



## TOWN OF AMHERSTBURG SPECIAL COUNCIL MEETING

### AGENDA

View Livestream at the time of the proceedings at  
<https://www.amherstburg.ca/livestream>

Monday, March 28, 2022

4:00 PM

Council Chambers

271 Sandwich Street South, Amherstburg, ON, N9V 2A5

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Pages

1. CALL TO ORDER
2. ROLL CALL
3. DISCLOSURE OF PECUNIARY INTEREST & GENERAL NATURE THEREOF

#### 4. PRESENTATIONS

- 4.1. Riverview Apartments, Sandwich Street North and Brunner Avenue - Robert Piroli, Owner/President, Piroli Group 3

That the presentation **BE RECEIVED**.

#### 5. SPECIAL PLANNING REPORTS

- 5.1. Statutory Public Meeting to Consider a Zoning By-law Amendment for Northeast Corner of Brunner Ave and Sandwich St N 19

It is recommended that:

1. Additional comments from the public, municipal departments, agencies and Council with respect to the proposed Zoning By-law Amendment for lands located on the northeast corner of Brunner Avenue and Sandwich Street N (File ZBA-07-22), owned by 1603941 Ontario Inc. **BE RECEIVED and brought back to a future Council meeting with any additional comments and staff recommendations.**

#### 6. ADJOURNMENT

That Council rise and adjourn at     p.m.

# RIVERVIEW APARTMENTS AMHERSTBURG

FOR PIROLI CONSTRUCTION (1603941 ONTARIO LTD.)



# RIVERVIEW APARTMENTS AMHERSTBURG

## 1.0 INTRODUCTION & WELCOME

- IN THIS PRESENTATION:
  - DESCRIPTION OF PROPOSAL
  - ANALYSIS REGARDING PLANNING APPROVALS
  - CONCLUSION REGARDING PLANNING MERITS
- OTHER SIMILAR PROJECTS
  - LEAMINGTON
  - WINDSOR
  - CHATHAM



# RIVERVIEW APARTMENTS AMHERSTBURG

West Bridge Place

850 Wyandotte Street West, Windsor



INTRODUCING  
**WB**  
West Bridge  
Place

**WB** West Bridge Place



Opened August 1<sup>st</sup>, 2020

[wbplace.ca](http://wbplace.ca)

# RIVERVIEW APARTMENTS AMHERSTBURG

## 2.0 SITE CHARACTERISTICS & PROPOSED DEVELOPMENT

### 2.1 SITE

- SITE IS 6.4 HECTARE FLAG-SHAPED PARCEL AT THE NORTHEAST CORNER OF INTERSECTION OF BRUNNER AVENUE AND SANDWICH STREET NORTH, ACQUIRED BY PIROLI IN 2021



# RIVERVIEW APARTMENTS AMHERSTBURG





# RIVERVIEW APARTMENTS AMHERSTBURG

## 2.2 PROPOSED DEVELOPMENT

- **TWO, SIX-STOREY APARTMENT BUILDINGS, 115 UNITS EACH ON 2.5 HA (6 AC.) PORTION FRONTING ON SANDWICH STREET NORTH**
- **THIS AREA IS DESIGNATED GENERAL COMMERCIAL IN THE OFFICIAL PLAN WHICH PERMITS STAND-ALONE APARTMENT TOWERS UP TO EIGHT STOREYS IN THE SANDWICH STREET CORRIDOR**
- **ZONED GC-5 (GENERAL COMMERCIAL EXCEPTION AREA 5) WHICH DOES NOT LIST RESIDENTIAL AS A PERMITTED USE – THUS A REZONING IS NECESSARY.**
- **PIROLI IS PROCEEDING WITH THE APARTMENT BUILDINGS AS PHASES 1 & 2 IN ITS PRESENT APPLICATIONS TO THE TOWN AS FOLLOWS:**
  - **PHASE 1 – ZONING AND SITE PLAN APPROVAL FOR APARTMENT BUILDING AT THE CORNER OF BRUNNER AND SANDWICH STREET NORTH**
  - **PHASE 2 – ZONING FOR APARTMENT BUILDING NORTH OF PHASE 1 (SITE PLAN APPLICATION TO COME LATER)**

# RIVERVIEW APARTMENTS AMHERSTBURG





# RIVERVIEW APARTMENTS AMHERSTBURG

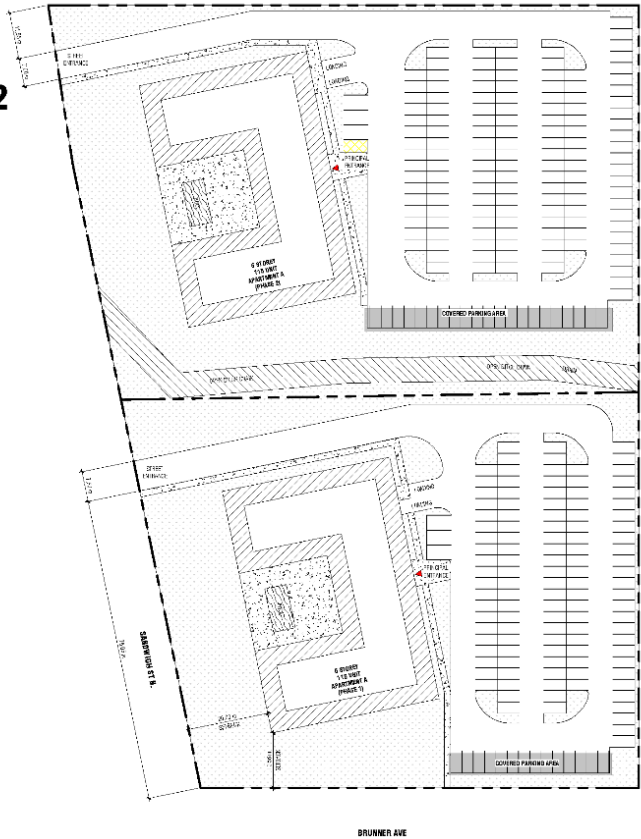


102 - 27 Prince Street, Leamington, Ontario N8H 2K9  
703 - 1555 Provincial Road, Windsor, Ontario N9M 3M1

**21-108 RIVERVIEW APARTMENTS - PHASE 1 & 2**  
**AMHERSTBURG, ONTARIO**

DESIGNATED STREET FRONT

SANDWICH ST. N & BRUNNER AVE DEVELOPMENT  
AMHERSTBURG, ON



PHASE 2

PHASE 1

**SANDWICH ST N & BRUNNER AVE - PHASE 1 & 2**  
SCALE: 1" = 40'-0"



# RIVERVIEW APARTMENTS AMHERSTBURG

## 3.0 PLANNING ANALYSIS

### 3.1 PLANNING HISTORY

- 2004 APPLICATION FOR SUBSTANTIAL COMMERCIAL REDEVELOPMENT
- APPEALED TO ONTARIO MUNICIPAL BOARD
- THREE PARTY SETTLEMENT IN 2006 – TOWN, DEVELOPER & HONEYWELL RESULTING IN OPA 6 TO THE FORMER OP AND REZONING WHICH HAS BEEN CARRIED FORWARD IN PRESENT OFFICIAL PLAN
- TOWN PLANNER EVIDENCE THAT FULL MUNICIPAL SERVICES WERE AVAILABLE AND THERE WERE NO ENVIRONMENTAL OR HERITAGE ISSUES ACCEPTED BY OMB



# RIVERVIEW APARTMENTS AMHERSTBURG

## 3.2 PROVINCIAL POLICY STATEMENT AND COUNTY OFFICIAL PLAN

- DEVELOPMENT OCCURING IN PRIMARY SETTLEMENT AREA
- IMPLEMENTING IMPORTANT POLICIES REGARDING HOUSING INTENSIFICATION AND BROWNFIELD REDEVELOPMENT

## 3.3 AMHERSTBURG OFFICIAL PLAN

- APPROVED IN 2010
- INCORPORATED PREVIOUS OPA 6 (NOW SPA 10)
- GENERAL COMMERCIAL PERMITS UP TO EIGHT-STOREY APT.BUILDINGS
- OPA 1 – DEALS WITH HONEYWELL LANDS
  - BASICALLY BASED ON AGREEMENT WITH MINISTRY OF THE ENVIRONMENT, NO DEVELOPMENT UNTIL ALL BUILDINGS REMOVED (2018) AND SITE REMEDIATED.

## 3.4 AMHERSTBURG ZONING BY-LAW

- NEED TO AMEND SITE-SPECIFIC ZONE SO AS TO PERMIT RESIDENTIAL USE
- REGULATIONS FOR RESIDENTIAL USE SHOULD REFLECT SETBACKS SHOWN ON SITE PLAN



# RIVERVIEW APARTMENTS AMHERSTBURG

## 4.0 SUPPORTING STUDIES / DOCUMENTS

- PLANNING JUSTIFICATION REPORT
- TRAFFIC IMPACT STUDY
- FUNCTIONAL ENGINEERING REPORT
- ARCHAEOLOGICAL ASSESSMENT
- SPECIES-AT-RISK INFORMATION
- PHASE 2 ENVIRONMENTAL ASSESSMENT (EXCAVATION ACTIVITIES UNDERTAKEN & AWAITING FURTHER TESTING RESULTS)
  - *"UPON RECEIPT OF THE ANALYTICAL RESULTS SHOULD THERE BE NO ADDITIONAL EXCEEDANCES, SOIL & MATERIALS ENGINEERING INC., WILL WORK ON FINALIZING THE PHASE TWO AND REMEDIATION REPORT. THE RSC CANNOT BE SUBMITTED FOR REVIEW TO THE MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS UNTIL ALL CONTAMINANTS OF CONCERN (LEAD, BORON, ZINC, CADMIUM) HAVE BEEN REMOVED."*
- MARKET STUDY
- ACOUSTICS STUDY
- PETITION FROM NEIGHBOURING RESIDENTS SUPPORTING PROJECT (11 SIGNATURES) FOLLOWING NOVEMBER 16, 2021 PRESENTATION OF PROJECT BY PIROLI
- LETTER FROM AMHERSTBURG LAND HOLDINGS LTD. (HONEYWELL LANDS)

# RIVERVIEW APARTMENTS AMHERSTBURG

Amherstburg Land Holdings Limited  
381 Front Road North  
Amherstburg, Ontario N9V 2V5

The Corporation of the Town of Amherstburg  
271 Sandwich Steet South  
Amherstburg, Ontario  
N9V 2A5

Re: Vacant Lands Owned by 1603941 Ontario Inc. and entities related to 1603941 Ontario Inc. ("Piroli Group") located at Northeast corner of Brunner Avenue and Sandwich Street shown in Schedule "A" attached ("Apartment Lands")

Amherstburg Land Holdings Limited ("ALHL") owns lands abutting north and east of the Apartment Lands.

We are advised the Piroli Group wishes to proceed with the development of the Apartment Lands for residential purposes.

The Apartment Lands include only Phases 1 and 2 shown on the site plan concept drawing prepared by Baird AE Architecture + Engineering attached as Schedule "A" ("Baird Drawings").

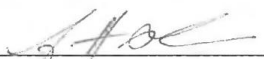
ALHL hereby confirms it is in support of the development of the Apartment Lands for residential purposes in accordance with the Baird Drawings.

In particular ALHL supports the development of two apartment buildings on the Apartment Lands as shown in the Baird Drawings.

ALHL hereby confirms it will not object to any Land Titles Absolute Applications, rezoning applications, site plan agreements, Official Plan amendments or other similar governmental applications in respect of the Apartment Lands as the Piroli Group may reasonably require to permit the residential development of the Apartment Lands in substantially the manner and without material deviation from that set out in the Baird Drawings.

ALHL retains its rights to object to and appeal any developments lying east of the Apartment Lands. These lands include Phase 3 on the Baird Drawings.

**AMHERSTBURG LAND HOLDINGS LIMITED**

Per:   
Name: Alexandra Henshaw  
Title: Authorized Signing Officer/Director

17383951.2

# RIVERVIEW APARTMENTS AMHERSTBURG

## 5.0 CONCLUSION

- **IT IS AN EFFICIENT USE OF LAND WITH LITTLE TO NO INFRASTRUCTURE IMPROVEMENTS REQUIRED**
- **IT WILL ADD SUBSTANTIAL ASSESSMENT TO THE MUNICIPAL TAX BASE**
- **IT WILL IMPLEMENT IMPORTANT POLICIES REGARDING INTENSIFICATION AND REDEVELOPMENT ON A BROWNFIELD SITE**
- **IT WILL ASSIST THE TOWN IN PROVISION FOR A HOUSING OPTION FOR WHICH THERE IS A DEMONSTRATED PROJECTED MARKET**
- **PLANNING CONTROLS PRESENTLY IN PLACE ON NEIGHBOURING FORMER INDUSTRIAL LANDS IN NEED OF REMEDIATION WILL REDUCE, MITIGATE OR ELIMINATE A POTENTIAL LAND USE COMPATIBILITY ISSUE BETWEEN A FUTURE INDUSTRIAL LAND USE AND SENSITIVE LAND USE (RIVERVIEW APARTMENTS)**



## 5.0 CONCLUSION (CONTINUED)

- ORIGINAL TOWN GOALS ACHIEVED IN 2006 SETTLEMENT ARE MAINTAINED:
  - NO IMPACT ON PLANNED FUNCTION OF COMMERCIAL CORE
  - NO ADVERSE IMPACT ON NEIGHBOURING RESIDENTIAL USE
  - THE DEVELOPMENT WILL IMPLEMENT THE “NORTHERN GATEWAY” POLICY ROLE
- THE PROJECT COULD ACT AS A TRIGGER FOR REDEVELOPMENT OF THE HONEYWELL LANDS
- THE PROPOSED RESIDENTIAL USES ARE SUPPORTED BY THE COMMUNITY, AND MORE SPECIFICALLY, BY THE NEARBY RESIDENTS



THE CORPORATION OF THE TOWN OF AMHERSTBURG

OFFICE OF PLANNING AND DEVELOPMENT SERVICES

*MISSION STATEMENT: Committed to delivering cost-effective and efficient services for the residents of the Town of Amherstburg with a view to improve and enhance their quality of life.*

Author's Name: Melissa Osborne	Report Date: March 18, 2022
Author's Phone: 519 736-5408 ext. 2137	Date to Council: March 28, 2022
Author's E-mail: <a href="mailto:mosborne@amherstburg.ca">mosborne@amherstburg.ca</a>	Resolution #: N/A

To: Mayor and Members of Town Council

Subject: Statutory Public Meeting to Consider a Zoning By-law Amendment for Northeast Corner of Brunner Ave and Sandwich St N

1. **RECOMMENDATION:**

It is recommended that:

1. Additional comments from the public, municipal departments, agencies and Council with respect to the proposed Zoning By-law Amendment for lands located on the northeast corner of Brunner Avenue and Sandwich Street N (File ZBA-07-22), owned by 1603941 Ontario Inc. **BE RECEIVED and brought back to a future Council meeting with any additional comments and staff recommendations.**

**EXECUTIVE SUMMARY:**

N/A

2. **BACKGROUND:**

The Town is in receipt of an application for a Zoning By-law amendment to By-law 1999-52 from 1603941 Ontario Inc. The lands are located immediately north of Brunner Avenue and east of Sandwich Street N (refer to Figure 1).

The Town's zoning by-law currently zones the subject lands Special Provision Commercial General (CG-5). The purpose of the application is to establish a site-specific zone to allow for the development of two apartment buildings each having a total of 115 units. The development is intended to proceed in two phases. Phase one will be constructed on the northeast corner of Brunner Avenue and Sandwich Street N.



This property will have an area of approximately 2.8 ac (refer to Figure 2). The second phase will be constructed on property located immediately north of phase one. This property will have an area of approximately 3.6 ac (refer to Figure 2). Both developments are intended to gain access via Sandwich Street N.

In preparing this information report for Council, planning staff have reviewed the following documents/submissions in order to provide comments to Council regarding the proposed development:

1. Town of Amherstburg Official Plan
2. 2006 OMB decision (Appendix “A”)
3. Legal opinion regarding 2006 OMB decision (Appendix “B”)
4. Town of Amherstburg Zoning By-law
5. Relevant legislation – Planning Act, Environmental Protection Act, MECP Guidelines, Endangered Species Act
6. Comments received at the March 9, 2022 Public Information Session
7. Comments from Town departments (Appendix “C”) including:
  - i) Infrastructure Services
  - ii) Police
8. All agency comments (Appendix “D”) including:
  - i) Essex Region Conservation Authority
  - ii) Essex Power
  - iii) Canada Post
  - iv) County of Essex
9. The contents of the Application submitted, and all supporting reports and studies completed by the Applicant including:
  - i) Planning Justification Report (Appendix “E”)
  - ii) Traffic Study (Appendix “F”)
  - iii) Storm Water Management Report (Appendix “G”)
  - iv) Sanitary Report (Appendix “H”)
  - v) Archeological Report (Appendix “I”)
  - vi) Species at Risk Screening (Appendix “J”)
  - vii) Apartment Development Feasibility Study (Appendix “K”)
  - viii) Power Point Presentation from Public Information Meeting (Appendix “L”)

(Note: an administrative discussion and analysis of the documentation provided by the applicant will be provided as part of the subsequent report to Council)

### 3. **DISCUSSION:**

The Official Plan designates the lands as General Commercial together with the provisions of Special Policy Area 10 (refer to Figure 3). The applicable excerpts from the Official Plan are as follows:

#### **Commercial Land use Designations**

*The Commercial classification of land shall mean that the predominant use of land in the area so designated shall be in accordance with the uses as defined in these sub-classifications: Neighbourhood Commercial and General Commercial. The General Commercial designation also has special added policies for select areas to guide automobile oriented development to appropriate locations on Sandwich Street and Simcoe Street, to permit added enhancements in gate way locations and to provide incentives for the core area. In addition, such non-commercial use as are complementary to and serve the respective Commercial uses shall also be permitted where defined as such under the commercial sub-classification definitions. In addition, there are commercial areas identified as Special Policy Areas.*

#### **General Commercial**

*The uses permitted in the General Commercial designation shall include those commercial establishments offering goods and services which primarily serve the whole of the municipality's market area and shall include such uses as retail commercial establishments, places of entertainment, assembly halls, eating establishments, hotels, motels, community facilities, public uses, recreational uses, convenience stores whether in the form of individual stores or in a shopping centre form of construction and/or ownership, and residential uses above the first floor.*

*Multi-family residential development will be considered as an alternative form of land use on lands designated General Commercial. Unless otherwise specified, the height of multi-family residential development within the General Commercial designation shall be limited to 5 storeys and unless a site specific zoning by-law states otherwise, residential units will not occupy the first floor abutting Richmond Street or Dalhousie Street.*

#### **Commercial Special Policy Areas**

*In order to ensure an aesthetically pleasing approach to the historic portion of Amherstburg and to protect the historic character, and as this area represents the Gateway to Amherstburg and a portion of this area is within the Town's Downtown Tourist District, additional policies will apply to commercial development established along Sandwich Street between Texas Road and Fort Street and for the area along Sandwich Street South to Lowes Side Road.*

*This policy will allow for, within this area, additional landscaping requirements at the time of site plan approval and special attention will be*

*given to lighting, fencing, and location of garbage disposal. This policy will also allow Council to establish both minimum and maximum height regulations and setback regulations in the Zoning By-law. Council will seek the advice of Amherstburg's Heritage Committee when dealing with development in this area on such matters as roof line, height, building material, and window placement in order to maintain the historic small town appearance. Site Plans associated with any Zoning By-law amendments to a General Commercial Zone shall be subject to public consultation.*

*Within this area, Council may establish a setback that requires that at least 25% of the building fronting on to Sandwich Street be set back no less than 6 metres minimum and no more than 15 metres maximum. Council may also establish a minimum elevation at the 6 metre setback from front lot line of 6 metres and a maximum elevation of up to 15 metres. Council may also require an enhanced landscaping plan as part of the site plan approval that requires that deciduous trees be planted in the boulevard having 2.0 metres clear stem and head room for pedestrians and cyclists. In addition Council may require a minimum buffer or landscape strip of 3.0 metres established along Sandwich Street and that 20% of the landscaping be woody plant material that is capable of providing interest in all seasons. Fencing or dense hedge material shall be required to obscure the parking area if front yard parking is proposed.*

*Chain link fences or wood construction fencing shall not be permitted unless they are fully screened from public view.*

*For lands designated as Special Policy Area 10 on Schedules A and B, Council may restrict the land uses permitted under the Commercial General zoning to prohibit any land use that would involve overnight accommodation, grocery stores, supermarkets, automotive, tire and battery stores and the size of the permitted retail uses. Within this General Commercial designation, Council may restrict the maximum permitted gross floor area of a department store to 8000 square metres (85,000 square feet) until such time as a retail market study is completed. Should a department store be constructed elsewhere within Amherstburg prior to a department store building on this site, no department store will be permitted without justification from a market study. The maximum combined gross floor area of all retail uses shall be 9000 square metres (96,878 square feet). Individual retail uses within this area shall be greater than 250 square metres (2,690 square feet). No supermarket, grocery store or automotive, tire and battery store shall be permitted without supporting justification from a market study. No vehicular access to the site shall be permitted on Brunner Ave. Any closure of roads within this area will be conditional on any non residential access from the lands to the east of the subject lands being either to the north through the former General Chemical site or to the west over the subject lands and not via Brunner Ave.*

*Notwithstanding Policy 4.4.3 (2), setbacks for buildings may be increased to a maximum of 25 metres.*

*Prior to the finalization of any site plan for the development of these lands, the Town will need to have a drainage study undertaken by a qualified hydrologist demonstrating that (a) there will be no impact on the drainage of adjoining properties, including Honeywell ASCa Inc., (b) there will be no runoff from the proposal onto adjoining properties, (c) the soil composition/profile and geology of the site will allow for the required accumulation of water on the site. Site plan approval will also require municipal clearance after consultation with the relevant agencies, of archaeological reports, environmental reports and traffic reports.*

On or about July of 2006 the Ontario Municipal Board (OMB) issued an order regarding the following appeals:

- Honeywell ASCa Incorporated appealed a decision from the County of Essex to approve Proposed Amendment No. 6 to the Official Plan to redesignate lands on the east side of County Road 20 and north of Brunner Avenue from “Heavy Industrial” to “General Commercial” to permit a department store and large format commercial uses.
- Honeywell ASCa Incorporated submitted a corresponding appeal against Zoning By-law 2004-80 of the Town of Amherstburg, and against a decision of the Committee of Adjustment of the Town of Amherstburg which granted an application by General Chemical Canada Limited.

At the start of this hearing, the solicitor for the Town advised the Board that there had been a Memorandum of Settlement reach regarding the matter.

The terms of the settlement were agreed to by all parties and was the basis for the approvals that were granted at that time by the OMB. This approval included modifications to the Official Plan amendment and the zoning by-law amendment. The policies are outlined in Section 4.4.3 Commercial Special Areas of the Official Plan (including subsections 2 and 5) and the regulations found in the CG-5 zone category of the zoning by-law.

The full Board decision and Memorandum of Settlement are attached as Appendix “A”. Ms. J. Monteith provided planning evidence at the hearing in support of the proposal and Memorandum of Settlement. It was Ms. Monteith’s expert opinion that the modified OPA was consistent with the goals, objectives and polices of the Official Plan and represented good planning. Ms. Monteith also suggested to the Board that the modified zoning amendment conformed to the Official Plan and OPA No. 6. The Board accepted the evidence of Ms. Monteith and ordered that the OPA No. 6 as modified be allowed (refer to attachment “2” of the Board order) and that the modified zoning amendment be allowed (refer to Attachment “3” of the Board order).

On review of the 2006 OMB decision and the policies that were added to the Town’s Official Plan as a result of that decision, it is the opinion of planning staff that an Official Plan Amendment (OPA) would not be required to permit the development of the 2 multi-unit residential buildings on lands that are the subject of this rezoning application.

However, Council approval of a Zoning By-law amendment and Site Plan Control Agreement would be required prior to the development proceeding. To support this opinion, consideration is given to the evidence offered at the hearing together with the Special Policy Area 10 (OPA 6). The Commercial land use policies state that “the General Commercial designation also has special added policies for select areas to guide automobile oriented development to appropriate locations on Sandwich Street and Simcoe Street, to permit added enhancements in gate way locations and to provide incentives for the core area.”

It is the opinion of planning staff that this language sets out the Special Policy Areas as additional policies and should not be viewed as designations separate and distinct from the General Commercial policies. Special Policy Area 10 (Area 10) does not set out a list of permitted uses as is found in other commercial designations. Area 10 describes what restrictions “may” be included in the zoning by-law and set out other restrictions with respect to commercial development. Nowhere in Area 10 does the language speak to restricting multi-unit residential developments as a type of land use. Since the intent of the Plan was to include the Special Policy areas for the purpose of adding additional policy direction for the development of those particular areas, unless a use is specifically restricted, the uses permitted at this location include the land uses set out in the General Commercial policies – which includes multi-unit residential buildings.

Prior to accepting the application as being complete, administration obtained a legal opinion regarding the 2006 Memorandum of Settlement. As the Town was party to the agreement an opinion was deemed appropriate to ensure that by accepting a rezoning application, the Town would not be in any way breaching that Memorandum. The opinion confirms that the Town can accept an application for rezoning from the owner (refer to Appendix “B”).

Administration would also point to the planning opinion as provided by Mr. Storey – planning consultant for the applicant. In the Planning Justification Report (refer to Appendix “E”) Mr. Storey outlines his analysis and rationale regarding why an Official Plan amendment is not required to support the proposed rezoning. As detailed above, administration supports the conclusion that an Official Plan Amendment is not required.

One of the concerns that was raised early with the applicant was site suitability for residential purposes given the proximity of the former General Chemical/Honeywell property. The Official Plan addresses this issue in a number of sections including:

- Section 2.3 - Site Suitability states that prior to the approval of any development or amendment to the Official Plan or the Zoning By-law is shall be established to the satisfaction of Council that – (1) soil and drainage conditions are suitable to permit the proper siting of the buildings.
- Section 2.8.2 – Waste Settling beds states that the former General Chemical site and the Honeywell site have active waste settling beds, inactive waste settling beds and settling beds under remediation but closed. The Honeywell settling bed is considered an active waste disposal site. Any new development or change of use on the site or within 500 metres of any of the waste settling bed sites as measured from the perimeter of the settling bed shall require an applicant to undertake a study, prepared by a qualified professional, to evaluate the presence and impact of environmental contaminants and any



leachate migration in the soils. The study will address the feasibility of mitigation measures if required. Depending on the results of the study, development may be restricted, conditions may be imposed or development may be refused. Appropriate buffering may also be applied as determined by the study. No development may be permitted on the waste settling beds unless approval has been granted under Section 46 of the Ontario Environmental Protection Act.

- 4.4.3 Special Policy Areas (5) – states that prior to the finalization of any site plan for the development of these lands, the Town will need to have a drainage study undertaken by a qualified hydrologist demonstrating that (a) there will be no impact on the drainage of the adjoining properties, including Honeywell ASCa Inc., (b) there will be no runoff from the proposal onto adjoining properties, (c) the soil composition/profile and geology of the site will allow for the required accumulation of water on site.

The Environmental Protection Act also address lands changing from Commercial/Industrial to Residential.

- Section 168.3.1 (1) requires that a Record of Site Condition (RSC) is required where there is a proposed change in the use of the property from industrial or commercial use to residential or parkland use.

The applicant is undertaking to complete a phase 2 Environmental Assessment (soil testing) for the property and has advised that they will be completing an RSC for both phases of the development. At this point the applicant needs to have his environmental and planning consultant confirm that the results of the phase 2 Environmental Assessment report demonstrate full compliance with the above noted Environmental Protection regulations and Official Plan policy requirements.

Section 6.7 of the Town's Official Plan (Planning Impact Analysis requirements) set out what matters need to be considered by Council as part of the review and approval of a zoning by-law amendment application. These matters include:

- (1) Compatibility of proposed uses with surrounding land uses, and the likely impact of the proposed development on present and future land uses in the area on the character and stability of the surrounding neighbourhood;
- (2) The height, location and spacing of any buildings in the proposed development, and any potential impacts on surrounding land uses;
- (3) The extent to which the proposed development provides for the retention of any desirable vegetation or natural features that contributes to the visual character of the surrounding area;
- (4) The proximity of any proposal for medium density residential development to public open space and recreational facilities, community facilities, municipal services, transit services, and the

adequacy of these facilities and services to accommodate the development proposed;

(5) The size and shape of the parcel of land on which a proposed development is to be located, and the ability of the site to accommodate the intensity of the proposed use;

(6) The location of vehicular access points and the likely impact of traffic generated by the proposal on streets, on pedestrian and vehicular safety, including impact on the primary to secondary evacuation routes identified in the Amherstburg Emergency Plan, and on surrounding properties;

(7) The exterior design and layout of buildings and the integration of these uses with present and future land uses in the area;

(8) The location of lighting and screening, and the adequacy of parking areas;

(9) The provisions for landscaping and fencing;

(10) The location of outside storage, garbage and loading facilities;

(11) Conformity with the provisions of the Site Plan Control By-Law;

(12) The design and location of signs, and the compliance of signs with the Sign Control By-Law;

(13) Measures planned by the applicant to mitigate any adverse impacts on surrounding land uses and streets which have been identified as part of the Planning Impact Analysis.

Planning staff will be reviewing all of the comments received from this statutory public meeting, together with comments received at the recent information meeting, and will be assessing all of the studies and reports submitted by the Applicant and all internal and external departmental and agency comments, and will be preparing a subsequent staff report that discusses how the above items are being addressed.

The Town's zoning by-law currently zones the subject lands Special Provision Commercial General (CG-5) (refer to Figure 4). Within this zone category, a broad range of commercial and institutional land uses are permitted. For this specific property, all of these uses are allowed with the following zoning restrictions added as a result of the 2006 OMB decision:

***Restricted Build Area***

*The land area at the north east corner of Sandwich Street and Brunner Ave., within the CG-5 zone, shall be a Restricted Build Area. Such "Restricted Build Area" shall not be used for a restaurant or a restaurant, fast-food. Parking for uses permitted within the "Restricted Build Area" shall be prohibited within the front yard and exterior side yard. The*

*“Restricted Build Area” shall extend northward a minimum of 18 m from the Brunner Ave. property line and extend a minimum of 138 m eastward from the Sandwich Street property line.*

***Restricted Uses***

*Notwithstanding Section 15(2) no lands zoned CG-5 may be used for a continuum of care facility, day care, home for the aged, hotel or motel, nursing home, retirement home, a dwelling unit or any land use involving overnight accommodation.*

*Notwithstanding Section 15(2) or the provisions of Section 15(4)(e)(ix), a department store will not be permitted until such time as the site plan has been approved and a building permit issued for the use.*

***Gross Floor Area***

*Maximum gross floor area for all permitted uses within the CG-5 Zone shall be 9000 square metres.*

*Individual retail uses shall have a minimum gross floor area of not less than 250 square metres, with the exception of a car wash accessory to a convenience store which shall have a minimum gross floor area of not less than 150 square metres.*

*Supermarkets, home and auto supply stores shall not be permitted unless support for such use is substantiated by a retail market study that has determined to Council’s satisfaction that no negative impact on the planned function of established commercial development will result.*

The Applicant is requesting that the current zoning regulations that apply to these lands be amended to allow 2 new apartment buildings to be built on these lands, with a total of 230 new apartment style dwelling units. If approved, this new site-specific zone category will also establish new maximum building heights, new setback and lot coverage, and other applicable regulations that will implement the final approved site plan.

As part of the regulations of the Planning Act, the application has been circulated to the area residents and various agencies. All comments received to date are attached as Appendix “D”. Of particular note is the correspondence from ERCA. Their final recommendation states:

*“With the review of background information and aerial photograph, ERCA advises that this application may be premature, the applicant must confirm legal outlet for these sites. It is to be noted, that the site should be kept in a mowed and manicured state to prevent natural succession, otherwise an EIA may be required.*

*The property owner will be required to obtain a Permit and/or Clearance from the Essex Region Conservation Authority prior to any future construction or site alteration or other activities affected by Section 28 of the Conservation Authorities Act”.*

Based on the above, the applicant and his consultants will need to work with ERCA to obtain the necessary approvals/clearances/permits that will be necessary for the development to proceed, and prior to any building permits being issued.

The application has also been circulated to internal departments for comment. All departmental comments are attached as Appendix "C". Infrastructure Services have noted that all servicing matters will be addressed as part of site plan control.

#### **4. RISK ANALYSIS:**

The recommendation presents little to no risk to the municipality.

#### **5. FINANCIAL MATTERS:**

All costs associated with the application are the responsibility of the applicant.

The information below is solely to address a question previously asked regarding the impact of the taxes collected for the Town should the facility be converted to condo status at some point in the future. It has no bearing on Administrations comments regarding the re-zoning request.

The New Multi-Residential Tax Class was established by a Regulation passed on July 5, 2017, and applies to all New Multi-Residential Properties in the Province if the building was converted or built pursuant to a building permit issued after April 20, 2017. The Tax Rate for the New Multi-Residential Property Tax Class (NT) is to be within the range of 1 to 1.1 times the Residential Tax Rate (RT). Prior to this Regulation apartments were assigned an MT classification, which for the Town has a 1 to 1.527700 ratio, creating a significant difference when an MT building converted to RT. Based on the new Regulation, as well as discussions with MPAC, we would expect the buildings in this report, planned to be constructed as apartments, to have the NT classification applied. If at some point in the future they convert to condos the RT rate would be applied.

While there are other rates applied to the overall tax bill, the Municipal Tax, Capital Reserve and Capital Replacement are what make up the Town's portion of collected taxes. Focusing solely on these three rates which impact the Town directly, the Town of Amherstburg's 2021 rates for NT and RT are .01105113 and .01004648 respectively, a difference of .0010047. For every \$1,000,000 in assessed value, the NT rate would be \$11,051.13 in taxes collected for the Town, vs \$10,046.48 for the RT rate. An overall tax difference for the Town of approximately \$1,004.65 for every \$1,000,000 in assessed value. As taxes are a function of rate and assessed value, a 10% or higher assessed value of the condo units versus the apartment building would eliminate the variance resulting from the rate difference.


**6. CONSULTATIONS:**

The Notice of Public Meeting was published in the local newspaper and circulated to the required agencies, property owners and municipal departments in accordance with the requirements of the Planning Act, R.S.O. 1990, c.P. 13 and associated regulations.

**7. CONCLUSION:**

This report contains information with respect to applicable Official Plan policies and Zoning By-law regulations, as they pertain to the subject rezoning application.

Following the statutory public meeting, planning staff will be preparing a subsequent report for Council that will include a comprehensive analysis of all of the comments and recommendations received, and will provide a professional planning opinion and a staff recommendation with respect to the requested zoning by-law amendment.



---

Melissa Osborne  
Director, Development Services

**JM**

**DEPARTMENTS/OTHERS CONSULTED:**

**Name: Office of Engineering and Public Works**  
**Phone #: 519 736-3664 ext. 2313**

**Name: Building Services**  
**Phone #: 519 736-5408 ext. 2136**

**Name: Fire Services**  
**Phone #: 519 736-6500**

**Name: Windsor Police**

**Name: Union Gas**  
**Email: [ONTUGLandsINQ@uniongas.com](mailto:ONTUGLandsINQ@uniongas.com)**

**Name: Ontario Power Generation**  
**Email: [Executivevp.lawanddevelopment@opg.com](mailto:Executivevp.lawanddevelopment@opg.com)**

**Name: Essex Region Conservation Authority**

**Phone #: 519 776-5209**

**Name: County of Essex**

**Phone #: 519 776-6441**

**Name: Windsor Essex Catholic District School Board**

**Phone #: 519 253-2481**

**Name: Greater Essex County District School Board**

**Phone #: 519 255-3200**

## Report Approval Details

Document Title:	Statutory Public Meeting to Consider a Zoning By-law Amendment for Northeast Corner of Brunner Avenue and Sandwich St N.docx
Attachments:	- 2022 03 28 - Statutory Public Meeting to Consider a Zoning By-law Amendment for Brunner and Sandwich- ATTACHMENTS.pdf
Final Approval Date:	Mar 23, 2022

This report and all of its attachments were approved and signed as outlined below:



Tracy Prince



Peter Simmons

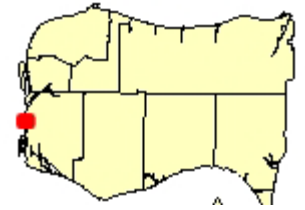


Valerie Critchley








# Figure 1



### Legend

-  Roads
-  Parcels
-  Streams and Creeks
-  Essex

0.5 0 Distance / 0.5 Kilometers



### Notes

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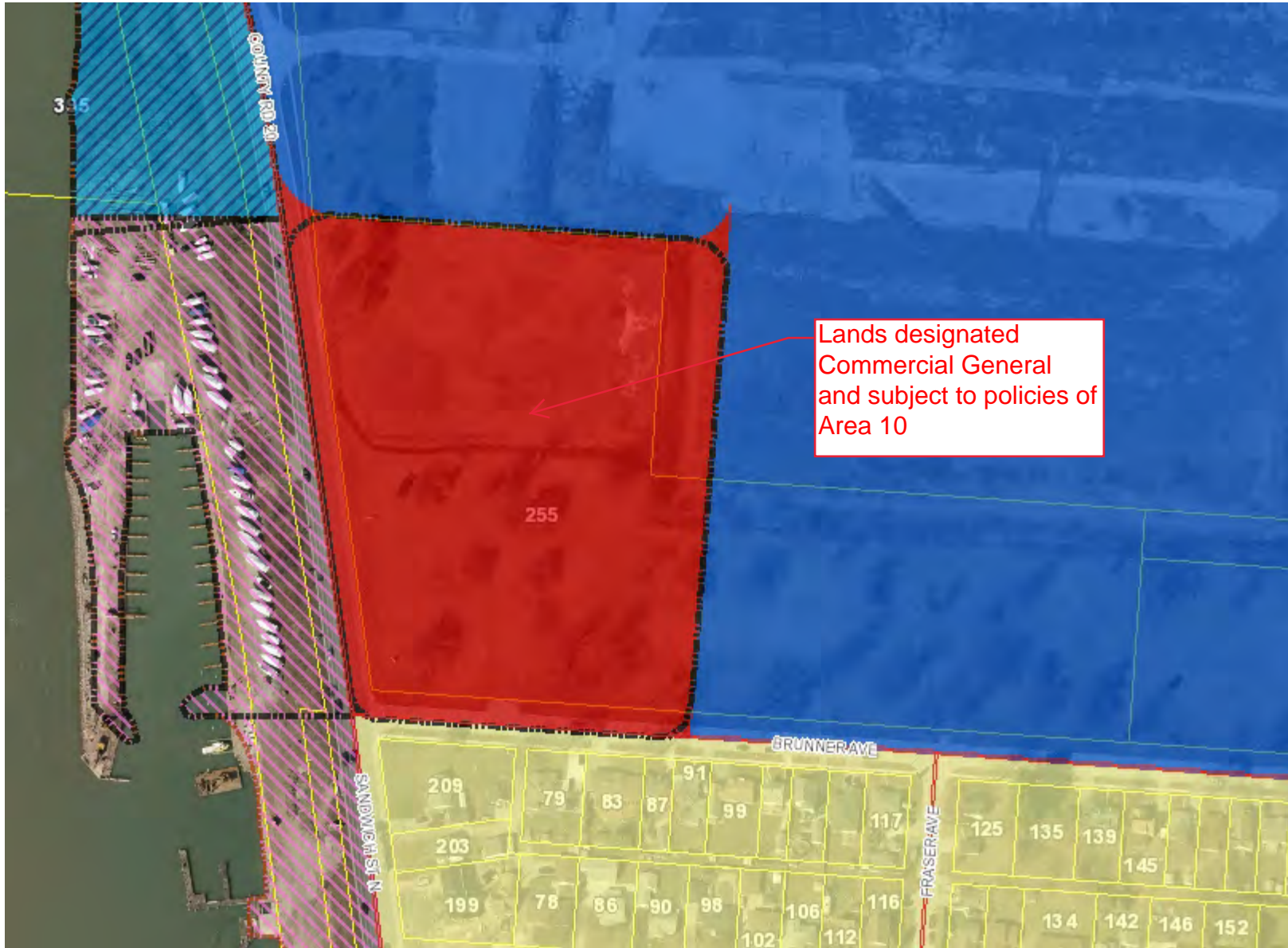
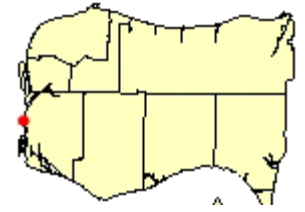








# Figure 3



Lands designated  
Commercial General  
and subject to policies of  
Area 10

### Legend

- Roads
- LANDFILL
  - closed
  - open
- STP
- CLS
- Special Policy
- Settlement Area Boundary
- Medium Density Residential
- PSW
- Natural Environment
- Sewage Lagoon
- Woodlots
- Low Density Residential
- High Density Residential
- Residential Office
- Heritage Residential
- Modular Home Residential
- Neighbourhood Commercial
- Special Policy Industrial
- Light Industrial
- Heavy Industrial
- General Commercial
- Extractive Industrial
- Institutional
- Natural Enviro Woodlots P
- Open Space
- Recreational Development

0.1                      0                      Distance /                      0.1                      Kilometers



### Notes

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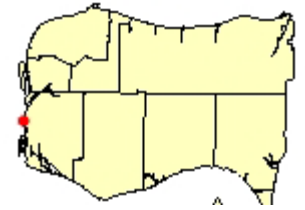
1: 2,483







Figure 4



Legend

- Roads
- Zoning
- Parcels
- Streams and Creeks
- Essex

0.1 0 Distance / 0.1 Kilometers



Notes

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ISSUE DATE:  
**JULY 14, 2006**  
DECISION/ORDER NO:  
**2011**



RECEIVED  
JUL 18 2006  
PL041031

**Ontario Municipal Board**  
**Commission des affaires municipales de l'Ontario**

Honeywell

ASCa Incorporated have appealed to the Ontario Municipal Board under subsection 17(36) of the *Planning Act* R.S.O. 1990, c. P.13, as amended, from a decision of the County of Essex to approve Proposed Amendment No. 6 to the Official Plan of the Town of Amherstburg to redesignate lands on the east side of County Road 20 and north of Brunner Avenue from "Heavy Industrial" and "Light Industrial" to "General Commercial" to permit a department store and large format commercial uses  
O.M.B. File No. O050186

Honeywell ASCa Incorporated has appealed to the Ontario Municipal Board under subsection 34(19) of the *Planning Act*, R.S.O. 1990, c. P.13, as amended, against Zoning By-law 2004-80 of the Town of Amherstburg  
O.M.B. File No. R040228

Honeywell ASCa Incorporated has appealed to the Ontario Municipal Board under subsection 53(19) of the *Planning Act*, R.S.O. 1990, c. P.13, as amended, from a decision of the Committee of Adjustment of the Town of Amherstburg which granted an application by General Chemical Canada Limited numbered B/13/05 for consent to convey part of the lands composed of Lots 5, 6 and 7, Concession 1 in the Town of Amherstburg  
O.M.B. File No. C050161

**APPEARANCES:**

<u>Parties</u>	<u>Counsel*/Agent</u>
Honeywell ASCa Inc.	Brian Chillman*
Town of Amherstburg	Armando DeLuca*
1594064 Ontario Limited	Davide Petretta

**DECISION DELIVERED BY F. G. FARRELL AND ORDER OF THE BOARD**

At the commencement of the hearing, Amando DeLuca, counsel for the Town of Amherstburg advised the Board that there was a Memorandum of Settlement in this matter. The Memorandum of Settlement was produced and marked Exhibit "2" to this hearing and appended hereto as Attachment "1".

The terms of the Memorandum of Settlement made provision for:



1. The appeal of the Official Plan Amendment No. 6 (hereinafter referred to as OPA No. 6) is to be allowed in part so as to modify the text of Part B of the OPA No. 6 which modifications are more particularly set out in the Memorandum of Settlement appended hereto as Attachment "1".
2. The appeal against the lands effected by By-law No. 2004-80 (hereinafter referred to as ZBL No. 2004-80) is to be allowed in part so that the ZBL may be approved only for the lands identified in the modified Schedule "A" to ZBL 2004-80 more particularly set out in the Memorandum of Settlement appended hereto as Attachment "1".
3. The appeal against the lands affected by the Consent Application B/13/05 is not to be granted and the consent denied.

The subject lands are located along the east side of Essex County Road 20 (Sandwich Street North) extending northerly from Brunner Avenue in the Town of Amherstburg.

The proposed amendment to the OP sought to change the designation of the subject land from "Heavy Industrial" and "Light Industrial" to "General Commercial".

The proposed amendment to ZBL No. 1999-52 sought to change the zoning of the subject lands from "Heavy Industrial (H1)" zone, "Light Industrial (L1)" zone and "Special Provision Light Industrial (L1-2)" zone to "General Commercial (CG-5)" zone.

Under a modified OPA No. 6, the "General Commercial" designation is to extend northerly along the east side of Sandwich Street to Brunner Avenue for approximately 200 m whereas under the OPA No. 6, the distance had been approximately 400 m.

The proposed use of the subject land is for large-scale commercial development.

Planner Jean Monteith, a qualified land use planner for the Town of Amherstburg, testified in support of the proposal and Memorandum of Settlement.

Planner Monteith provided the Board with an overview of the site, the surrounding general vicinity, OPA No. 6, modified OPA No. 6, ZBL 2004-80, modified ZBL 2004-80 and the Consent Application. She reviewed the terms of the Memorandum of Settlement in detail and provided the Board with a copy of the Amherstburg Official Plan produced and marked Exhibit "8" and ZBL 1999-52 produced and marked Exhibit "9". Planner Monteith outlined the public consultation process wherein there were several public meetings as well as the meetings with the stakeholders.

It was the expert opinion evidence of Planner Monteith that the modified OPA No. 6 maintained and was consistent with the goals, objectives and policies of the Amherstburg Official Plan and represented good planning. She stated that Amherstburg had considerable lands designated for industrial uses (2,300 acres) and quarry uses (1,500 acres). By contrast, Amherstburg was deficient in lands designated for commercial uses. The site was in her expert opinion, an excellent location for large-scale commercial development because it was highly visible on the main roadway into the Town of Amherstburg from Windsor, readily accessible and offered an excellent "gateway opportunity" into Amherstburg. Planner Monteith stated that the modified OPA No. 6 in order to ensure an aesthetically pleasing approach to the historic portion of Amherstburg and to protect the historic character, additional policies would apply to the commercial development of the site. Additional landscaping requirements would be required at the time of site plan approval. No supermarket or automotive store would be permitted without supporting justification from a market study.

The Board has reviewed the modified OPA No. 6 in conjunction with the Amherstburg Official Plan and the expert opinion evidence of Planner Monteith and finds that the goals, objectives and policies of the Official Plan are maintained and that it represents good planning.

It was the expert opinion evidence of Planner Monteith that the modified ZBL 2004-80 conformed to the OP and the modified OPA No. 6 in all respects. Planner Monteith stated that the modified ZBL 2004-80 made appropriate provision for restrictions on various uses, which restrictive uses would be beneficial to both the immediate residential and industrial area. In particular, no land zoned "CG-5" is to be used for a variety of uses such as hotel, motel, daycare or nursing homes, which would

be inconsistent with the proposed use. Moreover, the maximum GFA for all permitted uses in a "CG-5" zone are to be reduced to 9,000 sq m and individual retail uses shall have a minimum of 250 sq m.

It was the expert opinion of Planner Monteith that the modified ZBL 2004-80 had regard for the 1996 Provincial Policy Statement (PPS), the applicable PPS when the original applications were filed and was also consistent with the 2005 PPS. She stated that the modified ZBL 2004-80 did not compromise the form and function of the downtown core, there were no agricultural lands within the settlement boundary, and there are full municipal services available and no heritage or environmental issues. It was Planner Monteith's expert opinion evidence that the modified ZBL 2004-80 would promote an efficient land use pattern for Amherstburg and did not compromise any of the policies contained in either the 1996 or 2005 PPS.

It was the expert opinion evidence of Planner Monteith that the modified ZBL 2004-80 represented good planning and was in the public interest for the same reasons that she had given in her testimony about the modified OPA No. 6.

The Board has reviewed the modified ZBL 2004-80 in conjunction with the expert opinion evidence of Planner Monteith, which the Board accepts in all respects. The Board finds that the modified ZBL 2004-80 conforms to the OP and the modified OPA No. 6, has regard for the 1996 PPS (the applicable PPS) is consistent with the 2005 PPS and represents good planning.

With respect to the Consent Application, Planner Monteith stated that the reasons for the application were with respect to an intended purchase and sale transaction, which no longer existed, and therefore it had become moot. The Board accepts the expert opinion evidence of Planner Monteith that the Consent Application is no longer a relevant issue.

At the hearing there was no other qualified land use planner who gave evidence in opposition to the proposal, applications or the Memorandum of Settlement nor was there any opposition raised at the hearing from the public.

The Board accepts the expert opinion evidence of Planner Monteith in all respects.

The Board Orders the following:

1. The appeal of OPA No. 6 of the Town of Amherstburg is allowed in part and OPA No. 6 of the Town of Amherstburg is modified as set out in Attachment "2" to this Order;
2. The appeal of Zoning By-law Amendment 2004-80 of the Town of Amherstburg is allowed in part and the Zoning By-law Amendment is amended as set out in Attachment "3" to this Order. In all other respects, the Board Orders that this appeal is dismissed; and
3. The appeal of the Consent Application is allowed and that provisional consent is not to be given.

The Board so Orders.

"F. G. Farrell"

F. G. FARRELL  
MEMBER

ATTACHMENT "1"

PL041031

MEMORANDUM OF SETTLEMENT

This Agreement made this 30<sup>th</sup> day of May, 2006

**BETWEEN:**

**TOWN OF AMHERSTBURG**

**OF THE FIRST PART**

- and -

**1594064 ONTARIO LIMITED**

**OF THE SECOND PART**

- and -

**HONEYWELL ASCa INC.**

**OF THE THIRD PART**

**WHEREAS** 1318840 Ontario Limited and Honeywell ASCa Inc. have appealed to the Ontario Municipal Board under subsection 17(36) of the *Planning Act*, R.S.O. 1990, c.P.13, as amended, from a decision of the County of Essex to approve Proposed Amendment No. 6 to the Official Plan of the Town of Amherstburg to re-designate lands on the east side of County Road 20 and north of Brunner Avenue from "Heavy Industrial" and "Light Industrial" to "General Commercial" to permit a department store and large format commercial uses;  
O.M.B. File No. O050186

**AND WHEREAS** 1318840 Ontario Limited and Honeywell ASCa Inc. have appealed to the Ontario Municipal Board under subsection 34(19) of the *Planning Act*, R.S.O. 1990, c. P.13, as amended, against Zoning By-law 2004-80 of the Town of Amherstburg;  
O.M.B. File No. R040228

**AND WHEREAS** Honeywell ASCa Inc. has appealed to the Ontario Municipal Board under subsection 53(19) of the *Planning Act*, R.S.O. 1990, c.P.13, as amended, from a decision of the Committee of Adjustment of the Town of Amherstburg which granted an application by General Chemical Canada Limited numbered B/13/05 for consent to convey part of the lands composed of Lots 5, 6 and 7, Concession 1 in the Town of Amherstburg;  
O.M.B. File No. C050161

**AND WHEREAS** a portion of the lands which are the subject of the above-noted appeals are owned by General Chemical Canada Ltd.;

**AND WHEREAS** 1318840 Ontario Limited has withdrawn its above-noted appeals;

**AND WHEREAS** the parties to this Memorandum of Settlement agree to the terms as set out below;

**NOW THEREAFTER THIS SETTLEMENT AGREEMENT WITNESSETH** that in consideration of the sum of Two Dollars (\$2.00) of lawful money of Canada, now paid by each Party to the other, the receipt and sufficiency of which is hereby acknowledged, and for other valuable consideration, the Parties hereto agree to and with each other as follows:

**A.** The Town of Amherstburg shall request the following of the Ontario Municipal Board:

1. That the appeal of Official Plan Amendment No. 6 be allowed in part so as to modify the text of Part B, s.1.2 of Official Plan Amendment No. 6, being, Section 3.4.5 Special Policy Area (6) introduction, subsections (a), (f), (g) and (j) to reduce the size of the General Commercial designation from 400 metres to approximately 200 metres north of Brunner Ave.; to update the reference to the Local Architectural Conservation Advisory Committee to Amherstburg's Heritage Committee; to reduce the overall gross floor area of retail uses from 18000 square metres to 9000 square metres; to remove reference to other retail uses up to 5100 square metres; to remove reference to retail market studies being required for development up to 9000 square metres, by deleting subsection (g); modify Schedule "A" to Official Plan Amendment No. 6 to reflect the changes in land use designation; and to clarify that Honeywell ASCa Inc. is considered an abutting land owner for the purposes of storm water management provisions in a site plan agreement so that the altered sections, renumbered accordingly, now read as follows:

"(6) The General Commercial Area on the east side of Sandwich Street for approximately 200 metres north of Brunner Ave. has additional policies designed to restrict certain uses and to provide for additional site plan control directives. The Special Policies that apply to this General Commercial designation are as follows:

- (a) In order to ensure an aesthetically pleasing approach to the historic portion of Amherstburg and to protect the historic character, and as this area represents the gateway to Amherstburg, additional policies will apply to commercial development established along the east side of Sandwich Street for approximately 200 metres northerly from Brunner Ave. This policy will provide additional landscaping requirements at the time of site plan approval. Special attention will be given to lighting, fencing, loading facilities and location of garbage disposal. This policy will also allow Council to establish both minimum and maximum height regulations and



setback regulations in a zoning by-law. Council will seek the advice of Amherstburg's Heritage Committee when dealing with development in this area on such matters as roof line, height, building material, and window placement in order to reflect the historic small town appearance. Site plans associated with any Zoning By-law amendments to a General Commercial Zone shall be subject to public consultation.

...

- (f) Within this General Commercial designation Council may restrict the maximum permitted gross floor area of a department store to 8000 square metres (85,000 square feet) until such time as a retail market study is completed. Should a department store be constructed elsewhere within Amherstburg prior to a department store building on this site, no department store will be permitted without justification from a market study. The maximum combined gross floor area of all retail uses shall be 9000 square metres. Individual retail uses within this area shall have a minimum gross floor area of 250 square metres (2,690 square feet). No supermarket, grocery store or automotive, tire and battery store shall be permitted without supporting justification from a market study.

...

- (i) Prior to the finalization of any site plan for this development the Town will need to have a drainage study undertaken by a qualified hydrologist demonstrating that (a) there will be no impact on the drainage of adjoining properties, including Honeywell ASCa Inc., (b) there will be no runoff from the proposal onto adjoining properties, (c) the soil composition/profile and geology of the site will allow for and require accumulation of water on the site. Site plan approval will also require municipal clearance, after consultation with relevant agencies, of archeological reports, environmental reports and traffic reports." [Renumbered as (i) as a result of deleting subsection (g).]

2. That the remaining special provisions of Section 3.4.5 Special Policy Area as created by Official Plan Amendment No. 6 shall be approved as adopted.
3. That the appeal against the lands affected by Official Plan Amendment No. 6 be allowed in part in so far as the amendment no longer applies to the most northern 200 metres of lands affected by the designation change so that the northerly 200 metres remain Heavy Industrial, as reflected on modified Schedule "A" to Official Plan Amendment No. 6, attached to this Memorandum of Settlement as Attachment No. 1.

4. That Schedule "A" to Official Plan Amendment No. 6 be modified as shown on Schedule "A" attached to this Memorandum of Settlement as Attachment No. 1.

5. That the appeal against the lands affected by By-law No. 2004-80 be allowed in part so that the By-law may be approved only for the lands identified on the modified Schedule "A" to By-law No. 2004-80, attached to this Memorandum of Settlement as Attachment No. 2, being the southerly 200 metres of the area affected by the by-law, and so that the text of the amending by-law be modified to change the maximum gross floor area to 9000 square metres and to add to the list of prohibited uses a dwelling unit by replacing subsections 1 (viii) and 1(ix) with the following new sections:

**(viii) Restricted Uses**

Notwithstanding Section 15(2) no lands zoned CG-5 may be used for a continuum of care facility, day care, home for the aged, hotel or motel, nursing home, a retirement lodge, a dwelling unit or any other land use involving overnight accommodation. Notwithstanding Section 15(2) or the provisions of Section 15(4)(e)(ix), a department store will not be permitted until such time as the site plan has been approved and a building permit issued for the use.

**(ix) Gross Floor Area**

Maximum combined gross floor area for all permitted uses within the CG-5 zone shall be 9000 square metres.

Individual retail uses shall have a minimum gross floor area of not less than 250 square metres.

6. That Schedule "A" to By-law No. 2004-80 be modified as shown on Schedule "A" attached to this Memorandum of Settlement as Attachment No. 2.

7. That the appeal against the lands affected by the Consent Application B/13/05 be granted and that the consent be denied.

B. 1594064 Ontario Limited agrees to grant or caused to have granted to Honeywell ASCa Inc., its successors and assigns, a drainage easement over and across that portion of lands owned, directly or indirectly, by 1594064 Ontario Limited which the drain generally known as the south drain runs (same lands for which a drainage easement has been granted to General Chemical Canada Ltd.); and 1594064 Ontario Limited agrees to authorize Honeywell ASCa Inc. to act on its behalf as agent in making the necessary application to the Town of Amherstburg's Committee of Adjustment to obtain consent for the drainage easement in accordance with the Planning Act, R.S.O. 1990, c. P. 13.

C. This Memorandum of Settlement may be executed by the Parties in

counterparts and when all Parties have executed at least as many counterparts as there are parties, all of such counterparts shall be deemed to be originals and all such counterparts taken together shall constitute one and the same agreement.

**IN WITNESS WHEREOF** the Parties have hereunto caused their corporate seal to be affixed as attested to by the hands of their proper signing officers duly authorized in that behalf.

**TOWN OF AMHERSTBURG**

Per: 

Name: Armando DeLuca

Title: COUNSEL FOR THE TOWN OF AMHERSTBURG.

I/We have the authority to bind the Corporation

**HONEYWELL ASC, INC.**

Per: 

Name: Katherine Ma

Title: General Counsel, Honeywell Specialty Chemicals

I/We have the authority to bind the Corporation

**1594064 ONTARIO LIMITED**

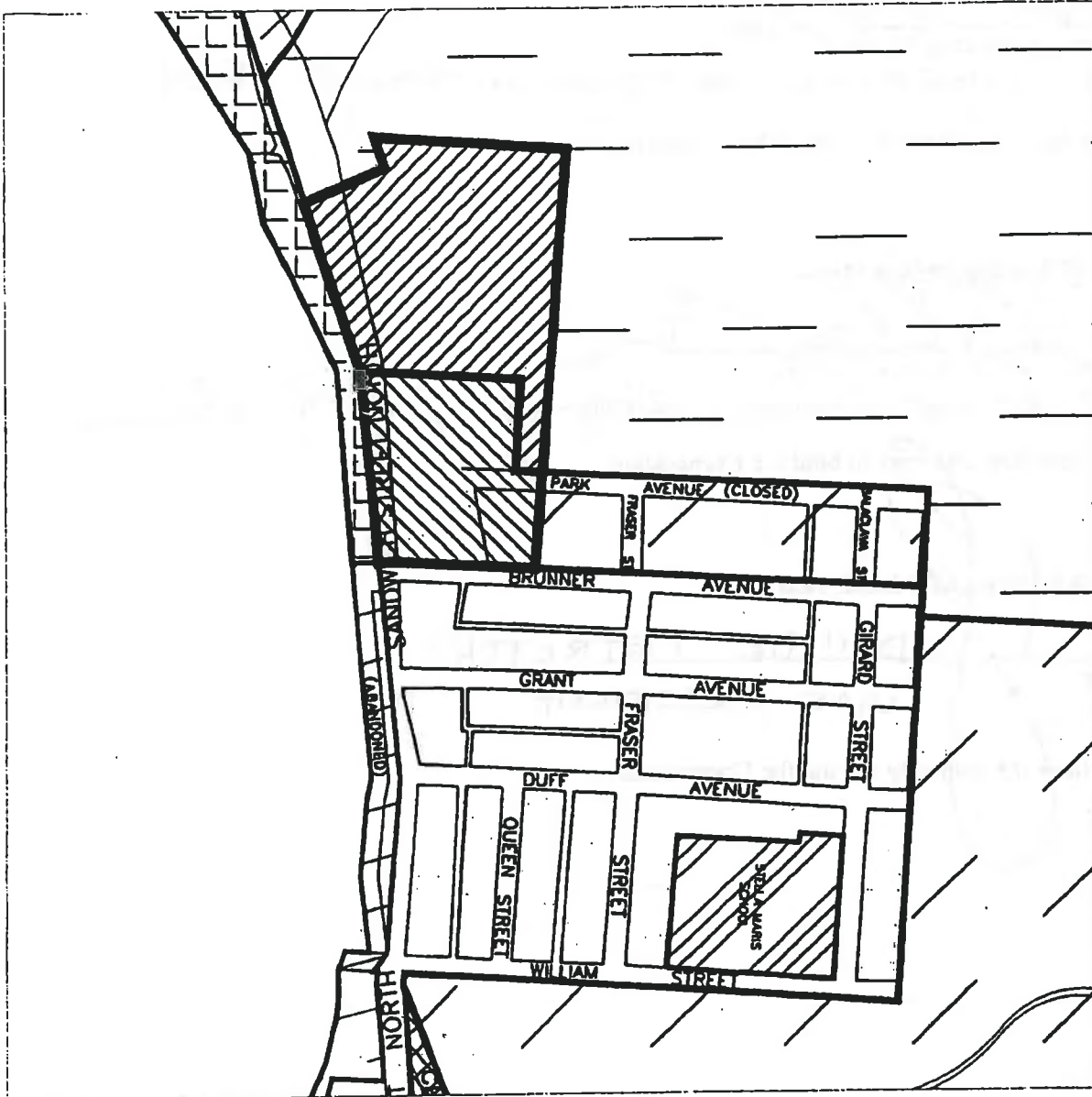
Per: 

Name: DAVIDE PETRETTA

Title: VICE - PRESIDENT








I/We have the authority to bind the Corporation

# ATTACHMENT NO. 1



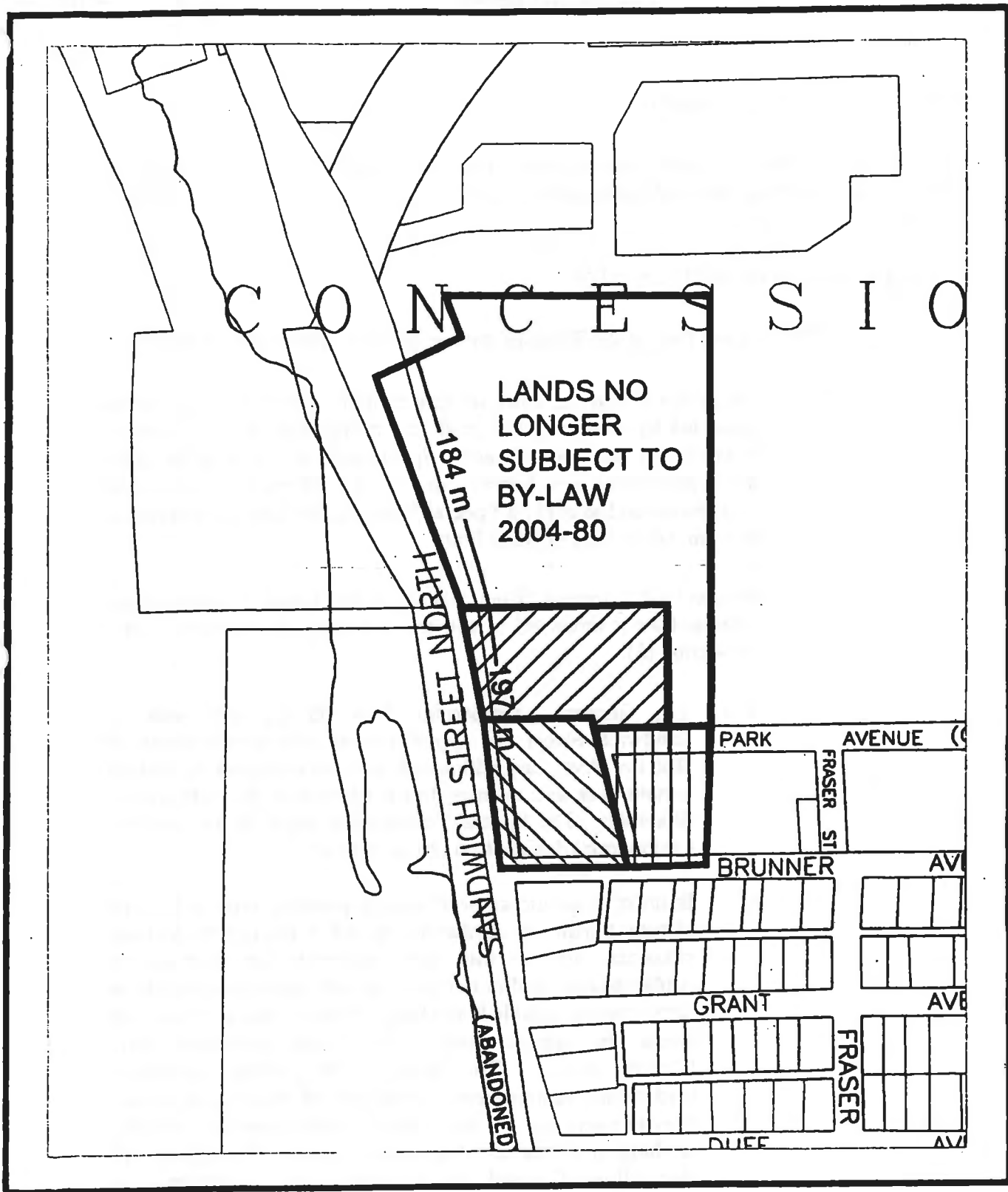
-  LANDS NO LONGER SUBJECT TO OPA #6 - DESIGNATE HEAVY INDUSTRIAL
-  LANDS SUBJECT TO OPA #6 - DESIGNATE GENERAL COMMERCIAL

## LEGEND

-  LOW DENSITY RESIDENTIAL
-  HIGHWAY COMMERCIAL
-  LIGHT INDUSTRIAL
-  HEAVY INDUSTRIAL
-  SPECIAL POLICY INDUSTRIAL
-  INSTITUTIONAL
-  RECREATIONAL DEVELOPMENT

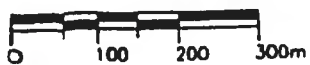





# ATTACHMENT NO. 2



KEY MAP No. 28

SCALE



-  ZONE CHANGE FROM HI TO CG-5
-  ZONE CHANGE FROM LI TO CG-5
-  ZONE CHANGE FROM LI-2 TO CG-5



Σ + 5

PART "B" - THE AMENDMENT

All of this part of the document, entitled, "Part 'B' - The Amendment" consisting of the following text and map schedule constitutes Amendment No. 6 to the Official Plan for the Town of Amherstburg.

1. DETAILS OF THE AMENDMENT

The Official Plan of the Town of Amherstburg is amended as follows:

1.1 "Schedule B-1 to the Town of Amherstburg Official Plan is hereby amended by changing the land use designation of the lands so indicated on the attached map. Specifically the lands affected by this amendment are hereby placed in a General Commercial designation and to apply a Special Policy to the lands as outlined in Section 3.4.5 of the Official Plan.

1.2 Section "3.4.5 Special Policy Areas" of the Town of Amherstburg Official Plan is amended to add the following special policy after subsection (5):

"(6) The General Commercial Area on the east side of Sandwich Street for approximately 200 metres north of Brunner Ave. has additional policies designed to restrict certain uses and to provide for additional site plan control directives. The Special Policies that apply to this General Commercial designation are as follows:

(a) In order to ensure an aesthetically pleasing approach to the historic portion of Amherstburg and to protect the historic character, and as this area represents the gateway to Amherstburg, additional policies will apply to commercial development established along the east side of Sandwich Street for approximately 200 metres northerly from Brunner Ave. This policy will provide additional landscaping requirements at the time of site plan approval. Special attention will be given to lighting, fencing, loading facilities and location of garbage disposal. This policy will also allow Council to establish both minimum and maximum height regulations and setback regulations in a zoning by-law. Council will seek the advice of Amherstburg's Heritage Committee when dealing with development in this area on such matters as roof line,

height, building material, and window placement in order to reflect the historic small town appearance. Site plans associated with any Zoning By-law amendments to a General Commercial Zone shall be subject to public consultation.

- (b) Within this area Council may establish a setback that requires that at least 25% of the building fronting on to Sandwich Street be set back no less than 6 metres minimum and no more than 25 metres maximum.
- (c) Within this area Council may establish a minimum building height at the 6 metre setback from front lot line of 6 metres and a maximum building height of 15 metres.
- (d) Within this area Council may require an enhanced landscaping plan as part of the site plan approval that requires that deciduous trees be planted in the boulevard have 2.0 metres clear stem and head room for pedestrians and cyclists. In addition a minimum buffer or landscape strip of 3.0 metres be established along Sandwich Street and that 20% of the landscaping be woody plant material that is capable of providing interest in all seasons. Fencing or dense hedge material shall be required to obscure the parking areas visible from Brunner Ave and Sandwich Street North. Chainlink fences or wood construction fencing shall not be permitted unless they are fully screened from public view.
- (e) Within this area Council may restrict the land uses permitted under the General Commercial zoning to prohibit any land use that would involve overnight accommodation, grocery stores, supermarkets, automotive, tire and battery stores and the size of the permitted retail uses.
- (f) Within this General Commercial designation Council may restrict the maximum permitted gross floor area of a department store to 8000 square metres (85,000 square feet) until such time as a retail market study is completed. Should a department store be constructed elsewhere within Amherstburg prior to a department store building on this site, no department store will be permitted without justification from a market study. The maximum combined

gross floor area of all retail uses shall be 9000 square metres (96,878 square feet). Individual retail uses within this area shall be greater than 250 square metres (2,690 square feet). No supermarket, grocery store or automotive, tire and battery store shall be permitted without supporting justification from a market study.

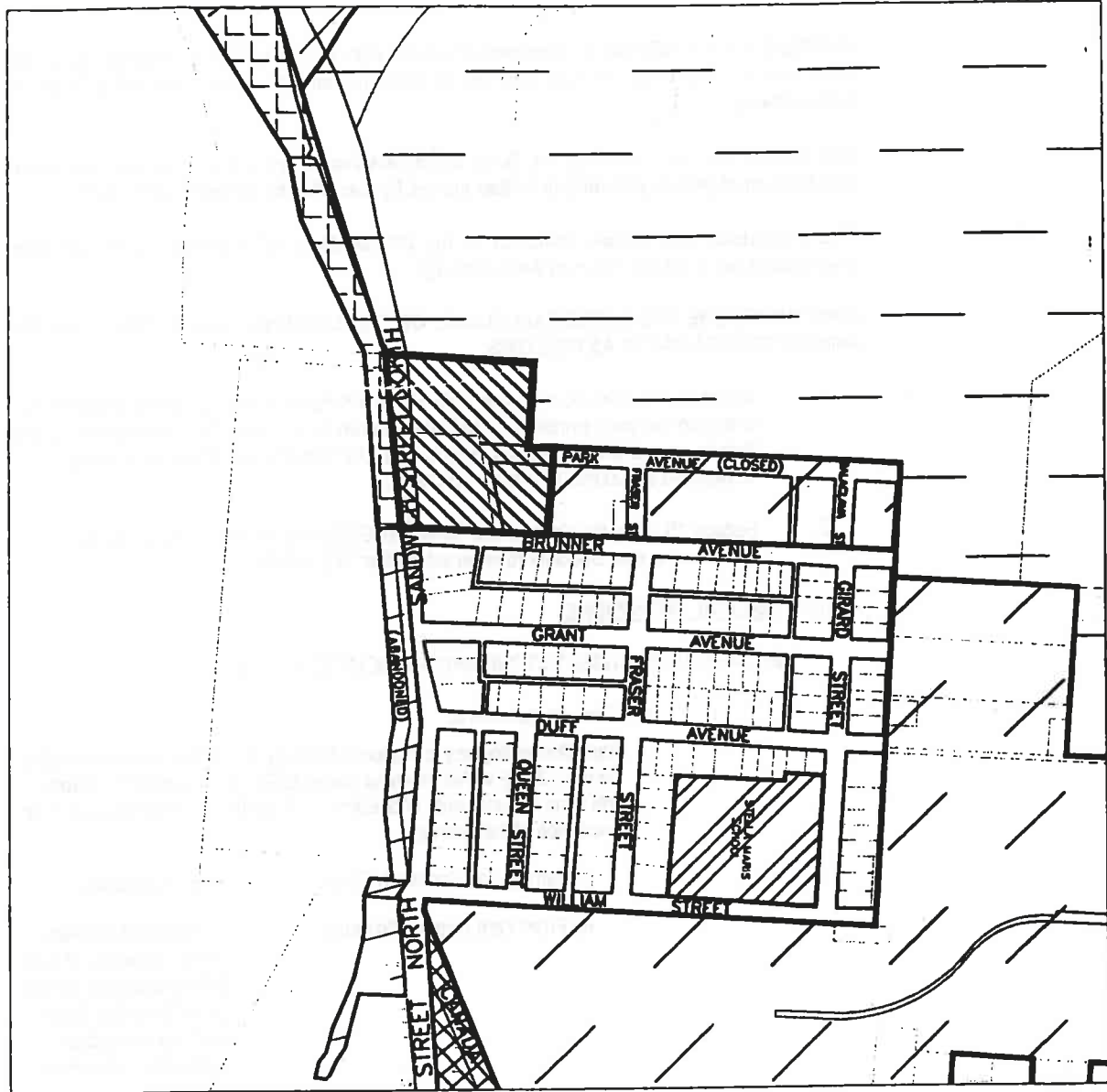
- (g) No vehicular access shall be permitted to Brunner Ave.
- (h) Any closure of roads within this area will be conditional on any non residential access from the lands to the east of the subject lands being either to the north through General Chemical or to the west over the subject lands and not via Brunner Ave.
- (i) Prior to the finalization of any site plan for this development the Town will need to have a drainage study undertaken by a qualified hydrologist demonstrating that (a) there will be no impact on the drainage of adjoining properties, including Honeywell ASCa Inc., (b) there will be no runoff from the proposal onto adjoining properties, (c) the soil composition/profile and geology of the site will allow for and required accumulation of water on the site. Site plan approval will also require *municipal* clearance after consultation with the relevant agencies, of archeological reports, environmental reports and traffic reports.”

## 2. IMPLEMENTATION AND INTERPRETATION

The implementation and interpretation of the Amendment shall be in accordance with the respective policies of the Official Plan of the Town of Amherstburg.








**SCHEDULE "A"  
OFFICIAL PLAN OF THE TOWN OF  
AMHERSTBURG**

OPA No. 6



 CHANGE FROM LIGHT INDUSTRIAL TO GENERAL COMMERCIAL

**LEGEND**

- |   |   |
|---|---|
|  LOW DENSITY RESIDENTIAL |  SPECIAL POLICY INDUSTRIAL |
|  HIGHWAY COMMERCIAL      |  INSTITUTIONAL             |
|  LIGHT INDUSTRIAL        |  RECREATIONAL DEVELOPMENT  |
|  HEAVY INDUSTRIAL        |   |





ATTACHMENT "3"

CORPORATION OF THE TOWN OF AMHERSTBURG

BY-LAW NO. 2004-80

Being a by-law to amend Zoning By-law 1999-52, as amended.

