- 1,2 License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

Dated at Newman (City)	
(City)	
Name:	Mark Crockford
	(Please Print)
Professional Title:	Professional Engineer
	Manhard
Signature	e of Individual certifier that s/he meets the above four criteria

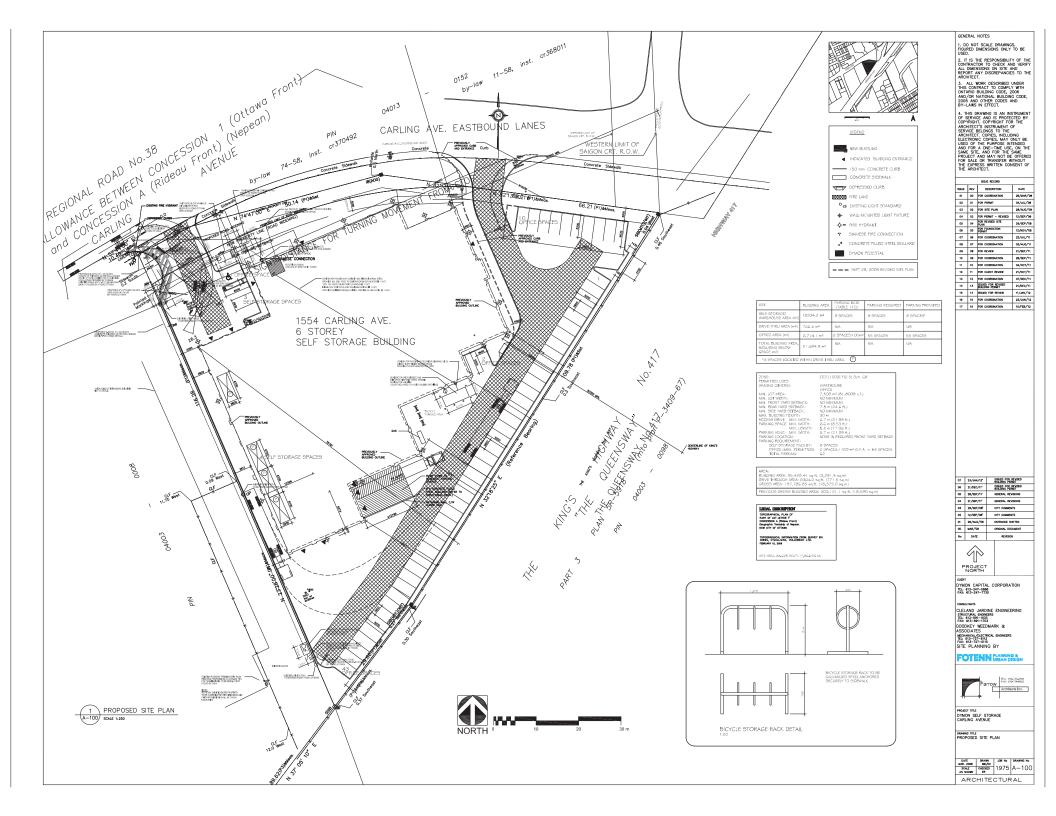
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E-Mail Address: Mark.Crockford@CGHTransportation.com



Appendix B

Proxy Site Trip Generation Data and Site Plans

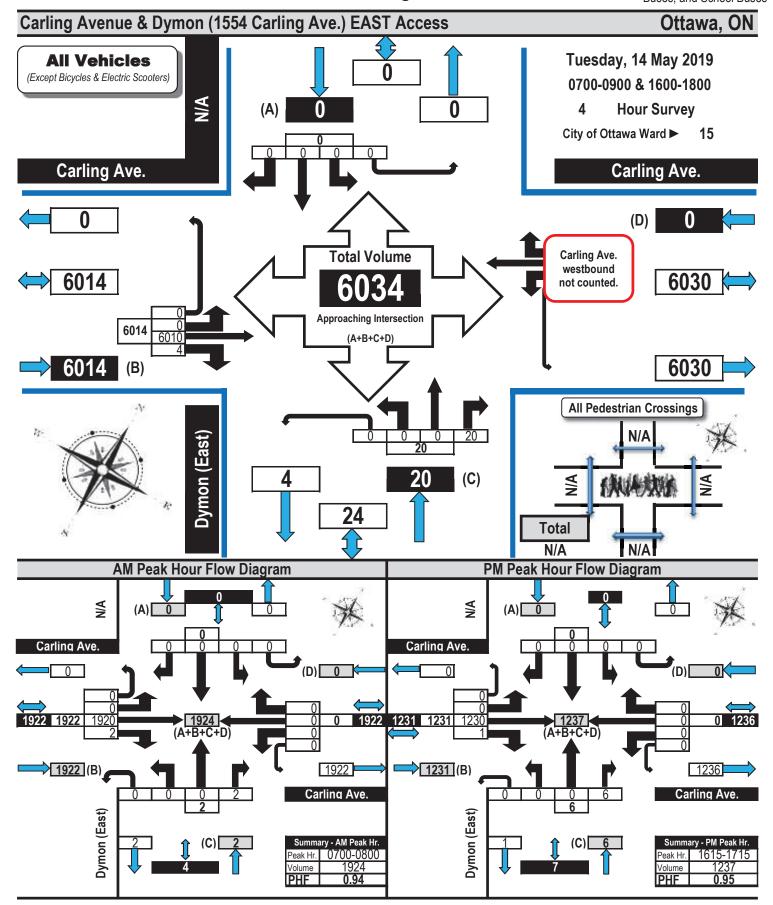






Printed on: 5/16/2019

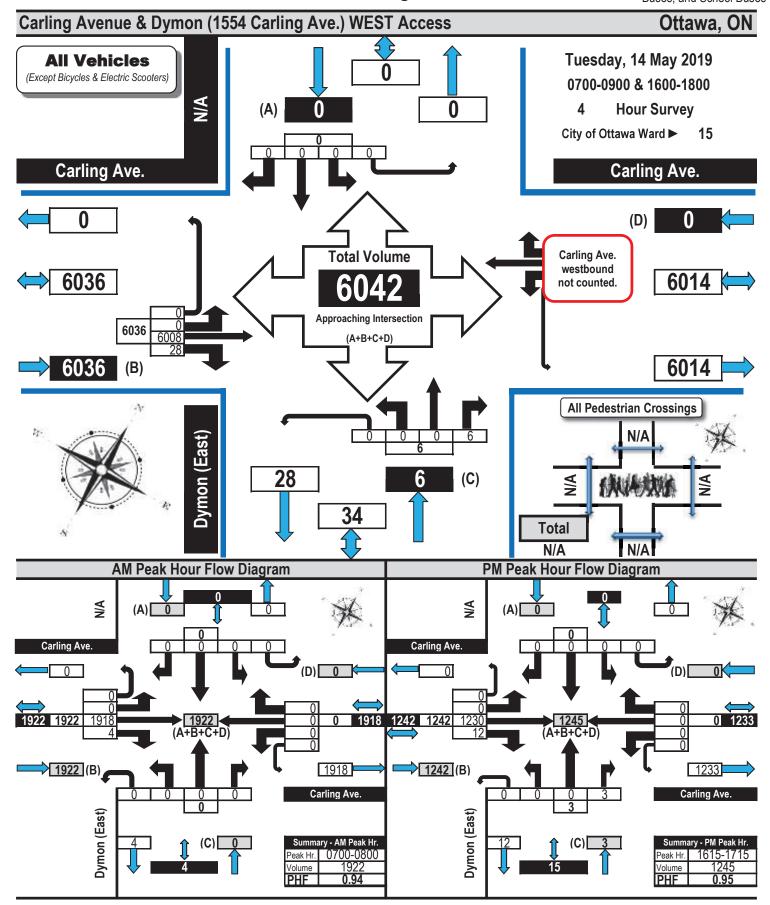
Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

