

**Consolidated Agenda - Development & Heritage
Standing Committee Meeting**

Date: June 6, 2022
Time: 4:30 o'clock p.m.

Location: Council Chambers, 1st Floor, Windsor City Hall

All members will have the option of participating in person in Council Chambers or electronically and will be counted towards quorum in accordance with Procedure By-law 98-2011 as amended, which allows for electronic meetings. The minutes will reflect this accordingly. Any delegations will be participating electronically.

MEMBERS:

Ward 3 – Councillor Rino Bortolin (Chairperson)

Ward 4 – Councillor Chris Holt

Ward 5 – Councillor Ed Sleiman

Ward 7 – Councillor Jeewen Gill

Ward 10 – Councillor Jim Morrison

Lynn Baker

Andrew Foot

Joseph Fratangeli

Anthony Gyemi

John Miller

Dorian Moore

Jake Rondot

ORDER OF BUSINESS

Item # Item Description

1. CALL TO ORDER

READING OF LAND ACKNOWLEDGEMENT

We [I] would like to begin by acknowledging that the land on which we gather is the traditional territory of the Three Fires Confederacy of First Nations, which includes the Ojibwa, the Odawa, and the Potawatomie. The City of Windsor honours all First Nations, Inuit and Métis peoples and their valuable past and present contributions to this land.

2. DISCLOSURES OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

3. REQUEST FOR DEFERRALS, REFERRALS OR WITHDRAWALS

4. COMMUNICATIONS

5. ADOPTION OF THE *PLANNING ACT* MINUTES

5.1. Development and Heritage Standing Committee Minutes (*Planning Act* Matters) from the meeting held May 2, 2022 (**SCM 136/2022**)

5.2. Minutes of Special Meeting of Development and Heritage Standing Committee (*Planning Act*) Meeting held May 10, 2022 (**SCM 148/2022**) (*attached*)

6. PRESENTATION DELEGATIONS (*PLANNING ACT* MATTERS)

7. *PLANNING ACT* MATTERS

7.1. Multi-Residential Interim Control By-law Study - Proposed Official Plan Amendment and Zoning By-law Amendment (**S 64/2022**)

Clerk's Note: The City Planner submits the following revision to the RECOMMENDATION found on page 12 of 24 of report: Delete Section 11.2.5.4.10 "Gross Floor Area – maximum – 400 m²" and Section 11.2.5.5.10 "Gross Floor area – maximum – 400 m²". Andi Shallvari, CPA submitting the *attached* letter received June 3, 2022 as a written submission.

Delegation: a) Laura Strahl, Planner III
b) Andi Shallvari, CPA

- 7.2. Zoning By-Law Amendments for 1646 to 1648 Drouillard Road; File Z-004/22 (ZNG/6659) Ward 7 (**S 46/2022**)
Delegations:
a) Kevin Alexander, Senior Planner (powerpoint)
b) Jacob Dickie, Agent, Urban in Mind (powerpoint)
- 7.3. Official Plan and Rezoning Amendments – Tunio Development – 3885 & 0 Sandwich Street - OPA 152 OPA [6504] Z-028/21 ZNG[6503] - Ward 2 (**S 65/2022**)
Clerk’s Note: City Planner providing **attached** email dated June 2, 2022 outlining revisions from the applicant. Cheryl Jordan, property owner in area submitting the **attached** email dated May 24, 2022 as a written submission. Kevin Kelly, President, Kelbour Management submitting the **attached** email dated May 25, 2022 as a written submission.
Delegations:
a) Kevin Alexander, Senior Planner (powerpoint)
b) Tracey Pillon-Abbs, Principal Planner
c) Qingheng Yu, owner of property on Peter Street
- 7.4. Draft Plan of Condominium with Exemption under Section 9(3) of the Condominium Act – St. Clair Rhodes Development – 233 Watson Avenue – Ward 6 (**S 55/2022**)
Delegations:
a) Jim Abbs, Planner III (powerpoint)
b) Brian Chillman, Solicitor representing applicant St. Clair-Rhodes Development
c) Sheila Luno, Property Manager, Mid South Land Developments Corp.
- 7.5. Rezoning – Andi Shallvari - 716 Josephine Ave - Z-011/22 ZNG/6703 - Ward 2 (**S 56/2022**)
Delegations:
a) Adam Szymczak, Senior Planner (powerpoint)
b) Andi Shallvari, CPA
- 7.6. Approval of a Draft Plan of Subdivision for lands located on the south side of North Talbot Rd, between Southwood Lakes Blvd and HWY 401; File No. SDN-001/21[SDN/6575]; Applicant – Bellocorp Inc.; Ward 1 (**S 59/2022**)
Clerk’s Note: Barry Horrobin, Director of Planning & Physical Resources, Windsor Police service indicates a change in Recommendation I, Part E, Item 12 found on page 3 of 22. The term “Commissioner of Police” should be replaced with “Chief of Police”. Scott Dube, area resident submitting the **attached** email dated May 23, 2022 as a written submission.
Delegations:
a) Justina Nwaesei, Senior Planner (powerpoint)
b) Tracey Pillon-Abbs, Principal Planner
c) Tosin Bello, Applicant; and Chintan Virani, Architect

8. **ADOPTION OF THE MINUTES**

- 8.1. Adoption of the Development & Heritage Standing Committee minutes of its meeting held May 2, 2022 (**SCM 125/2022**)

9. **PRESENTATIONS AND DELEGATIONS (COMMITTEE ADMINISTRATIVE MATTERS)**

10. **HERITAGE ACT MATTERS**
- 10.1. 1478 Kildare Road, Cunningham Sheet Metal (formerly) - Heritage Permit Request (Ward 4) (**S 60/2022**)
Delegation:
 - a) James Gibb, representing the applicant (available for questions)
- 10.2. Request for Heritage Permit – 3036 Sandwich Street, McKee Park (Ward 2) (**S 61/2022**)
Delegation:
 - a) Terry Kennedy, resident of Ward 2
- 10.3. Request for Partial Demolition of a Heritage Listed Property- 2038 Willistead Crescent, C.E. Platt House (Ward 4) (**S 62/2022**)

11. **ADMINISTRATIVE ITEMS**
- 11.1. Bill 109, More Homes for Everyone Act, 2022 – Changes to the Planning Act Affecting Site Plan Control Approval, City Wide (**S 57/2022**)
- 11.2. Closure of part of southerly half of north/south alley between Brant Street and Wyandotte Street East, Ward 3 (**S 58/2022**)
Clerk’s Note: Kelly White, area resident submitting the **attached** email dated June 2, 2022 as a written submission.
Delegation:
 - a) Brian Nagata, Planner II
 - b) David Mady, VP Real Estate, Rosati Group (available for questions)
 - c) Kelly White, area resident

12. **COMMITTEE MATTERS**

13. **QUESTION PERIOD**

14. **ADJOURNMENT**



Committee Matters: SCM 148/2022

Subject: Adoption of the Development & Heritage Standing Committee minutes of its Special Meeting (*Planning Act* Members only) held May 10, 2022

SPECIAL MEETING - Development & Heritage Standing Committee (*Planning Act Members only*)

Date: Tuesday, May 10, 2022

Time: 4:30 o'clock p.m.

Members Present:

Councillors

Ward 3 - Councillor Bortolin (Chairperson)

Ward 5 - Councillor Sleiman

Ward 7 - Councillor Gill

Ward 10 - Councillor Morrison

Members

Member Gyemi

Member Rondot

Members Regrets

Ward 4 - Councillor Holt

Member Moore

Clerk's Note: Members participated via video conference, in accordance with Procedure By-law 98-2011 as amended, which allows for electronic participation.

ALSO PARTICIPATING VIA VIDEO CONFERENCE ARE THE FOLLOWING FROM ADMINISTRATION:

Jelena Payne, Commissioner of Economic Development & Innovation

Thom Hunt, City Planner

Neil Robertson, Manager of Urban Design / Deputy City Planner

Wira Vendrasco, Deputy City Solicitor – Legal & Real Estate

Kirk Whittal, Executive Director of Housing & Children Services

Jeff Hagan, Transportation Planning Senior Engineer

Laura Strahl, Planner III – Special Projects

Adam Szymczak, Planner III – Zoning

Sandra Gebauer, Council Assistant

Anna Ciacelli, Deputy City Clerk / Supervisor of Council Services

Minutes

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Delegations—participating via video conference

- Item 7.1 Ron Palmer, The Planning Partnership; and Jim Dymont, Municipal Planning Consultants
- Item 7.1 Kevin Miller and Larry Silani, on behalf of MillerSilani Inc.

1. CALL TO ORDER

Following the reading of the Land Acknowledgement, the Chairperson calls the Special Meeting of the Development & Heritage Standing Committee (*Planning Act* members only) to order at 4:31 o'clock p.m.

2. DISCLOSURES OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

None disclosed.

3. REQUEST FOR DEFERRALS, REFERRALS OR WITHDRAWALS

None requested.

Councillor Morrison leaves the meeting at 5:48 o'clock p.m.

7. PLANNING ACT MATTERS

7.1. Multi-Residential Interim Control By-law Study - Background Reports

Moved by: Member Rondot
Seconded by: Councillor Gill

Decision Number: **DHSC 396**

THAT the report of the Senior Planner – Special Projects dated April 14, 2022 entitled "Multi-Residential Interim Control By-law Study - Background Reports" **BE RECEIVED** for information.
Carried.

Councillor Morrison was absent from the meeting when the vote was taken on this matter.

Report Number: S 50/2022
Clerk's File: Z/13872

Minutes

Development & Heritage Standing Committee Tuesday, May 10, 2022

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13. QUESTION PERIOD

None registered.

14. ADJOURNMENT

There being no further business the Special Meeting of the Development & Heritage Standing Committee (*Planning Act* members only) is adjourned at 6:23 o'clock p.m.
Carried.

Ward 3 - Councillor Bortolin
(Chairperson)

Deputy City Clerk / Supervisor
of Council Services

From: Andi Shallvari, CPA

To: Development and Heritage Standing Committee

Re: Amendment to zoning by laws 85-18 and 8600 (June 6, 2022) to reduce building height to 9 M and implement maximum gross floor area to 400 SQM (4300 SQF)

Statement: The proposed zoning changes of reducing building height to 9M and gross floor area to 4300 SQF will work against new developments of affordable housing and Missing Middle projects such as townhouses in core neighbourhoods around the City.

It is my opinion as a professional accountant (CPA), builder and housing provider that reducing the building height in all residential zones from 10 meters to 9 in addition to implementing a maximum GFA of maximum 4300 SQF in all residential buildings will eliminate a 3rd storey and at the same time reduce building footprint on a semi-detached, townhouse, 4 plex building forms, all known as Missing Middle. These restrictions will significantly impact Missing Middle building designs because it translates to a **48% loss** in living space in each dwelling (See calculations attached). For the last 7 years I have been focused only on Missing Middle typology because they provide great living options and are affordable. After reviewing the proposed zoning changes, it is my expert opinion that from a cost perspective the new proposed height reduction combined with a maximum limit on GFA of 4300 SQF will make it financially impossible to develop any future Missing Middle projects. The reality is that Windsor is growing, and all of us are seeing the high land values and increasing construction costs. The proposed zoning restriction indirectly will make new housing more costly on a per square footage of building cost. It will force and incentivise all private developers to only build two types of buildings:

- Luxury Single Family homes that will be priced to sell over \$1.5M
- High Rise Condominiums with very small units and floor plans

More so this new proposal will lead to private developers abandoning plans to develop and build much needed new housing in existing neighbours (Downtown, West End etc). Instead, the private capital will be allocated to fuel more suburban sprawl and farmland conversion outside Windsor. The cost of servicing sprawl is something that City Windsor should consider carefully here. A wrong zoning policy now will cause financial pains for many decades and a huge burden to future generations.

I consider myself a big supporter of Missing Middle developments because they provide:

- A variety of living options and alternative unit layouts (vs single family detached or condos)
- A nice transition into existing neighbourhoods from High Rise to Single Family Detached
- Affordable housing options for families with children (either owning or renting)

- They add gentle density on existing city infrastructure. They add more tax revenues to city and require less servicing costs (making them a great value for City and all Windsor taxpayers). Municipal services can be delivered more efficiently in areas with gentle density.

I would like the committee members to consider the following numbers and comparisons:

1. Selling prices of new condos average \$500-600/sqf compared to Missing Middle dwellings at \$360-400/sqf
2. Rental rates of new condo units average \$2.00-2.50/sqf compared to Missing Middle dwellings at \$1.47-1.56/sqf (based on 2 newly built 4 plexes offering all inclusive utilities and with \$0 rent increase for 5 years)

The point I am trying to make is that Housing Affordability will not improve but continue to get worse until we all work together to address and try to reduce the building costs on a per square footage for any new living space (costs such as land, materials, labour, permits, soft costs etc). Lately we are hearing the term affordability being used everywhere but it should be just a simple number, specifically the dollar (\$) cost/sqf of living space one can afford (to buy or rent). We already agreed to implement the Licensing regime which will add extra costs to rentals. Adding the height and GFA restrictions will reduce how much sqf of living space can be built on a vacant lot which will directly increase the cost/sqf of any new living space that will be built (This is simple economics). All these extra costs will be passed to the end user being either homeowner or renter. With this new proposal we will be setting up a City with very limited housing options (basically only 2 options, either the luxury detached home or the expensive small condo in a high rise).

I encourage the committee members to raise the following questions as it relates to the reduction of the proposed building height to 9M (from 10M) and limiting GFA to 4300 SQF on all building forms:

1. Based on last 4 years data of new condo buildings that are approved and being built, are there any figures on how many units will be considered affordable as it compares to the total number of units produced?
2. Has the city performed an assessment on how the new height reduction (to 9M) and limiting GFA on all buildings will influence and impact builder decisions as it relates to building costs and sale/rent prices that will be passed to the end consumer? Simply put what exactly are we trying to accomplish with this new proposal of reducing height and GFA? What are the goals? Were builders and housing providers consulted on the proposed changes?
3. Has the city performed any assessment on how this proposal could intensify suburban sprawl and more farmland turned into subdivisions due to developers allocating their capital towards financially viable projects?
4. Has the city performed an analysis of how the new height reduction (to 9M) and limiting GFA on all buildings impacts the following initiatives that City Windsor has put forward in the last 4 years:
 - a. Affordable Housing initiatives

- b. Incremental Development Workshop sponsored by City Windsor in Oct 2019 with its main goal to incentivise building Missing Middle (This program was very valuable and sparked a lot of interest in Missing Middle. The new zoning changes seem very contradictory and against what the City itself has been promoting in the last 3 years)
 - c. ADUs and requirements from Provincial Planning Statement to have 3 dwellings in 1 lot
 - d. Windsor Works - An Economic Development Strategy for the City's Future Growth
5. Has the City reviewed or considered what City of Ottawa has done to make their New Official Plan more flexible to build Missing Middle? **See Appendix 1 for Ottawa's 613 Flats** and the 6 building typologies they suggest for different infill lots.

In conclusion it is my opinion that the current proposal of reducing building height to 9M combined with limiting GFA to 4300 SQF in all residential neighbourhoods will eliminate Missing Middle developments which are the most affordable housing option available (either owning or renting). It also seems to go against the urbanization trends we are seeing in cities all over Canada (Ottawa, Edmonton, Waterloo, Guelph etc). Lastly it seems inconsistent with many initiatives that City Council has put forward in the last 4 years. I hope that a major decision like this one will be thoroughly discussed before proceeding with a significant change that will impact all new residential buildings in Windsor. Finally, my recommendations to the Committee are:

1. To prepare a study on how the proposed zoning changes impact housing affordability
2. To engage builders, developers and housing providers in order to put forward a plan that includes feedback from the industry. The average buyer or renter will not know how zoning rules impact building costs and most likely will blame the builder or the landlord for the high cost of their future home. The Committee should bring builders as housing providers in the discussion to better understand the difficulties, challenges and increasing costs we are facing daily on the building sector.

Sincerely,

Andi Shallvari, CPA

May 19, 2022 article from Windsor Star

<https://windsorstar.com/news/erosion-of-housing-affordability-in-ontario-during-pandemic-worst-in-five-decades>



613 Flats

The “613 Flats” are a play on words to identify a new type of residence that has six rooms in total, one of them being a bathroom and three of them being bedrooms. The 613 Flats are homes that could be built in established neighbourhoods to provide additional housing choice. They increase housing options while respecting the required amenity space, trees, soft landscaping and neighbourhood context.

Intensification.

These units support one of the New Official Plan’s primary goals of achieving more growth through intensification than urban expansion. These units are meant to attract families and larger households to existing neighbourhoods, where in the past they would find their housing needs satisfied mainly in new suburban communities.

15 Minute Neighbourhoods.

613 Flats support the goal of creating 15-minute neighbourhoods by adding new housing that fits within the context of the neighbourhood. These new households will help support local businesses, schools and parks within a short walk from their home. Living in a walkable neighbourhood with these amenities helps promote better social, physical and mental health.

Trees and Landscaping.

The 613 flats designs will require trees and soft landscaping to contribute to the existing character of the street and grow the City’s urban tree canopy.

Flexibility.

These examples of 613 Flats are examples of how neighbourhoods could evolve. There could be many other types of new homes through intensification. The New Official Plan sets the stage with high level policy to allow these new forms of homes while providing flexibility in design and shape across different Transect and neighbourhood needs.

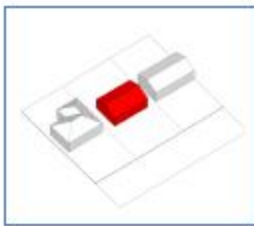
New forms of homes will provide.

- more housing choice at affordable price points
- help City residents move into neighbourhoods that were not a viable choice due to the lack of inventory
- provide greater housing choice for Ottawa residents across our many different and wonderful neighbourhoods

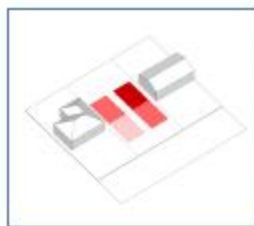
Typology #1: 18mx30m Lot



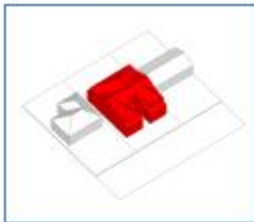
Typology #1 illustrates a new housing idea that could integrate within the City's Neighbourhood Designations to contribute to the Official Plan's regeneration objectives. Allowing a greater number of units on an existing lot also addresses issues of housing affordability. This option provides four freehold units which can each accommodate three bedrooms.



1. Original Site
18m X 30m Lot



2. Lot Distribution
-4 Private Lots & Parking



3. Built Form
Single Building



4. Unit Distribution
Four Freehold Units

TYPOLOGY BREAKDOWN

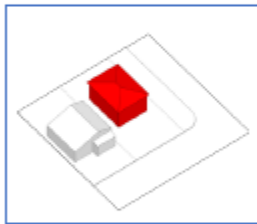
- This Typology is suitable for lots that are 18mX30m or more in size
- This Typology is divided into four freehold ownership units with common circulation easements
- Parking stalls are hidden from the public realm, at grade under the building footprint
- Each unit can accommodate three bedrooms for a total area of about 130sq.m. per unit
- This Typology also allows for the possibility of an additional 65sq.m secondary dwelling units at grade
- This model would be most suitable in cases where creating a closer setback to the street is appropriate, such as Minor Corridors, or where existing setbacks are similar enough.



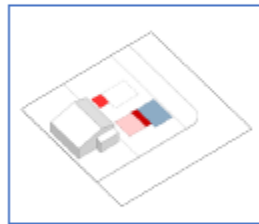
Typology #2: 18mx30m Lot



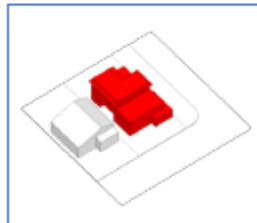
Typology #2 illustrates a new housing idea that could integrate within the City's Neighbourhood Designations in order to contribute to the Official Plan's regeneration objectives. Allowing a greater number of units on an existing lot also addresses issues of housing affordability. This new housing option provides three freehold units along with a corner retail/commercial unit to contribute to 15-minute neighbourhoods. Each residential unit can accommodate three bedrooms.



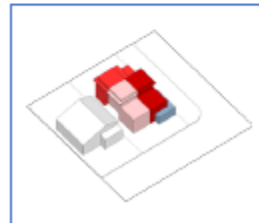
1. Original Site
18m X 30m Corner Lot



2. Lot Distribution
3 Private Lots & Parking



3. Built Form
Single Building



4. Unit Distribution
Three Freehold Units
+ Retail

TYPOLGY BREAKDOWN

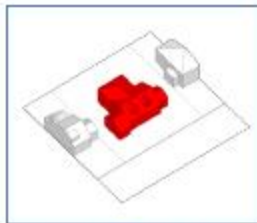
- This Typology is suitable for corner lots that are 18mX30m or more in size
- This Typology is divided into three freehold ownership units with common circulation easements
- Parking stalls are hidden from the public realm, at grade under the building footprint
- Each unit can accommodate three bedrooms with two units of 158sq.m. and one unit of 130sq.m.
- This Typology also allows for the possibility of a 65sq.m retail space at grade



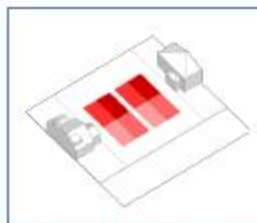
Typology #3: 15mx30m Lot



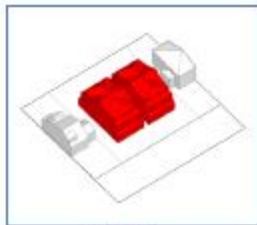
Typology #3 illustrates a new housing idea that could integrate within the City's Neighbourhood Designation in order to contribute to the Official Plan's regeneration objectives. Allowing a greater number of units on an existing lot also addresses issues of housing affordability. This new housing option provides four freehold units. Each residential unit can accommodate three bedrooms.



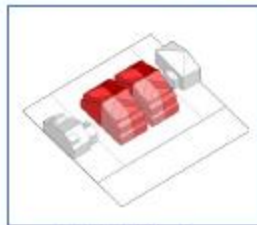
1. Original Site
30m X 30m Lot



2. Lot Distribution
Two - 15m X 30m Lots Each Divided
Into 4 Private Lots & Parking



3. Built Form
Two - 15m X 30m Lots Each Divided
Into 4 Private Lots & Parking



4. Unit Distribution
Four Freehold Units/15X30m
Lot Eight New Units Total

TYPOLGY BREAKDOWN

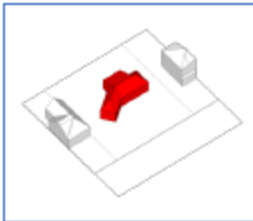
- This Typology is suitable for lots that are 30mX30m or more in size, or on lots that are 15mX30m
- This Typology is divided into four freehold ownership units with common circulation easements
- Parking stalls are provided at grade in the rear yard with access along the side
- Each unit can accommodate three bedrooms of about 121sq.m
- This Typology also allows for the possibility of 37sq.m secondary dwelling units in each basement



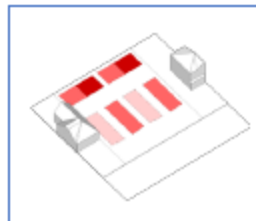
Typology #4: 15mx30m Lot



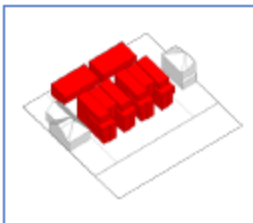
Typology #4 illustrates a new housing idea that could integrate within the City's Neighbourhood Designations to contribute to the Official Plan's regeneration objectives. Allowing a greater number of units on an existing lot also addresses issues of housing affordability. This new housing option provides six strata-units and two coach houses. Each of the strata-units unit can accommodate three bedrooms.



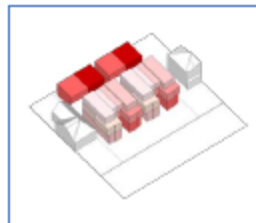
1. Original Site
30m X 30m Lot



2. Lot Distribution
Two - 15m X 30m Lots Each Divided
Into 2 Private Lots & Parking



3. Built Form
Single Building + Coach House/New
Lot (2 buildings)



4. Unit Distribution
Six Strata Units + 2 Coach
Houses/ 15X30m Lot
(16 New Units Total)

TYPOLOGY BREAKDOWN

- This Typology is suitable for lots that are 30mX30m or 15mX30m or more in size
- This Typology is divided into two lots, each with three strata-units and one coach house
- Parking stalls are provided at grade in the rear yard under the coach house with access along the side
- Each lot can accommodate one, three bedroom unit of 121sq.m and two, two bedroom units of 79sq.m.
- This Typology also allows for the possibility of a 44sq.m coach house on each lot, in the rear yard



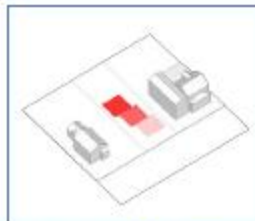
Typology #5: 12mx30m Lot



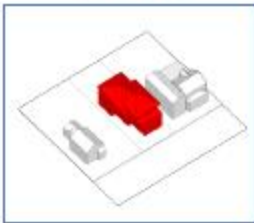
Typology #5 illustrates a new housing idea that could integrate within the City's Neighbourhood Designations in order to contribute to the Official Plan's regeneration objectives. Allowing a greater number of units on an existing lot also addresses issues of housing affordability. This new housing option provides three units that can each accommodate three bedrooms.



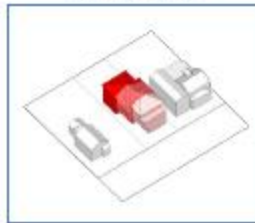
1. Original Site
12m X 30m Lot



2. Lot Distribution
Three Private Lots



3. Built Form
Single Building



4. Unit Distribution
Three Freehold Units

TYPOLOGY BREAKDOWN

- This Typology is suitable for lots that are 12mX30m or more in size
- This Typology is divided into three freehold lots with common circulation easements
- This typology does not allow for parking on site
- Each lot can accommodate three, three bedroom units of about 130sq.m



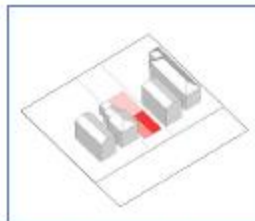
Typology #6: 9mX30m Lot



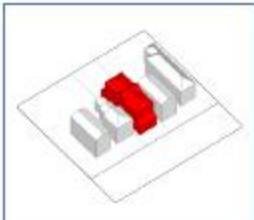
Typology #6 illustrates a new housing idea that could integrate within the City's Neighbourhood Designation in order to contribute to the Official Plan's regeneration objectives. Allowing a greater number of units on an existing lot also addresses issues of housing affordability. This new housing option provides three units that can each accommodate three bedrooms.