WHEREAS By-law 1999-52, as amended, is a land use control by-law regulating the use of lands and the character, location and use of buildings and structures within the Town of Amherstburg;

AND WHEREAS the Council of the Town of Amherstburg deems it appropriate and in the best interest of proper planning to further amend By-law 1999-52 as herein provided;

AND WHEREAS this By-law conforms to the Official Plan as amended by Official Plan Amendment No. 6 for the Town of Amherstburg;

NOW THEREFORE THE MUNICIPAL COUNCIL OF THE CORPORATION OF THE TOWN OF AMHERSTBURG ENACTS AS FOLLOWS:

1. Schedule "A", Map 28 of By-law 1999-52, as amended, is hereby further amended by changing the zone symbol for those lands shown on Schedule "A" attached hereto and forming part of this By-law from 'H1', 'L1' and 'LI-2' Zone to 'CG-5' Zone the lands designated as "ZONE CHANGE TO CG-5".
2. Section 15 (4) to the Commercial General (CG) Zone is hereby amended by the addition of a new Special Provision subsection '(e)' as follows:

(4) SPECIAL PROVISIONS

(e) CG-5 (DEPARTMENT STORE AND ASSOCIATED RETAIL)

1. Zone Requirements

Notwithstanding any provisions of this by-law to the contrary including Section 3(23), within any area zoned CG-5 on Schedule "A" hereto, the zone requirements of Section 15 of the By-law shall apply with the exception of the following:

- |  |   |
|--|---|
| (i) Frontage on Sandwich Street                    | 30 m contiguous   |
| (ii) Front Yard Depth (Minimum)                    | 6.0 m from Sandwich Street, however, at least 25% of buildings fronting on to Sandwich Street shall not be setback further than 25 metres maximum |
| (iii) Interior Side Yard Width (Minimum)           | 7.0 m   |
| (iv) Exterior Side Yard Depth (Minimum)            | 3.0 m from Brunner Ave.   |
| (v) Rear Yard Depth (Minimum)                      | 7.0 m   |
| (vi) Minimum Widths for Landscaped Planting Strips |   |
| Abutting Sandwich St.:                             | 6.0m  |
| Abutting Brunner Ave.:                             | 3.0m  |
| Abutting East Boundary:                            | 0.0m  |
| Abutting all other Boundaries:                     | 0.0m  |

(vii) Restricted Build Area

The land area at the north east corner of Sandwich Street and Brunner Ave., within the CG-5 zone, shall be a Restricted Build Area. Such "Restricted Build Area" shall not be used for a restaurant or a restaurant, fast-food. Parking for uses permitted within the in the "Restricted Build Area" shall be prohibited within the front yard and exterior side yard. The "Restricted Build Area" shall extend northward a minimum of 18 m from the Brunner Ave. property line and extend a minimum of 138 m eastward from the Sandwich Street property line.

(viii) Restricted Uses

Notwithstanding Section 15(2) no lands zoned CG-5 may be used for a continuum of care facility, day care, home for the aged, hotel or motel, nursing home, retirement home, a dwelling unit or any land use involving overnight accommodation.

Notwithstanding Section 15(2) or the provisions of Section 15(4)(e)(ix), a department store will not be permitted until such time as the site plan has been approved and a building permit issued for the use.

(ix) Gross Floor Area

Maximum gross floor area for all permitted uses within the CG-5 zone shall be 9000 square metres.

Individual retail uses shall have a minimum gross floor area of not less than 250 square metres.

Supermarkets, home and auto supply stores shall not be permitted unless support for such use is substantiated by a retail market study that has determined to Council's satisfaction that no negative impact on the planned function of established commercial development will result.

(x) Height

Maximum building height for a department store shall be 15 metres."

3. That all other appropriate regulations for the use of land and the character, location and use of buildings and structures conforms to regulation of the General Commercial Zone and all other general provisions or regulations of By-law 1999-52, as amended, from time to time.
4. This By-law shall take effect from the date of passage by Council and shall come into force in accordance with Section 34 of the Planning Act, R.S.O. 1990.

Read a first, second and third time and finally passed this 16th day of September, 2004.

"Wayne Hurst"

"David Mailloux"

\_\_\_\_\_  
Mayor

\_\_\_\_\_  
Clerk

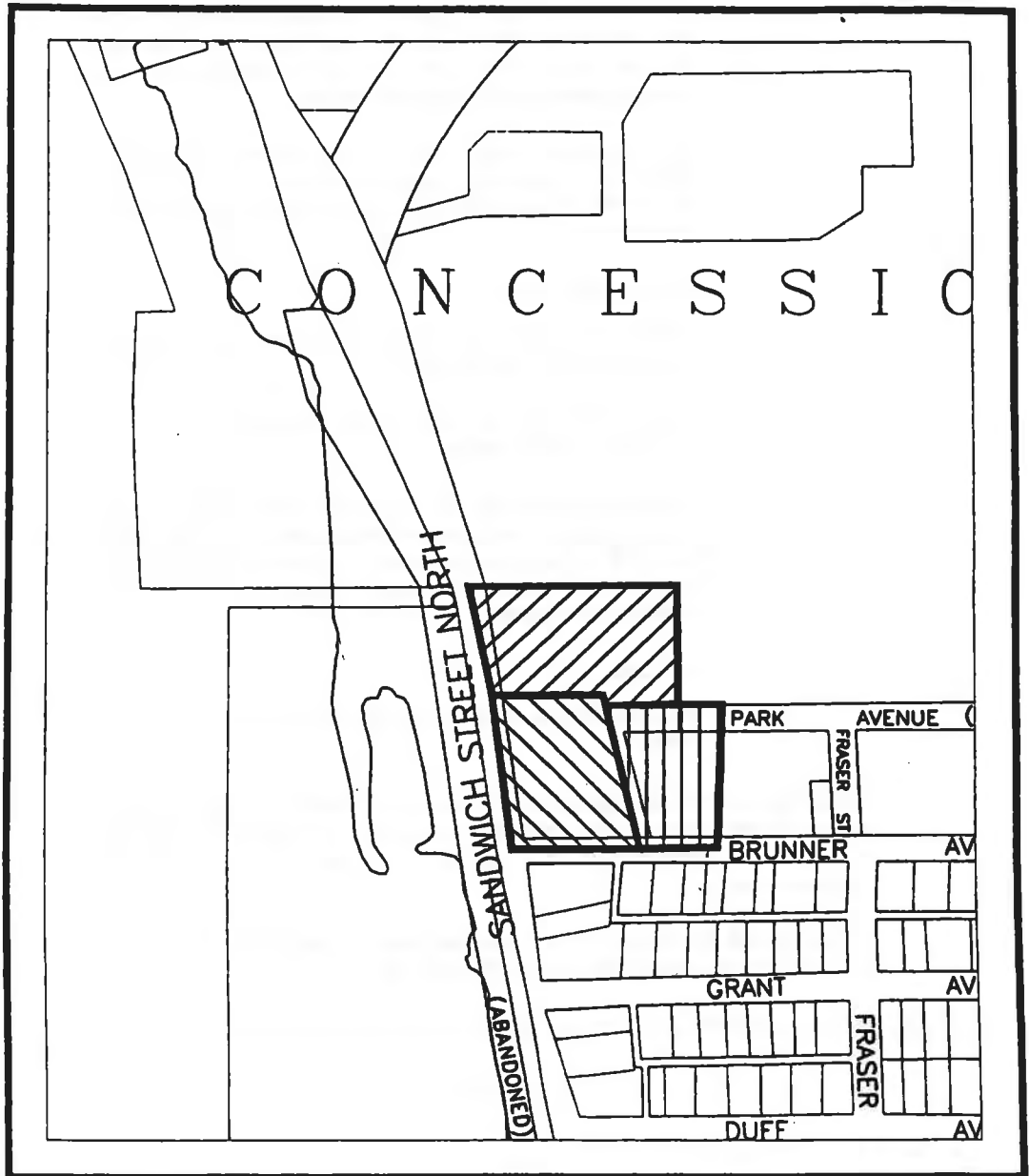
# TOWN OF AMHERSTBURG

SCHEDULE "A" TO BY-LAW No. 2004-80  
A BY-LAW TO AMEND BY-LAW No. 1999-52,

PASSED THIS 16TH DAY OF SEPTEMBER, 2004

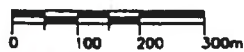
\_\_\_\_\_  
MAYOR




\_\_\_\_\_  
CLERK



KEY MAP No. 28

SCALE



-  ZONE CHANGE FROM HI TO CG-5
-  ZONE CHANGE FROM LI TO CG-5
-  ZONE CHANGE FROM LI-2 TO CG-5

**MOUSSEAU DELUCA**  
**McPHERSON PRINCE** LLP  
BARRISTERS & SOLICITORS

LEON Z. MCPHERSON, Q.C. (1934-1989)  
WALTER H. PRINCE, LL.D., Q.C. (1955-2005)  
THOMAS R. PORTER, B.A., LL.B.  
ILIAS KIRITSIS, LL.B., J.D.  
JEFFREY W. NANSON, B.Sc.(HON.), LL.B.  
ZUZANA (SUE) SZASZ, B.A.(HON.), J.D.  
ZACHARY J. BATTISTON B.A. (HON.), J.D.

MAX N. MOUSSEAU, Q.C. (1949-1988)  
ARMANDO F. DELUCA, O.ONT., Q.C. (1965-2011)  
RICHARD LEE POLLOCK, B.P.A., LL.B.  
JOSEPH R. DE LUCA, B.A.(HON), LL.B.  
JENNIFER SIMPSON ROOKE, B.A.(HON.), LL.B.  
AMANDA P. TUBBS, B.A. (HON), J.D.

January 18, 2022

By email: [fgarardo@amherstburg.ca](mailto:fgarardo@amherstburg.ca)

Frank Garardo  
Manager of Planning Services  
Libro Centre  
3295 Meloche Road  
Amherstburg, ON N9V 2Y8

Dear Mr. Garardo,

**RE: OPA # 6 - OMB Decision**

I acknowledge receipt and thank you for your email of January 13 and confirm our previous brief telephone discussion regarding this particular matter. You have asked that I review the OMB decision in this matter and more particularly, the Memorandum of Settlement between the parties that is dated May 30, 2006 attached to such decision.

The Memorandum of Settlement requires that the Town of Amherstburg adopt Official Plan Amendment No. 6 as indicated therein and further adopt new restrictions in Section 3.4.5 Special Policy Area as created by such Official Plan Amendment No. 6. The Memorandum of Settlement does not contain any further limiting language or requirements associated with dealing with the property in the future. There are no specific notification requirements in the Memorandum that would require any party to provide notice to another party in the event the subject property is dealt with in the future.

The lack of any specific language or requirements associated with the future control or restrictions in dealing with the subject property implies that outside of the parties' compliance obligations under the Memorandum of Settlement there are no further limitations or restriction associated with the future of the property.

As long as the Town has fully has adopted Official Plan Amendment No. 6 and Bylaw No. 2004-80 as required in the Memorandum of Settlement, the Town has complied in full with the requirements of the Memorandum of Settlement.

The Town cannot control if any future owner of this property wishes to make an application for a new zoning amendment and there does not seem to be any further notification requirements in the Memorandum of Settlement that would require the Town to provide special notification to any of the parties in the Memorandum in such event.

The Town must comply with all of its processes and procedures as it would with any new zoning amendment application and as you have indicated that Honeywell continues to be the abutting property owner, they would receive notification of any such application and could object

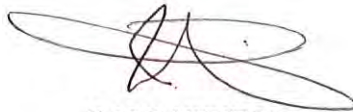


to the granting of the relief sought by the property owner. All applicable planning principles must continue to be applied.

Failure by the Town to accept a zoning amendment application without proper justification may expose the Town to additional risk by the property owner. For these reasons, I believe the Town would not be precluded from proceeding with a new zoning amendment application and the abutting property owners may raise any objections during the application process as they will be notified of such application.

I trust the foregoing answers your question. However, should you wish to discuss further, please do not hesitate to contact me at your convenience.

Yours truly,

A handwritten signature in black ink, consisting of several overlapping loops and a central vertical stroke, positioned above the printed name.

**ILIAS KIRITSIS**

IK;rg



## Summary of Correspondence Received from Town departments on Zoning By-law Amendment Application

Below is a summary of the comments received by the Planning Services Division on Zoning By-law Amendment file ZBA/05/22.

### Infrastructure Services Department:

ZBA-05-22 - It is the expectation that future development of these properties will be subject to the Site Plan Control process and it will be at that time that Infrastructure Services will provide comments regarding site servicing, right-of-way issues, drainage, storm water management, etc.

### Windsor Police Services:

The Windsor Police Service has no objections to the residential development proposed for the subject lands on Sandwich Street North near Brunner Avenue. The conceptual site plan for this development, inclusive of both the initial phase involving the two multi-residential buildings and the plan of subdivision phase to follow later, reveals a design that will provide for effective emergency police incident response and general police patrolling capability.

For comparison, the applicant has undertaken a similar development within the City of Windsor in recent years, the outcome from which is a high quality residential property that possesses numerous features to ensure public safety and security (such as excellent site lighting, unobstructed sight lines, good vehicular and pedestrian flow on the site, target hardening measures for the building, etc.). The same outcome would be anticipated for this project.

To ensure all detailed facets of public safety and security get addressed for the development, we will provide more site-specific remarks during the site plan review phase for the project. This will include examining elements such as safe vehicular access and maneuverability, site lighting, etc.



## Summary of Correspondence Received from Agencies on Zoning By-law Amendment Application

Below is a summary of the comments received by the Planning Services Division on Zoning By-law Amendment file ZBA/05/22.

### Canada Post:

The developer will be advised of Canada Post requirements as far as mail delivery is concerned for this type of proposed development during the site plan control process.

### County of Essex:

Please be advised that the County of Essex has reviewed the aforementioned application and the comments provided are engineering related only. This application has not been reviewed from a planning perspective. This road was formerly King's Highway 18 until it was downloaded to the County of Essex. Therefore, setback and entrance requirements will be as per MTO corridor control procedures.

Subject properties front a Connecting Link, the County of Essex request to be included in future discussions related to future development on subject properties.

### Essex Power Corporation:

I have reviewed the proposal and Essex Powerlines Corporation has no concerns.

### Essex Region Conservation Authority:

The following is provided as a result of our review of Zoning By-Law Amendment ZBA-05-22. This rezoning application affects approximately 2.5 hectares of land municipally known as the land 225 and 255 Sandwich Street North. The property is vacant land, and is located on the northeast corner of Sandwich Street North and Brunner Avenue. This rezoning, if approved, will amend the existing zoning by-law to apply a new site specific Commercial General Zone to this property, to allow two new multi-unit apartment buildings with a maximum building height of six storeys, and a maximum of 230 new residential apartment dwelling units in total.

## **DELEGATED RESPONSIBILITY TO REPRESENT THE PROVINCIAL INTEREST IN NATURAL HAZARDS AND REGULATORY RESPONSIBILITIES ASSOCIATED WITH THE CONSERVATION AUTHORITIES ACT**

The following comments reflect our role as representing the provincial interest in natural hazards as outlined by Section 3.1 of the Provincial Policy Statement of the *Planning Act* as well as our regulatory role as defined by Section 28 of the *Conservation Authorities Act*.

The above noted lands are subject to our Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation under the *Conservation Authorities Act* (Ontario Regulation No. 158/06). The parcel falls within a regulated area. The property owner will be required to obtain a Permit and/or Clearance from the Essex Region Conservation Authority prior to any future construction or site alteration or other activities affected by Section 28 of the *Conservation Authorities Act*.

The municipal drain typically has an unregistered working space, the municipality has the right to use to maintain or repair the drain. In addition, specific building setbacks from a municipal drain are applicable. Please contact your local municipality's drainage superintendent for more information.

## **RISK MANAGEMENT AND SOURCE PROTECTION PLAN**

The subject property may lie wholly or partially within the Event Based Area (EBA) of the Essex Region Source Protection Plan, which came into effect October 1, 2015. The Source Protection Plan was developed to provide measures to protect Essex Region's municipal drinking water sources. As a result of these policies, new projects in these areas may require approval by the Essex Region Risk Management Official (RMO) to ensure that appropriate actions are taken to mitigate any potential drinking water threats. Should your proposal require the installation of fuel storage on the site, please contact the RMO to ensure the handling and storage of fuel will not pose a significant risk to local sources of municipal drinking water. The Essex Region's Risk Management Official can be reached by email at [riskmanagement@erca.org](mailto:riskmanagement@erca.org) or 519-776-5209 ext 214. If a Risk Management Plan has previously been negotiated on this property, it will be the responsibility of the new owner to contact the Essex Region Risk Management Official to establish an updated Risk Management Plan. For any questions regarding Source Water Protection and the applicable source protection plan policies that may apply to the site, please contact the Essex Region Risk Management Official.

## **WATERSHED BASED RESOURCE MANAGEMENT AGENCY**

The following comments are provided in an advisory capacity as a public commenting body on matters related to watershed management.



### **SECTION 1.6.6.7 Stormwater Management (PPS, 2020)**

Our office has reviewed the proposal and has no concerns relating to stormwater management, with regard to the re-zoning / amendment application.

### **PLANNING ADVISORY SERVICE TO PLANNING AUTHORITIES - NATURAL HERITAGE POLICIES OF THE PPS, 2020**

The following comments are provided from our perspective as an advisory service provider to the Planning Authority on matters related to natural heritage and natural heritage systems as outlined in Section 2.1 of the Provincial Policy Statement of the *Planning Act*. The comments in this section do not necessarily represent the provincial position and are advisory in nature for the consideration of the Planning Authority.

Our information indicates that the subject parcel is likely to support fish habitat. As per Section 2.1.6 of the PPS, 2020 – “Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.” Inquiries regarding the applicability of fish habitat to the property should be made to the federal Fisheries and Oceans Canada website: [www.dfo-mpo.gc.ca/pnw-ppe/indexeng.html](http://www.dfo-mpo.gc.ca/pnw-ppe/indexeng.html).

The subject property is not within or adjacent to any natural heritage feature that may meet the criteria for significance as defined by the PPS. Based on our review, we have no objection to the application with respect to the natural heritage policies of the PPS.

### **CONSIDERATIONS FOR FUTURE DEVELOPMENT**

ERCA has concern for the potential impacts of stormwater runoff from this area, as a result of any future redevelopment on these sites (*unknown development proposals at this time*) and may be asking the owner(s)/developer(s) to address the stormwater management (quantity and quality) issues through the permitting and/or any future municipal planning process (i.e. site plan control or plan of subdivision or condominium etc.).

It should also be noted that any proposed future development on these parcels would be subject to setback restrictions from top of bank of the applicable watercourse(s) on the subject lots. The setback is determined from a site specific analysis. The current water course through the site is a “private drain”. It's original intent was to drain General Chemical flows. It has no legal standing (*need to confirm a legal outlet for these sites*).

### **FINAL RECOMMENDATION**

With the review of background information and aerial photograph, ERCA advises that this application may be premature, the applicant must confirm legal outlet for these sites.

It is to be noted, that the site should be kept in a mowed and manicured state to prevent natural succession, otherwise an EIA may be required.

The property owner will be required to obtain a Permit and/or Clearance from the Essex Region Conservation Authority prior to any future construction or site alteration or other activities affected by  
Section 28 of the *Conservation Authorities Act*.

# RIVERVIEW APARTMENTS AMHERSTBURG

FOR PIROLI CONSTRUCTION (1603941 ONTARIO LTD.)



DECEMBER 22, 2021

PREPARED BY:

STOREY SAMWAYS PLANNING LTD.

CHATHAM, ONTARIO

[www.storeysamways.ca](http://www.storeysamways.ca)

SSPL STOREY SAMWAYS  
PLANNING LTD.

## **EXECUTIVE SUMMARY**

In the fall of 2021 Piroli Construction purchased a flag-shaped parcel of about 6.4 ha (16 ac.) in the Town of Amherstburg, located at the northeast intersection of Sandwich Street North (County Road 20) and Brunner Avenue, with plans to develop two, six-storey apartment buildings of 115 units each on the portion of lands fronting on Sandwich Street North, about 2.5 ha (6 ac.), and a residential subdivision on a 3.9 ha (9.6 ac.) area behind the towers and across from an existing residential subdivision on the south side of Brunner Avenue.

Due to different circumstances regarding the Provincial Policy Statement (PPS), Official Plan (OP) and zoning matters, it was decided to proceed zoning and site plan applications with the two towers as Phases 1 and 2 immediately, and the residential subdivision, Phase 3, at a later date.

The two towers, to be known as Riverview Apartments, were on lands subject to a previous contentious application in 2004 for a substantial commercial development, the lands having been part of a previous heavy industrial enterprise. The parties included – the Town, the developer, and Honeywell – were able to reach a settlement which permitted the partial approval of the project, but in which the Town achieved its main goals of protecting the planned function of the downtown commercial core; ensuring no adverse impact on the neighbouring residential areas; and promotion of the site as a “gateway” to Amherstburg. This was accomplished through restriction of the permitted commercial uses, special setback restrictions and specific policies regarding the use of site plan control.

Review of the PPS and Town OP in a Planning Justification Report (PJR) confirmed the proposed development was a permitted stand-alone use in the General Commercial designation and would implement important policies regarding intensification, redevelopment of a brownfield site, and assist in meeting a demonstrated housing demand. Further, it was concluded by the PJR that the proposed project would not compromise the original 2006 goals of the Town for the site and could possibly trigger further desirable redevelopment / intensification on adjacent brownfield lands.

A number of background studies commissioned by Piroli Construction support the project as well.

For these reasons, it is the opinion of the PJR author that the Riverview Apartments project represents good planning, and the zoning and site plan applications should be approved.



## Table of Contents

1.0	INTRODUCTION .....	1
1.1	Overview .....	1
1.2	Background.....	1
1.3	Development Proposal.....	2
1.4	Phasing.....	2
1.5	Requested Approvals.....	2
1.6	Consultation / Document Review.....	3
2.0	ANALYSIS.....	3
2.1	Overview .....	3
2.2	Provincial Policy Statement.....	4
2.3	County Official Plan (COP) .....	8
2.4	Amherstburg Official Plan .....	9
2.5	Zoning .....	14
2.5	Site Plan .....	14
3.0	COMPLETE APPLICATION.....	15
4.0	CONCLUSION.....	15
APPENDICES		

**RIVERVIEW APARTMENTS  
PROPOSED RESIDENTIAL DEVELOPMENT**

**BY**

**PIROLI CONSTRUCTION (1603941 ONTARIO LTD.)**

**1.0 INTRODUCTION**

**1.1 Overview**

Pirol Construction<sup>1</sup> recently purchased lands at the northeast corner of the intersection of Brunner Avenue and Sandwich Street North / County Road 20, as described further below, and wishes to redevelop the site for residential purposes. Based on discussion with Amherstburg administration, a Planning Justification Report (PJR) is required to support any development submission. This document shall serve this purpose.

**1.2 Background**

From a regional perspective the site is located at the northern end of the primary settlement area in the Town of Amherstburg, with frontage provided on the east side of Sandwich Street North, and as discussed later in this report, is considered a gateway to the urban community. Sandwich Street North is also part of the County Road 20 (CR 20) system which parallels the Detroit River. The land use, on either side of Sandwich Street North / CR 20 is residential with pockets of commercial within the settlement area. Please refer to Appendix A.

From a local setting perspective, the site is flag-shaped, approximately 6.4 hectares (15.8 acres), and is at the northeast corner of Brunner Avenue and Sandwich Street North. To the south, across Brunner Avenue is a neighbourhood of single detached dwellings; to the east are vacant lands proposed for medium density residential development; to the north are the former General Chemical lands, now owned by Honeywell and its subsidiary Amherstburg Land Holdings (ALH). These lands are currently being remediated as a condition of future

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<sup>1</sup> 1603941 Ontario Ltd. is a subsidiary of Pirol Construction

development. To the west, across Sandwich Street North, is the Amherstburg Yacht Club and the river. Please refer to Appendix B.

### **1.3 Development Proposal**

1603941 Ontario Ltd. (referred to as 941 throughout the remainder of this document) proposes to construct two, six-storey apartment dwellings, each with 115 dwelling units, on the lands fronting on Sandwich Street North, with a residential subdivision on lands to the east fronting on Brunner Avenue. Please refer to Appendix C.

The apartment towers land is designated General Commercial and subject to the policies of Special Policy Area 10 (SPA 10) in the Official Plan (OP), which permits the apartment towers, and zoned GC-5, General Commercial Exception Area 5, which does not permit residential units. The OP and Zoning By-law (ZBL) circumstances are discussed more thoroughly in the Analysis section below.

The residential subdivision portion is designated Heavy Industrial in the OP, which does not permit residential uses, and is zoned Future Development (FD) and Heavy Industrial (Holding) Exception Area 3 (H-7 HI-3), which also does not permit residential development. Please refer to Appendix D – OP Map Schedule B-2, and Appendix E – Zoning By-law Map Plate 28.

### **1.4 Phasing**

As noted on Appendix C, the development will be phased with Phase 1, the south tower to be constructed first, followed by the north tower, Phase 2. The planning approval circumstances for Phase 3, being the residential subdivision, are considerably different from those of Phases 1 and 2, with different Provincial Policy Statement (PPS) and OP policies to be navigated. Therefore, it is the intent of 941 to pursue the Phase 3 development in a separate application at a later date.

### **1.5 Requested Approvals**

The Planning Act approvals being sought at this time are as follows:

- Rezoning of Phases 1 and 2 to permit dwelling units (refer to Appendix F)
- Site plan approval for Phase 1 only

- Consent to sever approval with the lines of severance to divide the three parcels as shown in Appendix G

## 1.6 Consultation / Document Review

In the preparation of this report, I have relied on consultation with the following individuals:

- Rob Piroli – principal / owner of Piroli Construction and 941
- Robert Millson, solicitor and agent for 941
- Amherstburg Administration
- County Planner
- Various sub-consultants

I have also reviewed the following documents:

- 2006 Ontario Municipal Board (OMB) decision regarding OPA 6 to the previous Amherstburg OP, establishing General Commercial policies on the subject site
- 2005 & 2020 Provincial Policy Statements (PPS)
- County Official Plan (COP)
- Amherstburg Official Plan and Zoning By-law
- Documents related to OPA 1 to the Amherstburg OP
- Various background documents
- Various correspondence
- Petition of support by local residents (refer to Appendix H)

## 2.0 ANALYSIS

### 2.1 Overview

In 2004, the Town of Amherstburg received an application from 1594064 Ontario Ltd. (064) for a major commercial development on substantial lands fronting on Sandwich Street North, including the subject Phase 1 and 2 lands. The application was appealed to the OMB, case file PL041031. Eventually, a settlement was reached between the three involved parties – 064, Honeywell (owner of the lands in question), and the Town.

The settlement was implemented through OPA 6 to the Town OP at the time, and site-specific zoning by-law 2004-80. OPA 6 has been carried through as SPA 10 in



the present OP as noted earlier in this report, and the by-law as CG-5, remains in effect. The OMB decision approving all this came in Order 2011, issued July 14, 2006, by OMB Chair F.G. Farrell. The OMB decision is based on the evidence by the Town planner at the time, Ms. Jean Monteith, in support of the settlement and proposed OPA and ZBA.

There are several noteworthy items arising from this exercise which have impacted my opinions regarding the requirements of a complete application, consistency with the PPS and conformity with Amherstburg OP of the Piroli (941) application for two residential towers. These items are as follows:

1. The Town had three main goals to be achieved in the OPA and ZBA:
  - Protection of the planned function of the commercial downtown core
  - Reduction and adequate mitigation of any land use incompatibility impacts by the proposed use on the neighbouring residential area on Brunner Avenue
  - The recognition that this site is considered a “gateway” on the principal north / south access to the primary Amherstburg settlement area (i.e., the former pre-amalgamation Town of Amherstburg) and the requirement for special setbacks and enhanced landscaping.
2. The Board agreed with Ms. Monteith in that OPA 6 and ZBA 2004-80 were consistent with 2005 PPS. In my opinion the 2005 policies relevant to the amending documents are similar to the policies relevant in the 2020 PPS.
3. The Town was satisfied, through Ms. Monteith’s testimony, that there were “full municipal services available and no heritage or environmental issues” (P.4 – OMB Decision).

Given this background planning history of the subject site, my analysis of the development proposal, with regard to the relevant documents, follows below.

## **2.2 Provincial Policy Statement**

### *1.1 Managing and Directing Land Use to Achieve Efficient and Resilient Development and Land Use Patterns*

#### *1.1.1 Healthy, liveable and safe communities are sustained by:*

*a) promoting efficient development and land use patterns which sustain the financial well-being of the Province and municipalities over the long term;*

Comment: Riverview Apartments, as conceived, features an efficient use of existing utilities and infrastructure, requiring no major infrastructure improvements and will provide a substantial increase in municipal assessment. The “land use pattern” is a logical extension of the existing land use pattern and takes advantage of a recognized local aesthetic attribute – the scenic Detroit River.

*b) accommodating an appropriate affordable and market-based range and mix of residential types (including single-detached, additional residential units, multi-unit housing, affordable housing and housing for older persons)...*

Comment: 941 has commissioned a comprehensive market feasibility study which has concluded there is significant market demand for this type of project, particularly at this site. The Executive Summary is included as Appendix I.

*c) avoiding development and land use patterns which may cause environmental or public health and safety concerns;*

Comment: based on background studies undertaken with the 2004 application and subsequent work commissioned by 941, any potential environmental or health issues raised by the previous use have been investigated and the findings have not disclosed any concern.

*e) promoting the integration of land use planning, growth management, ..., intensification and infrastructure planning to achieve cost-effective development patterns, ...;*

Comment: the proposal is a good example of intensification as defined by the PPS. Please refer to Appendix J.

*1.1.3.3 Planning authorities shall identify appropriate locations..., accommodating a significant supply and range of housing options through intensification and redevelopment where this can be accommodated taking into account existing building stock or areas,*

*including brownfield sites, and the availability of suitable existing or planned infrastructure and public service facilities required to accommodate projected needs.*

Comment: besides being a good example of intensification as noted above, the site is also clearly a brownfield site capable of redevelopment. Please refer to Appendix J for the PPS definitions of brownfield and redevelopment.

### *1.2.6 Land Use Compatibility*

*1.2.6.1 Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.*

Comment: lands to the north and northeast of the subject site are designated Heavy Industrial in the OP and owned by Honeywell or its subsidiary, Amherstburg Land Holdings (ALH). Please refer to Map Schedule B-2.

The OP policies that apply to these lands are found in OPA 1 and implemented through the H1-3 zoning regulations and subject to the h-7 holding provision. These are the former General Chemical lands which ceased operation in 2001, and declared bankruptcy in 2005. ALH acquired these lands in 2011. OPA 1 and the implementing zoning by-law basically were undertaken to provide the necessary conditions to be fulfilled before redevelopment could occur.

The main takeaways from the present situation are as follows:

1. The OPA and ZBL, as well as an agreement with the Ministry of the Environment, Conservation and Parks (MECP), has established that no redevelopment could occur on the Honeywell / ALH lands until all existing buildings had been demolished (completed in 2018) and the site had been remediated (status unknown at time of writing).

2. Should an industrial use ensue following remediation, a minimum setback of 50 m will apply where subject to an adjacent non-industrial use, which presumably includes residential, such as Riverview Apartments. Although not explicit, there is a strong implication that non-industrial development adjacent to the Honeywell lands can proceed and the burden to meet the MECP D-6 Guidelines, Compatibility Between Industrial Facilities and Sensitive Land Uses, will fall on any future industrial development proposed on the Honeywell lands, not the development proposed on adjacent lands prior to the site remediation being completed.
3. The site is being actively marketed by Honeywell through Colliers, a commercial real estate firm.

Based on the foregoing my conclusion is that the burden to meet the D-6 Guidelines separation distance between industrial uses and sensitive land uses will fall on any future industrial development on the Honeywell / AHL lands, not the Riverview Apartments proposal. Therefore, the requirements of PPS 1.2.6.1 are being met through the policies of OPA 1 and the implementing zoning by-law, which in effect, will require the D-6 Guidelines to be met by any future industrial use on the Honeywell lands.

#### *1.4 Housing*

*1.4.3 Planning authorities shall provide for an appropriate range and mix of housing options and densities to meet projected market-based and affordable housing needs of current and future residents of the regional market area by:*

*b) permitting and facilitating:*

- 2. all types of residential intensification, including additional residential units, and redevelopment in accordance with policy 1.1.3.3;*

Comment: as discussed in the commentary associated above with PPS 1.1.3.3, the proposed development is a form of intensification and redevelopment. As such, permitting and facilitating is an important way for the Town to provide for an appropriate range of housing options to meet



projected market needs, as predicted in the SVN market feasibility study, Appendix G.

In conclusion, it is my opinion that the Riverview Apartments proposal is consistent with the PPS in that:

- It is an efficient use of land with little to no infrastructure improvements required
- It will add substantial assessment to the municipal tax base
- It will implement important policies regarding intensification and redevelopment on a brownfield site
- It will assist the Town in provision for a housing option for which there is a demonstrated projected market
- Planning controls presently in place on neighbouring former industrial lands in need of remediation will reduce, mitigate or eliminate a potential land use compatibility issue between a future industrial land use and sensitive land use (Riverview Apartments)

### **2.3 County Official Plan (COP)**

Map Schedule A2 – Settlement Structure Plan confirms that the subject lands lie within a primary settlement area, where projects like Riverview Apartments should be located.

*3.2.7 The County encourages well-planned intensification development projects in the “Settlement Areas” to encourage more efficient use of land and municipal infrastructure, renew urban areas and to facilitate economic and social benefits for the community.*

*The County also specifically encourages residential intensification and redevelopment within Primary Settlement Areas in order to increase their vitality, offer a range of housing choices, efficiently use land and optimize the use of infrastructure and public service facilities.*

*The County requires that 15 percent of all new residential development within each local municipality occur by way of residential intensification and redevelopment. Implementation and annual reporting to the County on meeting this target will be the responsibility of the local municipalities.*

Comment: the COP, similar to the PPS, encourages intensification and redevelopment for similar reasons. Also, the subject proposal will provide a substantial contribution to the 15% requirement of the Town for all new residential development to be provided by way of intensification / redevelopment. It should be noted that the definitions for intensification and redevelopment are the same as those found in the PPS.

Therefore, in my opinion, the project conforms to the COP.

## 2.4 Amherstburg Official Plan

The subject lands are designated General Commercial and there are several policies under this designation which apply to the proposed development.

### *4.4.2 General Commercial Areas*

*Multi-family residential development will be considered as an alternative form of land use on lands designated General Commercial. (p.63)*

Comment: although designated General Commercial, clearly the above policy contemplates multi-family residential, such as Riverview Apartments, as a stand-alone use.

*Hotels and multi-family residential development within the Sandwich Street corridor (County Road 20) of the General Commercial designation may have heights up to eight storeys. (p.64)*

Comment: the proposed towers lie within the Sandwich Street corridor and, being six storeys in height, conform to this policy.

### *4.4.3 Commercial Special Policy Areas*

4.4.3(2) speaks to special policies which "will apply to *commercial development* [my emphasis] established along Sandwich Street between Texas Road and Fort Street". This policy proposes special requirements for landscaping and setback regulations, to be applied through site plan control and zoning. This policy recognizes

the potential role of lands within the Sandwich Street corridor to act as a "gateway".

Comment: although the policy is proposed to apply to commercial uses, clearly the intent to create a "gateway" development at the subject site, probably the most suitable and appropriate location, can be readily accomplished with a residential use such as the one proposed.

*4.4.3(5) For lands designated as Special Policy Area 10 on Schedules A and B, Council may restrict the land uses permitted under the Commercial General zoning to prohibit any land use that would involve overnight accommodation, grocery stores, supermarkets, automotive, tire and battery stores and the size of the permitted retail uses. ...*

Comment: the first paragraph of this policy reflects the intent of OPA 6 to the previous OP to protect the planned commercial function of the downtown core. The first sentence of this policy is significant for several reasons:

- With the use of the word "may", rather than the use of the word "shall", the restriction of land uses by Council through zoning is considered to be discretionary rather than mandatory. In other words, the consideration of an alternative land use does not necessarily require an amendment to this plan.
- The list of prohibited uses does not include residential uses. The term "overnight accommodation" is not defined in the OP or the Zoning By-law (ZBL), but one most commonly recognized is as follows:

*Overnight accommodation means any short term living or sleeping place in which someone lives or stays for a period of time not to exceed thirty (30) consecutive days.*

In other words, the term “overnight accommodation” does not include permanent residential dwellings such as that proposed by Riverview Apartments.

Given the policy provisions in 4.4.2 discussed above, which permit a stand-alone apartment building in the Sandwich Street corridor, it is my conclusion that the SPA 10 policies which apply to the subject lands do not preclude the development of residential apartment towers, and the proposed land use is in conformity with the Official Plan.

*4.4.3(5) ... Prior to the finalization of any site plan for the development of these lands, the Town will need to have a drainage study undertaken by a qualified hydrologist demonstrating that (a) there will be no impact on the drainage of adjoining properties, including Honeywell ASCa Inc., (b) there will be no runoff from the proposal onto adjoining properties, (c) the soil composition/profile and geology of the site will allow for the required accumulation of water on the site. Site plan approval will also require municipal clearance after consultation with the relevant agencies, of archaeological reports, environmental reports and traffic reports.*

Comment: as discussed later in this report the required “drainage study” is provided as part of the complete application requirement. The additional reports required for site plan approval are also discussed later in this report.

## 6.6 Housing Policies

### 6.6.2 Housing Objectives

*(1) To encourage a broad range of housing types which are suitable for the different age groups, lifestyles, and household structure of existing and future residents.*

Comment: The Market Feasibility Study (Appendix I) suggests that Riverview Apartments will represent a housing type for which there is significant demand.



### 6.6.3 Housing Supply

- (1) In order to support the creation of a livable, sustainable community and in keeping with the County of Essex Affordable Housing Action Plan the Town of Amherstburg wishes to ensure that there is an available mix of housing types for all household types, income levels and for persons with special needs. In approving development proposals, the housing needs, both type and tenure, shall be considered for low, medium and high income groups and all age related housing needs and all lifestyle needs of Amherstburg residents.*

Comment: The proposed project will address the wish of the Town to provide a broad range of housing types serving a broad range of income levels.

### 6.7 Planning Impact Analysis

- (1) Compatibility of proposed uses with surrounding land uses, and the likely impact of the proposed development on present and future land uses in the area on the character and stability of the surrounding neighbourhood;*

Comment: the proposal is compatible with existing surrounding land uses and should not impact the stability of the Brunner Avenue neighbourhood. The separation distances in the D-6 Guidelines noted earlier will ensure the impact of potential future industrial uses can be mitigated.

- (2) The height, location and spacing of any buildings in the proposed development, and any potential impacts on surrounding land uses;*

Comment: the height and location of the towers should not impact the neighbourhood residential use.

- (3) The extent to which the proposed development provides for the retention of any desirable vegetation or natural features that contributes to the visual character of the surrounding area;*

Comment: there is little in the way of natural vegetation.

- (4) *The proximity of any proposal for medium density residential development to public open space and recreational facilities, community facilities, municipal services, transit services, and the adequacy of these facilities and services to accommodate the development proposed;*

Comment: recognizing the site will be car-dependent, it is a key finding of the Market Feasibility Study (Appendix I) that the various amenities and facilities necessary to support a residential development at this location are within a reasonable distance.

- (5) *The size and shape of the parcel of land on which a proposed development is to be located, and the ability of the site to accommodate the intensity of the proposed use;*

Comment: the site is of sufficient size and shape to easily accommodate the building footprint and parking areas to the rear (out of sight from Sandwich Street North) and extensive landscaping.

- (6) *The location of vehicular access points and the likely impact of traffic generated by the proposal on streets, on pedestrian and vehicular safety, including impact on the primary to secondary evacuation routes identified in the Amherstburg Emergency Plan, and on surrounding properties;*

Comment: a Traffic Impact Study has been prepared addressing these items. The summary and conclusions are attached as Appendix K.

- (7) *The exterior design and layout of buildings and the integration of these uses with present and future land uses in the area;*  
 (8) *The location of lighting and screening, and the adequacy of parking areas;*  
 (9) *The provisions for landscaping and fencing;*  
 (10) *The location of outside storage, garbage and loading facilities;*  
 (11) *Conformity with the provisions of the Site Plan Control By-Law;*

(12) *The design and location of signs, and the compliance of signs with the Sign Control By-Law;*

(13) *Measures planned by the applicant to mitigate any adverse impacts on surrounding land uses and streets which have been identified as part of the Planning Impact Analysis.*

Comment: (7)-(13) are addressed through the normal site plan review process.

The parkland cash-in-lieu polices found in clauses 2.10.3 and 4.8.5, and should be applied to the subject application.

In conclusion, it is my opinion that the Riverview Apartment project is in conformity with basic General Commercial policies permitting a stand-alone apartment tower, with special policies regarding access, setbacks and landscaping being addressed through the site plan approvals process.

## 2.5 Zoning

As noted, the subject site is zoned GC-5, a General Commercial exception zone. The permitted uses, and regulations in this zone reflect the proposal for a department store and associated retail uses back in 2004. "Dwelling units" are specifically not permitted. It is proposed therefore that the zoning by-law be amended as follows:

- The site-specific GC-5 classification be retained and be applied to both Phases 1 and 2
- The permitted uses be amended to include Dwelling Units – Apartment Building (a defined use in the zoning by-law)
- All existing GC-5 performance standard regulations be retained with the exception of building height which is to be revised to 20 metres
- For the purposes of the by-law, the front lot line for those lands zoned GC-5 shall be along Sandwich Street North

## 2.6 Site Plan

As noted, site plan approval is being sought for Phase 1 only at this time and an application is being submitted simultaneously with a zoning application. In summary the SPA application includes / notes the following:

- As noted on the zoning matrix, all setbacks, landscaping, parking meet or exceed existing policies and by-law regulations
- Access is in accordance with the OP policies specific to this site and has been reviewed in the TIS, Appendix K
- Functional servicing reports and drawings prepared by Baird AE are provided

### 3.0 COMPLETE APPLICATION

In my opinion, a complete application as understood under the Planning Act should consist of the following:

- A completed application form and application fee
- A Planning Justification Report, the purpose of the document to review and navigate how this proposal should be considered under the Provincial Policy Statement, County Official Plan and Amherstburg Official Plan
- Traffic Impact Study – submitted with this PJR
- Functional Engineering Report – submitted as part of the Site Plan Application

It should be noted that a Species-at-Risk Screening, Archaeological Assessment, and Phase 1 environmental site assessment have also been completed and will be submitted separately as a courtesy, since these covered matters that had been dealt with by the 2004 application process.

### 4.0 CONCLUSION

In section 2 of this report, I reviewed the Riverview Apartments proposal within the context of the PPS, County OP and Amherstburg OP, and concluded in each case that this development was implementing important policies regarding redevelopment of brownfield lands and meeting a demonstrated type of housing demand. However, there are other considerations as well.

First, in Section 2.1, Overview, I described the Town's main goals regarding implementation of the OPA and ZBA proposed in 2006, namely, protection of the planned function of the downtown commercial core; reduction and mitigation of any land use compatibility impacts on the neighbouring residential areas; and recognition of the subject site having a "gateway" function to the urban

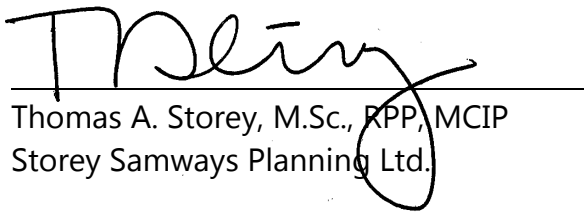
community. The proposed 941 development implements and enhances each of these goals.

Second, it has been 15 years since the OMB approved the GC-5 amending by-law permitting a wide range of commercial uses, with no major infrastructure improvements required which could otherwise act as an impediment to development, on this strategically important property. Nothing has happened.

However, based on my experience, it could well be that the successful redevelopment of the subject site could be the trigger for further redevelopment on the adjacent Honeywell lands, to the benefit of the Municipality and the community as a whole. Such a scenario is the vision of the PPS policies promoting the re-use of brownfield areas.

Based on the foregoing, therefore it is my opinion that the Riverview Apartments applications for rezoning and site plan represent good planning and should be approved.

This document prepared by:



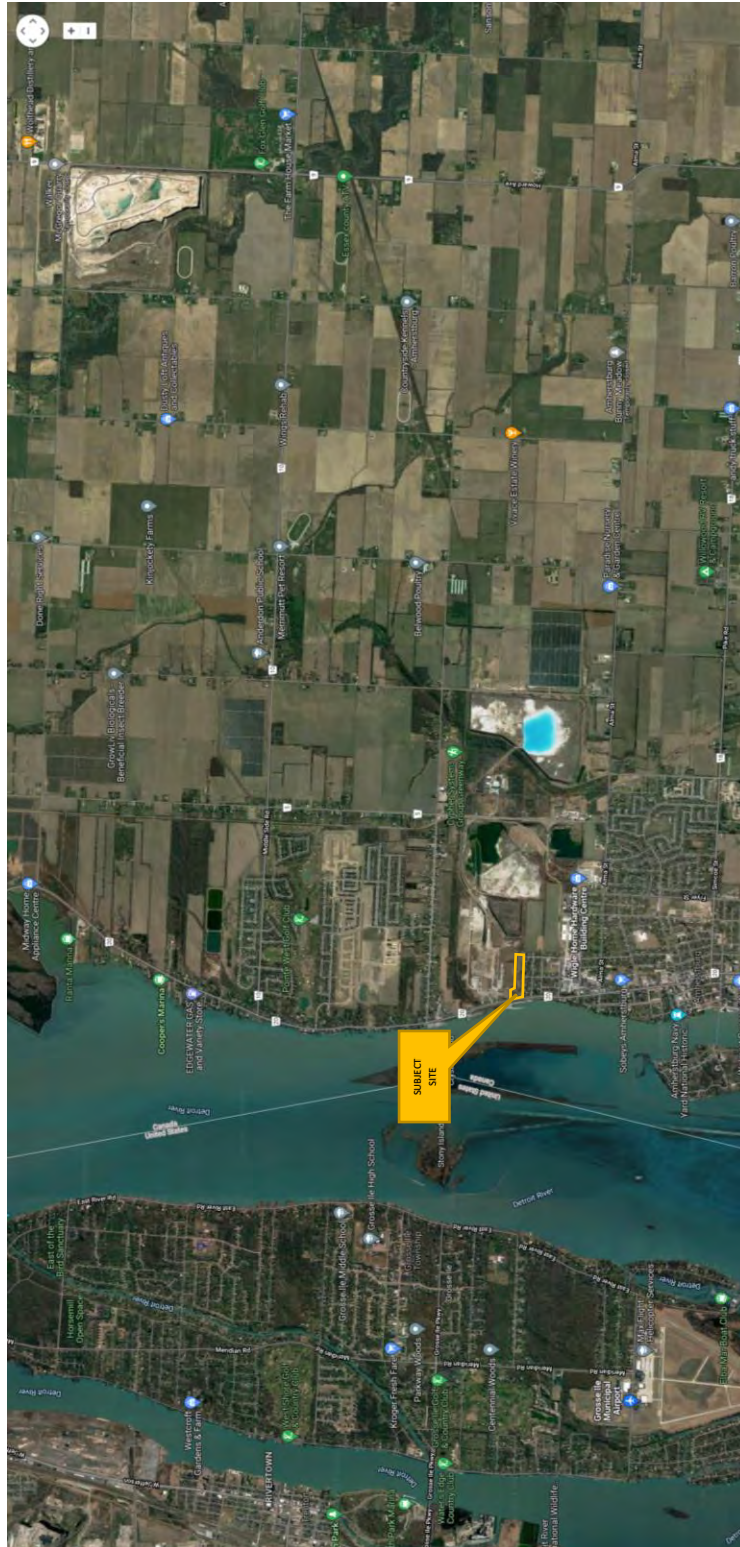
Thomas A. Storey, M.Sc., RPP, MCIP  
Storey Samways Planning Ltd.

Attachments:

- Appendix A – Regional Perspective
- Appendix B – Local Perspective
- Appendix C – Overall Site Conceptual Layout
- Appendix D – OP Map Schedule B-2
- Appendix E – Zoning By-law Map Plate 28
- Appendix F – Conceptual Site Plan, Phase 1 & 2
- Appendix G – Reference Plan
- Appendix H – Petition of Support
- Appendix I – Executive Summary, Market Feasibility Study
- Appendix J – PPS definitions: Intensification, Redevelopment & Brownfield Sites
- Appendix K – Summary and Conclusions, Traffic Impact Study



### Appendix A – Regional Perspective



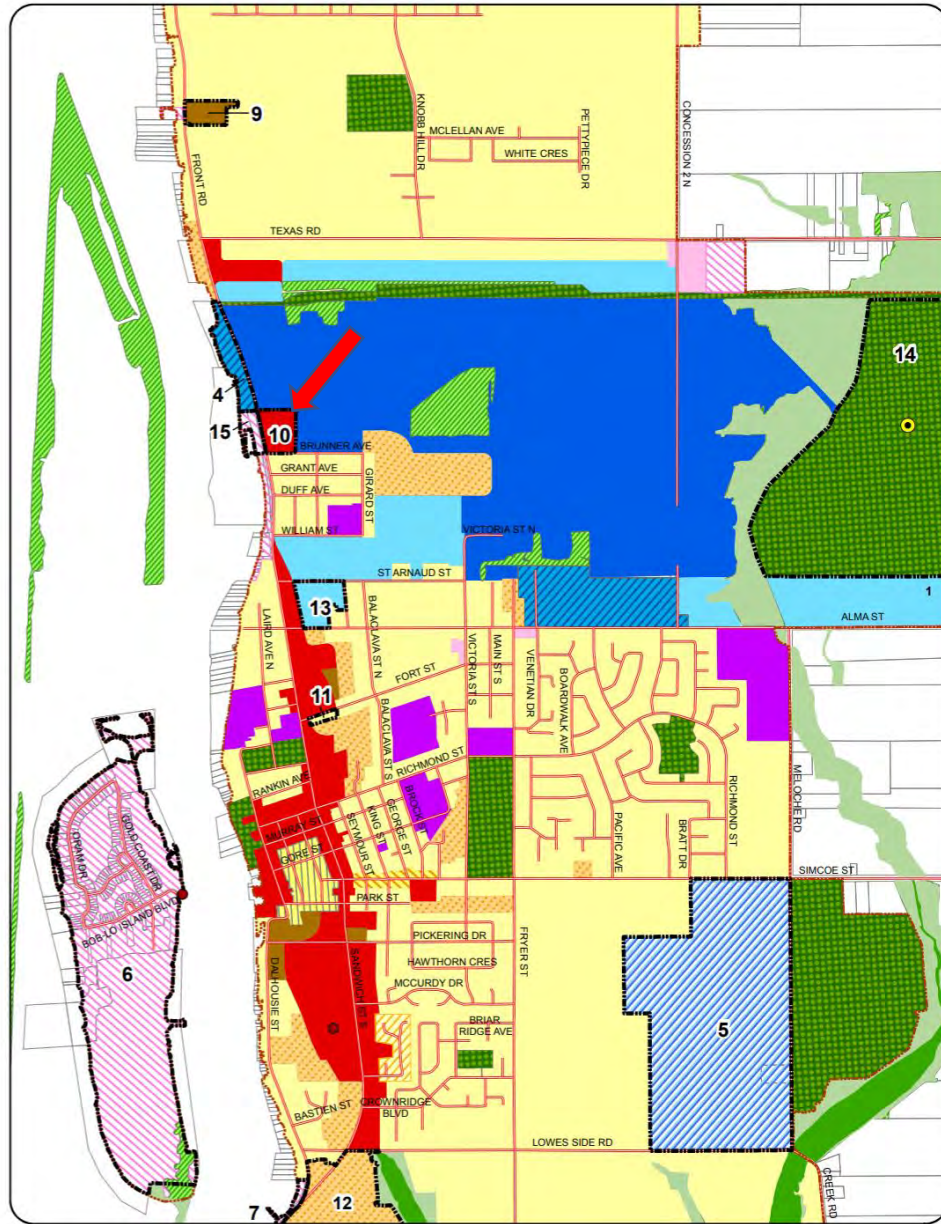




## Appendix C – Overall Site Conceptual Layout



### Appendix D – OP Map Schedule B-2



**TOWN OF AMHERSTBURG  
OFFICIAL PLAN**  
**SCHEDULE "B-2"**  
**LAND USE PLAN**



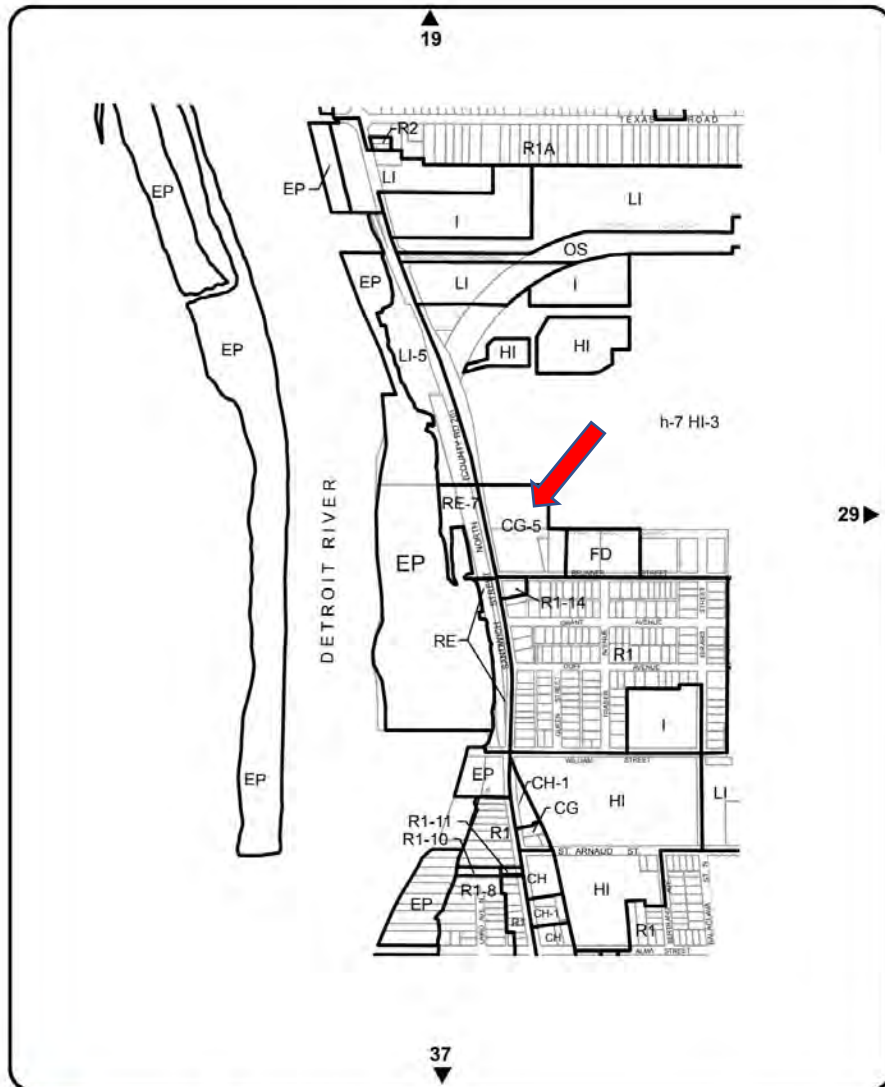
**Legend**

- Agricultural
- Settlement Area Boundary
- Provincially Significant Wetlands
- Natural Environment
- Woodlots
- Low Density Residential
- High Density Residential
- Medium Density Residential
- Office Residential
- Heritage Residential
- Modular Home Residential
- Neighbourhood Commercial
- General Commercial
- Special Industrial
- Light Industrial
- Heavy Industrial
- Extractive Industrial
- Institutional
- Recreational Development
- Open Space
- Special Policy
- Closed Landfill Site
- Open Landfill Site
- Sewage Treatment Facility

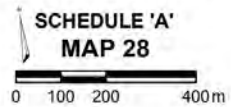
Prepared by Storey Samways Planning. Consistent with the Town of Amherstburg, The County of Essex, The Essex Region Conservation Authority and the Ministry of Natural Resources.



Appendix E – Zoning By-law Map Plate 28



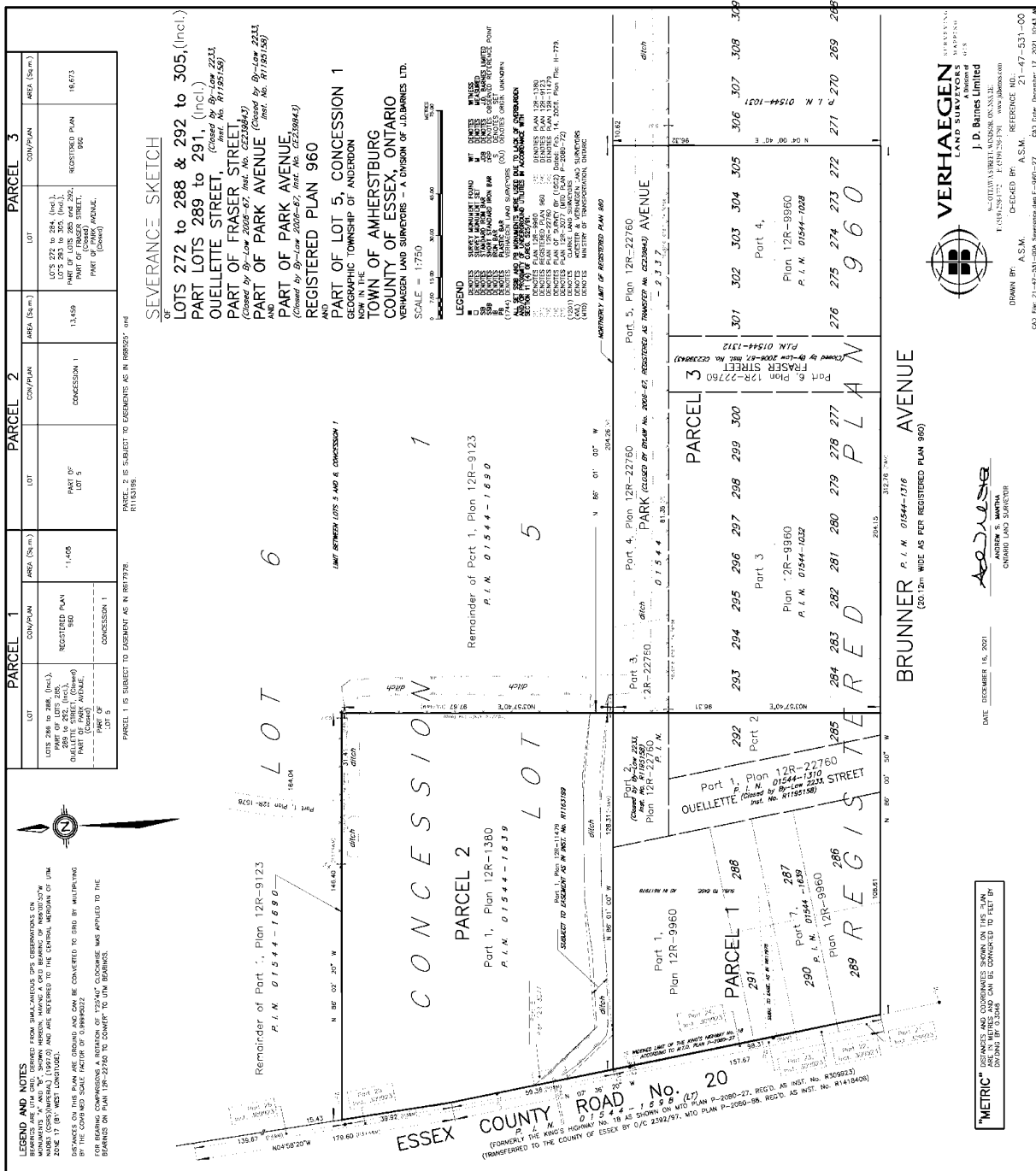
**TOWN OF AMHERSTBURG**  
ZONING BY-LAW NO. 1999-52







# Appendix G – Reference Plan



## Appendix H – Petition of Support



**PIROLI GROUP DEVELOPMENTS**  
1500 OUELLETTE AVE. #201 | 11 BROQUIOS RD.  
WINDSOR ONTARIO N0X 1K7 | LEAMINGTON ONTARIO N8H 1V7 | 519-967-8669  
WWW.PIROLIGROUP.COM

October 29<sup>th</sup>, 2021,

Dear Neighbours,

I would like to take this opportunity to introduce myself, my name is Rob Piroli and I am the owner of Piroli Group Developments. We have just purchased the eleven acres on the corner of Sandwich Street & Brunner Avenue and are very excited to say that we are proposing a residential development there. I would like to hear your thoughts on our proposal.

We are hosting a meet and great on Tuesday, November 16<sup>th</sup>, 2021 starting at 7pm where we will show you what we are proposing, and you will have the chance to ask any questions that you may have.

The meeting will be held at The Knights of Columbus in Amherstburg at 190 Richmond Street Amherstburg, Ontario, N9V 1G4. Please feel free to join us for some refreshments and great conversation. Refreshments will be provided.

Thank you,

Rob Piroli, Piroli Group Developments

rob@piroligroup.com

## PETITION

**FROM:** The Neighbours on Brunner Avenue, Amherstburg

**TO:** Councillors for the Town of Amherstburg

---

The neighbours of Brunner Avenue wish to express strong support for a proposed residential development at Brunner Avenue and Sandwich Street North (the "Development") and we request Council to consent to the required Official Plan Amendment, Zoning By-Law Amendment, Severances, and Site Plan to allow the Development to proceed.

We understand there will be two six storey apartment buildings with 120 units each and 46 single family lots.

We reviewed the renderings of the Development and we approve the layout of the buildings and the lots.

Residential uses for the Development are far preferred to commercial uses or industrial uses.

The Development will be good for our neighbourhood.

DATED AT Amherstburg, Ontario, this 16<sup>th</sup> day of November, 2021





Appendix I – Executive Summary, Market Feasibility Study



# Apartment Development Feasibility Study – Piroli Construction



**North-East Corner of Sandwich Street North & Brunner Avenue,  
Amherstburg, Ontario.**

**Prepared for:** Piroli Construction

**Dated:** October 2021



## Executive Summary

SVN Rock Advisors Inc. (the 'Consultant') conducted a feasibility study comprising of a demographic, demand, and competitive market analysis to assess the viability of developing a multi-residential development at the north-east corner of Sandwich Street North & Brunner Avenue in Amherstburg Ontario.

### North-East Corner of Sandwich Street North & Brunner Avenue, Amherstburg Ontario:

Category	Rating
Site Location	✓ Strong
Pop Growth	✓ Moderate- Strong
Age Profile	✓ Older
Household Affordability	✓ Strong
Demand	✓ Limited Supply
Competition	✓ Limited Competition
Vacancy	✓ Low-Moderate

Key Findings include:

- Site Location:** The proposed rental development is located on the north-east corner of Sandwich Street North and Brunner Avenue in Amherstburg, Ontario. Situated among a single-family subdivision to the south, the remains of an old chemical plant to the north, the Amherstburg Yacht Club and Detroit River to the west, and a vacant parcel of land to the east. The site is primarily car-dependant, as the town of Amherstburg has limited public transit. The surrounding neighbourhood offers a thorough amenity offering including a grocer (1.2km away), a pharmacy (1.1km away), restaurants (within 0.8km), financial institutions (within 1.9km), retailers and services all available within close proximity to the subject site. Along with the commercial amenities are a variety of local parks and walking trails along the Detroit River, which are likely to act as an additional rent driver during the lease-up process as many residents' value proximity to nature.
- Market segmentation:** Population growth is considered a positive metric for the success of new rental apartments since it helps indicate if there is sufficient growth to support the addition of new rental apartments in the local housing supply. Between 2020 and 2030, the population of Amherstburg is expected to increase by 1,235 residents (+5.2%). During this time period the neighbourhood surrounding the subject site is expected to increase by approximately 644 residents (+4.6%). As new developments arise, the projected population growth



will likely increase further as new residents are attracted to the community. The projected population growth within both Amherstburg and the subject site's surrounding neighbourhood indicates that the demand for housing is likely to continue to grow, creating further strain on the very limited existing stock of rental apartments. In addition, it indicates that the neighbourhood contains positive attributes, including but not limited to, strong community amenitization, and connectivity which will **enable it to attract a significant proportion of new residents.**

- **Household affordability:** Approximately 12% of households in the local neighbourhood can afford rents between \$2,500-\$3,125 per month; whereas 28% can achieve rents greater than \$3,125 and earn household incomes greater than \$125,000. Similarly, 12% of households in broader Amherstburg can afford between \$2,500-\$3,125; whereas 36% can achieve rents greater than \$3,125. **This is a positive indicator for the ability of households in the surrounding market to afford the premium rates associated with a top-of-market multi-residential development.**
- **Average income:** Households earning up to \$100,000 annually are underrepresented in the neighbourhood, whereas broader Amherstburg has a larger distribution of individuals earning over \$100,000 annually. 40% of neighbourhood households achieve incomes of \$100,000 or more, compared to 48% in broader Amherstburg. The neighbourhood's average household income of \$97,474 is approximately \$17,632 lower than that of broader Amherstburg. However, the lower average incomes experienced surrounding the subject site are likely the result of the demographic composition in the area consisting of a large proportion of retirees. This is not a negative indication in the potential success of the proposed development as average household incomes in broader Amherstburg still remain high relative to Ontario's average household income of \$111,866. **In addition to strong average household incomes, many of the target residents will likely sell off their home providing them with additional equity when searching for new housing accommodations.**
- **Demand analysis:** Amherstburg is largely undersupplied with rental product with only 1.2 rental apartments per 100 people. Additionally, demand remains strong for rental apartments with 78% of renters renting from the secondary market with a total of 1,333 renter households in Amherstburg. **This limited amount of purpose-built rental buildings in the market likely indicates that when new apartment product is brought to market, it will likely experience few issues with lease-up and absorption.**
- **Competitive market analysis:** Amherstburg as a rental market has an average monthly rent of \$1,062 across all unit types as recorded by CMHC, however rents





being achieved by both secondary market rentals in Amherstburg, and new purpose-built rental apartments are much higher with new purpose-built rental product in achieving starting rents approximately \$649-\$1,059 higher than CMHC average rents. This suggests that newly built rental stock in Amherstburg will achieve higher rental rates than the CMHC average market rents. Amherstburg experienced some of the highest vacancy rates among benchmark municipalities. This is largely due to the COVID-19 pandemic. In 2019 the average vacancy rate was 1.2% but increased to 4.7 by 2020, representing an increase of 3.5%. As the majority of the purpose- built rental units are built before the year 2000 in Amherstburg, **a new, superior quality property will have fewer issues with vacancies upon stabilization.**

### Key Recommendations:

The tables below provide key recommendations regarding the subject sites' unit sizing and mix, appropriate amenity allocation, and storage and parking allocation. A detailed rationale is found in further sections of the report:

Unit Sizing and Mix- Building 1					
	1 Bed	1 Bed + Den	2 Bed	2 Bed + Den	TOTAL/AVG
# Units	24	18	54	24	120
% Units	20%	15%	45%	20%	100%
Avg. Unit Size (Sf)	650	750	950	1,100	890
Avg. Rent	\$1,475	\$1,575	\$1,900	\$2,000	\$1,786
Avg. Rent/ Sf	\$2.27	\$2.10	\$2.00	\$1.82	\$2.03
Amenities - Building 1					
Required Sf:	2,400 SF				
List of Amenities:	Lobby	Party Room	Craft Room		
	Lounge	Gym/Fitness Room	Pet Grooming Station		
Unit Sizing and Mix- Building 2					
	1 Bed	1 Bed + Den	2 Bed	2 Bed + Den	TOTAL/AVG
# Units	24	18	54	24	120
% Units	20%	15%	45%	20%	100%
Avg. Unit Size (Sf)	650	750	950	1,100	890
Avg. Rent	\$1,475	\$1,575	\$1,900	\$2,000	\$1,785
Avg. Rent/ Sf	\$2.27	\$2.10	\$2.00	\$1.82	\$2.03
Amenities					
Required Sf:	2,400 SF				
List of Amenities:	Lobby	Party Room	Craft Room		
	Lounge	Gym/Fitness Room	Pet Grooming Station		
Parking & Storage Lockers					
Total Parking Spaces	339				
# CV Spaces	53				
# SF Spaces	286				
\$/ CV Space	\$65				
\$/ SF Space	\$45				
Storage Lockers	\$25				



**SWOT ANALYSIS:**

Below we have included a brief SWOT analysis highlighting key strengths, opportunities, weaknesses, and potential threats of the subject site as a rental development property. Points mentioned below will be discussed in detail in the body of the report:

SWOT ANALYSIS	
<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Limited competition in surrounding neighbourhood.</li> <li>• Proximity to local amenities.</li> <li>• Proximity to natural amenities- parks/walking trails.</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Some units may not have strong views given the industrial site north of the property</li> <li>• Limited public transit in Amherstburg</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Opportunity to become a market leading development in Amherstburg.</li> <li>• Opportunities to market high quality apartment to local high- income households.</li> <li>• Opportunity to serve a largely under-supplied market.</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• New rental product entering the market; however, we believe the proposed development will be a strong market leader in the neighbourhood.</li> <li>• Community opposition from neighbouring single-family dwellings.</li> </ul>



## Appendix J – PPS definitions: Intensification, Redevelopment and Brownfield Sites

Intensification: means the development of a property, site or area at a higher density than currently exists through: a) redevelopment, including the reuse of brownfield sites; b) the development of vacant and/or underutilized lots within previously developed areas; c) infill development; and d) the expansion or conversion of existing buildings.

Redevelopment: means the creation of new units, uses or lots on previously developed land in existing communities, including brownfield sites.

Brownfield sites: means undeveloped or previously developed properties that may be contaminated. They are usually, but not exclusively, former industrial or commercial properties that may be underutilized, derelict or vacant.

## Appendix K – Summary and Conclusions, Traffic Impact Study

PIROLI APARTMENTS, AMHERSTBURG, ON  
TRAFFIC IMPACT STUDY (DECEMBER 2021)

Page 8

### OFFICIAL PLAN POLICY CONSIDERATIONS

As noted in the introduction, there are two Official Plan policies that should be considered in relation to this development. The first has to do with making every effort to reduce the number of driveways along arterial roads, specifically Sandwich Street North. The site plan proposes one driveway for each of the proposed six-storey apartment buildings. It is noted that the two proposed buildings are separated by a municipal drain, which functions properly and does not need to be altered. The technical analysis summarized above concludes that the two driveways will operate with very good levels of service (LOS); the operating characteristics of Sandwich Street North will not change from an LOS A.

The second Official Plan consideration has to do with restricting commercial site access at Brunner Avenue. The proposed land uses are entirely residential, so it is concluded that this policy does not apply to the subject development.

### SUMMARY AND CONCLUSIONS

A residential development has been proposed by 1603941 Ontario Inc. for lands situated on the east side of Sandwich Street North (County Road 20), on the north side of Brunner Avenue in the Town of Amherstburg, Ontario.

The proposed development site is in the northern part of the town's urban area. Sandwich Street North functions as a north / south arterial roadway; it begins in LaSalle, north of Amherstburg, proceeds south through Amherstburg, then turns to the east along the southern area of Essex County, through Kingsville and Leamington. Brunner Avenue is a local street intersecting with Sandwich Street North.

The study area includes Brunner Avenue at Sandwich Street North, Grant Avenue at Sandwich Street North, and the four development site accesses (two on Brunner Avenue and two on Sandwich Street North).

The proposed site plan consists of 47 single detached homes and two six-storey apartment buildings containing 115 units each. The two apartment buildings will provide 132 and 161 parking spaces respectively. The developer is proposing that each apartment building would have its own dedicated access at Sandwich Street North, and the single-family residential development will access Brunner Avenue via a crescent-shaped local street. This development is proposed for construction in three phases. The development of Fraserville Residential Subdivision was also considered in this study.



PIROLI APARTMENTS, AMHERSTBURG, ON  
TRAFFIC IMPACT STUDY (DECEMBER 2021)  
Page 9

Using recently obtained turning movement counts and applying the best available trip generation and distribution data and methodologies, an analysis was completed to measure the operational impact of the proposed development on area traffic operations. Upon completion of the analysis, it was concluded that:

- All approaches to the westbound stop-controlled tee intersections of Brunner Avenue and Grant Avenue at Sandwich Street are currently operating at good levels of service; even with the addition of site generated and area development traffic, the intersections are expected to operate satisfactorily, without an adverse impact on Sandwich Street North traffic (i.e., the northbound and southbound approaches);
- All proposed stop-controlled site accesses at Brunner Avenue and Sandwich Street North will operate at satisfactory levels of service following the construction of the proposed residential developments; a single combined egress lane will sufficiently accommodate the anticipated site generated traffic;
- The two access driveways to Sandwich Street from the six-storey apartment buildings will not alter the operating characteristics of Sandwich Street which will continue to perform at a Level of Service A following development;
- Geometric and traffic control improvements are not required to accommodate the subject residential developments;
- There is sufficient decision sight distance to accommodate safe egress from the proposed site accesses; however, the developer and road authority should ensure that all boulevard areas within the right-of-way are clear of obstructions before construction commences.

Therefore, based on the results of the technical work, it is the engineers' opinion that the proposed development will not adversely affect the surrounding area's traffic operations.

All of which is respectfully submitted,

**RC Spencer Associates Inc.**



# PIROLI APARTMENTS AMHERSTBURG, ON

## TRAFFIC IMPACT STUDY



**RC SPENCER ASSOCIATES INC.**  
Consulting Engineers

**Windsor:** 800 University Avenue W. – Windsor ON N9A 5R9

**Leamington:** 18 Talbot Street W. – Leamington ON N8H 1M4

**Chatham-Kent:** 49 Raleigh Street – Chatham ON N7M 2M6

**London:** 660 Inverness Avenue – London ON N6H 5R4

**PIROLI APARTMENTS, AMHERSTBURG, ON**  
**TRAFFIC IMPACT STUDY (DECEMBER 2021)**

**Table of Contents**

Introduction and Background ..... 1  
Traffic Data Collection..... 2  
Methodology..... 2  
Trip Generation and Distribution..... 3  
Capacity and Level of Service Analysis..... 3  
Geometric and Traffic Control Improvements ..... 7  
Sight Line Analysis..... 7  
Official Plan Policy Considerations..... 8  
Summary and Conclusions..... 8

- Figure 1:** Area Plan
- Figure 2:** Study Area
- Figure 3:** Site Plan
- Figure 4:** Site Generated Traffic (AM / PM Peak Hour)
- Figure 5:** Existing Traffic (AM / PM Peak Hour)
- Figure 6:** Existing + Site Generated Traffic (AM / PM Peak Hour)
- Figure 7:** Total Traffic 2026 (AM / PM Peak Hour)
- Figure 8:** Total Traffic 2031 (AM / PM Peak Hour)
- Figure 9:** Total Traffic 2031 + Anticipated Area Development Traffic (AM / PM Peak Hour)
- Figure 10A:** Sight Line Analysis: Northerly Site Access at Sandwich Street
- Figure 10B:** Sight Line Analysis: Southerly Site Access at Sandwich Street
- Figure 10C:** Sight Line Analysis: Westerly Site Access at Brunner Avenue
- Figure 10D:** Sight Line Analysis: Easterly Site Access at Brunner Avenue



#### **Appendix A: Traffic Data Collection**

- Brunner Avenue at Sandwich Street North
- Fraser Avenue at Brunner Avenue
- Grant Avenue at Sandwich Street North

#### **Appendix B: ITE Trip Generation Manual – 10th Edition References**

- Multifamily Housing (Low-Rise) AM Peak Hour
- Multifamily Housing (Low-Rise) PM Peak Hour
- Single Family Detached Housing AM Peak
- Single Family Detached Housing PM Peak
- Proposed Site Development Trip Generation and Distribution

#### **Appendix C: Traffic Projection Figures**

- Northerly Site Access at Sandwich Street North
- Southerly Site Access at Sandwich Street North
- Brunner Avenue at Sandwich Street North
- Westerly Site Access at Brunner Avenue
- Grant Avenue at Sandwich Street North

#### **Appendix D: Detailed Synchro Results**

- Northerly Site Access at Sandwich Street North
- Southerly Site Access at Sandwich Street North
- Brunner Avenue at Sandwich Street North
- Westerly Site Access at Brunner Avenue
- Grant Avenue at Sandwich Street North

#### **Appendix E: Sight Line Calculations**

- Northerly Site Access at Sandwich Street North
- Southerly Site Access at Sandwich Street North
- Westerly Site Access at Brunner Avenue
- Easterly Site Access at Brunner Avenue

## INTRODUCTION AND BACKGROUND

A residential development has been proposed by 1603941 Ontario Inc. for lands situated on the east side of Sandwich Street North (County Road 20), on the north side of Brunner Avenue in the Town of Amherstburg, Ontario.

As noted on Figure 1, the proposed development site is in the northern part of the town's urban area. Sandwich Street North functions as a north / south arterial roadway; it begins in LaSalle, north of Amherstburg, proceeds south through Amherstburg, then turns to the east along the southern area of Essex County, through Kingsville and Leamington. Brunner Avenue is a local street intersecting with Sandwich Street North.

The study area is defined on Figure 2 and includes Brunner Avenue at Sandwich Street North, Grant Avenue at Sandwich Street North, and the four development site accesses (two on Brunner Avenue and two on Sandwich Street North).