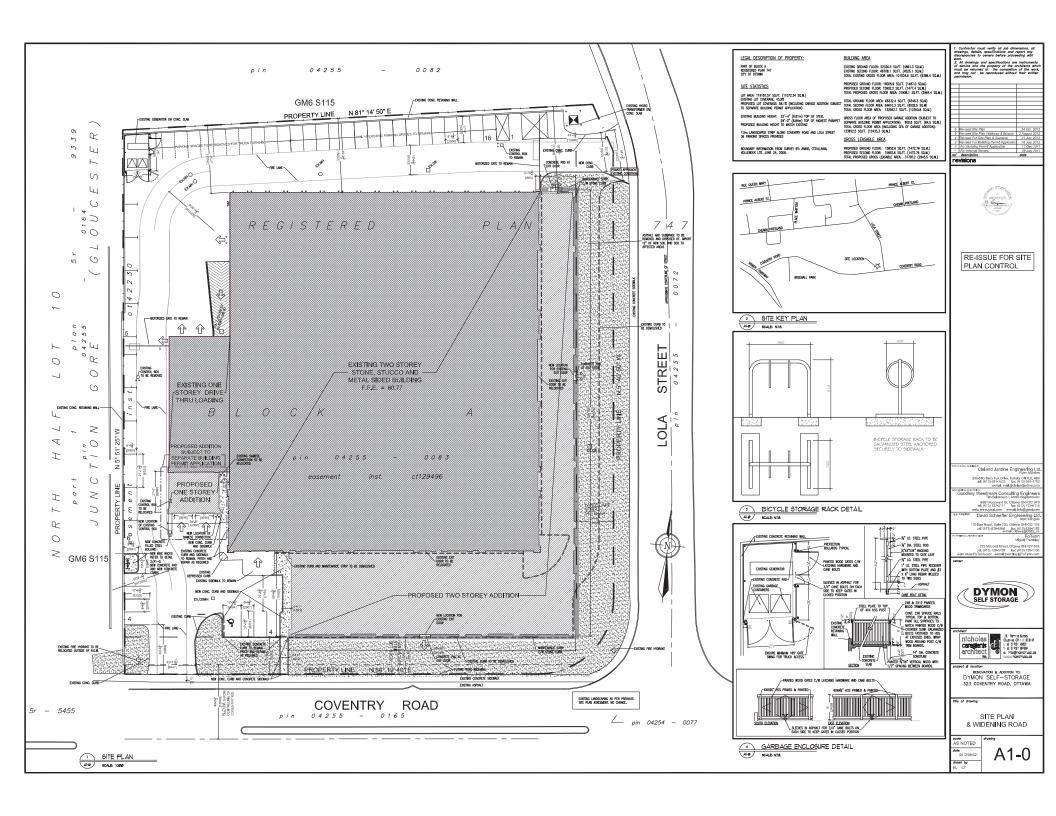




Printed on: 5/16/2019

Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

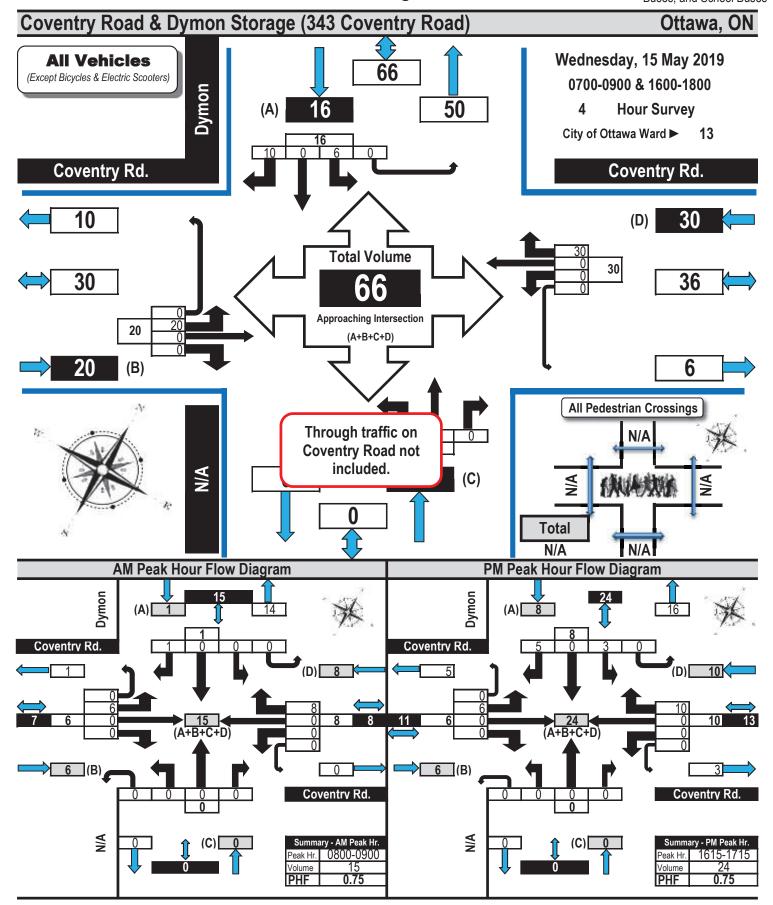






Printed on: 5/17/2019

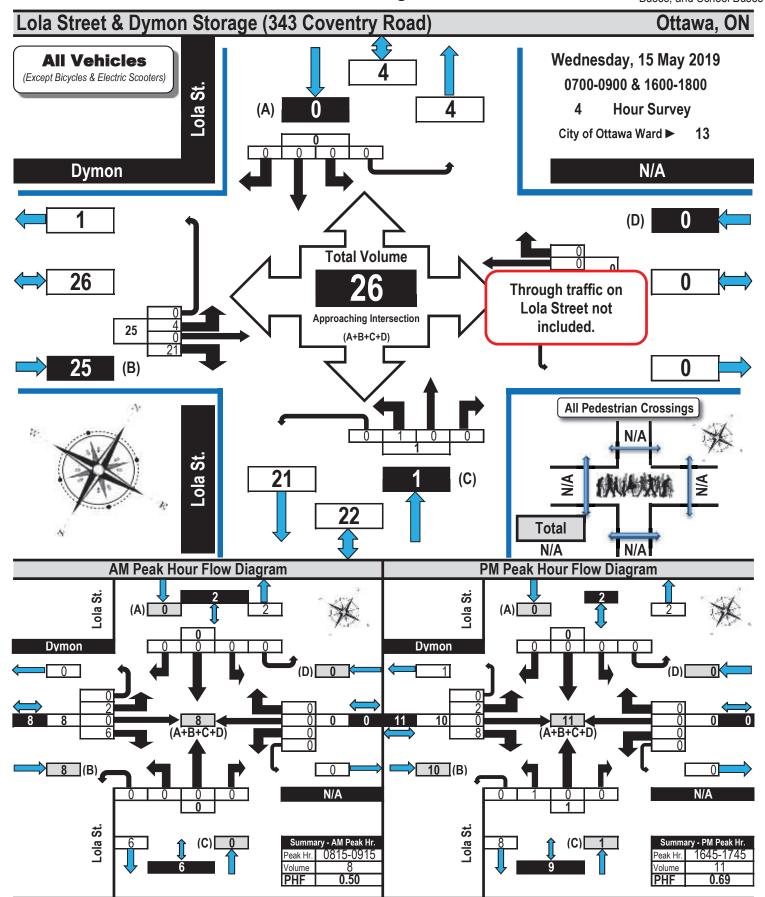
Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams