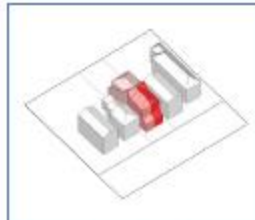
1. Original Site
9m X 30m Lot



2. Lot Distribution
Three Private Lots



3. Built Form
Single Building



4. Unit Distribution
Three Freehold Units

TYPOLOGY BREAKDOWN

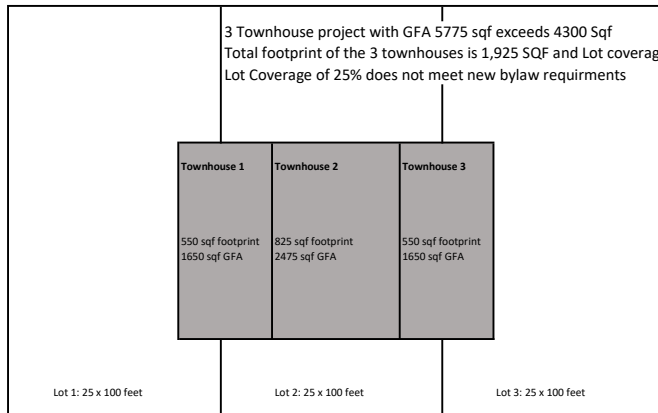
- This Typology is suitable for lots that are 9mX30m or more in size
- This Typology is divided into three freehold lots with common circulation easements
- This typology does not allow for parking on site
- Each lot can accommodate three, three bedroom units of about 121sq.m



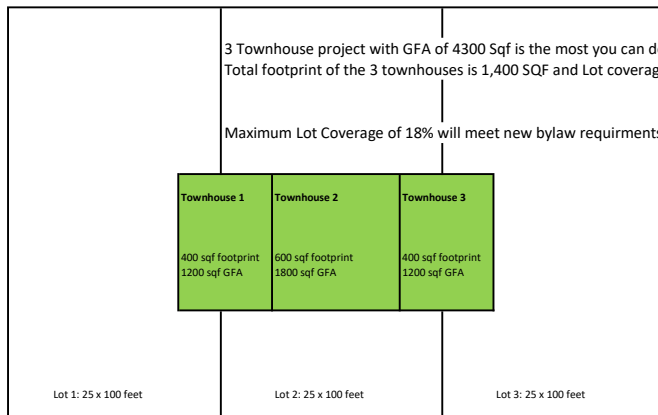
3 houses of 10,125 SQF combined GFA are allowed
 Total footprint of the 3 houses is 3,375 SQF and Lot coverage ratio is 45%
 (each detached house has 3,375 sqf GFA)



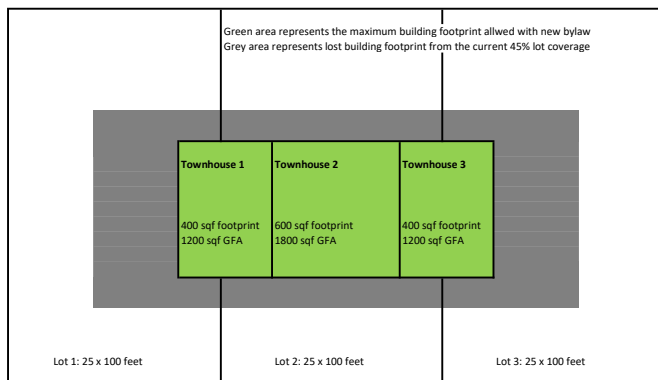
Scenario 1
 Exact same land size (75x100 feet) offers different outcomes



Scenario 2



Scenario 3



Scenario 3.1

June 6, 2022
Development & Heritage Standing Committee
Item 7.3 – Revisions from Applicant

From: Alexander, Kevin <kalexander@citywindsor.ca>
Sent: June 2, 2022 9:39 AM
To: Ciacelli, Anna <aciacelli@citywindsor.ca>; Toldo, Beth <toldob@citywindsor.ca>
Subject: FW: S 65/2022_3885 and 0 Sandwich St.

On May 31st, 2022, the applicant provided a revised Parking Justification Report and Traffic Impact Study to further support a reduction in required parking for Official Plan and Zoning By-law amendments regarding the proposed Combined Use Building located at 3885 and 0 Sandwich Street. The attached studies include revisions to the reports identified as Appendix 'N' and 'O' of Report S 65/2022.

Generally, the changes include the following which **do not have any bearing on the recommendations** of Report S 65/2022.

Parking Justification Report

- On page 4 under Proposed Condition the amount of commercial area is corrected from 2900 ft² to 6697 ft².
- Revisions are included on page 5 regarding addressing Zoning By-law 8600 related to required parking spaces. The additions discuss how the site is serviced by Transit and other alternative modes of transportation (biking and walking), which encourages resident's and visitors to use alternative modes of transportation other than automobile use.
- Revisions also discuss how car share spaces will be provided and that there is a reduction in the demand for commercial spaces in the evening, which will allow residents to use their spaces upon mutual agreement between residents and commercial units.
- The last paragraph of Pages 5 to 7 discuss Parking demand based on the Institution of Transportation Engineering (ITE) and how the number of parking spaces is calculated based on the ITE manual and how if this methodology is considered that actually deficient number of parking spaces is only 15.

Traffic Impact Study

- On page 2 under Proposed Development the amount of commercial area is corrected from 2900 ft² to 6697 ft².
- The traffic analysis was revised to include the trips from the new proposal; there is a relatively small increase in trip generation due to the changes from the original proposal. The conclusions remain that no off-site changes are required to accommodate this development.



**PARKING JUSTIFICATION REPORT
MIXED USED DEVELOPMENT
3885 SANDWICH STREET**

WINDSOR, ONTARIO

PROJECT NO. 20-028

DATED: MAY 25, 2022



27 Princess St., Unit 102
Leamington, ON N8H 2X8
519.326.6161 TF 1.844.842.9188
bairdAE.ca

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1.1 Background 1

1.2 Development Proposal 1

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- Exhibit 2: Parking Stalls

APPENDIX

- Appendix A Site Plan and Background Information
- Appendix B By-Law and ITE Parking Generation Manual
- Appendix C Photos

1. INTRODUCTION

1.1 Background

Baird AE has been retained to prepare a Parking Study in support of the site plan application for the proposed mix-use high-rise development on Sandwich Street in City of Windsor. The land is currently zoned as Commercial District (CD) per the City of Windsor's planning department.

The purpose of the study is to determine the adequacy of parking supply to meet the requirements of the proposed development. The site currently consists of grass and gravel section.

The proposed development location is shown in Exhibit 1 below.



Exhibit 1 - Location Plan

1.2 Development Proposal

The development is 0.67ha in size which will consist of new high-rise building with retail section on ground floor, parking spaces and landscape area. The site is bounded by Chappell Avenue to the south, Sandwich Street to the west, and residential development to the north and east.

The new building is 11-Storey high consist of parking space and retail store of 6697 ft² (622.17m²) in size on ground floor and 150 residential units with 70 single bedrooms units and 80 double bedroom units on all other floors.

2.0 EXISTING CONDITIONS

2.1 Road Network Characteristics

The existing road network and lane configuration are described in Table 1. To avoid confusion in the road network direction, it is assumed that Sandwich Street runs in an east-west fashion.

Table 1: Roadway

Component	Sandwich Street	Chappell Avenue
Direction	East-West	North-South
Speed limits	50 km/h	50 km/h
Cycling Facilities	No	No
On-Street Parking	No	Yes

The subject development is located in the western part of the city with transit services within the study area. These transit buses provide residents and visitors to travel to/from urban center and then to all parts of the city.

2.2 Existing Parking Areas

As shown in City of Windsor parking map (Appendix A), a substantial amount of existing parking is located within the vicinity of the development. Chappell Avenue is two-way streets with an urban cross-section and on-street parking is allowed on one side with no restriction at all times. Whereas, no on-street parking is available on Sandwich Street.

Based on aerial image, approximately 12 stalls are available at Chappell Avenue for resident and visitor use. Exhibit 2 shows the location of the parking.

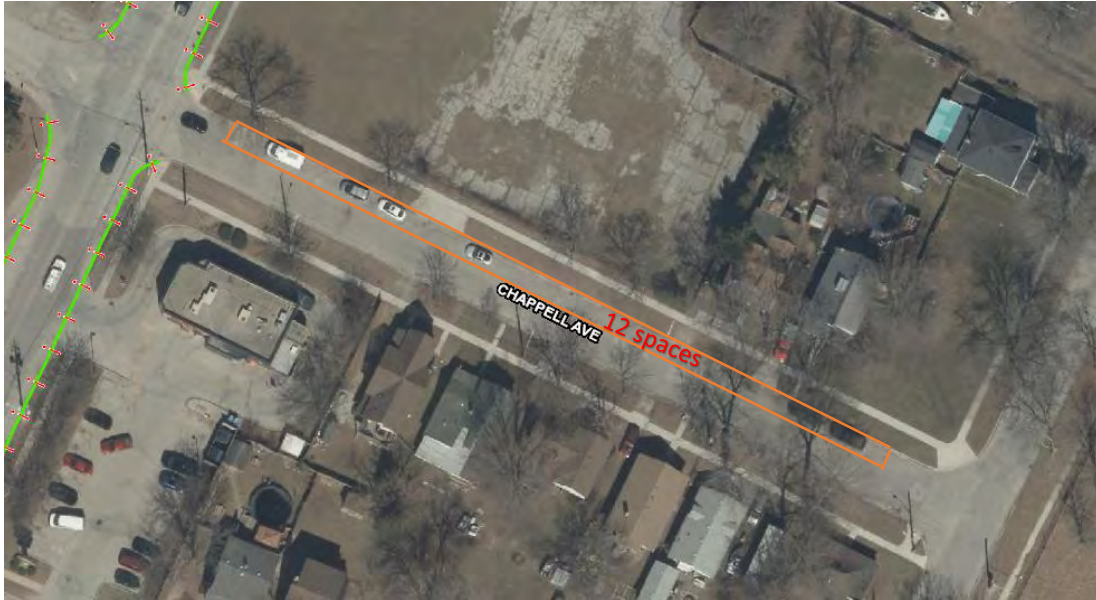


Exhibit 2 – Parking Stalls

2.3 Future Parking Areas

Based on City of Windsor reconstruction plan of Sandwich Street, approximately 8 new stalls will be available on Sandwich Street in front of development. Exhibit 3 shows the location of the parking.

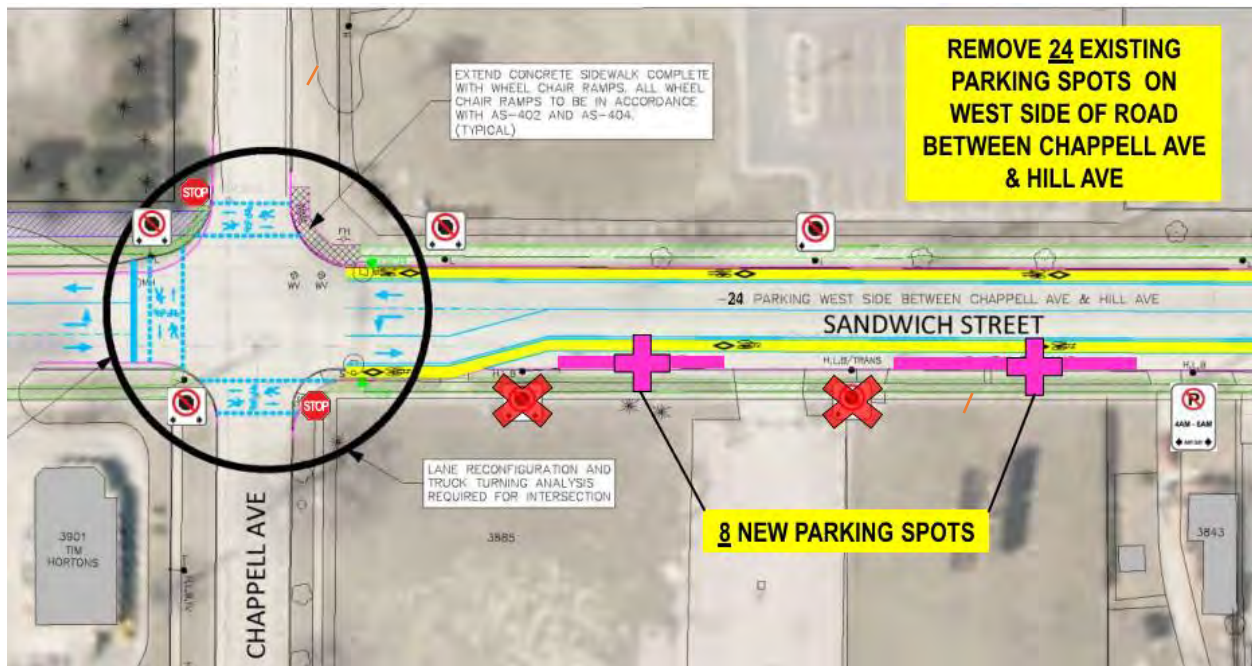


Exhibit 3 – Future Parking Stalls

3.0 PROPOSED CONDITION

The proposed development will include new 11-storey apartment building, commercial area of 6697 ft² on ground floor, asphalt parking area and landscape area. The following table provides the breakdown of provided parking spaces in site plan. A detailed site plan is provided in the Appendix A.

Table 2: Parking Spaces and Location

No	Description	Area / Units	Proposed Spaces	Lost Space	Location
1	Resident Parking	150	134	None	surface
2	Retail parking	6.6k sq.ft	22	None	surface
Total Spaces			156		

3.1 City of Windsor By-law Section 8600-CD 2.1

The proposed development falls within the City of Windsor Zoning By-Law 8600-CD2.1 (Zone Map 4) Commercial District.

As outlined in the City of Windsor by-law (table 24.20.5.1), the parking requirement for combine use building is 1.25 space per 1 dwelling. Further, the convenient store required 1 space for 22.5 sq.m. The required number of parking spaces for the development is provided in the Table 3 and details are provided in Appendix B.

Table 3: Minimum Parking Requirement (By-Law)

Land use	Levels	Parking Rate	Area / Units	Parking Required	Parking Provided	Surplus /Deficit
Multi-Storey Resident	10 Levels	1.25 space per 1 dwelling	150	187	156	(60)
Retail Store	1 level	1 Space per 22.5 m ²	6,697sq.ft	29		
Total				216		

The total required parking spaces is 216 spaces based on the City's By-Law standards and assumptions. There is a deficit of 60 spaces. Additional 20+ street parking is available on the street of Sandwich Street and Chappell Avenue.

The site is well-located for travel by transit, walking and cycling alternative as alternative to driving. The site is located on Sandwich Street connecting between west Windsor and downtown. Bus route 8 has no transit stop within 150m of development but a new transit stops within vicinity of development encourage resident and visitors to use transit and bicycles and as other mode of transportation. This measure will promote City of Windsor Transportation Demand Management (TDM) strategies for a safe, secure, green, innovative and integrated transportation system which promote transit and bicycle network facilities. Deficit in parking spaces will encourage resident and visitors to use bicycles and transit as other mode of transportation.

A sandwich Street improvement as shown in Exhibit 3 support bicycles route with several other elements improvement.

Also, applicant intend to provide car share spaces in the development to support resident population and commercial traffic. There are 22 spaces for commercial use. A reduction in parking demand for commercial space after 6:00pm will help resident population to use their spaces upon mutual agreement between resident and commercial units.

A parking relief is requested for the development based on City of Windsor by-law amendment (130-2017) which states 1 space for each dwelling unit. Further, these TDM measures that have been incorporated into proposal will serve to encourage travel options by transit, walking and cycling for resident.

There is more reduced parking demand as discussed in the following section of this report.

3.2 Parking Demand Rate Based on ITE

The development is investigated using the Institution of Transportation Engineering (ITE) Parking Generation, 5th Edition. The number of parking spots required for the development is calculated using the ITE Manual land use types ITE 222 (Multifamily – High Rise), ITE 814 (variety store), and ITE 851 (convenient market). The provided spaces are shown in Table 3, and details are provided in Appendix B.

Table 3: Minimum Parking Requirement (ITE Parking Manual)

Land use	Units	ITE	Average Parking Rate	Parking Required	Parking Provided	Deficit /Surplus
Apartment Buildings	150 units	222	0.98	147	156	(15)
Convenience Store	3.8k	851	5.44	21		
Variety Store	2,900sq.ft	814	1.13	3		
Total				171		

Based on the ITE Manual, the required number of residential parking spaces is 180. The number of parking stalls provided is 156 spaces, the deficit of 15 spaces.

As discussed in Section 3.1, the applicant intends to support share parking between commercial and residential users. The commercial use is to serve a small retail and convenience store and should not create additional parking demand in the evening and on weekends when residential parking peaks.

It is noted that the development has 70 single bedroom apartment units which will create maximum parking requirement at 1:1 ratio (1 bedroom / 1 parking space). We believe this ratio will be mostly probably less. Further, additional 20 plus street parking is available on the street of Sandwich Street and Chappell Avenue to mitigate deficit parking requirements.

3.0 CONCLUSION

This parking justification has been undertaken in accordance with City requirements in order to support Official Plan Amendment, Zoning By-law amendment and Site Plan applications for the site. Following are the findings and are as follows:

The development is well located for travel by transit and active transportation. The development is mix of commercial and residential use that make mostly trips by walking and by cycling. In addition, there are sidewalk on the nearby roadways and future options for cycling in the area as shown Exhibit 3.

The development promotes City of Windsor TDM strategies that increase the capacity of our existing transportation system. Further, the applicant intends to support share parking between commercial and residential users. Therefore, we believe the available existing and provided parking spaces are satisfactory to meet the City's by-law. Further, there is more reduced parking demand based on ITE Parking Manual.

We, therefore, anticipate no further changes to parking spaces will be required.

All of which is respectfully submitted.

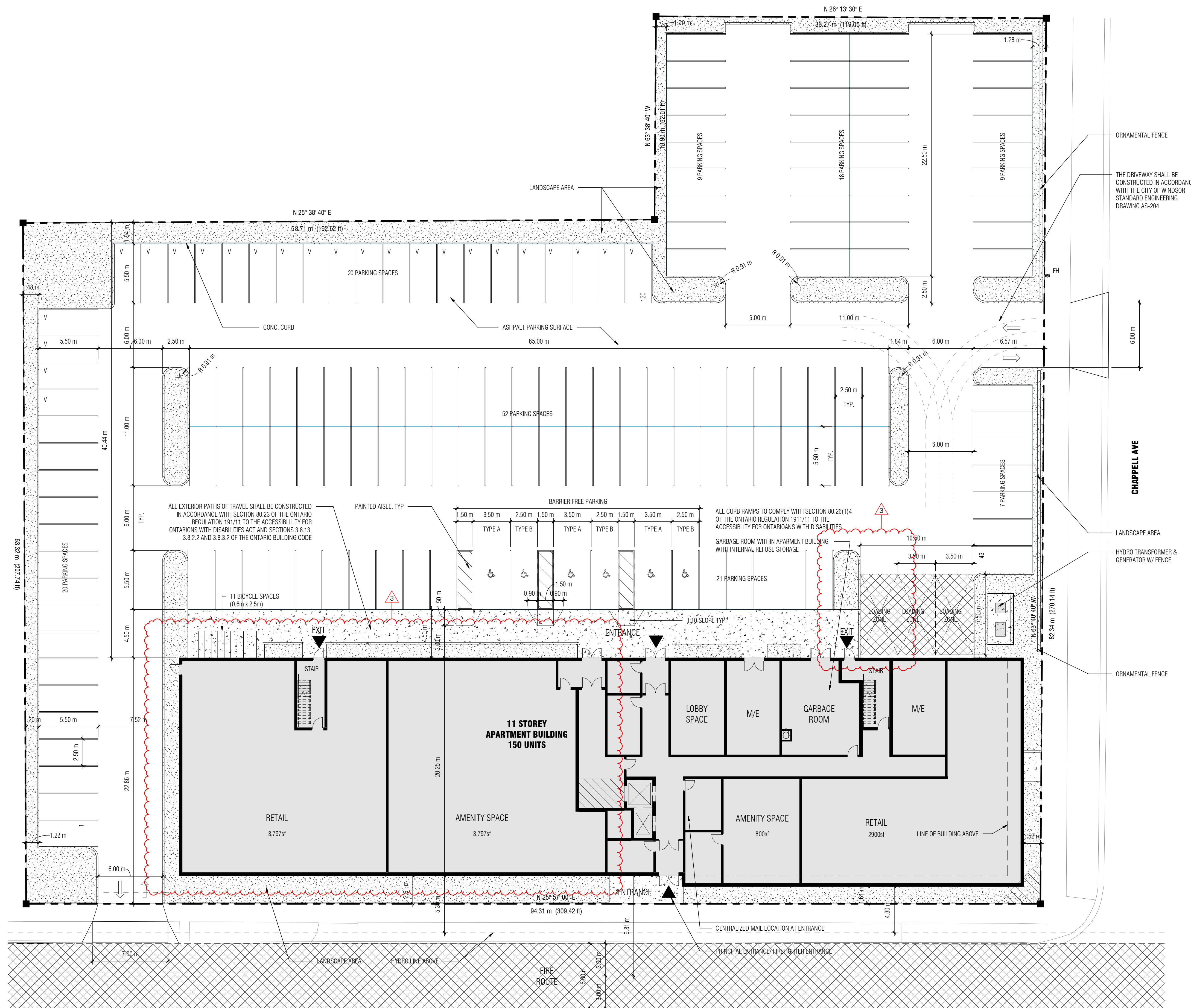
BAIRD AE INC.
27 PRINCESS STREET, UNIT 102
LEAMINGTON, ONTARIO N8H 2X8

Shurjeel Tunio, P.Eng.
Senior Project Manager
Baird AE



Appendix A

SITE PLAN AND BACKGROUND INFORMATION



SITE DATA MATRIX			OBC REFERENCE		
PROJECT DESCRIPTION: 11 STOREY MULTI UNIT RESIDENTIAL BUILDING 150 RESIDENTIAL UNITS			<input checked="" type="checkbox"/> NEW	<input checked="" type="checkbox"/> PART 3	
			<input type="checkbox"/> ADDITION	<input type="checkbox"/> PART 9	
			<input type="checkbox"/> ALTERATION	<input type="checkbox"/> PART 11	
			<input type="checkbox"/> CHANGE OF USE		
ZONING DESIGNATION: CD2.1					
MAJOR OCCUPANCY: RESIDENTIAL					
BUILDING CLASSIFICATION: GROUP C					
SITE AREA		BUILDING AREA		GROSS AREA	
EXISTING:	6,694m ²	EXISTING:	N/A	EXISTING:	N/A
PROPOSED:	6,694m ²	PROPOSED:	1,623m ²	PROPOSED:	19,122.04m ²
TOTAL:	6,694m ²	TOTAL:	1,623m ²	TOTAL:	19,122.04m ²
LOT COVERAGE		MINIMUM LOT WIDTH		BUILDING HEIGHT	
MAXIMUM:	N/A	REQUIRED:	N/A	MAXIMUM:	14m
PROVIDED:	1,623m ²	PROVIDED:	94.8m	PROVIDED:	37m
MINIMUM FRONT YARD DEPTH		MINIMUM REAR YARD DEPTH		MINIMUM SIDE YARD DEPTH	
MAXIMUM:	N/A	REQUIRED:	N/A	MAXIMUM:	N/A
PROVIDED:	1.61m	PROVIDED:	40.44m	PROVIDED:	1.52m
PARKING		BICYCLE SPACES		LOADING SPACES	
USE CLASSIFICATION		EXISTING:	0	EXISTING:	0
EXISTING:	0	PROPOSED:	11	PROPOSED:	3
PROPOSED:	156 (6 BF, 3 TYPE A & 3 TYPE B) 1.04 RATIO	REQUIRED:	11	REQUIRED:	3
REQUIRED:	188 (6 BF, 3 TYPE A & 3 TYPE B) 1.25 RATIO	TOTAL:	11	TOTAL:	3
TOTAL:	156 (6 BF, 3 TYPE A & 3 TYPE B) 1.04 RATIO				
LANDSCAPE AREA		AMENITY SPACE		SCREENING FENCE LENGTH	
EXISTING:	N/A	REQUIRED:	900m ²	EXISTING:	N/A
PROPOSED:	866m ²	PROPOSED:	1294m ²	PROPOSED:	N/A
TOTAL:	866.56m ²	TOTAL:	N/A	TOTAL:	N/A
NOTE:					
1. ALL EXTERIOR PATHS OF TRAVEL SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 80.23 OF ONTARIO REGULATION 191/11 TO THE ACCESSIBILITY FOR ONTARIANS WITH DISABILITIES ACT AND SECTIONS 3.8.1.3 AND 3.8.3.2 OF THE ONTARIO BUILDING CODE					
2. ALL CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 80.26(1) OF THE ONTARIO REGULATION 191/11 TO THE ACCESSIBILITY FOR ONTARIANS WITH DISABILITIES ACT AND SECTION 3.8.3.18 OF THE ONTARIO BUILDING CODE.					

102 - 27 Princess Street
Leamington ON N8H 2X8

BAIRDIAE
architecture + engineering
1000 - 267 Pelee Street
Windsor ON N9A 4K4
A DIVISION OF MATTHEW J. BAIRD CONSULTING SERVICES INC.