The proposed site plan is provided on Figure 3 and consists of 47 single detached homes and two six-storey apartment buildings containing 115 units each. The two apartment buildings will provide 132 and 161 parking spaces respectively. The developer is proposing that each apartment building would have its own dedicated access at Sandwich Street North, and the single-family residential development will access Brunner Avenue via a crescent-shaped local street. This development is proposed for construction in three phases.

The purpose of this study is to examine the potential traffic implications of the proposed development on area traffic operations, particularly on Sandwich Street North and Brunner Avenue.

A traffic impact statement was prepared by RC Spencer Associates Inc. in October of 2021 for the Fraserville Residential Development, which is proposed to be located at the easterly end of Brunner Avenue and Grant Avenue. Since all traffic from this proposed subdivision is expected to utilize Brunner Avenue and Grant Avenue, the traffic generated by this adjacent area development is also considered within this study; an additional scenario was reviewed for anticipated area development traffic in horizon year 2031.

Other background references include two transportation policies from the Town's Official Plan, which apply to the development site as follows:

### 5.2.1 Arterial Roads

*... The number of access points from abutting properties should be restricted in number. Every effort will be made to reduce the number of driveway entrances along Arterial Roads by ensuring that, wherever possible, mutual driveway entrances serving two or more lots or developments are provided or planned for through Site Plan Control...*

### 4.4.3 Commercial Special Policy Areas

*... No vehicular access to the site shall be permitted on Brunner Ave. Any closure of roads within this area will be conditional on any non-residential access from the lands to the east of the subject lands being either to the north through the former General Chemical site or to the west over the subject lands and not via Brunner Ave...*

Comments on these policies will be included within the context of this report.

## TRAFFIC DATA COLLECTION

As provided in Appendix A, turning movement counts were obtained by RC Spencer Associates Inc. on 12 October 2021 for the intersections of Brunner Avenue and Grant Avenue at Sandwich Street North (County Road 20) and on 5 November 2021 for the intersection of Fraser Avenue at Brunner Avenue; traffic data was collected during the respective weekday peak hours.

## METHODOLOGY

The baseline traffic counts provided the basis for industry-standard traffic operations analysis; the software package utilized for the analysis (Synchro 11) calculates various parameters of intersection performance, such as level of service (LOS), intersection capacity utilization (ICU), control delay, and queue lengths on individual approaches.

Unsignalized level of service results are reported based on the following industry standard:

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

## TRIP GENERATION AND DISTRIBUTION

Trip generation for the proposed development was estimated from the Institute of Transportation Engineers Trip Generation Manual (10<sup>th</sup> Edition). The dataset's average rate was used instead of the fitted curve because the value of the independent variables is in the lower range of the dataset; the fitted curve equation does not pass through the origin.

ITE Land Use Code 221 (Multifamily Housing, Mid-Rise) is the most appropriate code for the proposed 230 residential units contained in the two mid-rise towers. Land Use Code 221 provides trip generation rates of 0.36 trips per unit in the AM peak hour, with 26% entering and 74% exiting, and 0.44 trips per unit in the PM peak hour, with 61% entering and 39% exiting.

ITE Land Use Code 210 (Single-Family Detached Housing) is the most appropriate code for the proposed 47 single family residential units. Land Use Code 210 provides trip generation rates of 0.74 trips per unit in the AM peak hour, with 25% entering and 75% exiting, and 0.99 trips per unit in the PM peak hour, with 63% entering and 37% exiting.

The details of the trip generation analysis are provided in Appendix B. The total trips generated by the proposed land use are estimated to be 31 entering and 87 exiting during the AM peak hour, and 92 entering and 56 exiting during the PM peak hour.

Site generated traffic from the two mid-rise towers was distributed to and from the two respective site accesses proposed at Sandwich Street North; the split was based on the directional flow of existing traffic volumes. Site generated traffic from the single-family residential units was distributed to and from Brunner Avenue via the westerly access point; from there, the traffic was distributed to and from Sandwich Street North based on the directional flow of existing traffic volumes. It is the engineers' opinion that a negligible amount of traffic will utilize the proposed easterly site access. The resulting site generated turning movements are illustrated on Figure 4.

## CAPACITY AND LEVEL OF SERVICE ANALYSIS

Detailed analysis was carried out at all intersections with respect to the following scenarios:

- Existing Traffic;
- Existing Traffic + Site Generated Traffic;
- Total Traffic 2026 (2026 Background Traffic + Site Generated Traffic);
- Total Traffic 2031 (2031 Background Traffic + Site Generated Traffic);
- Total Traffic 2031 + Anticipated Area Development Traffic.

To be conservative, the analysis was carried out under full build-out conditions in all scenarios, namely existing volumes, 2026 and 2031 horizon years. Background traffic was conservatively increased by 1% per year for the 2026 and 2031 horizon forecasts; according to census data, the recent growth rate for Amherstburg has been approximately a half percent per year.

The effect of adding site generated traffic from the proposed development to the existing and horizon traffic volumes at each specific intersection can be found in Appendix C. Figures 6 to 8 summarize total traffic estimates that result from adding the site generated traffic to the existing, the 2026, and the 2031 horizon year forecasts for background traffic in the study area. Figure 9 illustrates the total traffic volumes when the Frserville Residential Subdivision site generated traffic is added to the total 2031 traffic volumes.

To assess the effect of traffic growth on individual intersections within the study area and to evaluate the need for geometric or traffic infrastructure improvements, the standard Synchro 11 methodology was applied to all intersections. The resulting Synchro 11 simulation reports are provided in Appendix D and are summarized in the following tables:

**Northerly Site Access at Sandwich Street North**

The proposed tee intersection of the northerly site access at Sandwich Street North will be controlled by a westbound stop condition; this access will specifically service the 115-unit building at the north end of the site. Even with the addition of site generated and area development traffic, the intersection is expected to operate at a satisfactory level of service, and there is no observed impact on Sandwich Street North traffic (i.e., the northbound and southbound approaches). Provision of dedicated westbound left and right turn lanes could benefit the critical westbound approach; however, based on the level of service results, no geometric or traffic control improvements are warranted.

**Table 1: Level of Service by Approach – Northerly Site Access at Sandwich Street North**

Scenario	Northerly Site Access at Sandwich Street North							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing + Site Generated Traffic	B	-	A	A	C	-	A	A
Total Traffic 2026	B	-	A	A	C	-	A	A
Total Traffic 2031	B	-	A	A	C	-	A	A
Total Traffic 2031 + Area Development	B	-	A	A	C	-	A	A



**Southerly Site Access at Sandwich Street North**

The proposed tee intersection of the southerly site access at Sandwich Street North will be controlled by a westbound stop condition; this access will specifically service the 115-unit building at the south end of the site. Even with the addition of site generated and area development traffic, the intersection is expected to operate at a satisfactory level of service, and there is no observed impact on Sandwich Street North traffic (i.e., the northbound and southbound approaches). Provision of dedicated westbound left and right turn lanes could benefit the critical westbound approach; however, based on the level of service results, no geometric or traffic control improvements are warranted.

**Table 2: Level of Service by Approach – Southerly Site Access at Sandwich Street North**

Scenario	Southerly Site Access at Sandwich Street North							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing + Site Generated Traffic	B	-	A	A	C	-	A	A
Total Traffic 2026	B	-	A	A	C	-	A	A
Total Traffic 2031	B	-	A	A	C	-	A	A
Total Traffic 2031 + Area Development	B	-	A	A	C	-	A	A

**Brunner Avenue at Sandwich Street North**

The tee intersection of Brunner Avenue at Sandwich Street North is currently controlled by a westbound stop condition. Even with the addition of site generated and area development traffic, the intersection is expected to operate at a satisfactory level of service, and there is no observed impact on Sandwich Street North traffic (i.e., the northbound and southbound approaches). Provision of dedicated westbound left and right turn lanes could benefit the critical westbound approach; however, based on the level of service results, no geometric or traffic control improvements are warranted.

**Table 3: Level of Service by Approach – Brunner Avenue at Sandwich Street North**

Scenario	Brunner Avenue at Sandwich Street North							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	B	-	A	A	B	-	A	A
Existing + Site Generated Traffic	B	-	A	A	C	-	A	A
Total Traffic 2026	B	-	A	A	C	-	A	A
Total Traffic 2031	B	-	A	A	C	-	A	A
Total Traffic 2031 + Area Development	B	-	A	A	C	-	A	A

**Westerly Site Access at Brunner Avenue**

The proposed tee intersection of the westerly site access at Brunner Avenue will be controlled by a southbound stop condition. This access will specifically service the 47 single family homes. It is anticipated that all but perhaps the two or three homes at the east end will utilize this access (as opposed to circling to the easterly access to proceed back west). Even with the addition of site generated and area development traffic, the intersection is expected to operate at a very good level of service; no geometric or traffic control improvements are warranted.

**Table 4: Level of Service by Approach – Westerly Site Access at Brunner Avenue**

Scenario	Westerly Site Access at Brunner Avenue							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing + Site Generated Traffic	A	A	-	A	A	A	-	A
Total Traffic 2026	A	A	-	A	A	A	-	A
Total Traffic 2031	A	A	-	A	A	A	-	A
Total Traffic 2031 + Area Development	A	A	-	A	A	A	-	A

**Fraser Avenue at Brunner Avenue**

The tee intersection of Fraser Avenue at Brunner Avenue is presently controlled by a northbound stop condition. Based on the “path of least resistance”, it is the engineers’ opinion that this intersection will not be affected by the addition of site generated traffic from the subject development; therefore, it was not necessary to model this intersection.

**Easterly Site Access at Brunner Avenue**

The proposed tee intersection of the easterly site access at Brunner Avenue will be controlled by a southbound stop condition. This access will specifically service the 47 single family homes, but it is anticipated that it will be under-utilized because most traffic will access the proposed development via the westerly access. It is the engineers’ opinion that this intersection will not be affected by the addition of site generated traffic from the subject development.

**Grant Avenue at Sandwich Street North**

The tee intersection of Grant Avenue at Sandwich Street North is currently controlled by a westbound stop condition. Even with the addition of site generated and area development traffic, the intersection is expected to operate at a satisfactory level of service, and there is no

observed impact on Sandwich Street North traffic (i.e., the northbound and southbound approaches). Provision of dedicated westbound left and right turn lanes could benefit the critical westbound approach; however, based on the level of service results, no geometric or traffic control improvements are warranted.

**Table 5: Level of Service by Approach – Brunner Avenue at Sandwich Street North**

Scenario	Brunner Avenue at Sandwich Street North							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	B	-	A	A	B	-	A	A
Existing + Site Generated Traffic	B	-	A	A	C	-	A	A
Total Traffic 2026	B	-	A	A	C	-	A	A
Total Traffic 2031	B	-	A	A	C	-	A	A
Total Traffic 2031 + Area Development	B	-	A	A	C	-	A	A

## GEOMETRIC AND TRAFFIC CONTROL IMPROVEMENTS

Based on the level of service results, it is the engineers' opinion that geometric and traffic control improvements are not required to accommodate the proposed development. As a result, no additional warrants were evaluated.

## SIGHT LINE ANALYSIS

Sight line analyses were completed for the intersections of Sandwich Street North at the proposed northerly and southerly site accesses, as well as the intersections of Brunner Avenue at the proposed westerly and easterly site accesses. The analyses were completed per the TAC Geometric Design Guide for Canadian Roads (2017). The speed limit on both streets is 50 km/h, so the analyses were completed for a 60 km/h design speed; a passenger car was selected as the design vehicle. As calculated in Appendix E, the intersection sight distance is determined to be 125m for the worst-case left turn egress maneuver. Intersection sight distance for right turn egress is determined to be 108m.

Upon review of the defined sight triangles illustrated on Figures 10A to 10D, it is the engineers' opinion that there is sufficient sight distance in both directions for safe egress from all proposed site accesses. However, the developer and road authority should ensure that all boulevard areas within the right-of-way are clear of vegetation obstructions before construction commences. Again, it is the engineers' opinion that geometric and / or traffic control improvements are not warranted.

## OFFICIAL PLAN POLICY CONSIDERATIONS

As noted in the introduction, there are two Official Plan policies that should be considered in relation to this development. The first has to do with making every effort to reduce the number of driveways along arterial roads, specifically Sandwich Street North. The site plan proposes one driveway for each of the proposed six-storey apartment buildings. It is noted that the two proposed buildings are separated by a municipal drain, which functions properly and does not need to be altered. The technical analysis summarized above concludes that the two driveways will operate with very good levels of service (LOS); the operating characteristics of Sandwich Street North will not change from an LOS A.

The second Official Plan consideration has to do with restricting commercial site access at Brunner Avenue. The proposed land uses are entirely residential, so it is concluded that this policy does not apply to the subject development.

## SUMMARY AND CONCLUSIONS

A residential development has been proposed by 1603941 Ontario Inc. for lands situated on the east side of Sandwich Street North (County Road 20), on the north side of Brunner Avenue in the Town of Amherstburg, Ontario.

The proposed development site is in the northern part of the town's urban area. Sandwich Street North functions as a north / south arterial roadway; it begins in LaSalle, north of Amherstburg, proceeds south through Amherstburg, then turns to the east along the southern area of Essex County, through Kingsville and Leamington. Brunner Avenue is a local street intersecting with Sandwich Street North.

The study area includes Brunner Avenue at Sandwich Street North, Grant Avenue at Sandwich Street North, and the four development site accesses (two on Brunner Avenue and two on Sandwich Street North).

The proposed site plan consists of 47 single detached homes and two six-storey apartment buildings containing 115 units each. The two apartment buildings will provide 132 and 161 parking spaces respectively. The developer is proposing that each apartment building would have its own dedicated access at Sandwich Street North, and the single-family residential development will access Brunner Avenue via a crescent-shaped local street. This development is proposed for construction in three phases. The development of Fraserville Residential Subdivision was also considered in this study.

Using recently obtained turning movement counts and applying the best available trip generation and distribution data and methodologies, an analysis was completed to measure the operational impact of the proposed development on area traffic operations. Upon completion of the analysis, it was concluded that:

- All approaches to the westbound stop-controlled tee intersections of Brunner Avenue and Grant Avenue at Sandwich Street are currently operating at good levels of service; even with the addition of site generated and area development traffic, the intersections are expected to operate satisfactorily, without an adverse impact on Sandwich Street North traffic (i.e., the northbound and southbound approaches);
- All proposed stop-controlled site accesses at Brunner Avenue and Sandwich Street North will operate at satisfactory levels of service following the construction of the proposed residential developments; a single combined egress lane will sufficiently accommodate the anticipated site generated traffic;
- The two access driveways to Sandwich Street from the six-storey apartment buildings will not alter the operating characteristics of Sandwich Street which will continue to perform at a Level of Service A following development;
- Geometric and traffic control improvements are not required to accommodate the subject residential developments;
- There is sufficient decision sight distance to accommodate safe egress from the proposed site accesses; however, the developer and road authority should ensure that all boulevard areas within the right-of-way are clear of obstructions before construction commences.

Therefore, based on the results of the technical work, it is the engineers' opinion that the proposed development will not adversely affect the surrounding area's traffic operations.

All of which is respectfully submitted,

**RC Spencer Associates Inc.**





**John D. Tofflemire, M.A.Sc., P.Eng.**  
**Manager, Leamington Office**

**Aaron D. Blata, M.Eng., P.Eng., PTOE**  
**Associate / Traffic Operations Project Engineer**







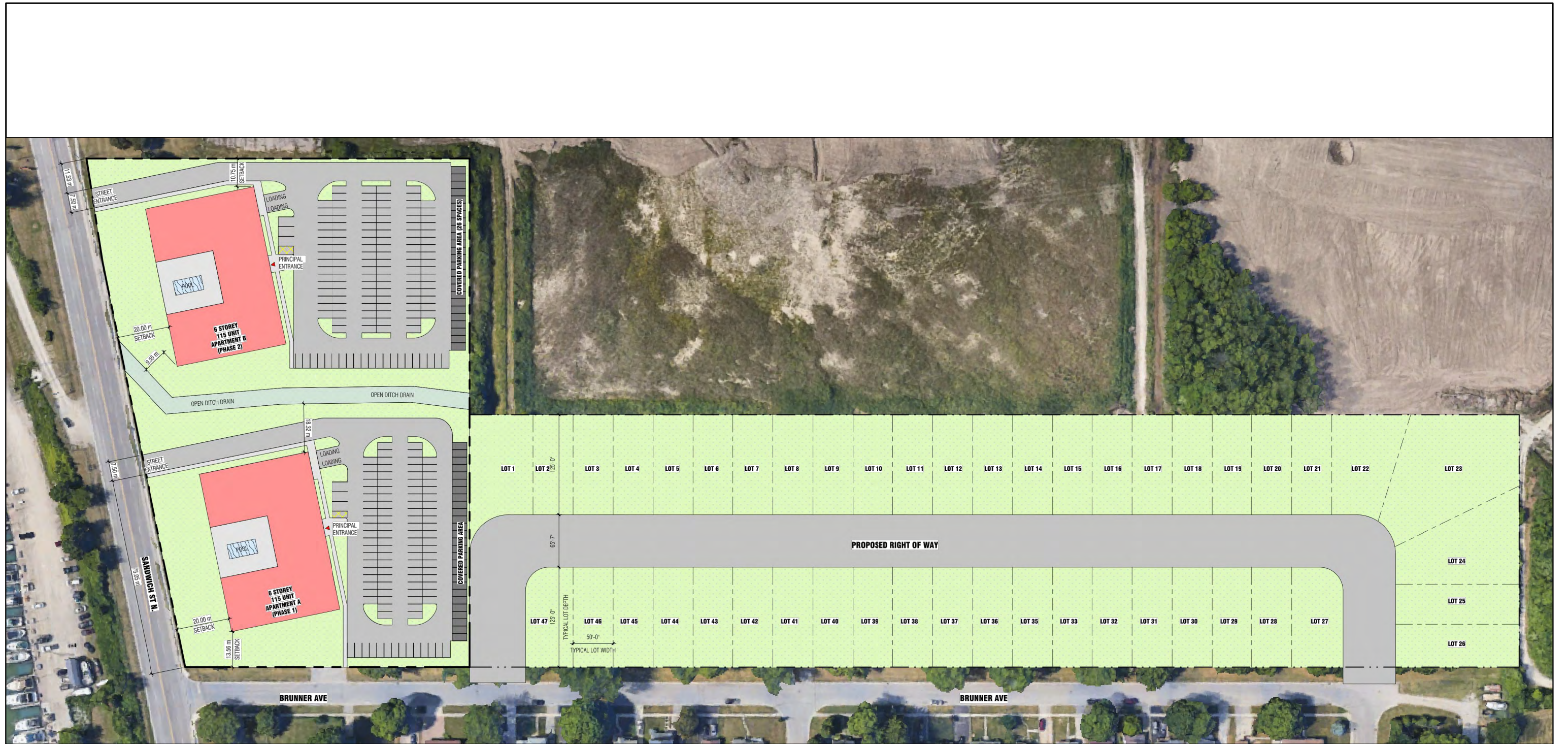
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<p>RC SPENCER ASSOCIATES INC. Consulting Engineers Windsor: 800 University Avenue W. - Windsor ON N9A 5R9 Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4 Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6</p> <p>Professional Engineers Ontario</p>				DESIGN	A.D.B.	PIROLI APARTMENTS, AMHERSTBURG - TIS	PROJECT NO.	21-1213
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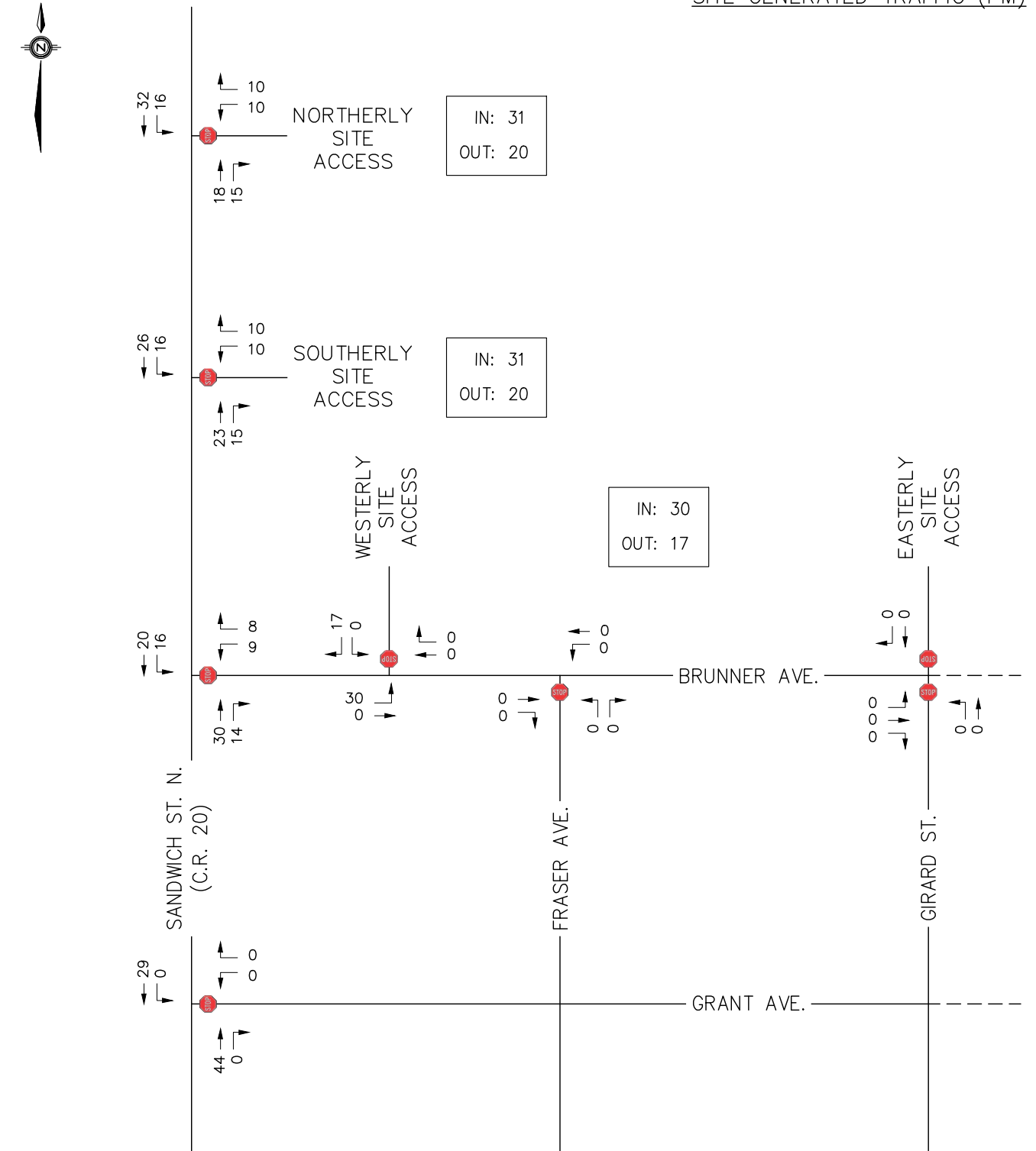
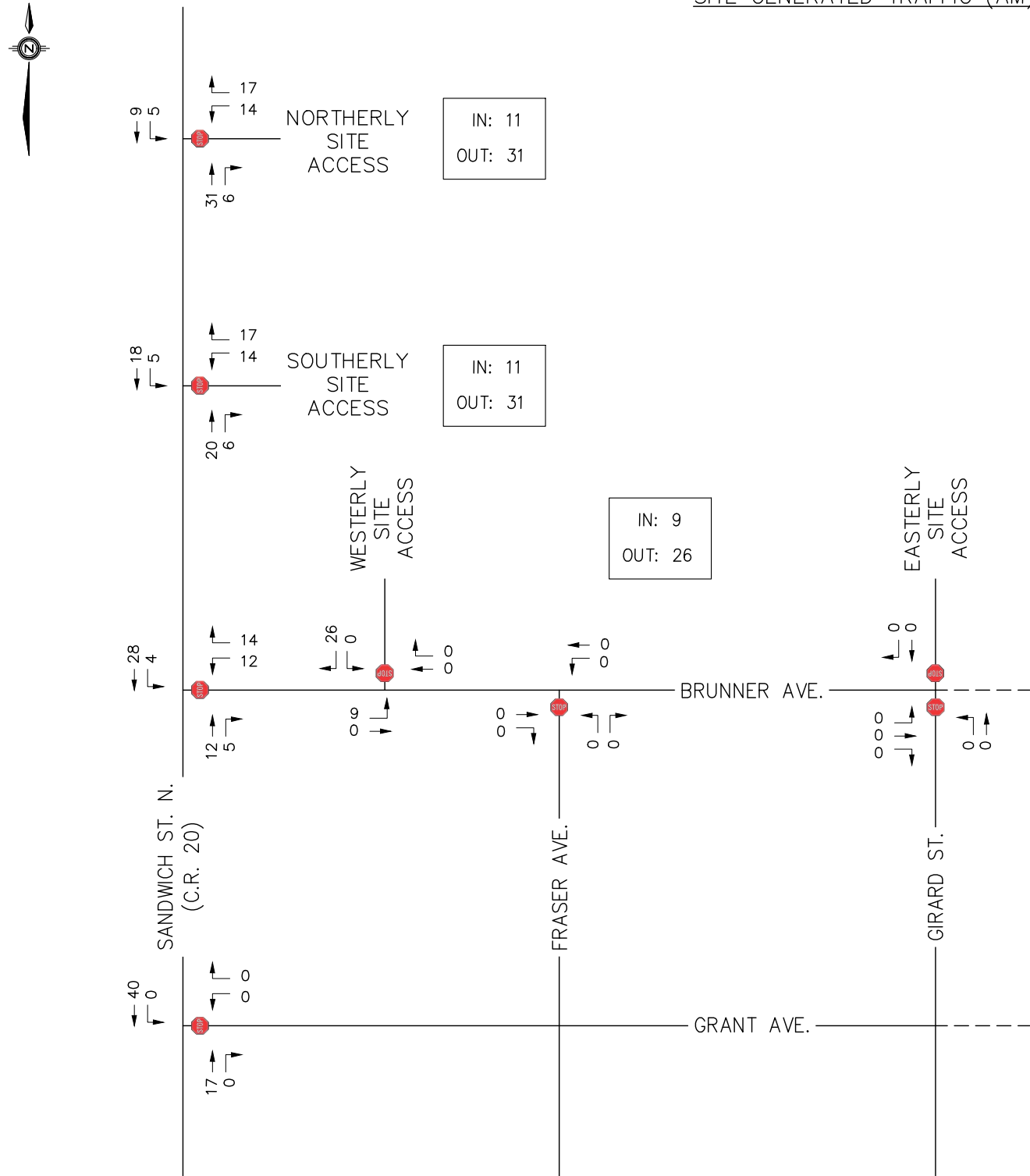


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SITE GENERATED TRAFFIC (AM)

SITE GENERATED TRAFFIC (PM)



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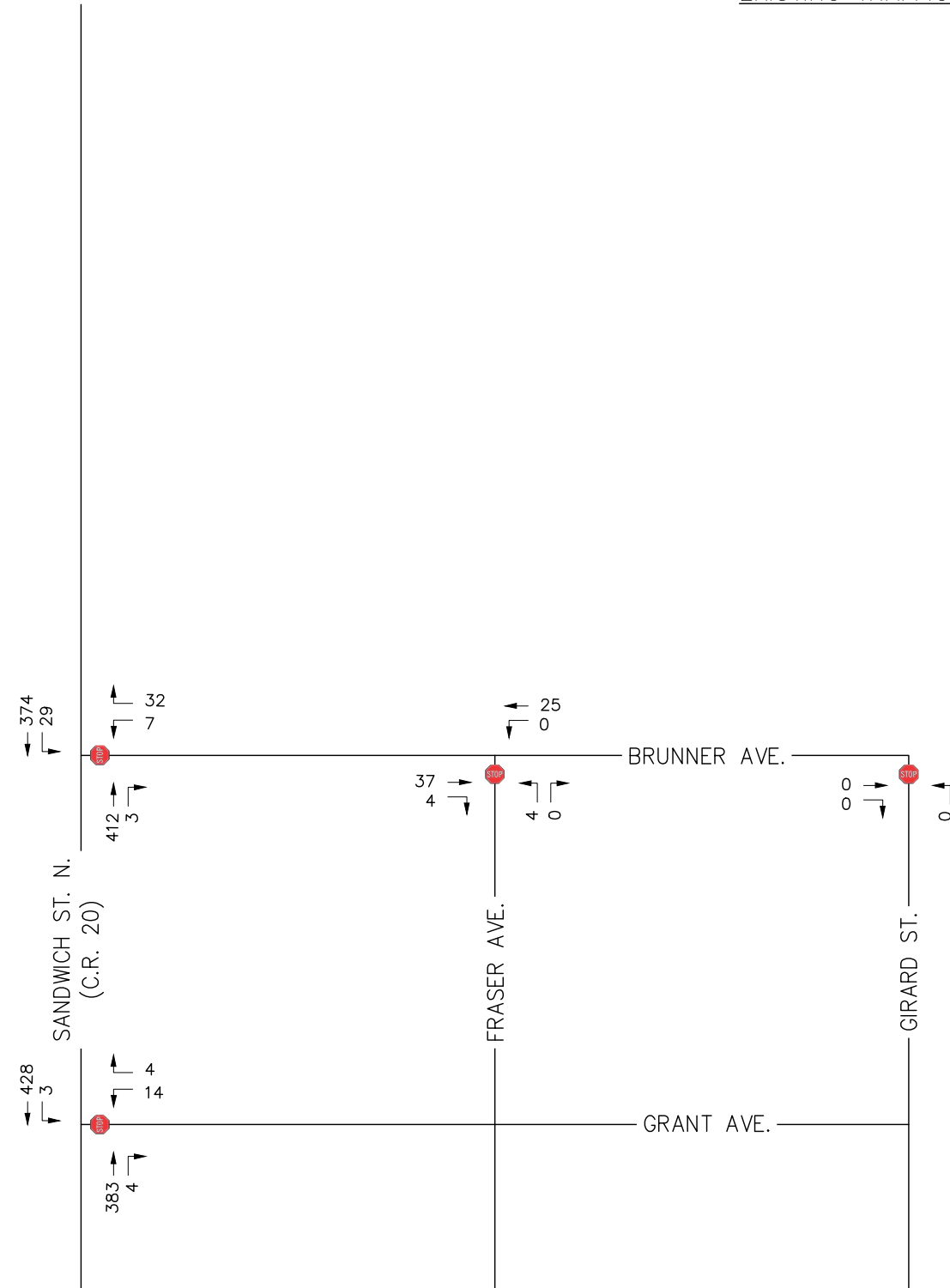
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**SITE GENERATED TRAFFIC  
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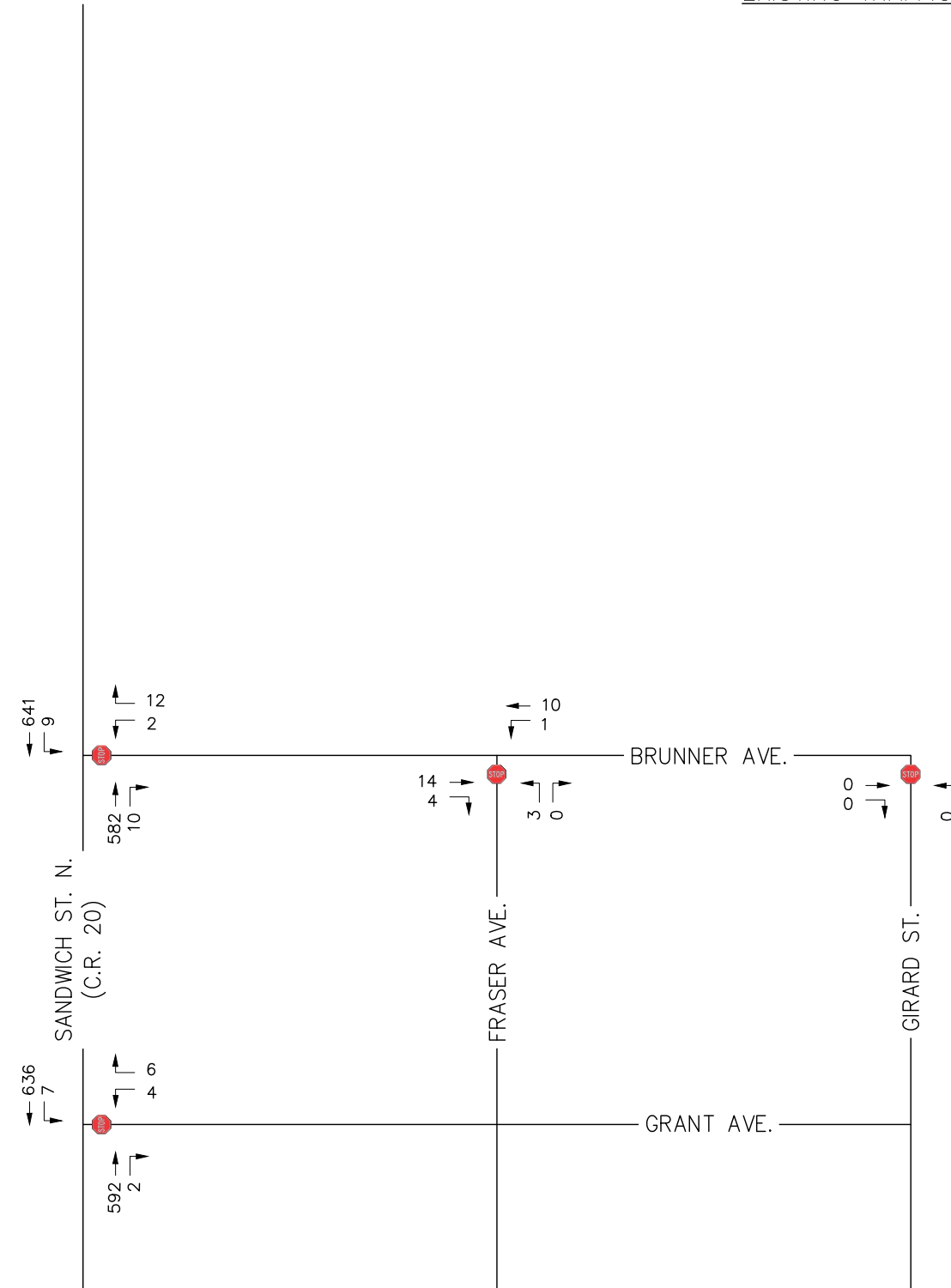
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OF	10



EXISTING TRAFFIC (AM)



EXISTING TRAFFIC (PM)



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 Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4  
 Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6



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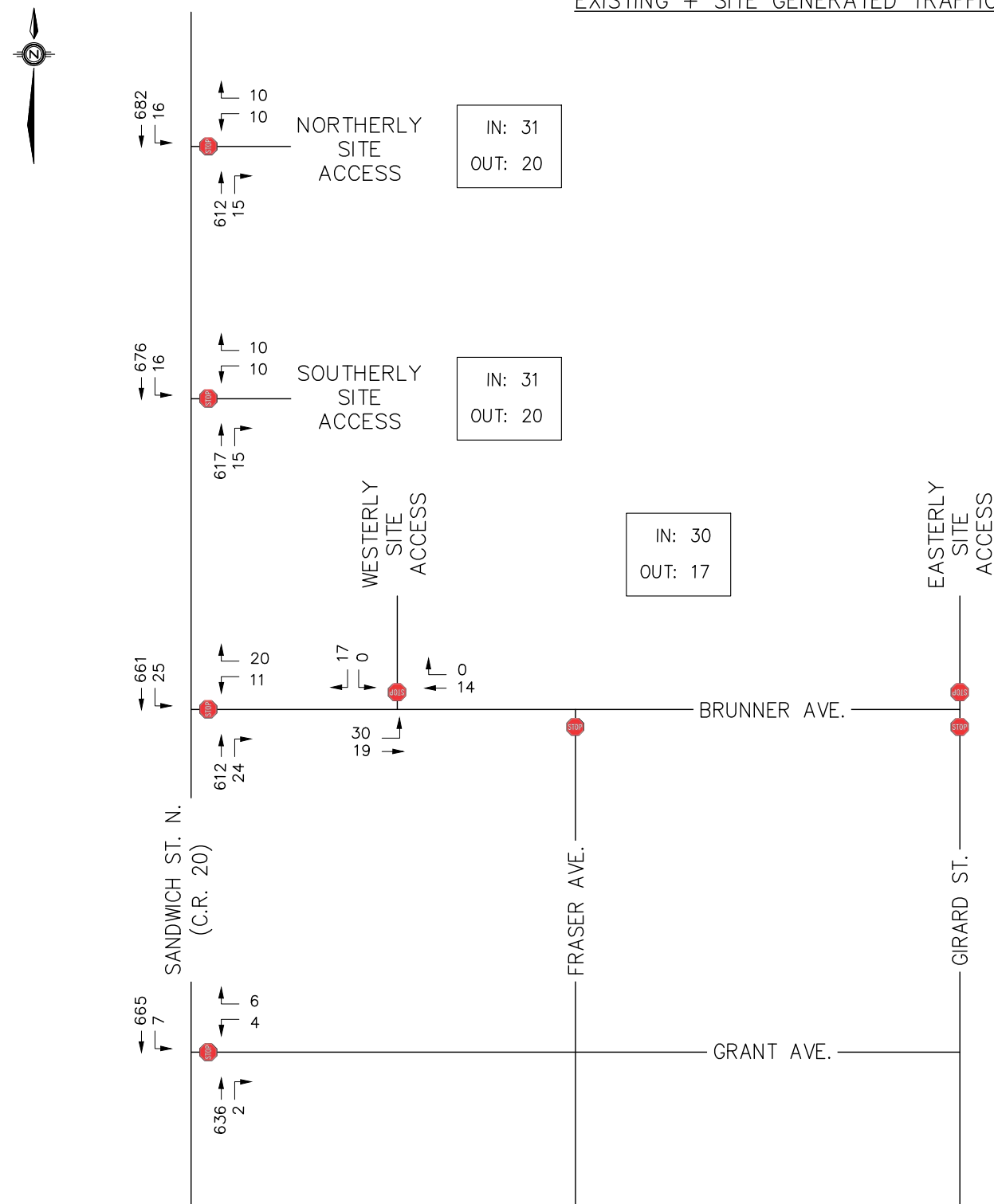
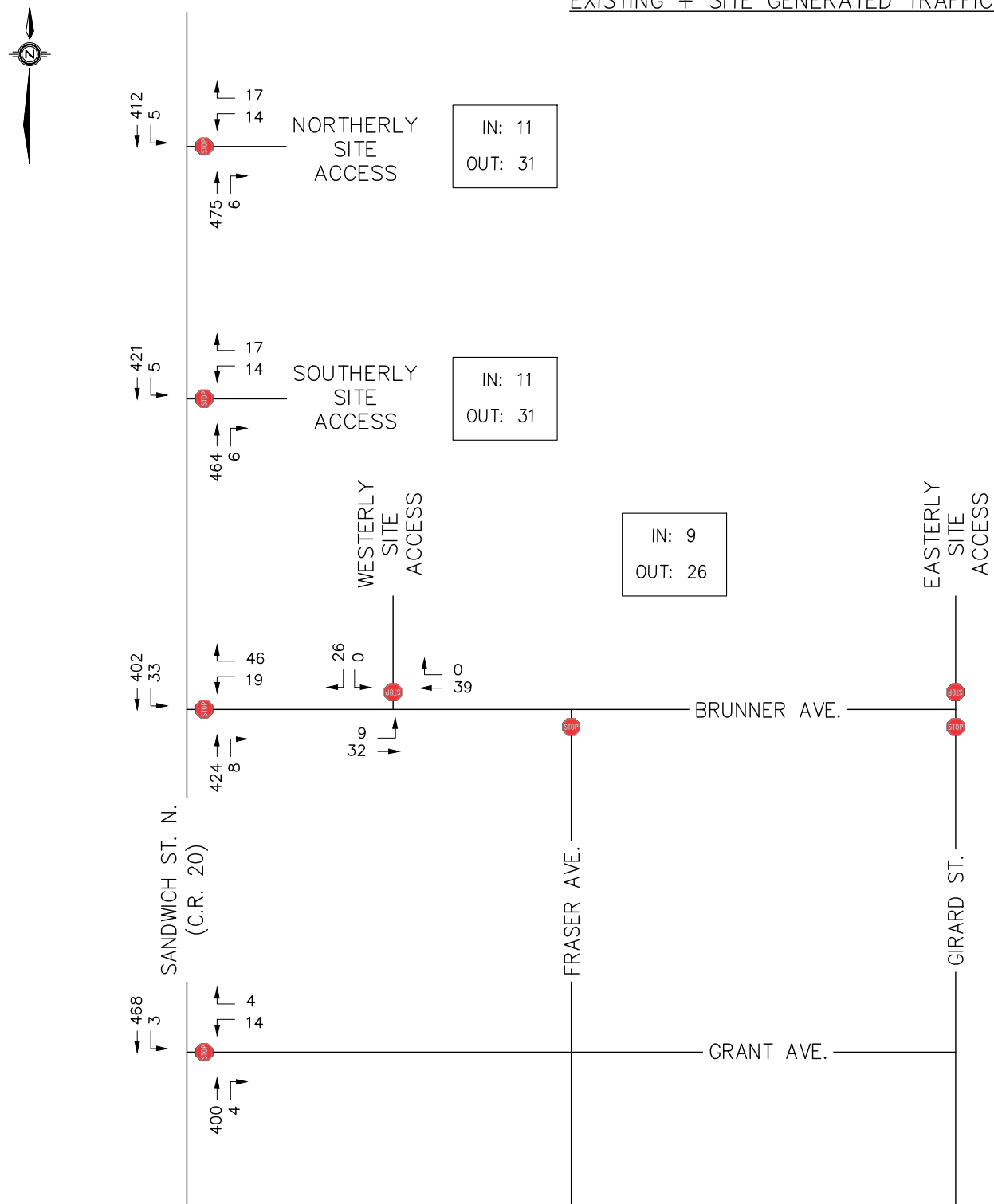
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EXISTING TRAFFIC  
(AM/PM PEAK HOUR)

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FIGURE NO.	5
OF	10

EXISTING + SITE GENERATED TRAFFIC (AM)

EXISTING + SITE GENERATED TRAFFIC (PM)



Windsor: 800 University Avenue W. - Windsor ON N9A 5R9  
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 Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6



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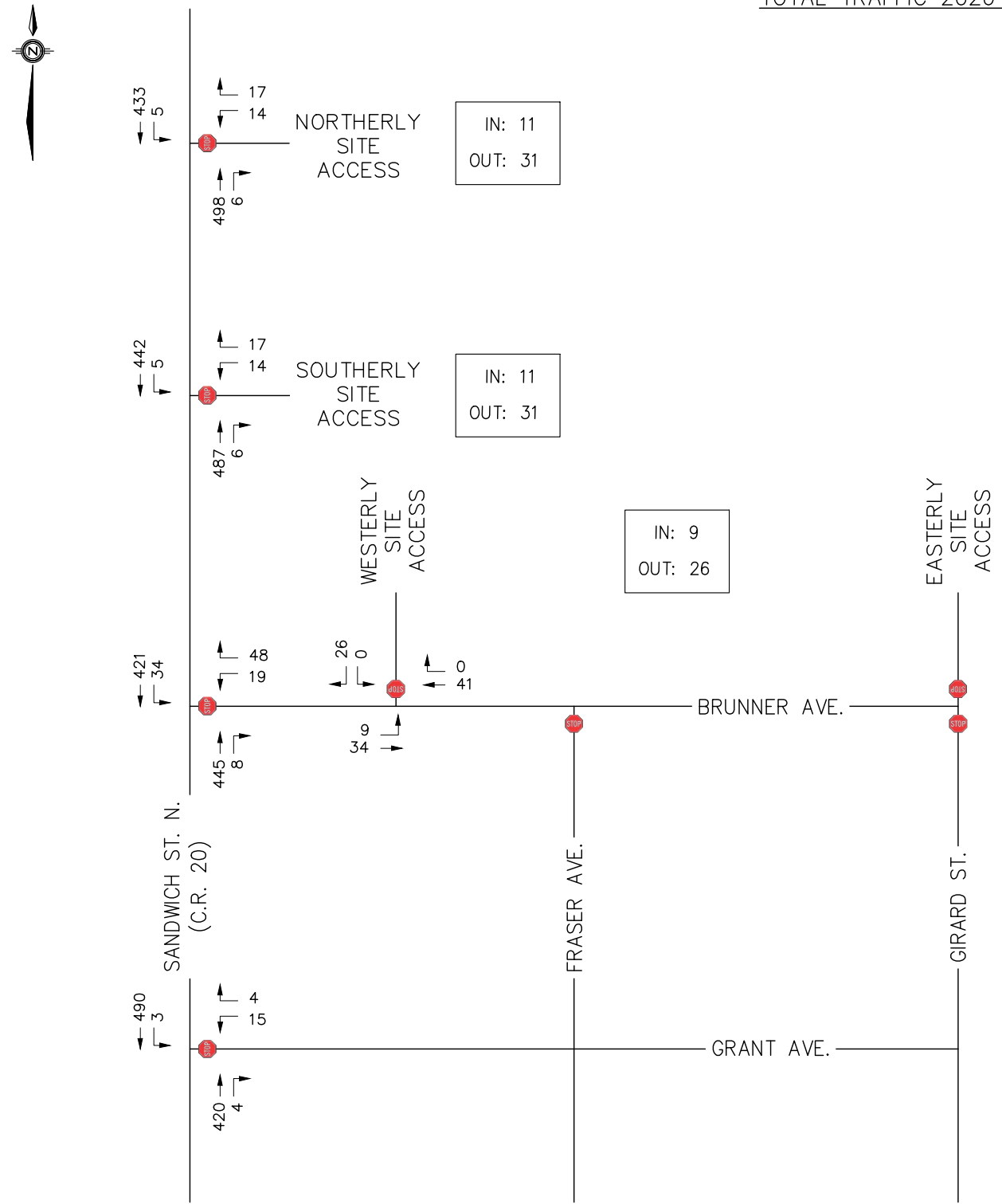
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21-1213

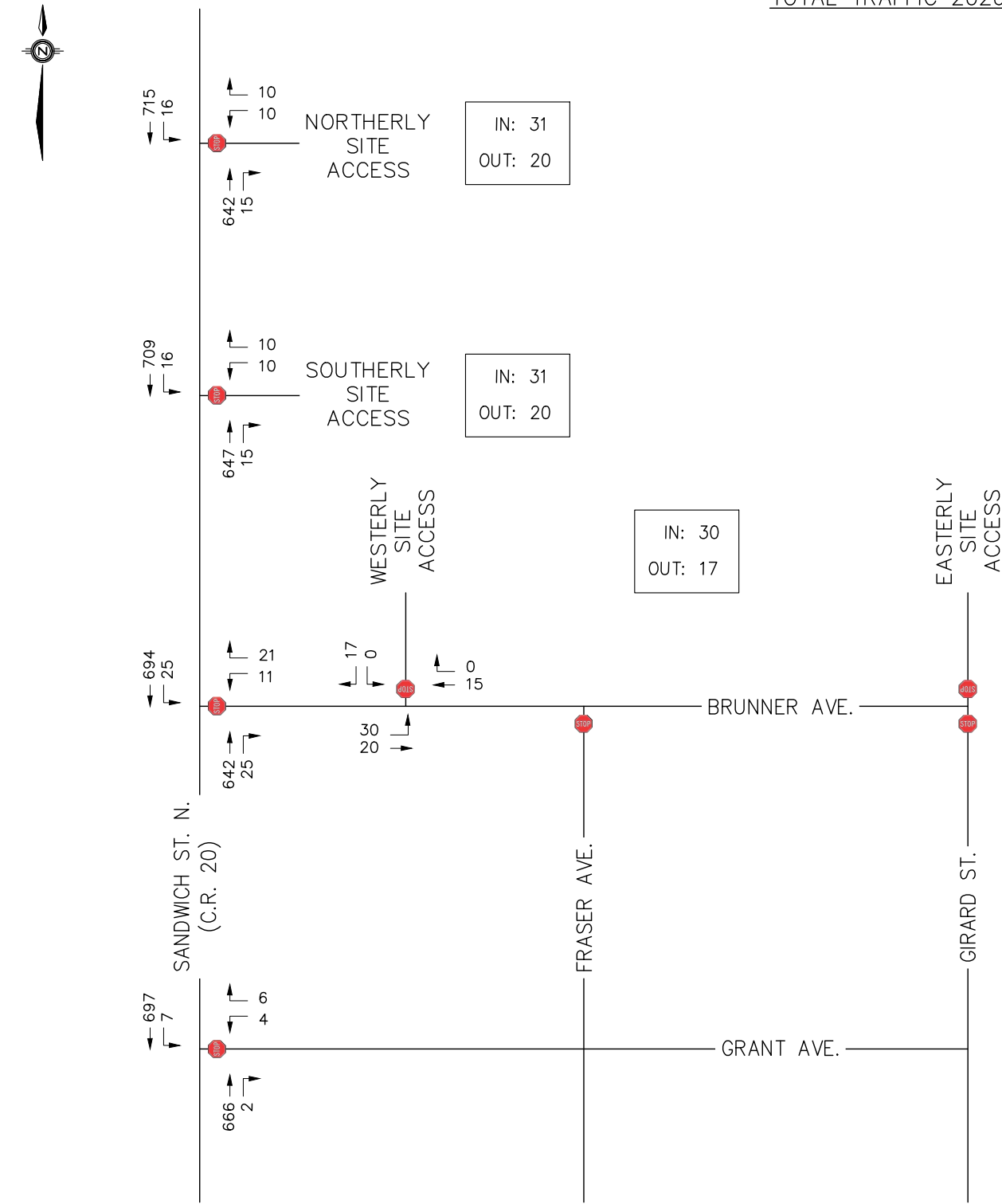
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10

TOTAL TRAFFIC 2026 (AM)



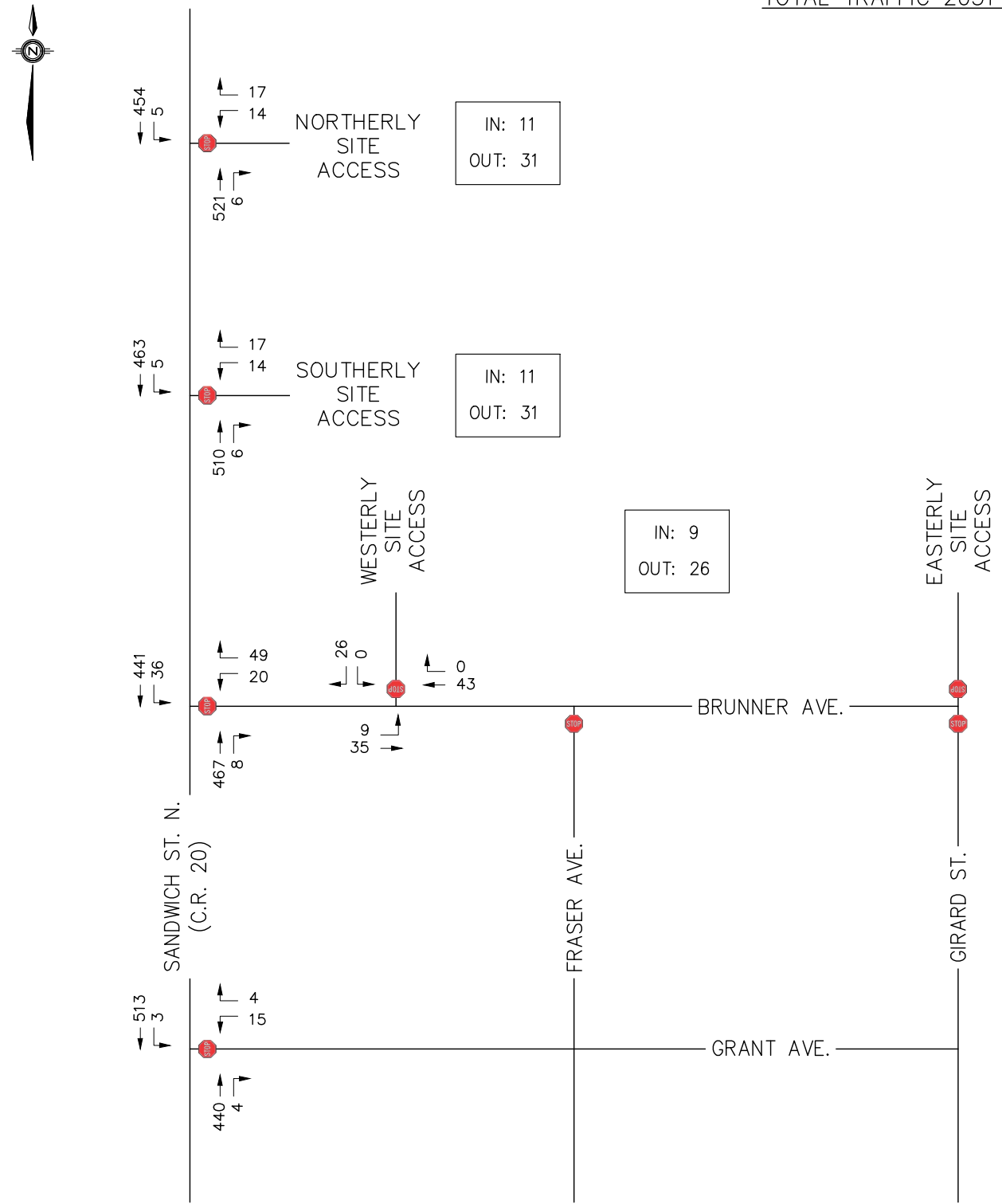
TOTAL TRAFFIC 2026 (PM)



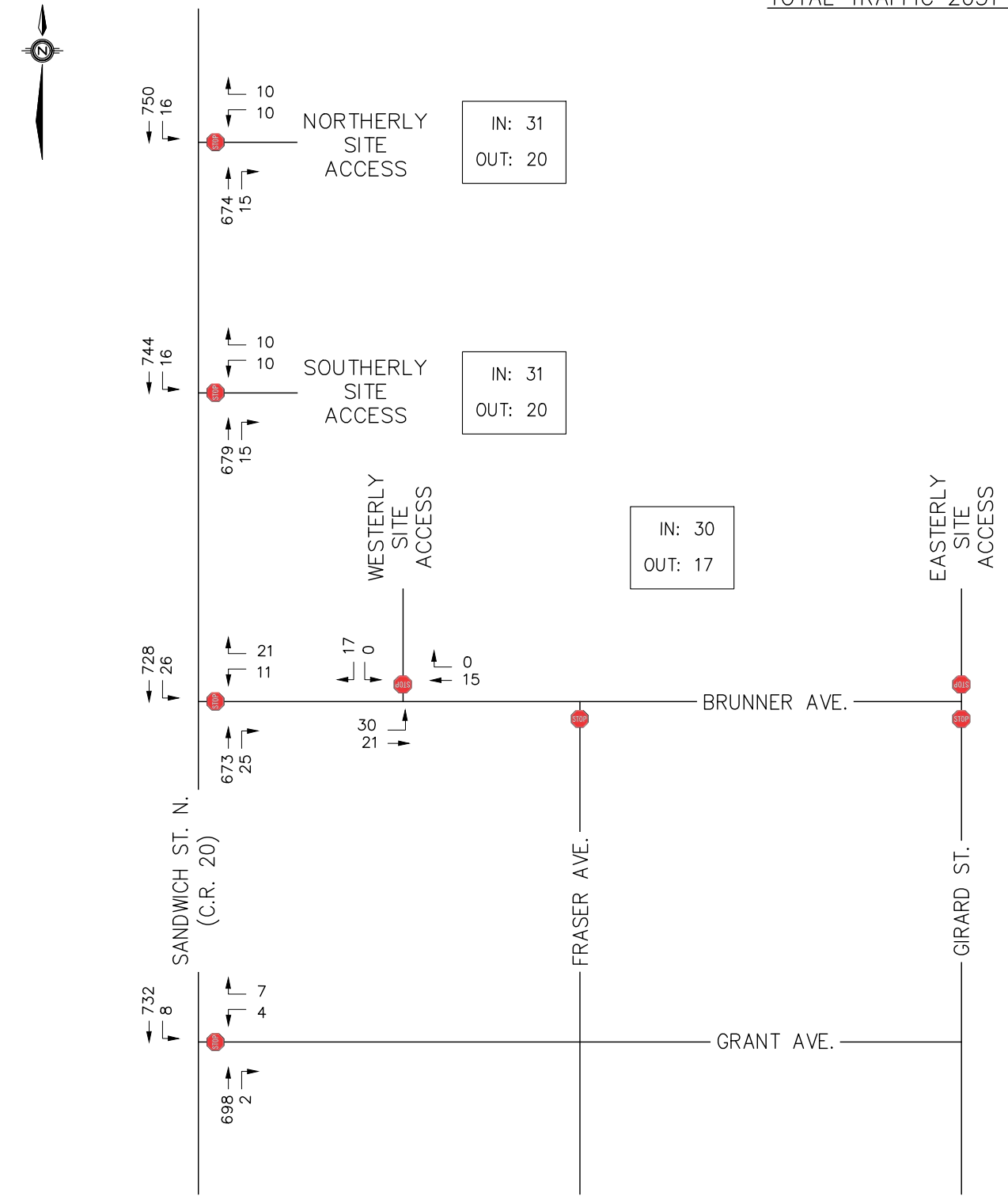
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CHECKED	J.T.			
DRAWN	M.C.A.			
CHECKED	A.D.B.			
DATE	DECEMBER 2021			
SCALE	N.T.S.			
NO.	REVISION	DATE	BY	APP
1.	COMPLETED REPORT FIGURES	15 DEC 2021	M.C.A.	A.D.B.

PIROLI APARTMENTS, AMHERSTBURG - TIS	PROJECT NO. 21-1213
<b>TOTAL TRAFFIC 2026 (AM/PM PEAK HOUR)</b>	FIGURE NO. 7
	OF 10

TOTAL TRAFFIC 2031 (AM)



TOTAL TRAFFIC 2031 (PM)



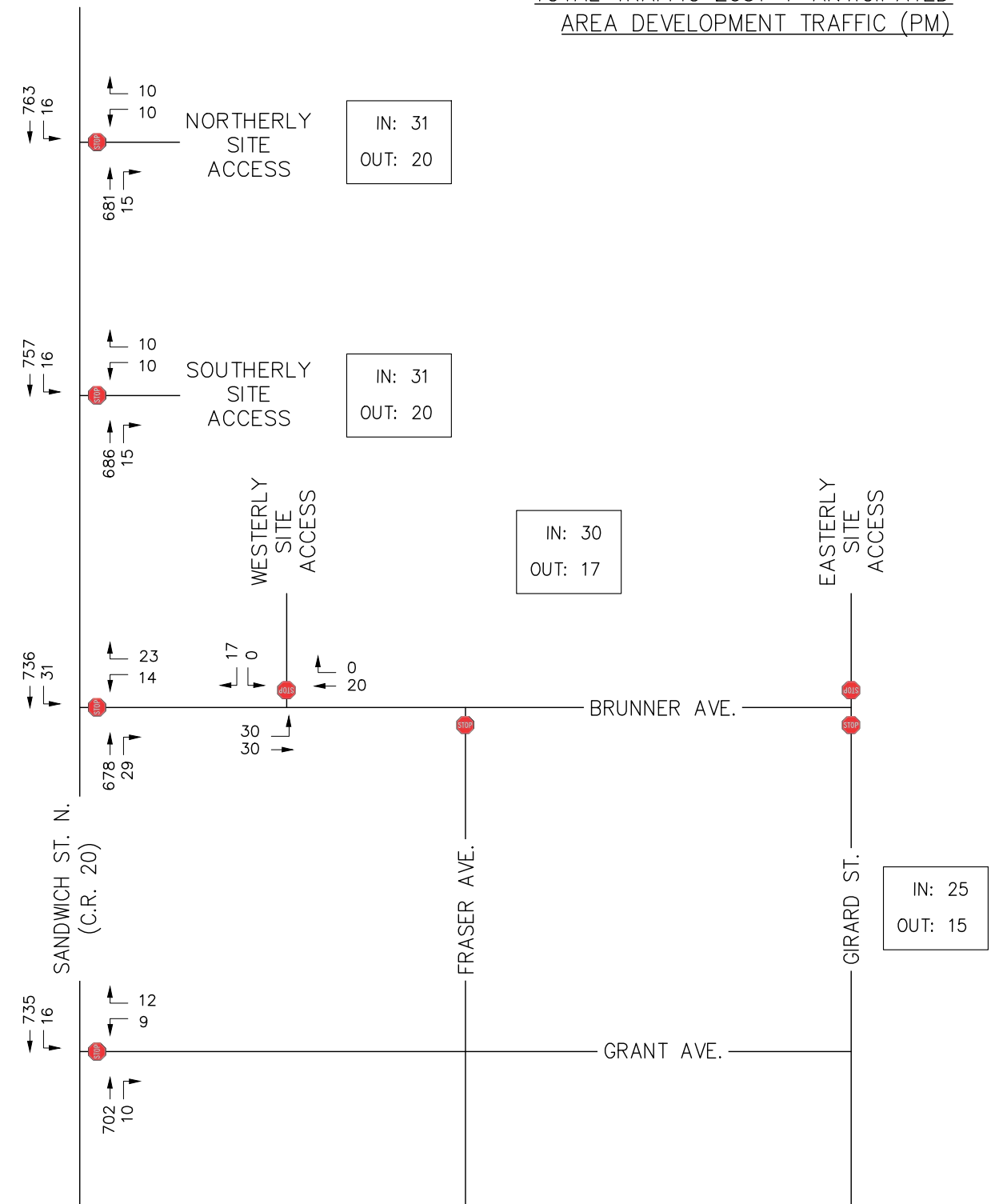
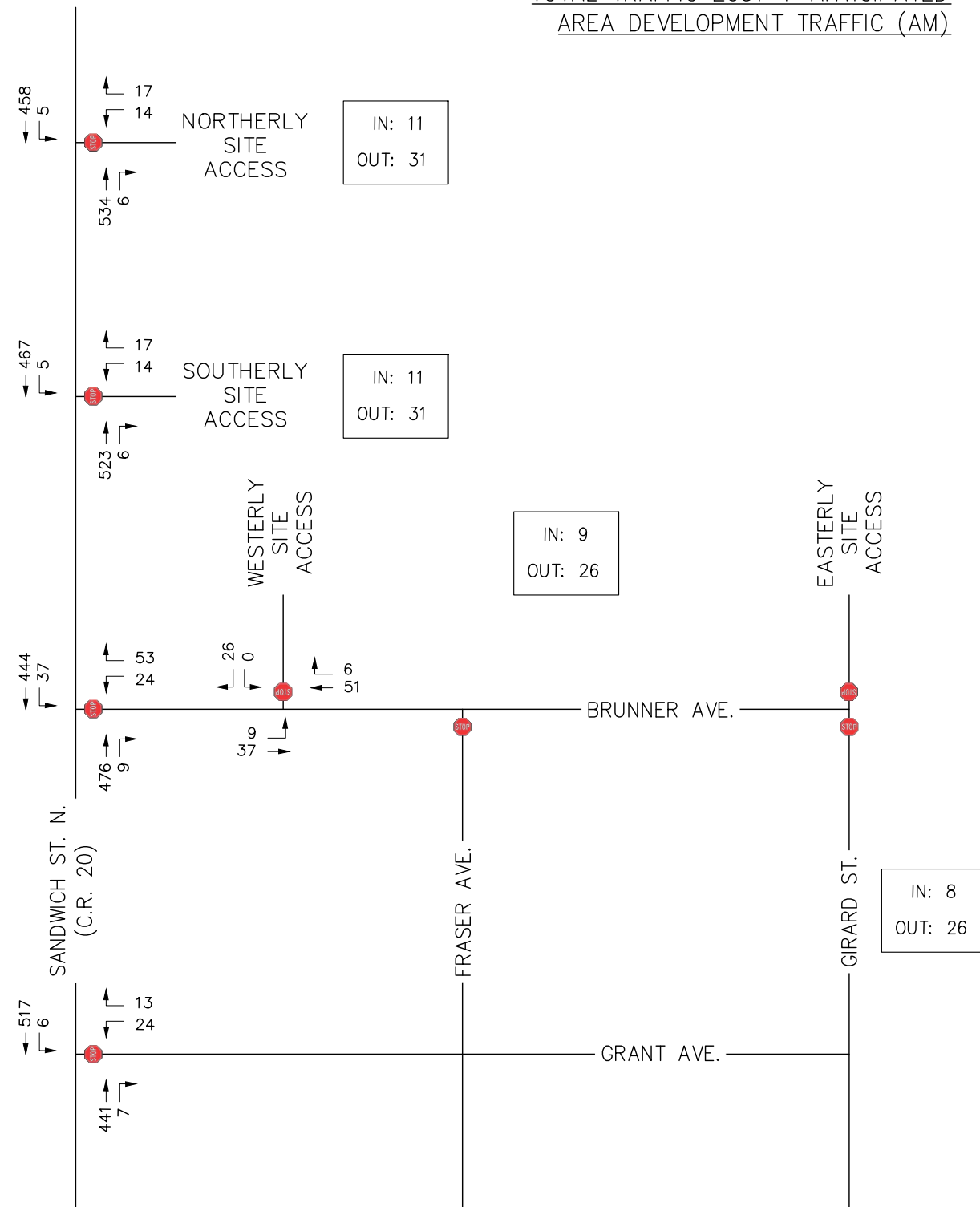
DESIGN	A.D.B.			
CHECKED	J.T.			
DRAWN	M.C.A.			
CHECKED	A.D.B.			
DATE	DECEMBER 2021			
SCALE	N.T.S.			
NO.	REVISION	DATE	BY	APP
1.	COMPLETED REPORT FIGURES	15 DEC 2021	M.C.A.	A.D.B.

PIROLI APARTMENTS, AMHERSTBURG - TIS	PROJECT NO. 21-1213
<b>TOTAL TRAFFIC 2031 (AM/PM PEAK HOUR)</b>	FIGURE NO. 8
	OF 10



TOTAL TRAFFIC 2031 + ANTICIPATED  
AREA DEVELOPMENT TRAFFIC (AM)

TOTAL TRAFFIC 2031 + ANTICIPATED  
AREA DEVELOPMENT TRAFFIC (PM)



Windsor: 800 University Avenue W. - Windsor ON N9A 5R9  
Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4  
Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6



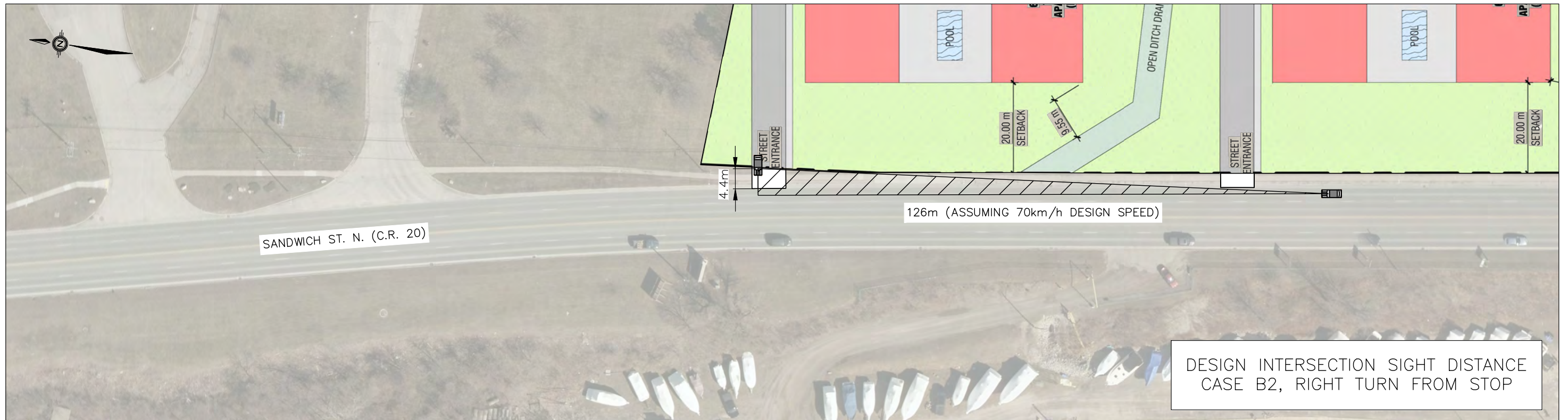
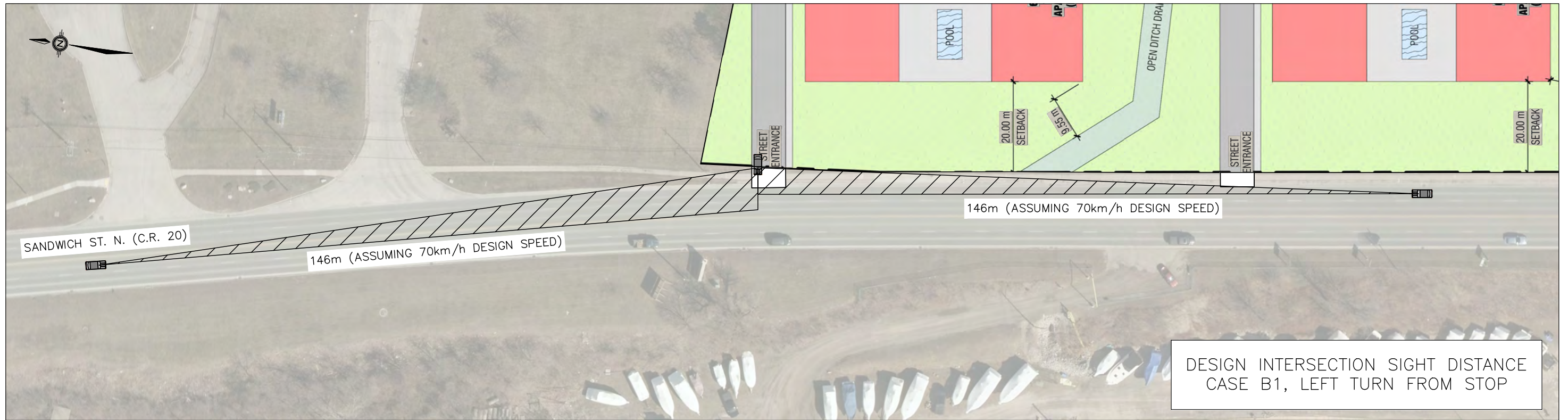
DESIGN	A.D.B.			
CHECKED	J.T.			
DRAWN	M.C.A.			
CHECKED	A.D.B.			
DATE	DECEMBER 2021			
SCALE	N.T.S.			
1. COMPLETED REPORT FIGURES	15 DEC 2021 M.C.A. A.D.B.			
NO.	REVISION	DATE	BY	APP

PIROLI APARTMENTS, AMHERSTBURG - TIS

**TOTAL TRAFFIC 2031 +  
ANTICIPATED AREA DEVELOPMENT  
TRAFFIC (AM/PM PEAK HOUR)**

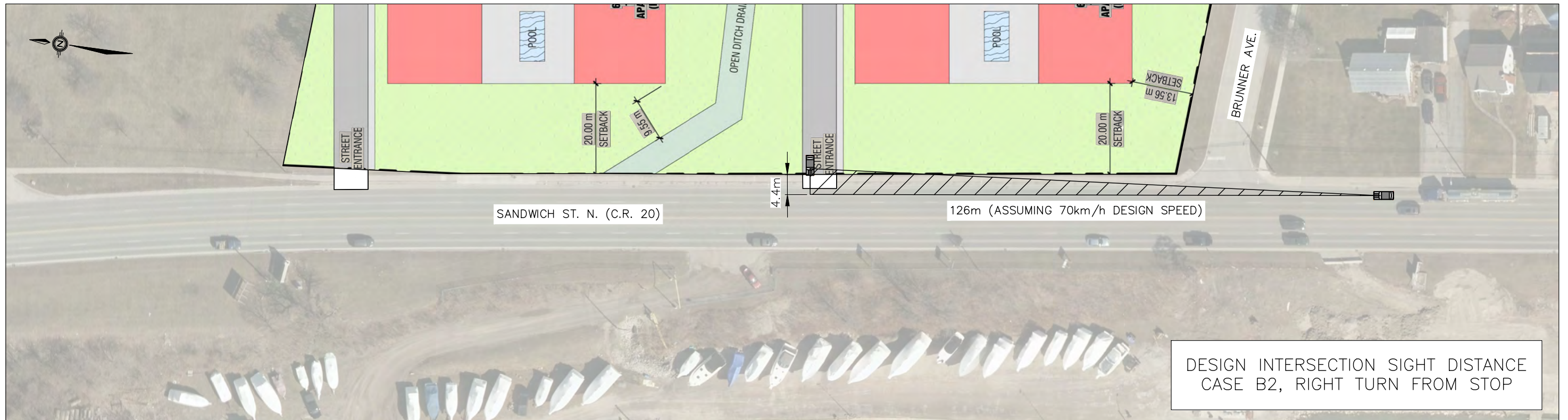
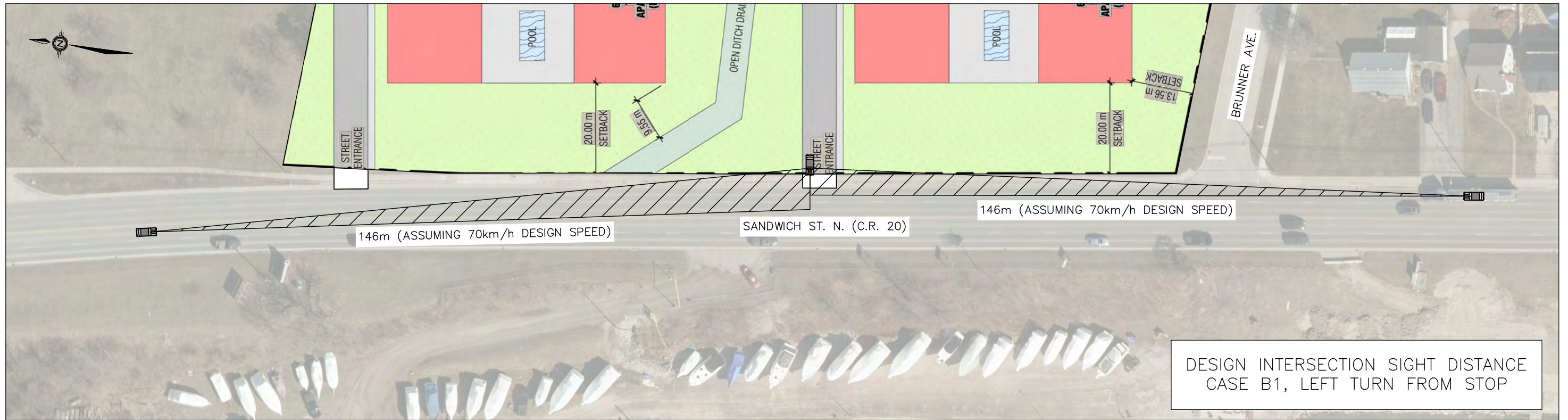
PROJECT NO.  
21-1213

FIGURE NO.  
9  
OF 10



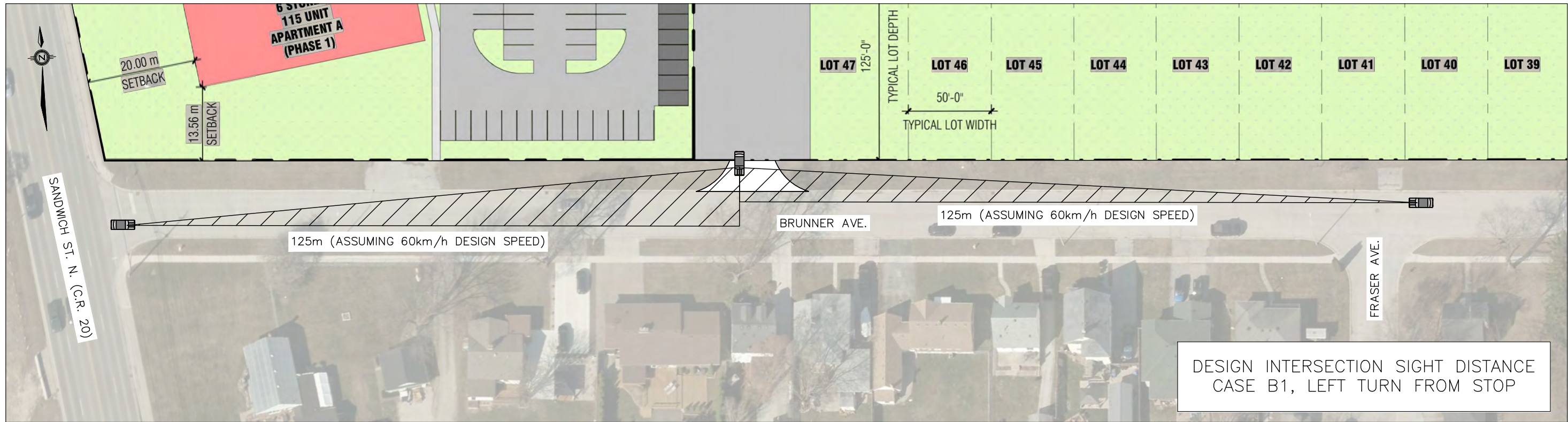
		<p>RC SPENCER ASSOCIATES INC. Consulting Engineers Windsor: 800 University Avenue W. - Windsor ON N9A 5R9 Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4 Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6</p> <p>Professional Engineers Ontario</p>				DESIGN A.D.B. CHECKED J.T. DRAWN M.C.A. CHECKED A.D.B. DATE DECEMBER 2021 SCALE N.T.S.		PIROLI APARTMENTS, AMHERSTBURG - TIS  <b>SIGHT LINE ANALYSIS:          NORTHERLY SITE ACCESS AT          SANDWICH STREET N. (C.R. 20)</b>		PROJECT NO. 21-1213  FIGURE NO. 10A  OF 10	
1.	COMPLETED REPORT FIGURES	15 DEC 2021	M.C.A.	A.D.B.							
NO.	REVISION	DATE	BY	APP							



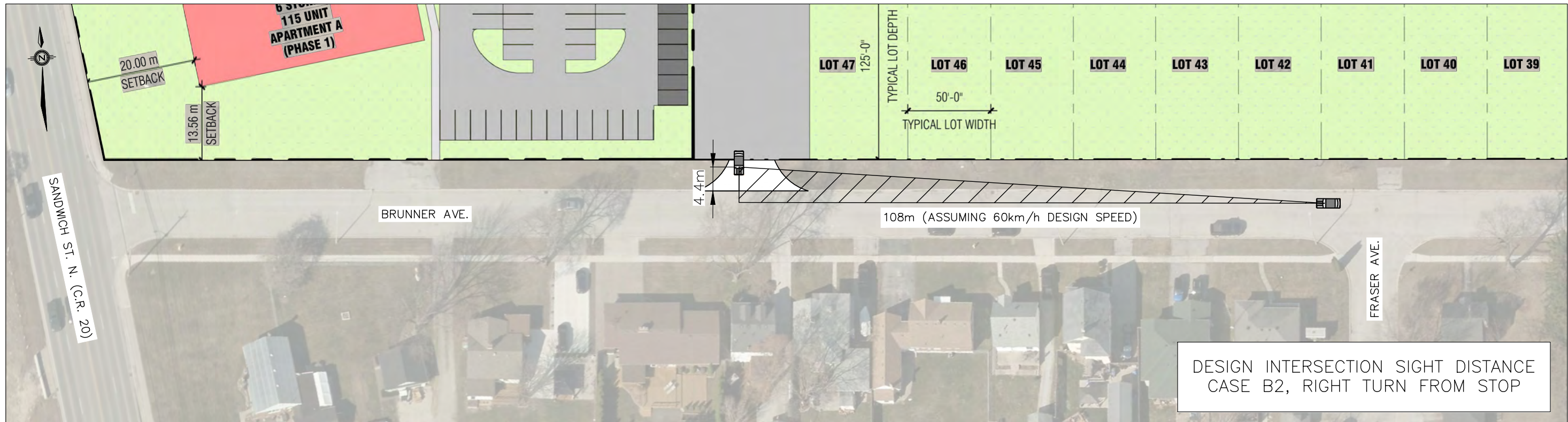


<p>RC SPENCER ASSOCIATES INC. Consulting Engineers Windsor: 800 University Avenue W. - Windsor ON N9A 5R9 Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4 Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6</p> <p>Professional Engineers Ontario</p>				DESIGN	A.D.B.	PIROLI APARTMENTS, AMHERSTBURG - TIS	PROJECT NO.	21-1213
				CHECKED	J.T.		SIGHT LINE ANALYSIS: SOUTHERLY SITE ACCESS AT SANDWICH STREET N. (C.R. 20)	FIGURE NO.
1.	COMPLETED REPORT FIGURES	15 DEC 2021	M.C.A.	A.D.B.	DATE	DECEMBER 2021		OF
NO.	REVISION	DATE	BY	APP	SCALE	N.T.S.		