Printed on: 5/17/2019

Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

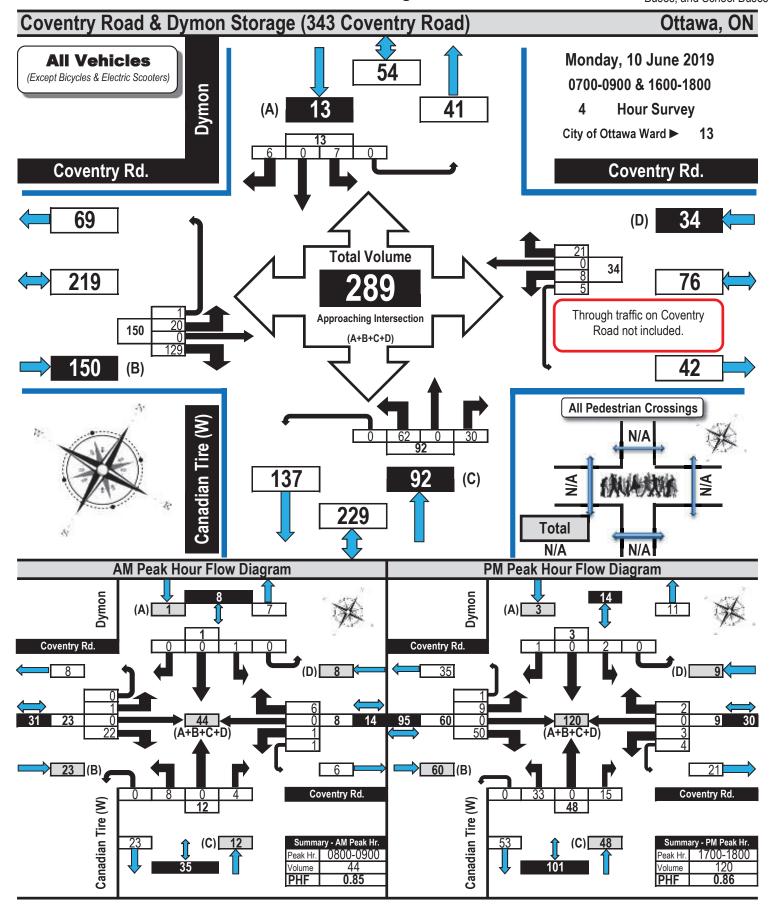




Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flow Diagrams: AM PM Peak

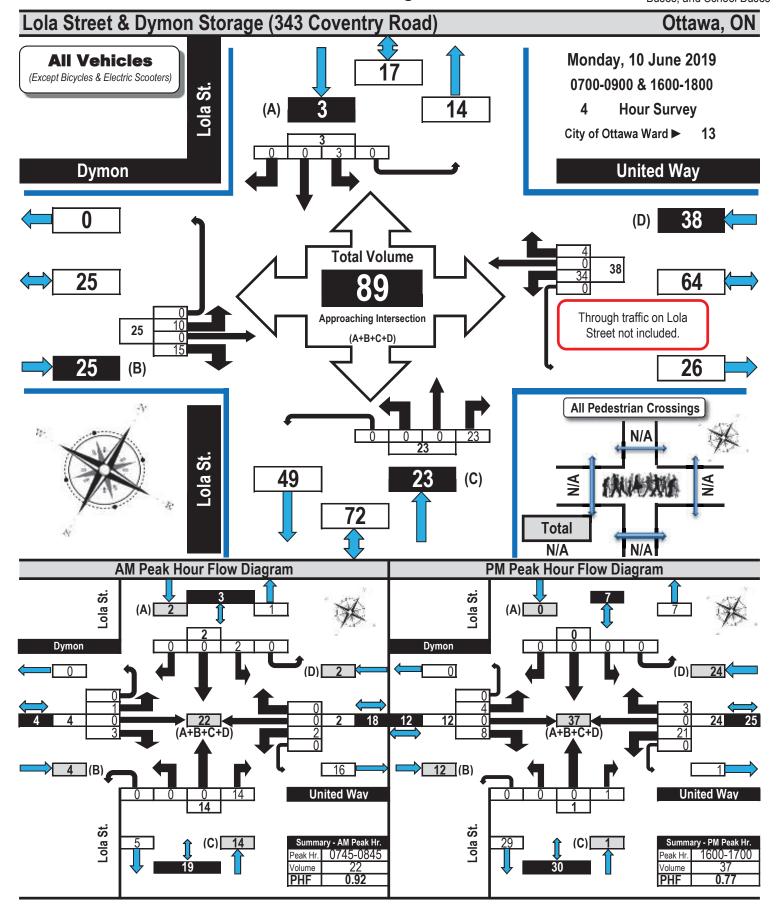




Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flow Diagrams: AM PM Peak

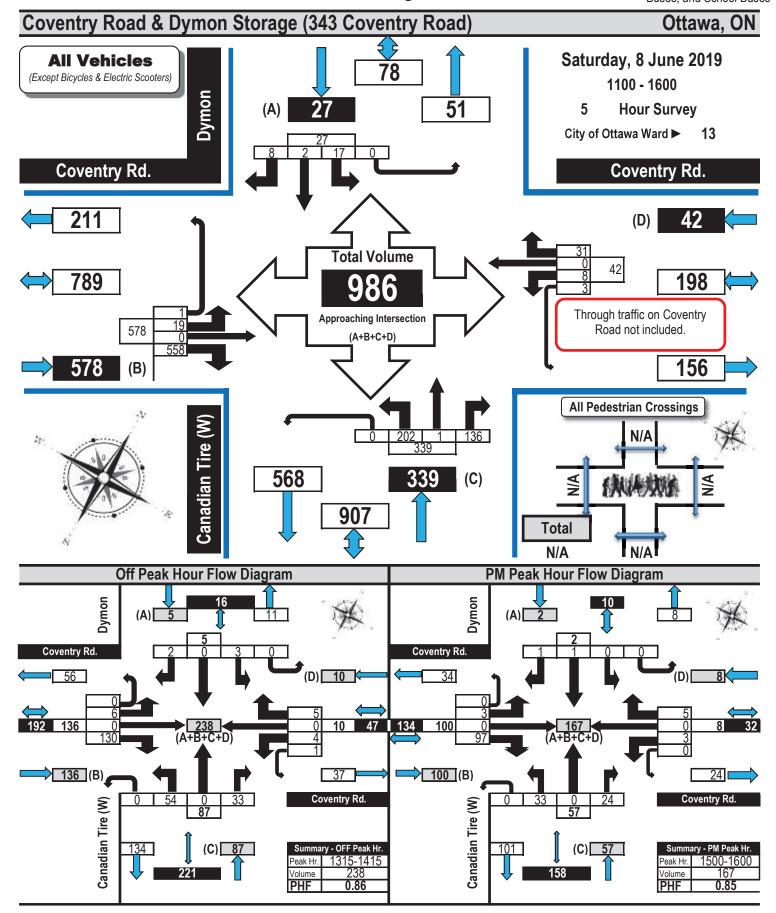




Turning Movement Count Summary, OFF and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flow Diagrams: OFF PM Peak