No.	Description	Date
3	SITE REVISIONS 2	22.05.25
2	SITE REVISIONS 1	21.06.06
1	ISSUED FOR OPA/ZBA/SPO	20.11.09

Revision Schedule

ONTARIO ASSOCIATION OF ARCHITECTS
PAUL WEDL
LICENCE 7289

MIXED-USE DEVELOPMENT

SANDWICH ST. WINDSOR ON

SITE PLAN

JOB NUMBER: 20-028

SHEET NUMBER: SP-1

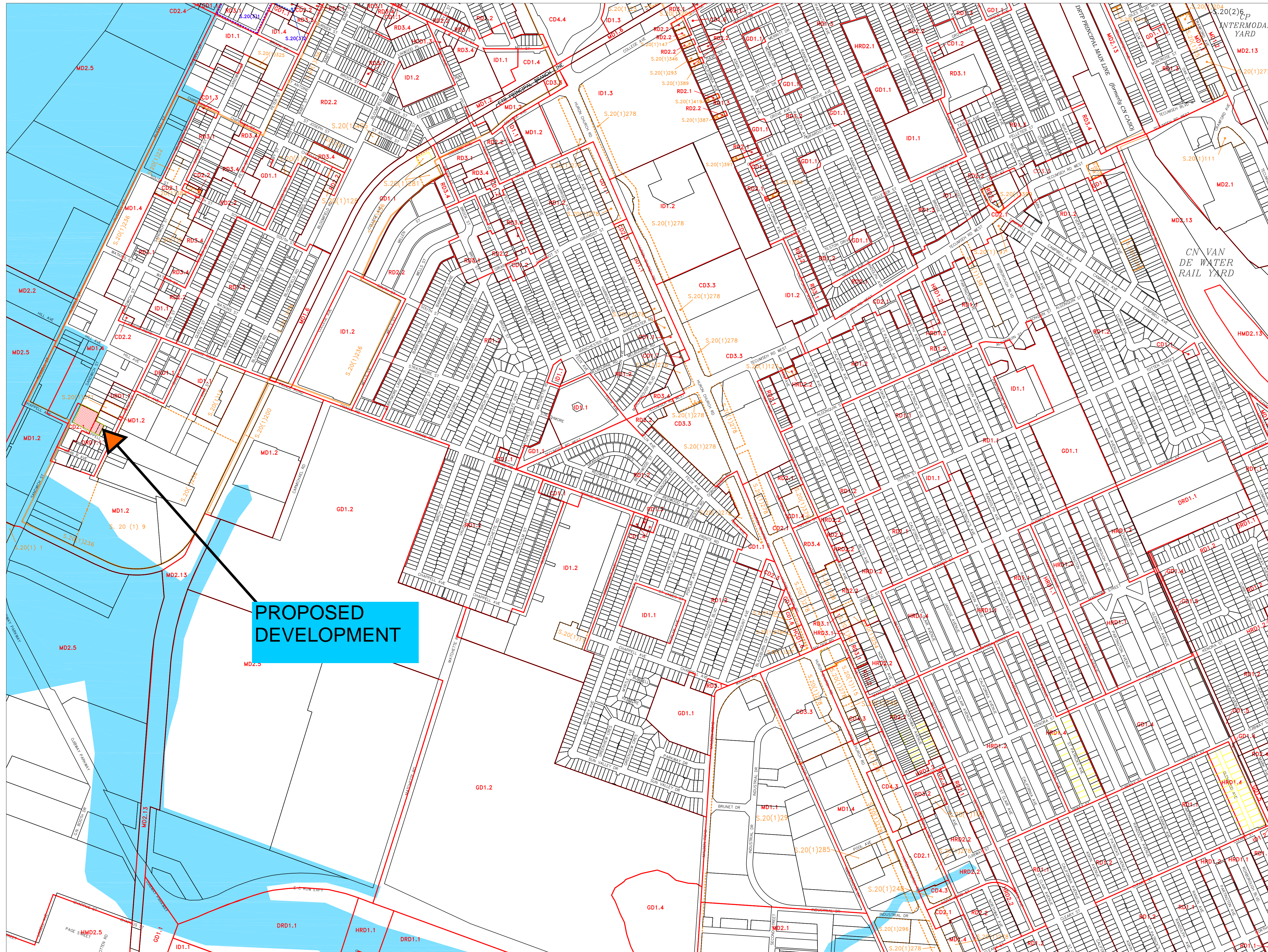
2022-05-25 3:23:07 PM







Zoning District Map 4



LEGEND:

- Zone Boundary¹
- Specific Zoning Exemptions²
- Specific Zoning Regulation⁵
- Specific Temporary Zoning Exemptions³
- Registered Plan Parcel Limits
- Ownership Parcel Limits
- Municipal Boundary Line
- Inland Watercourse Flood Prone Area⁴
- Detroit River/Lake St.Clair Flood Prone Area⁴

NOTES:

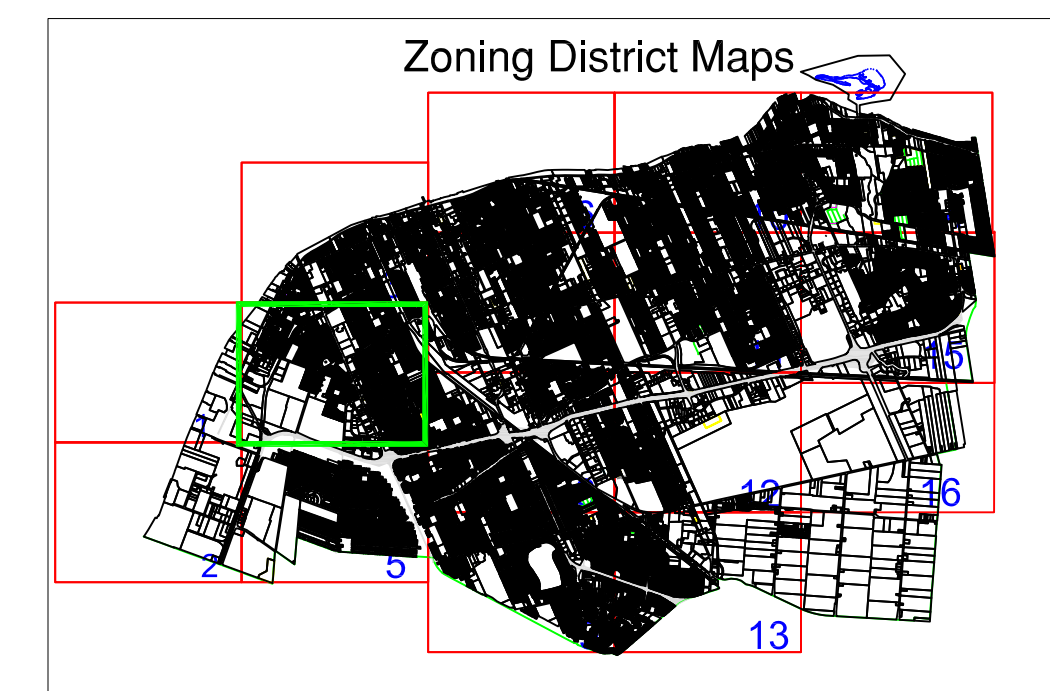
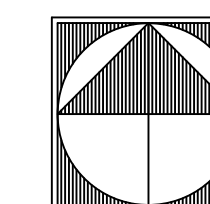
- Each Zoning District symbol corresponds to a zoning district set out in the text of By-law 8600 (i.e., CD1.1 - Commercial District 1.1).
- An H symbol preceding the zoning district symbol represents a hold on the issuance of a building permit until specific development prescriptions have been satisfied. Subsection 5.4 specifies the uses permitted until such time as the H symbol is removed by an amending bylaw approved by Council.
- See Subsection 20(1) and the relevant clause for the specific special provisions.
- See Subsection 20(2) and the relevant clause for the specific special provisions.
- Represents the approximate limits of land subject of potential flooding along the Detroit River, Lake St. Clair and inland watercourses as determined by the Essex Region Conservation Authority (ERCA). Within these areas, buildings or structures are generally restricted and possibly prohibited. Application for building permits will be referred to ERCA for its review and the issuance of permits prior to the issuance of any building permit by the City of Windsor.
- See Subsection 20(3) and the relevant clause for the specific special provisions.

DATE	BY-LAW #	REVISIONS	DATE	BY-LAW #
06/05/04	42-2004		01/18/21	3-2021
10/05/04	27-2004		08/31/21	123-2021
07/07/04	107-2003		12/07/21	176-2021
07/07/04	109-2004		12/15/21	144-2021
07/06/03	330-2003		12/15/21	138-2021
25/11/04	346-2004			
21/02/05	2-2005			
21/02/05	2-2005			
01/03/05	47-2005			
18/04/05	71-2005			
20/04/05	75-2005			
24/04/05	313-2004			
06/07/05	121-2005			
26/05/05	130-2005			
08/08/05	171-2005			
08/08/05	194-2005			
13/10/05	239-2005			
24/10/05	225-2005			
Revisions:				
04/05/06	B/L 1695			
13/05/06	B/L 327, 200			
30/07/06	110-2006			
14/08/06	147-2006			
21/08/06	146-2006			
23/10/06	178-2006			
13/11/06	184-2006			
04/09/07	214-2006			
08/08/08	80-2008			
08/08/08	85-2008			
31/12/08	198-2008			
16/03/09	160-2007			
11/02/10	152-2009			
11/02/10	10-2010			
22/10/10	148-2010			
14/03/11	20-2011			
14/03/11	27-2011			
23/03/11	28-2011			
30/03/11	65-2011			
08/04/11	71-2011			
08/22/11	80-2011			
28/12/07	233-2007			
13/09/08	324-2004			
22/11/11	132-2011			
22/12/11	208-2011			
10/01/12	209-2011			
06/06/12	52-2012			
28/09/12	128-2012			
30/10/12	30-2009			
30/10/12	24-2009			
07/11/12	164-2012			
09/05/13	67-2013			
21/05/13	56-2013			
08/10/13	159-2013			
22/10/13	154-2013			
22/10/13	167-2013			
13/03/14	18-2014			
09/06/14	78-2014			
13/08/14	114-2014			
27/08/14	101-2013			
25/06/15	67-2015			
29/07/15	B/L 8600 1.20.30.5			
02/08/16	1-2016			
07/05/17	56-2017			
07/05/17	63-2017			
08/23/17	108-2017			
08/23/17	110-2017			
08/23/17	117-2017			
05/24/18	177-2017			
06/19/18	63-2018			
09/04/18	120-2018			
03/01/19	189-2018			
06/25/19	64-2019			
11/01/19	97-2019			
12/18/19	120-2019			
12/18/19	128-2019			
09/23/20	111-2020			
09/25/20	110-2020			
10/06/20	122-2020			
12/01/20	148-2020			
01/27/20	170-2020			

This forms Part of Schedule 'A'.

City of Windsor Zoning By-law 8600

Scale 1:6000

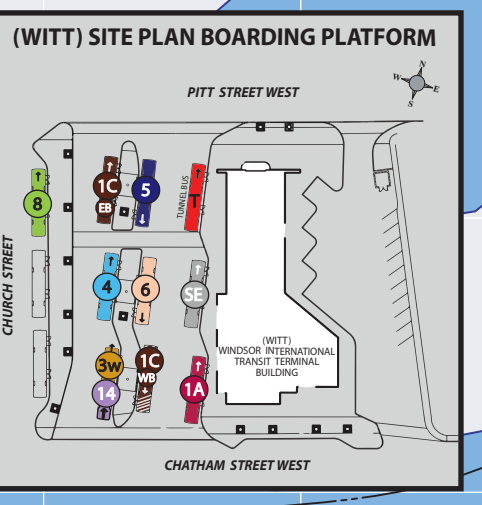


Zoning District Map 4

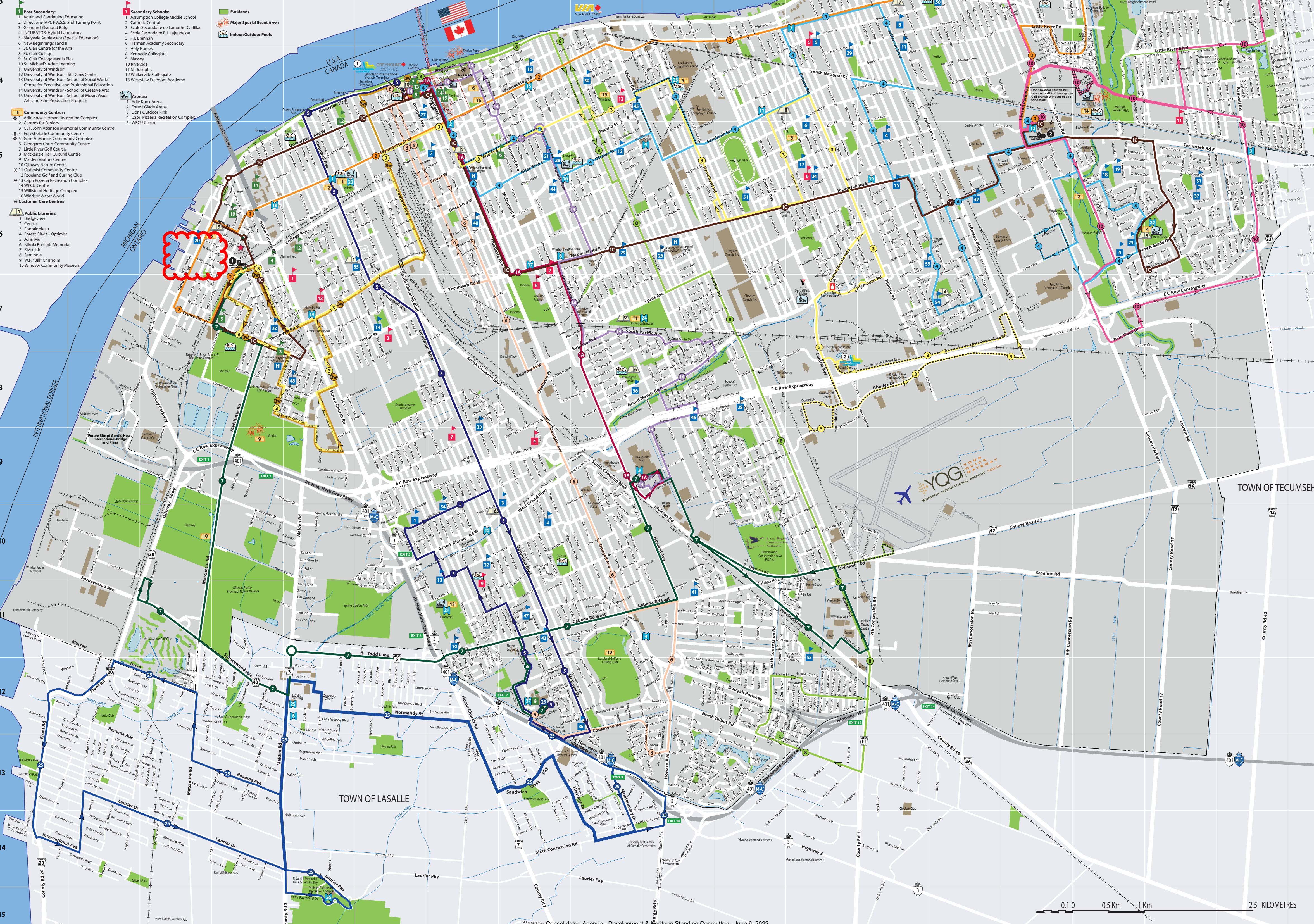
- ### POINTS OF INTEREST LEGEND
- Elementary Schools:**
 - 1 Bellevue
 - 2 Christ the King
 - 3 Conception
 - 4 Notre Dame
 - 5 David Maxwell
 - 6 Dougal
 - 7 David Suzuki
 - 8 Eastwood
 - 9 Ecole Elementaire Louise-Charron
 - 10 Ecole Georges P. Vanier
 - 11 Ecole L'Envolée
 - 12 Ecole Mgrsieur Jean Noel
 - 13 Ecole Saint-Edmond
 - 14 Ecole Sainte-Therese
 - 15 F.W. Bagley
 - 16 Ford City
 - 17 Forest Glade - Primary Learning Centre
 - 18 Forest Glade - Main Site
 - 19 General Backe
 - 20 Giles Campus
 - 21 Glenwood
 - 22 I.L. Lantasia
 - 23 Herman Academy Elementary
 - 24 Hetherington
 - 25 Hugh Beaton
 - 26 Immaculate Conception
 - 27 John A. McWilliam
 - Post Secondary:**
 - 1 Adult and Continuing Education
 - 2 Direction (A.P.A.S.S. and Turning Point)
 - 3 Glengard-Osmond Bldg
 - 4 INCUBATOR: Hybrid Laboratory
 - 5 Maryvale Adolescent Special Education
 - 6 New Beginnings I and II
 - 7 St. Clair Centre for the Arts
 - 8 St. Clair College
 - 9 St. Clair College Media Plex
 - 10 St. Michael's Adult Learning
 - 11 University of Windsor
 - 12 University of Windsor - St. Denis Centre
 - 13 University of Windsor - School of Social Work/ Centre for Executive and Professional Education
 - 14 University of Windsor - School of Creative Arts
 - 15 University of Windsor - School of Music/Visual Arts and Film Production Program
 - Community Centres:**
 - 1 Adie Knox Herman Recreation Complex
 - 2 Centre for Seniors
 - 3 CST John Atkinson Memorial Community Centre
 - 4 Forest Glade Community Centre
 - 5 Gino A. Marcus Community Centre
 - 6 Glengary Court Community Centre
 - 7 Little River Golf Course
 - 8 Mackenzie Hill Cultural Centre
 - 9 Malden Visitors Centre
 - 10 Oldway Nature Centre
 - 11 Optimist Community Centre
 - 12 Roseland Golf and Curling Club
 - 13 Capri Pizzeria Recreation Complex
 - 14 WFCU Centre
 - 15 Willstead Heritage Complex
 - 16 Windsor Water World
 - Customer Care Centres:**
 - 1 Brio Review
 - 2 Central
 - 3 Fontainebleau
 - 4 Forest Glade - Optimist
 - 5 John Muir
 - 6 Nikola Budimir Memorial
 - 7 Riverside
 - 8 Seminole
 - 9 W.F. "Bill" Chisholm
 - 10 Windsor Community Museum

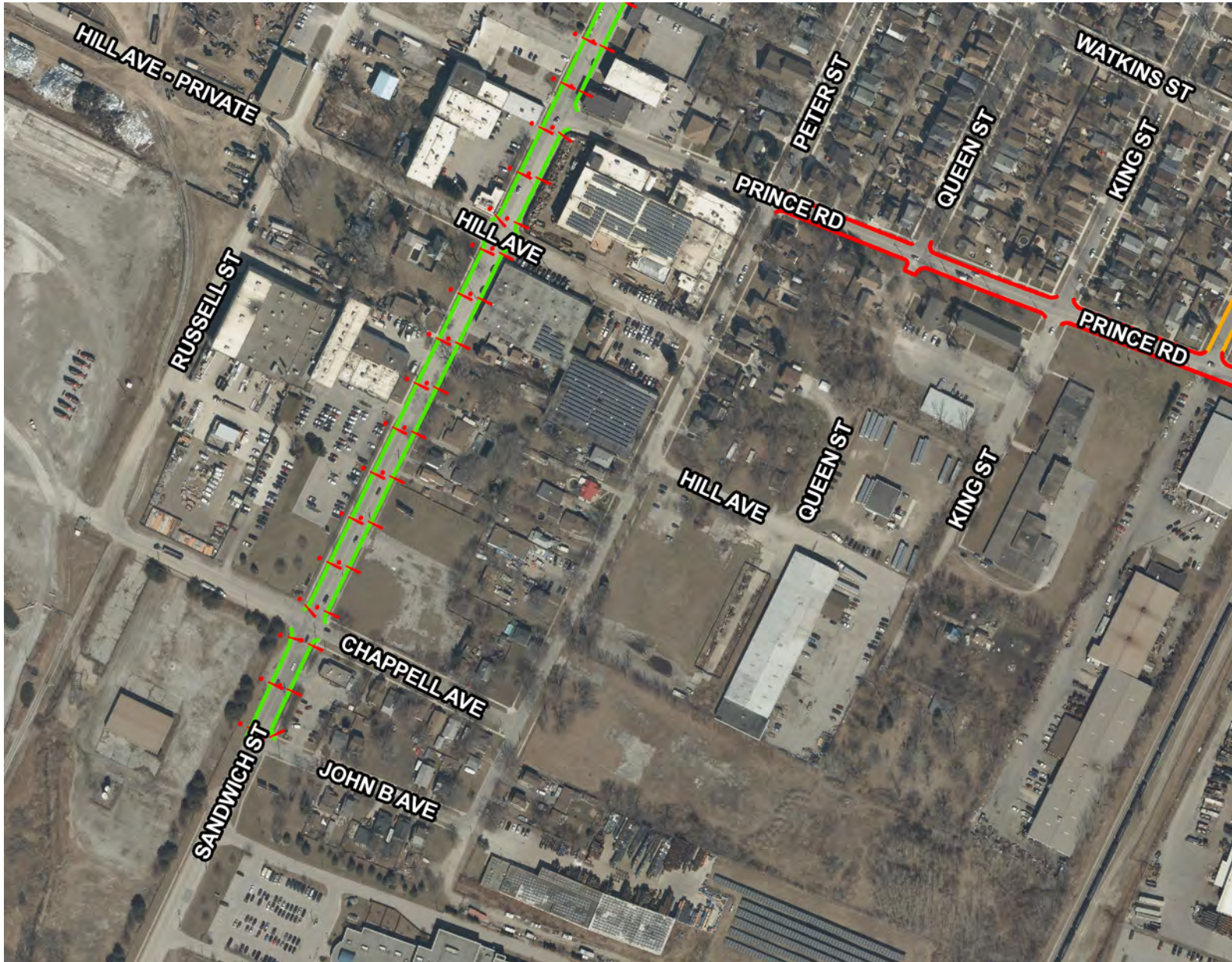
- ### TRANSIT WINDSOR BUS ROUTES
- 1 TRANSWAY 1A
 - 2 TRANSWAY 1C
 - 3 CROSSTOWN 2
 - 4 CENTRAL 3
 - 5 CENTRAL 3 WEST
 - 6 OTTAWA 4
 - 7 DOMINION 5
 - 8 DOUGALL 6
 - 9 SOUTH WINDSOR 7
 - 10 WALKERVILLE 8
 - 11 LAUZON 10
 - 12 PARENT 14
 - 13 LASALLE 25
 - 14 TUNNEL BUS (see reverse side)
 - 15 INTERMITTENT SERVICE
 - 16 SPECIAL EVENT

- ### TRANSIT WINDSOR SALES OUTLETS
- Shoppers Drug Mart (Passes & Tickets):**
 - 1 Campbell & Wyandotte Shoppers
 - 2 Downtown Shoppers
 - 3 Shoppers Drug Mart (Tickets)
 - 4 Banwell Shoppers
 - 5 Diette Shoppers
 - 6 Devonshire Mall Shoppers
 - 7 Golden Mile Shoppers
 - 8 Lakeside Shoppers
 - 9 Malden Shoppers
 - 10 Market Square Shoppers
 - 11 Riverside Shoppers
 - 12 Seminole Shoppers
 - 13 South Windsor Shoppers
 - 14 Tecumseh Mall Shoppers
 - 15 University Mall Shoppers
 - Customer Care Centres (Passes & Tickets):**
 - 16 Adie Knox Herman Recreation Complex
 - 17 Capri Pizzeria Recreation Complex
 - 18 Forest Glade Community Centre
 - 19 Gino A. Marcus Community Centre
 - 20 Optimist Community Centre
 - 21 LaSalle Town Hall
 - 22 Vollenmer Culture and Recreation Complex
 - 23 St. Clair College SRC (Student Passes & Tickets)
 - 24 St. Clair College SRC
 - Eleven (Tickets):**
 - 17 Eleven Wyandotte East
 - 18 Eleven Ottawa
 - 19 Eleven Tecumseh Downtown
 - 20 Eleven Wyandotte West
 - 21 Eleven Tecumseh East



- Secondary Schools:**
 - 1 Assumption College/Middle School
 - 2 Catholic Central
 - 3 Ecole Secondaire de Lamothe-Cadillac
 - 4 Ecole Secondaire E.J. Lajeunesse
 - 5 F.J. Brennan
 - 6 Herman Academy Secondary
 - 7 Holy Names
 - 8 Kennedy Collegiate
 - 9 Massey
 - 10 Riverside
 - 11 St. Joseph's
 - 12 Walkerville Collegiate
 - 13 Westview Freedom Academy
- Arenas:**
 - 1 Adie Knox Arena
 - 2 Forest Glade Arena
 - 3 Lions Outdoor Rink
 - 4 Capri Pizzeria Recreation Complex
 - 5 WFCU Centre
- Parks:**
 - 1 Belle Isle
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Legend

- Schools**
 - Elementary School
 - Elementary and Secondary
 - Secondary School
- Crossing Guard Locations
- School Parking Special Zone:**
 - Bus Bay
 - Kiss and Ride
 - School Bus Loading Zone
- School Parking Limits**
 - No Parking At All Times
 - No Parking With Exception
 - Residential On Street Permit Park
 - No Stopping At All Times
 - No Stopping or Parking with Exce
 - No Restriction At All Times
 - Limited Parking Restrictions
 - Street Meter Parking
 - Parking With Exception
 - Alternate Side No Parking At All T
 - Limited Alternate Side No Parking
 - Residential Alternate On Street Pi
- Kiss And Ride Zones
- 5 Minute Walking Buffer
- Windsor Aerial 2019**
 - Red: Band_1
 - Green: Band_2
 - Blue: Band_3

1: 3,733

Notes



This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

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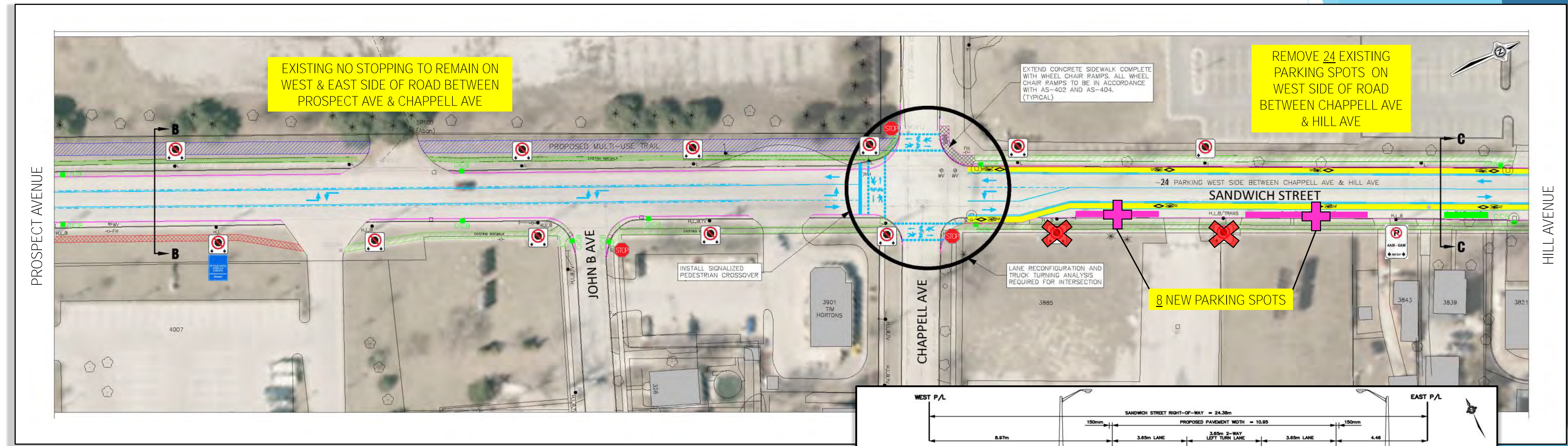
Sandwich Street Reconstruction