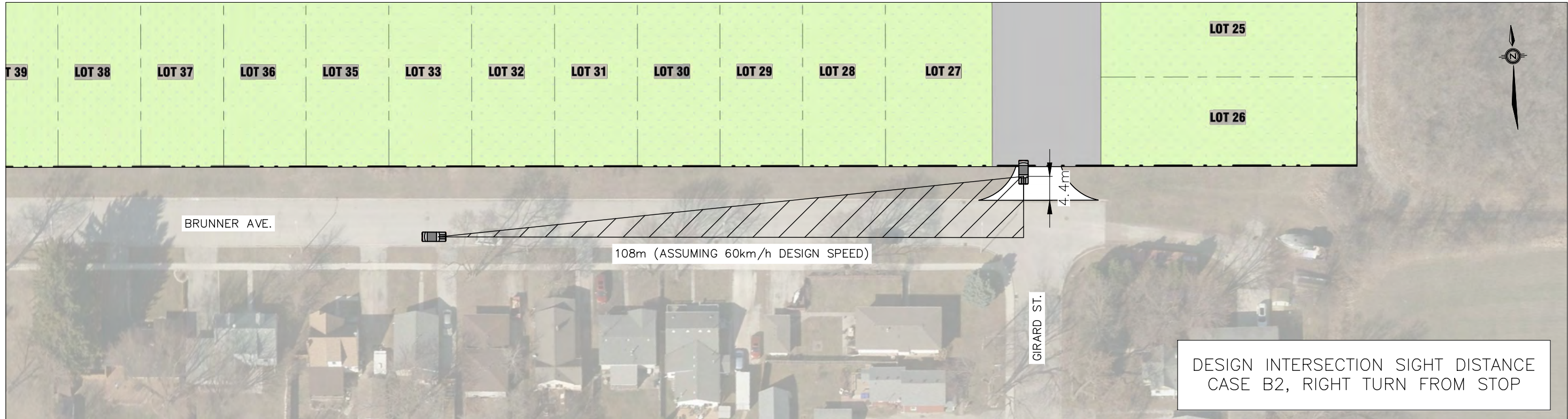
DESIGN INTERSECTION SIGHT DISTANCE  
CASE B1, LEFT TURN FROM STOP



DESIGN INTERSECTION SIGHT DISTANCE  
CASE B2, RIGHT TURN FROM STOP

		DESIGN A.D.B.		PIROLI APARTMENTS, AMHERSTBURG – TIS		PROJECT NO. 21-1213
		CHECKED J.T.		<p align="center"><b>SIGHT LINE ANALYSIS: EASTERLY SITE ACCESS AT BRUNNER AVENUE</b></p>		FIGURE NO. 10C
DRAWN M.C.A.		CHECKED A.D.B.				OF 10
1. COMPLETED REPORT FIGURES		15 DEC 2021	M.C.A.	A.D.B.	DATE DECEMBER 2021	
NO.	REVISION	DATE	BY	APP	SCALE N.T.S.	





		<p>RC SPENCER ASSOCIATES INC. Consulting Engineers Windsor: 800 University Avenue W. - Windsor ON N9A 5R9 Leamington: 15 Talbot Street W. - Leamington ON N8H 1M4 Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6</p> <p>Professional Engineers Ontario</p>		DESIGN A.D.B.	PIROLI APARTMENTS, AMHERSTBURG - TIS	PROJECT NO. 21-1213
				CHECKED J.T.		<b>SIGHT LINE ANALYSIS: WESTERLY SITE ACCESS AT BRUNNER AVENUE</b>
			DRAWN M.C.A.	DATE DECEMBER 2021 SCALE N.T.S.	OF 10	
			CHECKED A.D.B.			
		1. COMPLETED REPORT FIGURES	15 DEC 2021	M.C.A. A.D.B.		
NO.	REVISION	DATE	BY	APP		

## **Appendix A**

# **TRAFFIC DATA COLLECTION**

**Brunner Avenue at Sandwich Street North**

**Fraser Avenue at Brunner Avenue**

**Grant Avenue at Sandwich Street North**

Date: 12 October 2021  
 Counted By: Esther B.  
 Weather Conditions: Partly Cloudy  
 Brunner Ave. at Sandwich St. N. (CR20)

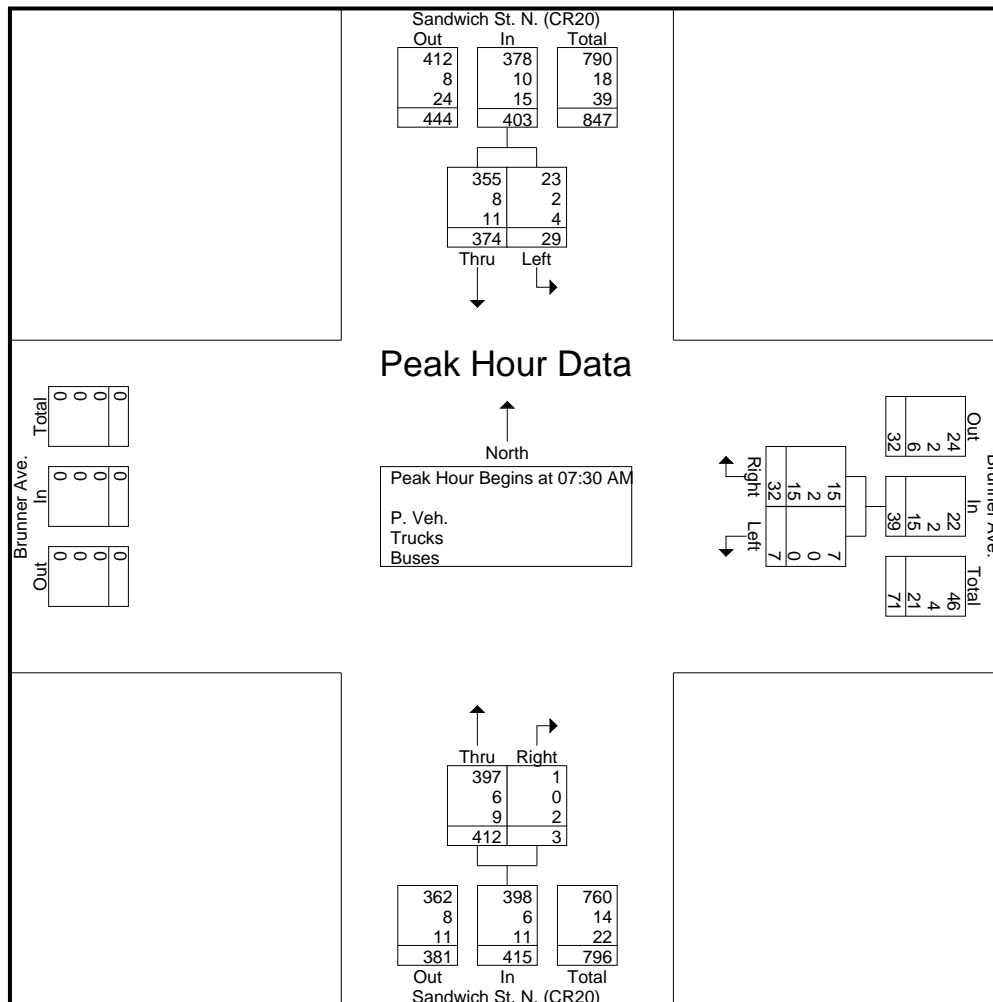
**Groups Printed- P. Veh. - Trucks - Buses**

Start Time	Brunner Ave. W/B				Sandwich St. N. (CR20) N/B				Sandwich St. N. (CR20) S/B				Exclu. Total	Inclu. Total	Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total			
07:00 AM	1	0	(0)	1	0	104	(0)	104	54	1	(0)	55	0	160	160
07:15 AM	1	1	(0)	2	0	117	(0)	117	66	4	(0)	70	0	189	189
07:30 AM	4	1	(0)	5	0	94	(0)	94	76	6	(0)	82	0	181	181
07:45 AM	5	2	(0)	7	1	90	(0)	91	105	11	(0)	116	0	214	214
Total	11	4	(0)	15	1	405	(0)	406	301	22	(0)	323	0	744	744
08:00 AM	3	3	(0)	6	2	105	(0)	107	103	6	(0)	109	0	222	222
08:15 AM	20	1	(0)	21	0	123	(0)	123	90	6	(0)	96	0	240	240
08:30 AM	0	1	(0)	1	0	89	(0)	89	89	0	(0)	89	0	179	179
08:45 AM	3	1	(0)	4	0	64	(0)	64	143	1	(0)	144	0	212	212
Total	26	6	(0)	32	2	381	(0)	383	425	13	(0)	438	0	853	853
*** BREAK ***															
04:00 PM	1	6	(0)	7	0	123	(0)	123	154	6	(0)	160	0	290	290
04:15 PM	1	1	(0)	2	1	152	(0)	153	166	1	(0)	167	0	322	322
04:30 PM	2	0	(0)	2	4	137	(0)	141	152	5	(0)	157	0	300	300
04:45 PM	7	1	(0)	8	2	138	(0)	140	175	2	(0)	177	0	325	325
Total	11	8	(0)	19	7	550	(0)	557	647	14	(0)	661	0	1237	1237
05:00 PM	2	0	(0)	2	3	155	(0)	158	148	1	(0)	149	0	309	309
05:15 PM	4	1	(0)	5	3	144	(0)	147	132	1	(0)	133	0	285	285
05:30 PM	1	3	(0)	4	0	125	(0)	125	153	3	(0)	156	0	285	285
05:45 PM	4	0	(0)	4	2	109	(0)	111	154	1	(0)	155	0	270	270
Total	11	4	(0)	15	8	533	(0)	541	587	6	(0)	593	0	1149	1149
Grand Total	59	22	(0)	81	18	1869	(0)	1887	1960	55	(0)	2015	0	3983	3983
Apprch %	72.8	27.2			1	99			97.3	2.7					
Total %	1.5	0.6		2	0.5	46.9		47.4	49.2	1.4		50.6	0	100	
P. Veh.	40	17		57	16	1816		1832	1913	43		1956	0	0	3845
% P. Veh.	67.8	77.3	0	70.4	88.9	97.2	0	97.1	97.6	78.2	0	97.1	0	0	96.5
Trucks	3	0		3	0	29		29	28	2		30	0	0	62
% Trucks	5.1	0	0	3.7	0	1.6	0	1.5	1.4	3.6	0	1.5	0	0	1.6
Buses	16	5		21	2	24		26	19	10		29	0	0	76
% Buses	27.1	22.7	0	25.9	11.1	1.3	0	1.4	1	18.2	0	1.4	0	0	1.9



Start Time	Brunner Ave.			Sandwich St. N. (CR20)			Sandwich St. N. (CR20)			Int. Total
	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	
07:30 AM	4	1	5	0	94	94	76	6	82	181
07:45 AM	5	2	7	1	90	91	<b>105</b>	<b>11</b>	<b>116</b>	214
08:00 AM	3	<b>3</b>	6	<b>2</b>	105	107	103	6	109	222
08:15 AM	<b>20</b>	1	<b>21</b>	0	<b>123</b>	<b>123</b>	90	6	96	<b>240</b>
Total Volume	32	7	39	3	412	415	374	29	403	857
% App. Total	82.1	17.9		0.7	99.3		92.8	7.2		
PHF	.400	.583	.464	.375	.837	.843	.890	.659	.869	.893
P. Veh.	15	7	22	1	397	398	355	23	378	798
% P. Veh.	46.9	100	56.4	33.3	96.4	95.9	94.9	79.3	93.8	93.1
Trucks	2	0	2	0	6	6	8	2	10	18
% Trucks	6.3	0	5.1	0	1.5	1.4	2.1	6.9	2.5	2.1
Buses	15	0	15	2	9	11	11	4	15	41
% Buses	46.9	0	38.5	66.7	2.2	2.7	2.9	13.8	3.7	4.8

Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM

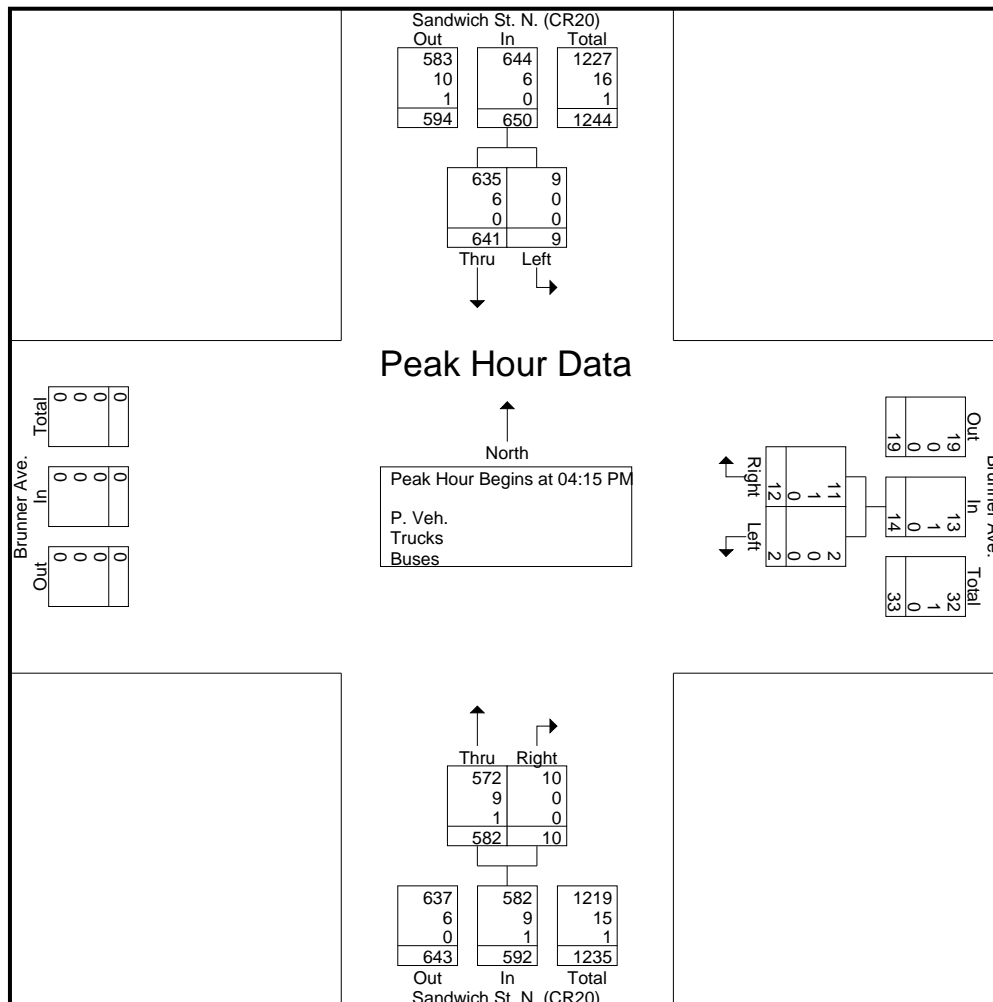




Start Time	Brunner Ave. W/B			Sandwich St. N. (CR20) N/B			Sandwich St. N. (CR20) S/B			Int. Total
	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	1	1	2	1	152	153	166	1	167	322
04:30 PM	2	0	2	4	137	141	152	5	157	300
04:45 PM	7	1	8	2	138	140	175	2	177	325
05:00 PM	2	0	2	3	155	158	148	1	149	309
Total Volume	12	2	14	10	582	592	641	9	650	1256
% App. Total	85.7	14.3		1.7	98.3		98.6	1.4		
PHF	.429	.500	.438	.625	.939	.937	.916	.450	.918	.966
P. Veh.	11	2	13	10	572	582	635	9	644	1239
% P. Veh.	91.7	100	92.9	100	98.3	98.3	99.1	100	99.1	98.6
Trucks	1	0	1	0	9	9	6	0	6	16
% Trucks	8.3	0	7.1	0	1.5	1.5	0.9	0	0.9	1.3
Buses	0	0	0	0	1	1	0	0	0	1
% Buses	0	0	0	0	0.2	0.2	0	0	0	0.1



Date: 5 November 2021  
 Counted By: Emily B.  
 Weather Conditions: Clear  
 Fraser Avenue at Brunner Avenue

Groups Printed- P. Veh. - Trucks - Buses

Start Time	Brunner Ave. E/B				Brunner Ave. W/B				Fraser Ave. N/B				Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total			
07:00 AM	0	1	(0)	1	2	0	(0)	2	0	1	(0)	1	0	4	4
07:15 AM	0	0	(1)	0	1	0	(0)	1	0	1	(0)	1	1	2	3
07:30 AM	0	8	(0)	8	2	0	(0)	2	0	0	(0)	0	0	10	10
07:45 AM	2	9	(0)	11	5	0	(1)	5	0	0	(0)	0	1	16	17
Total	2	18	(1)	20	10	0	(1)	10	0	2	(0)	2	2	32	34
08:00 AM	0	11	(1)	11	4	0	(0)	4	0	2	(0)	2	1	17	18
08:15 AM	2	9	(0)	11	14	0	(0)	14	0	2	(0)	2	0	27	27
08:30 AM	0	2	(0)	2	1	0	(0)	1	0	0	(0)	0	0	3	3
08:45 AM	0	1	(0)	1	2	0	(0)	2	0	2	(0)	2	0	5	5
Total	2	23	(1)	25	21	0	(0)	21	0	6	(0)	6	1	52	53
*** BREAK ***															
04:00 PM	1	5	(0)	6	4	0	(0)	4	0	0	(0)	0	0	10	10
04:15 PM	0	2	(0)	2	0	0	(0)	0	0	0	(0)	0	0	2	2
04:30 PM	2	4	(0)	6	3	1	(0)	4	0	0	(0)	0	0	10	10
04:45 PM	1	2	(0)	3	1	0	(0)	1	0	2	(0)	2	0	6	6
Total	4	13	(0)	17	8	1	(0)	9	0	2	(0)	2	0	28	28
05:00 PM	1	3	(1)	4	4	0	(0)	4	0	0	(0)	0	1	8	9
05:15 PM	0	5	(1)	5	2	0	(0)	2	0	1	(0)	1	1	8	9
05:30 PM	0	0	(0)	0	1	0	(0)	1	0	0	(0)	0	0	1	1
05:45 PM	0	2	(0)	2	0	0	(0)	0	0	0	(0)	0	0	2	2
Total	1	10	(2)	11	7	0	(0)	7	0	1	(0)	1	2	19	21
Grand Total	9	64	(4)	73	46	1	(1)	47	0	11	(0)	11	5	131	136
Apprch %	12.3	87.7			97.9	2.1			0	100					
Total %	6.9	48.9		55.7	35.1	0.8		35.9	0	8.4		8.4	3.7	96.3	
P. Veh.	8	60		72	46	1		48	0	9		9	0	0	129
% P. Veh.	88.9	93.8	100	93.5	100	100	100	100	0	81.8	0	81.8	0	0	94.9
Trucks	0	3		3	0	0		0	0	2		2	0	0	5
% Trucks	0	4.7	0	3.9	0	0	0	0	0	18.2	0	18.2	0	0	3.7
Buses	1	1		2	0	0		0	0	0		0	0	0	2
% Buses	11.1	1.6	0	2.6	0	0	0	0	0	0	0	0	0	0	1.5

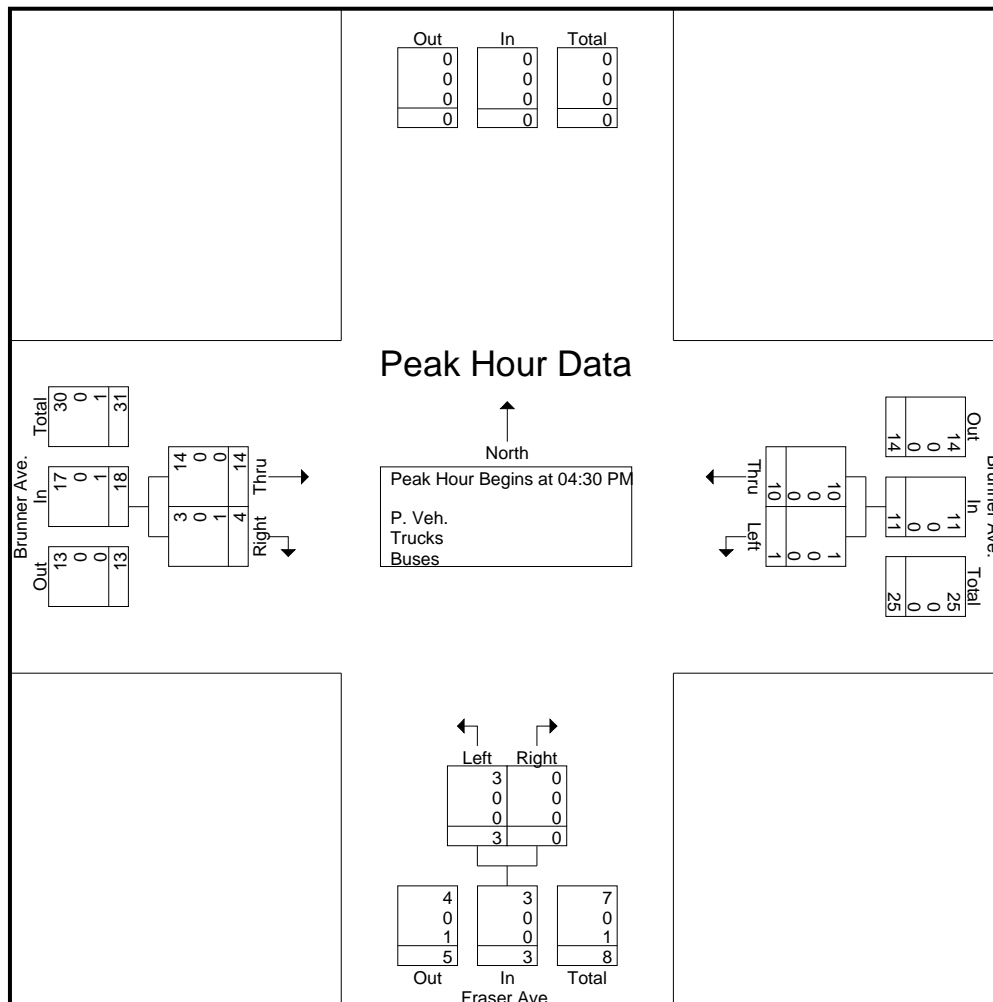




Start Time	Brunner Ave. E/B			Brunner Ave. W/B			Fraser Ave. N/B			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 04:30 PM

04:30 PM	2	4	6	3	1	4	0	0	0	10
04:45 PM	1	2	3	1	0	1	0	2	2	6
05:00 PM	1	3	4	4	0	4	0	0	0	8
05:15 PM	0	5	5	2	0	2	0	1	1	8
Total Volume	4	14	18	10	1	11	0	3	3	32
% App. Total	22.2	77.8		90.9	9.1		0	100		
PHF	.500	.700	.750	.625	.250	.688	.000	.375	.375	.800
P. Veh.	3	14	17	10	1	11	0	3	3	31
% P. Veh.	75.0	100	94.4	100	100	100	0	100	100	96.9
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0
Buses	1	0	1	0	0	0	0	0	0	1
% Buses	25.0	0	5.6	0	0	0	0	0	0	3.1





Date: 12 October 2021  
 Counted By: Esther B.  
 Weather Conditions: Partly Cloudy  
 Grant Ave. at Sandwich St. N. (CR20)

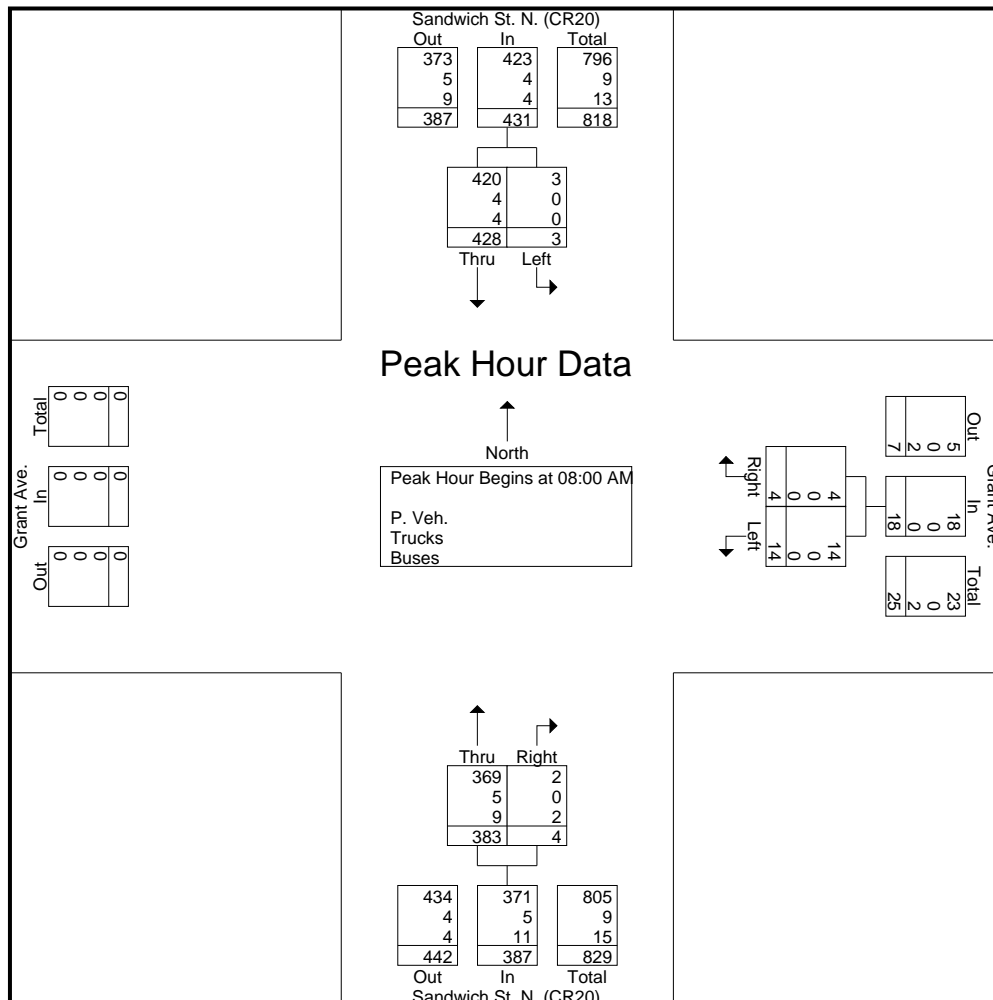
Groups Printed- P. Veh. - Trucks - Buses

Start Time	Grant Ave. W/B				Sandwich St. N. (CR20) N/B				Sandwich St. N. (CR20) S/B				Exclu. Total	Inclu. Total	Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total			
07:00 AM	0	0	(0)	0	0	104	(0)	104	54	0	(0)	54	0	158	158
07:15 AM	0	0	(0)	0	0	117	(0)	117	67	0	(0)	67	0	184	184
07:30 AM	0	0	(0)	0	0	94	(1)	94	77	0	(0)	77	1	171	172
07:45 AM	0	2	(2)	2	0	91	(0)	91	107	1	(0)	108	2	201	203
Total	0	2	(2)	2	0	406	(1)	406	305	1	(0)	306	3	714	717
08:00 AM	0	4	(0)	4	2	107	(0)	109	106	0	(0)	106	0	219	219
08:15 AM	2	5	(1)	7	1	123	(0)	124	89	2	(0)	91	1	222	223
08:30 AM	1	3	(1)	4	0	89	(0)	89	90	0	(0)	90	1	183	184
08:45 AM	1	2	(23)	3	1	64	(0)	65	143	1	(0)	144	23	212	235
Total	4	14	(25)	18	4	383	(0)	387	428	3	(0)	431	25	836	861
*** BREAK ***															
04:00 PM	0	1	(0)	1	3	123	(0)	126	158	2	(0)	160	0	287	287
04:15 PM	0	0	(0)	0	0	153	(0)	153	166	1	(0)	167	0	320	320
04:30 PM	2	1	(1)	3	0	141	(0)	141	149	3	(0)	152	1	296	297
04:45 PM	1	2	(0)	3	1	140	(0)	141	175	1	(0)	176	0	320	320
Total	3	4	(1)	7	4	557	(0)	561	648	7	(0)	655	1	1223	1224
05:00 PM	3	1	(0)	4	1	158	(0)	159	146	2	(0)	148	0	311	311
05:15 PM	2	1	(0)	3	4	147	(0)	151	132	1	(0)	133	0	287	287
05:30 PM	4	1	(0)	5	5	125	(0)	130	153	3	(0)	156	0	291	291
05:45 PM	0	0	(0)	0	2	111	(0)	113	152	2	(0)	154	0	267	267
Total	9	3	(0)	12	12	541	(0)	553	583	8	(0)	591	0	1156	1156
Grand Total	16	23	(28)	39	20	1887	(1)	1907	1964	19	(0)	1983	29	3929	3958
Apprch %	41	59			1	99			99	1					
Total %	0.4	0.6		1	0.5	48		48.5	50	0.5		50.5	0.7	99.3	
P. Veh.	16	23		67	18	1834		1853	1917	19		1936	0	0	3856
% P. Veh.	100	100	100	100	90	97.2	100	97.1	97.6	100	0	97.6	0	0	97.4
Trucks	0	0		0	0	29		29	28	0		28	0	0	57
% Trucks	0	0	0	0	0	1.5	0	1.5	1.4	0	0	1.4	0	0	1.4
Buses	0	0		0	2	24		26	19	0		19	0	0	45
% Buses	0	0	0	0	10	1.3	0	1.4	1	0	0	1	0	0	1.1



Start Time	Grant Ave. W/B			Sandwich St. N. (CR20) N/B			Sandwich St. N. (CR20) S/B			Int. Total
	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	
08:00 AM	0	4	4	2	107	109	106	0	106	219
08:15 AM	2	5	7	1	123	124	89	2	91	222
08:30 AM	1	3	4	0	89	89	90	0	90	183
08:45 AM	1	2	3	1	64	65	143	1	144	212
<b>Total Volume</b>	4	14	18	4	383	387	428	3	431	836
<b>% App. Total</b>	22.2	77.8		1	99		99.3	0.7		
PHF	.500	.700	.643	.500	.778	.780	.748	.375	.748	.941
P. Veh.	4	14	18	2	369	371	420	3	423	812
% P. Veh.	100	100	100	50.0	96.3	95.9	98.1	100	98.1	97.1
Trucks	0	0	0	0	5	5	4	0	4	9
% Trucks	0	0	0	0	1.3	1.3	0.9	0	0.9	1.1
Buses	0	0	0	2	9	11	4	0	4	15
% Buses	0	0	0	50.0	2.3	2.8	0.9	0	0.9	1.8

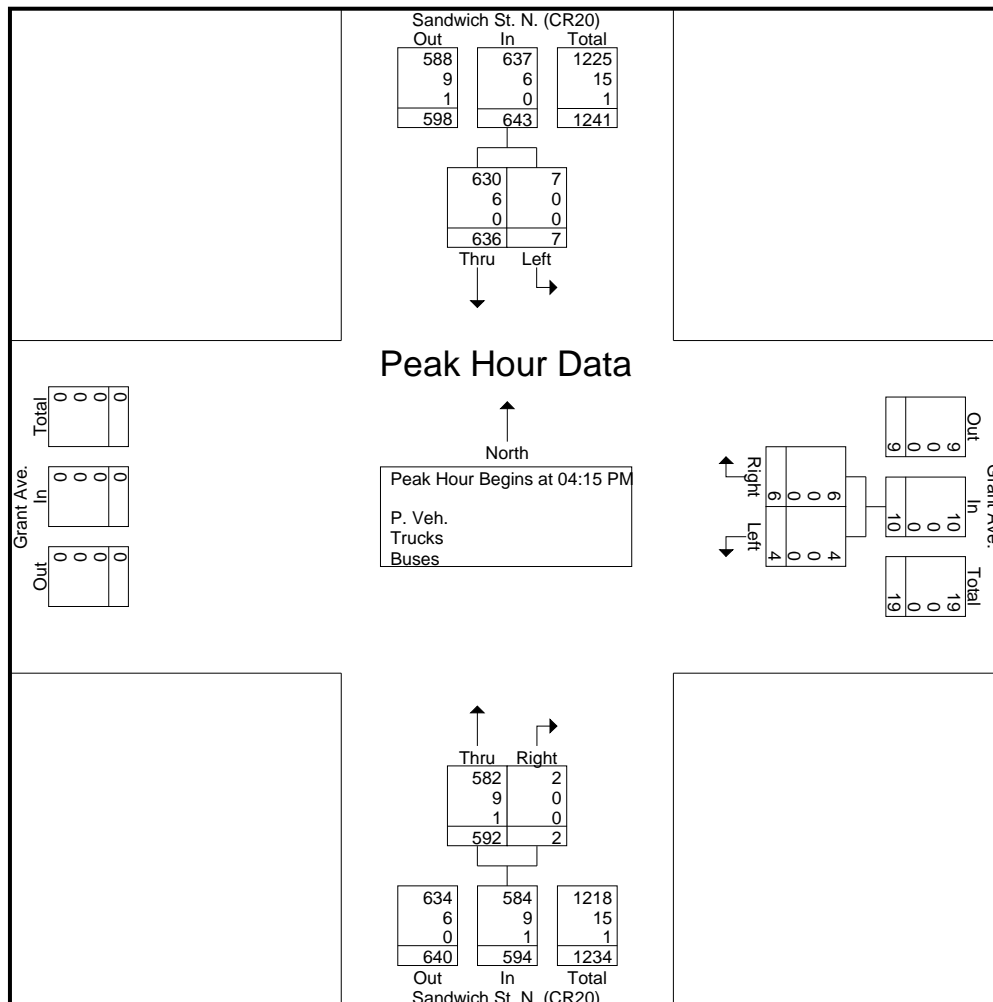
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 08:00 AM



Start Time	Grant Ave. W/B			Sandwich St. N. (CR20) N/B			Sandwich St. N. (CR20) S/B			Int. Total
	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	0	0	0	0	153	153	166	1	167	320
04:30 PM	2	1	3	0	141	141	149	3	152	296
04:45 PM	1	2	3	1	140	141	175	1	176	320
05:00 PM	3	1	4	1	158	159	146	2	148	311
Total Volume	6	4	10	2	592	594	636	7	643	1247
% App. Total	60	40		0.3	99.7		98.9	1.1		
PHF	.500	.500	.625	.500	.937	.934	.909	.583	.913	.974
P. Veh.	6	4	10	2	582	584	630	7	637	1231
% P. Veh.	100	100	100	100	98.3	98.3	99.1	100	99.1	98.7
Trucks	0	0	0	0	9	9	6	0	6	15
% Trucks	0	0	0	0	1.5	1.5	0.9	0	0.9	1.2
Buses	0	0	0	0	1	1	0	0	0	1
% Buses	0	0	0	0	0.2	0.2	0	0	0	0.1



## **Appendix B**

# **ITE TRIP GENERATION MANUAL – 10<sup>TH</sup> EDITION REFERENCES**



# Multifamily Housing (Mid-Rise) (221)

**Vehicle Trip Ends vs: Dwelling Units**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**

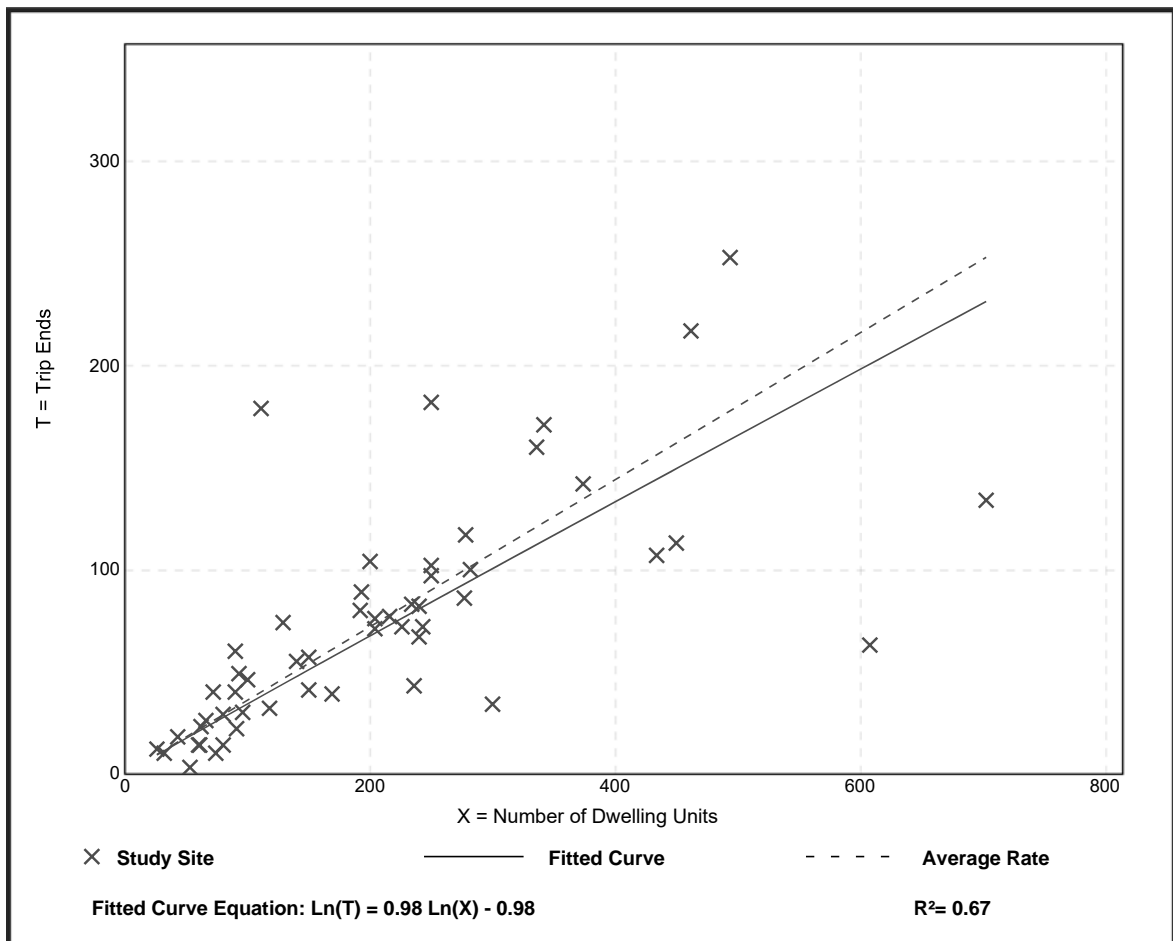
**Setting/Location: General Urban/Suburban**

Number of Studies: 53  
 Avg. Num. of Dwelling Units: 207  
 Directional Distribution: 26% entering, 74% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

## Data Plot and Equation



*Trip Generation Manual, 10th Edition* • Institute of Transportation Engineers

# Multifamily Housing (Mid-Rise) (221)

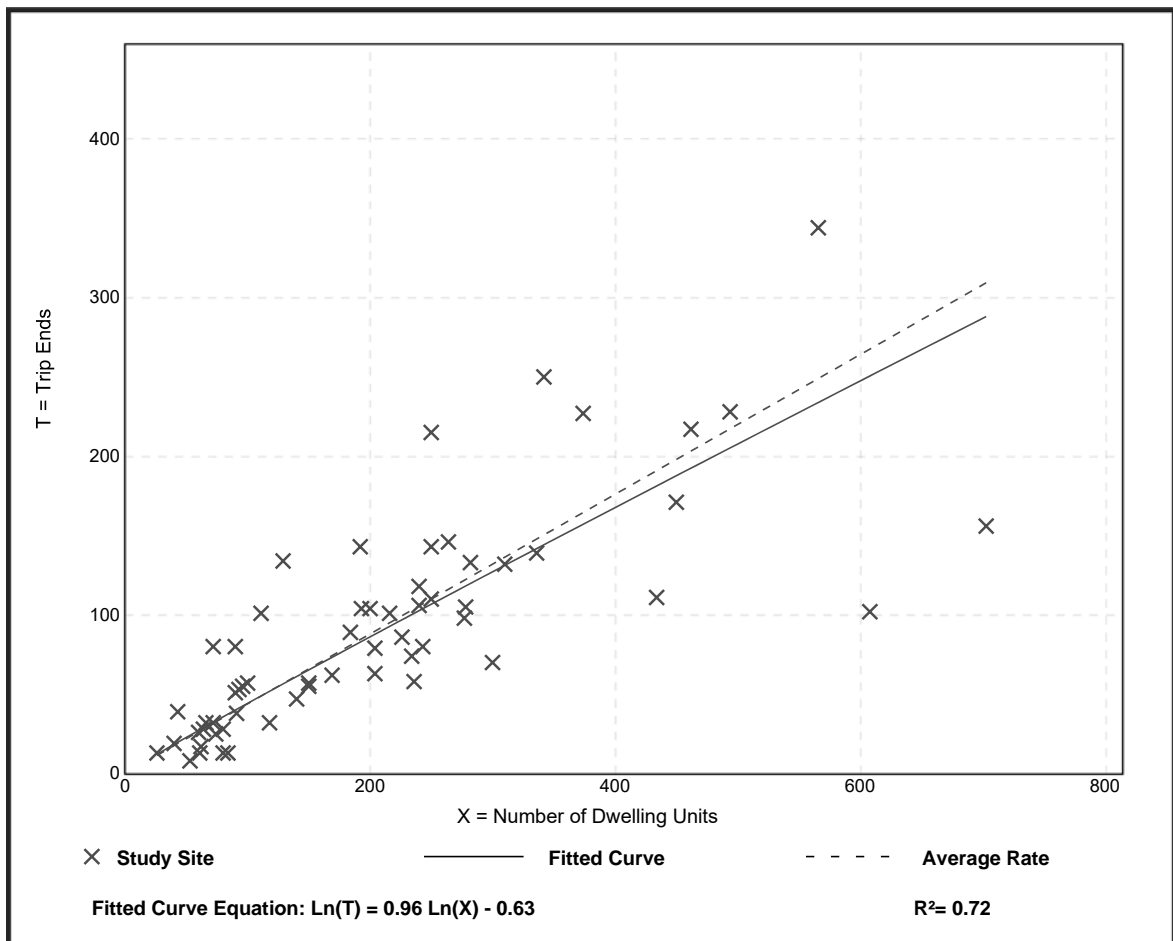
**Vehicle Trip Ends vs: Dwelling Units**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**  
**Setting/Location: General Urban/Suburban**

Number of Studies: 60  
 Avg. Num. of Dwelling Units: 208  
 Directional Distribution: 61% entering, 39% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

## Data Plot and Equation



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# Single-Family Detached Housing (210)

**Vehicle Trip Ends vs: Dwelling Units**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**

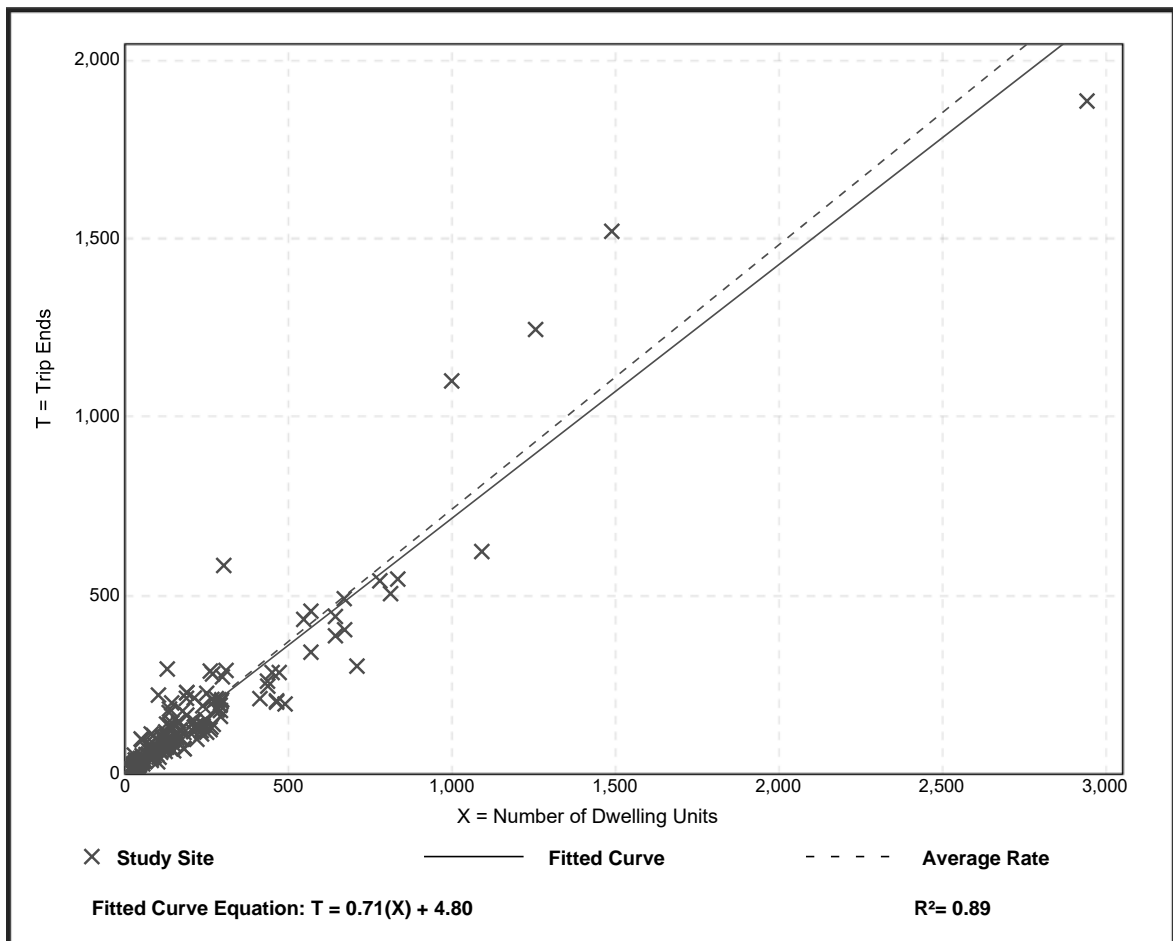
**Setting/Location: General Urban/Suburban**

Number of Studies: 173  
 Avg. Num. of Dwelling Units: 219  
 Directional Distribution: 25% entering, 75% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

## Data Plot and Equation



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# Single-Family Detached Housing (210)

**Vehicle Trip Ends vs: Dwelling Units**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**

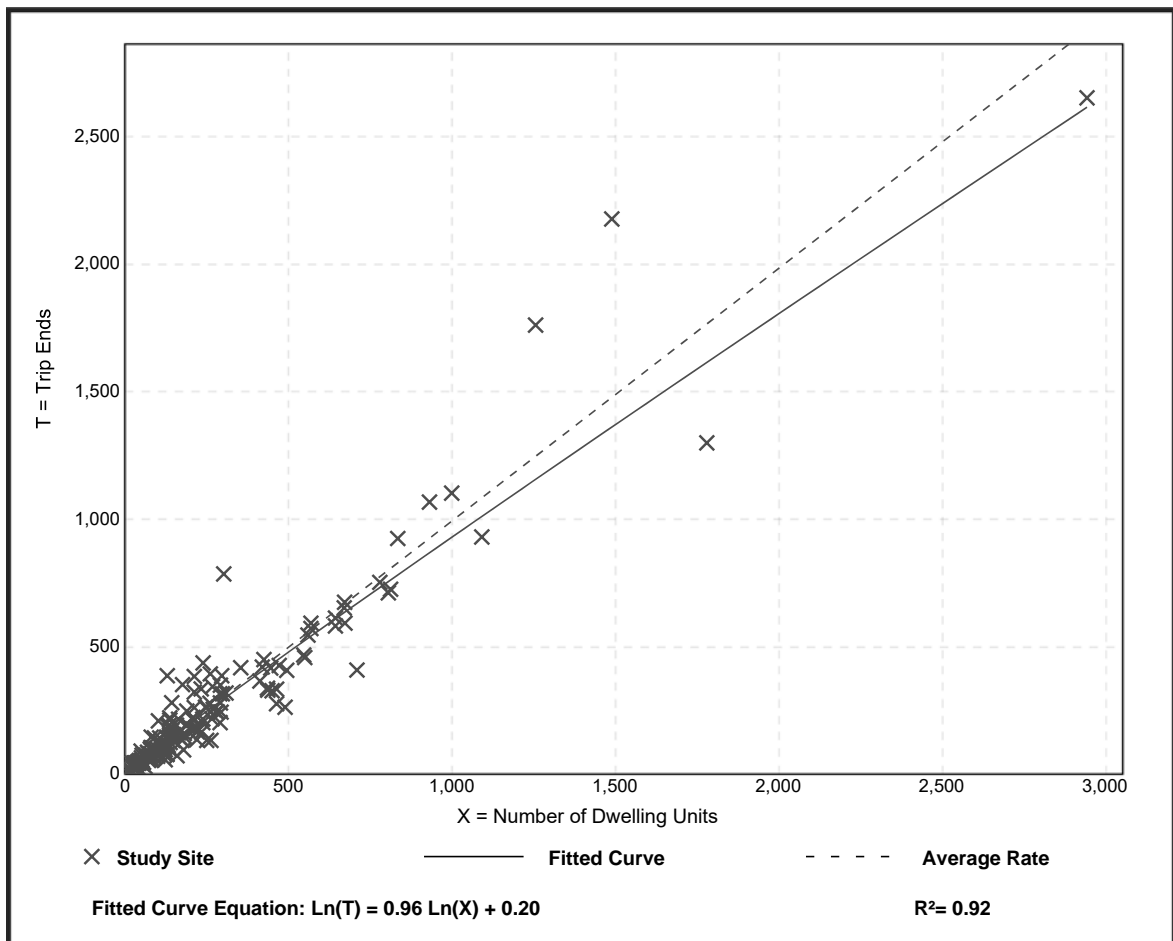
**Setting/Location: General Urban/Suburban**

Number of Studies: 190  
 Avg. Num. of Dwelling Units: 242  
 Directional Distribution: 63% entering, 37% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

## Data Plot and Equation



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**Proposed Site Development Trip Generation and Distribution**

**Project:** Piroli Apartments

**Site:** Amherstburg, Ontario

**Assumed Land Use (1):** Multifamily Housing (Mid-Rise) - ITE No. 220

**Average Vehicle Trip Ends vs.:** Dwelling Units

**ITE Trip Generation Data collected on a:** Weekday

**AM Peak Hour:**  = Average Rate 

26	% Entering
74	% Exiting

**PM Peak Hour:**  = Average Rate 

61	% Entering
39	% Exiting

**Assumed Land Use (2):** Single Family Detached Housing - ITE No. 210

**Average Vehicle Trip Ends vs.:** Dwelling Units

**ITE Trip Generation Data collected on a:** Weekday

**AM Peak Hour:**  = Average Rate 

25	% Entering
75	% Exiting

**PM Peak Hour:**  = Average Rate 

63	% Entering
37	% Exiting

<b>Assumed Land Use (1): Multifamily Housing (Mid-Rise) - ITE No. 220</b>				
	<b>Dwelling Units</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	230	83	22	61
<b>PM Peak</b>	230	101	62	39

<b>Assumed Land Use (2): Single Family Detached Housing - ITE No. 210</b>				
	<b>Dwelling Units</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	47	35	9	26
<b>PM Peak</b>	47	47	30	17

<b>Total Trips</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	31	87
<b>PM Peak</b>	92	56

## **Appendix C**

# **TRAFFIC PROJECTION FIGURES**

**Northerly Site Access at Sandwich Street North**

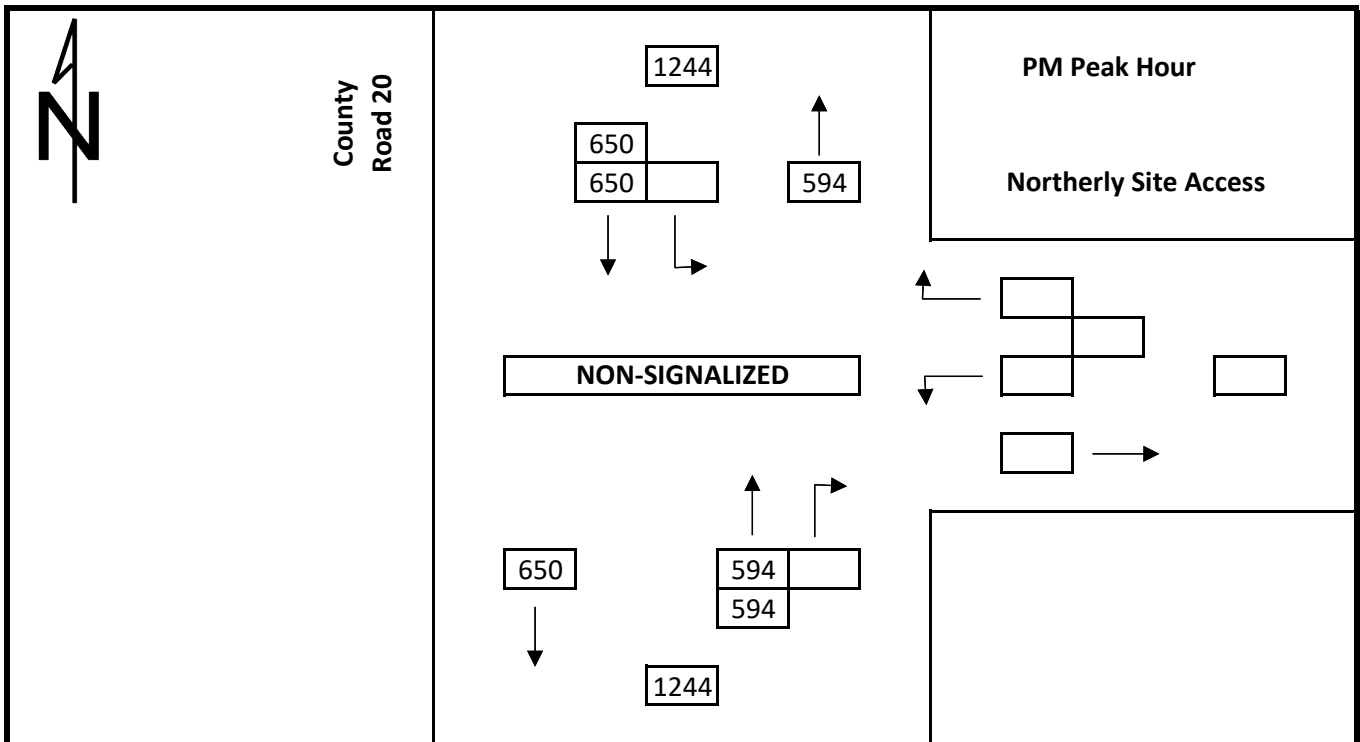
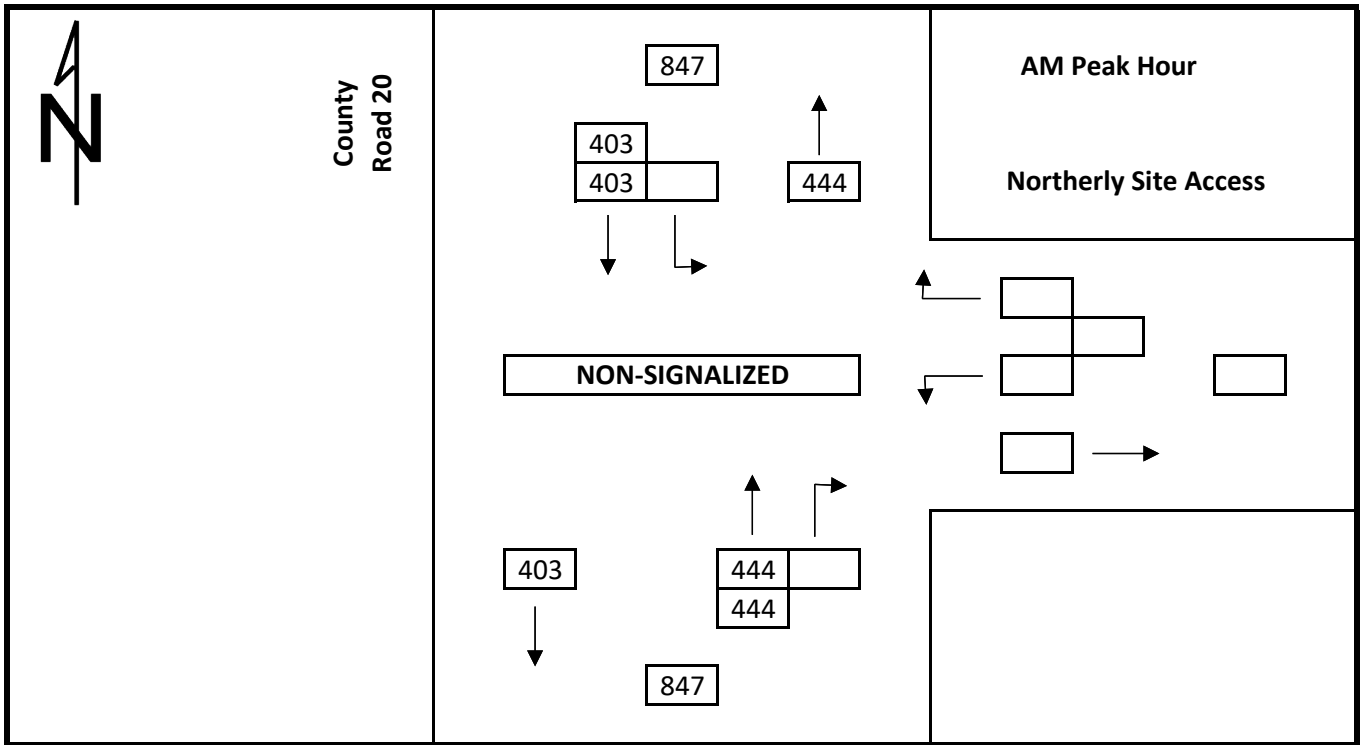
**Southerly Site Access at Sandwich Street North**

**Brunner Avenue at Sandwich Street North**

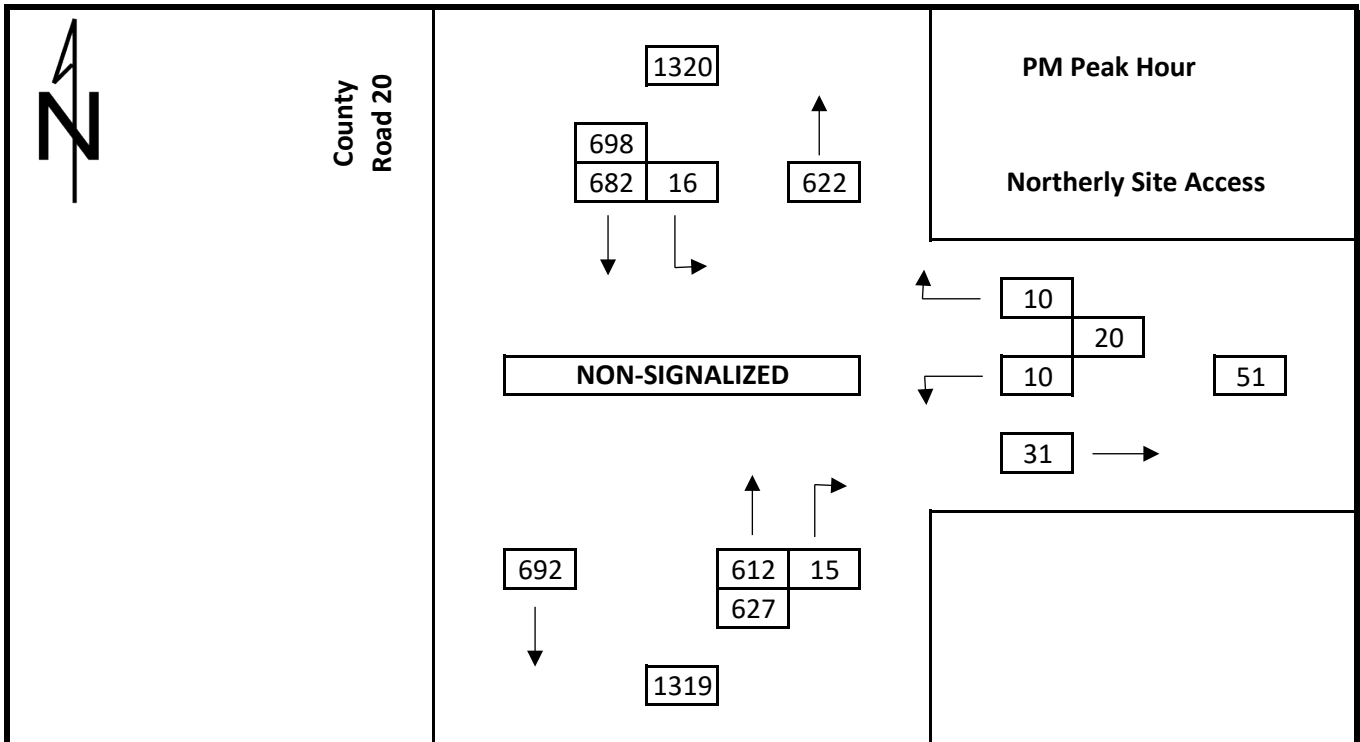
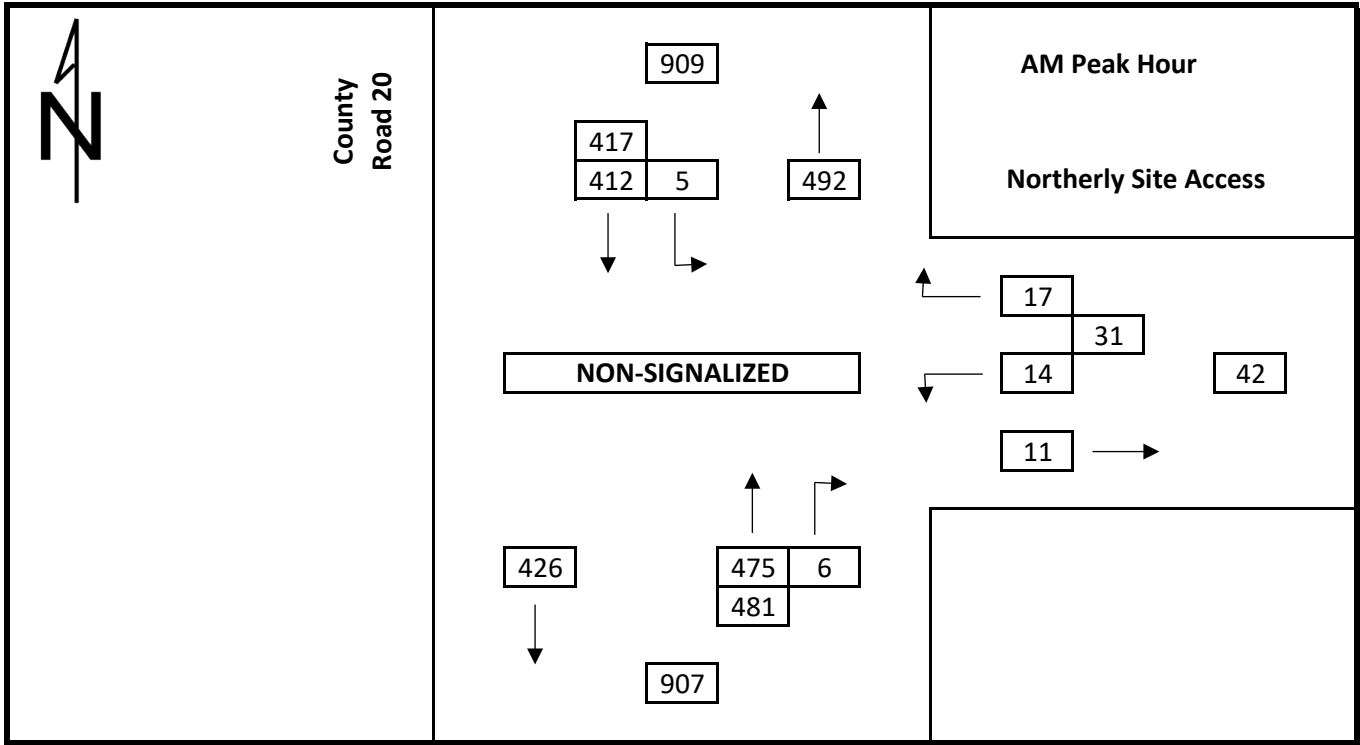
**Westerly Site Access at Brunner Avenue**

**Grant Avenue at Sandwich Street North**

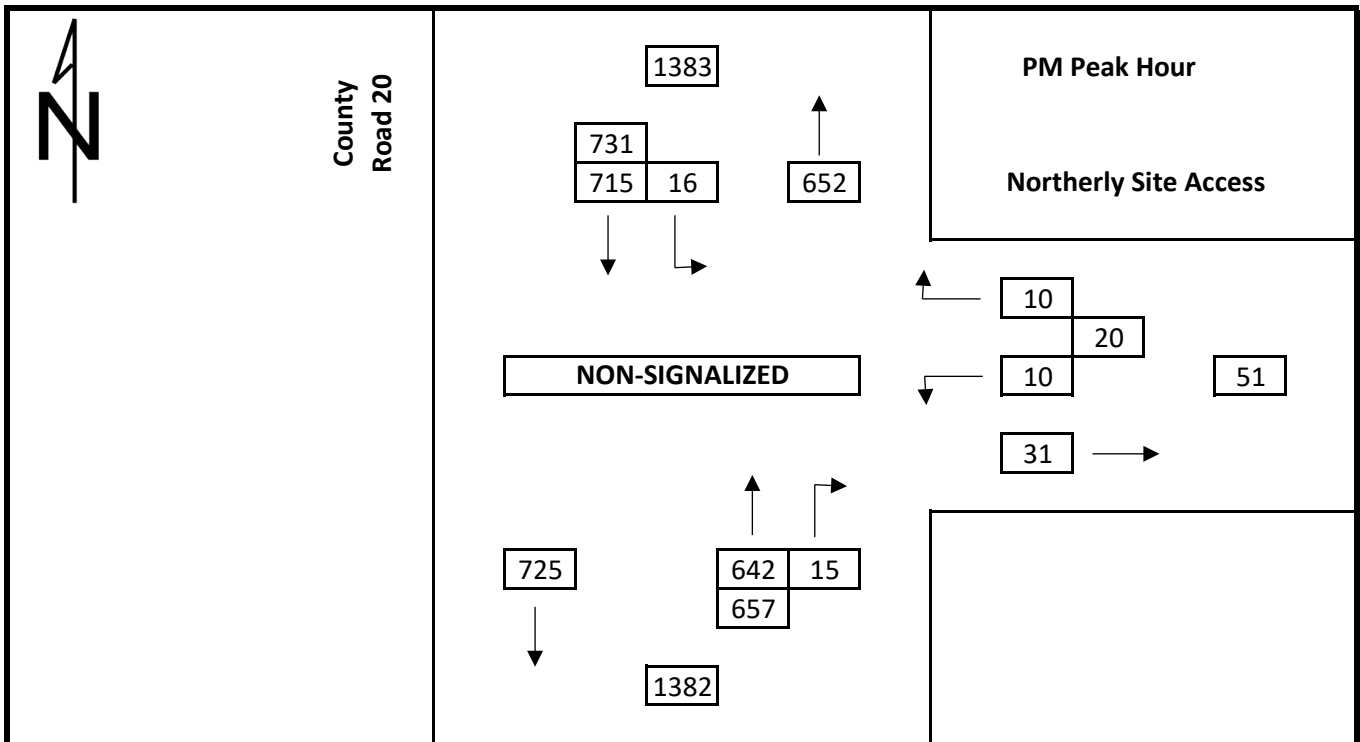
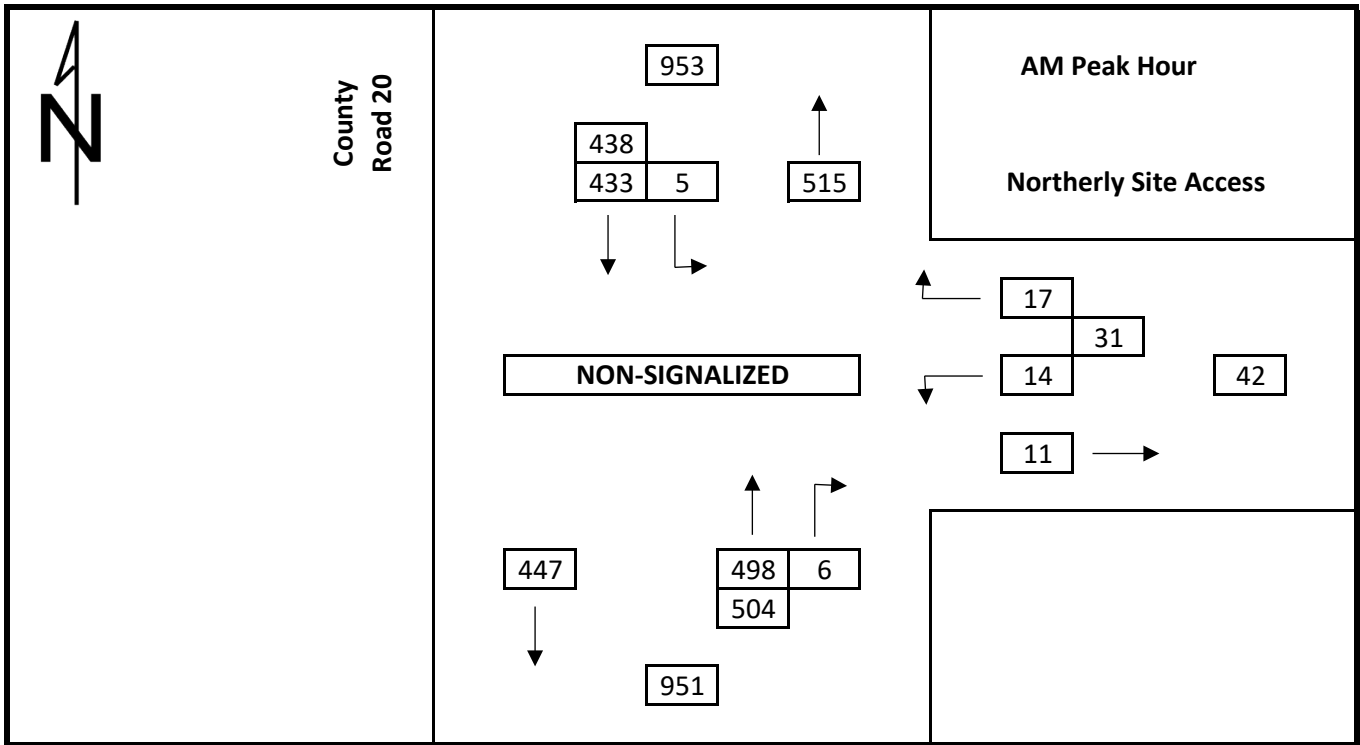
**Existing Traffic Counts**  
 Northerly Site Access at County Road 20