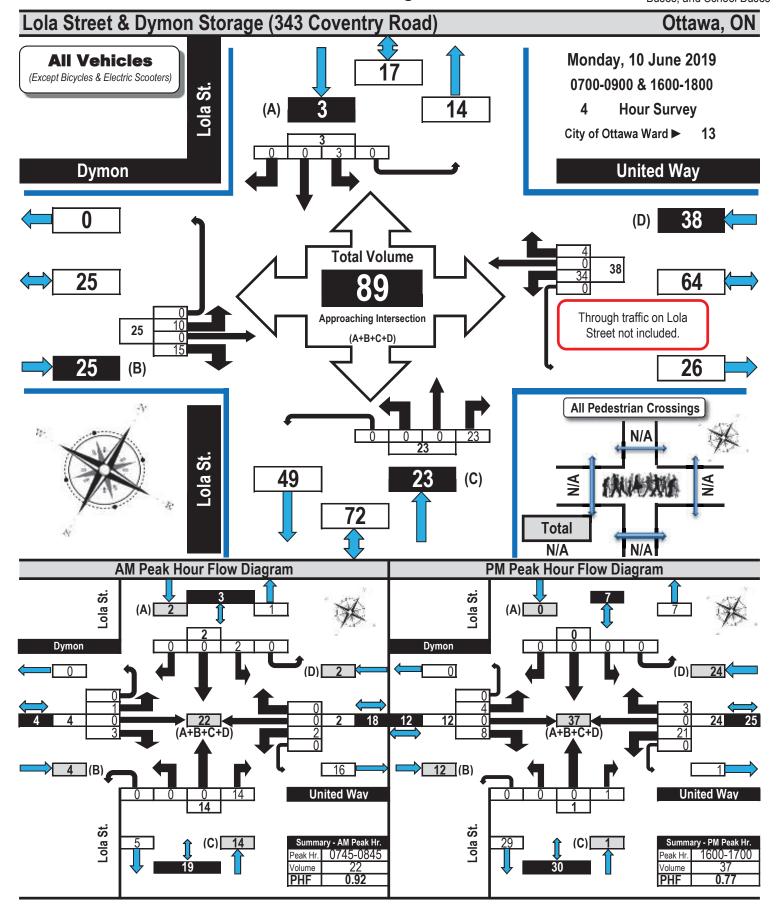


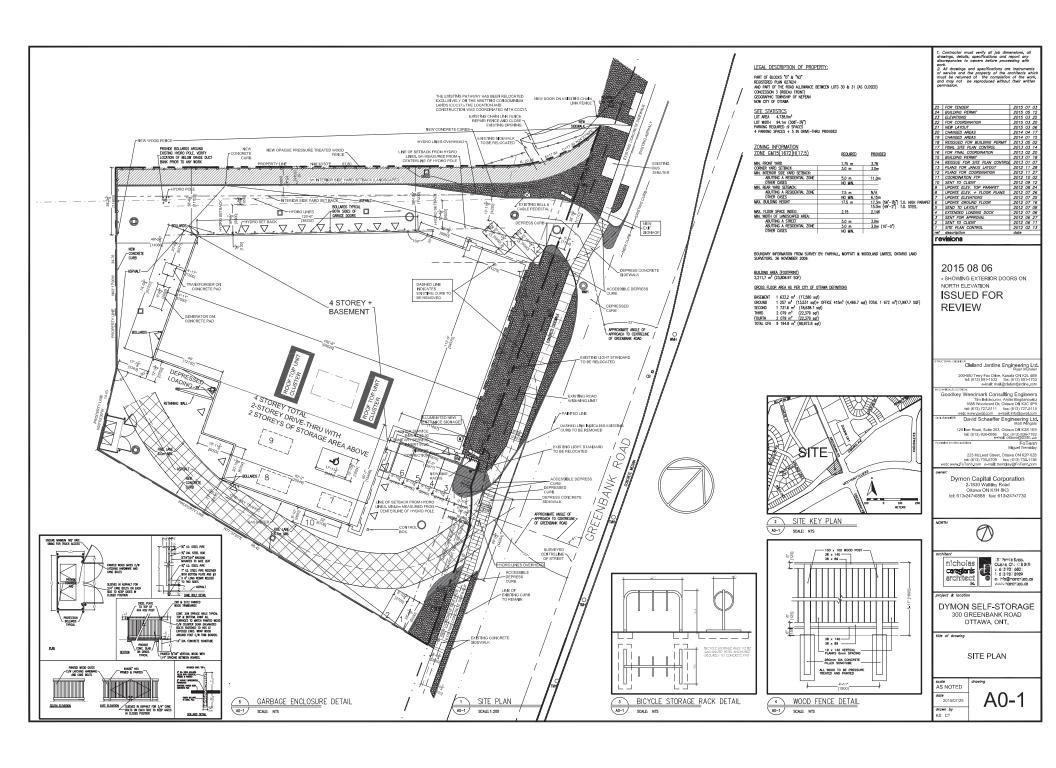


Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flow Diagrams: AM PM Peak



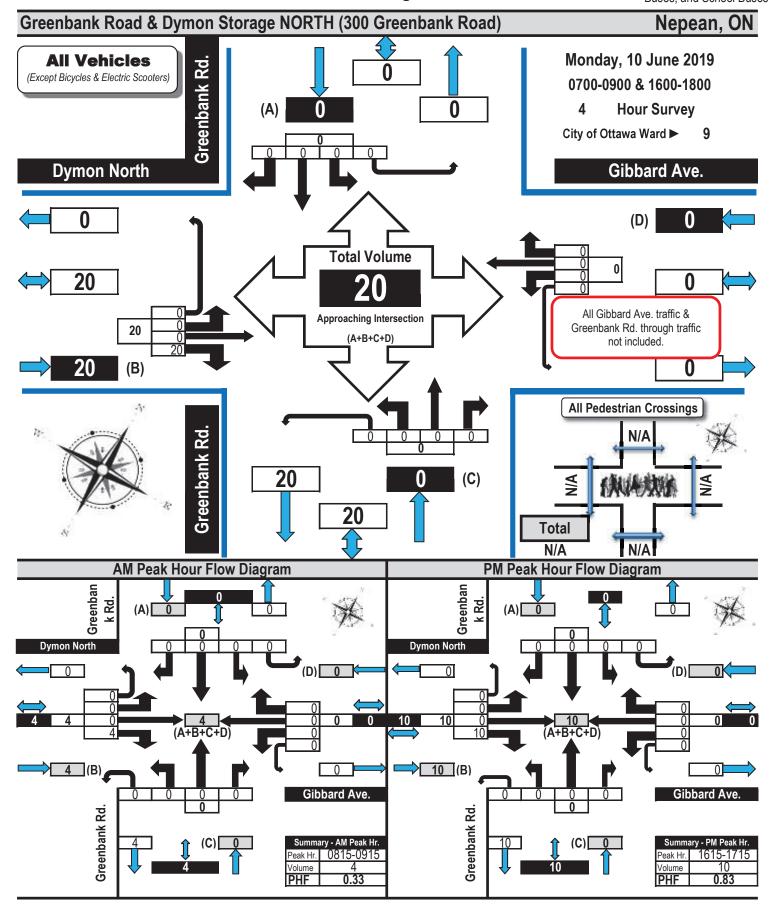




Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flow Diagrams: AM PM Peak



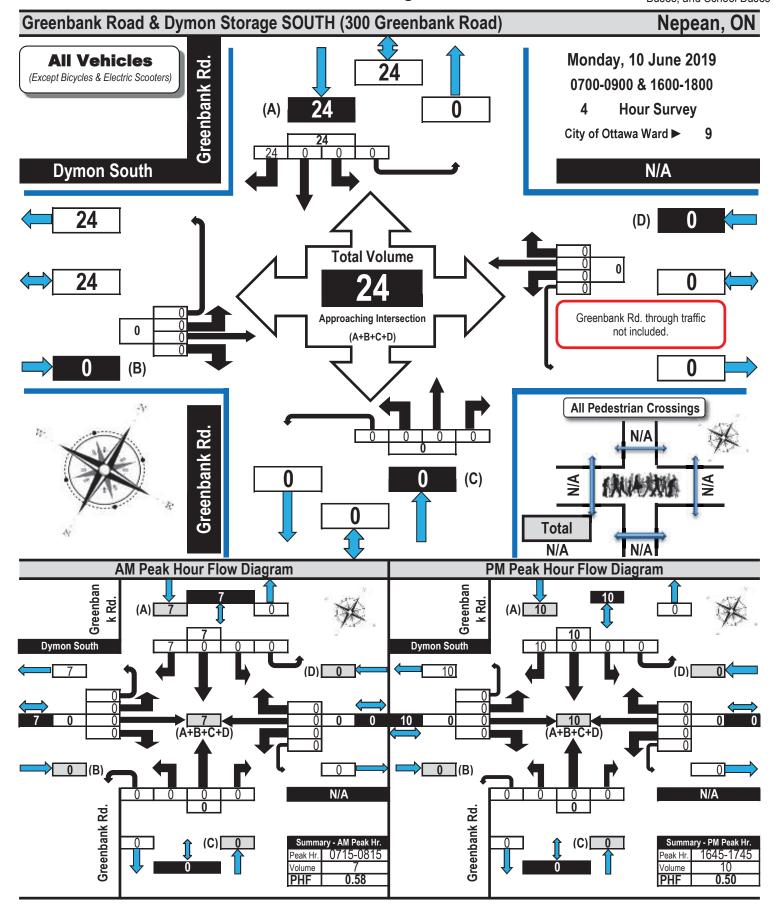


Printed on: 6/15/2019

Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flow Diagrams: AM PM Peak



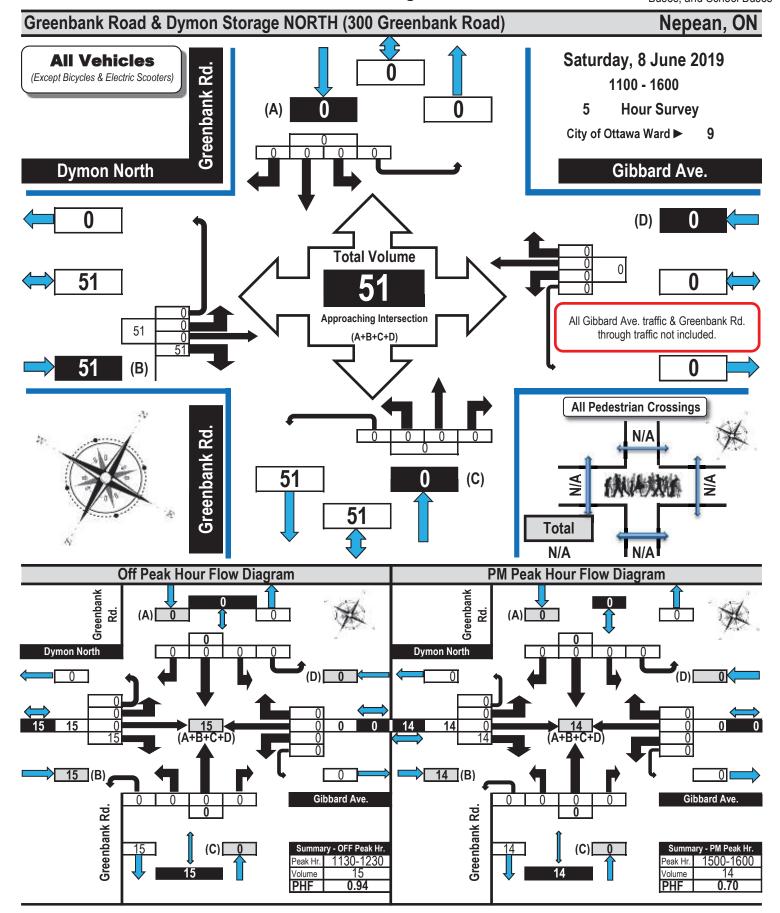


Printed on: 6/15/2019

Turning Movement Count Summary, OFF and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flow Diagrams: OFF PM Peak



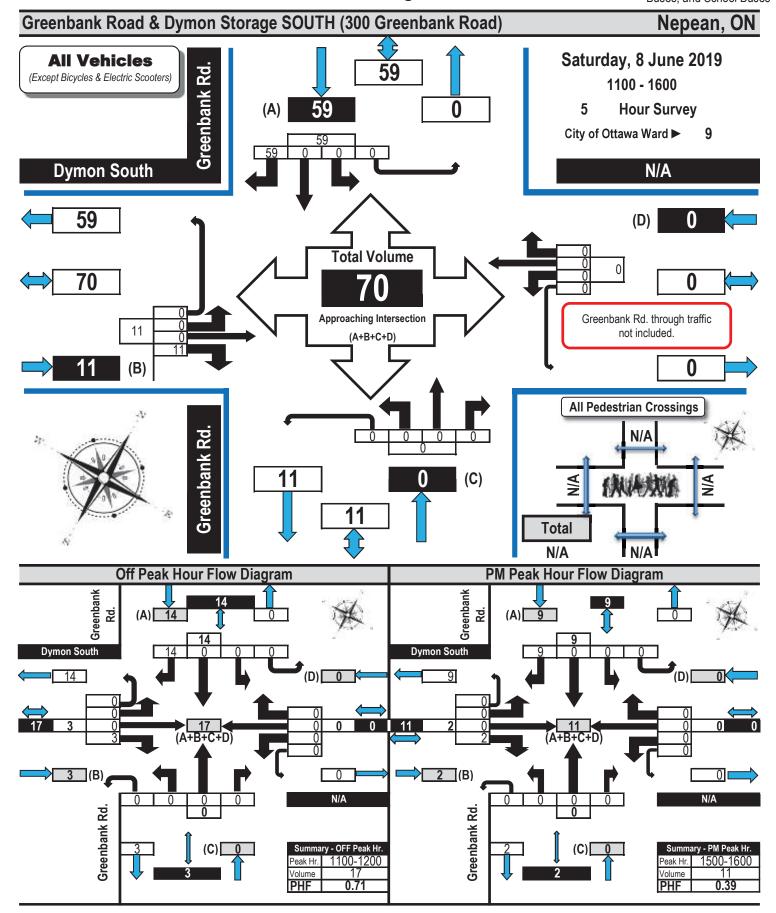


Printed on: 6/15/2019

Turning Movement Count Summary, OFF and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flow Diagrams: OFF PM Peak



Appendix C

ITE LUC 151 Mini Warehouse Description



Land Use: 151 Mini-Warehouse

Description

A mini-warehouse is a building in which a number of storage units or vaults are rented for the storage of goods. They are typically referred to as "self-storage" facilities. Each unit is physically separated from other units, and access is usually provided through an overhead door or other common access point.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/ suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 10:30 and 11:30 a.m. and 1:15 and 2:15 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Colorado, Massachusetts, Minnesota, New Jersey, Texas, and Utah.