Proposed Bike Lanes & Multi-use Trails for Sandwich Street

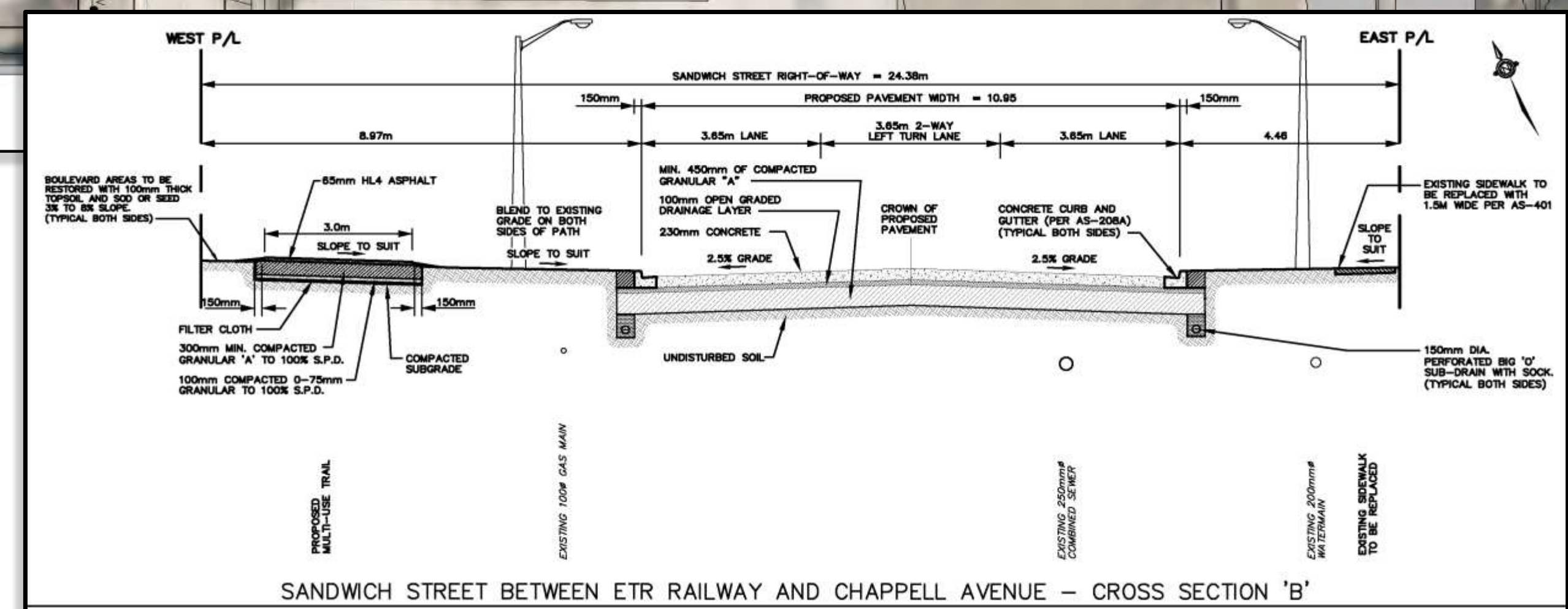


LEGEND

- EXISTING PARKING TO REMAIN
- EXISTING PARKING TO BE REMOVED
- NO PARKING
- NEW PARKING



39 - 24 = 15 EXISTING PARKING SPOTS TO REMAIN & 8 NEW PARKING SPOTS ADDED



Appendix B

BY-LAW AND ITE PARKING GENERATION

(AMENDED by B/L 130-2017, Sept. 28, 2017)

- .1 Excluding lands in the *Central Business District*, for lands in any *Business Improvement Area* and for all lands within a *Commercial District* located:
 - .1 on the north and south side of Wyandotte Street West between Dougall Avenue and Patricia Road;
 - .2 on the north and south side of University Avenue between Dougall Avenue and Randolph Avenue;
 - .3 on the north and south side of Tecumseh Road East between Forest Avenue and Chilver Road, Cadillac Street and Larkin Road, and Westcott Road and Rossini Boulevard;
 - .4 on the east and west side of Ouellette Avenue between Giles Boulevard and Tecumseh Road;

for an existing *building*, the required minimum number of *parking spaces* shall be as shown opposite the respective use in Table 24.20.3.1:

TABLE 24.20.3.1 – REQUIRED PARKING SPACES BUSINESS IMPROVEMENT AREAS & OTHER DEFINED AREAS	
USE	PARKING RATE – MINIMUM
Bake Shop	0
Business Office	0
Convenience Store	0
Food Convenience Store	0
Food Outlet – Take-out	0
Medical Office	1 for each 27 m ² GFA
Pawnshop	0
Personal Service Shop	0
Pharmacy	0
Professional Studio	0
Repair Shop – Light	0
Restaurant	None for the first 90 m ² GFA AND 1 for each additional 15 m ² GFA
Retail Store	0
Veterinary Office	1 for each 27 m ² GFA
All other uses not listed above	Section 24.20.5 shall apply

24.20.5 REQUIRED PARKING SPACES –ALL OTHER AREAS AND USES NOT LISTED IN TABLES 24.20.1.1 AND 24.20.3.1

- .1 The required minimum number of parking spaces shall be as shown opposite the respective use as shown in Table 24.20.5.1:

TABLE 24.20.5.1 - REQUIRED PARKING SPACES

USE	PARKING RATE - MINIMUM
Adult Entertainment Parlour	1 for each 7.5 m ² GFA
Art Gallery	1 for each 45 m ² GFA
Automatic Car Wash	0
Automobile Repair Garage	1 for each 45 m ² GFA
Automobile Sales Lot	1 for each 45 m ² GFA
Bake Shop	1 for each 22.5 m ² GFA
Bakery	1 for each 45m ² GFA for the first 2,700 m ² GFA and 1 for each additional 180 m ²
Billiard Hall	1 for each 22.5 m ² GFA
Bingo Hall	1 for each 22.5 m ² GFA
Bowling Alley	4 per alley
Building Material Recycling Centre	1 for each 45 m ² GFA
Business Office	1 for each 45 m ² GFA
Church (including a Church Hall)	1 for each 5.5 m ² GFA uses as a church, chapel or sanctuary AND 1 for each 36 m ² GFA not used as a church, chapel or sanctuary
Club	1 for each 22.5 m ² GFA
Coin Operated Car Wash	0
College Student Residence	1 for each 4 beds
Collision Shop	1 for each 45 m ² GFA
Combined Use Building – Dwelling Units	1.25 for each dwelling unit
Commercial School	2.5 for each classroom or teaching area AND 1 for each 22.5 m ² of GFA of cafeteria, auditorium, gymnasium and other area of assembly
Confectionary	1 for each 45 m ² GFA for the first 2,700 m ² GFA AND 1 for each additional 180 m ²
Confectioner's Shop	1 for each 22.5 m ² GFA
Contractor's Office	1 for each 45 m ² GFA used as a business office AND 1 for each 200 m ² GFA used as a warehouse
Convenience Store	1 for each 22.5 m ² GFA
Convent or Monastery	1 for each 4 beds
Correctional Facility	1 for each 2 beds
Day Nursery	1.5 for each classroom or teaching area
Double-duplex Dwelling	4
Drive-through Food Outlet	1 for each 22.5 m ² GFA
Drive-through Restaurant	1 for each 7.5 m ² GFA
Duplex Dwelling	2
TABLE 24.20.5.1 - REQUIRED PARKING SPACES	
USE	PARKING RATE - MINIMUM

Elementary School	1.5 for each classroom or teaching area
Entertainment Lounge	1 for each 7.5 m ² GFA
Exhibition Hall	1 for each 36 m ² GFA
Financial Office	1 for each 45 m ² GFA
Food Convenience Store	1 for each 22.5 m ² GFA
Fraternity or Sorority House	1 for each 4 beds
Funeral Home	1 for each 5.5 m ² GFA used for a chapel, sanctuary or reposing room
Games Arcade	1 for each 22.5 m ² GFA
Garden Centre	1 for each 22.5 m ² GFA
Gas Bar	1 for each 45 m ² GFA
General Salvage Operation	1 for each 45 m ² GFA for the first 2,700 m ² GFA AND 1 for each additional 180 m ²
Group Home	1
Health Studio	1 for each 36 m ² GFA
Heavy Repair Shop	1 for each 45 m ² GFA for the first 2,700 m ² GFA AND 1 for each additional 180 m ²
Hospital	1 for each bed
Hotel	1 for each guest room AND 1 for each 22.5 m ² GFA used for a restaurant, convention hall, meeting room and other places of assembly.
Library	1 for each 45 m ² GFA
Light Repair Shop	1 for each 45 m ² GFA
Lodging House	1 for each 6 beds
Major Commercial Centre (exclusive of a hotel or motel)	1 for each 22.5 m ² GFA
Marina	0.5 for each 1 boat docking space AND 1 for each 1 boar anchorage space
Material Transfer Centre	1 for each 45 m ² GFA for the first 2,700 m ² GFA AND 1 for each additional 180 m ²
Medical Office	1 for each 13.5 m ² GFA
Micro-brewery	1 for each 45 m ² GFA
Minor Commercial Centre	1 for each 22.5 m ² GFA and when the combined GFA of all restaurants and entertainment lounges Exceeds 30% of the GFA of the Centre, 1 for each 7.5 m ² GFA of all restaurants and entertainment lounges in excess thereof
Mobile Home	1
TABLE 24.20.5.1 - REQUIRED PARKING SPACES	
USE	PARKING RATE - MINIMUM

Motel	1 for each guest room AND 1 for each 22.5 ² GFA used for a restaurant, convention hall, meeting room and other places of assembly
Motor Vehicle Dealership	1 for each 45 m ² GFA
Motor Vehicle Salvage Operation	1 for each 45 m ² GFA for the first 2,700 m ² GFA AND 1 for each additional 180 m ²
Multiple Dwelling containing a maximum of 4 Dwelling units	1 for each dwelling unit
Multiple Dwelling containing a minimum of 5 Dwelling units	1.25 for each dwelling unit
Museum	1 for each 45 m ² GFA
Outdoor Market	0
Pawnshop	1 for each 22.5 m ² GFA
Personal Service Shop	1 for each 22.5 m ² GFA
Pharmacy	1 for each 22.5 m ² GFA
Place of Entertainment and Recreation	1 for each 36 m ² GFA
Power Generation Plant	1 for each 200 m ² GFA
Professional Studio	1 for each 45 m ² GFA
Public Hall	1 for each 7.5 m ² GFA
Residential Care Facility	1 for each 4 beds
Restaurant	1 for each 7.5 m ² GFA
Retail Store	1 for each 22.5 m ² GFA
Secondary School	1.5 for each classroom or teaching area AND 1 For each 22.5 m ² of GFA of cafeteria , auditorium, gymnasium and other area of assembly
Self-storage Facility	2
Semi-Detached Dwelling	1 for each dwelling unit
Service Station	1 for each 45 m ² GFA
Shelter	1 for each 6 beds
Single –unit Dwelling	1
Stacked Dwelling Unit	1 for each dwelling unit
Take-Out Food Outlet	1 for each 22.5 m ² GFA
Temporary Outdoor Vendor’s Site	0
Theatre	1 for each 6 seats
Tourist Home	1 for each guest room AND 1 for each 22.5 m ² GFA used for a restaurant, convention hall, meeting room and other places of assembly
TABLE 24.20.5.1 - REQUIRED PARKING SPACES	
USE	PARKING RATE - MINIMUM

Townhome Dwelling having an attached garage or carport	1 for each dwelling unit
Townhome Dwelling without an attached garage or carport	1.25 for each dwelling unit
Transport Terminal	5 parking spaces, or 1 for each 45.0 m ² GFA, whichever is greater
University Student Residence	1 for each 4 beds
Veterinary Clinic	1 for each 13.5 m ² GFA
Veterinary Office	1 for each 13.5 m ² GFA
Warehouse	1 for each 200 m ² GFA
Wholesale Store	1 for each 45 m ² GFA
Workshop	1 for each 45 m ² GFA for the first 2,700 m ² GFA AND 1 for each additional 180 m ²
All other commercial uses not specifically listed	1 for each 36 m ² GFA
All other industrial uses not specifically listed	1 for each 45 m ² GFA for the first 2,700 m ² GFA AND 1 for each additional 180 m ² GFA

(AMENDED by B/L 144-2015, Nov. 6, 2015; B/L 169-2018, Dec. 19/2018)

24.20.7 CALCULATION OF REQUIRED PARKING SPACES

- .1 The required number of parking spaces for each use listed in Tables 24.20.1.1, 24.20.3.1 and 24.20.5.1 is calculated as follows:
 - .1 The gross floor area of that part of a building designed and used for a parking area, parking space, visitor parking space, accessible parking space, bicycle parking space, loading space, automatic car wash or coin-operated car wash is not included in the calculation of required number of vehicle parking spaces.
 - .2 If a parking rate is expressed as a ratio of parking spaces to the gross floor area, the parking space requirement for a use is to be calculated by dividing the applicable gross floor area of the use by the applicable parking rate.
 - .3 If the calculation of the number of required parking spaces results in a number containing a fraction, the number shall be rounded DOWN to the nearest whole number, but in no case may there be less than one parking space, except when the parking rate is zero.
 - .4 If a building is occupied or proposed to be occupied by more than one main use, the required parking for each main use is calculated on the basis of the percentage of gross floor area devoted to that use plus the equivalent percentage of any common areas and shared accessory uses in the building.
 - .5 If a Combined use Building is occupied in part by a Minor Commercial Centre or a Major Commercial Centre, the total required number of parking spaces is the sum of the required number of parking spaces for each Dwelling Unit and for the Minor Commercial Centre of a Major

Commercial Centre.

24.20.10 SIZE OF PARKING SPACE

- .1 Each parking space shall have a minimum length of 5.5 metres and a minimum width of 2.5 metres, except where one side of the parking space is flanked by a wall or fence, each parking space shall have a minimum length of 5.5 metres and a minimum width of 3.5 metres.

24.22 VISITOR PARKING SPACE PROVISIONS

24.22.1 REQUIRED VISITOR PARKING SPACES

- .1 For a Townhome Dwelling without an attached garage or carport, Multiple Dwelling with a minimum of five dwelling units, or Dwelling Units in a Combined Use Building, a minimum of 15 percent of parking spaces shall be marked as visitor parking.
- .5 If the calculation of the number of visitor parking spaces results in a number containing a fraction, the number shall be rounded DOWN to the nearest whole number, but in no case shall there be less than one visitor parking space and one required parking space.

24.22.10 SIZE OF VISITIOR PARKING SPACE

- .1 Each visitor parking space shall have a minimum length of 5.5 metres and a minimum width of 2.5 metres, except where one side of the parking space is flanked by a wall or fence, each visitor parking space shall have a minimum length of 5.5 metres and a minimum width of 3.5 metres.

24.24 ACCESSIBLE PARKING SPACE PROVISIONS [ZNG/4046]
(AMENDED by B/L 48-2014, April 15, 2014)

24.24.1 REQUIRED ACCESSIBLE PARKING SPACES

- .1 There shall be provided accessible parking spaces as shown in Table 24.24.1:

TABLE 24.24.1 – REQUIRED ACCESSIBLE PARKING SPACES		
TOTAL NUMBER OF PARKING SPACES IN PARKING AREA	REQUIRED NUMBER OF ACCESSIBLE PARKING SPACES – MINIMUM	
	TYPE A	TYPE B
1 to 25	1 space	0
26 to 100	2 percent of parking spaces	2 percent of parking spaces
101 to 200	1.5 percent of parking spaces	0.5 space plus 1.5 percent of parking spaces
201 to 1,000	0.5 space plus 1 percent of parking spaces	1 space plus 1 percent of parking spaces
1,001 or more	5 spaces plus 0.5 percent of parking spaces	5.5 spaces plus 0.5 percent of parking spaces

- .2 If the calculation of the number of required Type A and Type B accessible parking spaces results in a number containing a fraction, the number shall be rounded up to the nearest whole number:

Multifamily Housing (High Rise) (222)

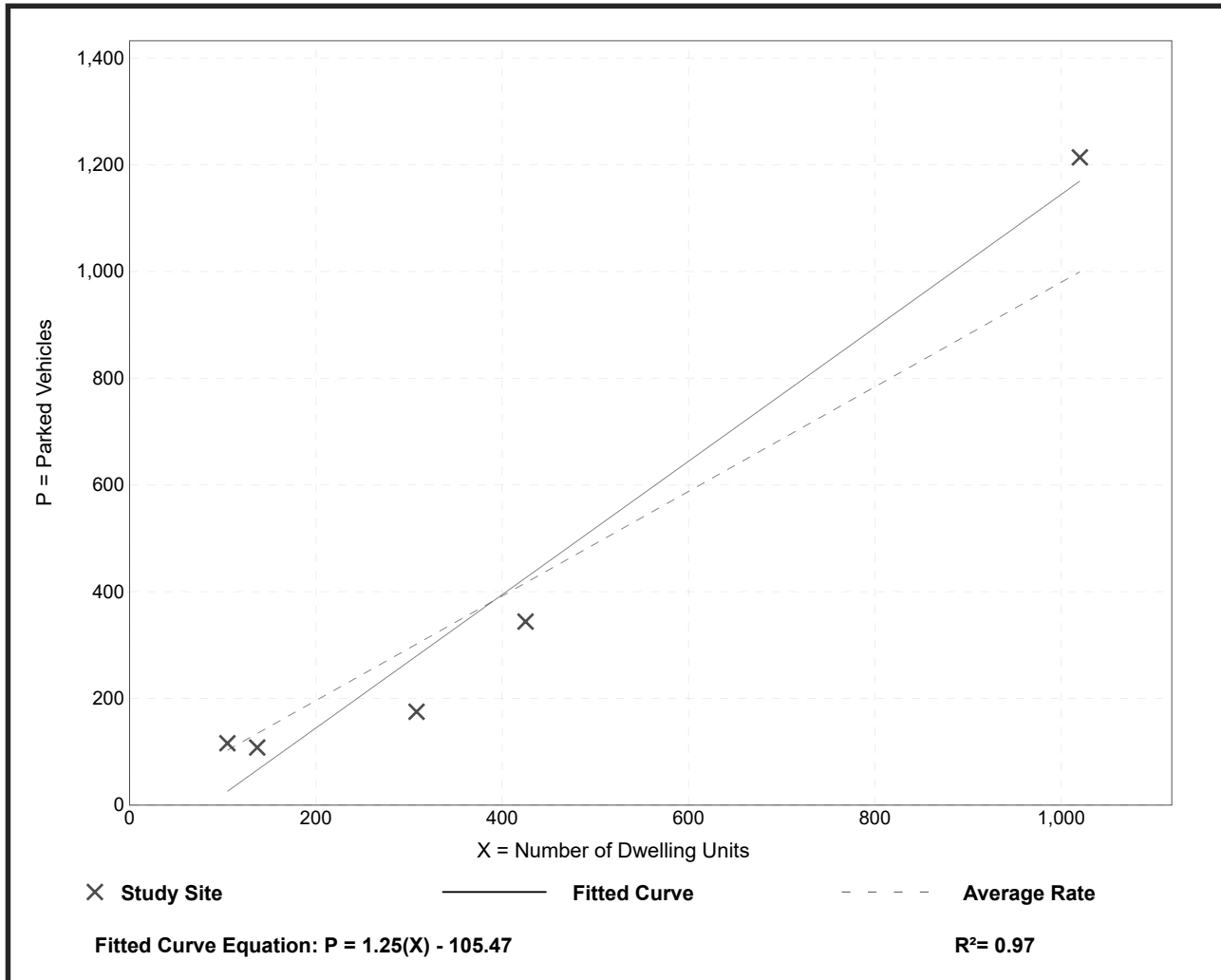
Peak Period Parking Demand vs: Dwelling Units
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban (no nearby rail transit)
Peak Period of Parking Demand: 10:00 p.m. - 5:00 a.m.
 Number of Studies: 5
 Avg. Num. of Dwelling Units: 399

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.98	0.57 - 1.19	0.78 / 1.19	***	0.27 (28%)

Data Plot and Equation

Caution – Small Sample Size



Parking Generation Manual, 5th Edition • Institute of Transportation Engineers

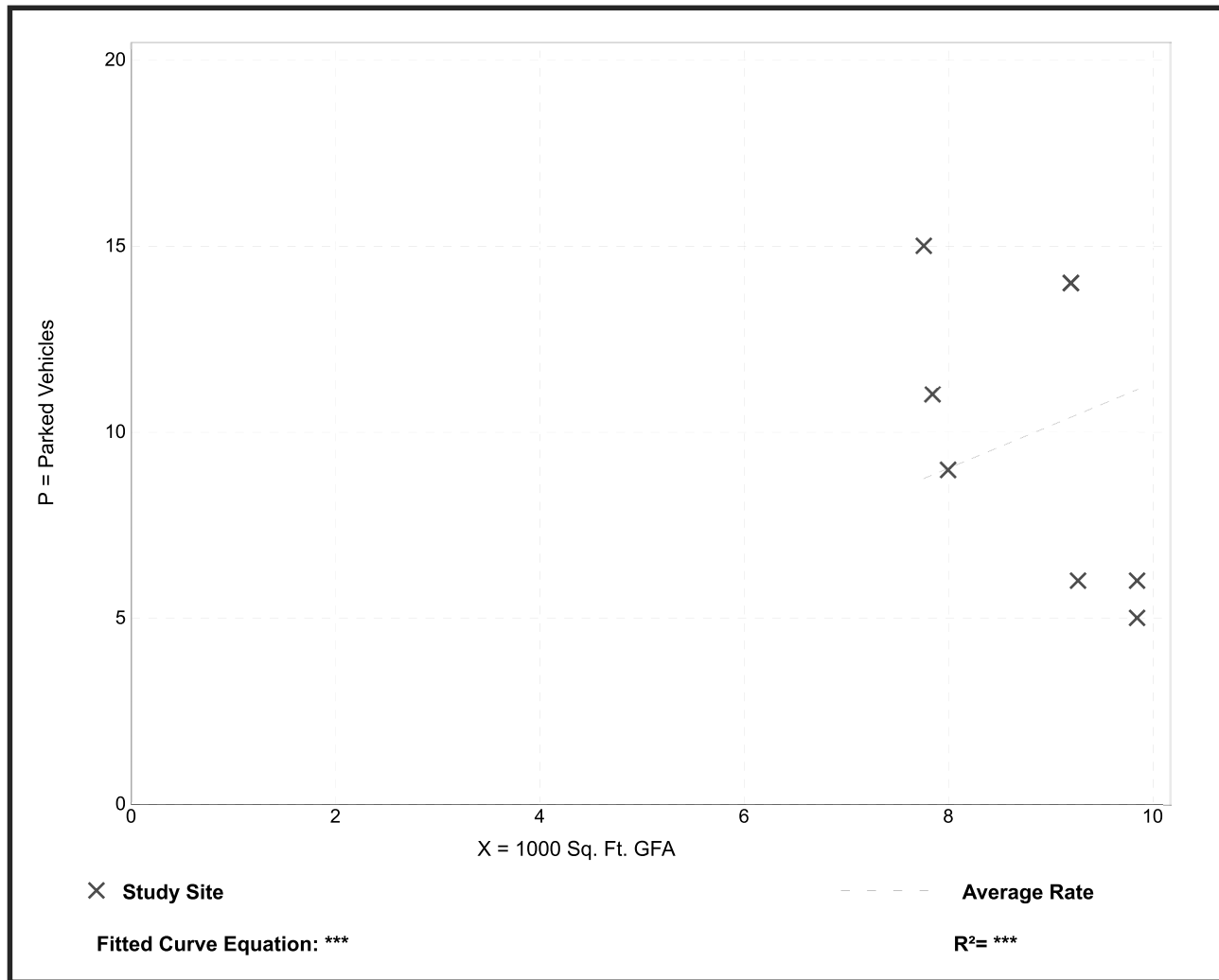
Variety Store - Non-December (814)

Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
Peak Period of Parking Demand: 5:00 - 7:00 p.m.
 Number of Studies: 8
 Avg. 1000 Sq. Ft. GFA: 8.8

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.13	0.51 - 1.93	0.65 / 1.79	***	0.52 (46%)

Data Plot and Equation



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Appendix C

PHOTOS



Looking East from Sandwich to Chappell Ave



Looking West from Sandwich to Chappell Ave



Looking North from Chappell Ave to Sandwich



**TRAFFIC IMPACT STUDY
MIXED USED DEVELOPMENT**

**3885 SANDWICH STREET
WINDSOR, ONTARIO**

PROJECT NO. 20-028

DATED: MAY 26, 2022



27 Princess St., Unit 102
Leamington, ON N8H 2X8
519.326.6161 TF 1.844.842.9188
bairdAE.ca

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1.2	Proposed Development.....	2
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FIGURES

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Table 3: Background Conditions – Level of Service 6

Table 4: 2022 Conditions – Level of Service 7

Table 5: 2027 Conditions – Level of Service 7

Table 6: 2032 Conditions – Level of Service 8

APPENDICES

- Appendix A Background Traffic Data and Other Related Information
- Appendix B Future Background Traffic, Development Traffic and Total Traffic Volumes
- Appendix C Capacity Analysis
- Appendix D Site Plans, Warrants and Photos

1.0 INTRODUCTION

1.1 Background

BairdAE has been retained to prepare a Traffic Impact Assessment in support of proposed 11-storey apartment building on 3885 Sandwich Street, Windsor. The building will house new 150 residential units with 70 single bedroom units and 80 double bedroom units, and retail store on ground floor with total enclosed space of 6697ft². The site is bounded by Chappell Avenue to the south, Sandwich Street to the west, and residential development to the north and east.