**Existing + Site Generated Traffic**  
 Northerly Site Access at County Road 20

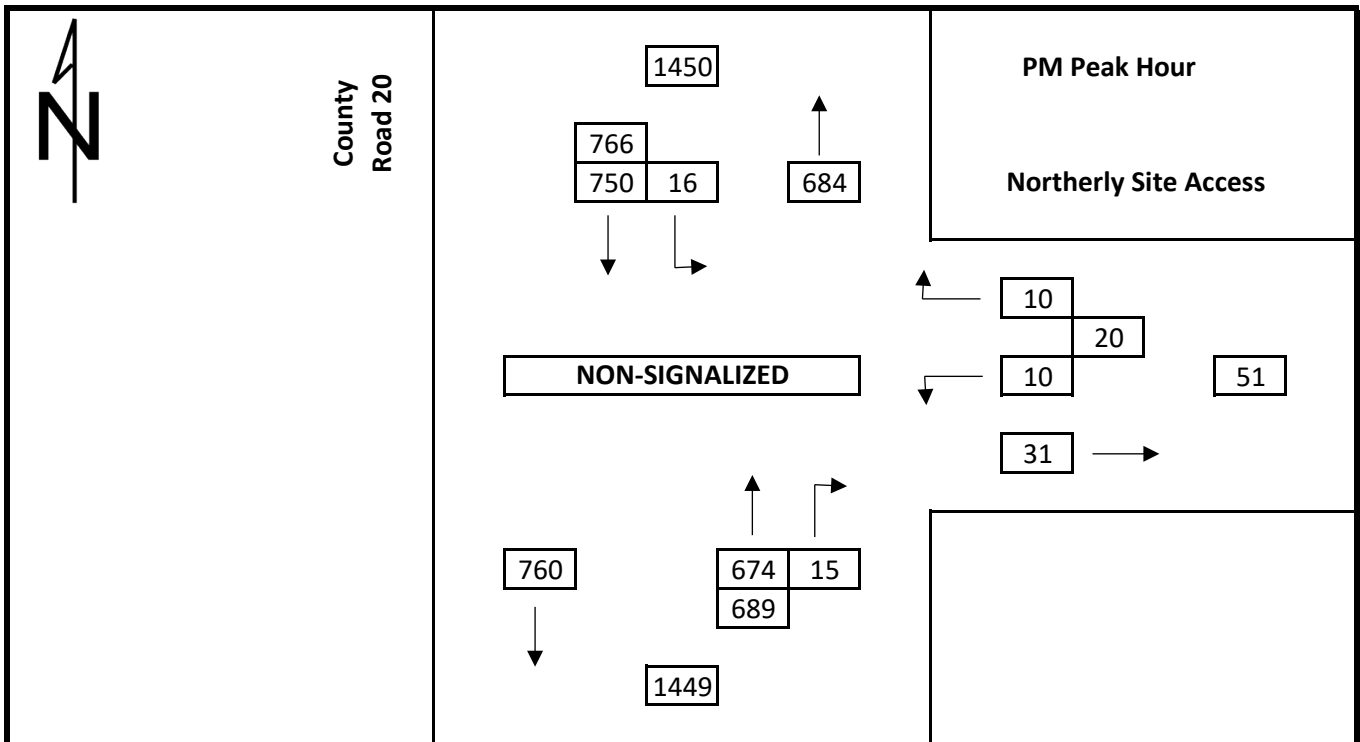
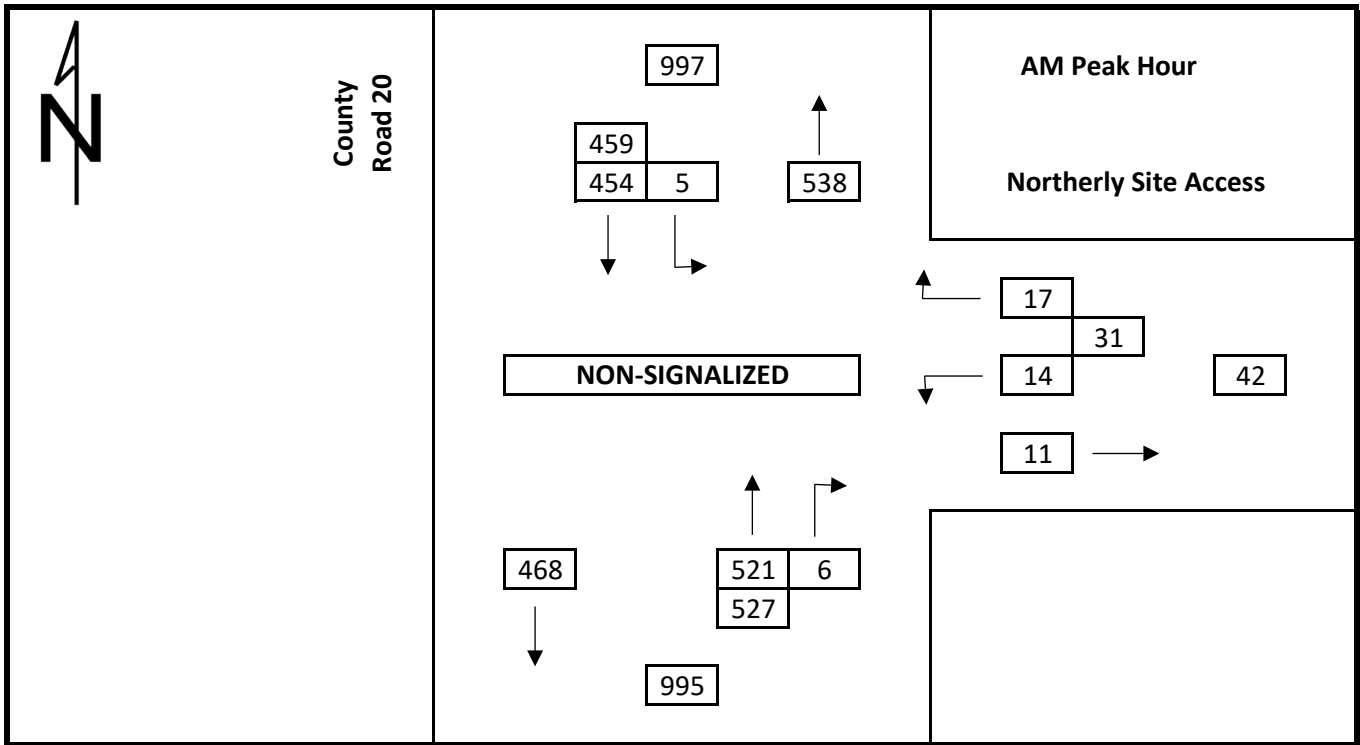


**Total Traffic 2026**  
 Northerly Site Access at County Road 20

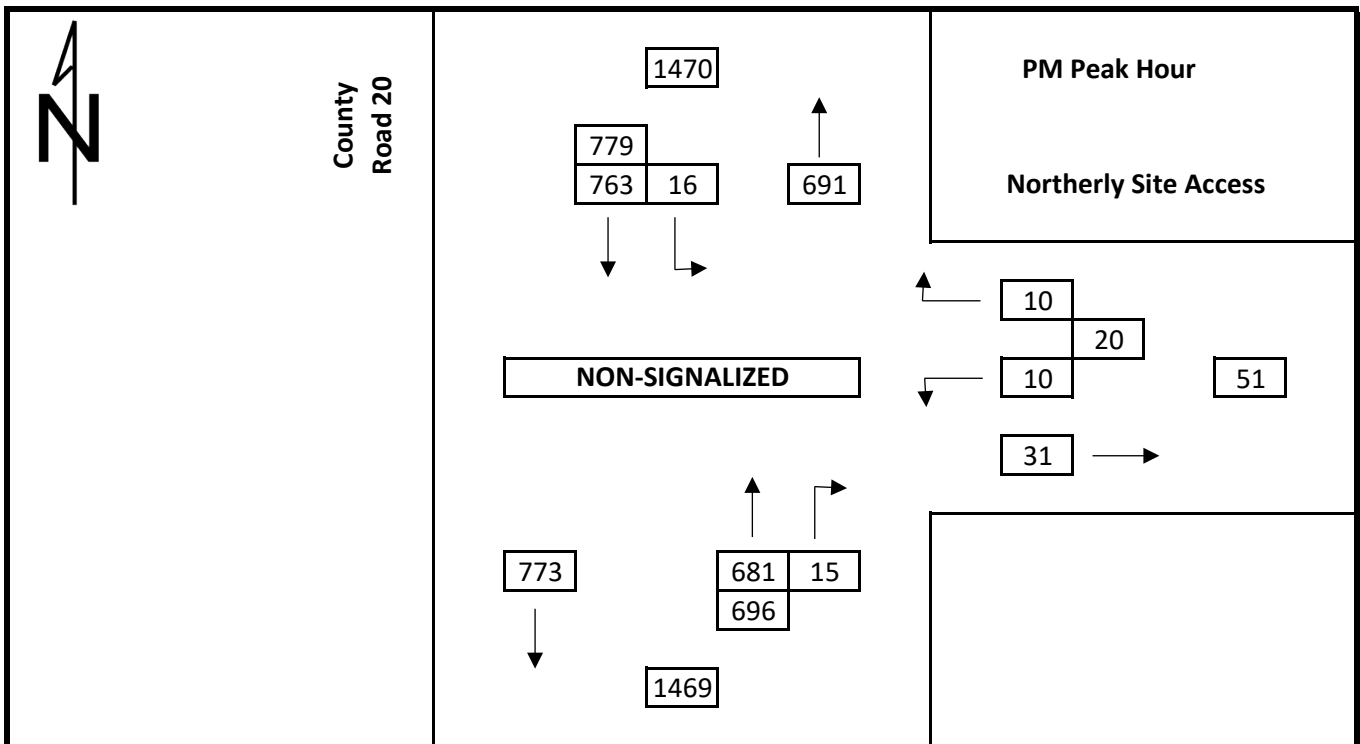
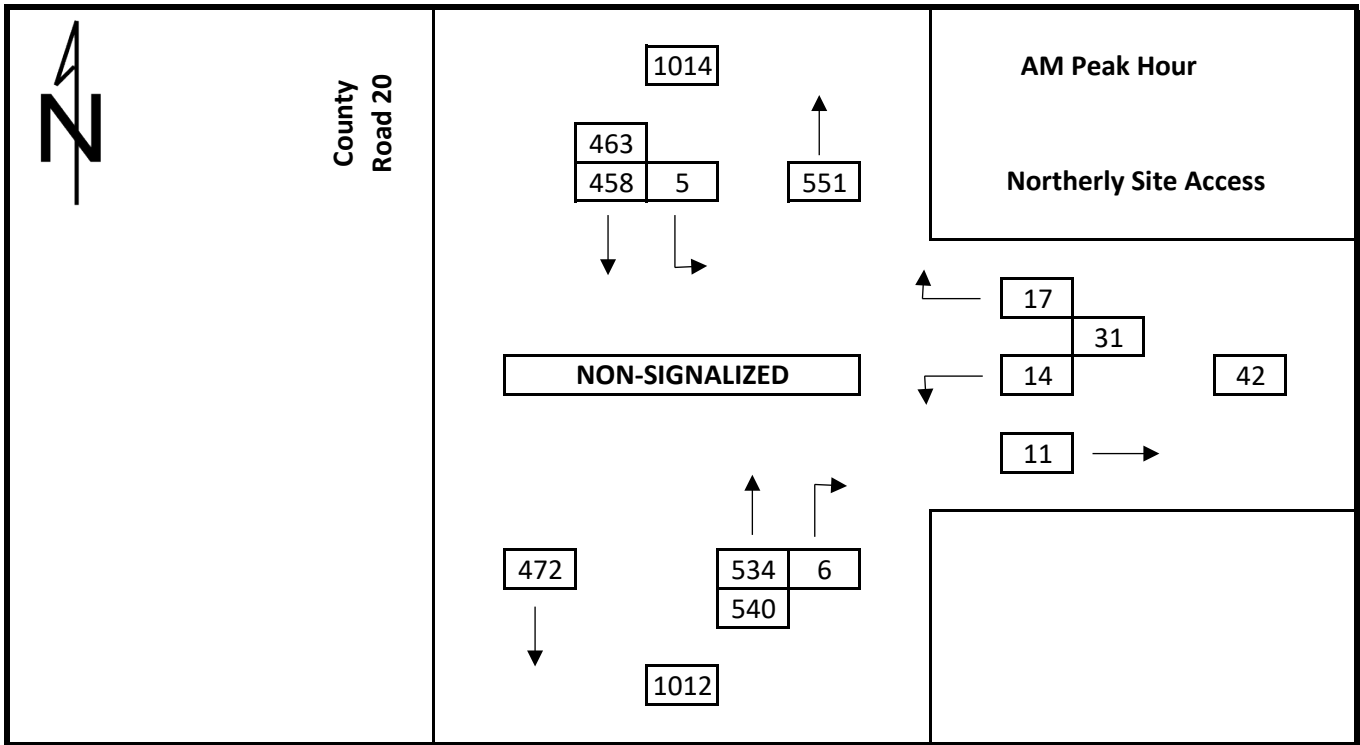




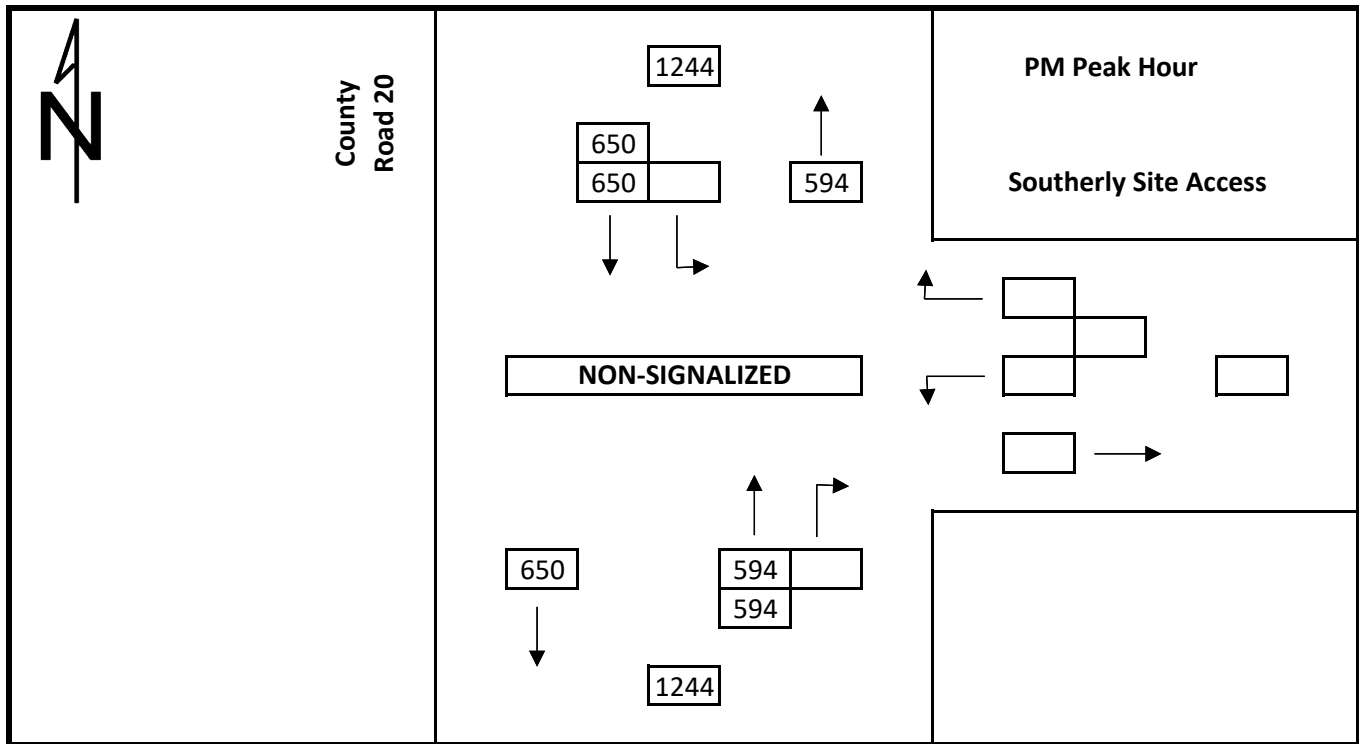
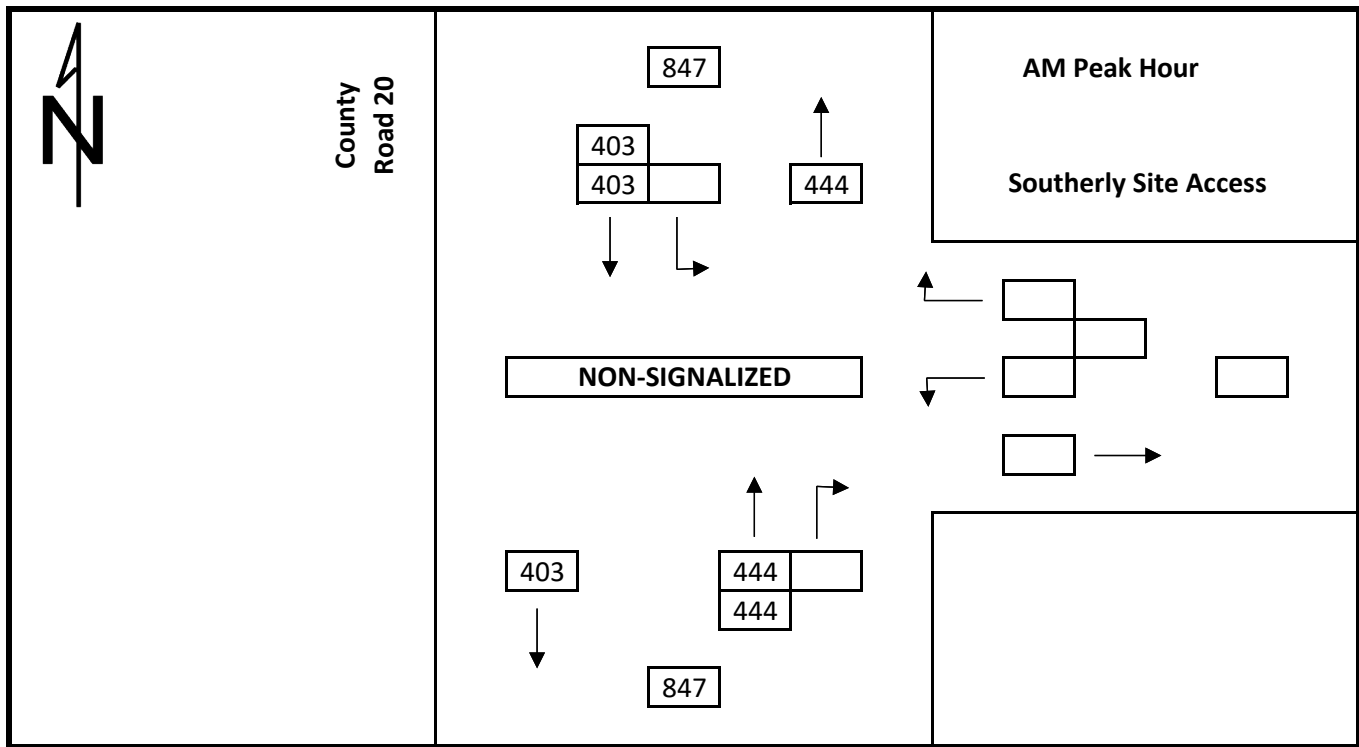
**Total Traffic 2031**  
 Northerly Site Access at County Road 20



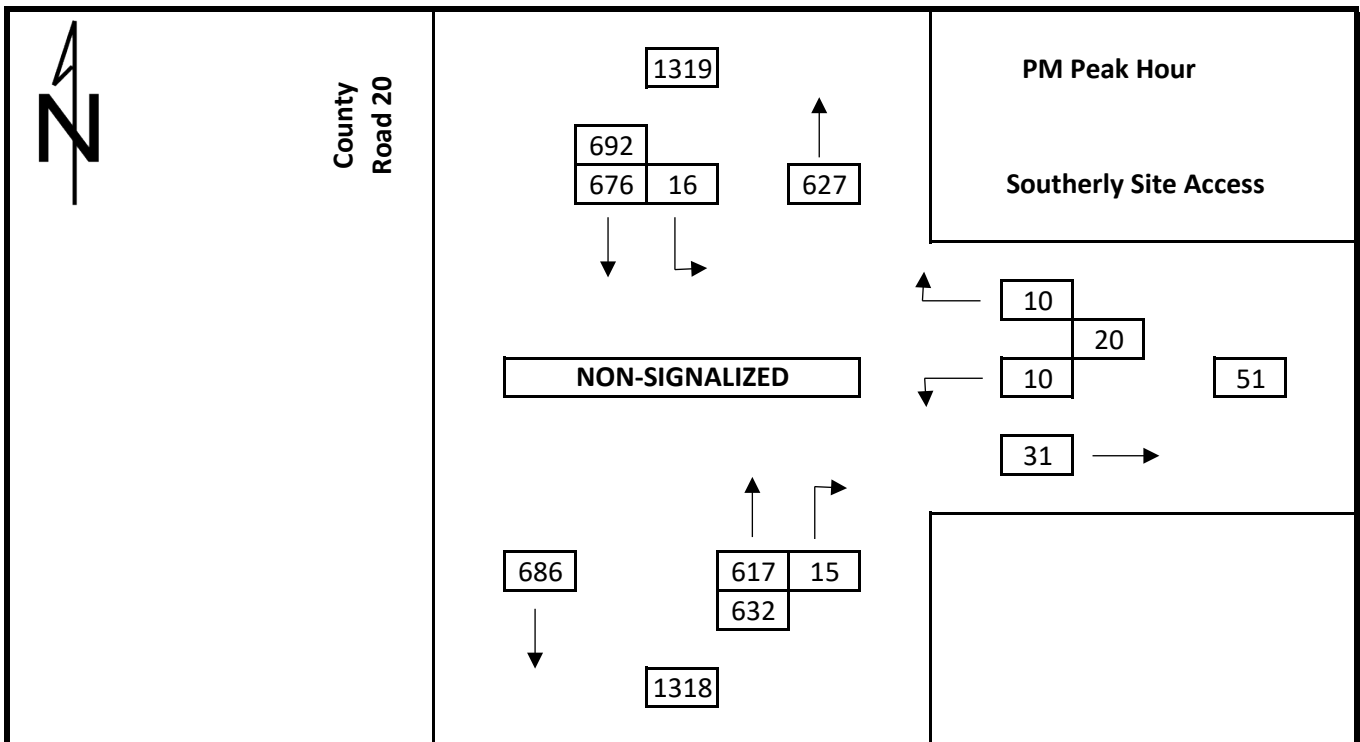
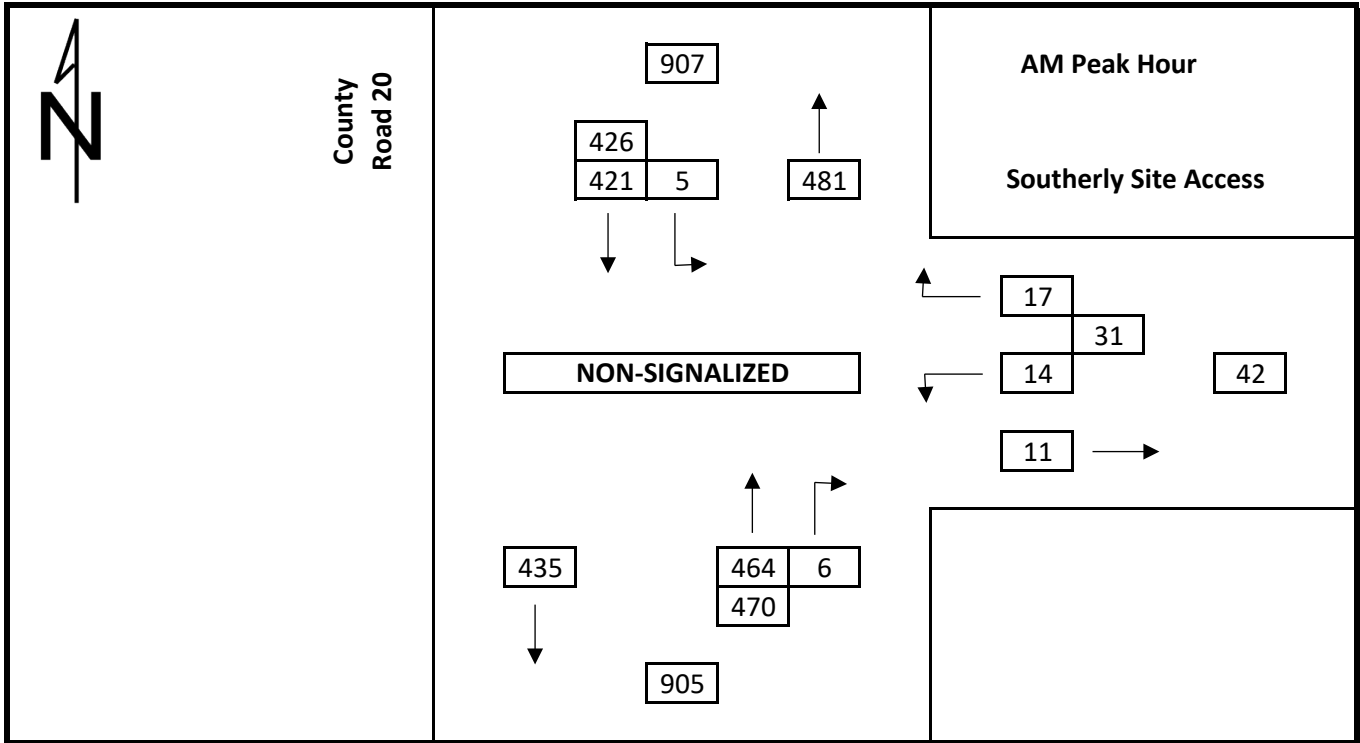
**Total Traffic 2031 + Anticipated Area Development Traffic**  
 Northerly Site Access at County Road 20



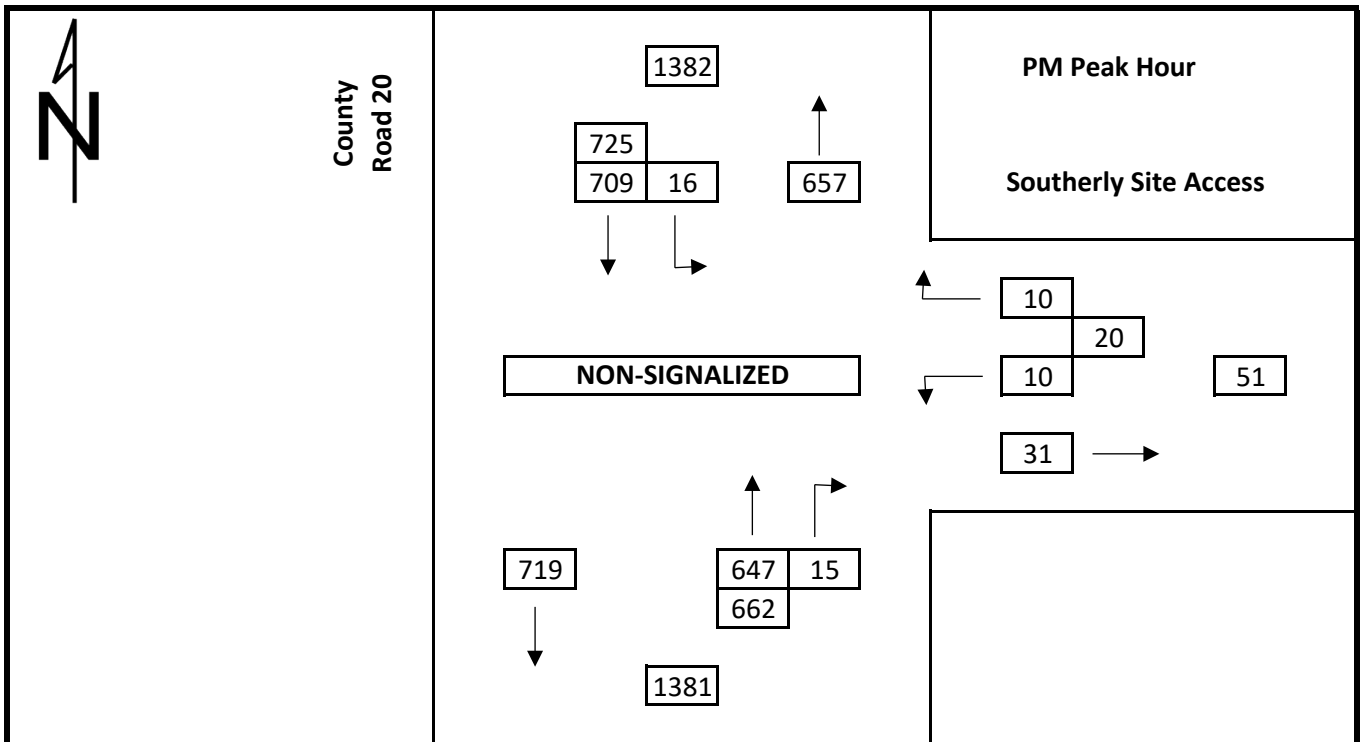
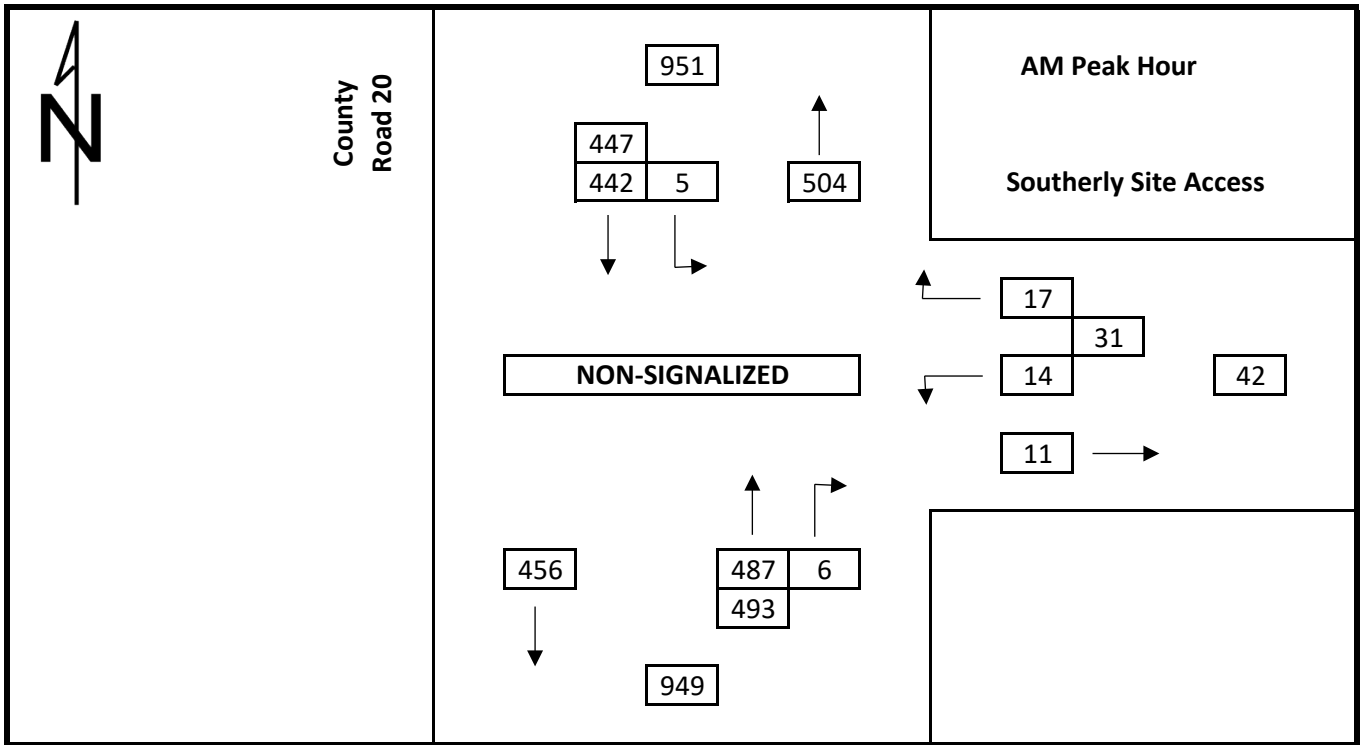
**Existing Traffic Counts**  
 Southerly Site Access at County Road 20



**Existing + Site Generated Traffic**  
 Southerly Site Access at County Road 20

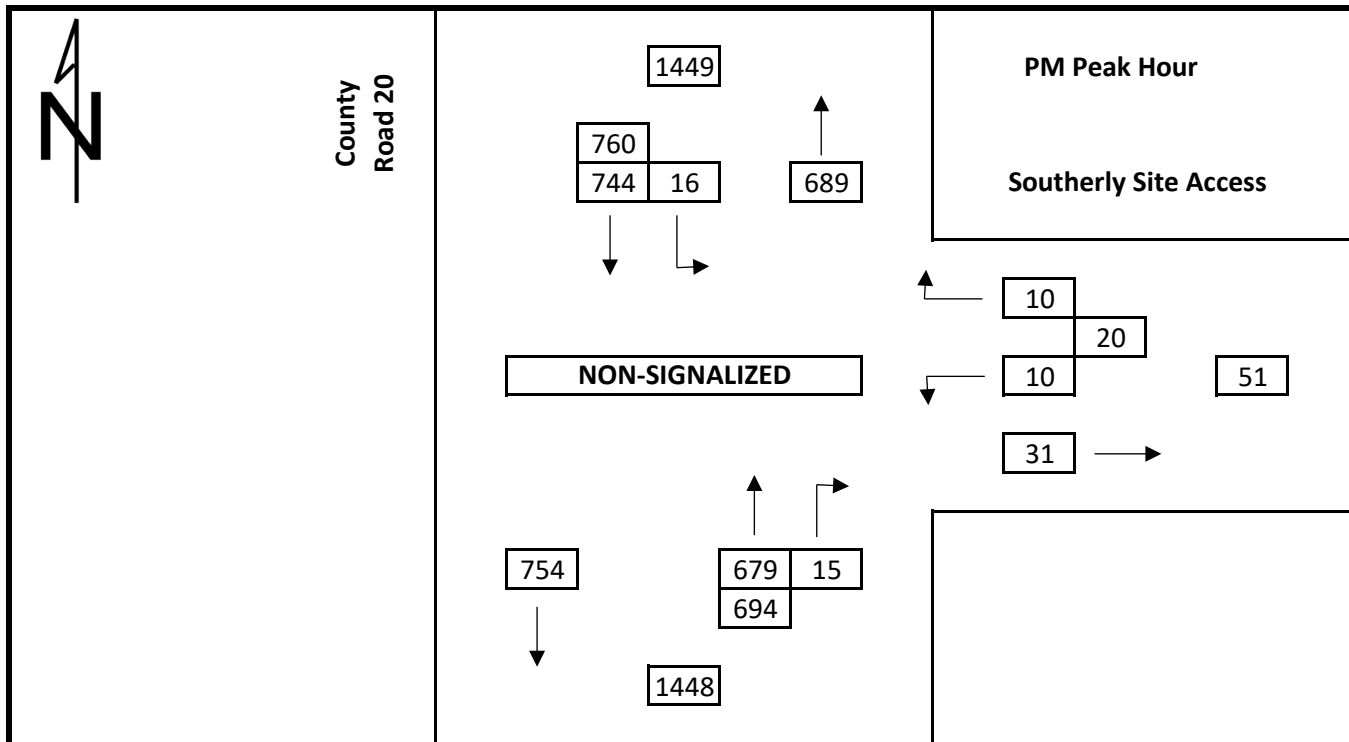
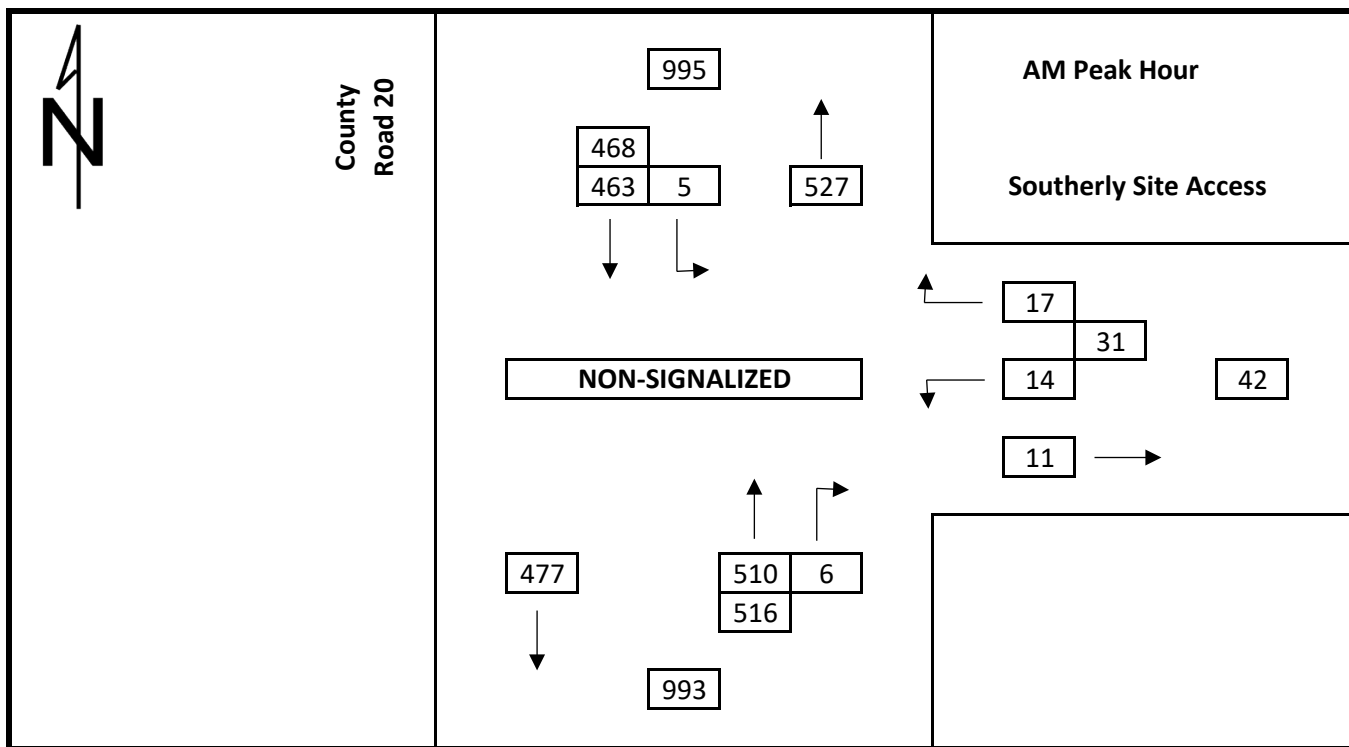


**Total Traffic 2026**  
 Southerly Site Access at County Road 20

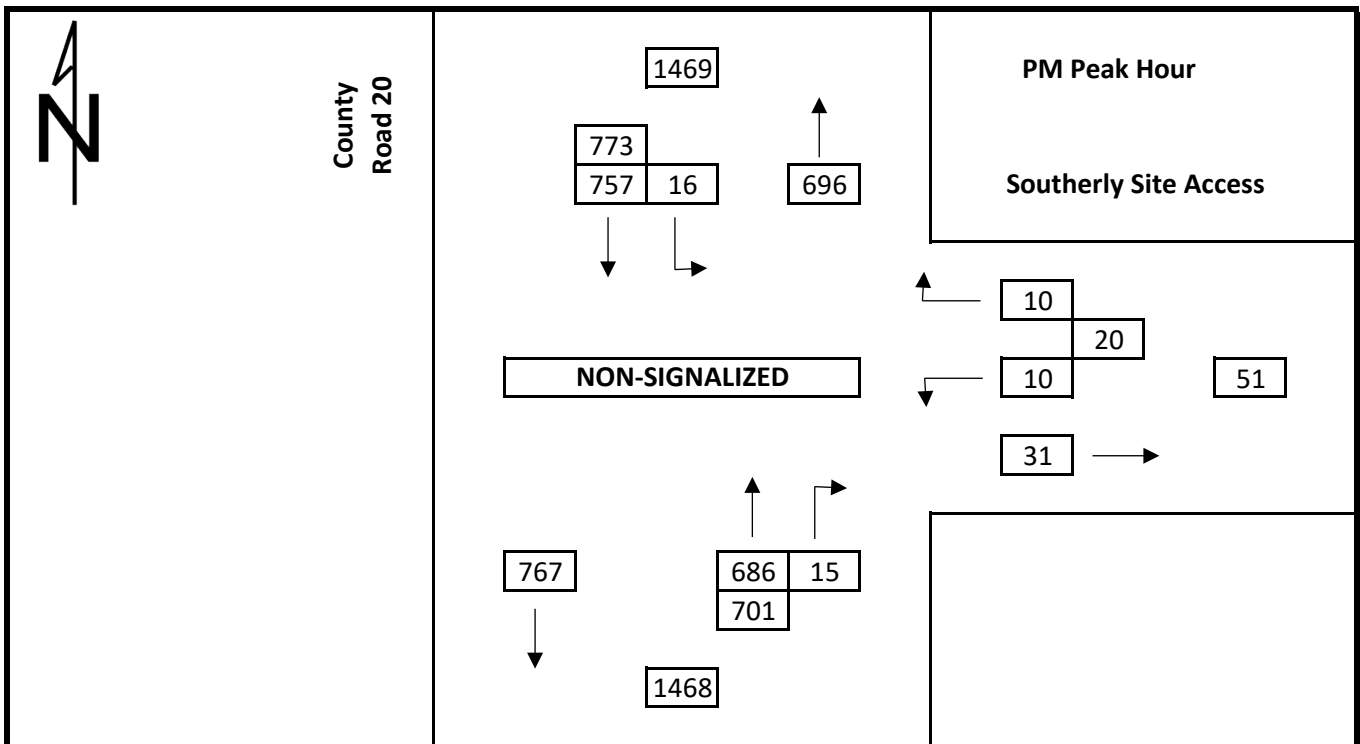
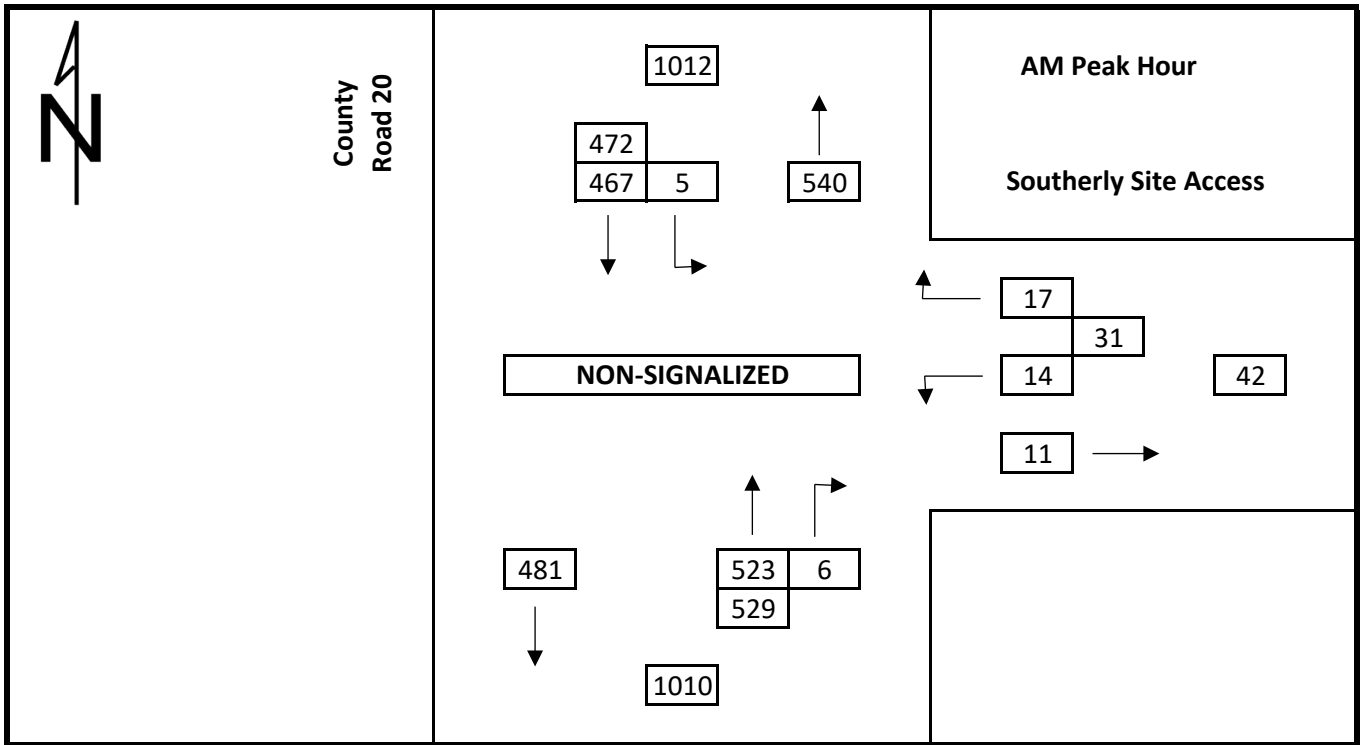




**Total Traffic 2031**  
 Southerly Site Access at County Road 20

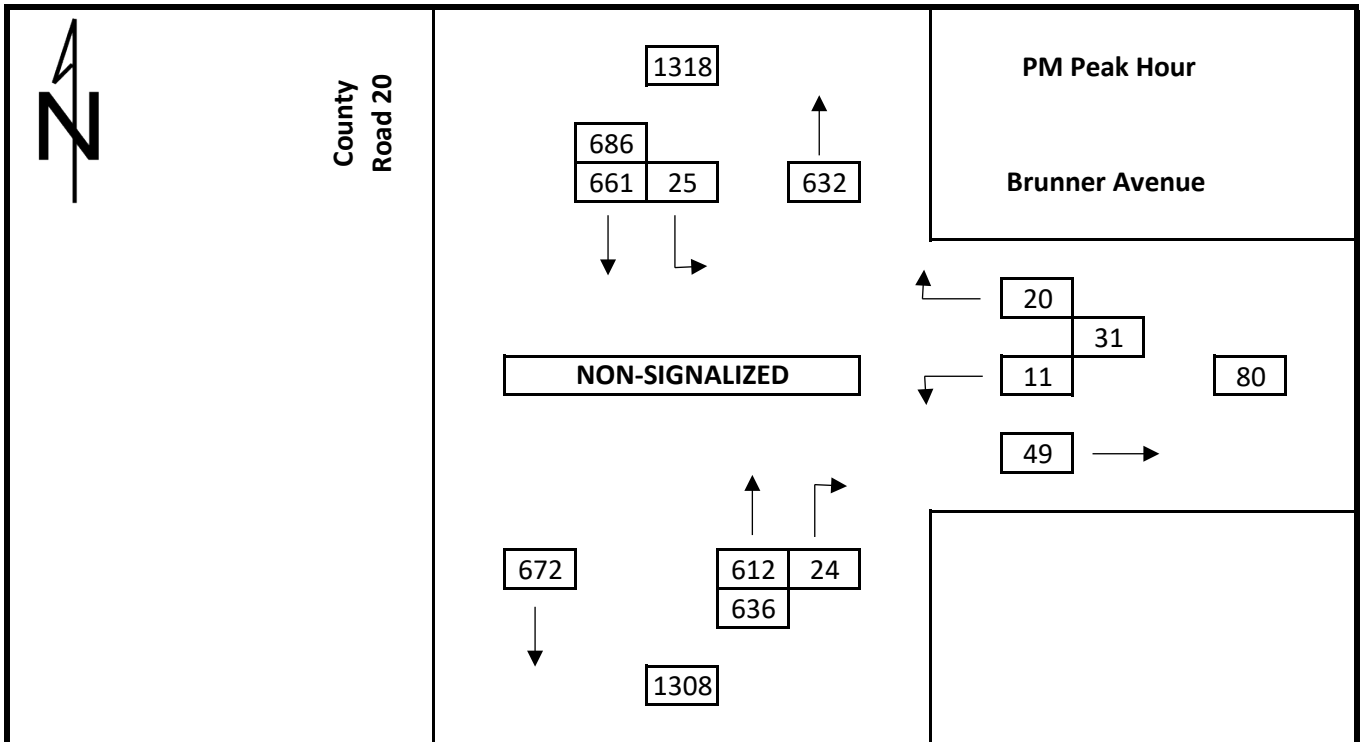
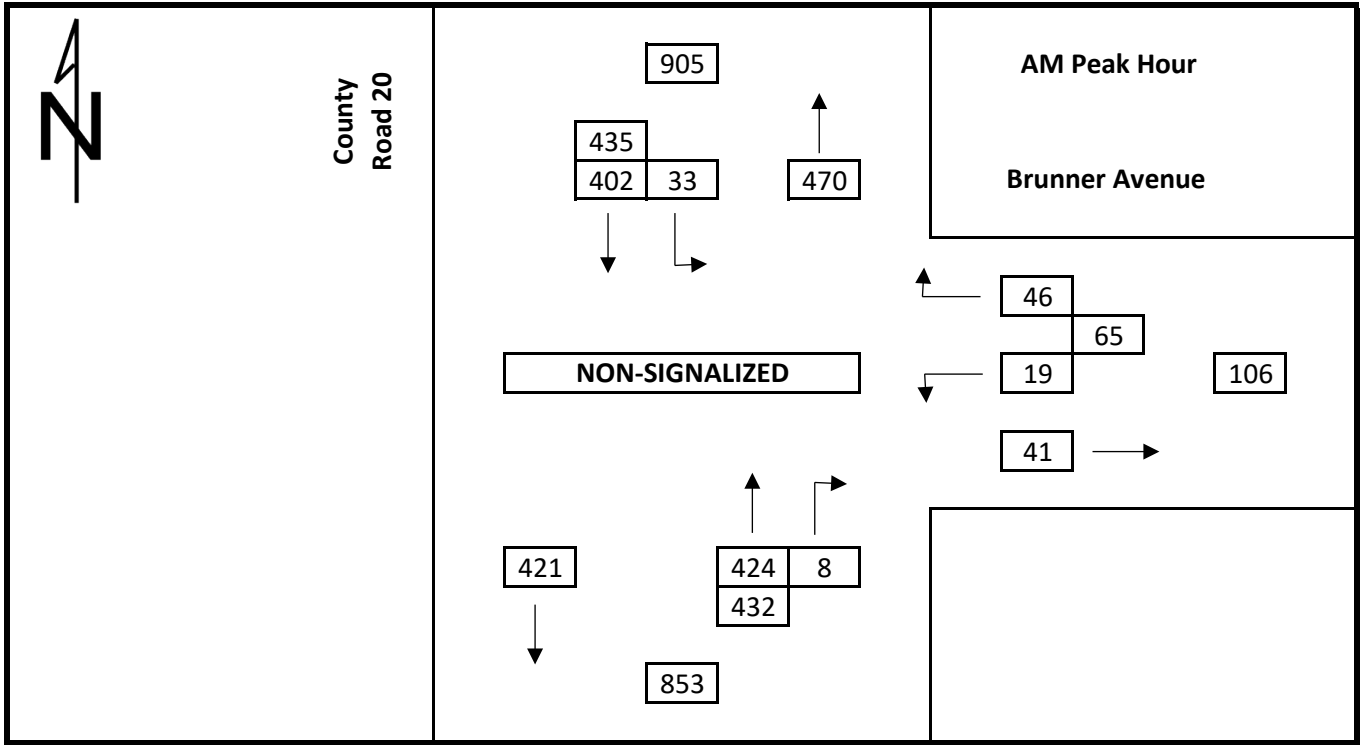


**Total Traffic 2031 + Anticipated Area Development Traffic**  
 Southerly Site Access at County Road 20

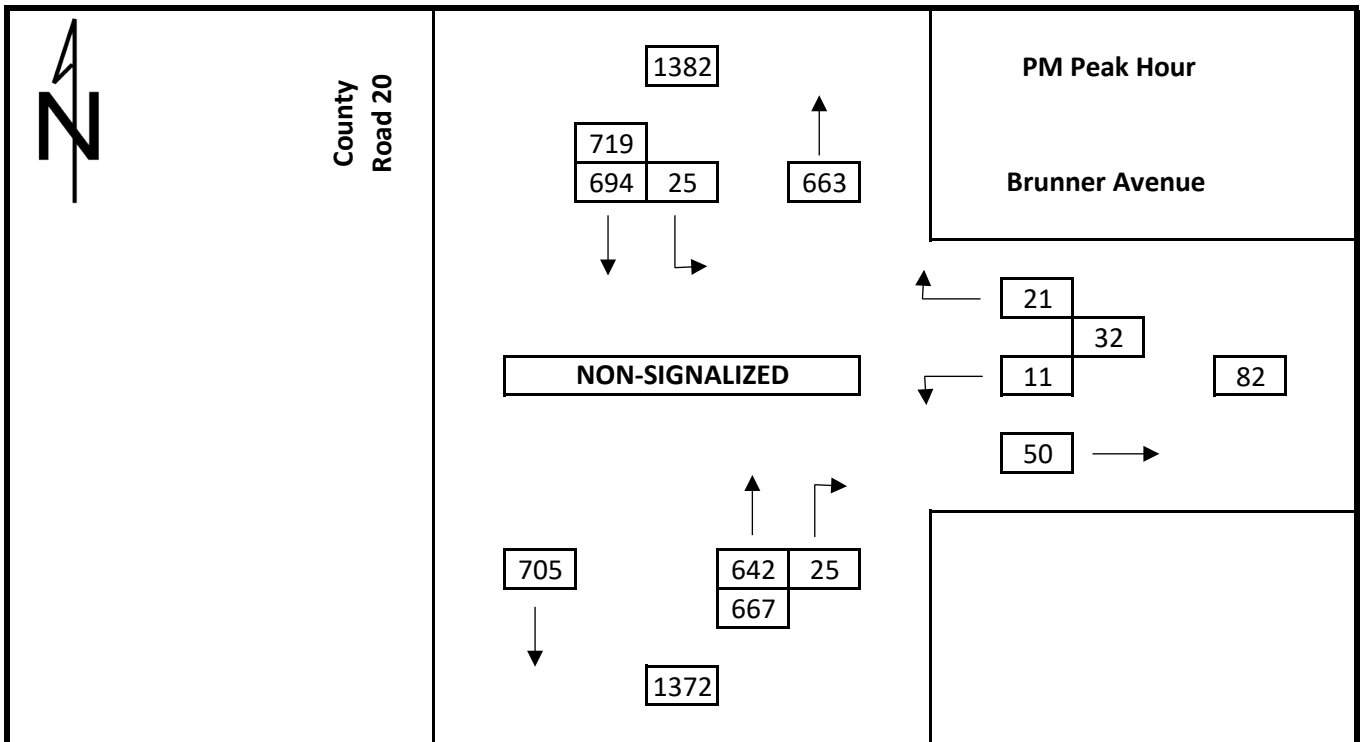
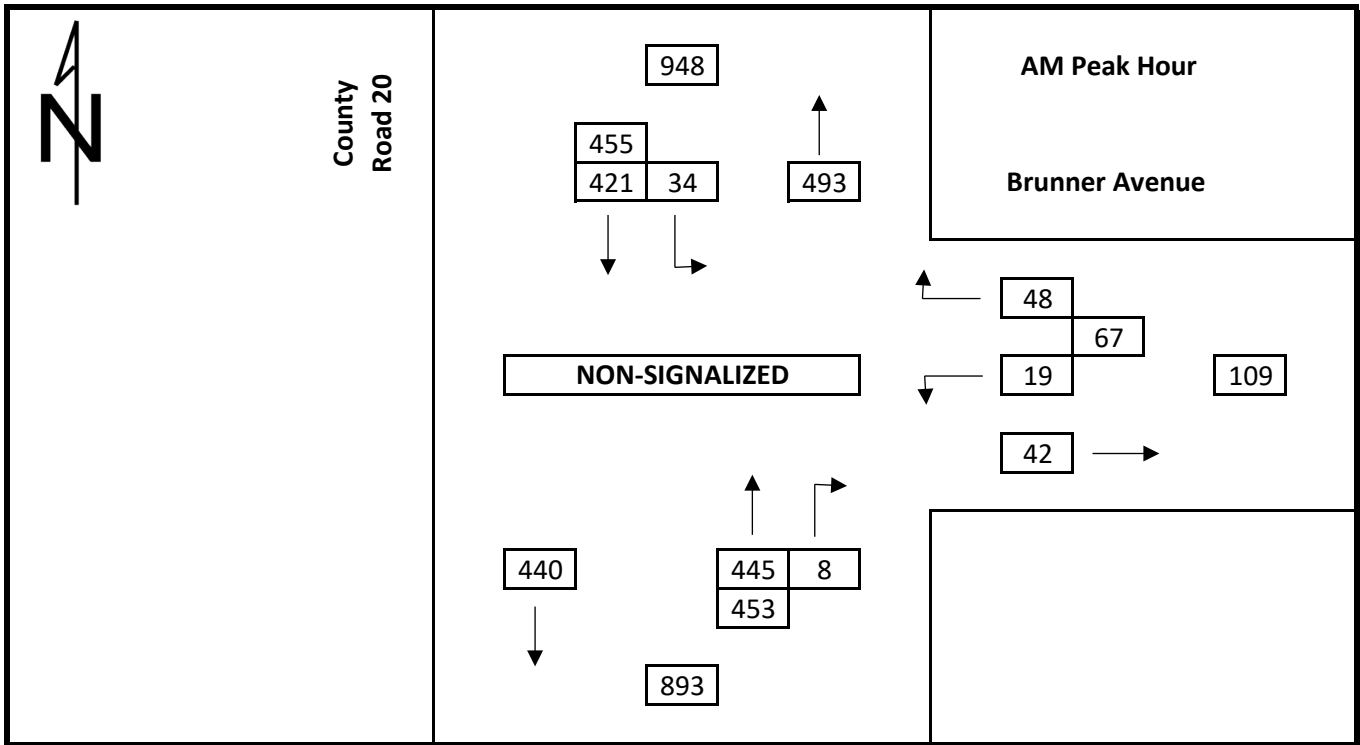




**Existing + Site Generated Traffic**  
 Brunner Avenue at County Road 20

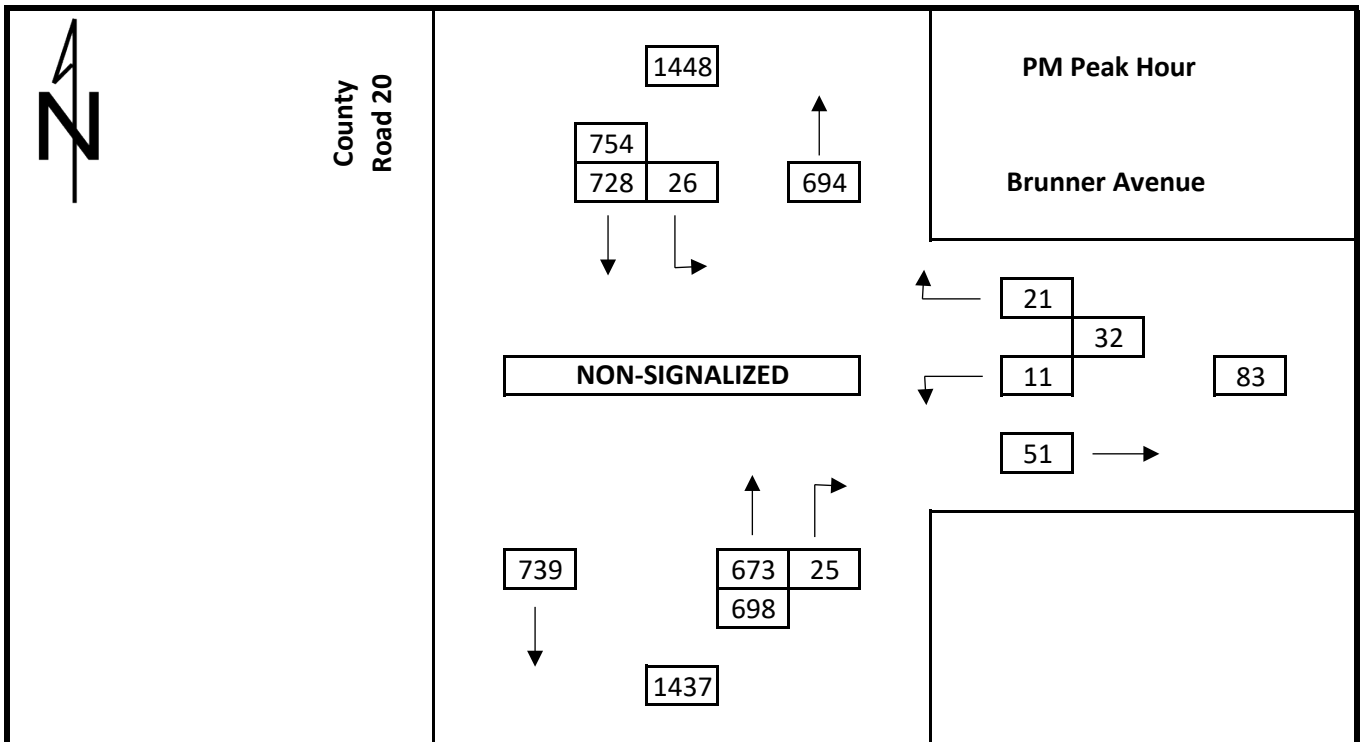
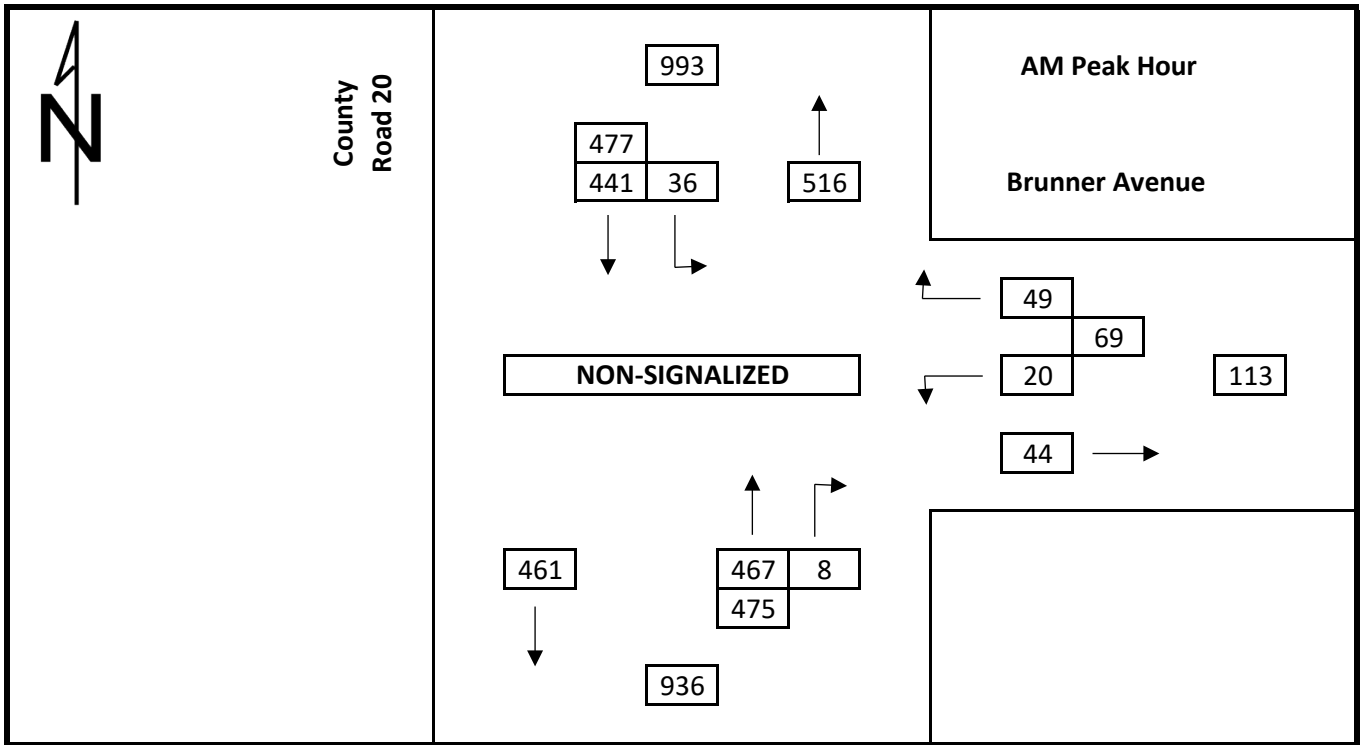


**Total Traffic 2026**  
 Brunner Avenue at County Road 20

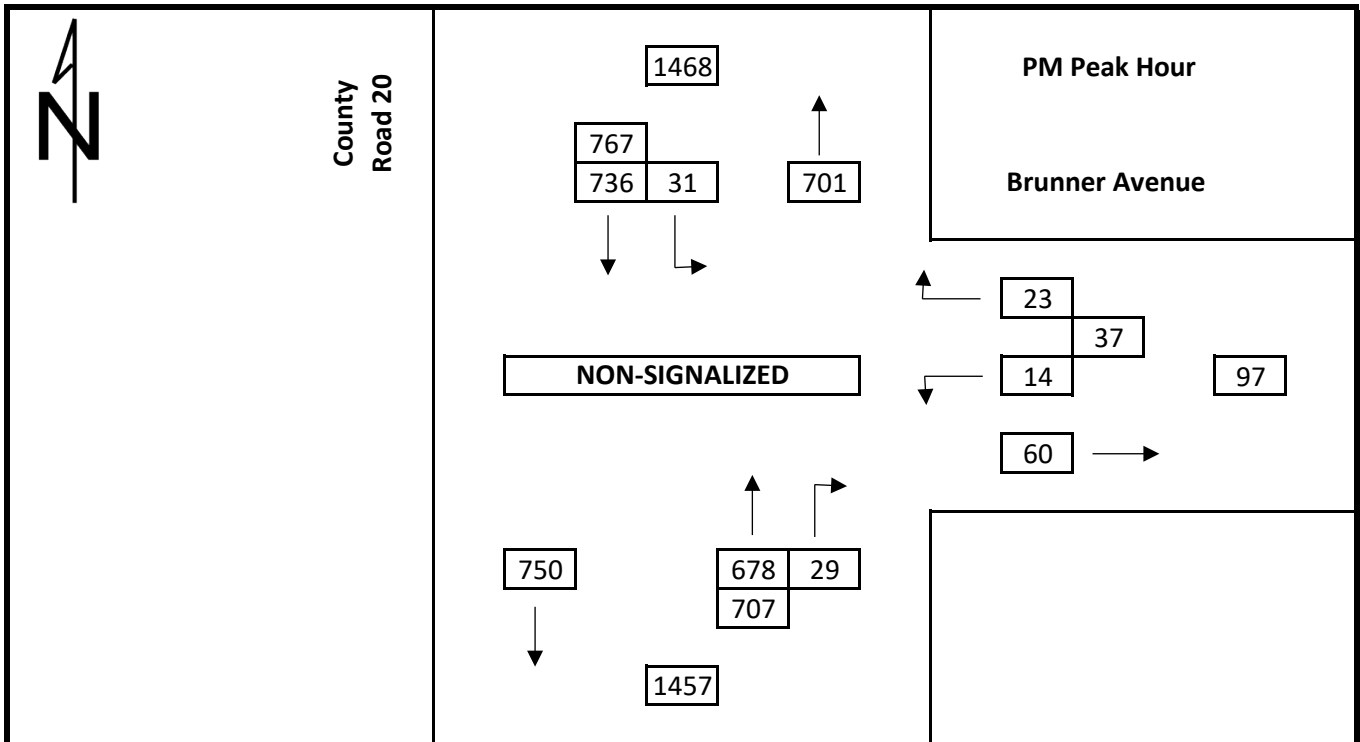
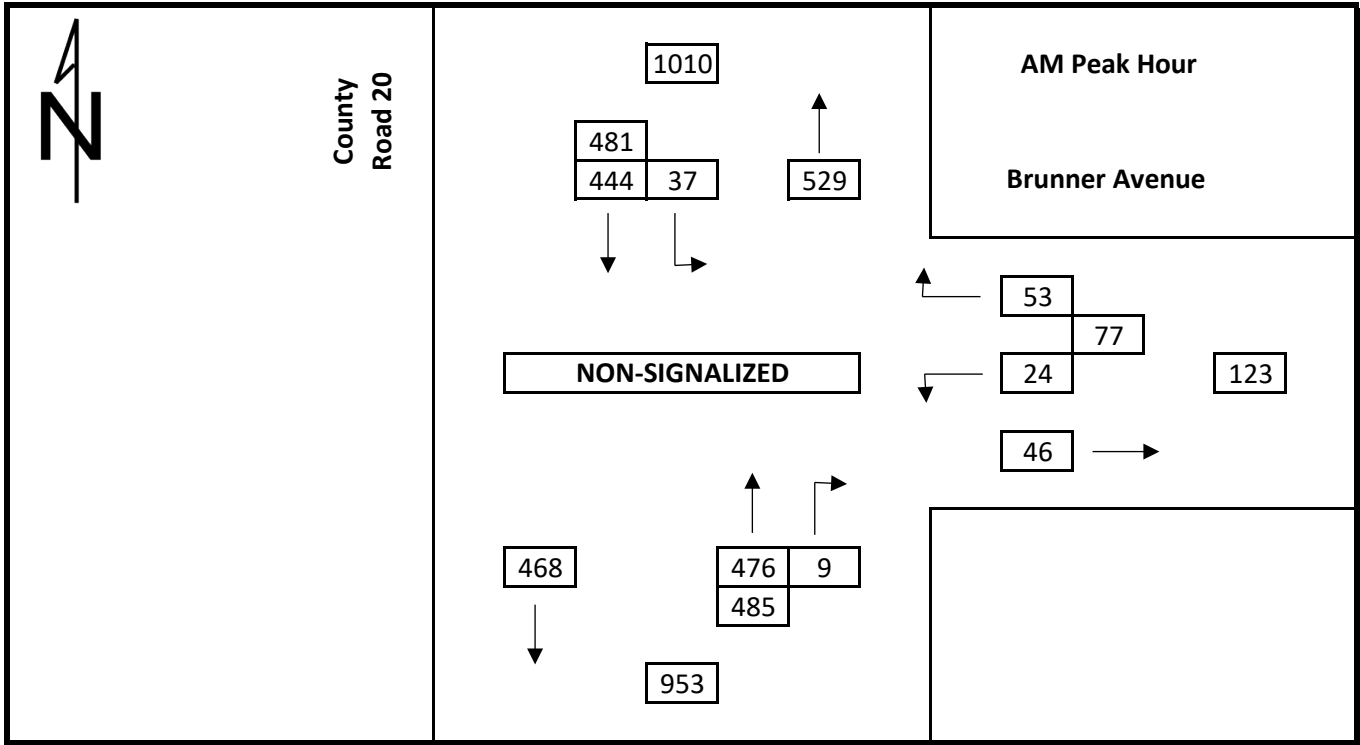




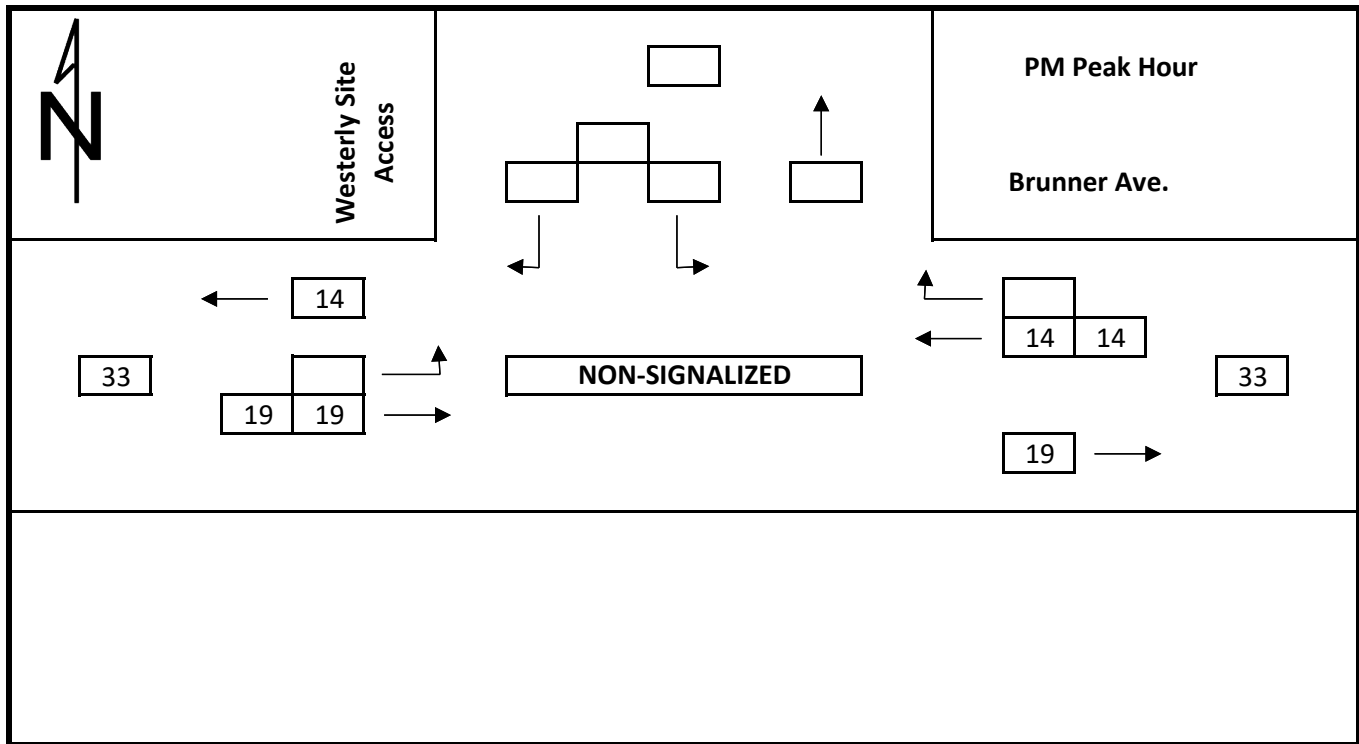
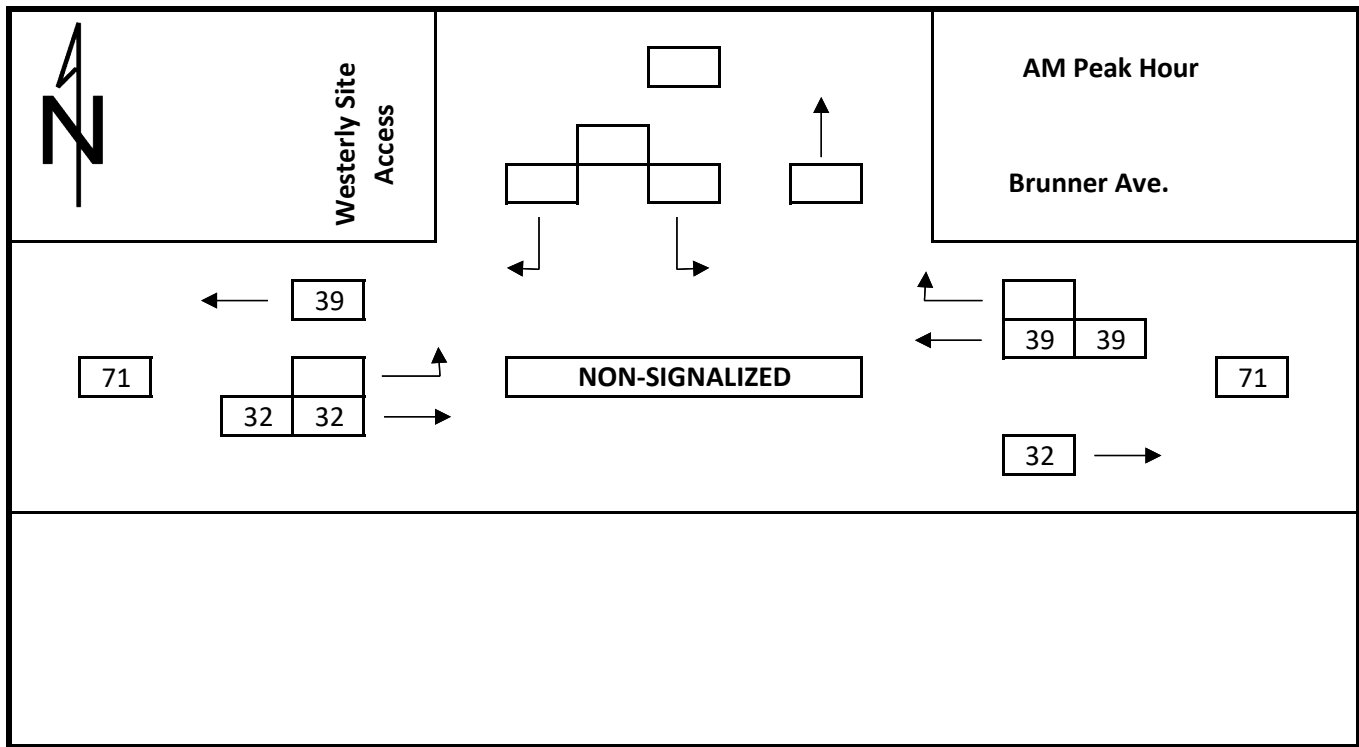
**Total Traffic 2031**  
 Brunner Avenue at County Road 20