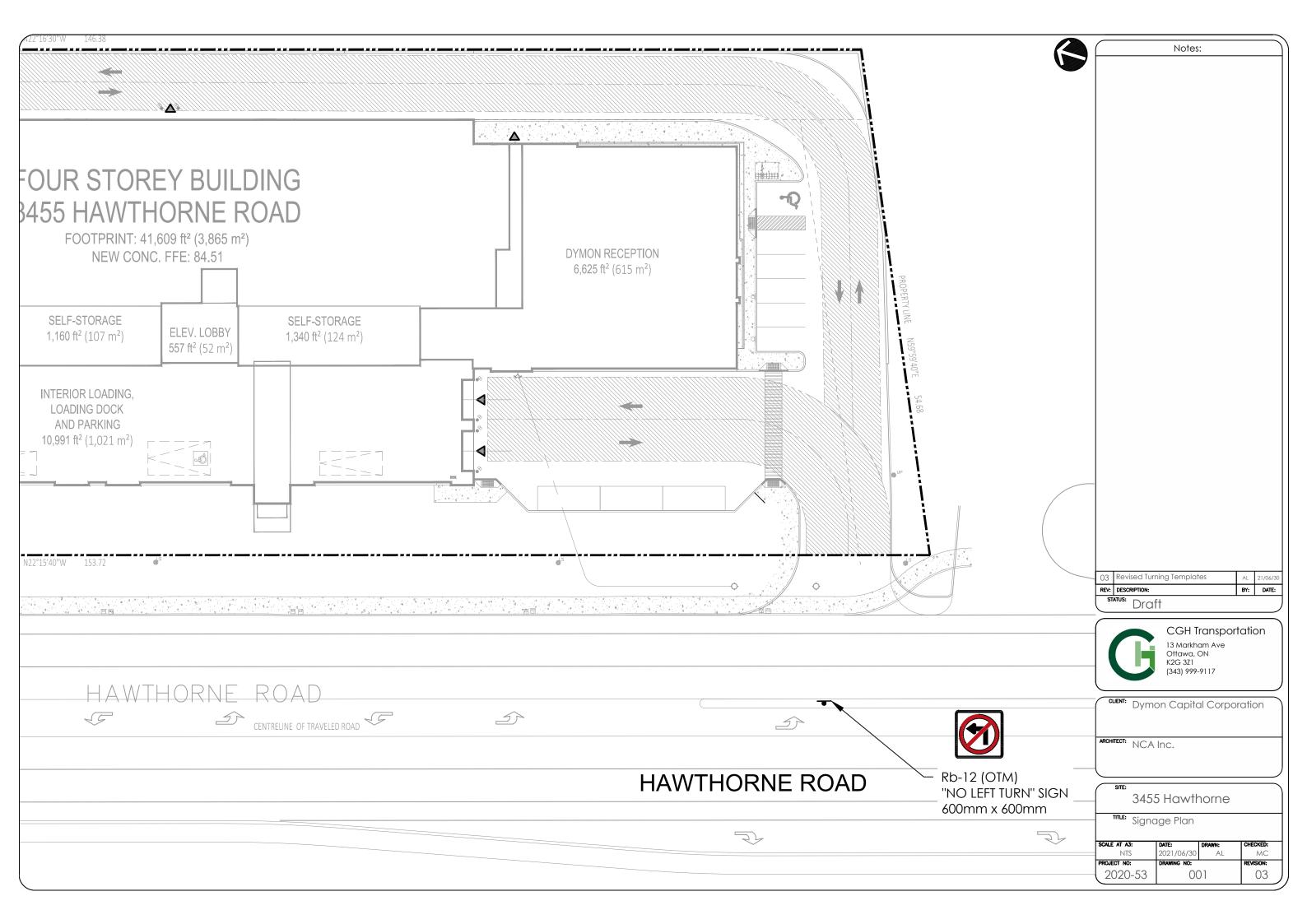
Source Numbers

212, 403, 551, 568, 642, 708, 724, 850, 868, 876

Appendix D

Traffic Signage Drawing

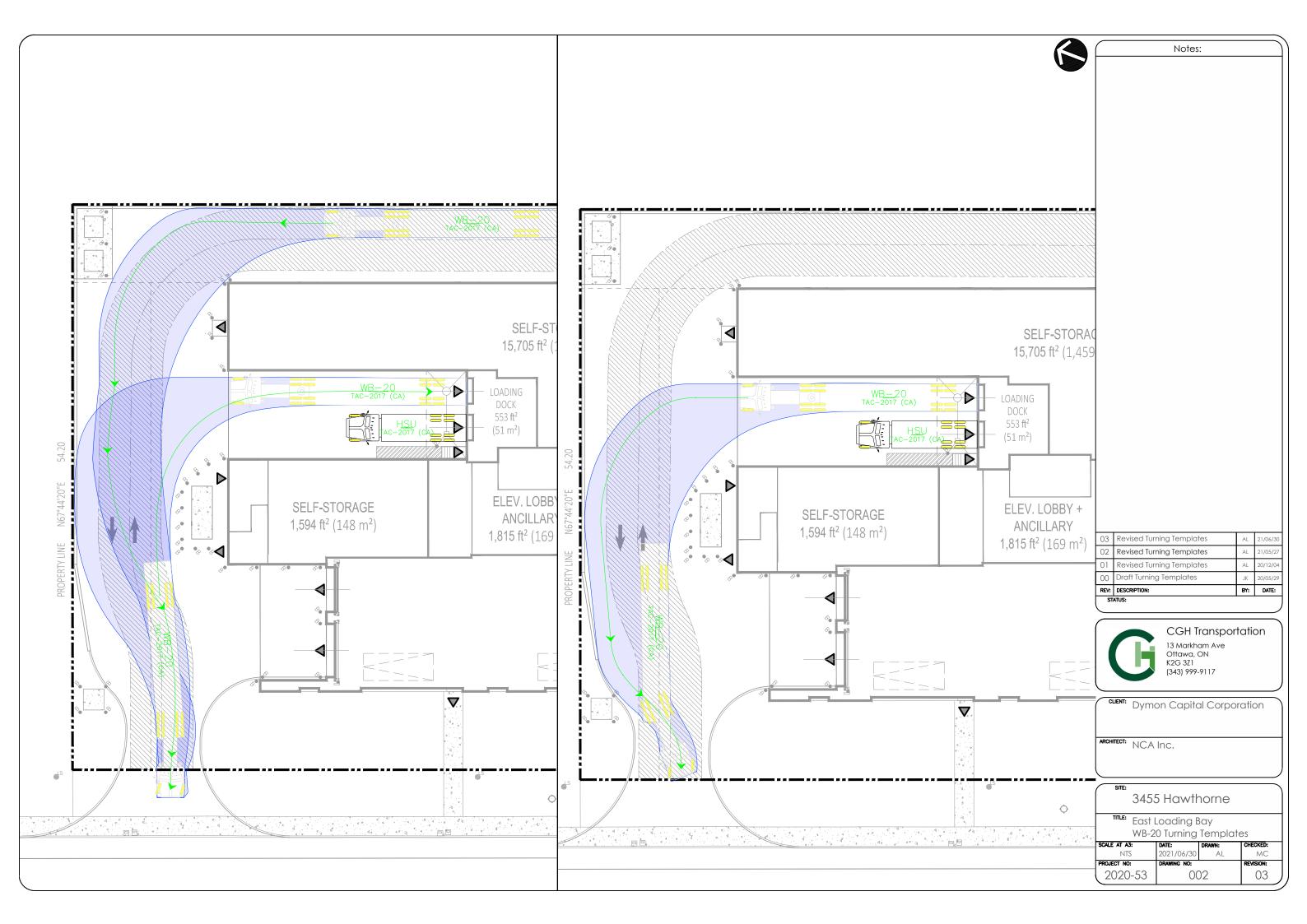


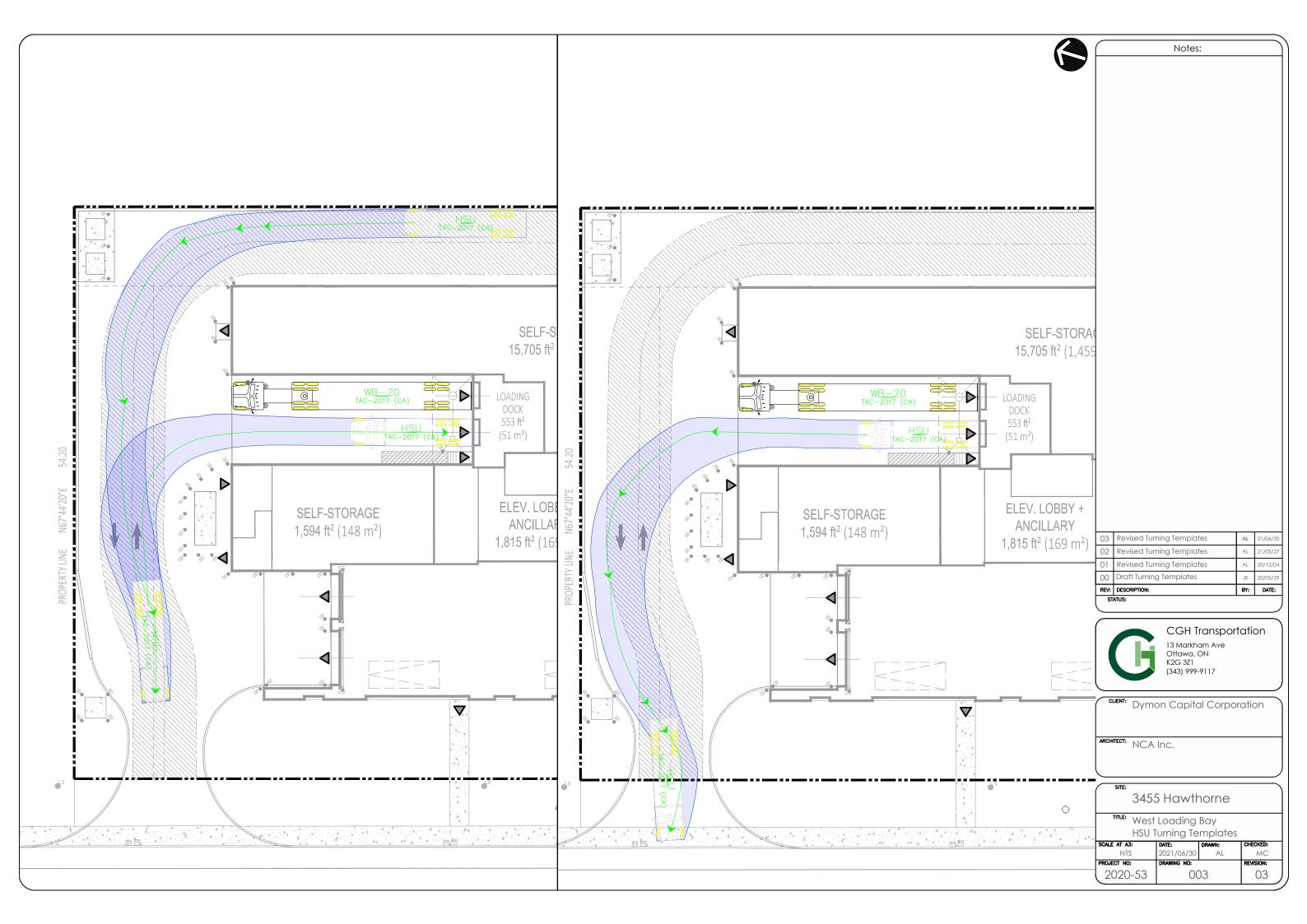


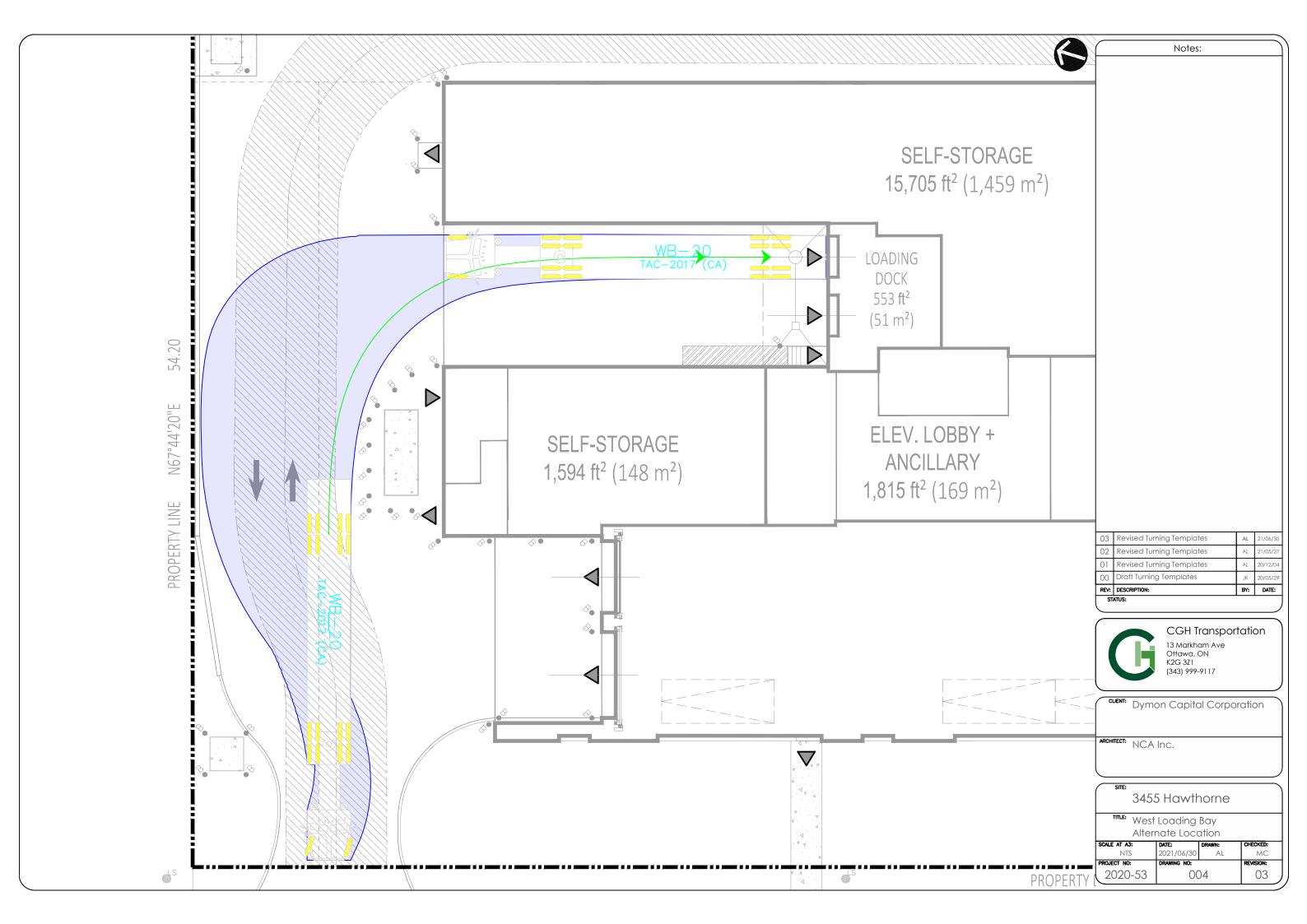
Appendix E

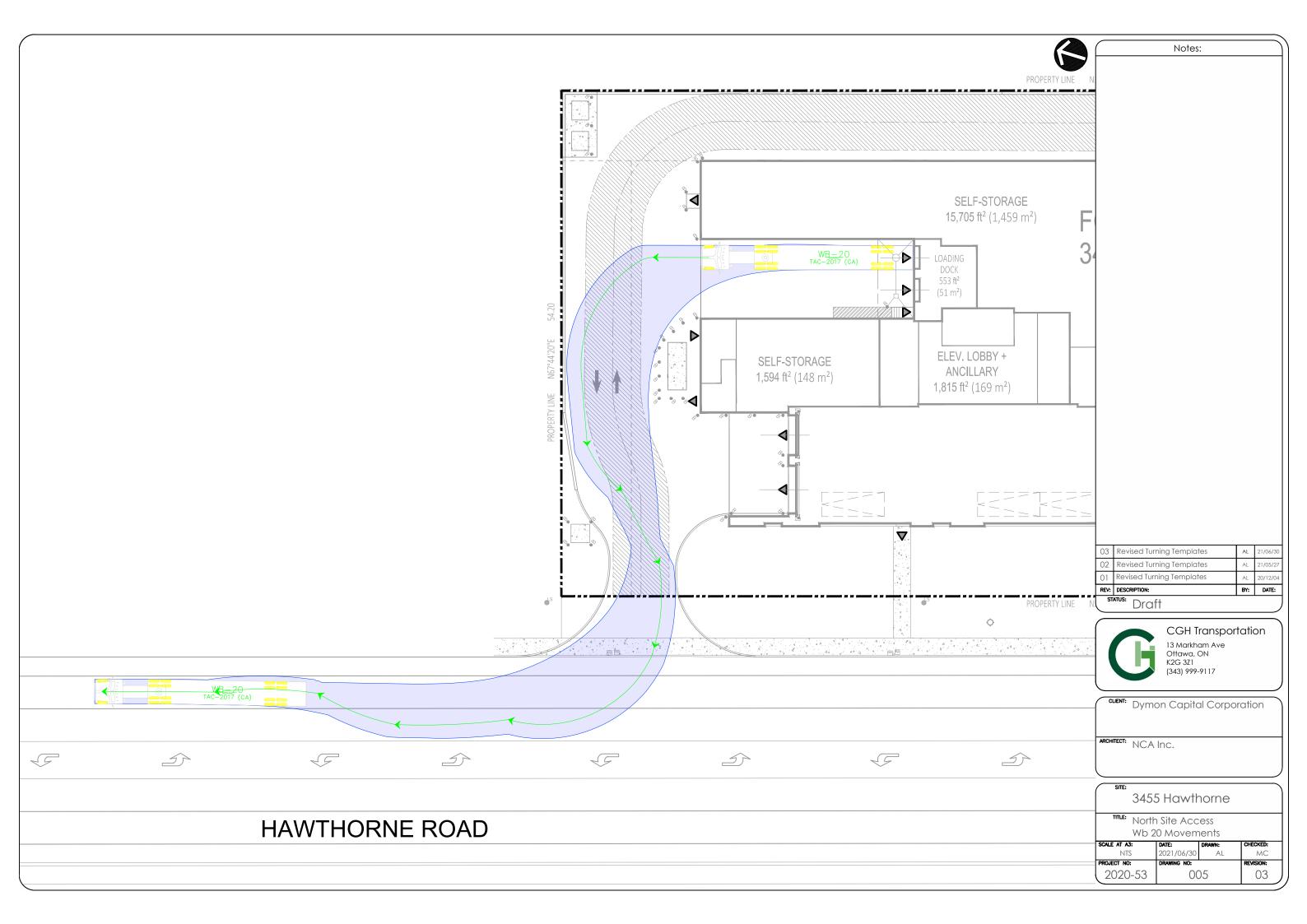
Turning Template Drawings

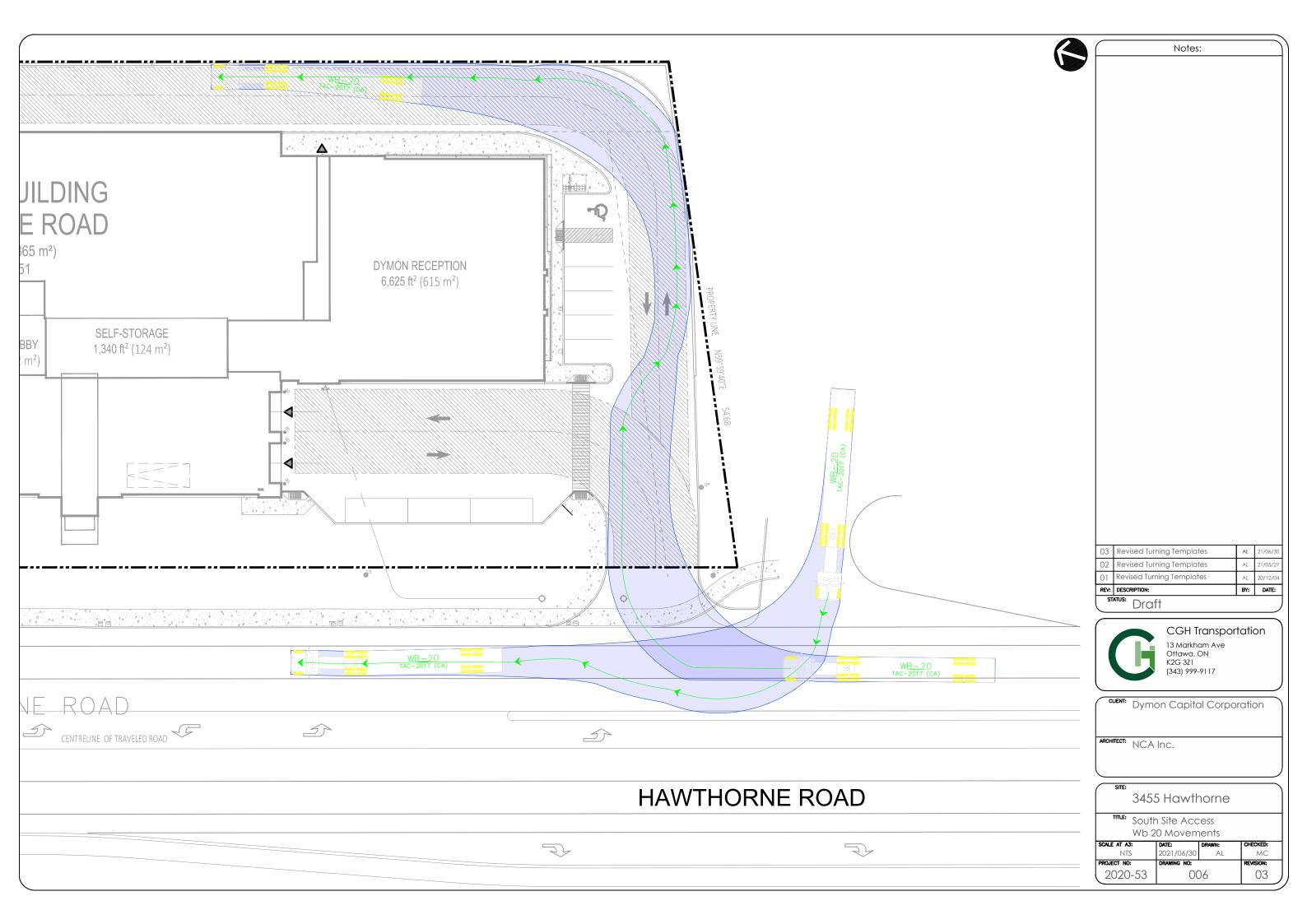








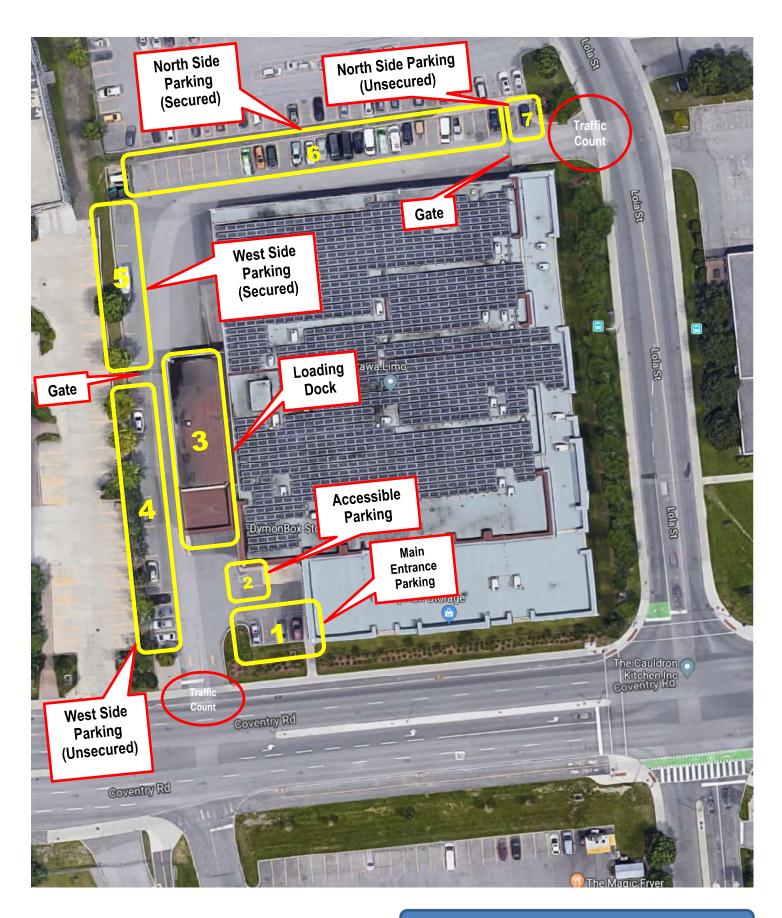




Appendix F

Proxy Site Parking Data

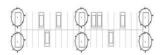






Revised: 07 June 2019

Off-Street Parking Usage



Dymon Storage - Off Street Parking Inventory

Dymon Storage

323 Coventry Road, Ottawa, ON K1K 3X6

Day: MONDAY Date: 10 June 2019 Survey Hours: 0730-2130 Weather: Partly cloudy +16C/Overcast Light Rain after 1900 +23C Surveyor (s): Brazeau/Carmody

		Numbe	er of Pa	rked Ve	hicles b	y Area	
Time	Area 1 Main Entrance	Area 2 Accessible	Area 3 Loading Dock	Area 4 West Side Unsecured	Area 5 West Side Secured	Area 6 North Side Secured	Area 7 North Side Unsecured
0700							
0730	0	0	1	3	3	15	2
0800	1	0	0	3	3	15	
0830	1	0	2	3	3	15	2
0900	1	0	2 2 3	3	3	15	2
0930	1	0	3	3	3	15	2
1000	1	0	4	3 3 3 3 5 6	3 3 3 3 3 3 3 4 3 3 4	15	2 2 2 2 2 2 2 2 2
1030	2	0	0	5	3	15	2
1100	2 2 2	0	5	6	3	15	2
1130 1200	2	0	6	5	3	14	2
1200		0	7	6	3	14	2
1230	1	0	7	4	3	14	2 2 2
1300	1	0	1	4 3 5 4 5 4	4	15	2
1330	0	0	1	3	3	15	2
1400	0	0	1	5	3	15	2
1430	1	0	5	4	3	14	2
1500	3	0	3	5	3	14	2
1530	4	0	1	4		14	2
1600	2	0	3	4	4	14	2
1630	1	0	1	4	3	16	2 2
1700	1	0	0	3	3	16	2
1730	2	0	1	3 3 3 4	ვ ვ ვ	16	2
1800	3	0	2	3	3	16	2
1830	3	0	3	4	3	16	2
1900	3	0	0	2	3	17	2