Two new accesses will be provided to the site as shown in Exhibit 1. The first access is located about 95m north of intersection of Sandwich Street W and Chappell Avenue and second access is located 64m east of intersection. The development is expected to be completed in 2022.

The traffic flow from development is predicted to produce 1295 daily vehicles, 122 morning vehicles and 111 evening peak vehicles.



Exhibit 1 - Location Plan

1.2 Proposed Development

As illustrated in site plan (Appendix D), the development site is approximately 0.67ha which will consist of new building with 150 units, retail section of 6697 ft² in size, parking spaces and landscape area. The development will have 188 parking spaces for residence and visitors. Two full accesses will be provided to access the site. the first access is located about 95m north of intersection of Sandwich Street W and Chappell Avenue and second access is located 64m east of intersection.

1.3 Scope

It is anticipated that the proposed development construction will begin in 2027 and as a result following future horizon periods (conditions) are established as part of this study:

- Existing Condition 2020; and
- 2022 Future Condition
- 2027 Future Condition
- 2032 Future Condition – 10-year horizon

The study has considered impacts of site generated traffic at the followings intersections:

- Sandwich Street and Chappell Avenue
- Sandwich Street and Access Road 1
- Chappell Avenue and Access Road 2

1.4 Analysis Methodology

A transportation analysis was completed to determine the existing and future operation conditions of intersection and individual turning movements. The operational analyses were primarily based on procedures set out in the Highway Capacity Manual (2010) with the assistance of Synchro 10. Several performance measures are used in the analysis of signalized and unsignalized intersections including the following:

- Level of Service (LOS) – a measure of the average vehicle delay experienced by the motorists attempting to travel through the intersection. LOS is measured from “A” to “F” with peak hour LOS in the “A” to “D” range being considered acceptable by most and a LOS of F representing unacceptable delays;
- Delay – the additional travel time experienced by a driver compared to free-flow conditions; and
- Queue Lengths – the Synchro Software measures both the 50th percentile and 95th percentile maximum queue lengths. The 50th percentile queue (the median) is the

maximum back of queue length during a typical traffic cycle. The 95th percentile queue is the maximum back of queue length during a typical traffic cycle with 95th percentile traffic volumes. The 95th percentile queue measures the queue length that 95 percent of the sample lies below. The 95th percentile critical queue lengths were identified for movements where the queue surpassed the estimated length of the storage bay.

Taken together, these measures provide an indication of delay and the number of vehicles that can be accommodated through an intersection.

2.0 EXISTING CONDITION

2.1 Road Network Characteristics

The existing road network, lane configuration and existing traffic control for the study area are shown in Exhibit 2 and the details are described below:

Sandwich Street is the two-lane urban north-south arterial roadway with posted speed limit of 50 km/h at the close proximity to the development. The road turn into Ojibway parkway 500m west of the development with speed limit of 70km/h.

Crawford Street is a east-west two lane local roadway extending from Peter Street to Russell Street. It has a posted 50 km/h speed limit, with on-street parking permitted on both sides. It is stop controlled on its approach to the intersection with Sandwich Street.

2.2 Key Existing Intersection

The intersection of Sandwich Street with Chappell Avenue is 4-leg unsignalized intersection. There is one lane in each direction at the intersection. No exclusive turning lanes are provided at the intersection. Intersection is controlled by STOP sign on Chappell Avenue.

2.3 Existing Traffic Volumes

Recent traffic count and signal timing data was obtained from the City of Windsor for the intersection of Sandwich Street and Chappell Avenue. The existing traffic volumes and other relevant data are included in Appendix A.

3.0 FUTURE CONDITION

3.1 Growth Rate

The growth rate information was obtained from Windsor Area Long Range Transportation Study (WALTS) traffic growth chart. Based on chart, 20-year traffic growth (2.17 traffic volume 1997 and 2.22 traffic volume 2017) is approximately 1.1%, hence a conservative growth rate of 3% per year was assumed to reflect growth in background traffic volumes. The projected traffic volumes are provided in Appendix B.

3.2 Future Background Development

The site is located at urban area and busiest intersection, it is almost impossible to ignore future potential development. The existing surrounding users include industries, restaurant and local residences. Based on site visit, there are no new development taking place within site vicinity hence therefore we assumed no major residential/commercial/industrial development is taking place.

4.0 DEVELOPMENT TRAFFIC

This section will describe the development accesses, trip generation, trip distribution and ultimate peak hour traffic.

4.1 Description of Project

As shown in site plan (see appendix D), the proposed development consists of 150 units with 70 single bedroom units and 80 double bedroom units with total enclosed space of 1480.6m². Sight triangle at the southwest corner of the development is provided to improve sight lines for drivers at the intersection. It is assumed that the development will be constructed by 2022 (addition of 1295 Daily; 105 inbound traffic and 128 outbound traffic).

4.2 Development Access

The proposed site accesses are provided from Sandwich Street and Chappell Avenue. The future access roads will be T-leg intersections. All approaches at the intersection will have one left-through-right share lane as shown in Exhibit 2 in Appendix B.

4.3 Trip Generation

The number of vehicle trips anticipated to be generated by the proposed development was calculated based on trip generation rates published by The Institution of Transportation Engineers (ITE) Trip Generation 9th Edition. Higher ITE Code 220 (Apartment) and ITE Code 826 (Retail) were used to estimate generated trips.

Description of Land use, ITE codes, unit sizes, trip generation rate and trip generation for daily and peak hours are provided in Table 1. Appendix B provides detailed calculations and all relevant charts.

Table 1: Trip Generation

Use	ITE	Units	AADT	Trip Generated			
				AM Hour		PM Hour	
				In	Out	In	Out
Apartment	220	150	998	15	61	60	33
Retail Center	826	6.69 kft ²	297	22	24	8	10
Total			1295	37	85	68	43

There will be street parking on the Sandwich Street, hence, retail store traffic will not have significant impact on development's accesses. However, for modelling purpose, the retail traffic is added for worst case scenario.

4.4 Trip Distribution and Assignment

Given that site's highly urban location (proximity to a mix of residential, industrial, commercial and employments uses), the trips distribution is based on shortest route to reach arterial route E.C. Row Expressway. It is assumed that the 61 percent of volume generated from development will travel to/from south of Sandwich Street and 39 percent from/to north of Sandwich Street. At the intersection of Sandwich Street with Chappell Street, the traffic trip will be distributed similar to existing traffic movement. The site development traffic distribution is shown Table 2 and also provided in Figure 1.2, Figure 2.2, Figure 3.2 and Figure 4.2 (see Appendix B).

It is also assumed that the 60 percent of development traffic is from/to Access Road 1 and 40 percent from/to Access Road 2.

Table 2: Trip Distribution

From/To Sandwich Street	Distribution
North	39%
South	61%
Total	100%

4.5 Future Condition

Development traffic volumes were added to the forecasted (2022, 2027 and 2032) background traffic volumes to obtain corresponding total traffic volumes at intersections. The projected total future volumes are provided in Figure 1.3, Figure 2.3, Figure 3.3 and Figure 4.3 (see Appendix B).

5.0 INTERSECTION OPERATIONS

The existing (2020) and forecasted 2022, 2027 and 2032 traffic volumes for the study intersections are evaluated using the Synchro/Sim Traffic software version 10 which automates the procedures contained in the Highway Capacity Manual 2010.

The existing and future peak hours analysis results are included in tables 3-6 and corresponding worksheets are included in Appendix C.

Table 3: Background Conditions – Level of Service

Sandwich St and Chappell Ave Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
2018						
EB LTR	B	0.1	12.6	B	0.14	13.9
WB LTR	C	0.03	17.0	C	0.03	17.5
NB LTR	A	0.04	1.1	A	0.04	1.3
SB LTR	A	0.0	0.0	A	0.01	0.2
Overall LOS	A			A		
2022						
EB LTR	B	0.1	12.6	B	0.16	14.4
WB LTR	C	0.03	17.3	C	0.03	18.6
NB LTR	A	0.0	1.2	A	0.05	1.4
SB LTR	A	0.0	0.0	A	0.01	0.2

Overall LOS	A			A		
2027						
EB LTR	B	0.13	13.5	C	0.21	16.5
WB LTR	C	0.04	20.1	C	0.05	22.6
NB LTR	A	0.05	1.4	A	0.06	1.6
SB LTR	A	0.0	0.0	A	0.01	0.2
Overall LOS	A			B		
2032						
EB LTR	B	0.16	14.9	C	0.27	19.0
WB LTR	C	0.06	23.8	D	0.06	28.2
NB LTR	A	0.06	1.5	A	0.07	1.9
SB LTR	A	0.0	0.0	A	0.01	0.2
Overall LOS	B			B		

Note: NB – Northbound SB – Southbound EB – Eastbound WB – Westbound; LTR – Left/Through/Right turn

Table 4: 2022 Conditions – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
Sandwich Street and Chappell Avenue (Unsignalized)						
EB LTR	B	0.12	14.1	B	0.16	14.9
WB LTR	C	0.14	18.9	C	0.11	22.8
NB LTR	A	0.04	1.2	A	0.05	1.4
SB LTR	A	0.01	0.4	A	0.02	0.5
Overall LOS	A			A		
Sandwich Street and Access 1 (Unsignalized)						
WB LTR	B	0.12	14.2	C	0.08	16.1
NB LTR	A	0.26	0.0	A	0.25	0.0
SB LTR	A	0.01	0.3	A	0.01	0.4
Overall LOS	A			A		
Chappell Avenue and Access 2 (Unsignalized)						
EB LTR	A	0.01	3.7	A	0.02	3.9
WB LTR	A	0.01	0.0	A	0.01	0.0
SB LTR	A	0.04	8.7	A	0.02	8.7
Overall LOS	A			A		

Table 5: 2027 Conditions – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
Sandwich Street and Chappell Avenue (Unsignalized)						
EB LTR	C	0.15	15.3	C	0.22	17.3
WB LTR	C	0.17	22.5	D	0.15	28.9
NB LTR	A	0.05	1.3	A	0.06	1.6

SB LTR	A	0.01	0.4	A	0.02	0.5
Overall LOS	A			B		
Sandwich Street and Access 1 (Unsignalized)						
WB LTR	B	0.14	15.5	C	0.09	18.2
NB LTR	A	0.29	0.0	A	0.29	0.0
SB LTR	A	0.0	0.3	A	0.01	0.4
Overall LOS	A			A		
Chappell Avenue and Access 2 (Unsignalized)						
EB LTR	A	0.01	3.4	A	0.02	3.7
WB LTR	A	0.01	0.0	A	0.01	0.0
SB LTR	A	0.04	8.7	A	0.02	8.7
Overall LOS	A			A		

Table 6: 2032 Conditions – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
Sandwich Street and Chappell Avenue (Unsignalized)						
EB LTR	C	0.20	17.4	C	0.28	20.2
WB LTR	D	0.21	27.2	E	0.20	38.2
NB LTR	A	0.05	1.4	A	0.07	1.9
SB LTR	A	0.01	0.4	A	0.02	0.5
Overall LOS	B			B		
Sandwich Street and Access 1 (Unsignalized)						
WB LTR	C	0.16	17.0	C	0.11	20.7
NB LTR	A	0.32	0.0	A	0.32	0.0
SB LTR	A	0.0	0.3	A	0.01	0.4
Overall LOS	A			A		
Chappell Avenue and Access 2 (Unsignalized)						
EB LTR	A	0.01	3.3	A	0.02	3.5
WB LTR	A	0.01	0.0	A	0.01	0.0
SB LTR	A	0.04	8.8	A	0.02	8.7
Overall LOS	A			A		

Under 2022, 2027 and 2032 background condition, the Sandwich Street and Chappell Avenue intersection is projected to operate at an overall acceptable LOS during peak hours. Under 2032 existing condition delay is observed long delay for westbound turning vehicles during pm peak. However, sufficient capacity remains for this movement (v/c= 0.06) indicating sufficient gaps are available hence no mitigation measures are required.

Under 2022 post development conditions, the intersections analyzed are expected to operate at acceptable level of service during peak hours.

Under 2027 and 2032 post development conditions, the intersections analyzed are expected to operate at acceptable level of service during peak hours. However, the intersection of Sandwich Street with Chappell Avenue evening condition westbound turning vehicles observes higher delay. The level of service for westbound deteriorate from LOS D in 2027 to LOS E in 2032. However, sufficient capacity to remain ($v/c = 38.4$) indicating enough queuing storage is available. Also, the westbound right turning vehicles are less than 60 vph. Hence, no turning lanes are required. Signal warrant analysis was conducted for this intersection.

Average queuing at the sites accesses to be minimal for all future conditions, hence, this reinforce the condition that dedicated turning lanes are not required.

5.1 Signal Warrant

Transportation Association of Canada (TAC) traffic signal procedure requires 100 warrant points to trigger signal at the intersection. Using 2032 projected evening traffic volumes, the 86 warrants points indicate that traffic signal is not warranted. Details calculations are provided in Appendix D.

6.0 CONCLUSION AND RECOMMENDATION

Utilizing the morning and evening traffic data, the operating conditions were evaluated for 2020, 2022, 2027 and 2032 traffic conditions. The findings from these evaluations are summarized below.

- The proposed 11-storey mix-use high rise apartment building will have 150 units and 6697 ft² retail space on ground floor which will generate approximately 1295 daily; 105 inbound traffic and 128 outbound traffic.
- Based on conversation with client, the development construction will begin in 2022.
- The background growth rate is considered in the analysis as it represents worst case scenario i.e. 3%.
- Under existing and future background conditions, the study area intersections operate at acceptable level of service during morning and evening peak. However, under 2032 existing condition, the westbound turning lanes level of service is D. This delay is due to stop control and higher volumes on the Sandwich Street. However, there is sufficient capacity available for this movement ($v/c = 0.06$) indicating sufficient gaps are available hence no mitigation measures are required.
- Under the 2022 future post-development condition, the intersections are expected to operate at acceptable level of service during peak hours.
- Under the 2027 and 2032 future post-development condition, the intersection of Sandwich Street and Chappell Avenue are expected to operate at acceptable level of service during peak hours. However, the westbound turning movement at the intersection is forecast to have longer delays i.e. LOS D in 2027 and LOS E in 2032. However, sufficient gaps are available to accommodate this movement. Hence no improvements are required.
- All other intersection operates at acceptable level of service in 2022, 2027 and 2032 post-development conditions.
- The warrant for signalization is not required at the intersection of Sandwich Street and Chappell Avenue for 2032 post-development condition. It is expected that the City will continue monitor traffic at this location.

- An adequate sight line distance is provided for safe departure from the development.

7.0 CLOSURE

The information contained in this report is prepared for mixed use High-Rise Development in City of Windsor for future discussion regarding potential traffic impact on Sandwich Street, Chappell Avenue and access roads.

We trust that the above meets with your purpose. Should you have any questions, please do not hesitate to contact the undersigned. All of which is respectfully submitted.

All of which is respectfully submitted.

BAIRD AE INC.
27 PRINCESS STREET, UNIT 102
LEAMINGTON, ONTARIO N8H 2X8

Shurjeel Tunio, P.Eng.
Senior Project Manager
Baird AE



Appendix A

BACKGROUND TRAFFIC DATA AND OTHER RELATED INFORMATION

Sandwich St @ Chappel Ave

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:15:00

To: 8:15:00

Municipality: Windsor
Site #: 000000001
Intersection: Sandwich St & Chappel Ave
TFR File #: 1
Count date: 21-Jul-2020

Weather conditions:
Clear/Dry
Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Sandwich St runs N/S

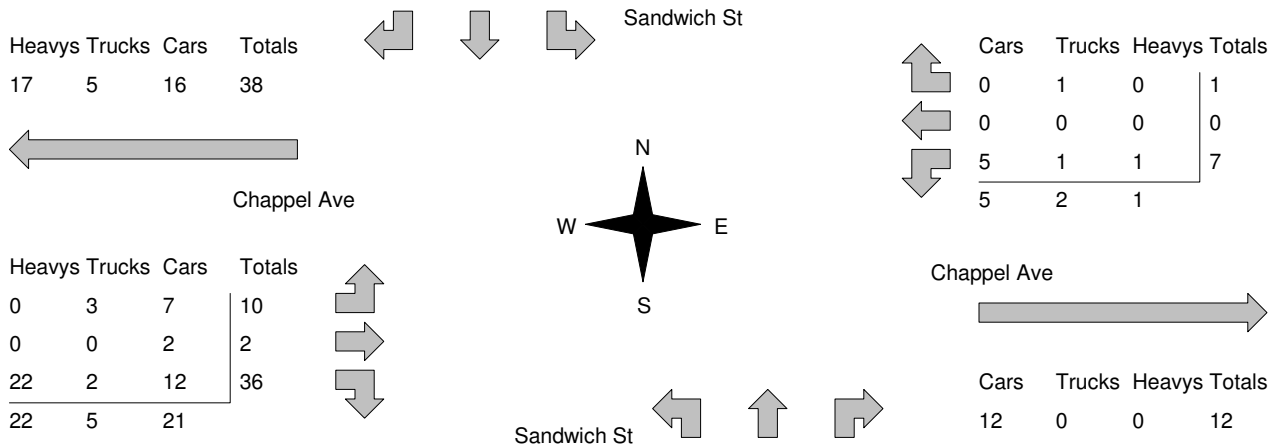
North Leg Total: 583
 North Entering: 229
 North Peds: 0
 Peds Cross: \times

Heavys	0	2	0	2
Trucks	1	9	0	10
Cars	3	213	1	217
Totals	4	224	1	



Heavys	10
Trucks	9
Cars	335
Totals	354

East Leg Total: 20
 East Entering: 8
 East Peds: 7
 Peds Cross: \times



Peds Cross: \times
 West Peds: 3
 West Entering: 48
 West Leg Total: 86

Cars	230	Cars	13	328	9	350
Trucks	12	Trucks	4	5	0	9
Heavys	25	Heavys	17	10	0	27
Totals	267	Totals	34	343	9	

Peds Cross: \times
 South Peds: 4
 South Entering: 386
 South Leg Total: 653

Comments

Sandwich St @ Chappel Ave

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 12:15:00

To: 13:15:00

Municipality: Windsor
Site #: 000000001
Intersection: Sandwich St & Chappel Ave
TFR File #: 1
Count date: 21-Jul-2020

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Non-Signalized Intersection ****

Major Road: Sandwich St runs N/S

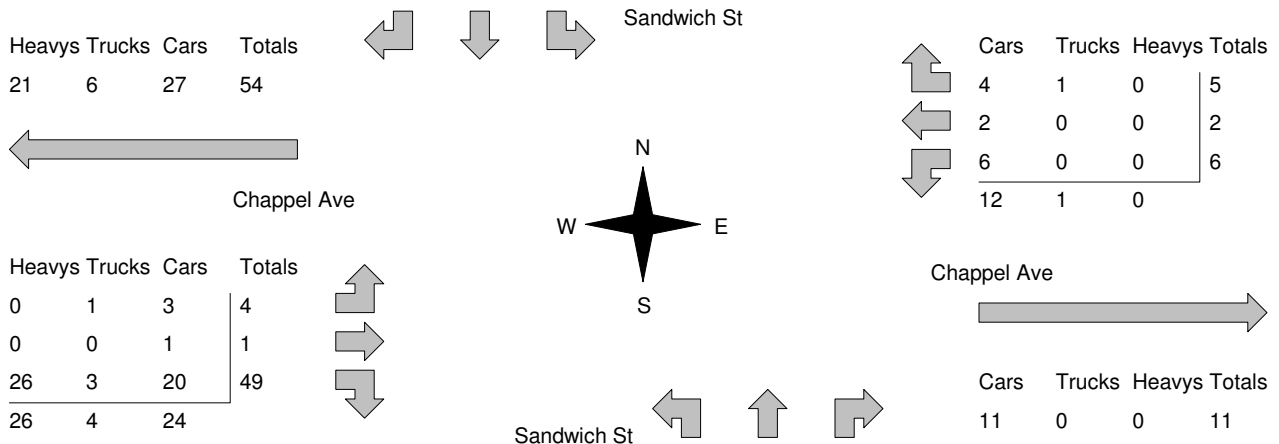
North Leg Total: 526
 North Entering: 284
 North Peds: 1
 Peds Cross: \times

Heavys	0	8	0	8
Trucks	3	7	0	10
Cars	10	251	5	266
Totals	13	266	5	



Heavys	5
Trucks	8
Cars	229
Totals	242

East Leg Total: 24
 East Entering: 13
 East Peds: 9
 Peds Cross: \times



Peds Cross: \times
 West Peds: 0
 West Entering: 54
 West Leg Total: 108

Cars	277	Cars	15	222	5	242
Trucks	10	Trucks	3	6	0	9
Heavys	34	Heavys	21	5	0	26
Totals	321	Totals	39	233	5	

Peds Cross: \times
 South Peds: 5
 South Entering: 277
 South Leg Total: 598

Comments

Sandwich St @ Chappel Ave

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 15:15:00

To: 16:15:00

Municipality: Windsor
Site #: 000000001
Intersection: Sandwich St & Chappel Ave
TFR File #: 1
Count date: 21-Jul-2020

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Non-Signalized Intersection ****

Major Road: Sandwich St runs N/S

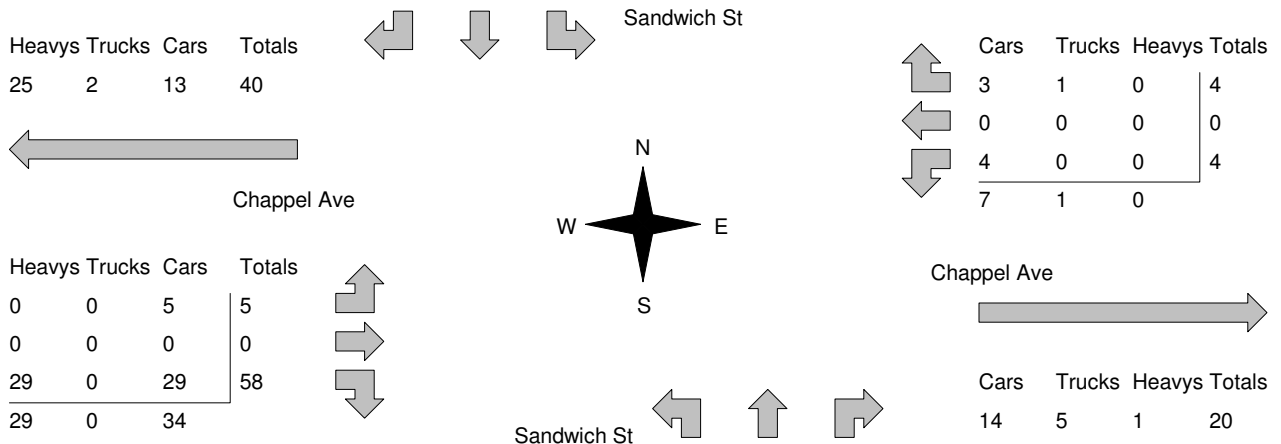
North Leg Total: 778
 North Entering: 435
 North Peds: 0
 Peds Cross: \times

Heavys	1	4	0	5
Trucks	1	6	1	8
Cars	6	411	5	422
Totals	8	421	6	



Heavys	5
Trucks	2
Cars	336
Totals	343

East Leg Total: 28
 East Entering: 8
 East Peds: 7
 Peds Cross: \times



Peds Cross: \times
 West Peds: 0
 West Entering: 63
 West Leg Total: 103

Cars	444	Cars	7	328	9	344
Trucks	6	Trucks	1	1	4	6
Heavys	33	Heavys	24	5	1	30
Totals	483	Totals	32	334	14	

Peds Cross: \times
 South Peds: 2
 South Entering: 380
 South Leg Total: 863

Comments

Sandwich St @ Chappel Ave

Total Count Diagram

Municipality: Windsor
Site #: 000000001
Intersection: Sandwich St & Chappel Ave
TFR File #: 1
Count date: 21-Jul-2020

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Non-Signalized Intersection ****

Major Road: Sandwich St runs N/S

North Leg Total: 4794
 North Entering: 2445
 North Peds: 3
 Peds Cross: \times

Heavys	1	47	0	48
Trucks	10	45	2	57
Cars	42	2281	17	2340
Totals	53	2373	19	



Heavys	47
Trucks	36
Cars	2266
Totals	2349

East Leg Total: 146
 East Entering: 68
 East Peds: 57
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
140	24	118	282

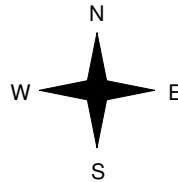


Sandwich St

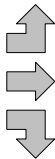
Cars	Trucks	Heavys	Totals
18	3	0	21
3	1	0	4
38	4	1	43
59	8	1	