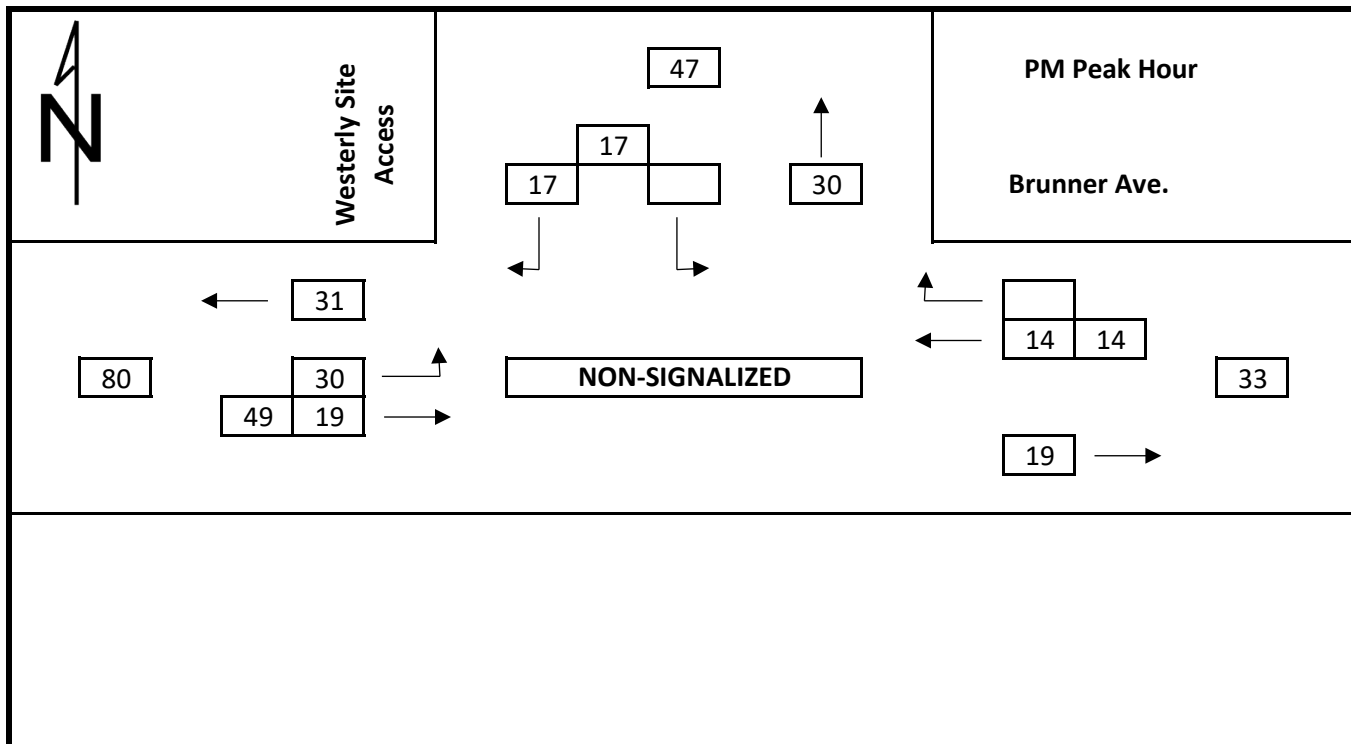
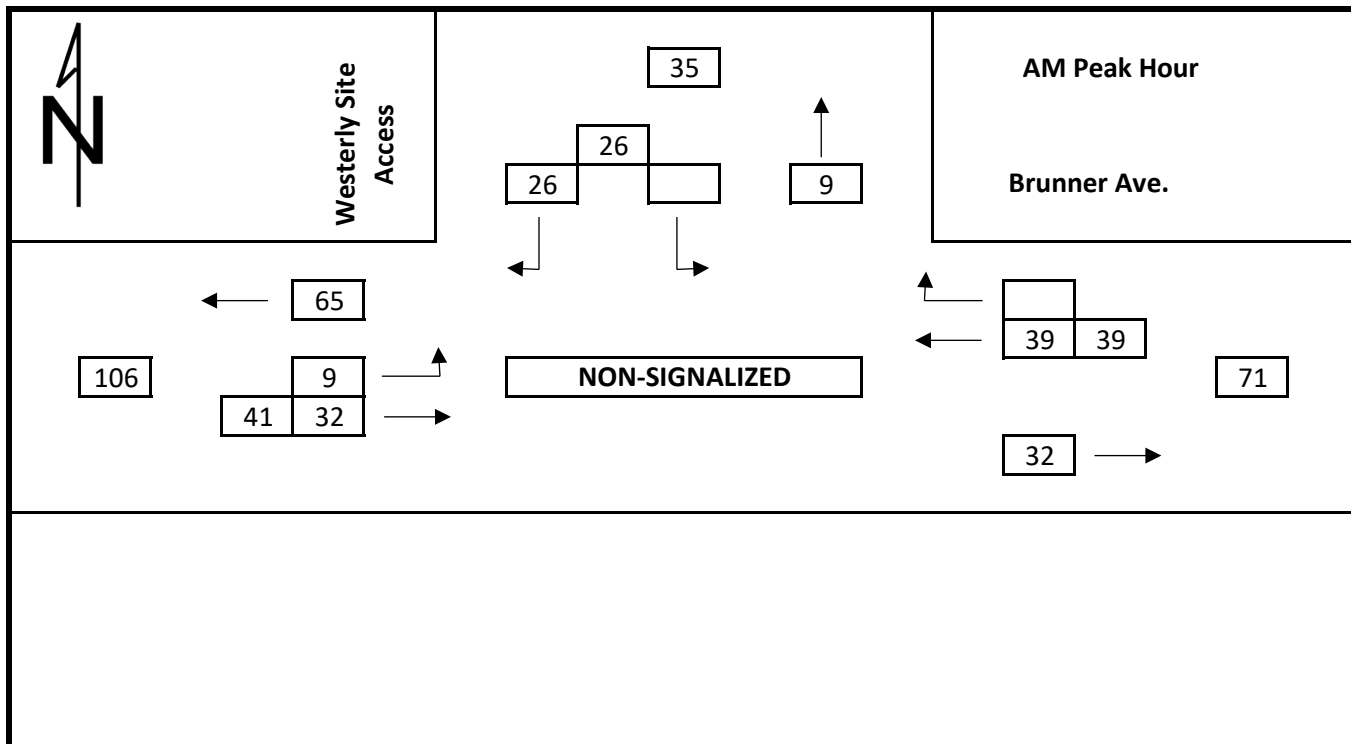
**Total Traffic 2031 + Anticipated Area Development Traffic**  
 Brunner Avenue at County Road 20



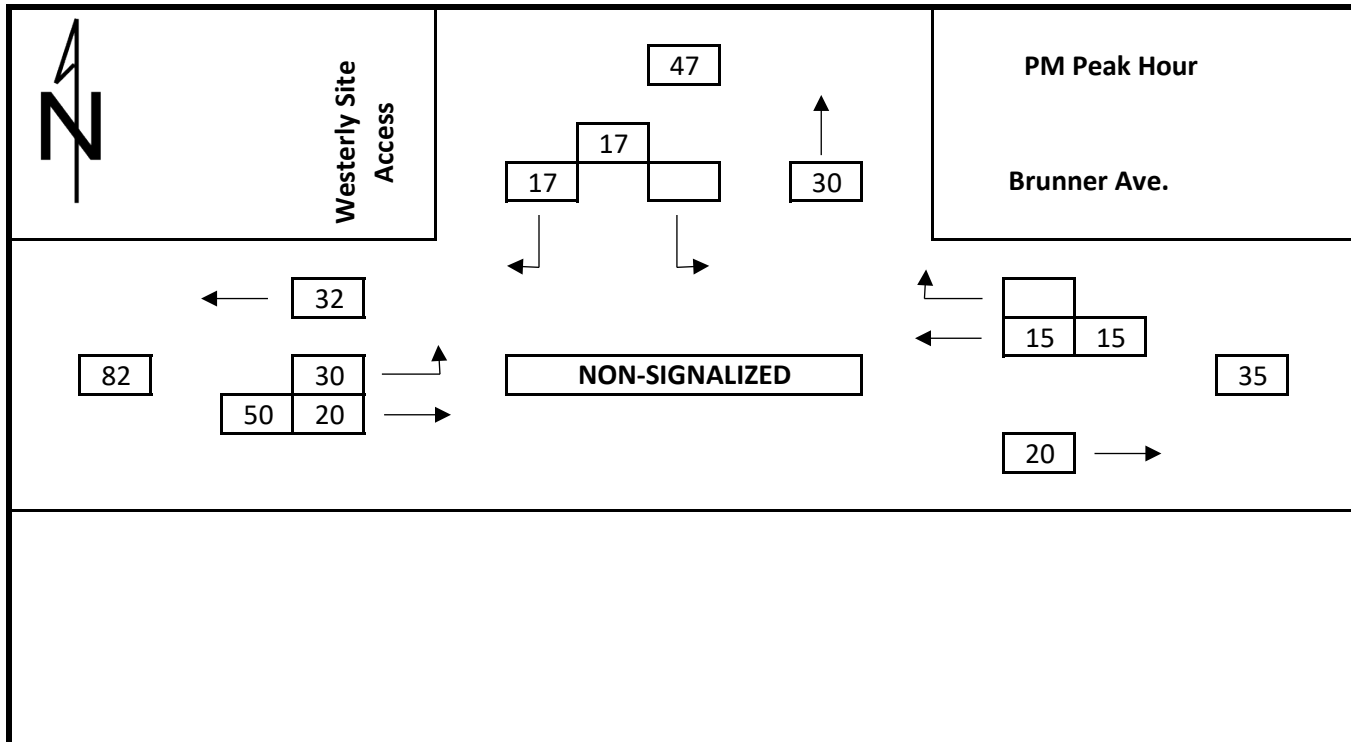
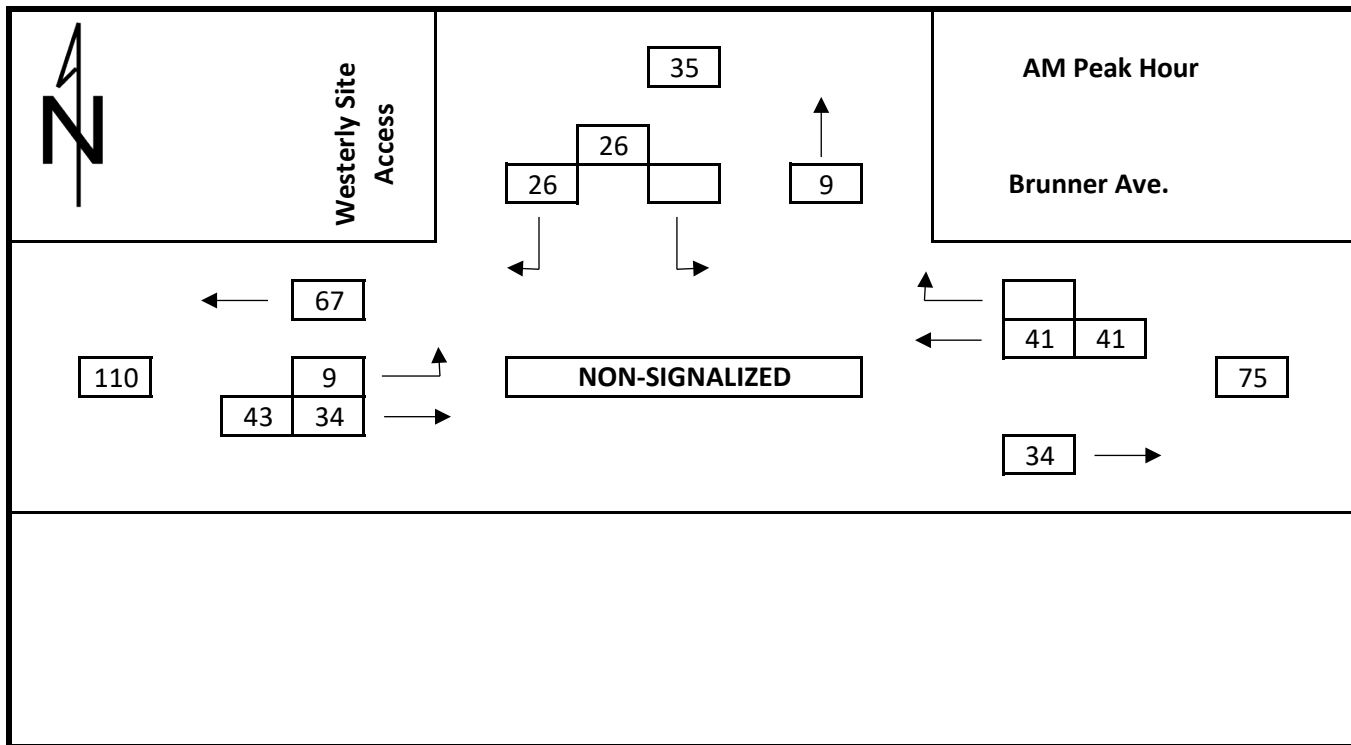
### Existing Traffic Counts Westerly Site Access at Brunner Avenue



**Existing + Site Generated Traffic**  
 Westerly Site Access at Brunner Avenue

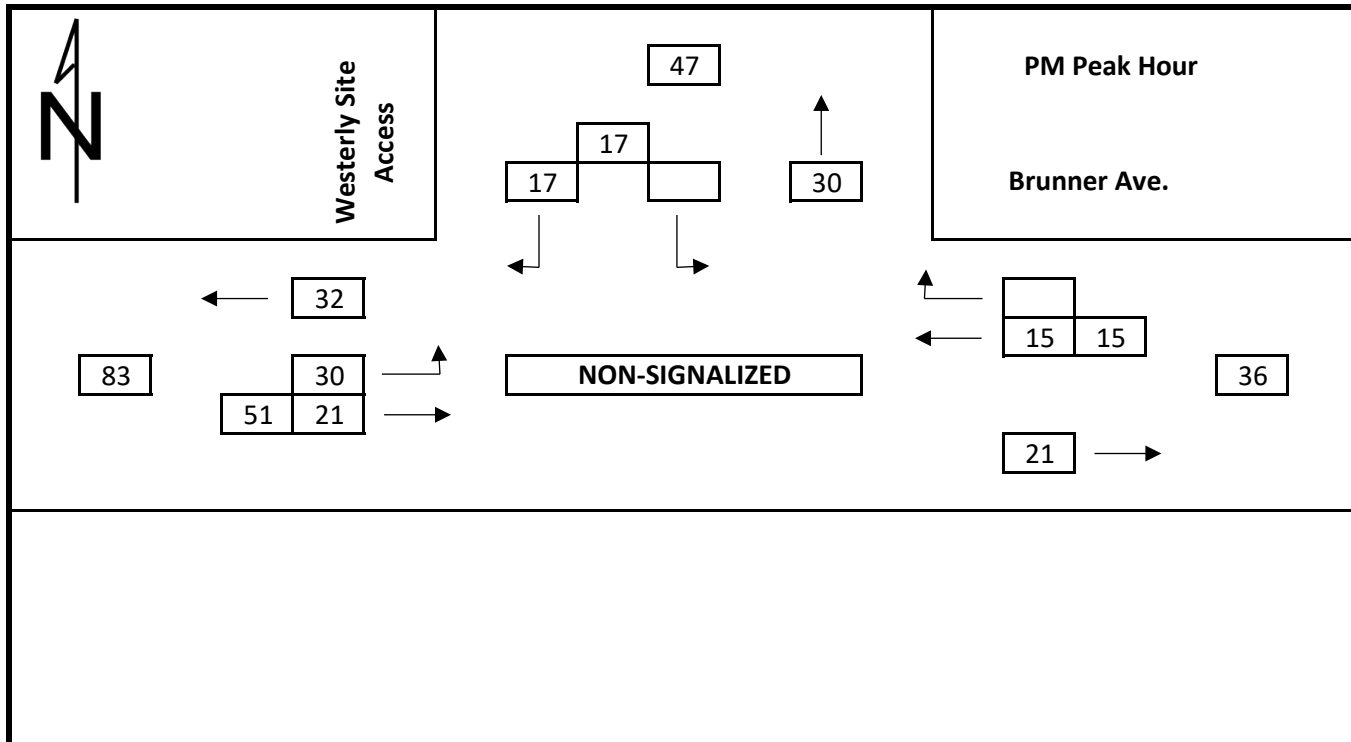
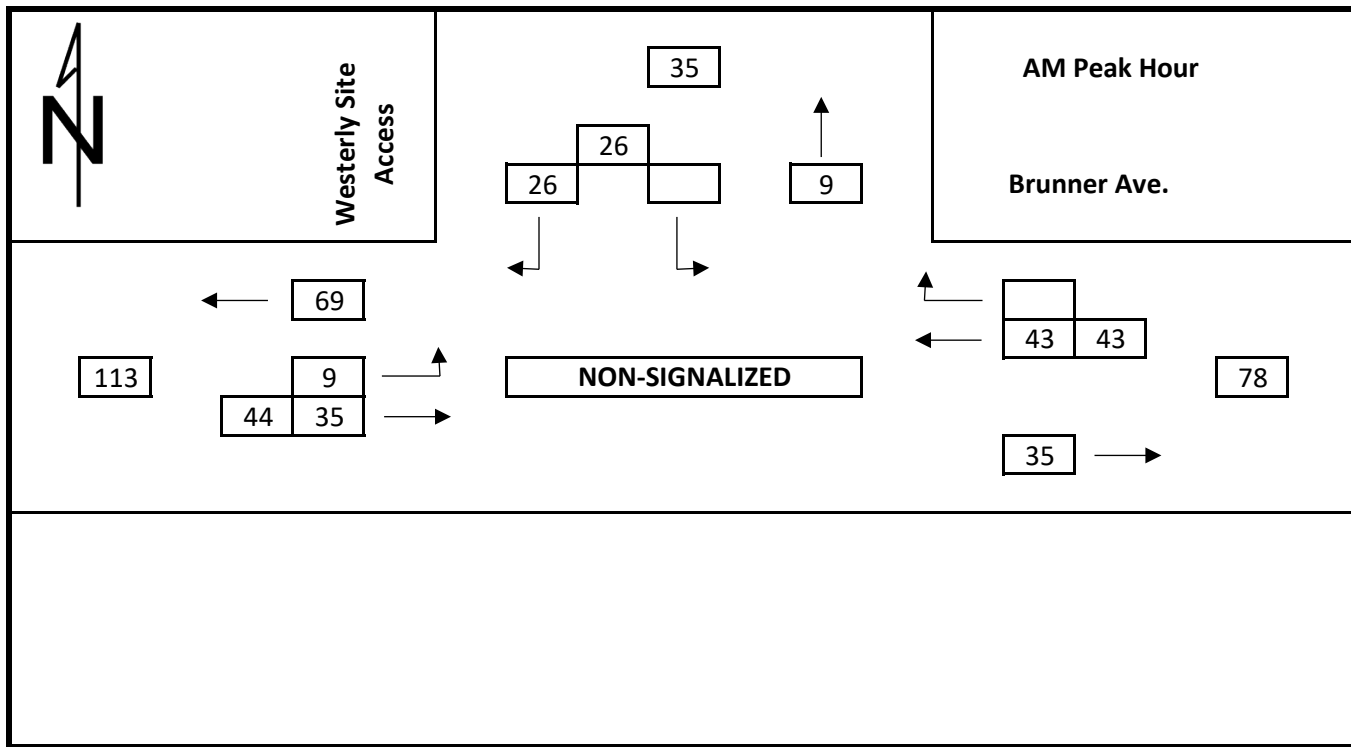


**Total Traffic 2026**  
 Westerly Site Access at Brunner Avenue

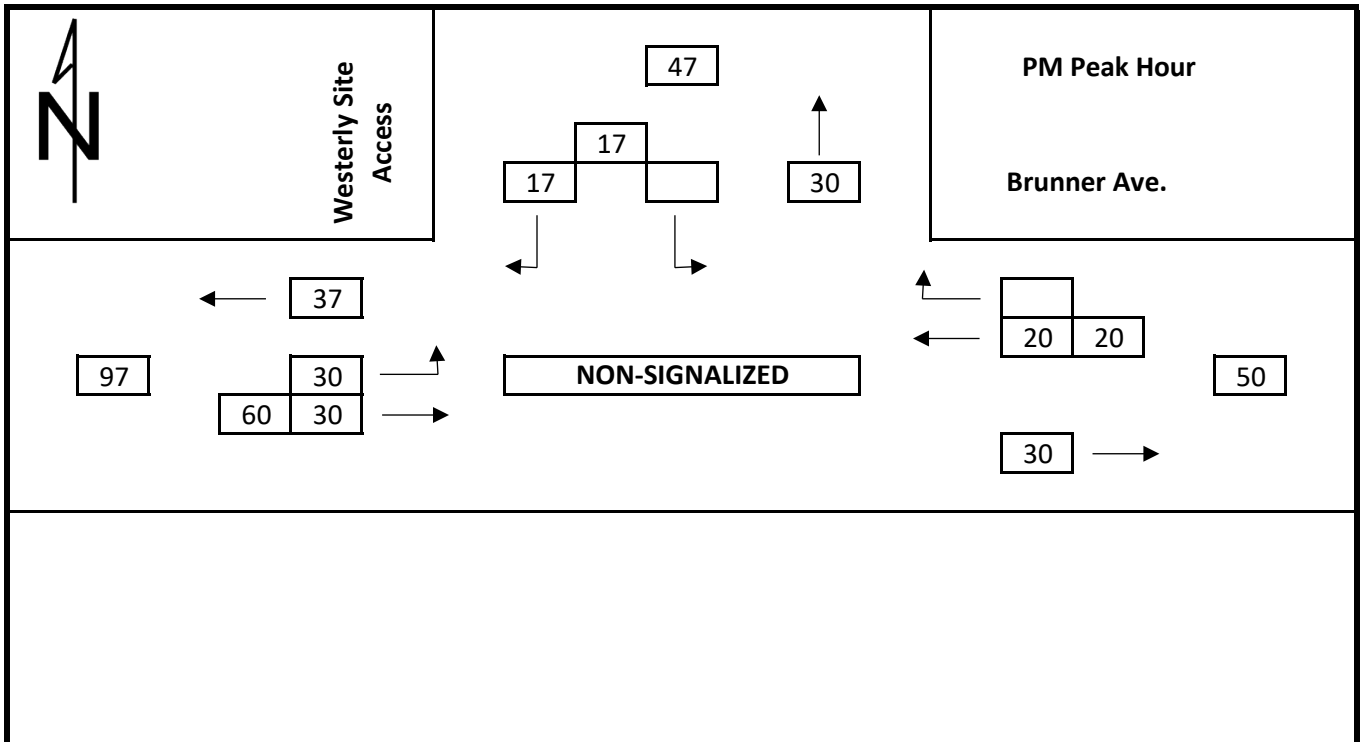
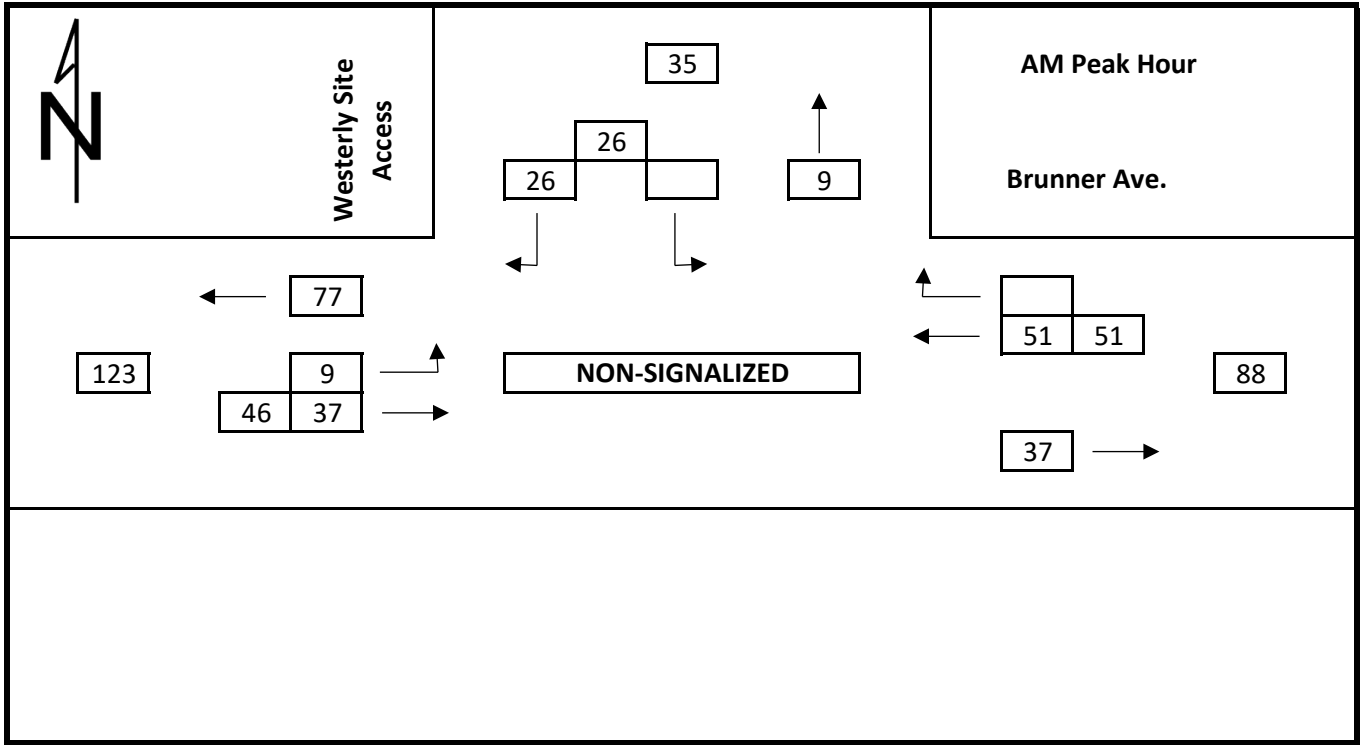




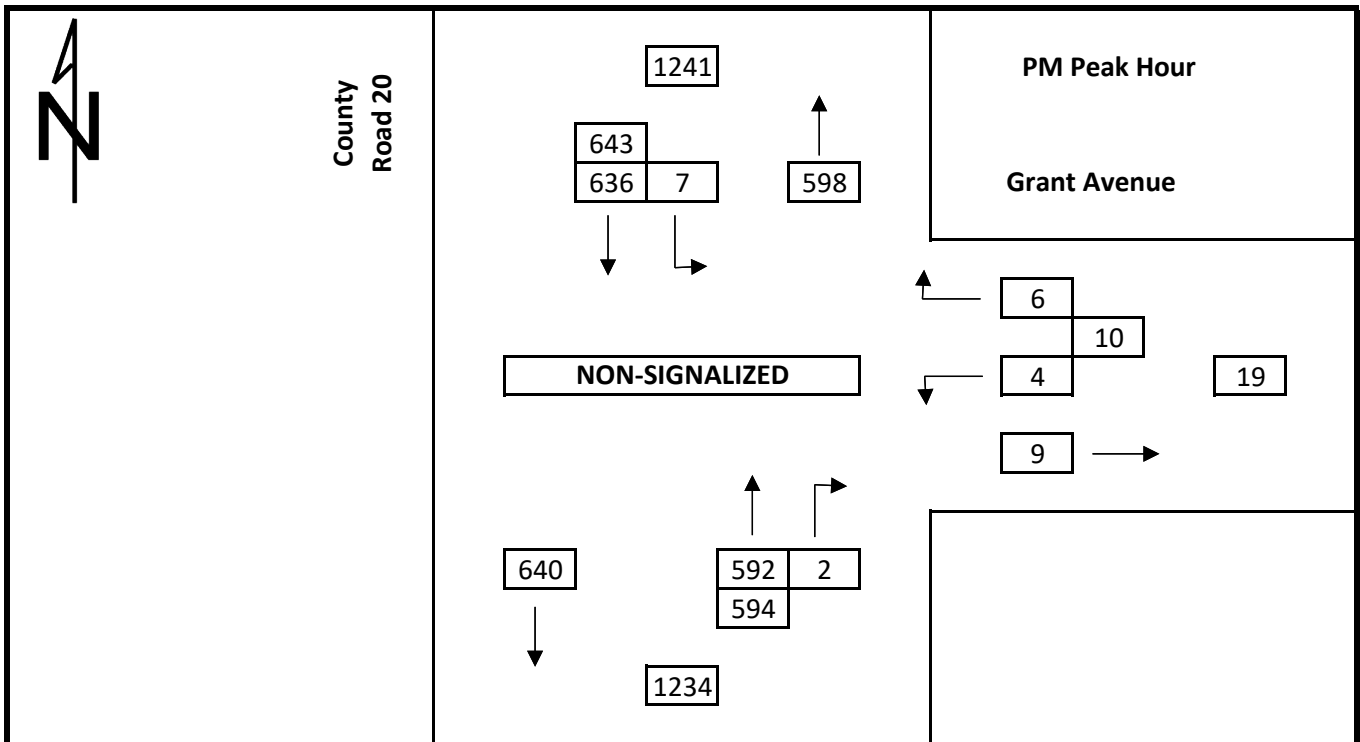
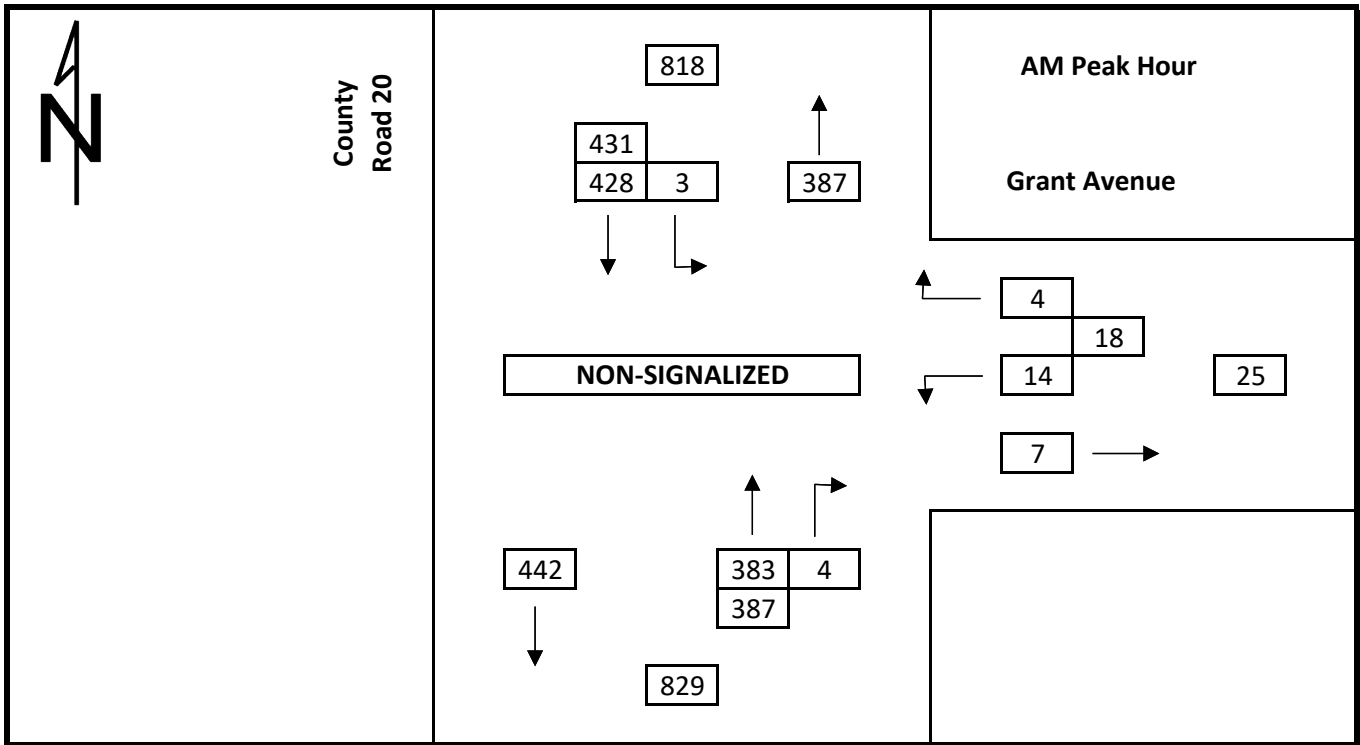
**Total Traffic 2031**  
 Westerly Site Access at Brunner Avenue



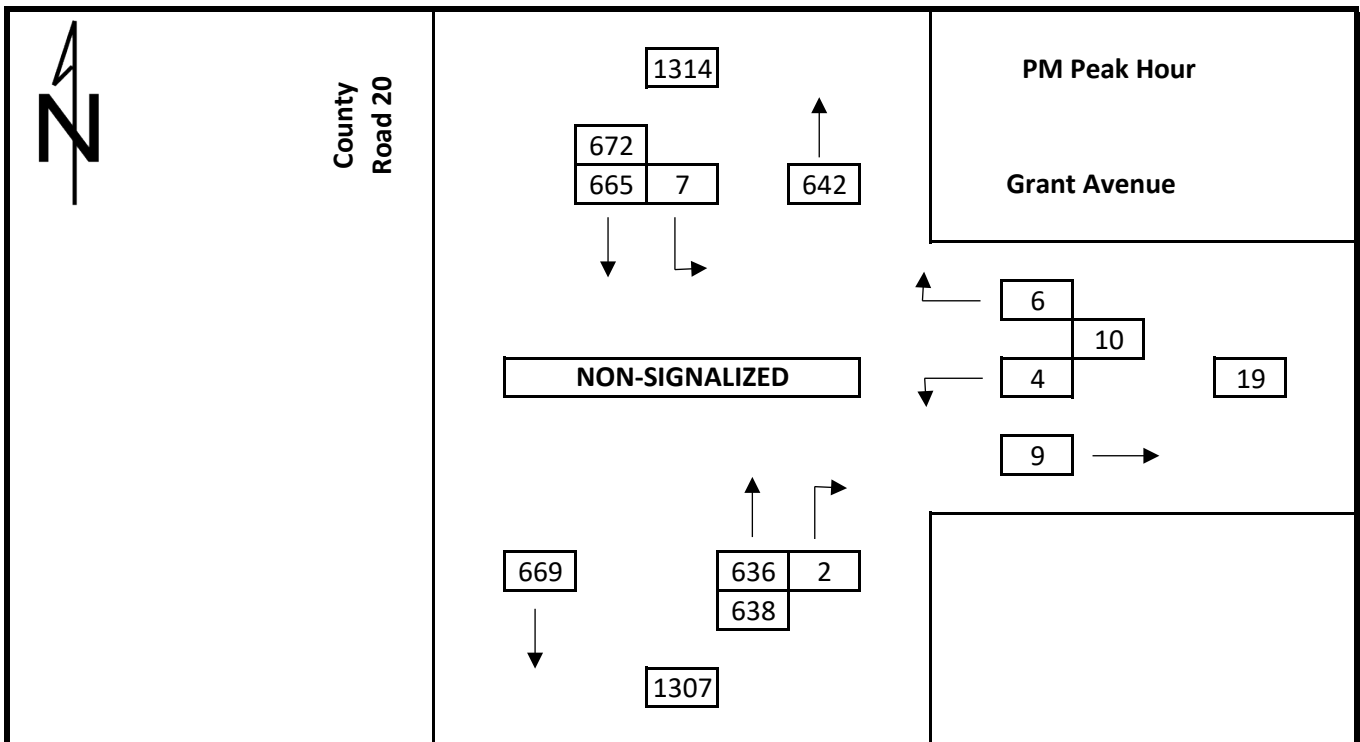
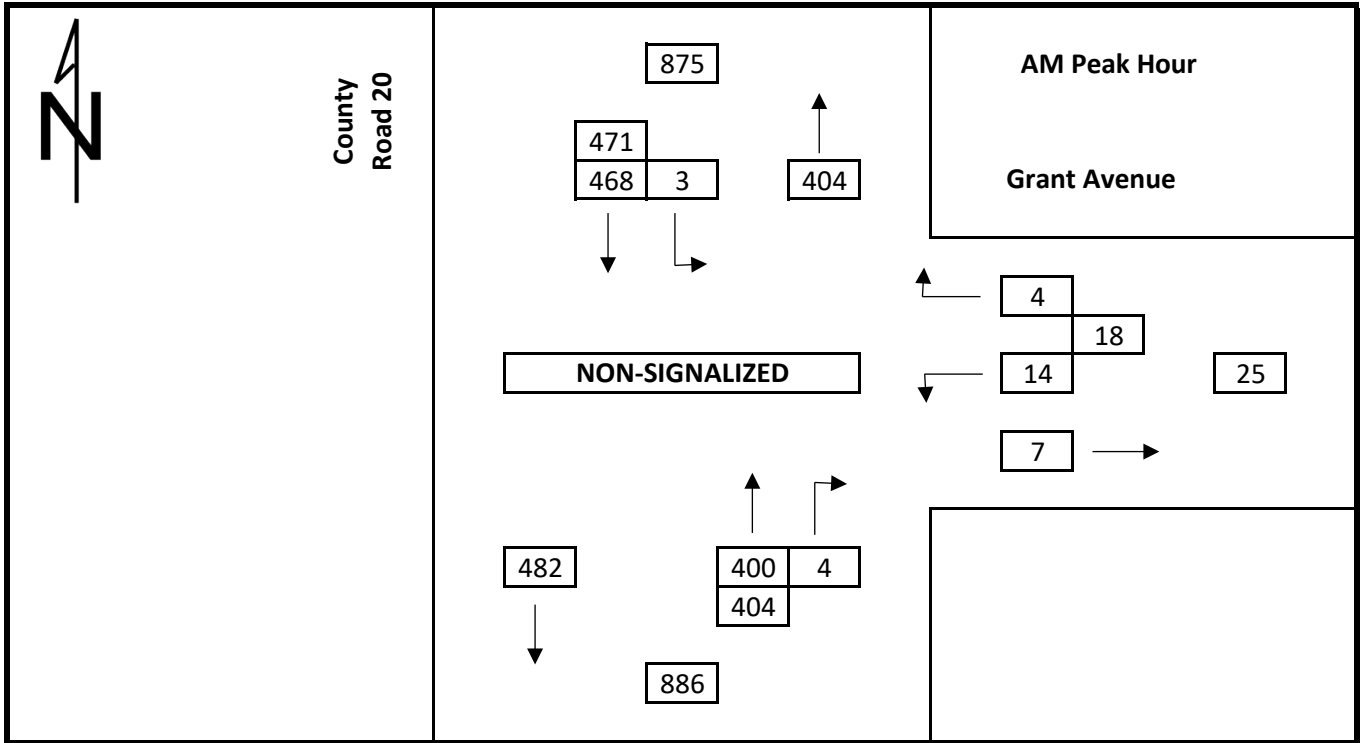
**Total Traffic 2031 + Anticipated Area Development Traffic**  
 Westerly Site Access at Brunner Avenue



**Existing Traffic Counts**  
Grant Avenue at County Road 20



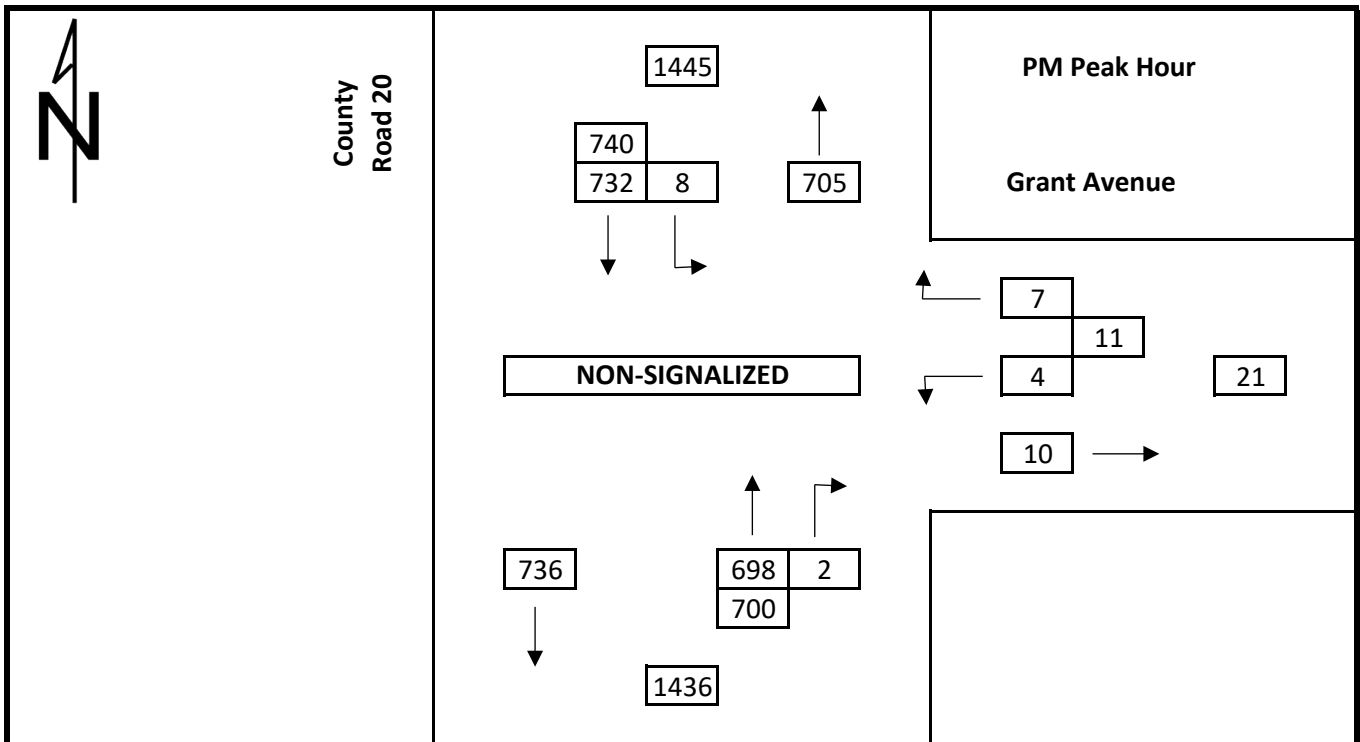
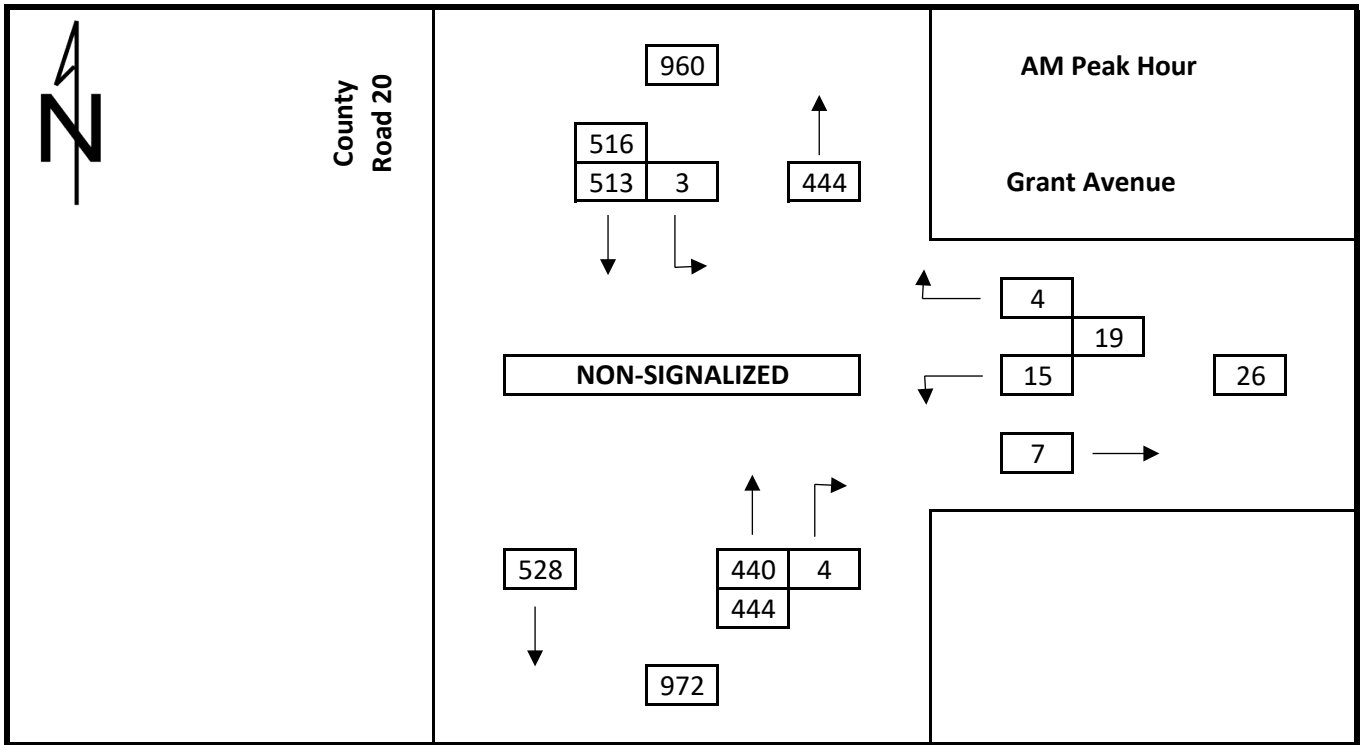
**Existing + Site Generated Traffic**  
 Grant Avenue at County Road 20



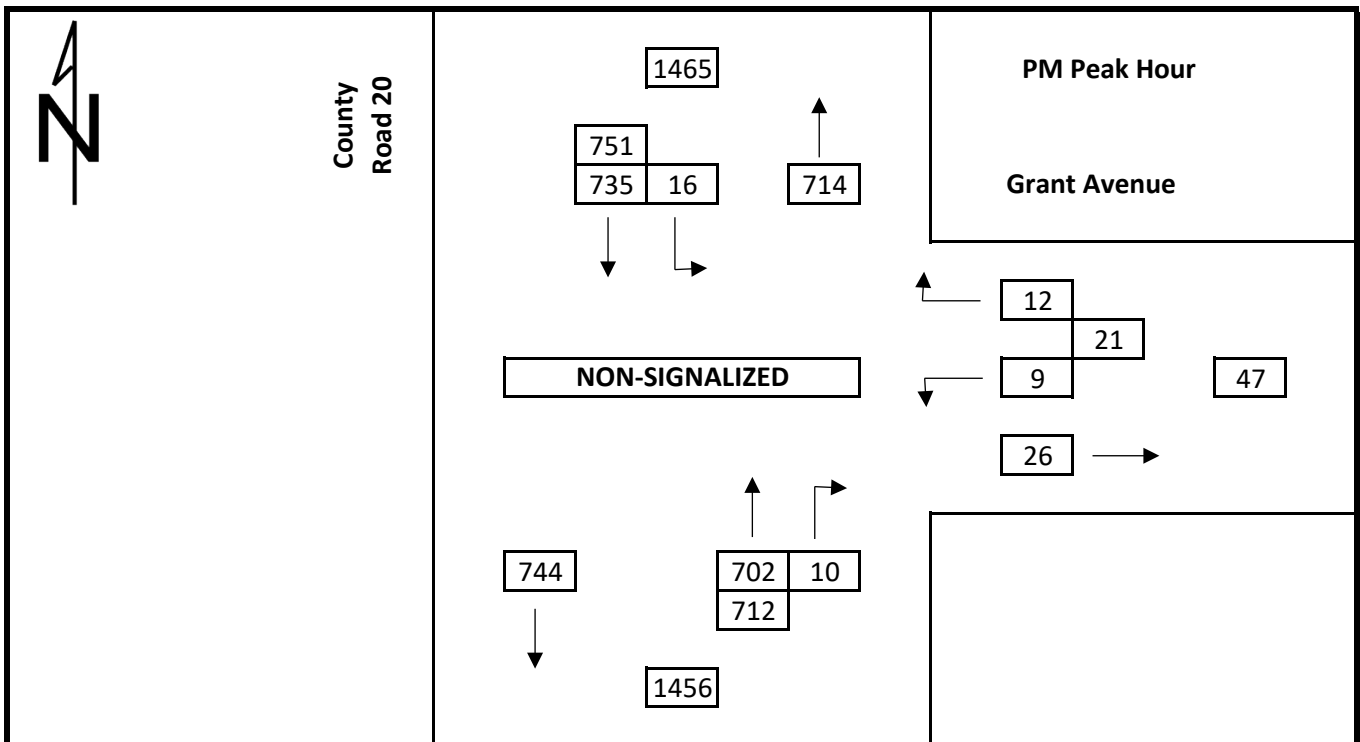
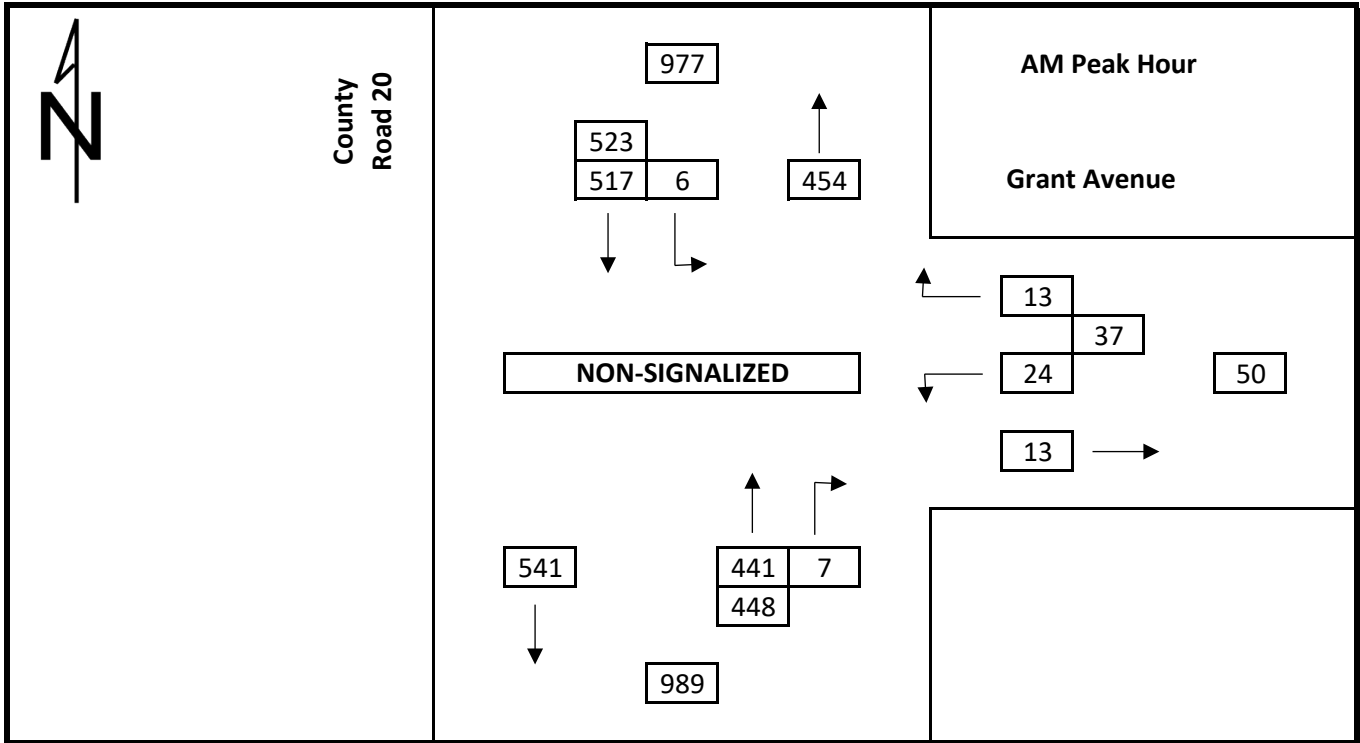




**Total Traffic 2031**  
Grant Avenue at County Road 20



**Total Traffic 2031 + Anticipated Area Development Traffic**  
 Grant Avenue at County Road 20



## **Appendix D**

# **DETAILED SYNCHRO RESULTS**

**Northerly Site Access at Sandwich Street North**

**Southerly Site Access at Sandwich Street North**

**Brunner Avenue at Sandwich Street North**

**Westerly Site Access at Brunner Avenue**

**Grant Avenue at Sandwich Street North**

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	14	17	475	6	5	412
Future Vol, veh/h	14	17	475	6	5	412
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	15	18	516	7	5	448

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	754	262	0	0	523	0
Stage 1	520	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	345	737	-	-	1040	-
Stage 1	561	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	343	737	-	-	1040	-
Mov Cap-2 Maneuver	343	-	-	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	778	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	485	1040
HCM Lane V/C Ratio	-	-	0.069	0.005
HCM Control Delay (s)	-	-	13	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	10	10	612	15	16	682
Future Vol, veh/h	10	10	612	15	16	682
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	11	11	665	16	17	741

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1078	341	0	0	681	0
Stage 1	673	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	213	655	-	-	907	-
Stage 1	468	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	206	655	-	-	907	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	468	-	-	-	-	-
Stage 2	621	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.4	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	313	907
HCM Lane V/C Ratio	-	-	0.069	0.019
HCM Control Delay (s)	-	-	17.4	9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1



Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	14	17	498	6	5	433
Future Vol, veh/h	14	17	498	6	5	433
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	15	18	541	7	5	471

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	791	274	0	0	548
Stage 1	545	-	-	-	-
Stage 2	246	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	327	724	-	-	1018
Stage 1	545	-	-	-	-
Stage 2	772	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	325	724	-	-	1018
Mov Cap-2 Maneuver	325	-	-	-	-
Stage 1	545	-	-	-	-
Stage 2	767	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	466	1018
HCM Lane V/C Ratio	-	-	0.072	0.005
HCM Control Delay (s)	-	-	13.3	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	10	10	642	15	16	715
Future Vol, veh/h	10	10	642	15	16	715
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	11	11	698	16	17	777

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1129	357	0	0	714
Stage 1	706	-	-	-	-
Stage 2	423	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	198	639	-	-	882
Stage 1	450	-	-	-	-
Stage 2	629	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	191	639	-	-	882
Mov Cap-2 Maneuver	191	-	-	-	-
Stage 1	450	-	-	-	-
Stage 2	608	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.2	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	294	882
HCM Lane V/C Ratio	-	-	0.074	0.02
HCM Control Delay (s)	-	-	18.2	9.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓			↑↓
Traffic Vol, veh/h	14	17	521	6	5	454
Future Vol, veh/h	14	17	521	6	5	454
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	15	18	566	7	5	493

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	827	287	0	0	573	0
Stage 1	570	-	-	-	-	-
Stage 2	257	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	310	710	-	-	996	-
Stage 1	529	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	308	710	-	-	996	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	529	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	447	996
HCM Lane V/C Ratio	-	-	0.075	0.005
HCM Control Delay (s)	-	-	13.7	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	10	674	15	16	750
Future Vol, veh/h	10	10	674	15	16	750
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	11	11	733	16	17	815

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1183	375	0	0	749
Stage 1	741	-	-	-	-
Stage 2	442	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	182	623	-	-	856
Stage 1	432	-	-	-	-
Stage 2	615	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	175	623	-	-	856
Mov Cap-2 Maneuver	175	-	-	-	-
Stage 1	432	-	-	-	-
Stage 2	593	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.3	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	273	856
HCM Lane V/C Ratio	-	-	0.08	0.02
HCM Control Delay (s)	-	-	19.3	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Northerly Access at Sandwich St. N. Total Traffic 2031 + Area Development Traffic AM Peak  
 Amherstburg, Ontario Proposed Geometric Configuration

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↑↓
Traffic Vol, veh/h	14	17	534	6	5	458
Future Vol, veh/h	14	17	534	6	5	458
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	15	18	580	7	5	498

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	843	294	0	0	587	0
Stage 1	584	-	-	-	-	-
Stage 2	259	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	303	702	-	-	984	-
Stage 1	521	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	301	702	-	-	984	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	521	-	-	-	-	-
Stage 2	756	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	438	984
HCM Lane V/C Ratio	-	-	0.077	0.006
HCM Control Delay (s)	-	-	13.9	8.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0



Northerly Access at Sandwich St. N. Total Traffic 2031 + Area Development Traffic PM Peak  
 Amherstburg, Ontario Proposed Geometric Configuration

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	10	10	681	15	16	763
Future Vol, veh/h	10	10	681	15	16	763
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	11	11	740	16	17	829

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1197	378	0	0	756
Stage 1	748	-	-	-	-
Stage 2	449	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	179	620	-	-	851
Stage 1	429	-	-	-	-
Stage 2	610	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	172	620	-	-	851
Mov Cap-2 Maneuver	172	-	-	-	-
Stage 1	429	-	-	-	-
Stage 2	587	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.6	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	269	851
HCM Lane V/C Ratio	-	-	0.081	0.02
HCM Control Delay (s)	-	-	19.6	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	14	464	6	5	421
Future Vol, veh/h	17	14	464	6	5	421
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	18	15	504	7	5	458

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	747	256	0	0	511
Stage 1	508	-	-	-	-
Stage 2	239	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	349	743	-	-	1050
Stage 1	569	-	-	-	-
Stage 2	778	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	347	743	-	-	1050
Mov Cap-2 Maneuver	347	-	-	-	-
Stage 1	569	-	-	-	-
Stage 2	773	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	457	1050
HCM Lane V/C Ratio	-	-	0.074	0.005
HCM Control Delay (s)	-	-	13.5	8.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	10	617	15	16	676
Future Vol, veh/h	10	10	617	15	16	676
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	11	11	671	16	17	735

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1081	344	0	0	687	0
Stage 1	679	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	212	652	-	-	903	-
Stage 1	465	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	205	652	-	-	903	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	465	-	-	-	-	-
Stage 2	623	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.4	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	312	903
HCM Lane V/C Ratio	-	-	0.07	0.019
HCM Control Delay (s)	-	-	17.4	9.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	14	17	487	6	5	442
Future Vol, veh/h	14	17	487	6	5	442
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	15	18	529	7	5	480

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	783	268	0	0	536
Stage 1	533	-	-	-	-
Stage 2	250	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	331	730	-	-	1028
Stage 1	553	-	-	-	-
Stage 2	768	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	329	730	-	-	1028
Mov Cap-2 Maneuver	329	-	-	-	-
Stage 1	553	-	-	-	-
Stage 2	763	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	471	1028
HCM Lane V/C Ratio	-	-	0.072	0.005
HCM Control Delay (s)	-	-	13.2	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	10	10	647	15	16	709
Future Vol, veh/h	10	10	647	15	16	709
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	11	11	703	16	17	771

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1131	360	0	0	719
Stage 1	711	-	-	-	-
Stage 2	420	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	197	637	-	-	878
Stage 1	448	-	-	-	-
Stage 2	631	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	190	637	-	-	878
Mov Cap-2 Maneuver	190	-	-	-	-
Stage 1	448	-	-	-	-
Stage 2	610	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	293	878
HCM Lane V/C Ratio	-	-	0.074	0.02
HCM Control Delay (s)	-	-	18.3	9.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	14	17	510	6	5	463
Future Vol, veh/h	14	17	510	6	5	463
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	15	18	554	7	5	503

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	820	281	0	0	561	0
Stage 1	558	-	-	-	-	-
Stage 2	262	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	313	716	-	-	1006	-
Stage 1	537	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	311	716	-	-	1006	-
Mov Cap-2 Maneuver	311	-	-	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	753	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	451	1006
HCM Lane V/C Ratio	-	-	0.075	0.005
HCM Control Delay (s)	-	-	13.6	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0



Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	10	10	679	15	16	744
Future Vol, veh/h	10	10	679	15	16	744
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	11	11	738	16	17	809

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1185	377	0	0	754
Stage 1	746	-	-	-	-
Stage 2	439	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	182	621	-	-	852
Stage 1	430	-	-	-	-
Stage 2	617	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	175	621	-	-	852
Mov Cap-2 Maneuver	175	-	-	-	-
Stage 1	430	-	-	-	-
Stage 2	595	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.3	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	273	852
HCM Lane V/C Ratio	-	-	0.08	0.02
HCM Control Delay (s)	-	-	19.3	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Southerly Access at Sandwich St. N. Total Traffic 2031 + Area Development Traffic AM Peak  
 Amherstburg, Ontario Proposed Geometric Configuration

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓			↑↓
Traffic Vol, veh/h	14	17	523	6	5	467
Future Vol, veh/h	14	17	523	6	5	467
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	15	18	568	7	5	508

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	836	288	0	0	575	0
Stage 1	572	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	306	709	-	-	994	-
Stage 1	528	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	304	709	-	-	994	-
Mov Cap-2 Maneuver	304	-	-	-	-	-
Stage 1	528	-	-	-	-	-
Stage 2	751	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	443	994
HCM Lane V/C Ratio	-	-	0.076	0.005
HCM Control Delay (s)	-	-	13.8	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Southerly Access at Sandwich St. N. Total Traffic 2031 + Area Development Traffic PM Peak  
 Amherstburg, Ontario Proposed Geometric Configuration

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	10	10	686	15	16	757
Future Vol, veh/h	10	10	686	15	16	757
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	11	11	746	16	17	823

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1200	381	0	0	762
Stage 1	754	-	-	-	-
Stage 2	446	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	178	617	-	-	846
Stage 1	425	-	-	-	-
Stage 2	612	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	171	617	-	-	846
Mov Cap-2 Maneuver	171	-	-	-	-
Stage 1	425	-	-	-	-
Stage 2	589	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.6	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	268	846
HCM Lane V/C Ratio	-	-	0.081	0.021
HCM Control Delay (s)	-	-	19.6	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	32	412	3	29	374
Future Vol, veh/h	7	32	412	3	29	374
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	8	35	448	3	32	407

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	718	226	0	0	451
Stage 1	450	-	-	-	-
Stage 2	268	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	364	777	-	-	1106
Stage 1	609	-	-	-	-
Stage 2	753	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	351	777	-	-	1106
Mov Cap-2 Maneuver	351	-	-	-	-
Stage 1	609	-	-	-	-
Stage 2	725	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	638	1106
HCM Lane V/C Ratio	-	-	0.066	0.029
HCM Control Delay (s)	-	-	11	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↑↓
Traffic Vol, veh/h	2	12	582	10	9	641
Future Vol, veh/h	2	12	582	10	9	641
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	2	13	633	11	10	697

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1008	322	0	0	644	0
Stage 1	639	-	-	-	-	-
Stage 2	369	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	237	674	-	-	937	-
Stage 1	488	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	233	674	-	-	937	-
Mov Cap-2 Maneuver	233	-	-	-	-	-
Stage 1	488	-	-	-	-	-
Stage 2	659	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	531	937
HCM Lane V/C Ratio	-	-	0.029	0.01
HCM Control Delay (s)	-	-	12	8.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	19	46	424	8	33	402
Future Vol, veh/h	19	46	424	8	33	402
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	21	50	461	9	36	437

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	757	235	0	0	470
Stage 1	466	-	-	-	-
Stage 2	291	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	344	767	-	-	1088
Stage 1	598	-	-	-	-
Stage 2	733	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	329	767	-	-	1088
Mov Cap-2 Maneuver	329	-	-	-	-
Stage 1	598	-	-	-	-
Stage 2	701	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	552	1088
HCM Lane V/C Ratio	-	-	0.128	0.033
HCM Control Delay (s)	-	-	12.5	8.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1



Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	20	612	24	25	661
Future Vol, veh/h	11	20	612	24	25	661
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	12	22	665	26	27	718

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1091	346	0	0	691	0
Stage 1	678	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	209	650	-	-	900	-
Stage 1	466	-	-	-	-	-
Stage 2	636	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	199	650	-	-	900	-
Mov Cap-2 Maneuver	199	-	-	-	-	-
Stage 1	466	-	-	-	-	-
Stage 2	604	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	360	900
HCM Lane V/C Ratio	-	-	0.094	0.03
HCM Control Delay (s)	-	-	16	9.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	19	48	445	8	34	421
Future Vol, veh/h	19	48	445	8	34	421
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	21	52	484	9	37	458

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	792	247	0	0	493
Stage 1	489	-	-	-	-
Stage 2	303	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	326	753	-	-	1067
Stage 1	582	-	-	-	-
Stage 2	723	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	311	753	-	-	1067
Mov Cap-2 Maneuver	311	-	-	-	-
Stage 1	582	-	-	-	-
Stage 2	690	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	537	1067
HCM Lane V/C Ratio	-	-	0.136	0.035
HCM Control Delay (s)	-	-	12.8	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	11	21	642	25	25	694
Future Vol, veh/h	11	21	642	25	25	694
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	12	23	698	27	27	754

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1143	363	0	0	725
Stage 1	712	-	-	-	-
Stage 2	431	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	194	634	-	-	874
Stage 1	447	-	-	-	-
Stage 2	623	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	184	634	-	-	874
Mov Cap-2 Maneuver	184	-	-	-	-
Stage 1	447	-	-	-	-
Stage 2	590	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.6	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	344	874
HCM Lane V/C Ratio	-	-	0.101	0.031
HCM Control Delay (s)	-	-	16.6	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↑↓
Traffic Vol, veh/h	20	49	467	8	36	441
Future Vol, veh/h	20	49	467	8	36	441
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	22	53	508	9	39	479

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	831	259	0	0	517	0
Stage 1	513	-	-	-	-	-
Stage 2	318	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	308	740	-	-	1045	-
Stage 1	566	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	292	740	-	-	1045	-
Mov Cap-2 Maneuver	292	-	-	-	-	-
Stage 1	566	-	-	-	-	-
Stage 2	674	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	512	1045
HCM Lane V/C Ratio	-	-	0.146	0.037
HCM Control Delay (s)	-	-	13.2	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↑↓
Traffic Vol, veh/h	11	21	673	25	26	728
Future Vol, veh/h	11	21	673	25	26	728
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	12	23	732	27	28	791

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1198	380	0	0	759
Stage 1	746	-	-	-	-
Stage 2	452	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	178	618	-	-	848
Stage 1	430	-	-	-	-
Stage 2	608	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	167	618	-	-	848
Mov Cap-2 Maneuver	167	-	-	-	-
Stage 1	430	-	-	-	-
Stage 2	572	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.6	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	320	848
HCM Lane V/C Ratio	-	-	0.109	0.033
HCM Control Delay (s)	-	-	17.6	9.4
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	53	476	9	37	444
Future Vol, veh/h	24	53	476	9	37	444
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	26	58	517	10	40	483

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	844	264	0	0	527	0
Stage 1	522	-	-	-	-	-
Stage 2	322	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	302	734	-	-	1036	-
Stage 1	560	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	286	734	-	-	1036	-
Mov Cap-2 Maneuver	286	-	-	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	493	1036
HCM Lane V/C Ratio	-	-	0.17	0.039
HCM Control Delay (s)	-	-	13.8	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1



Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↑↓
Traffic Vol, veh/h	14	23	678	29	31	736
Future Vol, veh/h	14	23	678	29	31	736
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	15	25	737	32	34	800

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1221	385	0	0	769
Stage 1	753	-	-	-	-
Stage 2	468	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	172	613	-	-	841
Stage 1	426	-	-	-	-
Stage 2	597	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	159	613	-	-	841
Mov Cap-2 Maneuver	159	-	-	-	-
Stage 1	426	-	-	-	-
Stage 2	553	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	295	841
HCM Lane V/C Ratio	-	-	0.136	0.04
HCM Control Delay (s)	-	-	19.1	9.5
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	9	32	39	0	0	26
Future Vol, veh/h	9	32	39	0	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	35	42	0	0	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	42	0	-	0	97 42
Stage 1	-	-	-	-	42 -
Stage 2	-	-	-	-	55 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1567	-	-	-	902 1029
Stage 1	-	-	-	-	980 -
Stage 2	-	-	-	-	968 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1567	-	-	-	896 1029
Mov Cap-2 Maneuver	-	-	-	-	896 -
Stage 1	-	-	-	-	973 -
Stage 2	-	-	-	-	968 -

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1567	-	-	-	1029
HCM Lane V/C Ratio	0.006	-	-	-	0.027
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	4.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	30	19	14	0	0	17
Future Vol, veh/h	30	19	14	0	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	21	15	0	0	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	15	0	-	0	102 15
Stage 1	-	-	-	-	15 -
Stage 2	-	-	-	-	87 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1603	-	-	-	896 1065
Stage 1	-	-	-	-	1008 -
Stage 2	-	-	-	-	936 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1603	-	-	-	877 1065
Mov Cap-2 Maneuver	-	-	-	-	877 -
Stage 1	-	-	-	-	987 -
Stage 2	-	-	-	-	936 -

Approach	EB	WB	SB
HCM Control Delay, s	4.5	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1603	-	-	-	1065
HCM Lane V/C Ratio	0.02	-	-	-	0.017
HCM Control Delay (s)	7.3	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	9	34	41	0	0	26
Future Vol, veh/h	9	34	41	0	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	37	45	0	0	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	45	0	-	0	102 45
Stage 1	-	-	-	-	45 -
Stage 2	-	-	-	-	57 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1563	-	-	-	896 1025
Stage 1	-	-	-	-	977 -
Stage 2	-	-	-	-	966 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1563	-	-	-	890 1025
Mov Cap-2 Maneuver	-	-	-	-	890 -
Stage 1	-	-	-	-	970 -
Stage 2	-	-	-	-	966 -

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1563	-	-	-	1025
HCM Lane V/C Ratio	0.006	-	-	-	0.028
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	30	20	15	0	0	17
Future Vol, veh/h	30	20	15	0	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	22	16	0	0	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	16	0	-	0	104
Stage 1	-	-	-	-	16
Stage 2	-	-	-	-	88
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1602	-	-	-	894
Stage 1	-	-	-	-	1007
Stage 2	-	-	-	-	935
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1602	-	-	-	875
Mov Cap-2 Maneuver	-	-	-	-	875
Stage 1	-	-	-	-	986
Stage 2	-	-	-	-	935

Approach	EB	WB	SB
HCM Control Delay, s	4.4	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1602	-	-	-	1063
HCM Lane V/C Ratio	0.02	-	-	-	0.017
HCM Control Delay (s)	7.3	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	9	35	43	0	0	26
Future Vol, veh/h	9	35	43	0	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	38	47	0	0	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	47	0	-	0	105 47
Stage 1	-	-	-	-	47 -
Stage 2	-	-	-	-	58 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1560	-	-	-	893 1022
Stage 1	-	-	-	-	975 -
Stage 2	-	-	-	-	965 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1560	-	-	-	887 1022
Mov Cap-2 Maneuver	-	-	-	-	887 -
Stage 1	-	-	-	-	968 -
Stage 2	-	-	-	-	965 -

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1560	-	-	-	1022
HCM Lane V/C Ratio	0.006	-	-	-	0.028
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	30	21	15	0	0	17
Future Vol, veh/h	30	21	15	0	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	23	16	0	0	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	16	0	-	0	105 16
Stage 1	-	-	-	-	16 -
Stage 2	-	-	-	-	89 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1602	-	-	-	893 1063
Stage 1	-	-	-	-	1007 -
Stage 2	-	-	-	-	934 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1602	-	-	-	874 1063
Mov Cap-2 Maneuver	-	-	-	-	874 -
Stage 1	-	-	-	-	986 -
Stage 2	-	-	-	-	934 -

Approach	EB	WB	SB
HCM Control Delay, s	4.3	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1602	-	-	-	1063
HCM Lane V/C Ratio	0.02	-	-	-	0.017
HCM Control Delay (s)	7.3	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	9	37	51	0	0	26
Future Vol, veh/h	9	37	51	0	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	40	55	0	0	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	55	0	-	0	115 55
Stage 1	-	-	-	-	55 -
Stage 2	-	-	-	-	60 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1550	-	-	-	881 1012
Stage 1	-	-	-	-	968 -
Stage 2	-	-	-	-	963 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1550	-	-	-	875 1012
Mov Cap-2 Maneuver	-	-	-	-	875 -
Stage 1	-	-	-	-	961 -
Stage 2	-	-	-	-	963 -

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1550	-	-	-	1012
HCM Lane V/C Ratio	0.006	-	-	-	0.028
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	30	30	20	0	0	17
Future Vol, veh/h	30	30	20	0	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	33	22	0	0	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	22	0	-	0	121 22
Stage 1	-	-	-	-	22 -
Stage 2	-	-	-	-	99 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1593	-	-	-	874 1055
Stage 1	-	-	-	-	1001 -
Stage 2	-	-	-	-	925 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1593	-	-	-	856 1055
Mov Cap-2 Maneuver	-	-	-	-	856 -
Stage 1	-	-	-	-	980 -
Stage 2	-	-	-	-	925 -

Approach	EB	WB	SB
HCM Control Delay, s	3.7	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1593	-	-	-	1055
HCM Lane V/C Ratio	0.02	-	-	-	0.018
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↑↓
Traffic Vol, veh/h	14	4	383	4	3	428
Future Vol, veh/h	14	4	383	4	3	428
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	2
Mvmt Flow	15	4	416	4	3	465

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	657	210	0	0	420	0
Stage 1	418	-	-	-	-	-
Stage 2	239	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	398	796	-	-	1136	-
Stage 1	632	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	396	796	-	-	1136	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	446	1136
HCM Lane V/C Ratio	-	-	0.044	0.003
HCM Control Delay (s)	-	-	13.4	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↑↓
Traffic Vol, veh/h	4	6	592	2	7	636
Future Vol, veh/h	4	6	592	2	7	636
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	4	7	643	2	8	691

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1006	323	0	0	645	0
Stage 1	644	-	-	-	-	-
Stage 2	362	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	238	673	-	-	936	-
Stage 1	485	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	235	673	-	-	936	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	666	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	386	936
HCM Lane V/C Ratio	-	-	0.028	0.008
HCM Control Delay (s)	-	-	14.6	8.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Vol, veh/h	14	4	400	4	3	468
Future Vol, veh/h	14	4	400	4	3	468
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	2
Mvmt Flow	15	4	435	4	3	509

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	698	220	0	0	439
Stage 1	437	-	-	-	-
Stage 2	261	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	375	784	-	-	1117
Stage 1	619	-	-	-	-
Stage 2	759	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	374	784	-	-	1117
Mov Cap-2 Maneuver	374	-	-	-	-
Stage 1	619	-	-	-	-
Stage 2	756	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	423	1117
HCM Lane V/C Ratio	-	-	0.046	0.003
HCM Control Delay (s)	-	-	13.9	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0



Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓			↑↓
Traffic Vol, veh/h	4	6	636	2	7	665
Future Vol, veh/h	4	6	636	2	7	665
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	4	7	691	2	8	723

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1070	347	0	0	693	0
Stage 1	692	-	-	-	-	-
Stage 2	378	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	216	649	-	-	898	-
Stage 1	458	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	213	649	-	-	898	-
Mov Cap-2 Maneuver	213	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	653	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	357	898
HCM Lane V/C Ratio	-	-	0.03	0.008
HCM Control Delay (s)	-	-	15.4	9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	15	4	420	4	3	490
Future Vol, veh/h	15	4	420	4	3	490
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	2
Mvmt Flow	16	4	457	4	3	533

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	732	231	0	0	461	0
Stage 1	459	-	-	-	-	-
Stage 2	273	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	356	771	-	-	1096	-
Stage 1	603	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	355	771	-	-	1096	-
Mov Cap-2 Maneuver	355	-	-	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	745	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	400	1096
HCM Lane V/C Ratio	-	-	0.052	0.003
HCM Control Delay (s)	-	-	14.5	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕↔			↕↔
Traffic Vol, veh/h	4	6	666	2	7	697
Future Vol, veh/h	4	6	666	2	7	697
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	4	7	724	2	8	758

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1120	363	0	0	726
Stage 1	725	-	-	-	-
Stage 2	395	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	200	634	-	-	873
Stage 1	440	-	-	-	-
Stage 2	650	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	197	634	-	-	873
Mov Cap-2 Maneuver	197	-	-	-	-
Stage 1	440	-	-	-	-
Stage 2	640	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	336	873
HCM Lane V/C Ratio	-	-	0.032	0.009
HCM Control Delay (s)	-	-	16.1	9.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	T		T
Traffic Vol, veh/h	15	4	440	4	3	513
Future Vol, veh/h	15	4	440	4	3	513
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	2
Mvmt Flow	16	4	478	4	3	558

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	765	241	0	0	482
Stage 1	480	-	-	-	-
Stage 2	285	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	340	760	-	-	1077
Stage 1	588	-	-	-	-
Stage 2	738	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	339	760	-	-	1077
Mov Cap-2 Maneuver	339	-	-	-	-
Stage 1	588	-	-	-	-
Stage 2	735	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	384	1077
HCM Lane V/C Ratio	-	-	0.054	0.003
HCM Control Delay (s)	-	-	14.9	8.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↑↓
Traffic Vol, veh/h	4	7	698	2	8	732
Future Vol, veh/h	4	7	698	2	8	732
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	4	8	759	2	9	796

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1176	381	0	0	761	0
Stage 1	760	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	184	617	-	-	847	-
Stage 1	422	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	181	617	-	-	847	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	422	-	-	-	-	-
Stage 2	622	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.4	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	329	847
HCM Lane V/C Ratio	-	-	0.036	0.01
HCM Control Delay (s)	-	-	16.4	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	13	441	7	6	517
Future Vol, veh/h	24	13	441	7	6	517
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	2
Mvmt Flow	26	14	479	8	7	562

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	778	244	0	0	487
Stage 1	483	-	-	-	-
Stage 2	295	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	333	757	-	-	1072
Stage 1	586	-	-	-	-
Stage 2	730	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	330	757	-	-	1072
Mov Cap-2 Maneuver	330	-	-	-	-
Stage 1	586	-	-	-	-
Stage 2	723	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	412	1072
HCM Lane V/C Ratio	-	-	0.098	0.006
HCM Control Delay (s)	-	-	14.7	8.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0



Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	9	12	702	10	16	735
Future Vol, veh/h	9	12	702	10	16	735
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	10	13	763	11	17	799

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1203	387	0	0	774
Stage 1	769	-	-	-	-
Stage 2	434	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	177	611	-	-	837
Stage 1	418	-	-	-	-
Stage 2	621	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	170	611	-	-	837
Mov Cap-2 Maneuver	170	-	-	-	-
Stage 1	418	-	-	-	-
Stage 2	598	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.5	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	289	837
HCM Lane V/C Ratio	-	-	0.079	0.021
HCM Control Delay (s)	-	-	18.5	9.4
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

## **Appendix E**

# **SIGHT LINE CALCULATIONS**

**Northerly Site Access at Sandwich Street North**

**Southerly Site Access at Sandwich Street North**

**Westerly Site Access at Brunner Avenue**

**Easterly Site Access at Brunner Avenue**

**21-1213: Piroli Apartments, Amherstburg TIS - Sight Line Analysis**

**Design Intersection Sight Distance (TAC Geometric Design Guide for Canadian Roads)**

**Design Speed: 60km/h (Posted Speed Limit = 50 km/h)**

Table 9.9.3: Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap ( $t_g$ )(s) at Design Speed of Major Road
Passenger car	7.5
Single-unit truck	9.5
Combination truck (WB 19 and WB 20 )	11.5
Longer truck	To be established by road authority

Intersection Stopping Distance (**ISD**) =  $0.278 V_{\text{major}} t_g$

Where:

- ISD = intersection sight distance (m)  
*(length of the leg of sight triangle along the major road)*
- $V_{\text{major}}$  = design speed of the major road (km/h)
- $t_g$  = time gap for minor road vehicle to enter the major road (s)

ISD<sub>passenger car</sub> (left turn from stop) =  $0.278 \times 60 \times 7.5 = 125 \text{ m}$

Table 9.9.5: Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Design Vehicle	Time Gap ( $t_g$ )(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck (WB 19 and WB 20 )	10.5

ISD<sub>passenger car</sub> (right turn from stop) =  $0.278 \times 60 \times 6.5 = 108 \text{ m}$



**STORMWATER MANAGEMENT REPORT**

PROJECT NO. 21-108

## Table of Contents

---

<b>1. Introduction</b> .....	1
<b>2. Pre-Development Conditions</b> .....	1
<b>3. Allowable Release Rate</b> .....	2
<b>4. Post Development Conditions</b> .....	2
<b>5. Stormwater Management</b> .....	3
<b>5.1. Storm Drainage System</b> .....	4
<b>5.2. Stormwater Quantity Management</b> .....	4
<b>5.3. Stress Test</b> .....	5
<b>5.4. Stormwater Quality Management</b> .....	5
<b>6. Conclusion</b> .....	6

## List of Figures

---

Figure 1: Existing Conditions.....	1
Figure 2: Developed Condition .....	3

## List of Tables

---

Table 1: Restricted Flows .....	4
Table 2: Detention Pond Stage/Storage Values.....	5

## Appendices

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- A Design Drawings (Attached Separately)
- B Pre-Development Site Assessment
- C Storm Network Sizing Calculations
- D Post-Development Site Assessments
- E Subsurface Storage System
- F Water Quality Unit



## 1. Introduction

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Baird AE was retained to provide civil engineering services necessary for the development of municipal lot 225 on Sandwich Street North (County Road 20) in Amherstburg, Ontario. This report is intended to convey the stormwater management scheme designed for this site along with the general stormwater servicing design. This report and the associated design were prepared in accordance with the Windsor-Essex Regional Stormwater Management Standards Manual (WERSMSM) and the development manual published by the Corporation of the Town of Amherstburg to ensure compliance with local design standards and development regulations.