1930	2	0	1	2	3	16	2
2000	3	0	1	2	3	16	2
2030	3	0	1	2	3	16	2
2100	3	0	0	2	3	16	2
2130	2	0	0	2	3	16	2
of Pkg Spaces ⇒	4	1	N/A	11	4	22	2

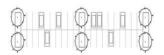
Comments
Area 4 - west side parking area, one
of the vehicles was a trailer parked for
every time period.
← Area 5 - one truck parked in middle
← Area 3 - truck in loading dock
← Area 5 - landscaping truck in middle
◆ Area 2 - truck parked beside accessible spot
← Area 5 - truck parked in middle of lot
4 / Nod 6 Walsh parhod III IIIIaalo oi lot
← Area 3 - truck in loading dock
◆ Area 3 - truck in loading dock
◆ Area 5 - pickup truck loading
Area 6 - north side parking area. Although
there are 30 spaces, parking is prohibited
in 8 of them to permit tractor trailers to
manoeuvre into the loading dock.
Accordingly, only 22 spaces are available
for long term parking.

Comments

323 Coventry	Area 1 Main	Area 2	Area 3 Loading	Area 4 West	t Area 5 West	Area 6 North Side	Area 7 North Side	Total	Total (Short	Total		Total (Sho	rt
Weekday	Entrance	Accessible	Dock		Side Secured		Unsecured		•	(Interior)	Total	Term)	
Stalls	4		1 N/A	1	1 4	1 2	22	2	44	,		•	
730	0		0	1	3 3	3 :	15	2	23	0	1	24	1
800	1		0	0	3 3	3 :	15	2	24	1	0	24	1
830	1		0	2	3 3	3 1	15	2	24	1	2	26	3
900	1		0	2	3 3	3 1	15	2	24	1	2	26	3
930	1		0	3	3 3	3 (15	2	24	1	3	27	4
1000	1		0	4	3 3	3 1	L5	2	24	1	4	28	5
1030			0	0	5 3		15	2	27	4	0	27	4
1100	2		0	5	6 3	3 1	15	2	28	5	5	33	10
1130			0		5 3		14	2	26	3	6	32	9
1200			0	7	6 3		14	2	27	4	7	34	11
1230				7	4 3		L4	2	24	1	7	31	8
1300			0	1	4 4			2	26	3	1	27	4
1330			0		3		15	2	23	0	1	24	1
1400			0	1	5 3			2	25	2	1	26	3