Chappel Ave



Heavys	Trucks	Cars	Totals
3	7	36	46
0	0	6	6
146	12	130	288
149	19	172	



Chappel Ave



Peds Cross: \times
 West Peds: 9
 West Entering: 340
 West Leg Total: 622

Cars	2449
Trucks	61
Heavys	194
Totals	2704



Sandwich St

Cars	73	2212	40	2325
Trucks	13	26	12	51
Heavys	139	44	1	184
Totals	225	2282	53	

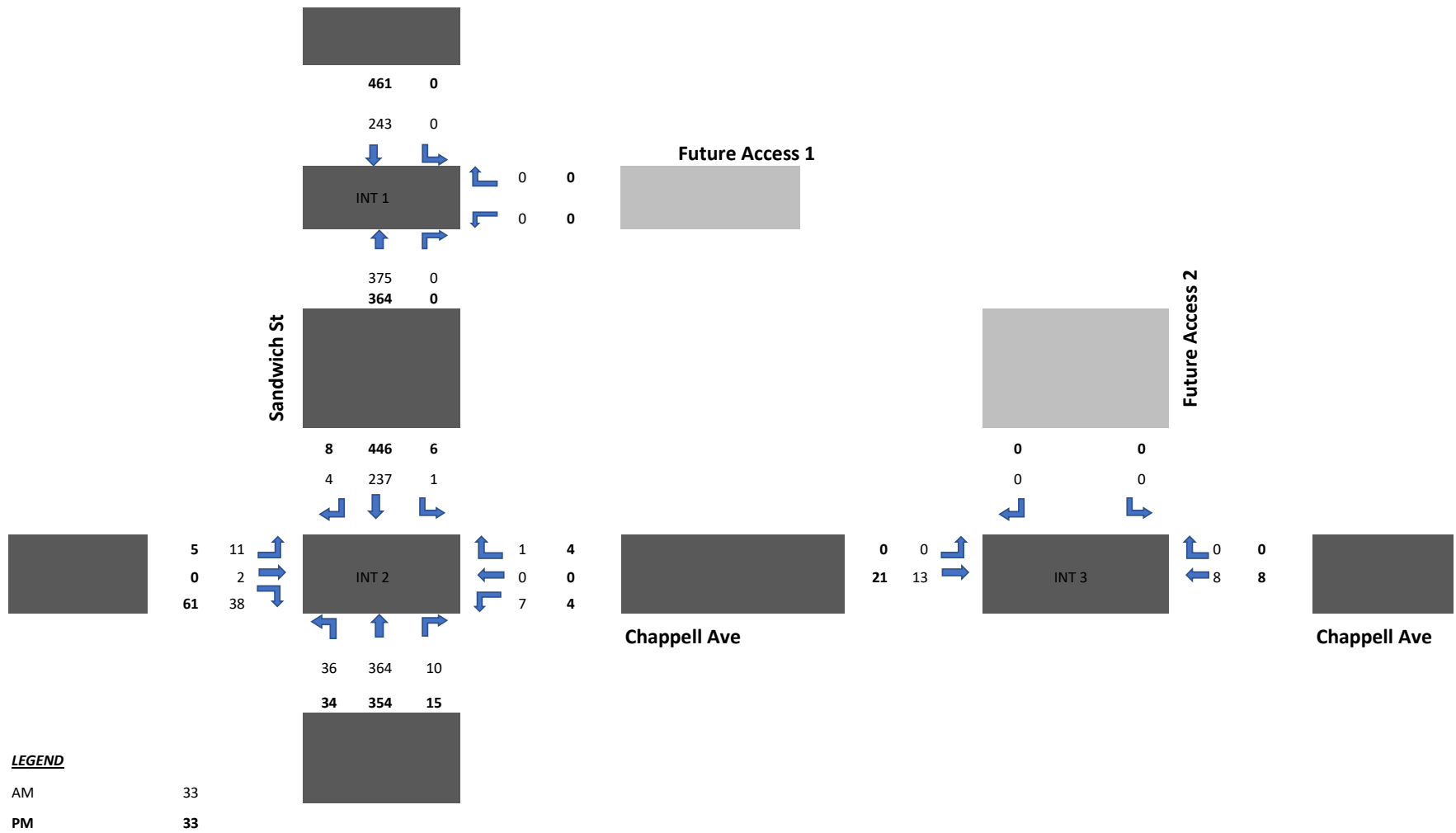
Peds Cross: \times
 South Peds: 17
 South Entering: 2560
 South Leg Total: 5264