## 2. Pre-Development Conditions

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The proposed site is located at 225 Sandwich Street North in the municipality of Amherstburg. The current condition of the site is a vacant grassed lot, as can be seen in Figure 1 provided below. According to the soil type mapping tool provided by the Essex Regional Conservation Authority (ERCA) the underlying soil type for this site is Brookstone Clay, which belongs to hydrologic soil class D, as per the WERSMSM. The existing condition of the site, as depicted in Figure 1, was deemed to be “good condition” and thus the curve number applied in the pre-development analysis was selected as 80 to reflect that condition.



Figure 1: Existing Conditions

### 3. Allowable Release Rate

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The pre-development analysis of the site was completed in accordance with the WERSMSM, using the Hydraflow Hydrographs Extension for Autodesk Civil 3D. In accordance with subsection 3.3.1.4 of WERSMSM, the allowable release rate was calculated through a hydrologic analysis of the site, applying the SCS Type II distribution of the 2-year return event rainfall depth (53.4 mm). Rainfall depth data applied in the allowable release rate calculation was referenced from Windsor Airport rainfall data, published by Environment Canada, and reflected in the appendices of the WERSMSM. The design outlet for the site was determined to be the 375 mm diameter municipal sewer in the Brunner Avenue right of way based on existing topography of the site, a study of the topography determined that roughly 1.07 Ha of the 1.14 Ha site currently drains freely overland to the Brunner right of way. Therefore, the allowable release rate was determined to be the existing release rate from the 1.07 Ha area, which is estimated to be 0.036 m<sup>3</sup>/s (36 L/s) in accordance with the calculations provided in Appendix B to this report.

### 4. Post Development Conditions

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The developed site shall consist of a paved parking area and a proposed six storey residential complex. The developed site shall include an urban type drainage system with surface and subsurface storage provided to accommodate the necessary stormwater detention. The proposed developed condition of the site is reflected, in detail, in Appendix A to this report and in Figure 2, provided below.

The post-development analysis was completed using the modified rational method, in accordance with subsection 3.3.2.2 of the WERSMSM, and the Hydraflow Hydrographs Extension for Autodesk Civil 3D. The rainfall data applied in the post-development analysis was referenced from subsection 3.2.1.1 of the WERSMSM. The entire site area of 1.14 Ha was considered in the post-development analysis of the site and a post-developed runoff coefficient was calculated for the site based on subsections 3.3.2.1 and 3.3.2.2 of the WERSMSM, as reflected below:

**Eq. 3.3.2.1(d):**  $Storage\ Depth\ (mm) = 72 + 0.33x$       Where  $x = impervious\ \%, > 50\%$

**Eq. 3.3.2.2:**  $100 - Year\ C\ Value = \frac{Storage\ Dept\ (mm)}{108\ mm}$

The imperviousness for the site was selected from table 3.7.5.1 of the WERSMSM to be 90% based on an industrial/commercial use, and as such the overall post-development run-off coefficient was calculated to be 0.95.

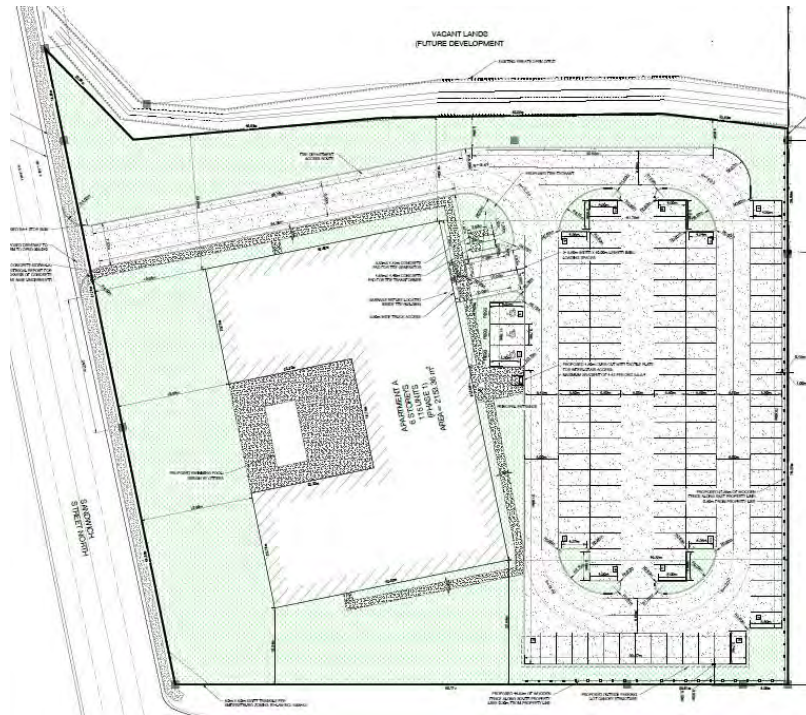


Figure 2: Developed Condition

## 5. Stormwater Management

The stormwater management criteria for this site are based on the requirements of the WERSMSM. Those requirements include, but are not limited to, the following:

- Stormwater drainage system designed to accommodate peak flows occurring from the minor (5-year return) storm event.
- No surface ponding occurring for rainfall event depths less than or equal to 32 mm.
- Stormwater quantity controls are required for the site to control the proposed conditions' peak flows up to 100-year storm to the allowable release rate defined in Subsection 3 of this report.
- Water quality control are to be provided for the site to a "Normal Protection level" as per MOE (2003) guidelines.

## 5.1. Storm Drainage System

The storm sewer network was designed to accommodate peak flows occurring as a result of the 5-year return storm event defined by the intensity-duration-frequency (IDF) curve parameters provided in subsection 3.2.1.1 of the WERSMSM. Calculations prepared for the design of the storm sewer network intended to serve the site were prepared in accordance with the approach defined in the Design Guidelines for Sewage Works published by the Ministry of Environment, Conservation, and Parks. Furthermore, the surface area data applied in the calculations is reflected on Sheet 06 of Appendix A, and the calculations have been provided, in detail, in Appendix C to this report.

## 5.2. Stormwater Quantity Management

As discussed, in Subsection 3 of this report, the allowable release rate for this site was calculated in accordance with the WERSMSM to be 0.036 m<sup>3</sup>/s. Flow control, required to restrict the developed site's discharge to the allowable release rate, shall be provided as an orifice plate with an outlet diameter of 110 mm to be installed in the outlet structure associated with the proposed subsurface storage system, as depicted on Sheet 04 of Appendix A. Restricted flows shall be stored in the proposed 308.6 m<sup>3</sup> subsurface storage system, defined in detail in Appendix E to this report, and in surface ponding developed in the proposed paved parking area. Table 1, provided below, provides a summary of the flow restriction scenarios proposed for the developed condition of the site.

**Table 1: Restricted Flows**

<b>Storm Return Period</b>	<b>Un-Restricted Flows (m<sup>3</sup>/s)</b>	<b>Restricted Flows (m<sup>3</sup>/s)</b>
5-year	0.043	0.027
100-year	0.071	0.036

The peak hydraulic grade line (HGL) elevation achieved for each given design storm event have been summarized in Table 2. Moreover, the ponding areas associated with the HGL achieved for the major storm events (100-year & Stress Test) have been depicted on Sheet 03 of Appendix A, for reference.

**Table 2: Detention Pond Stage/Storage Values**

<b>Storm Return Period</b>	<b>Elevation in Pond (m)</b>	<b>Storage Volume (m<sup>3</sup>)</b>
5-year	181.37	284
100-year	182.23	516

Reviewing Table 2 in conjunction with Sheet 03 of Appendix A reveals that the HGL of the minor event (5-year) does not achieve an elevation great enough to induce surface ponding in the paved parking area (>182.00 m), thus satisfying the requirements of subsection 3.3.2.6 of the WERSMSM.

### **5.3. Stress Test**

In accordance with subsection 3.7.8.3 of the WERSMSM, a stress test was assessed for this site. Due to the limitations of the Hydraflow Hydrographs Extension for Autodesk Civil 3D the urban stress test can only be accurately assessed using the SCS Type II distribution of the 150 mm rainfall event prescribed by the WERSMSM. The results of the stress test assessment for this site verify that the event can be managed on site by the proposed design, and yield a peak HGL elevation of 182.30 m, a total storage volume of 735 m<sup>3</sup>, and a peak discharge of 36 L/s. The stress test calculations have been included, for reference, in the post-development calculations provided Appendix D to this report. The peak HGL elevation resulting from the Stress Test has been depicted on Sheet 03 of Appendix A.

### **5.4. Stormwater Quality Management**

The water quality is addressed through an oil and grit separator unit provided by StormCon. The quality unit was sized by the manufacturer for the proposed developed site area (1.14 Ha) and imperviousness (95%), such that the MOECP's Normal protection level shall be met as a minimum. Details of the OGS unit can be found in Appendix F to this report.

## 6. Conclusion

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According to the analysis summarized herein, and as provided in the attached documentation, the WERSMSM design standards have been satisfied. Therefore, Baird AE is recommending the approval of the proposed development by the municipality of Amherstburg and all other applicable authorities.

All of which is respectfully submitted.

**BAIRD AE INC.**

**27 PRINCESS STREET,**

**UNIT 102 LEAMINGTON, ONTARIO N8H 2X8**



Bill Fuerth, P.ENG.



Appendix A

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**Design Drawings (Attached Separately)**

Appendix B

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**Pre-Development Site Assessment**

# Hydrograph Report

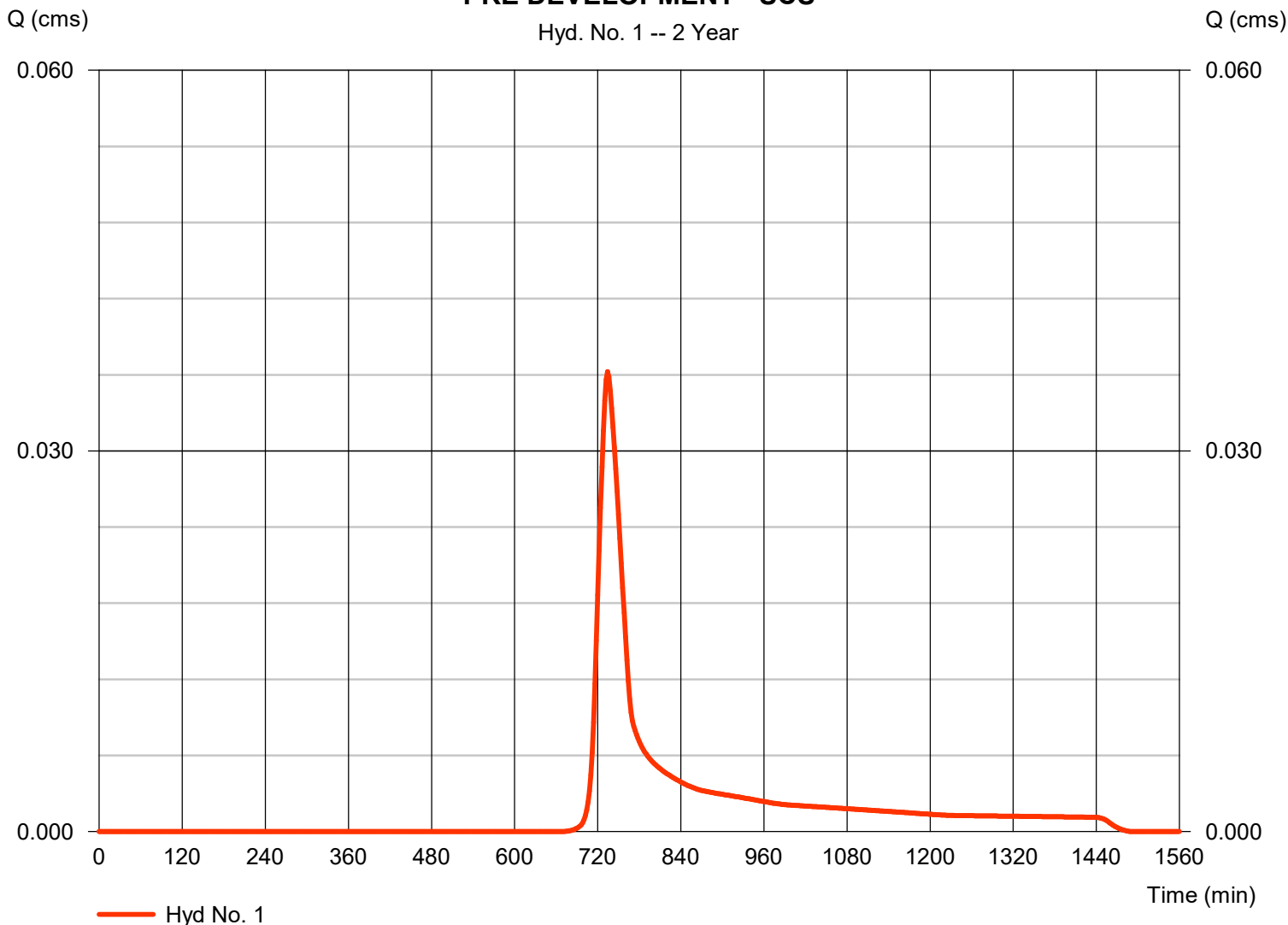
## Hyd. No. 1

### PRE DEVELOPMENT - SCS

Hydrograph type	= SCS Runoff	Peak discharge	= 0.036 cms
Storm frequency	= 2 yrs	Time to peak	= 734 min
Time interval	= 2 min	Hyd. volume	= 171.6 cum
Drainage area	= 1.066 hectare	Curve number	= 80
Basin Slope	= 0.0 %	Hydraulic length	= 0 m
Tc method	= TR55	Time of conc. (Tc)	= 32.10 min
Total precip.	= 53.40 mm	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

### PRE DEVELOPMENT - SCS

Hyd. No. 1 -- 2 Year



# TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

## Hyd. No. 1

PRE DEVELOPMENT - SCS


<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.120	0.011	0.011	
Flow length (m)	= 91.0	0.0	0.0	
Two-year 24-hr precip. (mm)	= 53.40	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 32.01</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 32.01</b>
<b>Shallow Concentrated Flow</b>				
Flow length (m)	= 4.00	0.00	0.00	
Watercourse slope (%)	= 1.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (m/s)	=0.49	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 0.14</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 0.14</b>
<b>Channel Flow</b>				
X sectional flow area (sqm)	= 0.00	0.00	0.00	
Wetted perimeter (m)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (m/s)	=0.00	0.00	0.00	
Flow length (m)	0.0	0.0	0.0	
<b>Travel Time (min)</b>	<b>= 0.00</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 0.00</b>
<b>Total Travel Time, Tc .....</b>				<b>32.10 min</b>

Appendix C

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**Storm Network Sizing Calculations**

**PIROLI AMHERSTBURG DEVELOPMENT**  
**STORM SEWER DESIGN SHEET (5-YEAR EVENT, Computed Tc)**

LOCATION				AREA (ha)				FLOW							SEWER DATA							PROFILE					
Pipe ID	Area Included	From Node	To Node	C=	C=	C=	C=	Indiv 2.78 AC	Accum 5 2.78AC	Time of Conc.	Design Storm	Rainfall Intensity	Peak Flow (L/sec)	Qtotal (L/s)	Dia. (m) Actual	Dia. (mm)	Type	Slope (%)	Length (m)	Capacity (L/s)	Velocity (m/s)	Flow Time (min)	Ratio Q/Q full	Upstream Elevation	Downstream Elevation		
				0.95	0.20	0.80																		Invert (m)	Invert (m)		
<b>APARTMENT BLDG A</b>																											
<b>PIPE 1</b>	<b>A1</b>	CB #1	CBMH #1	0.201				0.53	0.53	10.00	5	107.72	57.18	57.18	0.250	250	PVC	1.20	40.40	65.1	1.33	0.51	88%	181.270	180.785		
<b>PIPE 2</b>	<b>A2</b>	CBMH #1	MH #1	0.248				0.65	1.19	10.51	5	105.34	124.91	124.91	0.450	450	PVC	0.24	33.90	139.6	0.88	0.64	89%	180.755	180.674		
									<b>TOTAL</b>	<b>11.15</b>																	
<b>PIPE 3</b>	<b>A3</b>	CB #1	CBMH #2		0.225			0.13	0.13	10.00	5	107.72	13.48	13.48	0.200	200	PVC	0.80	62.31	29.3	0.93	1.11	46%	181.200	180.702		
<b>PIPE 4</b>	<b>A4</b>	CBMH #2	ADS INLET #2	0.394				1.04	1.17	11.11	5	102.65	119.65	119.65	0.450	450	PVC	0.24	25.26	139.6	0.88	0.48	86%	180.672	180.611		
									<b>TOTAL</b>	<b>11.59</b>																	
Q = 2.78 AIR, where Q= Peak Flow in Litres per Second (l/s) A= Area in hectares (ha) I= Rainfall Intensity (mm/hr) R= Runoff Coefficient				1) Windsor Rainfall-Intensity Curve 2) Min Pipe Velocity = 0.76 m/s 3) Max pipe Velocity = 3.0 m/s 4) Tc =10 min (BASED ON 3.2.2.6 WERSMSM) Intensity = $I = a / (T+b)^c$										A= 1259 B= 8.8 C= 0.838								Consultant: Baird AE - Architects & Engineers Date: DECEMBER 2ND, 2021 Design By: RAMANDEEP SINGH				Project : 21-108 PIROLI AMHERSTBURG DEVELOPMENT Dwg. Reference: 21-108 DRAINAGE AREA PLAN Checked by: BILL FUERTH	



Appendix D

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**Post-Development Site Assessments**

Appendix D-1

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**5 & 100 Year Return Events**

# Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Sunday, 12 / 19 / 2021

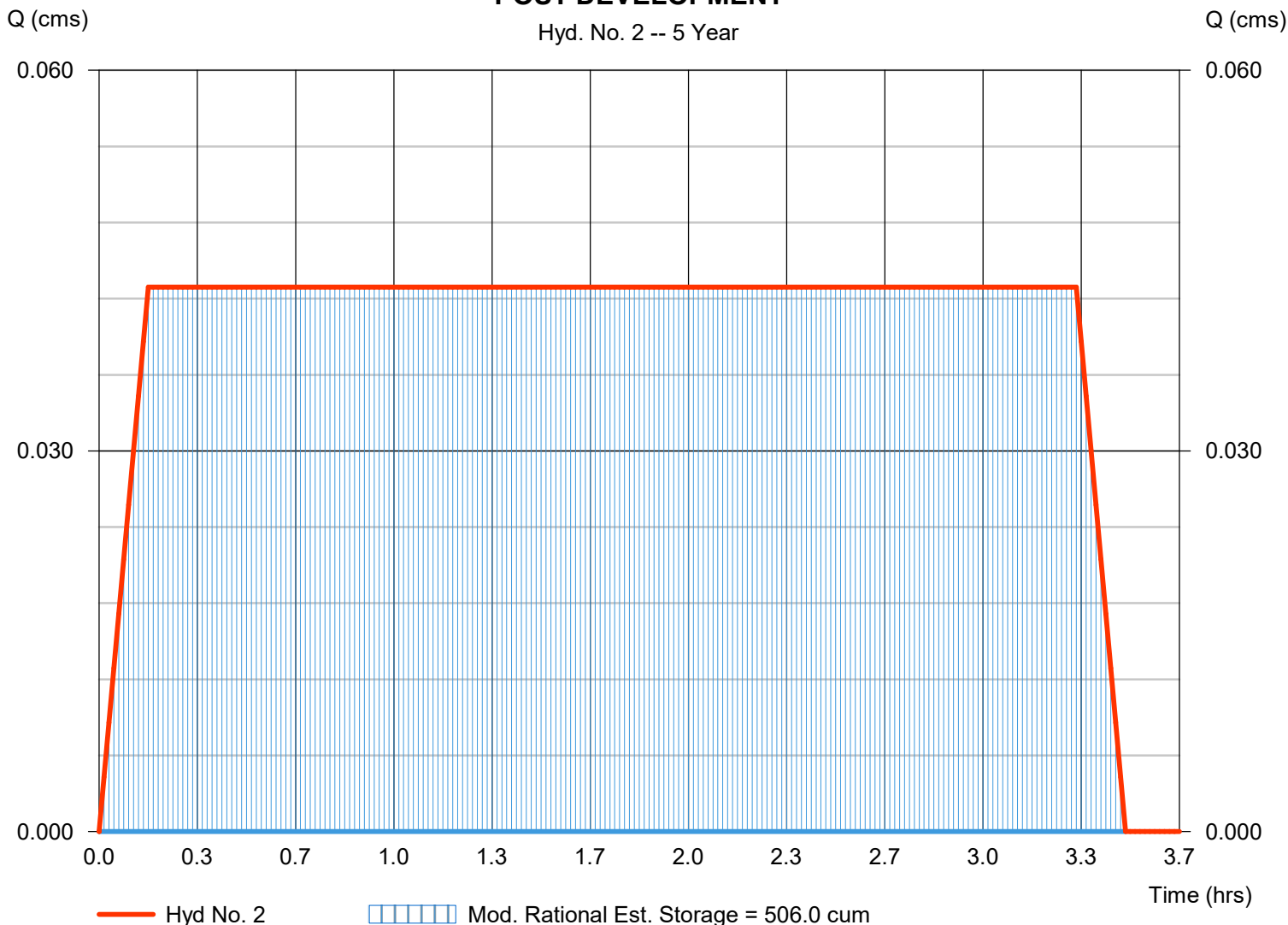
## Hyd. No. 2

### POST DEVELOPMENT

Hydrograph type	= Mod. Rational	Peak discharge	= 0.043 cms
Storm frequency	= 5 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 512.4 cum
Drainage area	= 1.140 hectare	Runoff coeff.	= 0.95
Intensity	= 14.382 mm/hr	Tc by User	= 10.00 min
IDF Curve	= Windsor A 2007.IDF	Storm duration	= 19.9 x Tc
Target Q	=0.001 cms	Est. Req'd Storage	=506.0 cum

### POST DEVELOPMENT

Hyd. No. 2 -- 5 Year



# Hydrograph Report

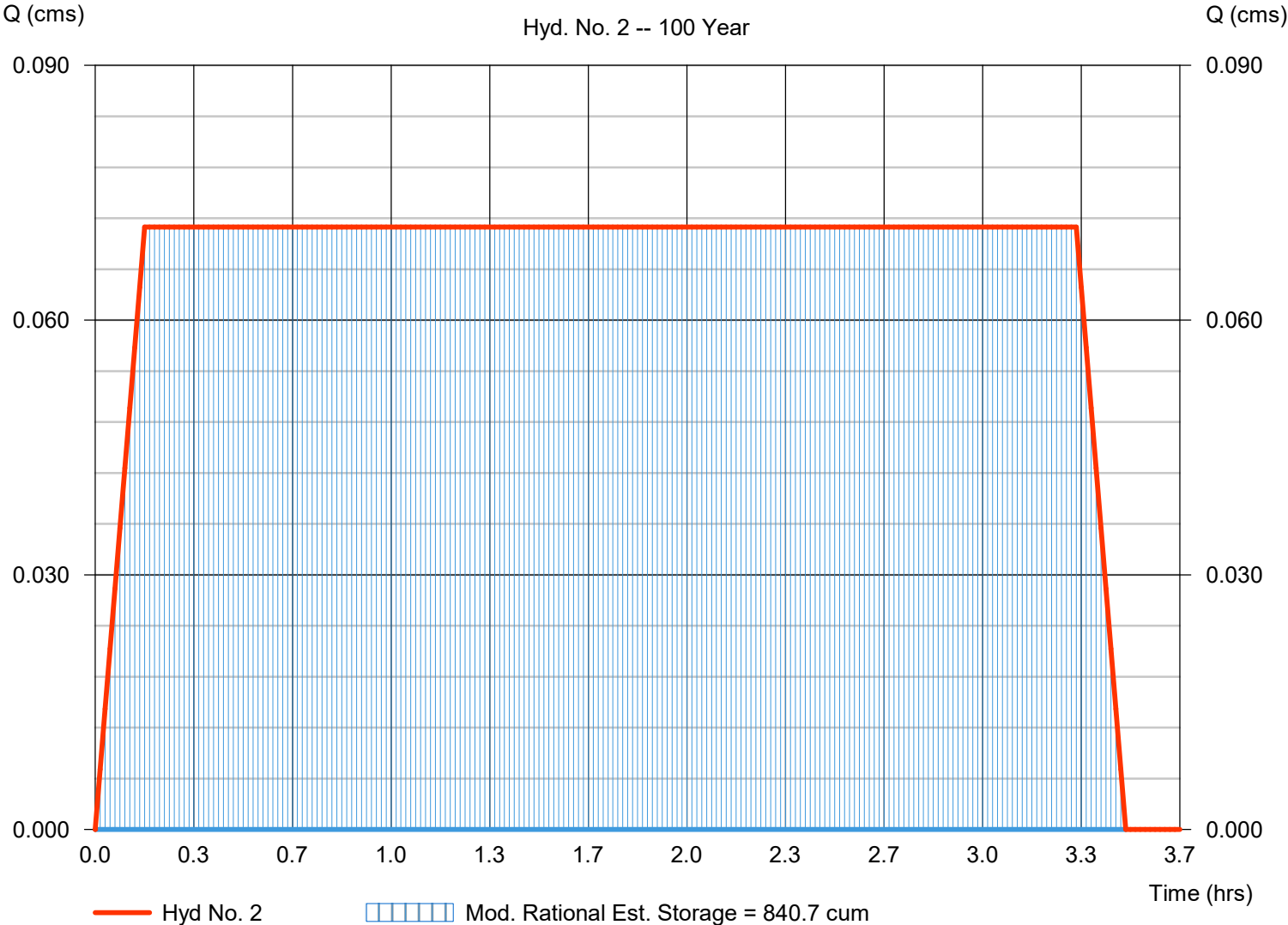
## Hyd. No. 2

### POST DEVELOPMENT

Hydrograph type	= Mod. Rational	Peak discharge	= 0.071 cms
Storm frequency	= 100 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 847.2 cum
Drainage area	= 1.140 hectare	Runoff coeff.	= 0.95
Intensity	= 23.781 mm/hr	Tc by User	= 10.00 min
IDF Curve	= Windsor A 2007.IDF	Storm duration	= 19.9 x Tc
Target Q	=0.001 cms	Est. Req'd Storage	=840.7 cum

### POST DEVELOPMENT

Hyd. No. 2 -- 100 Year



# Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	-----
2	85.4000	17.7800	2.0777	-----
3	0.0000	0.0000	0.0000	-----
5	125.9000	22.3520	2.1285	-----
10	151.1000	24.1300	2.1463	-----
25	185.1000	25.9080	2.1641	-----
50	211.4000	26.9240	2.1793	-----
100	237.5000	27.9400	2.1869	-----

File name: Windsor A 2007.IDF

**Intensity = B / (Tc + D)^E**

Return Period (Yrs)	Intensity Values (mm/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0	0	0	0	0	0	0	0	0	0	0	0
2	112	84	68	58	50	45	40	37	34	31	29	27
3	0	0	0	0	0	0	0	0	0	0	0	0
5	140	108	88	75	66	59	53	48	45	41	39	36
10	158	123	101	87	76	68	61	56	52	48	45	42
25	182	143	118	101	89	80	72	66	61	56	53	49
50	200	158	131	112	99	88	80	73	67	62	58	55
100	218	173	144	123	109	97	88	80	74	69	64	60

Tc = time in minutes. Values may exceed 60.

Precip. file name: P:\DropBox\Dropbox\Useful Design Tools\IDF Curves\Precip.pcp

Storm Distribution	Rainfall Precipitation Table (mm)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0	53	0	68	108	147	173	108
SCS 6-Hr	0	41	0	53	66	0	0	86
Huff-1st	0	0	0	0	102	137	165	0
Huff-2nd	0	0	0	0	0	0	0	0
Huff-3rd	0	0	0	0	0	0	0	0
Huff-4th	0	0	0	0	0	0	0	0
Huff-Indy	0	0	0	0	0	0	0	0
Custom	0	0	0	0	99	134	152	0

# Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

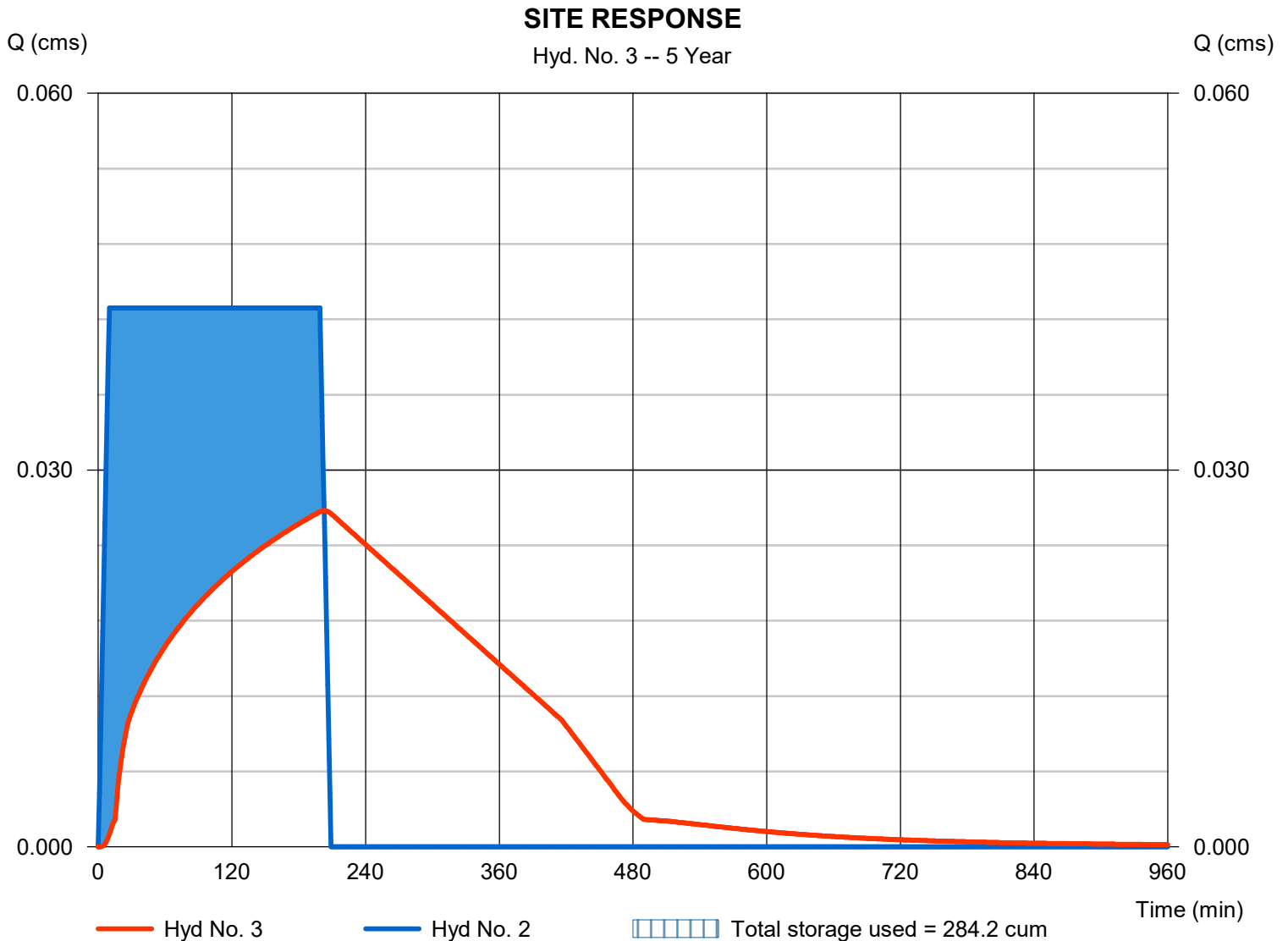
Sunday, 12 / 19 / 2021

## Hyd. No. 3

### SITE RESPONSE

Hydrograph type	= Reservoir	Peak discharge	= 0.027 cms
Storm frequency	= 5 yrs	Time to peak	= 203 min
Time interval	= 1 min	Hyd. volume	= 511.4 cum
Inflow hyd. No.	= 2 - POST DEVELOPMENT	Max. Elevation	= 181.37 m
Reservoir name	= UG & PL STG	Max. Storage	= 284.2 cum

Storage Indication method used.





# Pond Report

## Pond No. 1 - UG & PL STG

### Pond Data

UG Chambers - Invert elev. = 180.205 m, Rise x Span = 1.143 x 1.956 m, Barrel Len = 2.184 m, No. Barrels = 50, Slope = 0.00%, Headers = No  
 Encasement Invert elev. = 180.205 m, Width = 2.26 m, Height = 0.51 m, Culvert Length = 2.184 m, Culvert Start Elevation = 182.000 m

### Stage / Storage Table

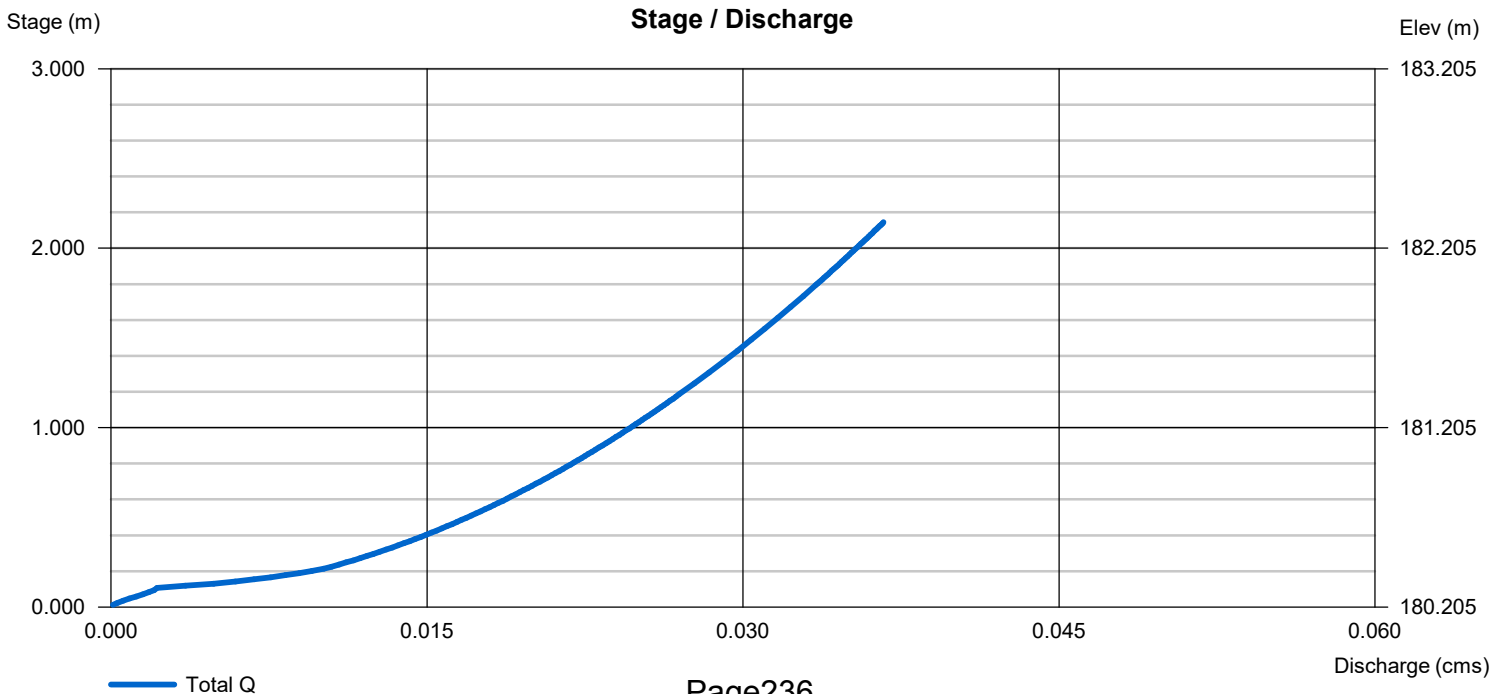
Stage (m)	Elevation (m)	Contour area (sqm)	Incr. Storage (cum)	Total storage (cum)
0.00	180.21	n/a	0.0	0.0
0.12	180.32	n/a	28.8	28.8
0.24	180.44	n/a	28.8	57.6
0.36	180.56	n/a	28.8	86.4
0.47	180.68	n/a	28.8	115.2
0.59	180.80	n/a	28.8	144.1
0.71	180.92	n/a	28.8	172.9
0.83	181.03	n/a	28.8	201.7
0.95	181.15	n/a	28.8	230.5
1.07	181.27	n/a	28.8	259.3
1.19	181.39	n/a	28.8	288.1
1.79	182.00	00	0.0	288.1
1.90	182.10	461	15.6	303.7
2.00	182.20	2,082	117.4	421.1
2.10	182.30	4,053	301.3	722.4
2.14	182.35	5,124	228.9	951.3

### Culvert / Orifice Structures

### Weir Structures

	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]
Rise (mm)	= 110.24	0.00	0.00	0.00	Crest Len (m)	= 0.000	0.000	0.000	0.000
Span (mm)	= 110.24	0.00	0.00	0.00	Crest El. (m)	= 0.000	0.000	0.000	0.000
No. Barrels	= 1	0	0	0	Weir Coeff.	= 3.33	3.33	3.33	3.33
Invert El. (m)	= 180.205	0.000	0.000	0.000	Weir Type	= ---	---	---	---
Length (m)	= 1.000	0.000	0.000	0.000	Multi-Stage	= No	No	No	No
Slope (%)	= 0.50	0.00	0.00	n/a					
N-Value	= .013	.013	.013	n/a					
Orifice Coeff.	= 0.60	0.60	0.60	0.60	Exfil.(cm/hr)	= 0.000			
Multi-Stage	= n/a	No	No	No	TW Elev. (m)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



# Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

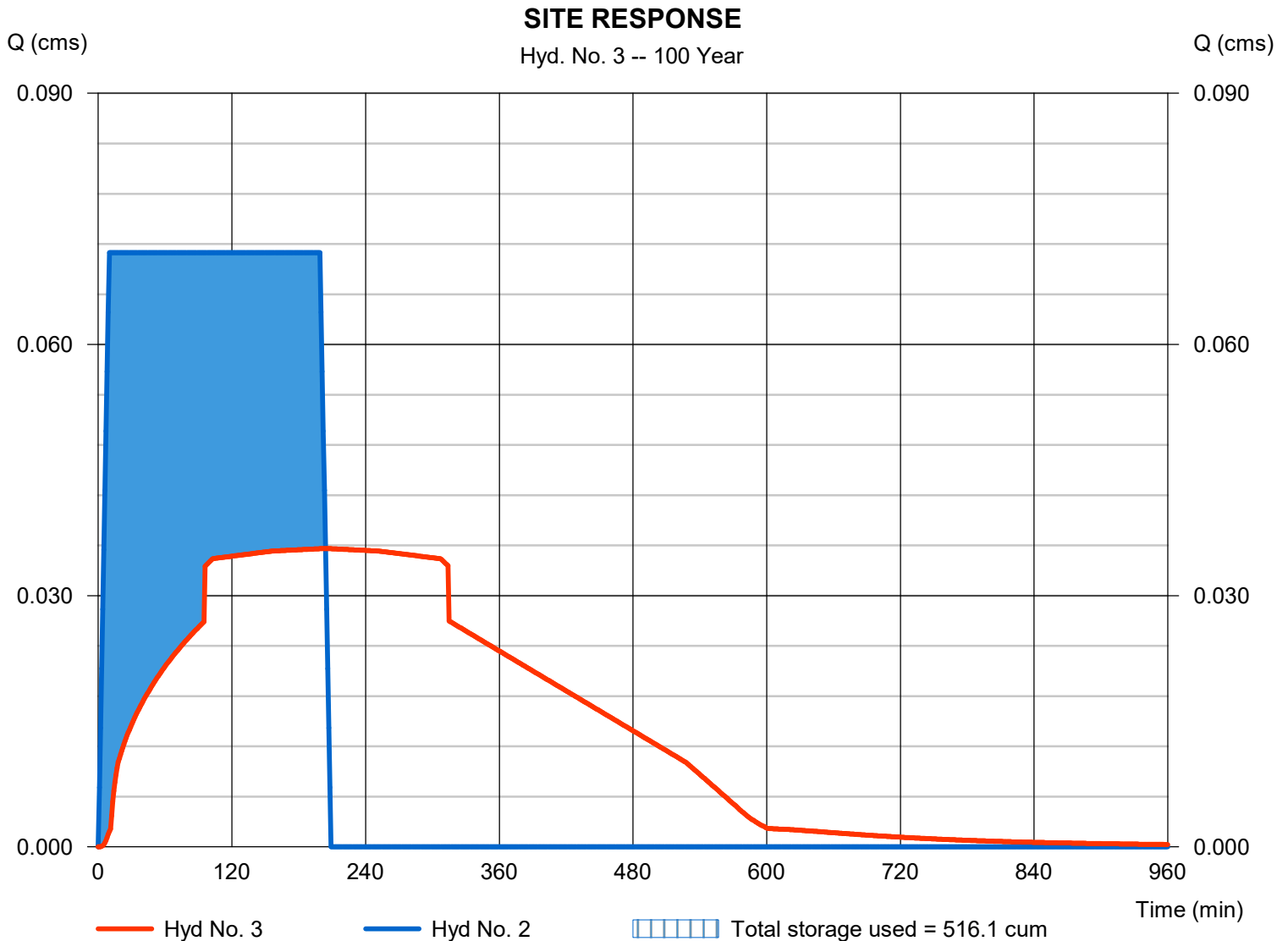
Sunday, 12 / 19 / 2021

## Hyd. No. 3

### SITE RESPONSE

Hydrograph type	= Reservoir	Peak discharge	= 0.036 cms
Storm frequency	= 100 yrs	Time to peak	= 204 min
Time interval	= 1 min	Hyd. volume	= 846.2 cum
Inflow hyd. No.	= 2 - POST DEVELOPMENT	Max. Elevation	= 182.23 m
Reservoir name	= UG & PL STG	Max. Storage	= 516.1 cum

Storage Indication method used.



Appendix D-2

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**Stress Test**

# Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Sunday, 12 / 19 / 2021

## Hyd. No. 3

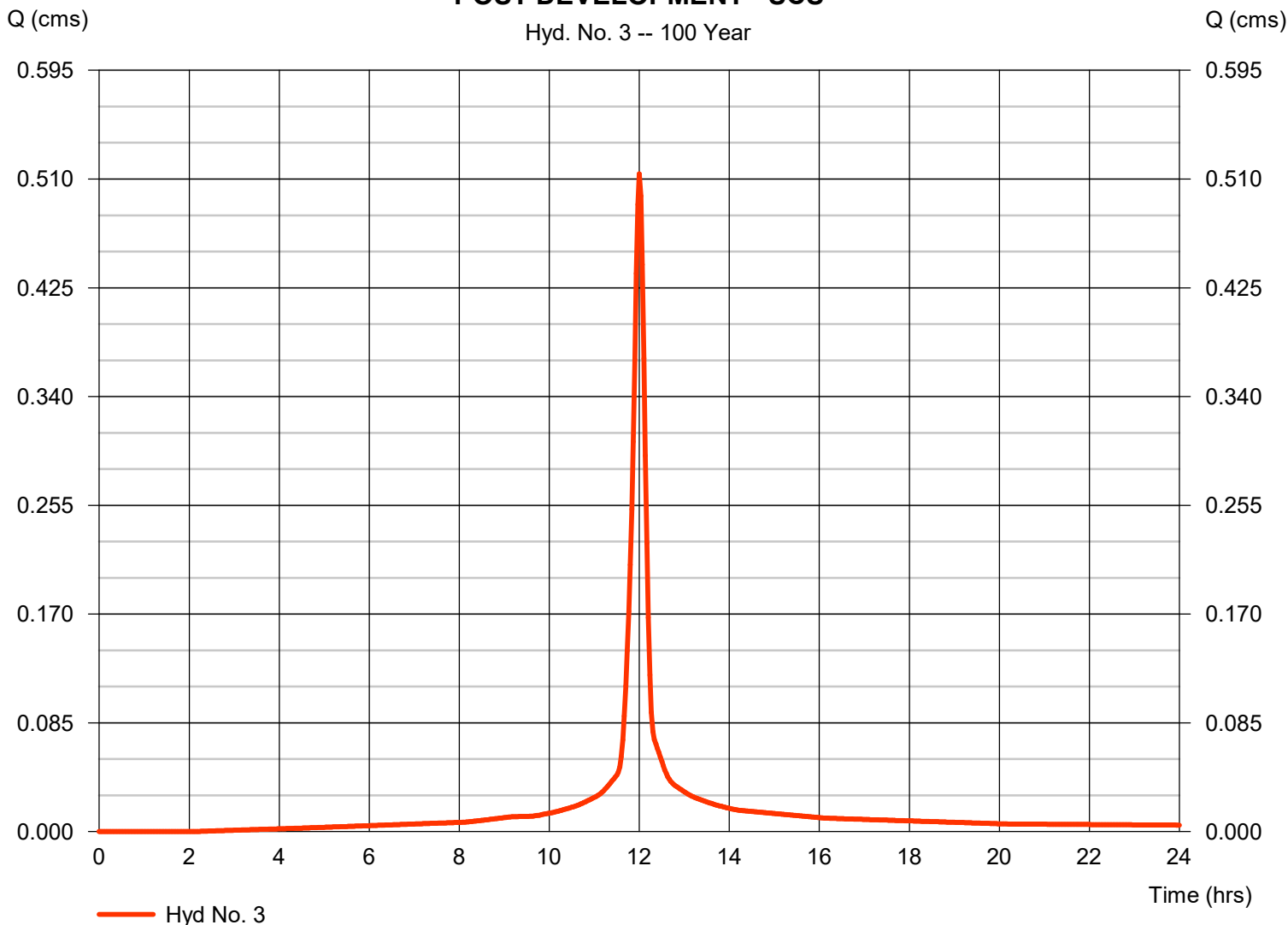
### POST DEVELOPMENT - SCS

Hydrograph type	= SCS Runoff	Peak discharge	= 0.514 cms
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 1,458.3 cum
Drainage area	= 1.070 hectare	Curve number	= 94*
Basin Slope	= 0.0 %	Hydraulic length	= 0 m
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 150.00 mm	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

\* Composite (Area/CN) = [(0.820 x 98) + (0.250 x 80)] / 1.070

### POST DEVELOPMENT - SCS

Hyd. No. 3 -- 100 Year



# Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Sunday, 12 / 19 / 2021

## Hyd. No. 6

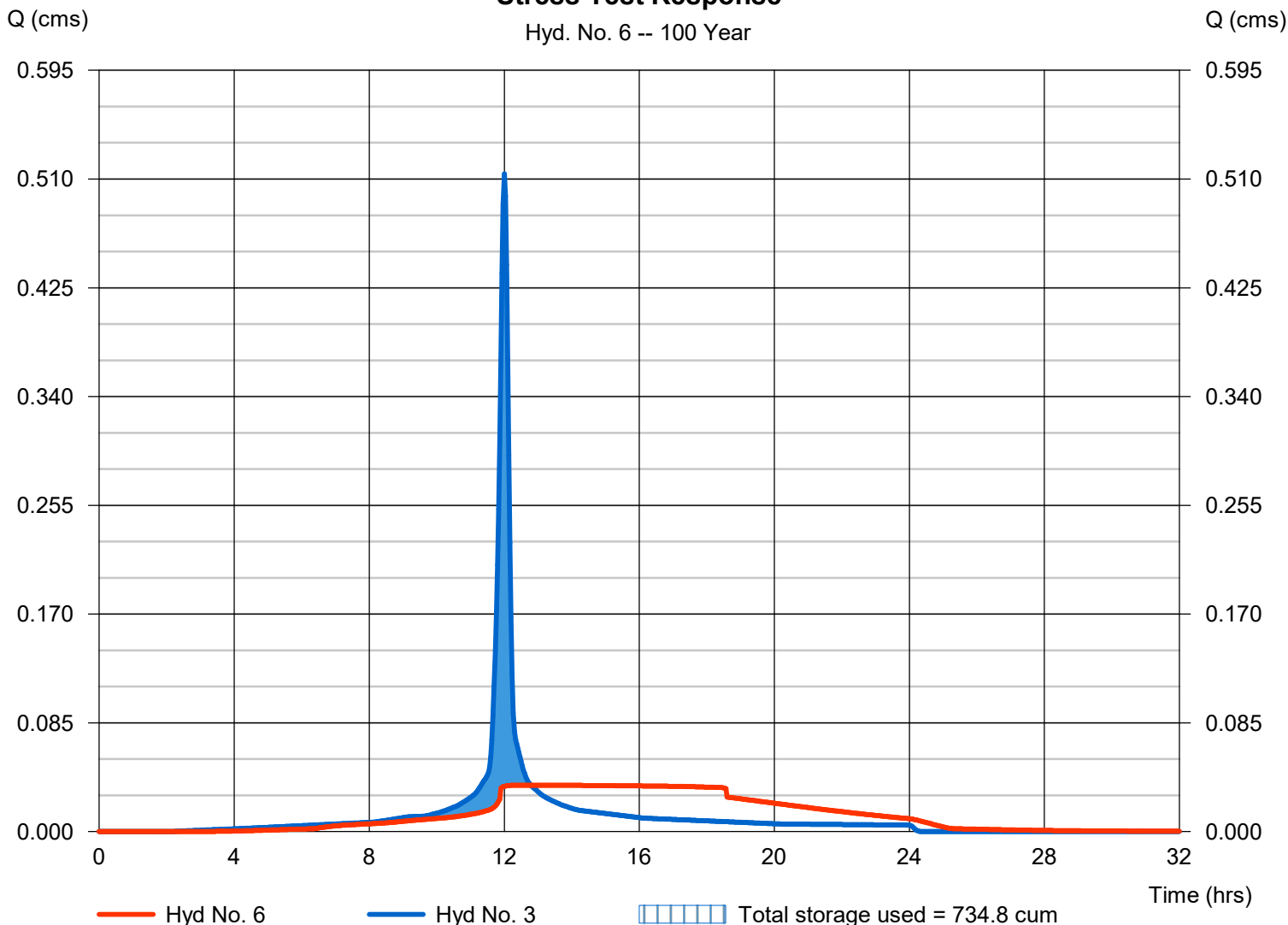
### Stress Test Response

Hydrograph type	= Reservoir	Peak discharge	= 0.036 cms
Storm frequency	= 100 yrs	Time to peak	= 12.80 hrs
Time interval	= 2 min	Hyd. volume	= 1,457.4 cum
Inflow hyd. No.	= 3 - POST DEVELOPMENT - SWS	Max. Elevation	= 182.30 m
Reservoir name	= UG & PL STG	Max. Storage	= 734.8 cum

Storage Indication method used.

### Stress Test Response

Hyd. No. 6 -- 100 Year



# Pond Report

## Pond No. 1 - UG & PL STG

### Pond Data

UG Chambers - Invert elev. = 180.205 m, Rise x Span = 1.143 x 1.956 m, Barrel Len = 2.184 m, No. Barrels = 50, Slope = 0.00%, Headers = No  
 Encasement Invert elev. = 180.205 m, Width = 2.26 m, Height = 0.51 m, Barrel Len = 2.184 m, No. Barrels = 50, Slope = 0.00%, Headers = No

### Stage / Storage Table

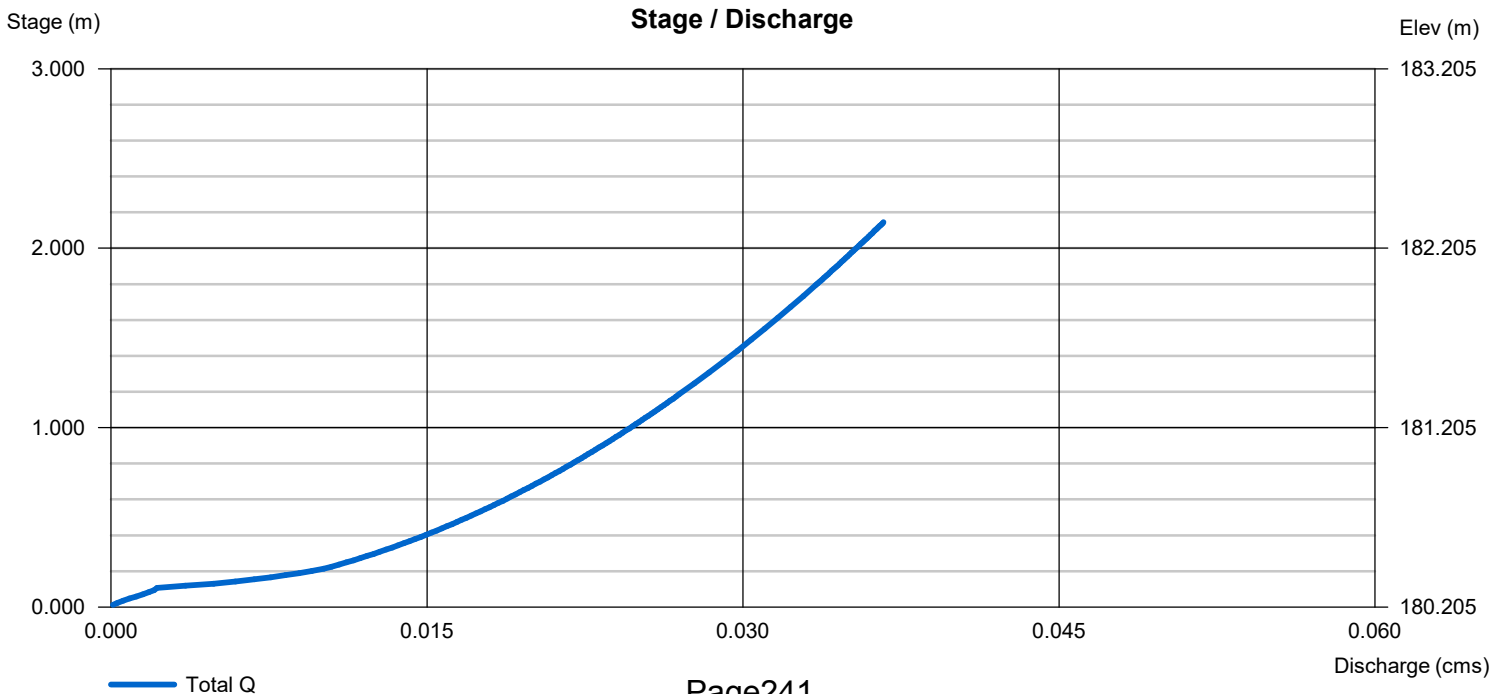
Stage (m)	Elevation (m)	Contour area (sqm)	Incr. Storage (cum)	Total storage (cum)
0.00	180.21	n/a	0.0	0.0
0.12	180.32	n/a	28.8	28.8
0.24	180.44	n/a	28.8	57.6
0.36	180.56	n/a	28.8	86.4
0.47	180.68	n/a	28.8	115.2
0.59	180.80	n/a	28.8	144.1
0.71	180.92	n/a	28.8	172.9
0.83	181.03	n/a	28.8	201.7
0.95	181.15	n/a	28.8	230.5
1.07	181.27	n/a	28.8	259.3
1.19	181.39	n/a	28.8	288.1
1.79	182.00	00	0.0	288.1
1.90	182.10	461	15.6	303.7
2.00	182.20	2,082	117.4	421.1
2.10	182.30	4,053	301.3	722.4
2.14	182.35	5,124	228.9	951.3

### Culvert / Orifice Structures

### Weir Structures

	[A]	[B]	[C]	[PrfRsr]		[A]	[B]	[C]	[D]
Rise (mm)	= 110.24	0.00	0.00	0.00	Crest Len (m)	= 0.000	0.000	0.000	0.000
Span (mm)	= 110.24	0.00	0.00	0.00	Crest El. (m)	= 0.000	0.000	0.000	0.000
No. Barrels	= 1	0	0	0	Weir Coeff.	= 3.33	3.33	3.33	3.33
Invert El. (m)	= 180.205	0.000	0.000	0.000	Weir Type	= ---	---	---	---
Length (m)	= 1.000	0.000	0.000	0.000	Multi-Stage	= No	No	No	No
Slope (%)	= 0.50	0.00	0.00	n/a					
N-Value	= .013	.013	.013	n/a					
Orifice Coeff.	= 0.60	0.60	0.60	0.60	Exfil.(cm/hr)	= 0.000			
Multi-Stage	= n/a	No	No	No	TW Elev. (m)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Appendix E

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**Subsurface Storage System**



PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	



**SiteASSIST™**  
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INSTRUCTIONS,  
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INSTALLATION APP



# PIROLI AMHERSTBURG DEVELOPMENT

## AMHERSTBURG, ON

### MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL BE CERTIFIED TO CSA B184, "POLYMERIC SUB-SURFACE STORMWATER MANAGEMENT STRUCTURES", AND MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE CSA S6 CL-625 TRUCK AND THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 75 mm (3").
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 23° C / 73° F), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
  - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
  - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
  - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

### IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
  - STONESHOOTER LOCATED OFF THE CHAMBER BED.
  - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
  - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 150 mm (6") SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 300 mm (12") INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE WELL GRADED BETWEEN ¾" AND 2" (20-50 mm).
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

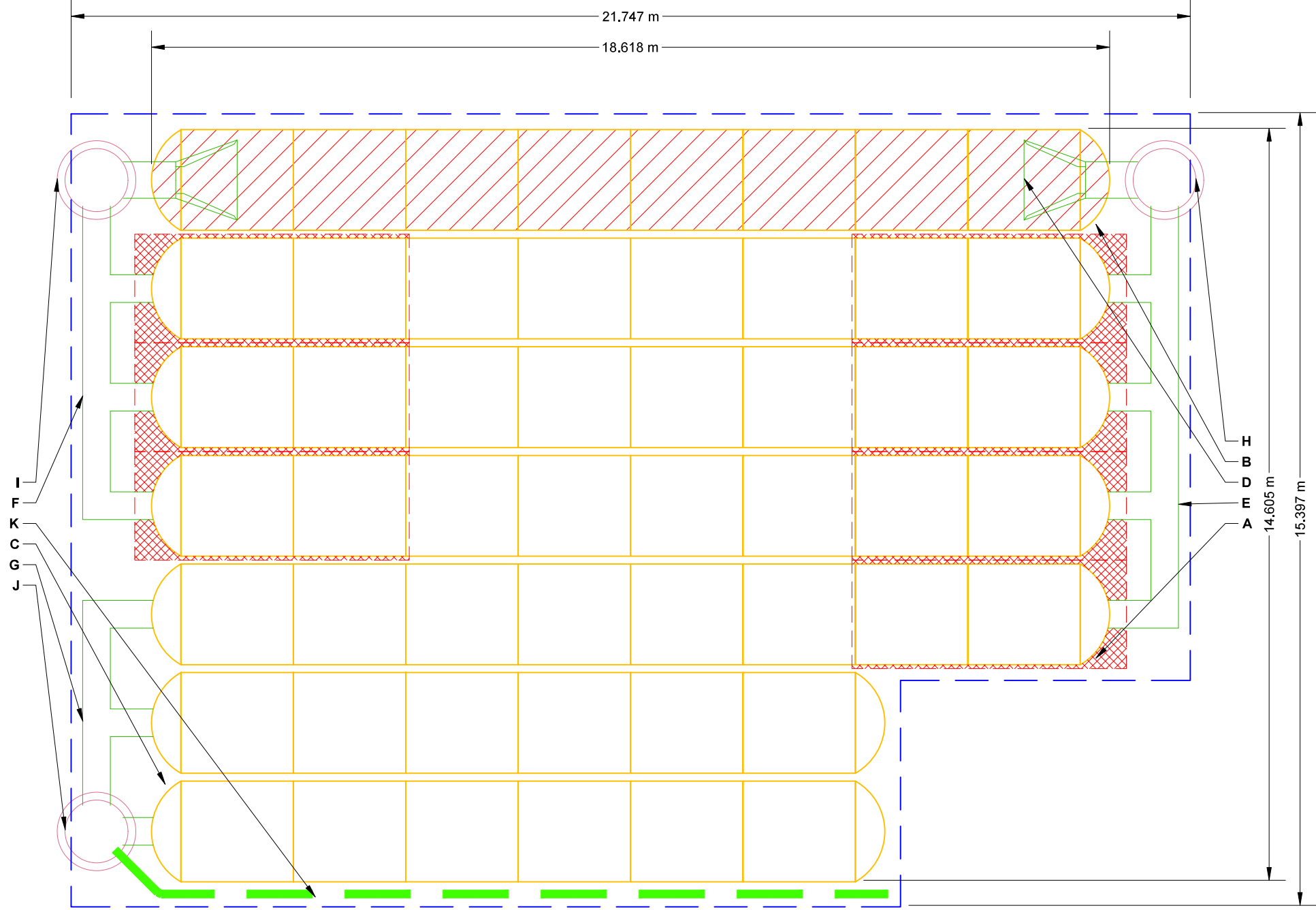
### NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
  - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
  - NO RUBBER Tired LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
  - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 900 mm (36") OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

**USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.**

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT		PROPOSED ELEVATIONS		*INVERT ABOVE BASE OF CHAMBER				
				PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
52	STORMTECH MC-3500 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	183.830					
14	STORMTECH MC-3500 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	182.001	PREFABRICATED END CAP	A	450 mm TOP CORED END CAP, PART#: MC3500IEPP18TC / TYP OF ALL 450 mm TOP CONNECTIONS	509 mm	
305	STONE ABOVE (mm)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	181.849	PREFABRICATED END CAP	B	600 mm BOTTOM CORED END CAP, PART#: MC3500IEPP24BC / TYP OF ALL 600 mm BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	52 mm	
229	STONE BELOW (mm)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	181.849	PREFABRICATED END CAP	C	450 mm BOTTOM CORED END CAP, PART#: MC3500IEPP18BC / TYP OF ALL 450 mm BOTTOM CONNECTIONS	45 mm	
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	181.849					
308.6	INSTALLED SYSTEM VOLUME (m <sup>3</sup> ) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	181.696	PREFABRICATED END CAP				
		TOP OF MC-3500 CHAMBER:	181.392	FLAMP	D	INSTALL FLAMP ON 600 mm ACCESS PIPE / PART#: MC350024RAMP (TYP 4 PLACES)		
		450 mm x 450 mm TOP MANIFOLD INVERT:	180.757	MANIFOLD	E	450 mm x 450 mm TOP MANIFOLD, ADS N-12	509 mm	
		450 mm x 450 mm TOP MANIFOLD INVERT:	180.757	MANIFOLD	F	450 mm x 450 mm TOP MANIFOLD, ADS N-12	509 mm	
310.1	SYSTEM AREA (m <sup>2</sup> )	600 mm ISOLATOR ROW PLUS INVERT:	180.301	MANIFOLD	G	450 mm x 450 mm BOTTOM MANIFOLD, ADS N-12	45 mm	
74.3	SYSTEM PERIMETER (m)	600 mm ISOLATOR ROW PLUS INVERT:	180.301	CONCRETE STRUCTURE	H	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		460 L/s IN
		450 mm x 450 mm BOTTOM MANIFOLD INVERT:	180.294	CONCRETE STRUCTURE	I	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		460 L/s IN
		450 mm BOTTOM CONNECTION INVERT:	180.294	CONCRETE STRUCTURE	J	OCS (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		227 L/s OUT
		BOTTOM OF MC-3500 CHAMBER:	180.249	UNDERDRAIN	K	150 mm ADS N-12 DUAL WALL PERFORATED HDPE UNDERDRAIN		
		UNDERDRAIN INVERT:	180.020					
		BOTTOM OF STONE:	180.020					



- ISOLATOR ROW PLUS (SEE DETAIL)
- PLACE MINIMUM 5.334 m OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS
- BED LIMITS

**NOTES**

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

PIROLI AMHERSTBURG DEVELOPMENT  
AMHERSTBURG, OH

DATE: \_\_\_\_\_ DRAWN: CN  
PROJECT #: \_\_\_\_\_ CHECKED: N/A

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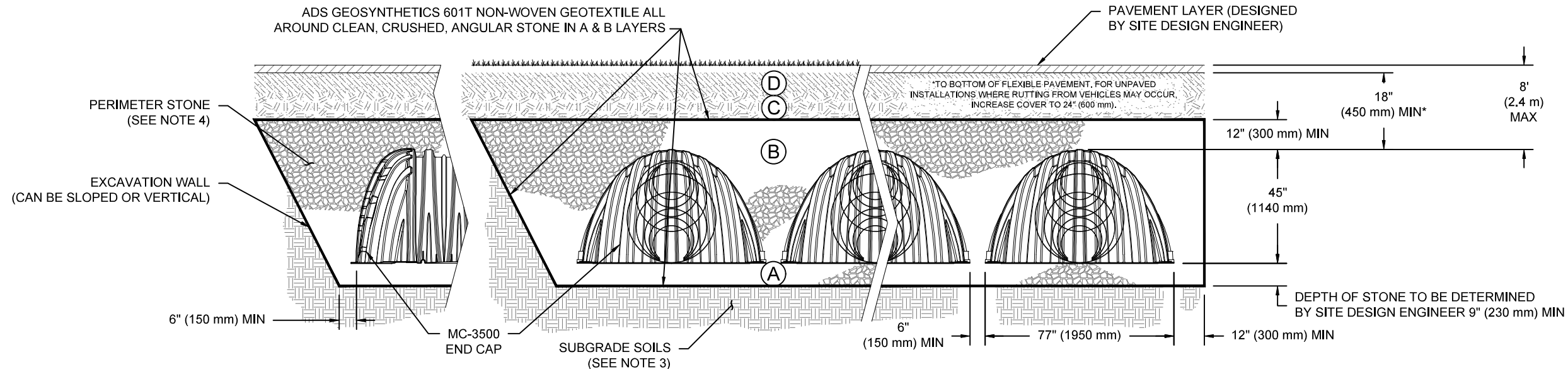
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## ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	<b>FINAL FILL:</b> FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	<b>INITIAL FILL:</b> FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.  MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145 <sup>1</sup> A-1, A-2-4, A-3  OR  AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	<b>EMBEDMENT STONE:</b> FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 <sup>1</sup> 3, 4	NO COMPACTION REQUIRED.
A	<b>FOUNDATION STONE:</b> FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 <sup>1</sup> 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>

**PLEASE NOTE:**

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



**NOTES:**

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

PIROLI AMHERSTBURG DEVELOPMENT  
AMHERSTBURG, ON

DRAWN: CN  
CHECKED: N/A

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PROJECT #:

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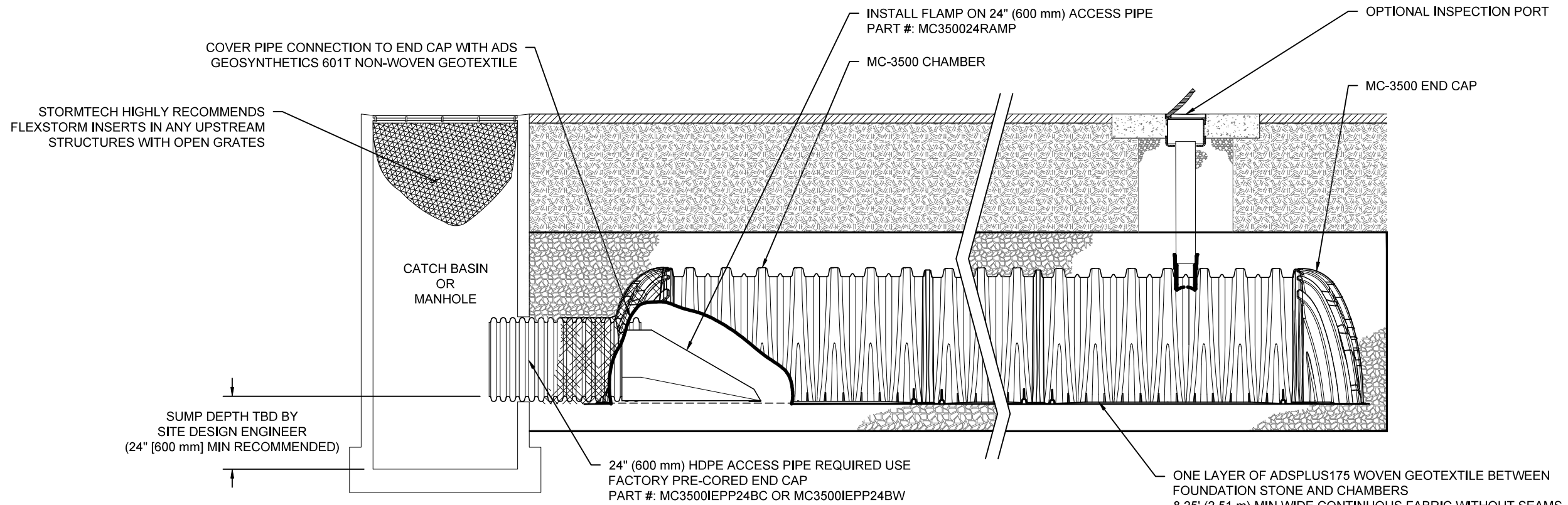
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**MC-3500 ISOLATOR ROW PLUS DETAIL**