1430				_	4 3			2	24	1	5	29	6
1500			0	3	5 3			2	27	4	3	30	7
1530			_		4 4			2	28	5	1	29	6
1600			0		4 4		14	2	26	3	3	29	6
1630					4 3			2	26	3	1	27	4
1700			0		3 3		16	2	25	2	0	25	2
1730					3 3		16	2	26	3	1	27	4
1800					3 3		16	2	27	4	2	29	6
1830					4 3			2	28	5	3	31	8
1900					2 3			2	27	4	0	27	4
1930					2 3			2	25	2	1	26	3
2000					2 3			2	26	3	1	27	4
2030					2 3		16	2	26	3	1	27	4
2100					2 3		16	2	26	3	0	26	3
2130	2		0	0	2 3	3	16	2	25	2	0	25	2



Off-Street Parking Usage



Dymon Storage - Off Street Parking Inventory

Dymon Storage

323 Coventry Road, Ottawa, ON K1K 3X6

Day: SATURDAY Date: 8 June 2019 Survey Hours: 0830 -1830 Weather: AM Clear +10°C PM Clear +23°C Surveyor (s): Morgan/Carmody

		Numbe	er of Pa	rked Ve	hicles b	y Area	
Time	Area 1 Main Entrance	Area 2 Accessible	Area 3 Loading Dock	Area 4 West Side Unsecured	Area 5 West Side Secured	Area 6 North Side Secured	Area 7 North Side Unsecured
0700							
0730							
0800							
0830	1	0	1	3	2	14	2
0900	2	0	4	3	3	14	2
0930	3	1	5 4	2	3	14	2
1000	3 3 3 3 4	0		2 2 3 5 5 2	2 3 3 3 4	14	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
1030	3	0	4	3	3	14	2
1100	3	0	2	3		14	2
1130	3	0	0	5	4	14	2
1200		0	1	5	3 3 3 3 3 3 3 3 3 3 3 3 3	14	2
1230 1300	4	0	1	2	3	14	2
1300	3	0	2	2	3	14	2
1330	2	0	1	2	3	14	2
1400	3 4	0	2	2	3	13	2
1430		0	1	3	3	14	2
1500	3	0	6	3	3	14	
1530	3 3 4	0	2	3	3	15	2
1600	4	0	2 2 1	2 2 3 3 3 3 3	3	15	2 2 2 2 2 2 2
1630	3	0	2	3	3	15	2
1700		0			3	15	2
1730	4	0	1	2 2 2	3	15	2
1800	3	0	3	2	3	15	2
1830	2	0	1	2	3	15	2
1900							
1930							
2000							
2030							
2100							
2130	-	-			_	<u> </u>	
Snaces	1	1	NI/A	11	Λ	22	2