Comments

Appendix B

FUTURE TRAFFIC, DEVELOPMENT TRAFFIC AND TOTAL TRAFFIC VOLUMES

MIXED USE HIGH-RISE BUILDING



PROJECT NAME
3885 Sandwich Street, Windsor

SHEET TITLE
2022 BACKGROUND TRAFFIC

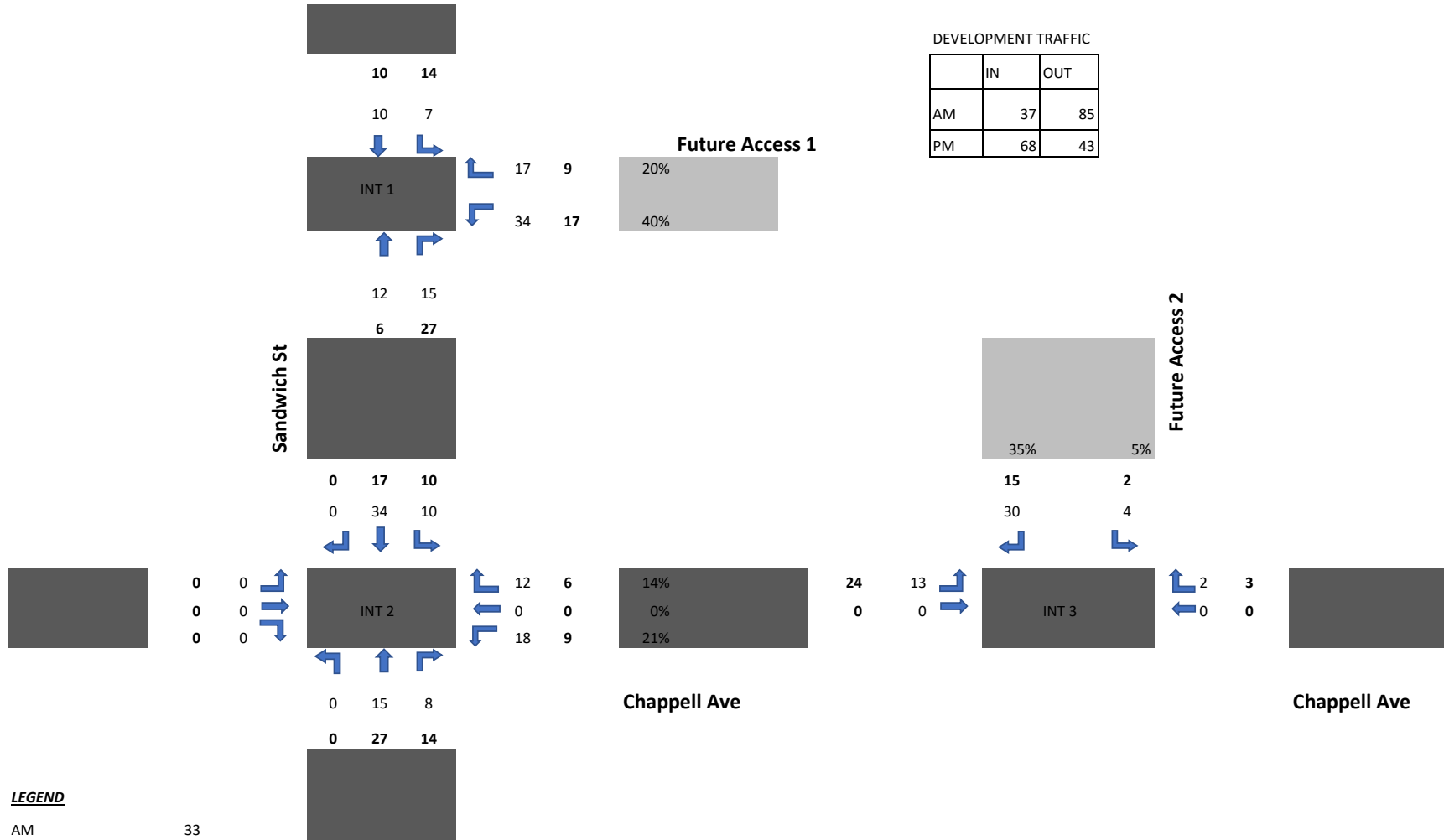


DATE: 26-May-22
PROJECT NO: 20-028
FIGURE NO: Figure 1.1

MIXED USE HIGH-RISE BUILDING

DEVELOPMENT TRAFFIC

	IN	OUT
AM	37	85
PM	68	43



PROJECT NAME 3885 Sandwich Street, Windsor

SHEET TITLE 2022 DEVELOPMENT TRAFFIC

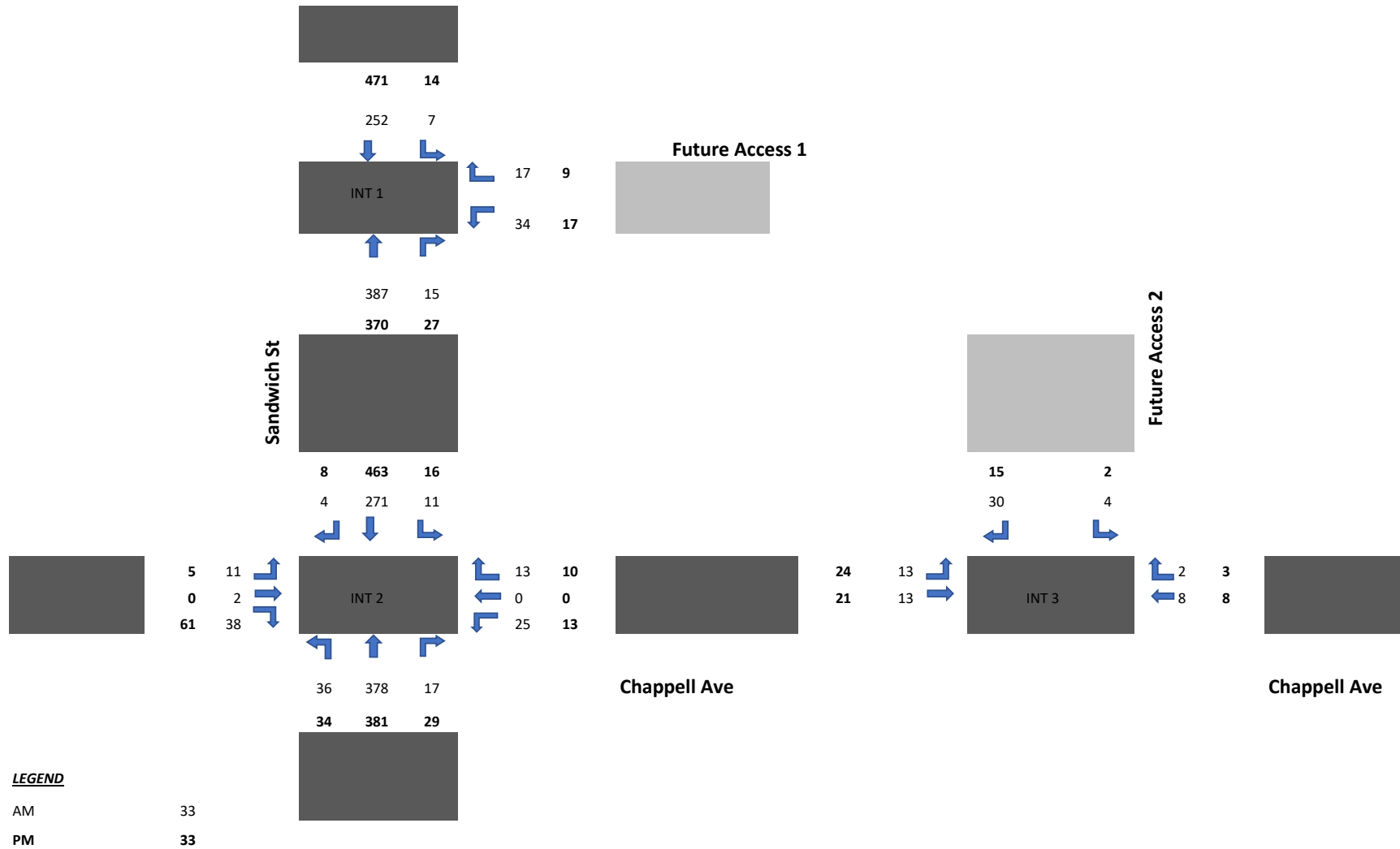


DATE: 26-May-22

PROJECT NO: 20-028

FIGURE NO: Figure 1.2

MIXED USE HIGH-RISE BUILDING

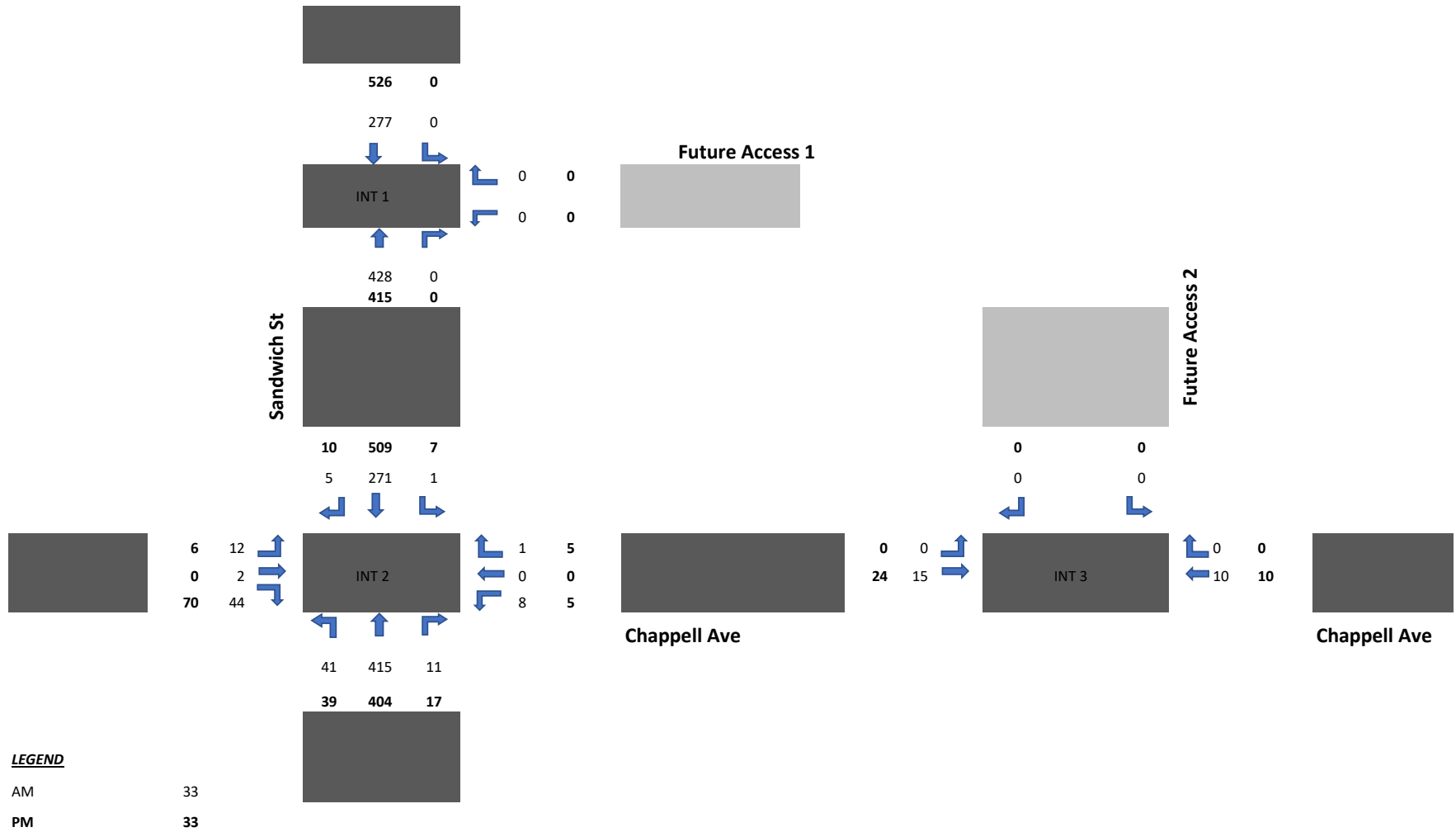


PROJECT NAME	3885 Sandwich Street, Windsor
SHEET TITLE	2022 TOTAL TRAFFIC



DATE:	26-May-22
PROJECT NO:	20-028
FIGURE NO:	Figure 1.3

MIXED USE HIGH-RISE BUILDING



PROJECT NAME
3885 Sandwich Street, Windsor

SHEET TITLE
2027 BACKGROUND TRAFFIC

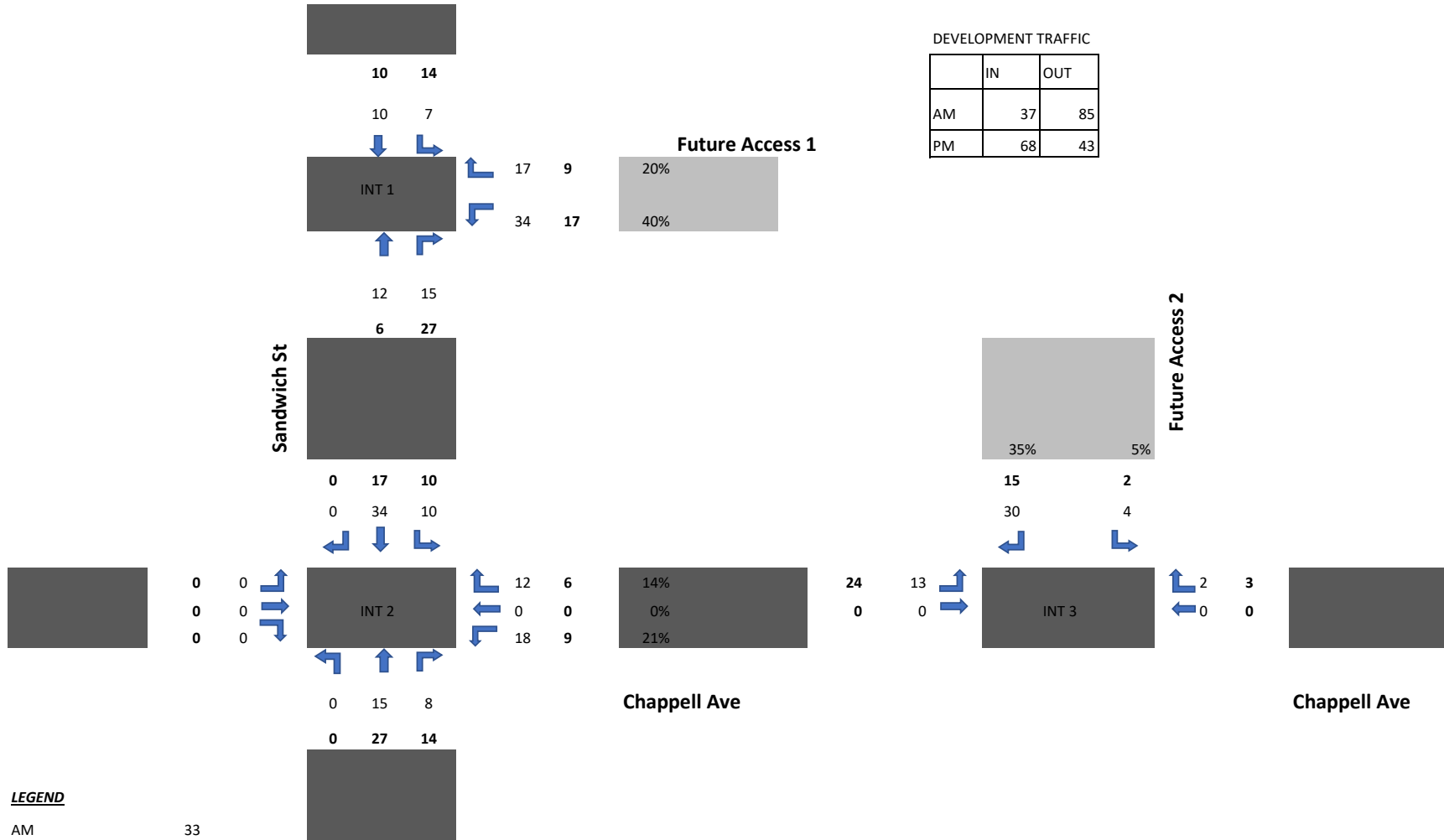


DATE: 26-May-22
PROJECT NO: 20-028
FIGURE NO: Figure 2.1

MIXED USE HIGH-RISE BUILDING

DEVELOPMENT TRAFFIC

	IN	OUT
AM	37	85
PM	68	43



PROJECT NAME 3885 Sandwich Street, Windsor

SHEET TITLE 2027 DEVELOPMENT TRAFFIC

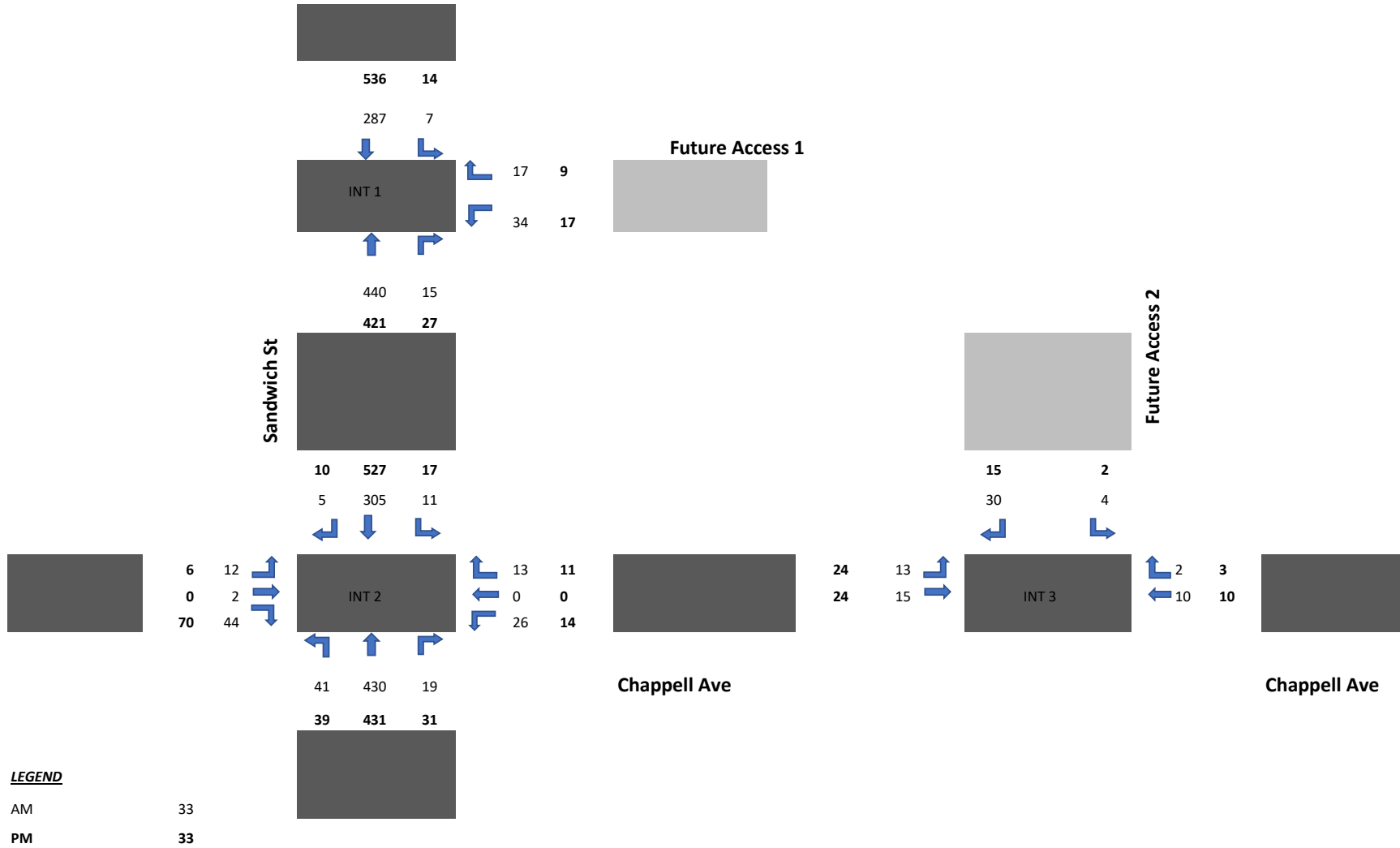


DATE: 26-May-22

PROJECT NO: 20-028

FIGURE NO: Figure 2.2

MIXED USE HIGH-RISE BUILDING



PROJECT NAME 3885 Sandwich Street, Windsor

SHEET TITLE 2027 TOTAL TRAFFIC

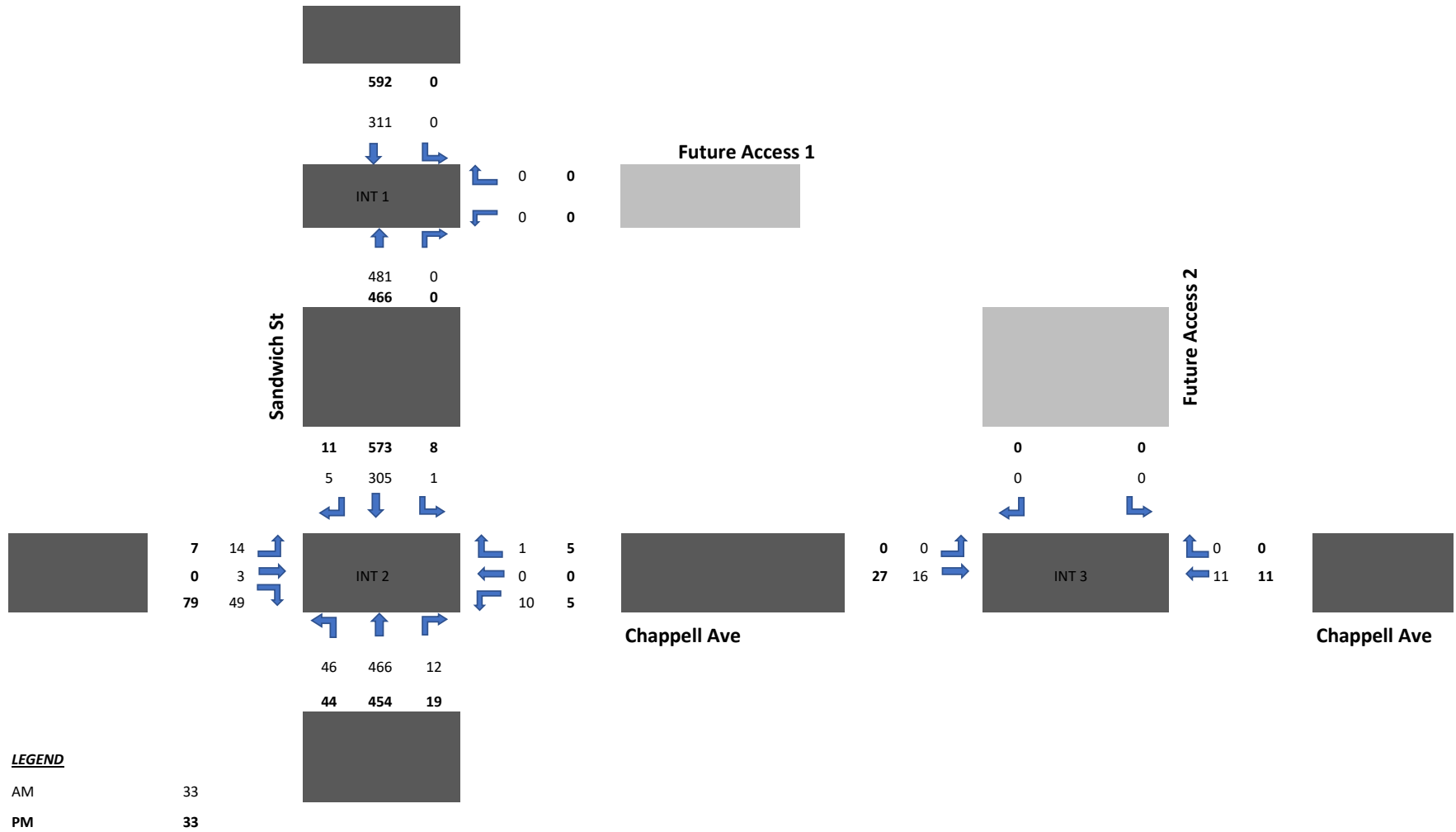


DATE: 26-May-22

PROJECT NO: 20-028

FIGURE NO: Figure 2.3

MIXED USE HIGH-RISE BUILDING



PROJECT NAME
3885 Sandwich Street, Windsor

SHEET TITLE
2032 BACKGROUND TRAFFIC



DATE: 26-May-22

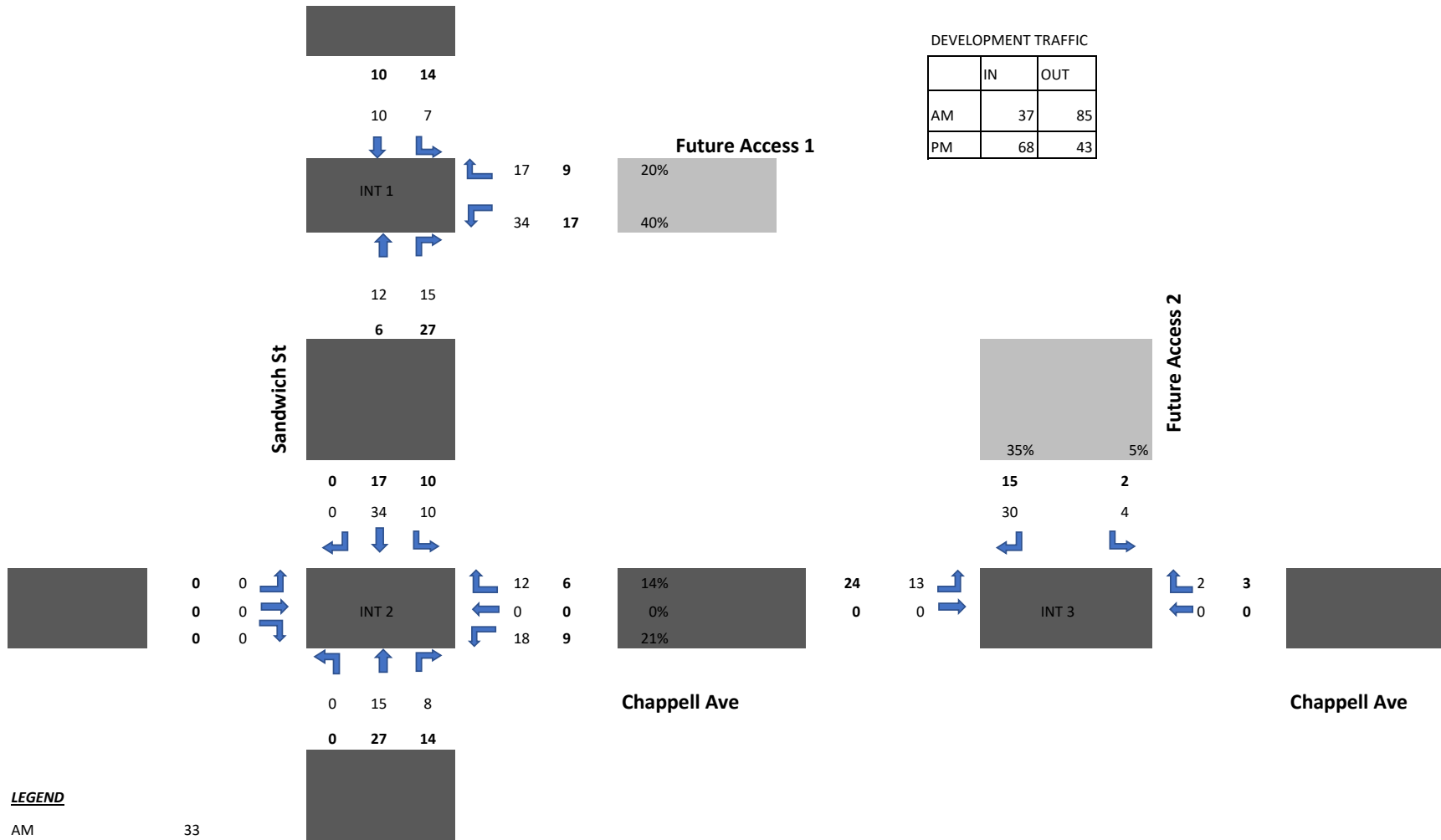
PROJECT NO: 20-028

FIGURE NO: Figure 3.1

MIXED USE HIGH-RISE BUILDING

DEVELOPMENT TRAFFIC

	IN	OUT
AM	37	85
PM	68	43

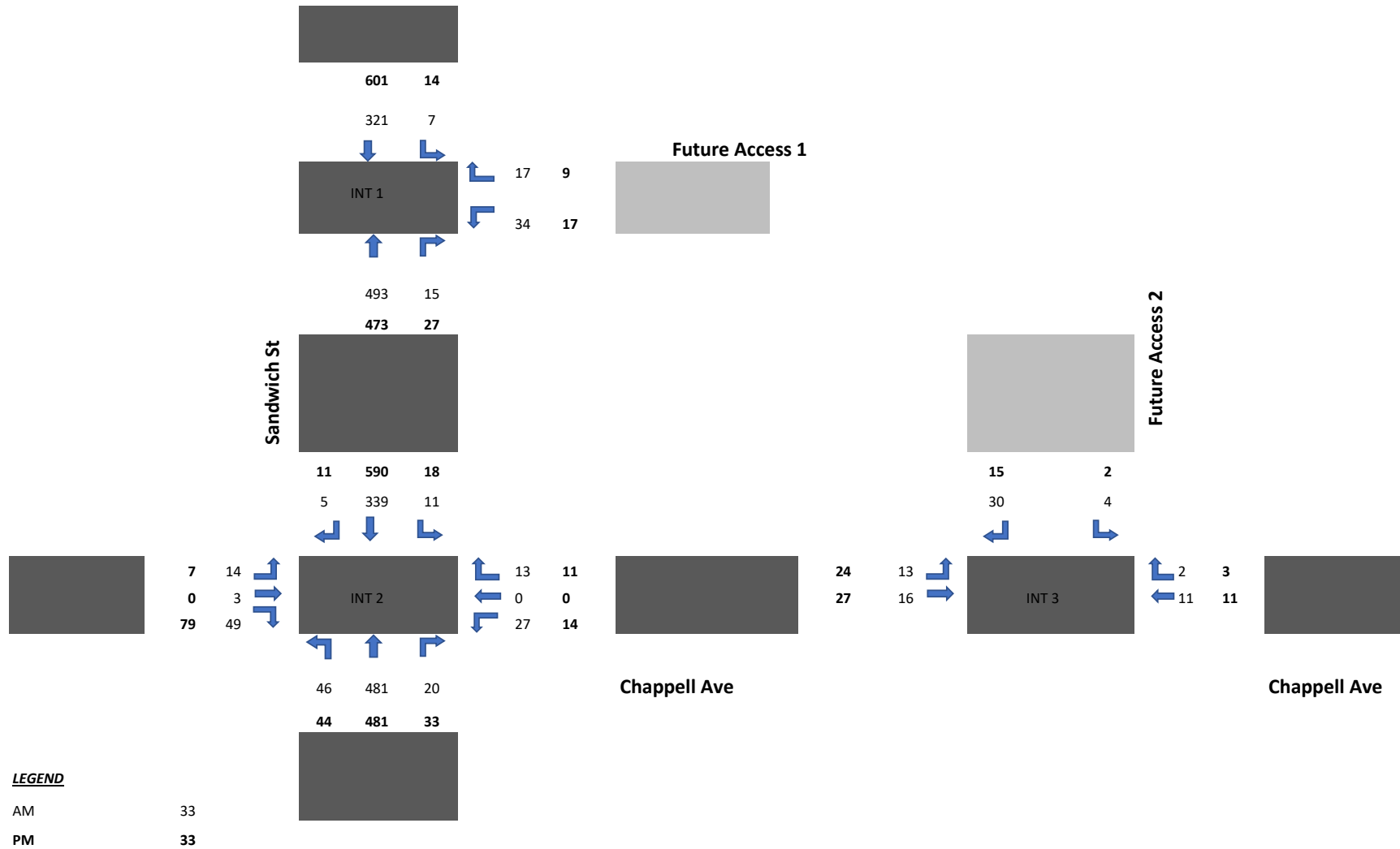


PROJECT NAME 3885 Sandwich Street, Windsor
SHEET TITLE 2032 DEVELOPMENT TRAFFIC



DATE: 26-May-22
PROJECT NO: 20-028
FIGURE NO: Figure 3.2

MIXED USE HIGH-RISE BUILDING



PROJECT NAME 3885 Sandwich Street, Windsor

SHEET TITLE 2032 TOTAL TRAFFIC



DATE: 26-May-22

PROJECT NO: 20-028

















FIGURE NO: Figure 3.3

Appendix C

CAPACITY ANALYSIS

















HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2022 BKGD AM TRAFFIC
 10-05-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	38	7	0	1	36	364	10	1	237	4
Future Volume (Veh/h)	11	2	38	7	0	1	36	364	10	1	237	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	2	41	8	0	1	39	396	11	1	258	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	742	747	260	784	744	402	262			407		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	742	747	260	784	744	402	262			407		
tC, single (s)	7.1	6.5	6.7	7.1	6.5	6.5	4.9			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.8	3.5	4.0	3.5	2.9			2.3		
p0 queue free %	96	99	94	97	100	100	96			100		
cM capacity (veh/h)	323	330	675	284	331	602	965			1080		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	55	9	446	263								
Volume Left	12	8	39	1								
Volume Right	41	1	11	4								
cSH	529	301	965	1080								
Volume to Capacity	0.10	0.03	0.04	0.00								
Queue Length 95th (m)	2.8	0.7	1.0	0.0								
Control Delay (s)	12.6	17.3	1.2	0.0								
Lane LOS	B	C	A	A								
Approach Delay (s)	12.6	17.3	1.2	0.0								
Approach LOS	B	C										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			47.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2022 TOTAL AM TRAFFIC
 10-02-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	38	22	0	11	36	373	15	10	265	4
Future Volume (Veh/h)	11	2	38	22	0	11	36	373	15	10	265	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	2	41	24	0	12	39	405	16	11	288	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	815	811	290	845	805	413	292			421		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	815	811	290	845	805	413	292			421		
tC, single (s)	7.4	6.5	6.8	7.2	6.5	6.2	4.7			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.8	3.6	4.0	3.3	2.8			2.2		
p0 queue free %	95	99	93	90	100	98	96			99		
cM capacity (veh/h)	251	300	628	241	303	643	993			1149		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	55	36	460	303								
Volume Left	12	24	39	11								
Volume Right	41	12	16	4								
cSH	460	305	993	1149								
Volume to Capacity	0.12	0.12	0.04	0.01								
Queue Length 95th (m)	3.2	3.2	1.0	0.2								
Control Delay (s)	13.9	18.4	1.2	0.4								
Lane LOS	B	C	A	A								
Approach Delay (s)	13.9	18.4	1.2	0.4								
Approach LOS	B	C										
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			47.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
7: Sandwich St & Fut Acc 1

2022 TOTAL AM TRAFFIC
10-02-2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	28	14	385	10	5	252
Future Volume (Veh/h)	28	14	385	10	5	252
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	15	418	11	5	274
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	708	424			429	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	708	424			429	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	98			100	
cM capacity (veh/h)	400	630			1141	
Direction, Lane #						
	WB 1	NB 1	SB 1			
Volume Total	45	429	279			
Volume Left	30	0	5			
Volume Right	15	11	0			
cSH	455	1700	1141			
Volume to Capacity	0.10	0.25	0.00			
Queue Length 95th (m)	2.6	0.0	0.1			
Control Delay (s)	13.8	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	13.8	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			30.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Chappell Ave & Fut Acc 2

















2022 TOTAL AM TRAFFIC
 10-02-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↘	
Traffic Volume (veh/h)	8	13	8	1	4	25
Future Volume (Veh/h)	8	13	8	1	4	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	14	9	1	4	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	10				42	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	10				42	10
tC, single (s)	4.1				6.5	6.5
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.5
p0 queue free %	99				100	97
cM capacity (veh/h)	1610				954	1009
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	23	10	31			
Volume Left	9	0	4			
Volume Right	0	1	27			
cSH	1610	1700	1001			
Volume to Capacity	0.01	0.01	0.03			
Queue Length 95th (m)	0.1	0.0	0.8			
Control Delay (s)	2.9	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	2.9	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utilization			17.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2022 BKGD PM TRAFFIC
 10-05-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	61	4	0	4	34	354	15	6	446	8
Future Volume (Veh/h)	5	0	61	4	0	4	34	354	15	6	446	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	0	66	4	0	4	37	385	16	7	485	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	974	978	490	1036	975	393	494			401		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	974	978	490	1036	975	393	494			401		
tC, single (s)	7.1	6.5	6.7	7.1	6.5	6.5	4.9			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.8	3.5	4.0	3.5	2.9			2.3		
p0 queue free %	98	100	87	98	100	99	95			99		
cM capacity (veh/h)	222	239	493	175	240	608	770			1086		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	71	8	438	501								
Volume Left	5	4	37	7								
Volume Right	66	4	16	9								
cSH	454	272	770	1086								
Volume to Capacity	0.16	0.03	0.05	0.01								
Queue Length 95th (m)	4.4	0.7	1.2	0.2								
Control Delay (s)	14.4	18.6	1.4	0.2								
Lane LOS	B	C	A	A								
Approach Delay (s)	14.4	18.6	1.4	0.2								
Approach LOS	B	C										
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			51.1%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2022 TOTAL PM TRAFFIC
 10-02-2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	61	12	0	9	34	379	28	15	461	8
Future Volume (Veh/h)	5	0	61	12	0	9	34	379	28	15	461	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	0	66	13	0	10	37	412	30	16	501	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1048	1054	506	1104	1043	427	510			442		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1048	1054	506	1104	1043	427	510			442		
tC, single (s)	7.1	6.5	6.7	7.1	6.5	6.5	4.9			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.8	3.5	4.0	3.5	2.9			2.3		
p0 queue free %	97	100	86	92	100	98	95			98		
cM capacity (veh/h)	194	213	482	156	217	581	758			1048		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	71	23	479	526								
Volume Left	5	13	37	16								
Volume Right	66	10	30	9								
cSH	436	229	758	1048								
Volume to Capacity	0.16	0.10	0.05	0.02								
Queue Length 95th (m)	4.6	2.6	1.2	0.4								
Control Delay (s)	14.8	22.5	1.4	0.4								
Lane LOS	B	C	A	A								
Approach Delay (s)	14.8	22.5	1.4	0.4								
Approach LOS	B	C										
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			48.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
7: Sandwich St & Fut Acc 1

2022 TOTAL PM TRAFFIC
10-02-2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	7	369	25	13	470
Future Volume (Veh/h)	15	7	369	25	13	470
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	8	401	27	14	511
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	954	414			428	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	954	414			428	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	99			99	
cM capacity (veh/h)	284	638			1142	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	24	428	525			
Volume Left	16	0	14			
Volume Right	8	27	0			
cSH	348	1700	1142			
Volume to Capacity	0.07	0.25	0.01			
Queue Length 95th (m)	1.8	0.0	0.3			
Control Delay (s)	16.1	0.0	0.4			
Lane LOS	C		A			
Approach Delay (s)	16.1	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			45.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Chappell Ave & Fut Acc 2

















2022 TOTAL PM TRAFFIC
 10-02-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	22	21	8	3	2	13
Future Volume (Veh/h)	22	21	8	3	2	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	23	9	3	2	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	12				82	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	12				82	10
tC, single (s)	4.1				6.5	6.5
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.5
p0 queue free %	99				100	99
cM capacity (veh/h)	1607				897	1007
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	47	12	16			
Volume Left	24	0	2			
Volume Right	0	3	14			
cSH	1607	1700	992			
Volume to Capacity	0.01	0.01	0.02			
Queue Length 95th (m)	0.4	0.0	0.4			
Control Delay (s)	3.8	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	3.8	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization		19.0%		ICU Level of Service		A
Analysis Period (min)			15			

















HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2027 BKGD AM TRAFFIC
 10-05-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	2	44	8	0	1	41	415	11	1	271	5
Future Volume (Veh/h)	12	2	44	8	0	1	41	415	11	1	271	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	2	48	9	0	1	45	451	12	1	295	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	848	852	298	896	849	457	300			463		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	848	852	298	896	849	457	300			463		
tC, single (s)	7.1	6.5	6.7	7.1	6.5	6.5	4.9			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.8	3.5	4.0	3.5	2.9			2.3		
p0 queue free %	95	99	93	96	100	100	95			100		
cM capacity (veh/h)	273	284	642	233	285	559	930			1029		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	63	10	508	301								
Volume Left	13	9	45	1								
Volume Right	48	1	12	5								
cSH	486	248	930	1029								
Volume to Capacity	0.13	0.04	0.05	0.00								
Queue Length 95th (m)	3.5	1.0	1.2	0.0								
Control Delay (s)	13.5	20.1	1.4	0.0								
Lane LOS	B	C	A	A								
Approach Delay (s)	13.5	20.1	1.4	0.0								
Approach LOS	B	C										
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			52.7%	ICU Level of Service						A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2022 TOTAL AM TRAFFIC
 05-26-2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	38	25	0	13	36	378	17	11	271	4
Future Volume (Veh/h)	11	2	38	25	0	13	36	378	17	11	271	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	2	41	27	0	14	39	411	18	12	295	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	833	828	297	861	821	420	299			429		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	833	828	297	861	821	420	299			429		
tC, single (s)	7.4	6.5	6.8	7.2	6.5	6.2	4.7			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.8	3.6	4.0	3.3	2.8			2.2		
p0 queue free %	95	99	93	89	100	98	96			99		
cM capacity (veh/h)	243	293	622	235	296	638	987			1141		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	55	41	468	311								
Volume Left	12	27	39	12								
Volume Right	41	14	18	4								
cSH	451	300	987	1141								
Volume to Capacity	0.12	0.14	0.04	0.01								
Queue Length 95th (m)	3.3	3.8	1.0	0.3								
Control Delay (s)	14.1	18.9	1.2	0.4								
Lane LOS	B	C	A	A								
Approach Delay (s)	14.1	18.9	1.2	0.4								
Approach LOS	B	C										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			47.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
7: Sandwich St & Fut Acc 1

2022 TOTAL AM TRAFFIC
05-26-2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	17	387	15	7	252
Future Volume (Veh/h)	34	17	387	15	7	252
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	18	421	16	8	274
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	719	429			437	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	719	429			437	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	97			99	
cM capacity (veh/h)	392	626			1134	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	55	437	282			
Volume Left	37	0	8			
Volume Right	18	16	0			
cSH	447	1700	1134			
Volume to Capacity	0.12	0.26	0.01			
Queue Length 95th (m)	3.3	0.0	0.2			
Control Delay (s)	14.2	0.0	0.3			
Lane LOS	B		A			
Approach Delay (s)	14.2	0.0	0.3			
Approach LOS	B					
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			31.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Chappell Ave & Fut Acc 2

















2022 TOTAL AM TRAFFIC
 05-26-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	←		↘	
Traffic Volume (veh/h)	13	13	8	2	4	30
Future Volume (Veh/h)	13	13	8	2	4	30
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	14	9	2	4	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	11				52	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	11				52	10
tC, single (s)	4.1				6.5	6.5
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.5
p0 queue free %	99				100	97
cM capacity (veh/h)	1608				938	1008
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	28	11	37			
Volume Left	14	0	4			
Volume Right	0	2	33			
cSH	1608	1700	1000			
Volume to Capacity	0.01	0.01	0.04			
Queue Length 95th (m)	0.2	0.0	0.9			
Control Delay (s)	3.7	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	3.7	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			5.6			
Intersection Capacity Utilization			18.1%		ICU Level of Service	A
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2022 TOTAL PM TRAFFIC
 05-26-2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	61	13	0	10	34	381	29	16	463	8
Future Volume (Veh/h)	5	0	61	13	0	10	34	381	29	16	463	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	0	66	14	0	11	37	414	32	17	503	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1056	1062	508	1112	1050	430	512			446		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1056	1062	508	1112	1050	430	512			446		
tC, single (s)	7.1	6.5	6.7	7.1	6.5	6.5	4.9			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.8	3.5	4.0	3.5	2.9			2.3		
p0 queue free %	97	100	86	91	100	98	95			98		
cM capacity (veh/h)	191	211	481	154	214	579	756			1044		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	71	25	483	529								
Volume Left	5	14	37	17								
Volume Right	66	11	32	9								
cSH	434	228	756	1044								
Volume to Capacity	0.16	0.11	0.05	0.02								
Queue Length 95th (m)	4.6	2.9	1.2	0.4								
Control Delay (s)	14.9	22.8	1.4	0.5								
Lane LOS	B	C	A	A								
Approach Delay (s)	14.9	22.8	1.4	0.5								
Approach LOS	B	C										
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization			48.9%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
7: Sandwich St & Fut Acc 1

2022 TOTAL PM TRAFFIC
05-26-2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	9	370	27	14	471
Future Volume (Veh/h)	17	9	370	27	14	471
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	10	402	29	15	512
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	958	416			431	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	958	416			431	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	98			99	
cM capacity (veh/h)	282	636			1139	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	28	431	527			
Volume Left	18	0	15			
Volume Right	10	29	0			
cSH	352	1700	1139			
Volume to Capacity	0.08	0.25	0.01			
Queue Length 95th (m)	2.1	0.0	0.3			
Control Delay (s)	16.1	0.0	0.4			
Lane LOS	C		A			
Approach Delay (s)	16.1	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			46.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Chappell Ave & Fut Acc 2

















2022 TOTAL PM TRAFFIC
 05-26-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↘	
Traffic Volume (veh/h)	24	21	8	3	2	15
Future Volume (Veh/h)	24	21	8	3	2	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	23	9	3	2	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	12				86	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	12				86	10
tC, single (s)	4.1				6.5	6.5
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.5
p0 queue free %	98				100	98
cM capacity (veh/h)	1607				891	1007
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	49	12	18			
Volume Left	26	0	2			
Volume Right	0	3	16			
cSH	1607	1700	993			
Volume to Capacity	0.02	0.01	0.02			
Queue Length 95th (m)	0.4	0.0	0.4			
Control Delay (s)	3.9	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	3.9	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			4.4			
Intersection Capacity Utilization			19.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2027 TOTAL AM TRAFFIC
 05-26-2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	2	44	26	0	13	41	430	19	11	305	5
Future Volume (Veh/h)	12	2	44	26	0	13	41	430	19	11	305	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	2	48	28	0	14	45	467	21	12	332	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	940	936	334	975	928	478	337			488		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	940	936	334	975	928	478	337			488		
tC, single (s)	7.4	6.5	6.8	7.2	6.5	6.2	4.7			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.8	3.6	4.0	3.3	2.8			2.2		
p0 queue free %	94	99	92	85	100	98	95			99		
cM capacity (veh/h)	203	252	591	192	254	592	952			1086		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	63	42	533	349								
Volume Left	13	28	45	12								
Volume Right	48	14	21	5								
cSH	411	247	952	1086								
Volume to Capacity	0.15	0.17	0.05	0.01								
Queue Length 95th (m)	4.3	4.8	1.2	0.3								
Control Delay (s)	15.3	22.5	1.3	0.4								
Lane LOS	C	C	A	A								
Approach Delay (s)	15.3	22.5	1.3	0.4								
Approach LOS	C	C										
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			53.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
7: Sandwich St & Fut Acc 1

2027 TOTAL AM TRAFFIC
05-26-2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	17	440	15	7	287
Future Volume (Veh/h)	34	17	440	15	7	287
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	18	478	16	8	312
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	814	486			494	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	814	486			494	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	97			99	
cM capacity (veh/h)	345	581			1080	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	55	494	320			
Volume Left	37	0	8			
Volume Right	18	16	0			
cSH	398	1700	1080			
Volume to Capacity	0.14	0.29	0.01			
Queue Length 95th (m)	3.8	0.0	0.2			
Control Delay (s)	15.5	0.0	0.3			
Lane LOS	C		A			
Approach Delay (s)	15.5	0.0	0.3			
Approach LOS	C					
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			34.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Chappell Ave & Fut Acc 2

















2027 TOTAL AM TRAFFIC
 05-26-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Volume (veh/h)	13	15	10	2	4	30
Future Volume (Veh/h)	13	15	10	2	4	30
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	16	11	2	4	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	13				56	12
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				56	12
tC, single (s)	4.1				6.5	6.5
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.5
p0 queue free %	99				100	97
cM capacity (veh/h)	1606				933	1005
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	30	13	37			
Volume Left	14	0	4			
Volume Right	0	2	33			
cSH	1606	1700	997			
Volume to Capacity	0.01	0.01	0.04			
Queue Length 95th (m)	0.2	0.0	0.9			
Control Delay (s)	3.4	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	3.4	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utilization		18.2%		ICU Level of Service		A
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2027 TOTAL PM TRAFFIC
 05-26-2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	70	14	0	11	39	431	31	17	527	10
Future Volume (Veh/h)	6	0	70	14	0	11	39	431	31	17	527	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	0	76	15	0	12	42	468	34	18	573	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1196	1200	578	1260	1189	485	584			502		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1196	1200	578	1260	1189	485	584			502		
tC, single (s)	7.1	6.5	6.7	7.1	6.5	6.5	4.9			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.8	3.5	4.0	3.5	2.9			2.3		
p0 queue free %	95	100	83	87	100	98	94			98		
cM capacity (veh/h)	152	172	436	116	175	538	705			994		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	83	27	544	602								
Volume Left	7	15	42	18								
Volume Right	76	12	34	11								
cSH	376	178	705	994								
Volume to Capacity	0.22	0.15	0.06	0.02								
Queue Length 95th (m)	6.6	4.2	1.5	0.4								
Control Delay (s)	17.3	28.9	1.6	0.5								
Lane LOS	C	D	A	A								
Approach Delay (s)	17.3	28.9	1.6	0.5								
Approach LOS	C	D										
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			54.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
7: Sandwich St & Fut Acc 1

2027 TOTAL PM TRAFFIC
05-26-2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	9	421	27	14	536
Future Volume (Veh/h)	17	9	421	27	14	536
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	10	458	29	15	583
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1086	472			487	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1086	472			487	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	98			99	
cM capacity (veh/h)	236	592			1086	
Direction, Lane #						
	WB 1	NB 1	SB 1			
Volume Total	28	487	598			
Volume Left	18	0	15			
Volume Right	10	29	0			
cSH	301	1700	1086			
Volume to Capacity	0.09	0.29	0.01			
Queue Length 95th (m)	2.4	0.0	0.3			
Control Delay (s)	18.2	0.0	0.4			
Lane LOS	C		A			
Approach Delay (s)	18.2	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			49.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Chappell Ave & Fut Acc 2

















2027 TOTAL PM TRAFFIC
 05-26-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	24	24	10	3	2	15
Future Volume (Veh/h)	24	24	10	3	2	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	26	11	3	2	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	14				90	12
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14				90	12
tC, single (s)	4.1				6.5	6.5
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.5
p0 queue free %	98				100	98
cM capacity (veh/h)	1604				886	1005
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	52	14	18			
Volume Left	26	0	2			
Volume Right	0	3	16			
cSH	1604	1700	990			
Volume to Capacity	0.02	0.01	0.02			
Queue Length 95th (m)	0.4	0.0	0.4			
Control Delay (s)	3.7	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	3.7	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			19.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2032 TOTAL AM TRAFFIC
 05-26-2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	3	49	27	0	13	46	481	20	11	339	5
Future Volume (Veh/h)	14	3	49	27	0	13	46	481	20	11	339	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	3	53	29	0	14	50	523	22	12	368	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1042	1040	370	1083	1031	534	373			545		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1042	1040	370	1083	1031	534	373			545		
tC, single (s)	7.4	6.5	6.8	7.2	6.5	6.2	4.7			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.8	3.6	4.0	3.3	2.8			2.2		
p0 queue free %	91	99	91	82	100	97	95			99		
cM capacity (veh/h)	170	217	562	157	220	550	920			1034		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	71	43	595	385								
Volume Left	15	29	50	12								
Volume Right	53	14	22	5								
cSH	362	205	920	1034								
Volume to Capacity	0.20	0.21	0.05	0.01								
Queue Length 95th (m)	5.7	6.1	1.4	0.3								
Control Delay (s)	17.4	27.2	1.4	0.4								
Lane LOS	C	D	A	A								
Approach Delay (s)	17.4	27.2	1.4	0.4								
Approach LOS	C	D										
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			59.8%		ICU Level of Service					B		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
7: Sandwich St & Fut Acc 1

2032 TOTAL AM TRAFFIC
05-26-2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	17	493	15	7	321
Future Volume (Veh/h)	34	17	493	15	7	321
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	18	536	16	8	349
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	909	544			552	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	909	544			552	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	97			99	
cM capacity (veh/h)	303	539			1028	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	55	552	357			
Volume Left	37	0	8			
Volume Right	18	16	0			
cSH	354	1700	1028			
Volume to Capacity	0.16	0.32	0.01			
Queue Length 95th (m)	4.4	0.0	0.2			
Control Delay (s)	17.0	0.0	0.3			
Lane LOS	C		A			
Approach Delay (s)	17.0	0.0	0.3			
Approach LOS	C					
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			36.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Chappell Ave & Fut Acc 2

















2032 TOTAL AM TRAFFIC
 05-26-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↘	
Traffic Volume (veh/h)	13	16	11	2	4	30
Future Volume (Veh/h)	13	16	11	2	4	30
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	17	12	2	4	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	14				58	13
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14				58	13
tC, single (s)	4.1				6.5	6.5
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.5
p0 queue free %	99				100	97
cM capacity (veh/h)	1604				931	1004
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	31	14	37			
Volume Left	14	0	4			
Volume Right	0	2	33			
cSH	1604	1700	996			
Volume to Capacity	0.01	0.01	0.04			
Queue Length 95th (m)	0.2	0.0	0.9			
Control Delay (s)	3.3	0.0	8.8			
Lane LOS	A		A			
Approach Delay (s)	3.3	0.0	8.8			
Approach LOS			A			
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utilization		18.2%		ICU Level of Service		A
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis
 1: Chappell Ave & Sandwich St

2032 TOTAL PM TRAFFIC
 05-26-2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	79	14	0	11	44	481	33	18	590	11
Future Volume (Veh/h)	7	0	79	14	0	11	44	481	33	18	590	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	86	15	0	12	48	523	36	20	641	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1336	1342	647	1410	1330	541	653			559		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1336	1342	647	1410	1330	541	653			559		
tC, single (s)	7.1	6.5	6.7	7.1	6.5	6.5	4.9			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.8	3.5	4.0	3.5	2.9			2.3		
p0 queue free %	93	100	78	82	100	98	93			98		
cM capacity (veh/h)	120	139	396	85	142	499	658			946		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	94	27	607	673								
Volume Left	8	15	48	20								
Volume Right	86	12	36	12								
cSH	331	135	658	946								
Volume to Capacity	0.28	0.20	0.07	0.02								
Queue Length 95th (m)	9.2	5.7	1.9	0.5								
Control Delay (s)	20.2	38.2	2.0	0.6								
Lane LOS	C	E	A	A								
Approach Delay (s)	20.2	38.2	2.0	0.6								
Approach LOS	C	E										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			60.1%	ICU Level of Service						B		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
7: Sandwich St & Fut Acc 1

2032 TOTAL PM TRAFFIC
05-26-2022

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	9	473	27	14	601
Future Volume (Veh/h)	17	9	473	27	14	601
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	10	514	29	15	653
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1212	528			543	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1212	528			543	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	98			99	
cM capacity (veh/h)	198	550			1036	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	28	543	668			
Volume Left	18	0	15			
Volume Right	10	29	0			
cSH	257	1700	1036			
Volume to Capacity	0.11	0.32	0.01			
Queue Length 95th (m)	2.9	0.0	0.4			
Control Delay (s)	20.7	0.0	0.4			
Lane LOS	C		A			
Approach Delay (s)	20.7	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			52.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Chappell Ave & Fut Acc 2

2032 TOTAL PM TRAFFIC
 05-26-2022



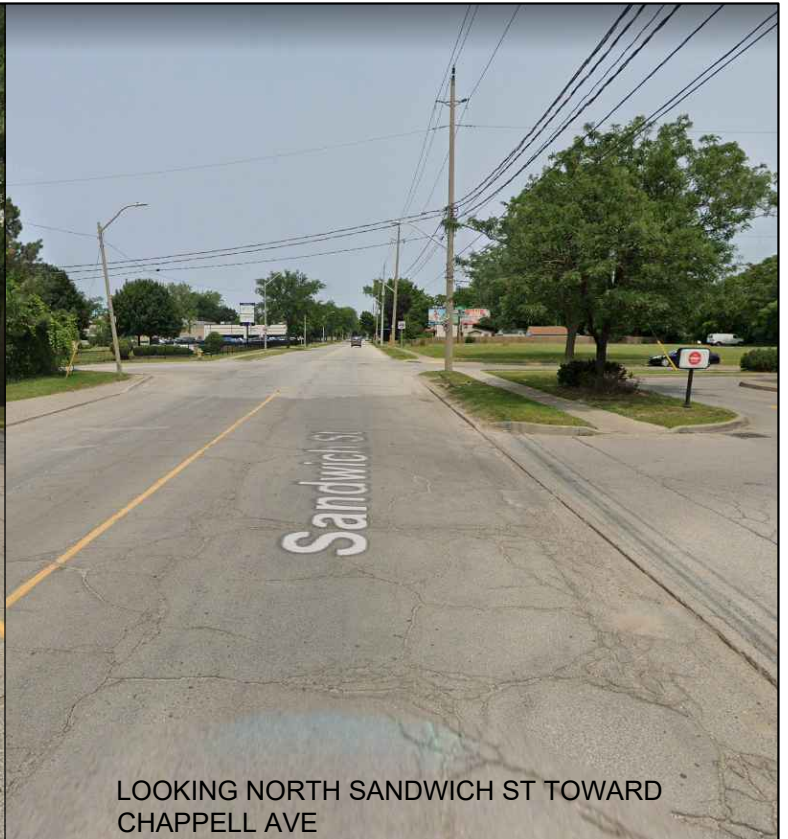
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↘	
Traffic Volume (veh/h)	24	27	11	3	2	15
Future Volume (Veh/h)	24	27	11	3	2	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	29	12	3	2	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	15				94	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	15				94	14
tC, single (s)	4.1				6.5	6.5
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.5
p0 queue free %	98				100	98
cM capacity (veh/h)	1603				881	1003
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	55	15	18			
Volume Left	26	0	2			
Volume Right	0	3	16			
cSH	1603	1700	988			
Volume to Capacity	0.02	0.01	0.02			
Queue Length 95th (m)	0.4	0.0	0.4			
Control Delay (s)	3.5	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	3.5	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization		19.4%		ICU Level of Service		A
Analysis Period (min)			15			

Appendix D

SITE PLANS, WARRANTS AND PHOTOS



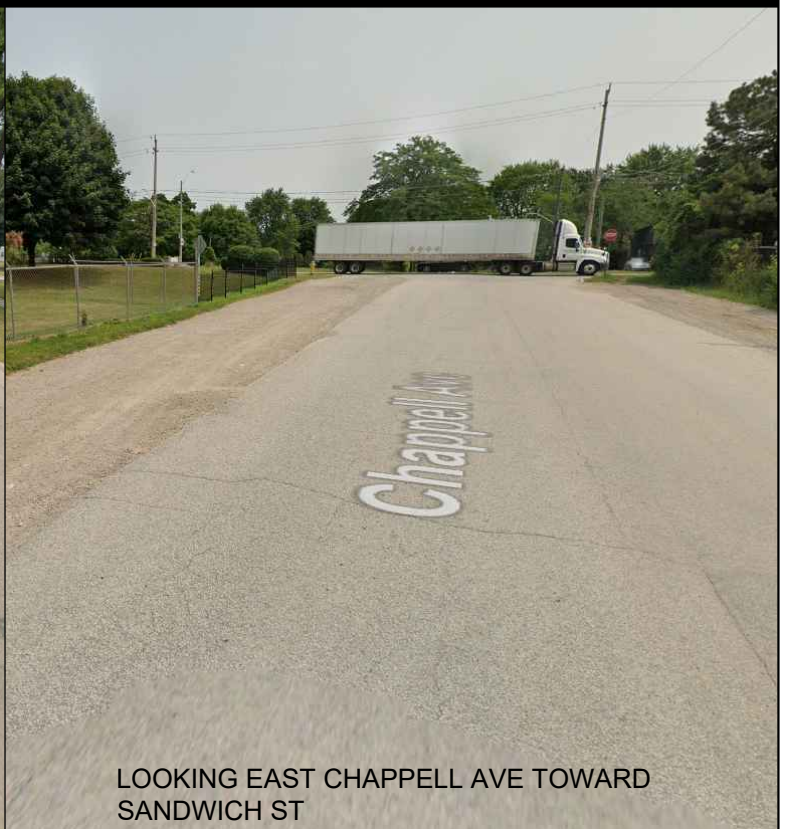
LOOKING SOUTH SANDWICH ST TOWARD CHAPPELL AVE




LOOKING NORTH SANDWICH ST TOWARD CHAPPELL AVE



LOOKING WEST CHAPPELL AVE TOWARD SANDWICH ST



LOOKING EAST CHAPPELL AVE TOWARD SANDWICH ST

<p>PROJECT TITLE:</p> <p style="text-align: center;">HIGH RISE DEVELOPMENT 3885 SANDWICH STREET, WINDSOR ON</p>	<p>DATE:</p> <p>OCT 5, 2020</p>	 <p>27 PRINCESS STREET, SUITE #102 LEAMINGTON, ONTARIO N8H 2X8</p> <p>1000 - 267 PELLISSIER STREET, WINDSOR, ONTARIO N9A 4K4.</p>
<p>SHEET TITLE:</p> <p>PHOTOS</p>	<p>SCALE:</p> <p>NTS</p>	
	<p>PROJECT NO:</p> <p>20-028</p>	
	<p>FIGURE NO:</p> <p>EXHIBIT 3</p>	



Canadian Traffic Signal Warrant Analysis

Main Street Side Street

MainStreet1Lanes	(#)	1
MainStreet2Lanes	(#)	1
MainStreetLT Lanes	(#)	0
SideStreet1Lanes	(#)	1
SideStreet2Lanes	(#)	1
MainStreetSpeedLimit	(km/h)	50
MainStreetTrucks/Buses	(%)	5.0%
Refuge Width on Median	(m)	0.0

Sandwch Street - 2032 Post Development			
Chappell Ave - 2032 Post Development			
Distance to next signal	(m)	550	
Elementary School	(y/n)	n	
Senior's Complex	(y/n)	n	
Pathway to School	(y/n)	n	
Metro Area Population	(#)	1,000	
Side Street Bus Route	(y/n)	n	
Side Street Trucks	(%)	5.0%	
T or 1-Way Intersection	(y/n)	n	
Central Business District	(y/n)	n	

Date: May 26, 2022

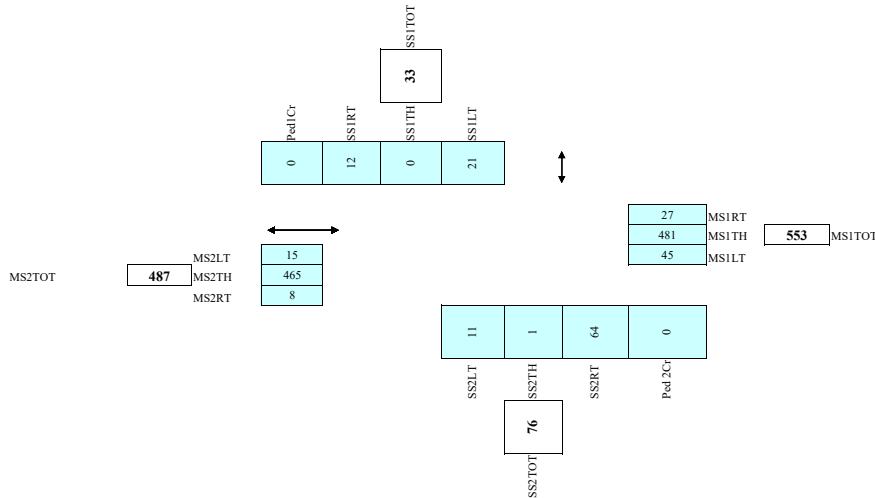
City: City of Windsor

Vm =	1,040	(MainSt Vol Total)	Cs =	1.005	(Int SpacingFactor)
Vs =	76	(SideSt Vol Highest)	Cmt =	1.000	(MainStTruckFactor)
Pc =	0	(Peds Crossing Main)	Cv =	1.000	(SpeedFactor)
K1 =	1,100	(veh/veh const)	Cp =	1.200	(PopDemoFactor)
K2 =	2,000	(veh/ped const)	Csb =	1.000	(SideStBusFactor)
L =	2.0	(TotalMainStLanes)	Cst =	1.000	(SideStTruckFactor)
F =	1.000	(PedDemoFactor)	Vmx =	553	(MainStHighest)
Vm1 =	1,040	(MainStVeh-Veh#)	Vm2 =	1,040	(MainStVeh-Ped#)
Cvp =	1.206	(product of Cs,Cmt,Cv,Cp)	Cbt =	1.000	(maximum of Csb,Cst)
Ct1 =	1.000	(T Int / one way factor)			

	←	→	↓	↑										
	MS1LT	MS1TH	MS1RT	MS2LT	MS2TH	MS2RT	SS1LT	SS1TH	SS1RT	SS2LT	SS2TH	SS2RT	PedC1	PedC2
7:00 - 8:00	46	481	20	11	339	5	27	0	13	14	2	49	0	0
8:00 - 9:00	46	481	20	11	339	5	27	0	13	14	2	49	0	0
11:00 - 12:00	46	481	20	11	339	5	27	0	13	14	2	49	0	0
12:00 - 13:00	44	481	33	18	590	11	14	0	11	7	0	79	0	0
16:00 - 17:00	44	481	33	18	590	11	14	0	11	7	0	79	0	0
17:00 - 18:00	44	481	33	18	590	11	14	0	11	7	0	79	0	0
Average	45	481	27	15	465	8	21	0	12	11	1	64	0	0

*** Enter the hourly turning movement counts averaged over the peak six hours of a typical week day

*** Enter the peak pedestrian volume crossing the main street averaged over the same hours



$$W = [Ct1xCbt(Vm1 x Vs)/K1 + (F(Vm2 x Pc)L)/K2] x Cvp$$

W = 86 86 0
NOT Warranted Veh Ped

Roadway, Vehicle and Pedestrian Factors	Range				
	Min	@	Max	@	
Cs =	(Int SpacingFactor)	0.90	<200 m	1.10	isolated
Cmt =	(MainStTruckFactor)	1.00	<5%	1.15	>20%
Cv =	(SpeedFactor)	1.00	<60 km/h	1.10	>80 km/h
Cp =	(PopDemoFactor)	1.00	>250,000	1.20	<10,000
Csb =	(SideStBusFactor)	1.00	no	1.05	yes
Cst =	(SideStTruckFactor)	1.00	<10%	1.05	>10%
F =	(Ped DemoFactor)				
	(max of)	Elementary School	1.20		
		Seniors Complex	1.10		
		Path to School	1.10		

Explanation of Factors:

- Cbt** = 1.05 if the side street either is a bus route, or has more than 10% trucks, otherwise = 1.00. (it is assumed that these two factors only affect the side street vehicles trying to cross the main street, not the pedestrians)
- Ci** = the product of the other 4 geographic factors (Cs = intersection spacing, Cmt = main street truck, Cv = Speed, Cp = Population)
- Vm1** = the main street volume - either the total of the two approaches or the highest single approach (if the median is >=10.0 metres) (averaged over 6 peak hours)
- Vm2** = the main street volume - either the total of the two approaches or the highest single approach (if the median is >=6.0 metres) (averaged over 6 peak hours)
- Vs** = the highest side street approach volume (averaged over 6 peak hours)
- *** note: it has been determined that Vs must be > 75 for signals to be considered ***
- F** = Pedestrian demographic factor - the maximum of the 3 individual pedestrian demographic factors
- Pc** = the total pedestrian volume crossing the mainstreet (averaged over 6 peak hours)
- L** = number of lanes that the pedestrians have to cross (only half the street if the median is >=5.0 metres)
- Kv** = Vehicle - Vehicle denominator constant (Kv = 1,100 if L<=3, Kv = 1,400 if L >3)
- Kp** = Vehicle - Pedestrian denominator constant (Kp = 2,000 if L<=3, Kp = 5,000 if L >3)

June 6, 2022
Development & Heritage Standing Committee
Item 7.3 – Written Submission

From: Cheryl Jordan
Sent: May 24, 2022 10:50 AM
To: clerks <clerks@citywindsor.ca>
Subject: June 6 2022 Hearing - Development & Heritage Standing Committee

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear City of Windsor Development & Heritage Standing Committee,

We are property owners located across the street from the proposed development located at 0 & 3885 Sandwich St which is requesting a site specific amendment to the City of Windsor Official Plan and Site Specific Amendment to Zoning By-law 8600 to allow for a mixed-use residential development. We object to and disagree with placing a residential development in this industrial area. There is truck traffic and industrial noise in this area, which is not favorable to residential use.

Cheryl Verran Jordan

June 6, 2022
Development & Heritage Standing Committee Meeting
Item 7.3 – Written Submission

From: Kevin Kelly
Sent: May 25, 2022 1:07 PM
To: clerks <clerks@citywindsor.ca>
Cc: Alexander, Kevin <kalexander@citywindsor.ca>; Grant Bourdeau ; S Kelly ; Cheryl Kelly ; Roxanne Boow ; Kevin Kelly
Subject: File Numbers OPA/6504 and ZNG/6503

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

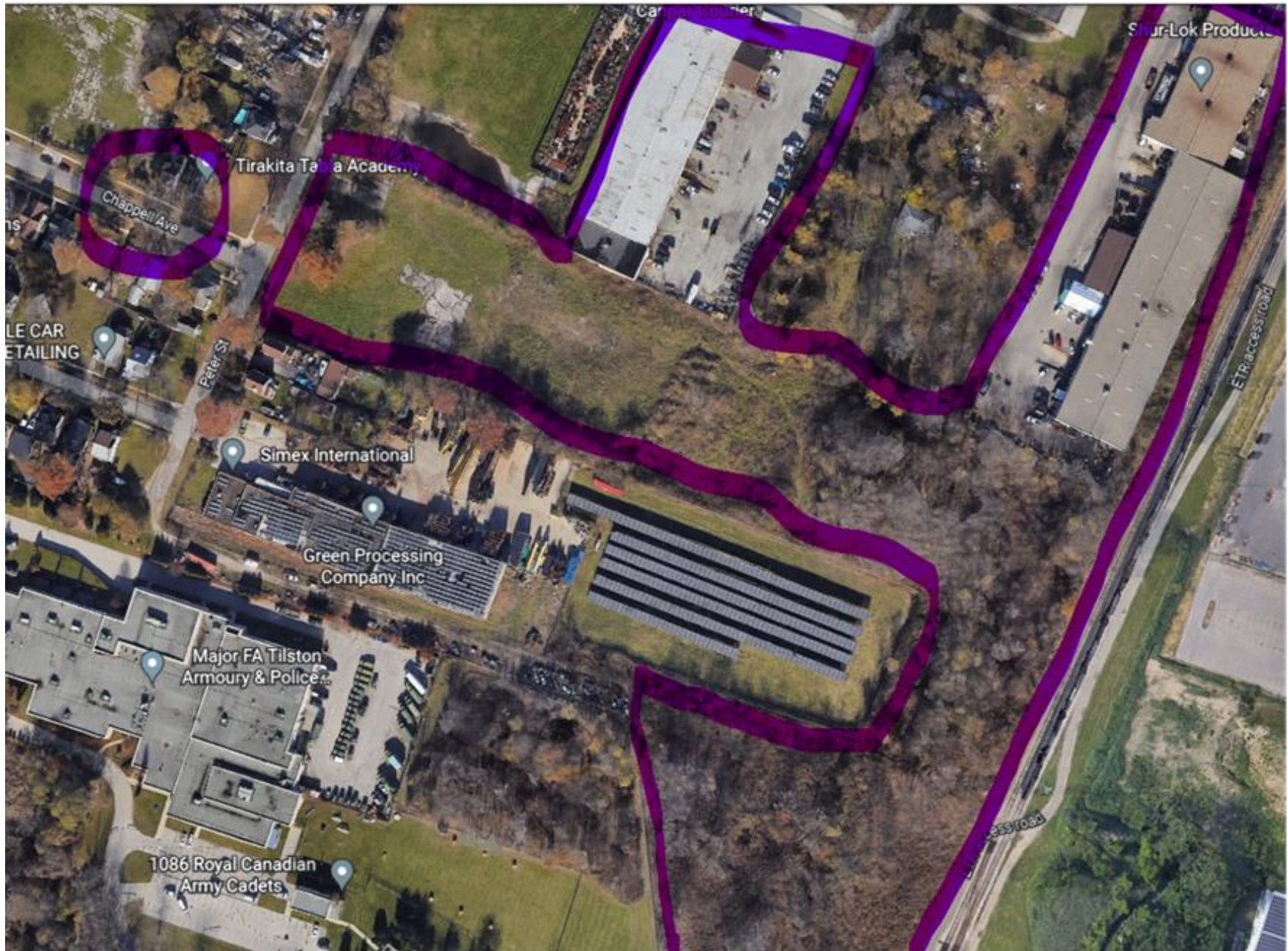
City Clerk

As president of Kelbour managements I wish to express my concerns to the zoning bylaw as per Subject and attached changes.

The area outlined on the below is our current industrial properties owned by Kelbour Management.

Our major concern is that the addition of residential traffic will be an issue for trucks entering our 3901 Peter St property, that is zoned industrial and is currently up for sale as an industrial usage property. If Chappell rd becomes closed to Truck traffic due to this influx of residential usage it will severely hamper, if not make it untenable, the ability to do an industrial business at this location and we want assurances this will not happen at any time, now or in the future due to the Tunnio Development proposal or any other reason which may be a future consideration.

Kevin Kelly
Shurlok Products LTD
735 Prince Rd. Windsor, On. Canada
N9C 2Z2





June 6, 2022
Development & Heritage Standing Committee Meeting
Written Submission - Item 7.6

-----Original Message-----

From: Scott Dube
Sent: May 23, 2022 7:57 PM
To: clerks <clerks@citywindsor.ca>
Subject: SDN/6575

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I am in support of the proposed development. I do not like the 2 streets coming out to meet North Talbot, listed as "Street B" and "Street C" . I think they will create traffic issues and be dangerous to turn left out onto North Talbot. I would like to see them closed off on the ends and only have vehicle access to the development on Street A.

At a minimum street C should be aligned with Old West on the opposite side of North Talbot.

I would also like to see as many of the mature trees as possible saved.

Scott Dube

From: Kelly White
Sent: June 2, 2022 12:59 PM
To: clerks <clerks@citywindsor.ca>
Subject: JUNE 6th - public meeting development & heritage standing committee

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

I would like to attend the meeting with respect to the proposed alley closure between Brant & Wyandotte Streets to allow the restaurant, Twisted Apron to establish an outdoor patio.

I live at 534 Kildare Road and my concern is that such an establishment will cause me to have to deal with increased noise in the backyard of my property, as well as the potential for increased vandalism as more people naturally will be in the area and ultimately, negatively impact the resale value of my property.

The O'Maggio Kildare House is across the road from my property and that is certainly the case where intoxicated revellers are leaving the establishment between 1:00-3:00am most weekend nights. Sometimes they are happily shouting goodbye to each other and sometimes there are loud arguments and fights. Regardless of the nature of the vocal exchanges, it is disruptive.

I oppose the closure of the alley for the purpose of using the space for an outdoor restaurant patio.

Regards,
Kelly White