Comments

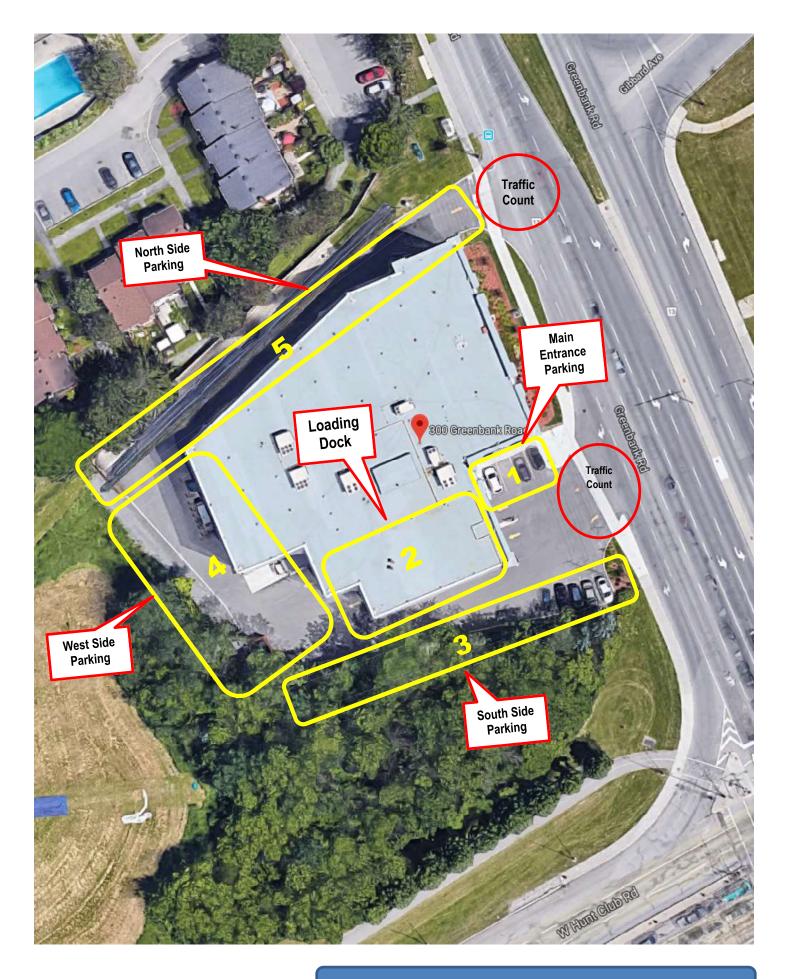
Area 4 - west side parking area one of the vehicles was a trailer parked for every time period.

Area 5 - west side parking area at 1100 and at 1130, one of the vehicles was a tractor trailer in the loading dock.

Area 6 - north side parking area 2 vehicles were trailers from 0830-1500 and after 1500-1830 3 of the vehicles were trailers.

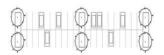
Area 6 - north side parking area Although there are 30 spaces, parking is prohibited in 8 of them to permit tractor trailers to manoeuvre into the loading dock. Accordingly, only 22 spaces are available for long term parking.

			Area 3	Area 4 Wes	st	Area 6	Area 7						
323 Coventry	Area 1 Main	Area 2	Loading	Side	Area 5 We	st North Side	e North Sid	de Total	Total (Short	Total		Total (Shor	t
Saturday	Entrance	Accessible	Dock	Unsecured	Side Secur	ed Secured	Unsecure	ed (Exterior) Term)	(Interior)	Total	Term)	
Stalls	4	1	1 N/A	:	l1	4	22	2	44				
830) :	1	0	1	3	2	14	2	22	0	1	23	1
900) 2	2	0	4	2	3	14	2	23	1	4	27	5
930) 3	3	1	5	2	3	14	2	25	3	5	30	8
1000) 3	3	0	4	2	3	14	2	24	2	4	28	6
1030) 3	3	0	4	3	3	14	2	25	3	4	29	7
1100) 3	3	0	2	3	4	14	2	26	4	2	28	6
1130) 3	3	0	0	5	4	14	2	28	6	0	28	6
1200) 4	1	0	1	5	3	14	2	28	6	1	29	7
1230) 4	1	0	1	2	3	14	2	25	3	1	26	4
1300) (3	0	2	2	3	14	2	24	2	2	26	4
1330) 2	2	0	1	2	3	14	2	23	1	1	24	2
1400) 3	3	0	2	2	3	13	2	23	1	2	25	3
1430) 4	1	0	1	3	3	14	2	26	4	1	27	5
1500) 3	3	0	6	3	3	14	2	25	3	6	31	9
1530) 3	3	0	2	3		15	2	26	4	2	28	6
1600) 4	1	0	2	3	3	15	2	27	5	2	29	7
1630		3	0	2	3		15	2	26	4	2	28	6
1700) 3	3	0	1	2	3	15	2	25	3	1	26	4
1730		1	0	1	2		15	2	26	4	1	27	5
1800) :	3	0	3	2	3	15	2	25	3	3	28	6
1830) 2	2	0	1	2	3	15	2	24	2	1	25	3





Off-Street Parking Usage



Dymon Storage - Off Street Parking Inventory

Dymon Storage

300 Greenbank Road, Ottawa, ON K2H 0B6

Day: MONDAY Date: 10 June 2019 Survey Hours: 0700-0900 & 1600-1800

Weather: Partly Cloudy +16C/Overcast Light Rain after 1900 +23C Surveyor (s):

		Numbe	er of Pa	rked Ve	hicles b	y Area	
Time	Area 1 Main Entrance	Area 2 Loading Dock	Area 3 South Side Parking	Area 4 West Side Parking	Area 5 North Side Parking		
0700	0	0	0	0	0		
0730	0	0	2	0	0		
0800	0	0	3	1	0		
0830	0	1	3 3	0	0		
0900	0	1	3	0	0		
0930							
1000							
1030 1100 1130							
1100							
1130							
1200							
1230 1300							
1300							
1330							
1400							
1430							
1500							
1530			_				
1600	1	2	2	0	0		
1630	0	2 3 2 2 3	1	0	0		
1700	0	2	1	0	0		
1730	0	2	4	0	0		
1800	1	3	4	0	0		
1830							
1900							
1930							
2000							
2030							
2100							
2130		N1/A					

1 employee parked 1 employee Dymon van parked near gargage bin
BFG van parked next to building
Jordash van parked in fire lane
Accessible parking area is located within the loading dock.

Mousseau

Comments

of Pkg Spaces >

1

N/A

5

0

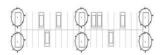
thetrafficspecialist@gmail.com

Off-Street Parking Usage

		Area 2							
300 Greenbank	Area 1 Main	Loading	Area 3 Sout	h Area 4 Wes	st Area 5 Nor	th Total	Total		
Weekday	Entrance	Dock	Side Parking	g Side Parkin	g Side Parkir	ng (Exterior)	(Interior)	Total	
Stalls	۷	1 N/A		5	0	0	9		
700) ()	0	0	0	0	0	0	0
730) ()	0	2	0	0	0	2	2
800) ()	0	3	1	0	1	3	4
830) ()	1	3	0	0	1	3	4
900) ()	1	3	0	0	1	3	4
1600) 1	L	2	2	0	0	3	2	5
1630) ()	3	1	0	0	3	1	4
1700) ()	2	1	0	0	2	1	3
1730) ()	2	4	0	0	2	4	6
1800	1	l	3	4	0	0	4	4	8



Off-Street Parking Usage



Dymon Storage - Off Street Parking Inventory

Dymon Storage

300 Greenbank Road, Ottawa, ON K2H 0B6

Day: SATURDAY Date: 8 June 2019 Survey Hours: 1100 - 1600 Weather: Clear +10°C Clear +23°C Surveyor (s): Mousseau

	Number of Parked Vehicles by Area								
Time	Area 1 Main Entrance	Area 2 Loading Dock	Area 3 South Side Parking	Area 4 West Side Parking	Area 5 North Side Parking				
0700									
0730									
0800									
0830									
0900									
0930									
1000									
1030									
1100	1	4	4	0	0				
1100 1130	2	6	3 3 3	0	0				
1200	1	4	3	0	0				
1230	1	1	3	0	1				
1300	1	2	3	0	0				
1330	1	1	4	0	0				
1400	0	2	5	0	1				
1430	0	2	3 4	0	0				
1500	0	7		0	0				
1530	1	6	4	0	0				
1600	0	2	4	0	0				
1630									
1630 1700 1730									
1730									
1800									
1830									
1900									
1930									
2000									
2030									
2100									
2130		NI/A	F	•	^				
g Spaces 🖈	4	N/A	5	0	0				

Comments
At 1100 and at 1500 a van
parked in the fire lane.
Employee parking takes place
Employee parking takes place in Area #3 (3 vehicles)
Accessible parking area is
located within the loading dock.

		Area 2							
300 Greenbank	Area 1 Main	Loading	Area 3 South	Area 4 West	Area 5 North	Total	Total		
Saturday	Entrance	Dock	Side Parking	Side Parking	Side Parking	(Exterior)	(Interior)	Total	
Stalls	4	N/A	5	0	0	9)		
1100	1	. 4	4	0	0	5	5	4	9
1130	2	. 6	3	0	0	8	3	3	13
1200	1	. 4	3	0	0	5	5	3	8
1230	1	. 1	3	0	1	3	3	3	6
1300	1	. 2	3	0	0	3	3	3	6
1330	1	. 1	4	0	0	2	2	4	6
1400	0	2	5	0	1	3	3	5	8
1430	0	2	3	0	0	2	2	3	5
1500	0	7	4	0	0	7	7	4	11
1530	1	. 6	4	0	0	7	7	4	11
1600	0	2	4	0	0	2	2	4	6