NTS

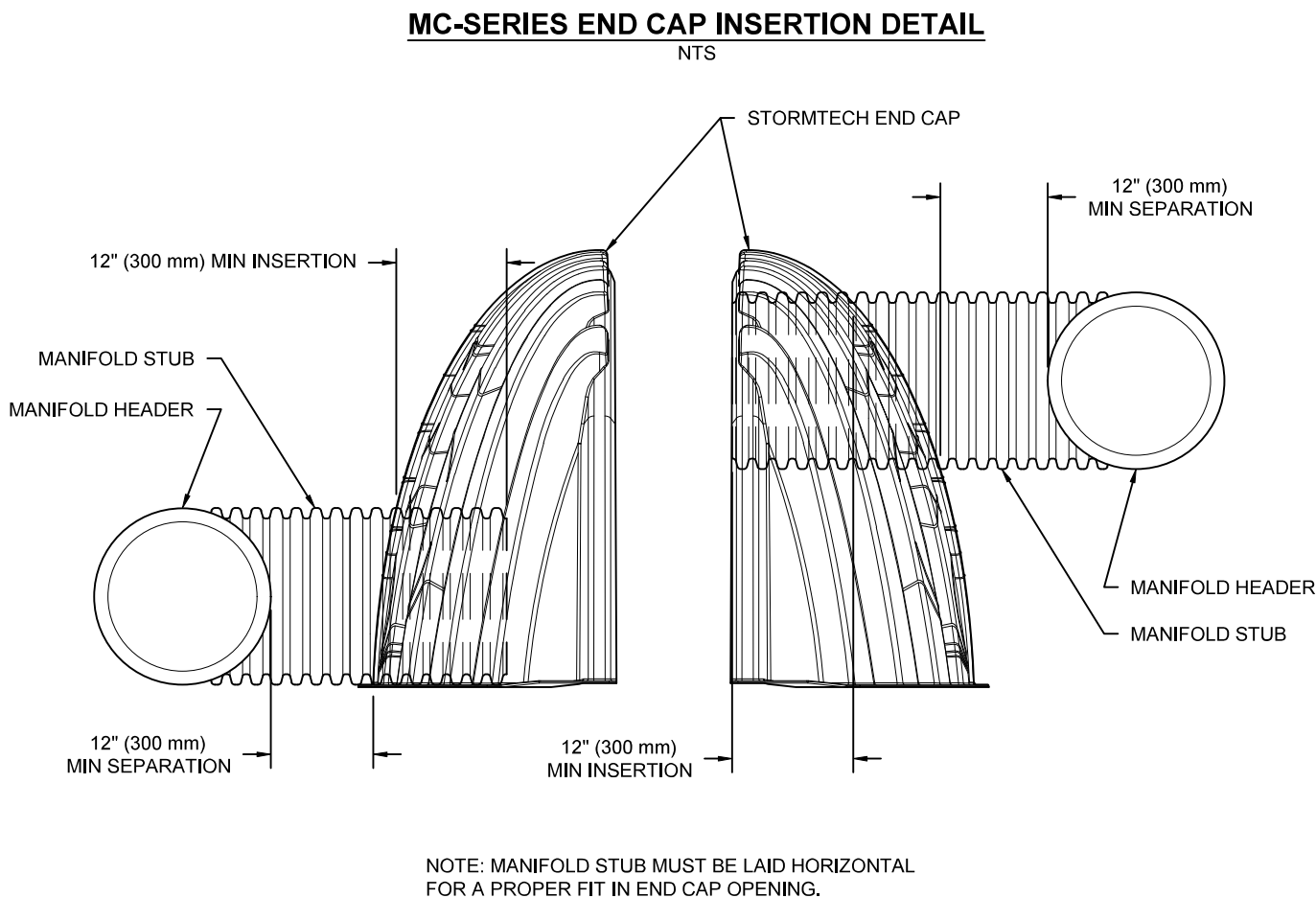
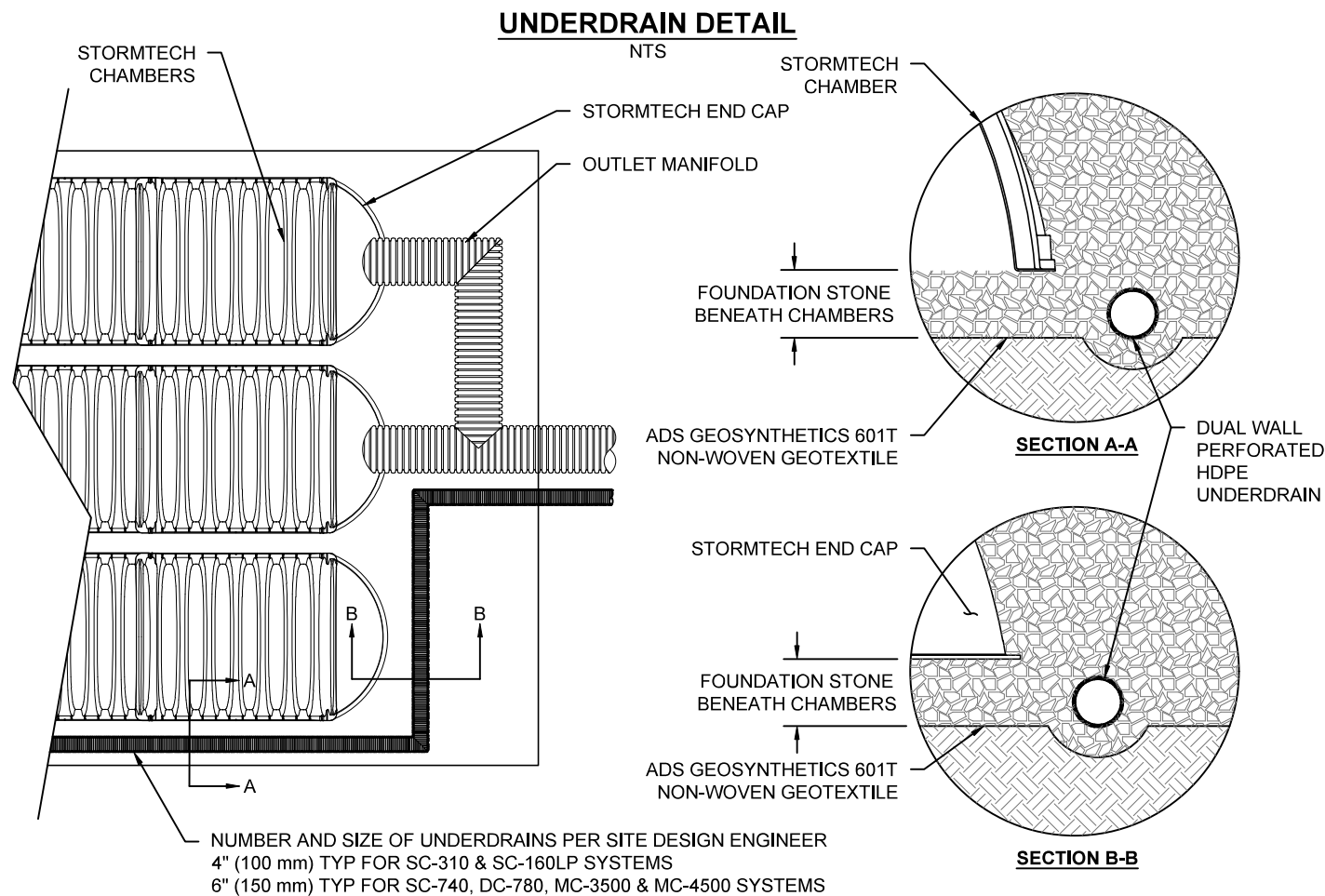
**INSPECTION & MAINTENANCE**

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
    - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
    - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
    - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
    - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
    - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
  - B. ALL ISOLATOR PLUS ROWS
    - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
    - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
      - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
      - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
    - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
  - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
  - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

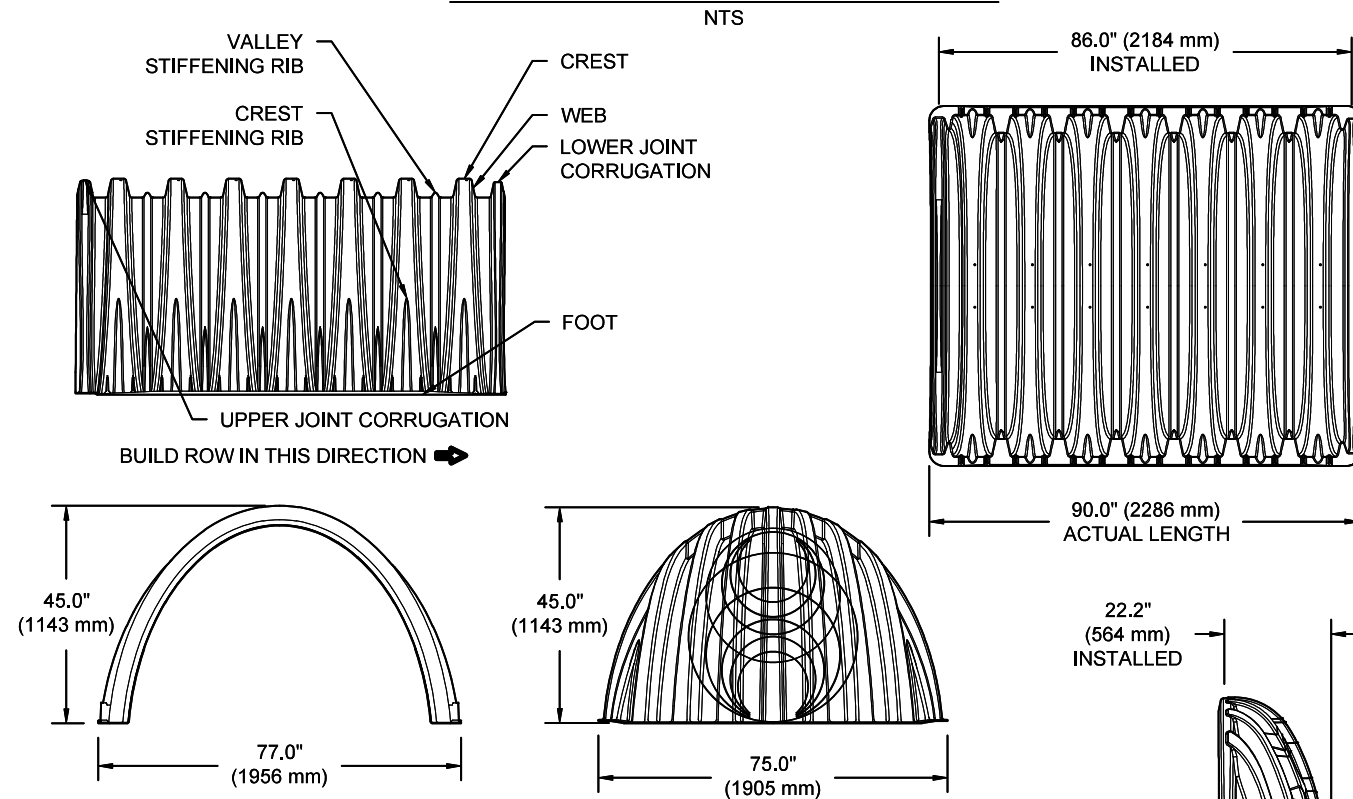
**NOTES**

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

<b>PIROLI AMHERSTBURG DEVELOPMENT</b> AMHERSTBURG, OH		DATE: _____ DRAWN: CN PROJECT #: _____ CHECKED: N/A
	DATE DRW CHK	DESCRIPTION
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### MC-3500 TECHNICAL SPECIFICATION



#### NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)		
77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)	
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m <sup>3</sup> )
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m <sup>3</sup> )
WEIGHT	134 lbs.	(60.8 kg)

#### NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)		
75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)	
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m <sup>3</sup> )
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m <sup>3</sup> )
WEIGHT	49 lbs.	(22.2 kg)

\*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" SPACING BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"  
 STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"  
 END CAPS WITH A WELDED CROWN PLATE END WITH "C"  
 END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC3500IEPP06T		33.21" (844 mm)	---
MC3500IEPP06B	6" (150 mm)	---	0.66" (17 mm)
MC3500IEPP08T		31.16" (791 mm)	---
MC3500IEPP08B	8" (200 mm)	---	0.81" (21 mm)
MC3500IEPP10T		29.04" (738 mm)	---
MC3500IEPP10B	10" (250 mm)	---	0.93" (24 mm)
MC3500IEPP12T		26.36" (670 mm)	---
MC3500IEPP12B	12" (300 mm)	---	1.35" (34 mm)
MC3500IEPP15T		23.39" (594 mm)	---
MC3500IEPP15B	15" (375 mm)	---	1.50" (38 mm)
MC3500IEPP18TC		20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC	18" (450 mm)	---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC		14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC	24" (600 mm)	---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL  
 Page247

CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

PIROLI AMHERSTBURG DEVELOPMENT  
 AMHERSTBURG, ON

DATE:	PROJECT #:	DESCRIPTION

StormTech®  
 Chamber System  
 888-892-2694 | WWW.STORMTECH.COM

4640 TRUAMAN BLVD  
 HILLIARD, OH 43026  
 1-800-733-7473



THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

Appendix F

---

**Water Quality Unit**



## StormCon SDD3 SIZING REPORT

### PROJECT INFORMATION

Project Name :	21-108 Riverview apartments
Location	Amherstburg, ON
Unit :	OGS Unit 1

### SITE INFORMATION AND SIZING CRITERIA

Site Area (hectares)	1.14
Imperviousness %	95%
Target TSS removal (%)	80%
Rainfall station :	Windsor, ONT
Particle Size Distribution	ETV

### STORMWATER TREATMENT RECOMMENDATION

#### RESULTS SUMMARY

Model	TSS	Volume
SDD3-1200	74.73%	83.7%
SDD3-1500	76.55%	91.1%
SDD3-1800	78.75%	93.0%
SDD3-2400	82.41%	93.5%
SDD3-3000	84.97%	93.5%
SDD3-3200	85.39%	93.5%
SDD3-3600	86.59%	93.5%
SDD3-4000	87.51%	93.5%

Recommended Model **SDD3-1200**

Annual TSS removal efficiency (%) <sup>1</sup>	Manhole Diameter (mm)	No Bypass Flow (lps)	Maximum Flow (lps)	Maximum Pipe Diameter (mm)	Oil Storage Capacity (L)	Sediment Storage Capacity (m <sup>3</sup> )	Height from invert to SDD floor (m)	Treatment area (m <sup>2</sup> )
74.73%	1220	27	51	475	284.00	0.98	1.74	1.17

### DETAILED SDD3 SIZING REPORT

Rainfall Interval Point (mm/hr) <sup>2</sup>	Flow Rate (Lps)	Loading Rate (Lps/m <sup>2</sup> )	Loading Rate (Lpm/m <sup>2</sup> )	Total Rainfall (%)	Removal Efficiency (%)	Cumulative rainfall volume (%)	Relative Efficiency (%)
3.00	8.3	7.1	424.2	13.20%	76.72	13.20%	10.13%
4.00	11.0	9.4	565.6	9.60%	76.82	22.80%	7.38%
5.00	13.8	11.8	707.0	7.50%	76.53	30.30%	5.74%
6.00	16.5	14.1	848.4	6.00%	76.10	36.30%	4.57%
7.00	19.3	16.5	989.8	4.80%	75.67	41.10%	3.63%
8.00	22.0	18.9	1131.2	4.10%	73.99	45.20%	3.03%
9.00	24.8	21.2	1272.6	3.60%	72.21	48.80%	2.60%
10.00	27.6	23.6	1414.0	3.20%	70.62	52.00%	2.26%
11.00	30.3	25.9	1555.4	2.80%	70.66	54.80%	1.98%
12.00	33.1	28.3	1696.9	2.50%	70.70	57.30%	1.77%
15.00	41.3	35.4	2121.1	6.60%	70.73	63.90%	4.67%
20.00	55.1	47.1	2828.1	8.30%	70.73	72.20%	5.87%
25.00	68.9	58.9	3535.1	5.80%	70.73	78.00%	4.10%
30.00	82.7	70.7	4242.1	4.60%	70.73	82.60%	3.25%
35.00	96.4	82.5	4949.2	3.80%	70.73	86.40%	2.69%
40.00	110.2	94.3	5656.2	2.90%	70.73	89.30%	2.05%
45.00	124.0	106.1	6363.2	2.40%	70.73	91.70%	1.70%
50.00	137.8	117.8	7070.2	1.80%	70.73	93.50%	1.27%
0.00	0.0	0.0	0.0	6.60%	91.60	100.10%	6.05%
	0.0	0.0	0.0	0.00%	91.60	100.10%	0.00%
0.0	0.0	0.0	0.0	0.00%	91.60	100.10%	0.00%
0.0	0.0	0.0	0.0	0.00%	91.60	100.10%	0.00%
0.0	0.0	0.0	0.0	0.00%	91.60	100.10%	0.00%
Total cumulative rainfall (%) <sup>4</sup> :				100.1%	Net Annual (%) :		74.73%

Performance based on 50-1000 um PSD and ETV verification protocol



## Appendix "H"



December 20, 2021

Todd Hewitt  
Manager of Engineering and Operations  
Town of Amherstburg  
516 Sandwich St. South  
Amherstburg, ON, N9V 3R2

**ATTENTION: Todd Hewitt  
Manager of Engineering and Operations**

**RE: Sanitary Capacity Assessment – 225 Sandwich St. North**

This letter is intended to present the results of the sanitary capacity assessment, completed by BAIRD AE, in support of the proposed development of 225 Sandwich Street North. The sanitary capacity assessment presented herein reviews the gravitational flow capacity of the municipal sanitary sewer system from sanitary manhole 2011 (GIS system ID), located 250 m north of the intersection of Brunner and Sandwich St. North, to sanitary manhole 1721 (GIS System ID) located 180 m south east of the intersection of Dalhousie Street and Pickering Drive at the municipal pumping station found in the same location. All tributary areas have been considered in the assessment, as can be reviewed in the attached assessment calculations, equating to total tributary area of 606.5 Ha and a total estimated cumulative population of 26,270 persons.

Based on the calculations attached here, it would appear that the municipal sewer system does have sufficient capacity to accommodate the proposed development in addition to the current loading. With the most severe loading occurring between manholes 1456 (GIS System ID) and 1455 (GIS System ID), with a loading of 91.5%. However, from that point onward the typical sewer diameter more that doubles, from 525 to 1200, and the capacities are generally below 40% in the larger diameter lines.

Therefore, based on the results provided in the attached calculations, BAIRD AE is stating that the required capacity to support the proposed development at 225 Sandwich Street North is available in the municipal sanitary sewer network and thus proposing a gravity connection from the 225 Sandwich St. North property directly to the municipal sanitary network, as depicted in the attached sanitary servicing plan.

Yours Truly,  
Baird AE

A handwritten signature in black ink that reads "Bill Fuerth".

Bill Fuerth, P.Eng.  
Civil Engineer



# **ATTACHMENT A**

## **CALCULATIONS**

**PIROLI APAERTMENTS AMHERSTBURG  
SANITARY SEWER DESIGN SHEET**

LOCATION			RESIDENTIAL AREA (Ha)	COMMERCIAL AREA (Ha)	INDUSTRIAL AREA (Ha)	TOTAL AREA (ha)	RESIDENTIAL FLOW			COMMERCIAL POPULATION	INDUSTRIAL POPULATION	TOTAL POPULATION	CUMULATIVE POPULATION	COMBINED SANITARY FLOW ESTIMATE					SEWER DATA					PROFILE				
Area Included	From Node	To Node					Capita per Unit	Number of Res. Units	Individual Population					Area (ha)	Cum. Area (ha)	Infiltration Flow (L/s)	Peaking Factor	Total Flow (L/s)	Dia. (m)	Dia. (mm)	Slope (%)	Length (m)	Capacity (L/s)	Velocity (m/s)	Flow Time (min)	Ratio Q/Q <sub>full</sub>	Upstream Elevation Invert (m)	Downstream Elevation Invert (m)
CR 20 CAT1	SAN 2011	SAN 1643	3.45	0.00	0.00	3.45	3.50	17.00	60	0.00	0.00	60.00	60.00	3.450	3.450	0.72	4.30	2.07	0.250	250	0.20	25.46	26.6	0.54	0.78	7.8%	176.320	176.269
TEXAS ROAD	SAN 1645	SAN 1643	42.19	0.29	2.29	44.76	3.50	240.00	840	18.00	178.00	1036.00	1096.00	44.763	48.213	10.12	3.77	31.67	0.300	300	0.37	56.63	58.8	0.83	1.14	53.9%	178.207	177.997
CR 20 CAT2	SAN 2015	SAN 2017 (PS)	2.00	0.00	1.85	3.85	3.50	3.00	11	0.00	144.00	155.00	1251.00	3.850	52.063	10.93	3.74	35.27	0.350	350	0.15	106.79	56.4	0.59	3.03	62.5%	176.150	175.990
<b>PROPOSED DEVELOPMENT</b>	SAN 2003	SAN 2005	0.00	1.19	0.00	1.19	3.50	0.00	0	230.00	0.00	230.00	1481.00	1.190	53.253	11.18	3.68	39.60	0.350	350	0.25	106.79	73.5	0.76	2.33	53.9%	179.090	178.819
CR 20 AND WILLIAM 350 PIPE	SAN 1948	SAN 1950	15.62	2.09	0.00	17.71	3.50	139.00	487	131.00	0.00	618.00	2099.00	17.710	70.963	14.90	3.57	53.92	0.350	350	0.47	341.53	99.9	1.04	5.48	54.0%	178.820	177.215
CR 20 AND WILLIAM 450 PIPE	SAN 1943	SAN 1944	0.00	0.00	7.35	7.35	3.50	0.00	0	0.00	572.00	572.00	2671.00	7.350	78.313	16.45	3.48	64.92	0.450	450	0.40	20.88	180.2	1.13	0.31	36.0%	176.850	176.766
SANDWICH AND ST ARNAUD	SAN 2211	SAN 1953	15.90	1.37	6.80	24.07	3.50	78.00	273	86.00	529.00	888.00	3559.00	24.075	102.388	21.50	3.38	84.12	0.450	450	0.55	121.79	211.3	1.33	1.53	39.8%	175.380	174.710
SANDWICH AND ALMA ST	SAN 1954	SAN 1792	23.82	0.00	16.18	40.00	3.50	284.00	994	0.00	1259.00	2253.00	5812.00	39.996	142.384	29.90	3.18	126.28	0.525	525	0.24	102.79	210.5	0.97	1.76	60.0%	174.710	174.463
LAIRD	SAN 1792	SAN 677	3.50	0.00	0.00	3.50	3.50	24.00	84	0.00	0.00	84.00	5896.00	3.500	145.884	30.64	3.18	128.22	0.525	525	0.16	128.72	171.9	0.79	2.70	74.6%	174.387	174.181
DALHOUSIE & LAIRD	SAN 1456	SAN 1455	8.00	0.00	0.00	8.00	3.50	19.00	67	0.00	0.00	67.00	5963.00	8.000	153.884	32.32	3.17	133.06	0.525	525	0.11	144.62	145.4	0.67	3.59	91.5%	173.572	173.406
DALHOUSIE & NORTH ST	SAN 1455	SAN 1406	0.00	0.00	0.00	0.00	3.50	0.00	0	0.00	0.00	0.00	5963.00	0.000	153.884	32.32	3.17	130.87	0.525	525	0.12	362.46	151.6	0.70	8.63	86.3%	173.406	172.955
DALHOUSIE & RICHMOND	SAN 702	SAN 1290	195.97	12.90	18.56	227.43	3.50	1812.00	6342	803.00	1444.00	8589.00	14552.00	227.429	381.312	80.08	2.79	293.26	1.200	1200	0.15	228.63	1,513.8	1.34	2.85	19.4%	172.120	171.775
DALHOUSIE & GORE ST	SAN 1290	SAN 681	3.61	3.16	0.00	6.97	3.50	45.00	158	197.00	0.00	355.00	14907.00	6.970	388.282	81.54	2.78	297.45	1.200	1200	0.21	146.85	1,785.9	1.58	1.55	16.7%	171.775	171.467
DALHOUSIE & PARK ST	SAN 681	SAN 1291	73.12	70.88	0.00	144.00	3.50	875.00	3063	4411.00	0.00	7474.00	22381.00	144.000	532.282	111.78	2.60	416.64	1.200	1200	0.21	64.81	1,785.9	1.58	0.68	23.3%	171.467	171.331
DALHOUSIE (EASEMENT)	SAN 1291	SAN 1452	0.00	0.00	0.00	0.00	3.50	0.00	0	0.00	0.00	0.00	22381.00	0.000	532.282	111.78	2.60	416.41	1.200	1200	0.10	110.22	1,232.4	1.09	1.69	33.8%	171.331	171.221
DALHOUSIE & PICKERING ST	SAN 1449	SAN 1721 (PS)	54.64	19.56	0.00	74.20	3.50	763.00	2671	1218.00	0.00	3889.00	26270.00	74.200	606.482	127.36	2.53	475.24	1.067	1200	0.20	126.93	1,264.2	1.41	1.50	37.6%	171.090	170.840

Design Parameters  
 Average domestic Flow per Person (L / day) = 450 (MOE GUIDELINES)  
 Manning's "n" = 0.013  
 Minimum Pipe Velocity = 0.60m/s (MOE GUIDELINES)  
 Extraneous Flow = 0.21 L/h/s (MOE GUIDELINES)

Population Density = 3.5 persons per home  
 Each lot will be considered individually  
 3.5 people per unit (3.5 people per lot)  
 Peaking Factor = 1 + (14 / 4+p\*0.5)  
 P - Population in thousands

School flow= 35.0m<sup>3</sup>/ha/d (MOE)  
 210 L/s per student/day  
 Peaking factor= 1.50

Consultant: Baird A&E	
Date:	November 24, 2021
Project:	20-082
Designed by:	RAMANDEEP SINGH
Client:	PIROLI
Checked by:	BILL FUERTH



INSTITUTIONAL FLOW CHART				
SCHOOL NAME	POPULATION	FLOW (L/S)	ACTUAL FLOW (L/S)	LOCATION
GENERAL AMHERST SCHOOL	650	1.46	2.19	DALHOUSIE & LAIRD
AMHERSTBURG PUBLIC SCHOOL	461	1.08	1.62	DALHOUSIE & RICHMOND
ECOLE ELEMENTARY SCHOOL	378	0.92	1.378	DALHOUSIE & PARK

COMMERCIAL AND INDUSTRIAL FLOW CHART				
CATCHMENT NAME/LOCATION	ADDRESS	USE		
		RESI.	IND.	COM.
TEXAS ROAD	565 & 477 TEXAS ROAD 2505 TEXAS ROAD		2.28	0.3
CR 20 CAT 2	459 COUNTY ROAD 20		1.85	
CR 20 AND WILLIAM 350 PIPE	140 WILLIAM ST			2.09
CR 20 AND WILLIAM 450 PIPE	110 WILLIAM ST		7.35	
SANDWICH AND ST ARNAUD	200 ST ARNAUD 55, 17, 9, 55 SANDWICH ST		6.8	1.3748
SANDWICH AND ALMA ST	95 VICTORIA & 125 ALMA ST 111 ALMA ST, RENAUD ST		16.18	
DALHOUSIE & RICHMOND CATCHMENT	281 THOMPSON		5.6	
	320 RICHMOND		10.8	
	190 RICHMOND			2.49
	199 SANDWICH ST S			0.4765
	181 SANDWICH		2.155	0.519
	89 RICHMOND BLOCK			3.0182
	131 SANDWICH			2.4
	83 SANDWICH			1.89
	71 SANDWICH			0.63
	271 LAIRD ST S			1.48
		SUM	18.555	12.9037
DALHOUSIE & GORE CATHMENT	271 SANDWICH ST BLOCK			3.1662
DALHOUSIE & PARK CATCHMENT	305 DALHOUSIE BLOCK			5.85
	322 SIMCOE			0.28
	251 CR 18			0.9596
	340 VICTORIA S			0.48
	346 VICTORIA S			0.38
	426-464 CR 18			1.86
	549 CR 18			0.53
	3295 CR18 (LIBRO CENTRE)			60.54
		SUM		70.8796
DALHOUSIE & PICKERING CATCHMENT	400 SANDWICH ST S 585 & 535 SANDWICH ST S			18.48
				1.0851

**ATTACHMENT B**  
TRIBUTARY AREA MAP

# ERCA Public Internet Mapping



Essex Region  
Conservation  
Authority

Public Interactive Mapping

## Legend

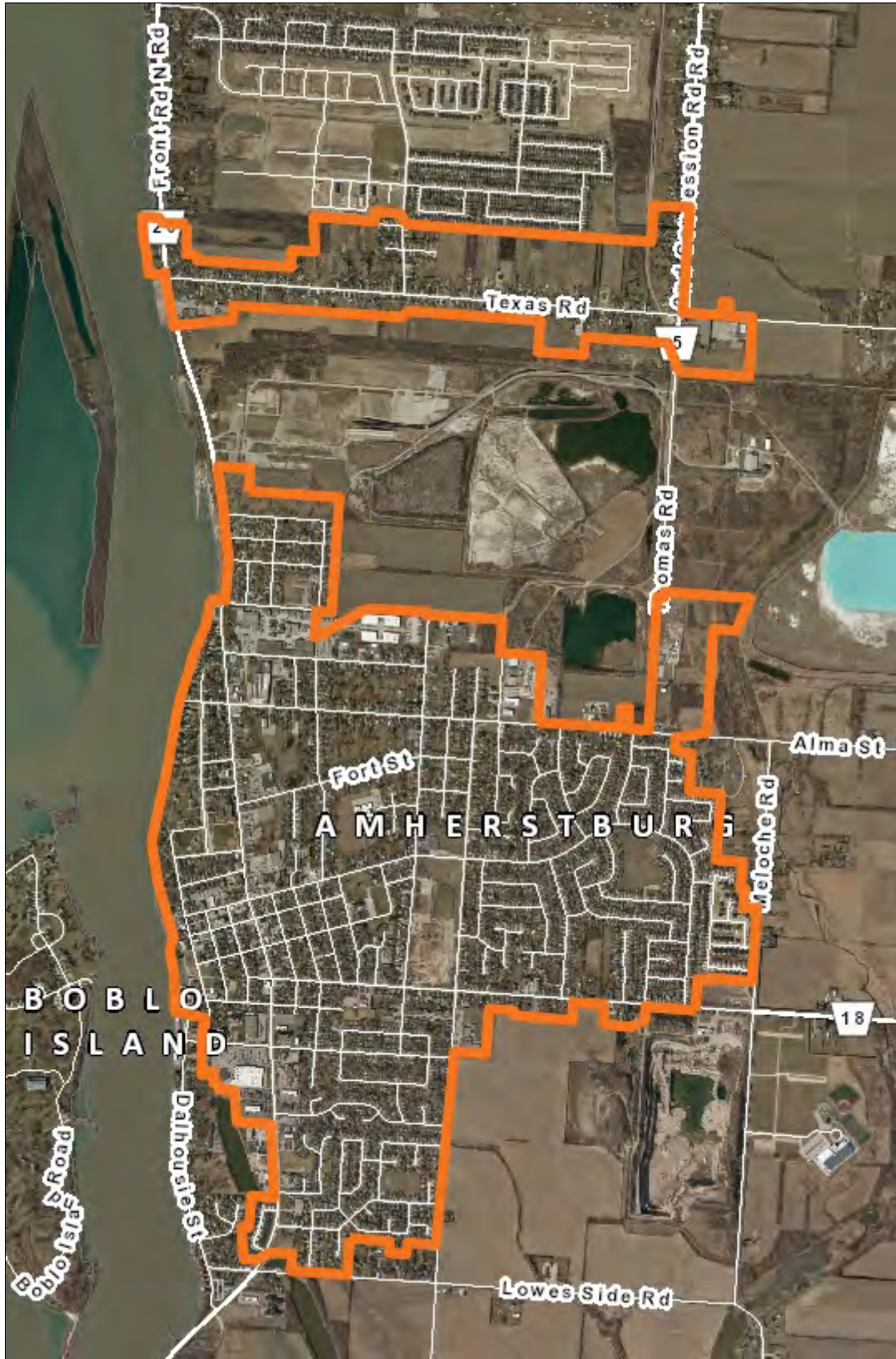
## Location



1: 27,646



12/16/2021



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## Notes

**ATTACHMENT C**  
**PROPOSED SANITARY SERVICING**







**Ministry of Heritage, Sport, Tourism, and  
Culture Industries**

Archaeology Program Unit  
Programs and Services Branch  
Heritage, Tourism and Culture Division  
5th Floor, 400 University Ave.  
Toronto ON M7A 2R9  
Tel.: (416) 418-0949  
Email: Zeeshan.Abedin@ontario.ca

**Ministère des Industries du patrimoine, du sport, du  
tourisme et de la culture**

Unité des programme d'archéologie  
Direction des programmes et des services  
Division du patrimoine, du tourisme et de la culture  
5e étage, 400 ave. University  
Toronto ON M7A 2R9  
Tél. : (416) 418-0949  
Email: Zeeshan.Abedin@ontario.ca



Dec 23, 2021

Michael Golloher (P1037)  
Earthworks Archaeological Services  
1 - 604 Sherbrooke Peterborough ON K9J2P6

**RE: Review and Entry into the Ontario Public Register of Archaeological Reports:  
Archaeological Assessment Report Entitled, "Stage 1 & 2 Archaeological  
Assessment 225, 255 Sandwich Street North & 116 Brunner Avenue Part of Lot 5,  
Concession 1 Geographic Township of Anderdon Town of Amherstburg County of  
Essex ", Dated Dec 10, 2021, Filed with MHSTCI Toronto Office on Dec 15, 2021,  
MHSTCI Project Information Form Number P1037-0083-2021, MHSTCI File Number  
0015939**

Dear Mr. Golloher:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18.<sup>1</sup> This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 *Standards and Guidelines for Consultant Archaeologists* set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the assessment of the study area as depicted in Map 10 of the above titled report and recommends the following:

Based on the results of the Stage 1 background investigation and the subsequent Stage 2 test pit survey the study area is considered to be free of archaeological material, and no additional archaeological assessments are recommended.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

Zeeshan Abedin  
Archaeology Review Officer

cc. Archaeology Licensing Officer  
Rob Piroli, 1603941 Ontario Inc.  
Frank Garardo, Town of Amherstburg

<sup>1</sup>*In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.*

# Myler Ecological Consulting

7 Olive Crescent, Stoney Creek, ON L8G 2T2 | (289)700-3038 | bmyler@cogeco.ca

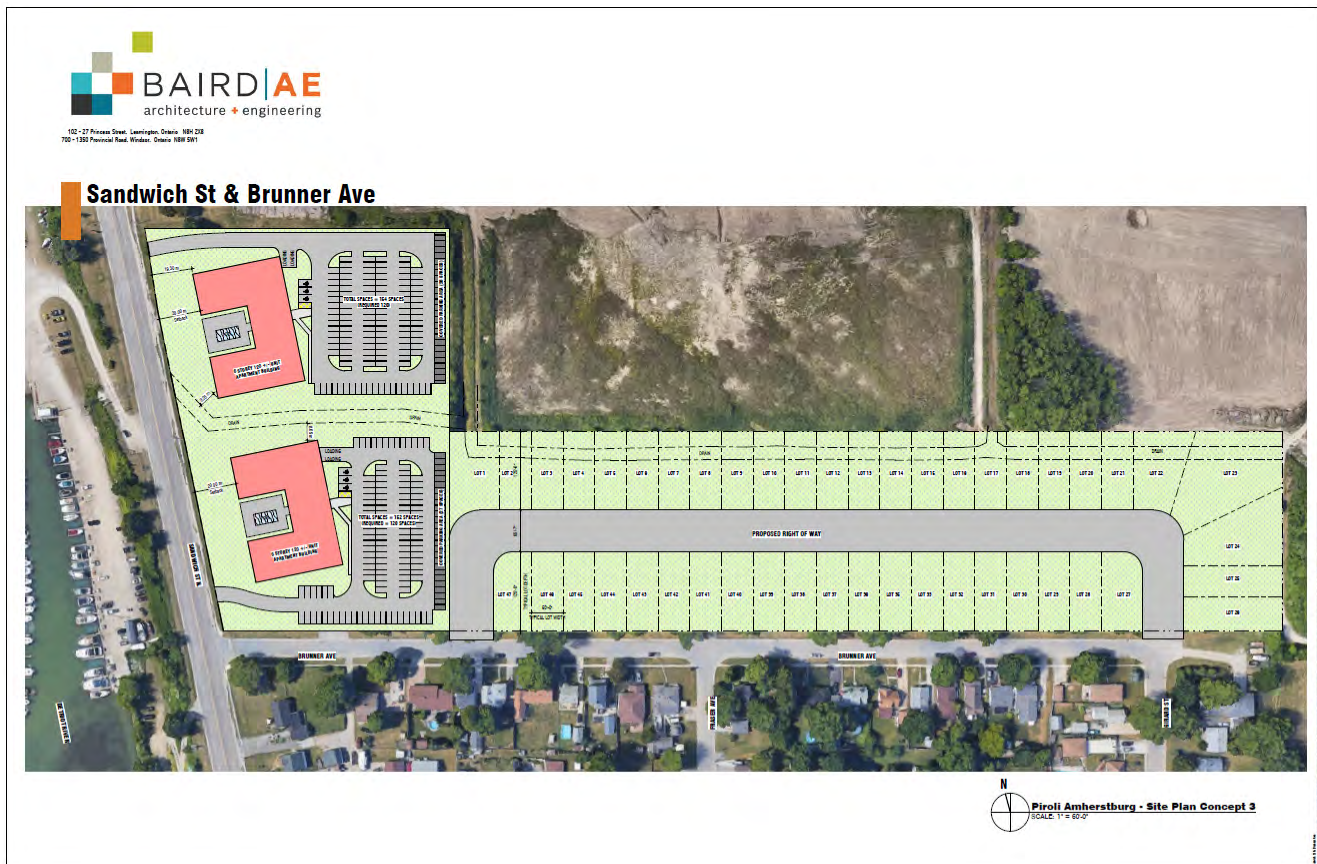
03 December 2021

Piroli Group Developments  
1500 Ouellette Avenue, Suite 201  
Windsor ON N8X 1K7

Attention: Robert Piroli, President

**RE: Species at Risk Screening – Sandwich Street and Brunner Avenue, Amherstburg ON.**

Myler Ecological Consulting (Myler) was retained by Piroli Group Developments (Piroli) to undertake a Species at Risk (SAR) Screening of vacant lands at Sandwich Street and Brunner Avenue (the Site). Piroli proposes to construct residential apartments and single-family homes at the site as depicted on the Conceptual Site Plan on **Figure 1**, below.



**Figure 1: Conceptual Site Plan – Piroli Amherstburg Apartments**

Myler’s SAR Screening included desktop review of SAR occurrences in the provincial Natural Heritage Information Centre (NHIC) online mapping and database, and on-site observations conducted on 10 September 2021 and 04 November 2021.



NHIC records for the mapped 1-km squares at and near the site included several aquatic species that are restricted to the Detroit River and for which there is no habitat on the site. Terrestrial SAR records comprised five endangered species. Three of those species represent historical records of plants that no longer occur at or near the site, as follows:

- White Prairie Gentian – extant Ontario population is limited to the Walpole Island First Nation.
- Drooping Trillium – two extant Ontario populations in Middlesex and Elgin Counties.
- Heart-leaved Plantain – two extant Ontario populations in Middlesex and Lambton Counties.

The two endangered wildlife species are Butler’s Gartersnake and Eastern Foxsnake, both of which occur as extant populations in and around Amherstburg. Accordingly, Myler’s on-site observations focused on determination of the presence/absence of suitable habitat for these snakes.

The site, which was historically occupied by homes, farmsteads and, at Sandwich Street, a commercial/industrial building, is now comprised almost entirely of manicured lawn with scattered shade trees (**Photos 1 and 2**, below).



**Photo 1:** Manicured condition of the site along Brunner Avenue, facing southwest towards the intersection of Brunner Avenue and Sandwich Street (10 September 2021).





**Photo 2:** Manicured condition of the northwest portion of the site fronting on Sandwich Street, facing southwest towards Sandwich Street and the Detroit River (04 November 2021).

A segment of the “General Chemical Drains” artificial drainage ditch crosses the site from east to west where it is enclosed in a culvert beneath Sandwich Street. The drainage ditch is an excavated trapezoidal channel that Myler observed to be filled with the non-native invasive Phragmites Reed (**Photo 3**, below). The outlet of the drainage ditch, at the marina on the west or river side of Sandwich Street, is a perched culvert that outlets to two smaller culvert enclosures (**Photo 4**, below).



**Photo 3:** Facing across Sandwich Street to the artificial drain filled with Phragmites reed (04 November 2021).



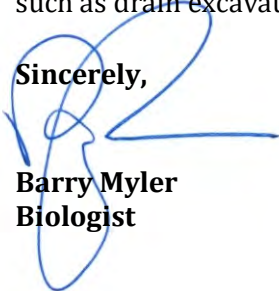


**Photo 4:** Perched culvert outlet of the artificial drainage ditch at the marina on the Detroit River side of Sandwich Street (04 November 2021).

Myler’s observations confirmed an absence of snake habitat on the site within both the manicured lawn areas and the drainage ditch. Although drainage ditches can sometimes provide cover for snakes making local movements between habitats, the ditch at the site does not connect suitable habitats in consideration of the conditions adjacent to the Detroit River depicted in **Photo 4**, above.

Given the occurrence of Butler’s Gartersnake and Eastern Foxsnake off-site in the general vicinity of the site, there is the potential for incidental occurrence of and encounters with individual snakes that may wander onto the site. As site preparation and construction details are developed, mitigation measures will need to be specified to achieve Endangered Species Act compliance by reducing the likelihood of snakes incidentally entering and lingering within the site and employing appropriate seasonal avoidance for works such as drain excavation and enclosure.

Sincerely,



**Barry Myler**  
**Biologist**



# Apartment Development Feasibility Study – Piroli Construction



**North-East Corner of Sandwich Street North & Brunner Avenue,  
Amherstburg, Ontario.**

**Prepared for:** Piroli Construction

**Dated:** October 2021

## Executive Summary

SVN Rock Advisors Inc. (the 'Consultant') conducted a feasibility study comprising of a demographic, demand, and competitive market analysis to assess the viability of developing a multi-residential development at the north-east corner of Sandwich Street North & Brunner Avenue in Amherstburg Ontario.

### North-East Corner of Sandwich Street North & Brunner Avenue, Amherstburg Ontario:

Category	Rating
Site Location	✓ Strong
Pop Growth	✓ Moderate- Strong
Age Profile	✓ Older
Household Affordability	✓ Strong
Demand	✓ Limited Supply
Competition	✓ Limited Competition
Vacancy	✓ Low-Moderate

Key Findings include:

- Site Location:** The proposed rental development is located on the north-east corner of Sandwich Street North and Brunner Avenue in Amherstburg, Ontario. Situated among a single-family subdivision to the south, the remains of an old chemical plant to the north, the Amherstburg Yacht Club and Detroit River to the west, and a vacant parcel of land to the east. The site is primarily car-dependant, as the town of Amherstburg has limited public transit. The surrounding neighbourhood offers a thorough amenity offering including a grocer (1.2km away), a pharmacy (1.1km Away), restaurants (within 0.8km), financial institutions (withing 1.9km), retailers and services all available within close proximity to the subject site. Along with the commercial amenities are a variety of local parks and walking trails along the Detroit River, which are likely to act as an additional rent driver during the lease-up process as many residents' value proximity to nature.
- Market segmentation:** Population growth is considered a positive metric for the success of new rental apartments since it helps indicate if there is sufficient growth to support the addition of new rental apartments in the local housing supply. Between 2020 and 2030, the population of Amherstburg is expected to increase by 1,235 residents (+5.2%). During this time period the neighbourhood surrounding the subject site is expected to increase by approximately 644 residents (+4.6%). As new developments arise, the projected population growth

will likely increase further as new residents are attracted to the community. The projected population growth within both Amherstburg and the subject site's surrounding neighbourhood indicates that the demand for housing is likely to continue to grow, creating further strain on the very limited existing stock of rental apartments. In addition, it indicates that the neighbourhood contains positive attributes, including but not limited to, strong community amenitization, and connectivity which will **enable it to attract a significant proportion of new residents.**

- **Household affordability:** Approximately 12% of households in the local neighbourhood can afford rents between \$2,500-\$3,125 per month; whereas 28% can achieve rents greater than \$3,125 and earn household incomes greater than \$125,000. Similarly, 12% of households in broader Amherstburg can afford between \$2,500-\$3,125; whereas 36% can achieve rents greater than \$3,125. **This is a positive indicator for the ability of households in the surrounding market to afford the premium rates associated with a top-of-market multi-residential development.**
- **Average income:** Households earning up to \$100,000 annually are underrepresented in the neighbourhood, whereas broader Amherstburg has a larger distribution of individuals earning over \$100,000 annually. 40% of neighbourhood households achieve incomes of \$100,000 or more, compared to 48% in broader Amherstburg. The neighbourhood's average household income of \$97,474 is approximately \$17,632 lower than that of broader Amherstburg. However, the lower average incomes experienced surrounding the subject site are likely the result of the demographic composition in the area consisting of a large proportion of retirees. This is not a negative indication in the potential success of the proposed development as average household incomes in broader Amherstburg still remain high relative to Ontario's average household income of \$111,866. **In addition to strong average household incomes, many of the target residents will likely sell off their home providing them with additional equity when searching for new housing accommodations.**
- **Demand analysis:** Amherstburg is largely undersupplied with rental product with only 1.2 rental apartments per 100 people. Additionally, demand remains strong for rental apartments with 78% of renters renting from the secondary market with a total of 1,333 renter households in Amherstburg. **This limited amount of purpose-built rental buildings in the market likely indicates that when new apartment product is brought to market, it will likely experience few issues with lease-up and absorption.**
- **Competitive market analysis:** Amherstburg as a rental market has an average monthly rent of \$1,062 across all unit types as recorded by CMHC, however rents

being achieved by both secondary market rentals in Amherstburg, and new purpose-built rental apartments are much higher with new purpose-built rental product in achieving starting rents approximately \$649-\$1,059 higher than CMHC average rents. This suggests that newly built rental stock in Amherstburg will achieve higher rental rates than the CMHC average market rents. Amherstburg experienced some of the highest vacancy rates among benchmark municipalities. This is largely due to the COVID-19 pandemic. In 2019 the average vacancy rate was 1.2% but increased to 4.7 by 2020, representing an increase of 3.5%. As the majority of the purpose- built rental units are built before the year 2000 in Amherstburg, **a new, superior quality property will have fewer issues with vacancies upon stabilization.**

### Key Recommendations:

The tables below provide key recommendations regarding the subject sites' unit sizing and mix, appropriate amenity allocation, and storage and parking allocation. A detailed rationale is found in further sections of the report:

Unit Sizing and Mix- Building 1					
	1 Bed	1 Bed + Den	2 Bed	2 Bed + Den	TOTAL/AVG
# Units	24	18	54	24	120
% Units	20%	15%	45%	20%	100%
Avg. Unit Size (Sf)	650	750	950	1,100	890
Avg. Rent	\$1,475	\$1,575	\$1,900	\$2,000	\$1,786
Avg. Rent/ Sf	\$2.27	\$2.10	\$2.00	\$1.82	\$2.03
Amenities - Building 1					
Required Sf:	2,400 SF				
List of Amenities:	Lobby Lounge	Party Room Gym/Fitness Room	Craft Room Pet Grooming Station		
Unit Sizing and Mix- Building 2					
	1 Bed	1 Bed + Den	2 Bed	2 Bed + Den	TOTAL/AVG
# Units	24	18	54	24	120
% Units	20%	15%	45%	20%	100%
Avg. Unit Size (Sf)	650	750	950	1,100	890
Avg. Rent	\$1,475	\$1,575	\$1,900	\$2,000	\$1,785
Avg. Rent/ Sf	\$2.27	\$2.10	\$2.00	\$1.82	\$2.03
Amenities					
Required Sf:	2,400 SF				
List of Amenities:	Lobby Lounge	Party Room Gym/Fitness Room	Craft Room Pet Grooming Station		
Parking & Storage Lockers					
Total Parking Spaces					339
# CV Spaces					53
# SF Spaces					286
\$/ CV Space					\$65
\$/ SF Space					\$45
Storage Lockers					\$25

## SWOT ANALYSIS:

Below we have included a brief SWOT analysis highlighting key strengths, opportunities, weaknesses, and potential threats of the subject site as a rental development property. Points mentioned below will be discussed in detail in the body of the report:

SWOT ANALYSIS	
<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Limited competition in surrounding neighbourhood.</li> <li>• Proximity to local amenities.</li> <li>• Proximity to natural amenities- parks/walking trails.</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Some units may not have strong views given the industrial site north of the property</li> <li>• Limited public transit in Amherstburg</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Opportunity to become a market leading development in Amherstburg.</li> <li>• Opportunities to market high quality apartment to local high- income households.</li> <li>• Opportunity to serve a largely under-supplied market.</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• New rental product entering the market; however, we believe the proposed development will be a strong market leader in the neighbourhood.</li> <li>• Community opposition from neighbouring single-family dwellings.</li> </ul>



## Table of Contents

<b>Subject Site</b> .....	<b>6</b>
<b>Market Delineation</b> .....	<b>13</b>
<b>Market Segmentation</b> .....	<b>15</b>
<b>Market Segmentation – Summary</b> .....	<b>31</b>
<b>Household Affordability</b> .....	<b>32</b>
<b>Household Affordability – Summary</b> .....	<b>36</b>
<b>Demand Analysis</b> .....	<b>37</b>
<b>Demand Analysis - Summary</b> .....	<b>43</b>
<b>Competitive Market Analysis</b> .....	<b>44</b>
<b>Primary Market Analysis</b> .....	<b>49</b>
<b>Secondary Market Analysis</b> .....	<b>72</b>
<b>Competitive Market Analysis – Summary</b> .....	<b>79</b>
<b>Target Resident Profile</b> .....	<b>81</b>
<b>Unit Recommendations</b> .....	<b>84</b>
<b>Amenity Recommendations</b> .....	<b>88</b>
<b>Unit Sizing &amp; Mix</b> .....	<b>101</b>
<b>Parking Recommendations</b> .....	<b>104</b>
<b>Recommended Rents</b> .....	<b>108</b>
<b>Stabilized Valuation</b> .....	<b>114</b>
<b>Leasing and Project Absorption</b> .....	<b>120</b>
<b>Marketing Recommendations</b> .....	<b>123</b>
<b>Next Steps</b> .....	<b>126</b>
<b>Appendix A: Terms of Reference</b> .....	<b>128</b>
<b>Appendix B: Report Terminology</b> .....	<b>131</b>
<b>Appendix C: Rental Formula</b> .....	<b>134</b>
<b>Appendix D: Leisure &amp; Behavioural Profiles</b> .....	<b>137</b>



# SUBJECT SITE

The proposed rental apartment development is located on the north-east corner of Sandwich Street North and Brunner Avenue, in Amherstburg, Ontario. The Site is located north of the downtown core of Amherstburg. The site is currently an empty parcel of land that is intended to be developed into two purpose-built rental apartments, as well as a row of townhomes to the north of Brunner Avenue.



Source: Client Provided

The Client is considering the development of two multi-residential apartments, and a row of townhomes on the subject site. Below we have included recommendations for site statistics, developed in house, that are in accordance with Amherstburg’s zoning by-laws and SVN’s recommendations. The Consultant has provided a scenario based on the maximum achievable density on the site. A detailed analysis is found in further sections of this report.

## SATELLITE IMAGES OF SUBJECT SITE & VICINITY

The proposed rental development is located on the north-east corner of Sandwich Street North and Brunner Avenue in Amherstburg, Ontario. Situated among a single-family subdivision to the south, the remains of an old chemical plant to the north, the Amherstburg Yacht Club and Detroit River to the west, and a vacant parcel of land to the east. The site is primarily car-dependant, as the town of Amherstburg has limited public transit. The surrounding neighbourhood offers a thorough amenity offering including a grocer (1.2km away), a pharmacy (1.1km Away), restaurants (within 0.8km), financial institutions (withing 1.9km), retailers and services all available within close proximity to the subject site.

Along with the commercial amenities are a variety of local parks and walking trails along the Detroit River, which are likely to act as an additional rent driver during the lease-up process as many residents' value proximity to nature.

### Immediate Neighbourhood



### Legend:

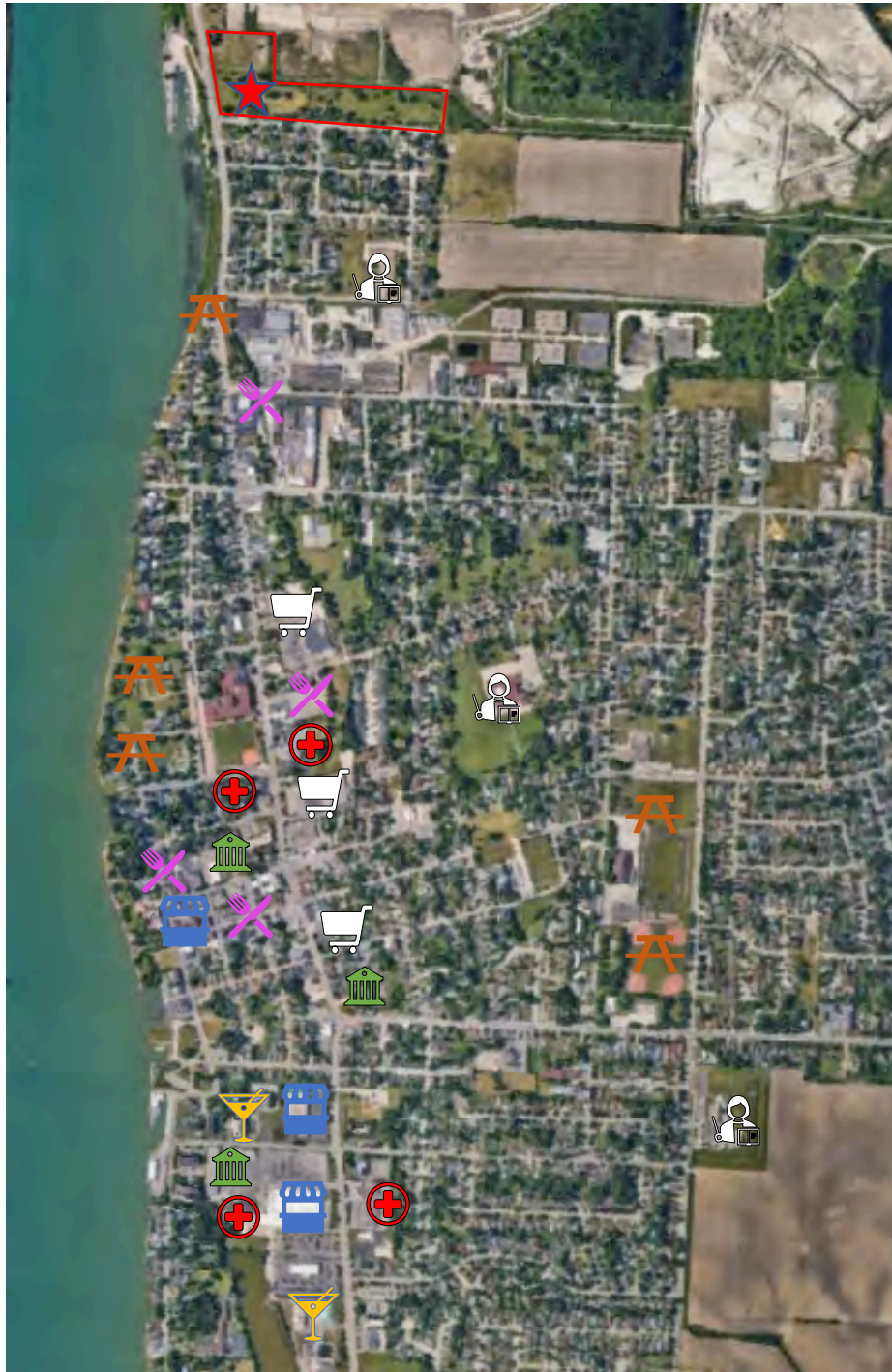
Subject Site:	★
Grocer:	🛒
Park:	⚡
Food/Drinks:	🍴

Source: SVN Rock Advisors w/ Google Earth 2021



## SATELLITE IMAGES OF SUBJECT SITE & VICINITY

### Surrounding Area



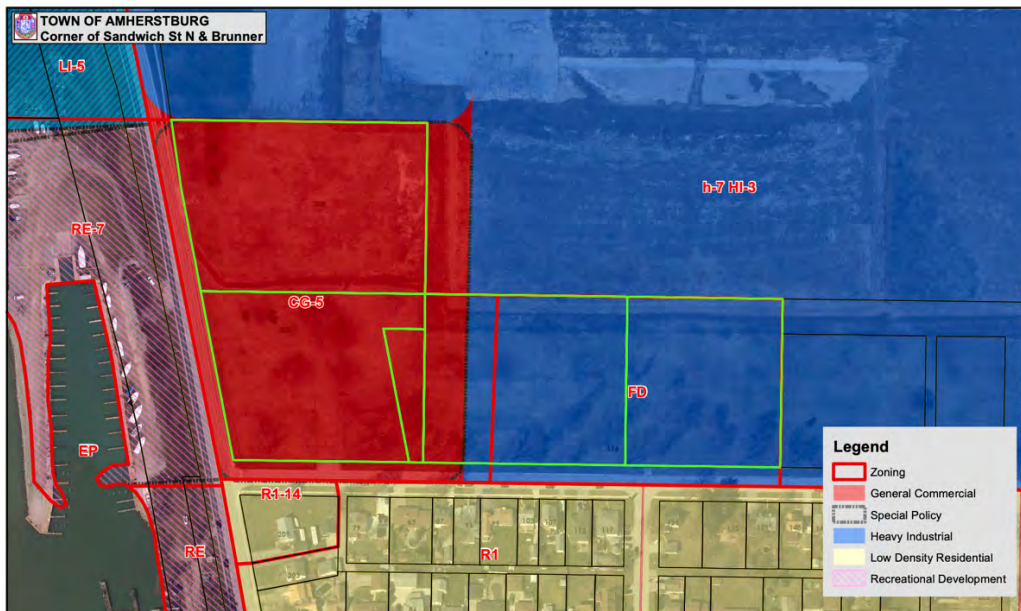
### Legend:

- Subject Site: ★
- Grocer: 🛒
- Bank: 🏦
- Pharmacy: 🏥
- Retailer: 🏪
- Parks: 🌳
- Liquor Store: 🍷
- Food/Drinks: 🍴
- Schools: 🎒

Source: SVN Rock Advisors w/ Google Earth 2021

## Current Zoning Provisions

In accordance with the corporation of the town of Amherstburg’s Zoning By-law (No. 1999-52), the subject site lies within both “CG-5” district (Department Store and Associated Retail) and a “FD” district (Future Development). The “CG-5” zoning permits a 15-metre department store development with a maximum GFA (gross floor area) 9,000 square metres. Additionally, the “FD” zoning permits uses such as agricultural, cemetery, forestry, home occupation, retail farm sales outlet, conservation authority and any existing dwelling. It permits a building height of 10 metres and a minimum lot area of 2,000 square metres.



Source: Client Provided

The Consultant recommends rezoning from “CG-5” to “RM2” district zoning (Residential Multiple Second Density Zone) for the proposed apartment buildings, which permits a maximum building height of 22 metres, which equates to 6 storeys (assuming 3.3 Metres per storey). As per zoning by-law 1999-52, a maximum lot coverage of 40% (including parking structures) is required with minimum parking ratio of 1 parking stall per unit (can be negotiated with municipality to include surface level parking), as seen in table 2 below. The Consultant will provide a density scenario outlined in the *Unit Sizing & Mix* section of the report, as well as parking recommendations in following sections. The “RM2” zoning amendment is only for ‘CG-5’ area which is defined by the red area in the figure above.

(3) ZONE REQUIREMENTS

No person shall within any RM2 Zone, use any lot or erect, alter or use any building or structure except in accordance with the following provisions.

(a)	Lot Area (Minimum)	840 m <sup>2</sup>
(b)	Lot Frontage (Minimum)	30 m
(c)	Front Yard Depth (Minimum)	7.5 m
(d)	Interior Side Yard Width (Minimum) or half the height of the building, whichever is greater.	6 m
(e)	Exterior Side Yard Width (Minimum) or half the height of the building, whichever is greater.	6 m
(f)	Rear Yard Depth (Minimum)	7.5 m
(g)	Lot Coverage (Maximum) including parking structures	40%
(h)	Landscaped Open Space (Minimum)	30%
(i)	Dwelling Unit Area (Minimum)	
	(i) Bachelor dwelling unit	35 m <sup>2</sup>
	(ii) Dwelling unit containing one bedroom	50 m <sup>2</sup>
	(iii) Dwelling unit containing two bedrooms	65 m <sup>2</sup>
	(iv) Dwelling unit containing three bedrooms	80 m <sup>2</sup>
	(v) Dwelling unit containing more than three bedrooms - 80 m <sup>2</sup> plus 10 m <sup>2</sup> for each bedroom in excess of 3	
(j)	Height (Maximum)	22 m
(k)	Privacy Yards (Minimum)	7 m
	A privacy yard shall be provided adjoining each exterior wall of every dwelling unit that contains habitable room window.	
(l)	Building Separation (Minimum)	
	(i) between two primary windows	15 m
	(ii) between a primary window and a secondary window	12 m
	(iii) between a primary window and an ancillary window	9 m
	(iv) between a primary window and a blank wall	7.5 m
	(v) between two secondary windows	9 m
	(vi) between a secondary window and an ancillary window	6 m
	(vii) between a secondary window and a blank wall	4 m
(m)	Accessory Uses, Parking, Home Occupation, etc. in accordance with the provisions of Section 3 hereof.	

Source: The Corporation of The Town of Amherstburg: Zoning By-law NO. 1999-52



## Table 2 – Minimum Required Residential Parking Zoning RM2

(b)	PARKING SPACE REQUIREMENTS FOR RESIDENTIAL USES (MINIMA)	
(i)	Apartment Building	1 per unit
(ii)	Boarding Dwelling	0.33 per unit
(iii)	Boarding House	See Lodging House
(iv)	Converted Dwelling	1 per unit
(v)	Duplex	1 per unit

Source: The Corporation of The Town of Amherstburg: Zoning By-law NO. 1999-52

The Consultant also recommends rezoning from “FD” to “RM1” district zoning (Residential Multiple First Density Zone) for the proposed apartment buildings, which permits a maximum building height of 10 metres, which equates to 3 storeys (assuming 3.3 Metres per storey). As per zoning by-law 1999-52, a maximum lot coverage of 40% (except on the lots where a dwelling unit of a street rowhouse is attached on each side, in which case the maximum lot coverage will be 51%) is required with minimum parking ratio of 1 parking stall per unit, as seen in table 3 below.

### (3) ZONE REQUIREMENTS

No person shall within any RM1 Zone, use any lot or erect, alter or use any building or structure except in accordance with the following provisions.

(a)	Lot Area (Minimum)	185 m <sup>2</sup> per unit
(b)	<i>Lot Frontage (Minimum)</i>	
(i)	<i>Triplex, Rowhouse or Fourplex Dwelling</i>	25 m
	<i>or</i>	
	<i>In infilling situation, the frontage requirement may be reduced to 10.0 metres provided no buildings are located in any part of the lot less than 25.0 metres in width.</i>	
(ii)	<i>Street Rowhouse dwelling</i>	25 m
	<i>Provided the minimum lot frontage for each unit in a street rowhouse dwelling shall be 6.0 metres.</i>	

Source: The Corporation of The Town of Amherstburg: Zoning By-law NO. 1999-52



(c)	Front Yard Depth (Minimum)	6 m
(d)	Interior Side Yard Width (Minimum) <i>Provided that no side yard is required for a street rowhouse on the side where a dwelling unit is attached to another dwelling unit.</i>	3 m
	<i>(By-law 2005-62)</i>	
(e)	Exterior Side Yard Width (Minimum)	6 m
(f)	Rear Yard Depth (Minimum)	6 m
(g)	Lot Coverage (Maximum) <i>Except on the lots where a dwelling unit of a street rowhouse is attached on each side, in which case the maximum Lot Coverage will be 51%.</i>	40%
	<i>(By-law 2005-62)</i>	
(h)	Landscaped Open Space (Minimum)	30%
(i)	Dwelling Unit Area (Minimum)	60 m <sup>2</sup>
(j)	Height (Maximum)	10 m
(k)	Privacy Yards (Minimum) A privacy yard shall be provided adjoining each exterior wall of every dwelling unit that contains habitable room windows.	6 m
(l)	Building Separation (Minimum)	
	(i) between two primary windows	15 m
	(ii) between a primary window and a secondary window	12 m
	(iii) between a primary window and an ancillary window	9 m
	(iv) between a primary window and a blank wall	7.5 m
	(v) between two secondary windows	9 m

Source: The Corporation of The Town of Amherstburg: Zoning By-law NO. 1999-52

## Table 2 – Minimum Required Residential Parking Zoning RM2

### (b) PARKING SPACE REQUIREMENTS FOR RESIDENTIAL USES (MINIMA)

(xii)	Rowhouse	1 per unit
(xiii)	Semi-Detached Dwelling	2 per unit
(xiv)	Single Detached	2 per unit
(xv)	Special Needs Apartment Building	0.25 per unit
(xvi)	Street Rowhouse	2 per unit
(xvii)	Triplex	1 per unit

Source: The Corporation of The Town of Amherstburg: Zoning By-law NO. 199-52

# MARKET DELINEATION

## “Is this neighbourhood suitable for a new rental development?”

A key question that developers ask is, “**is this neighbourhood a suitable location for a new rental development?**”. The reality is that any new development will draw residents from the immediate neighbourhood, but also from the broader municipality. The extent to which the new development will draw from the broader municipality will depend on the extent of new rental development in the subject neighbourhood, and the desirability of the subject neighbourhood.

In this section, we identify the current demographics of the subject neighbourhood, and compare this to other comparable cities. We focus on the demographic indicators most relevant to new purpose-built rental development.

Data is sourced from the CMHC (2020) and Demostats (2020). The data analyzed in-house at the following scales:

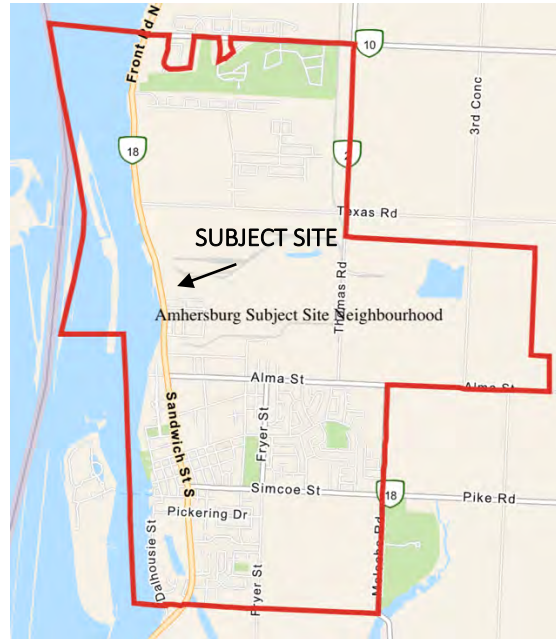
1. **Municipal Scale:** We compare data for the subject market, Amherstburg, against various benchmark municipalities. Including these benchmark municipalities is valuable for contextualizing, economic and housing trends beyond the subject municipality itself.
2. **Neighbourhood Scale:** We compare data for the subject neighbourhood defined by a series of census tracts surrounding the subject site, and the subject market (benchmark) to provide contextual information on their relative demographic composition.

We used the following benchmark cities for comparison:

- Windsor
- Essex
- Leamington
- Chatham
- Sarnia
- St. Thomas
- Woodstock
- Stratford
- Brantford
- Owen Sound
- Collingwood

\*Sorted by proximity to subject site

## MARKET DELINEATION – NEIGHBOURHOOD



Source: SVN Rock Advisors with Demostats (2020)

## MARKET DELINEATION – AMHERSTBURG



Source: SVN Rock Advisors with Demostats (2020)

# MARKET SEGMENTATION

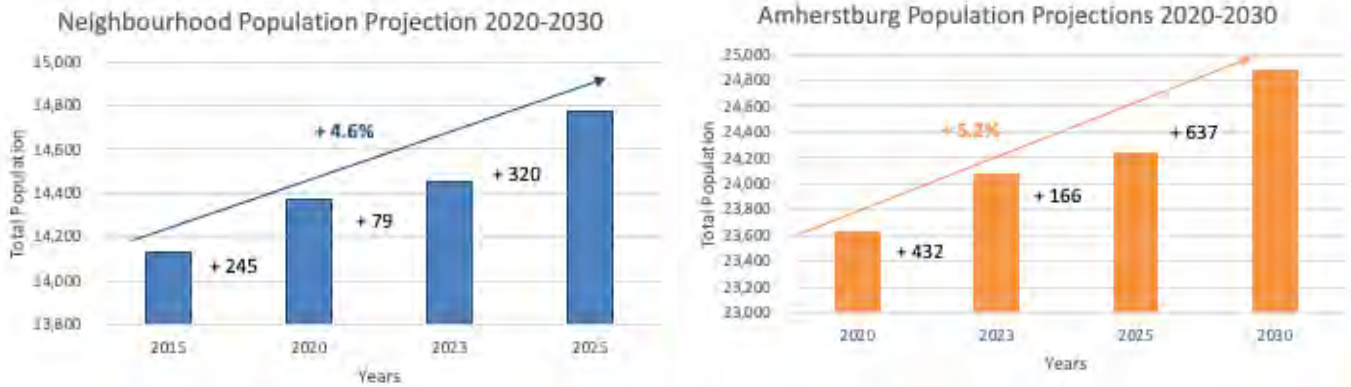
“What is the tenant base of the subject neighbourhood”

In this section, we analyze the economic and demographic characteristics of the prospective tenants in the surrounding neighbourhood and the broader town. Data for this section is sourced from Demostats 2020.

## POPULATION GROWTH: 2020 – 2030 – STRONG GROWTH PROJECTED FOR A SMALL MARKET

*The demographic profile in a given geography—that is, the total population size and population change—is often broadly suggestive of the demand for rental apartment units. Population size is the total number of individuals counted in the last census within a particular geography. Understanding population size is important for new rental apartment development since a larger population will naturally have a higher total number of renters.*

The tables below and overleaf summarize population growth trends from 2020 to 2030, the age profile, and the household types in the subject site compared with the broader market. Strong population growth is considered a positive indicator for the success of new rental apartments since it helps indicate if overall demand for housing of all types is increasing, and in particular if growth is sufficient to support the addition of new rental apartments to the local housing supply.

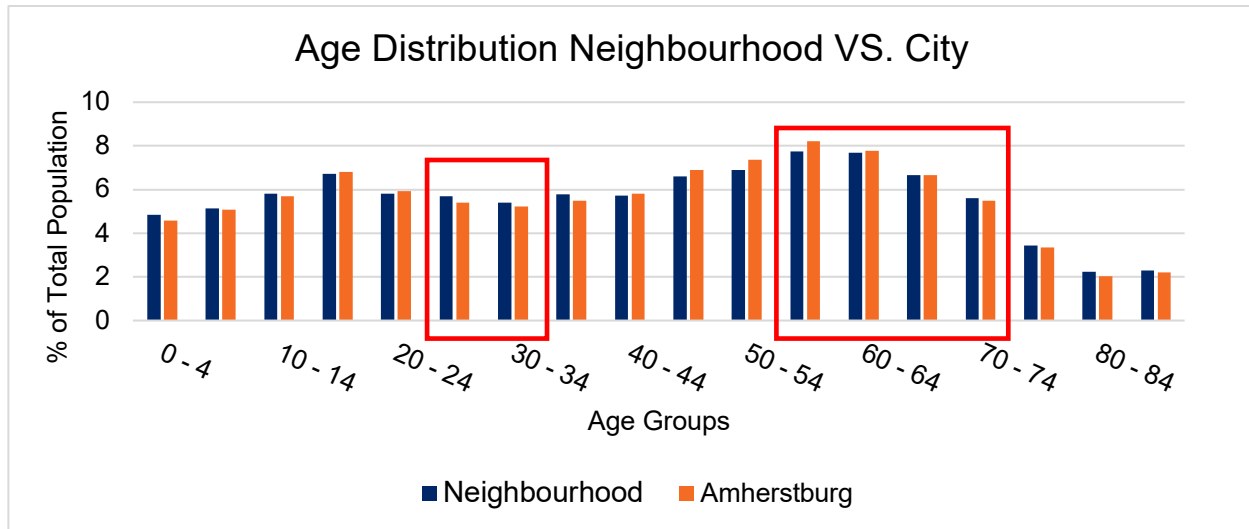


Source: SVN Rock Advisors with Demostats Trends (2020)

Between 2020 and 2030, the population of Amherstburg is expected to increase by 1,235 residents (+5.2%). During this time period the neighbourhood surrounding the subject site is expected to increase by approximately 644 residents (+4.6%). As new developments arise, the projected population growth will likely increase further as new residents are attracted to the community. The projected population growth within both Amherstburg and the subject site’s surrounding neighbourhood indicates that the demand for housing is likely to continue to grow, creating further strain on the very limited existing stock of rental apartments. In addition, it indicates that the neighbourhood contains positive attributes, including but not limited to, strong community amenitization, and connectivity which will **enable it to attract a significant proportion of new residents.**

## AGE PROFILE: OLDER AND LIKELY TO ATTRACT FROM SURROUNDING NEIGHBOURHOOD

The age profile of a given area is indicative of both the target renters for a given property, and the propensity to rent. Relatively high proportions of young adults (ages 20-34), empty-nesters (ages 55-64) and seniors (ages 65+) are considered positive indicators for rental apartments since people in these age groups are considered to have a higher propensity to rent apartments than other age groups.



Source: SVN Rock Advisors with Demostats 2020

### **25 – 34 Year Age Group: Young Up and Comers: Present In Subject Site Neighborhood, But Likely Moving Soon**

This age group represents the children of the over-represented 55+ age category and shares a similar proportion of individuals in both the subject site neighbourhood and broader Amherstburg, totalling approximately 11% of the population. As children reach their 20's they begin to move away from home to more urban communities to pursue their education and explore new career opportunities. **This age group will not be a target renter/buyer when the subject site is developed as they typically relocate to more urban areas and search for more affordable accommodations given their limited income.**

### **55 – 74 Year Age Group: Older Downsizers & Seniors: Overrepresented**

This age group is slightly overrepresented in the broader Amherstburg area, representing 35% in broader Amherstburg, and 34% in the subject site neighbourhood. This is a positive indicator as this age group is predisposed to rent and has a demand for larger premium units with adequate storage given that many of these households are downsizers with greater space requirements. **This slight overrepresentation suggests that once brought to market the subject site will likely attract a significant proportion of older downsizer and retiree households from the existing neighbourhood with a larger proportion from the broader market.**

**HOUSEHOLD TYPES: FAMILY DOMINATED BUT MANY YOUNG COUPLES WITHOUT CHILDREN AND EMPTY NESTERS**

*Household types indicate the familial character of the occupants in a given dwelling. “Family” households are defined as couples with children; “couples only” households are defined as couples without children; and “lone person” households are defined as one person living alone or forming a single household.*

High proportions of couples and lone person households are positive indicators for rental housing since these households are generally considered to have a higher propensity to rent than family households. A high proportion of couples households is particularly advantageous as there are typically two earners (double income, no kids) with disposable income.

Household Types	Neighbourhood		Amherstburg	
	# of Households	% of Households	# of Households	% of Households
Total Households	5,582		9,035	
Total Families	4,053	73%	6,867	76%
Family (With Children)	2,421	43%	4,041	45%
Family (Without Children)	1,632	29%	2,826	31%
Lone Person	1,431	26%	2,033	23%

Source: SVN Rock Advisors with Demostats 2020

Note: The values do not total 100% as there are “other” categories of households not accounted for in the table above

The neighbourhood surrounding the subject contains a smaller proportion of couples (29%), but a larger proportion of single-person households (26%) when compared to broader Amherstburg. These findings are consistent with those in the age profile as majority of the households are likely empty nesters/downsizers and retirees whom of which are likely living alone or with their significant other after their children move from home.

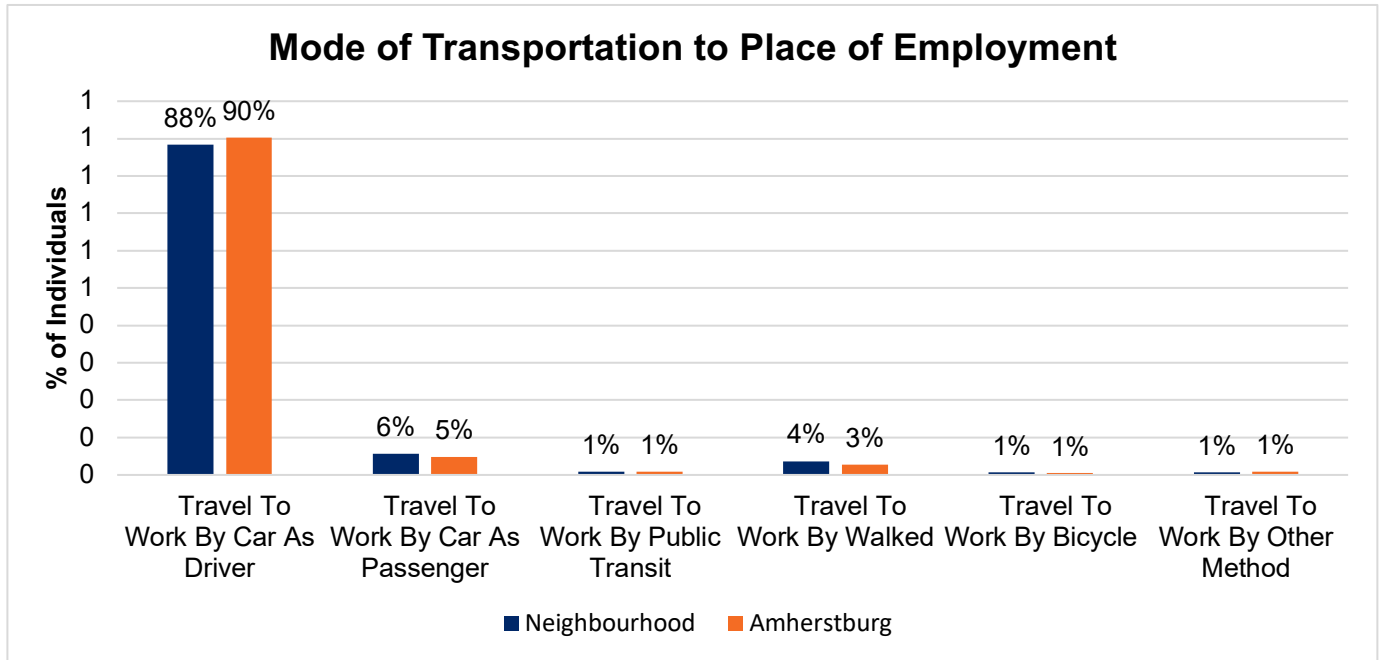
**This is a positive indicator as it suggests that Amherstburg and the surrounding neighbourhood hold a large proportion of potential renters. When new purpose-built rental product is brought to market, prospective residents will likely be a large proportion of individuals who have lived in the surrounding community throughout their lives and would like to continue to live in the area throughout their retirement.**

**Not only does the neighbourhood have positive attributes for the success of a potential rental apartment development, but projected population growth in the neighbourhood will only further increase the demand for new multi-residential product.**



**MODE OF TRANSPORTATION TO WORK: CAR ORIENTED**

Mode of transport refers to the primary mode of transport for households in a particular geography. This is important to infer parking requirements for a new development.



Source: SVN Rock Advisors with Demostats (2020)

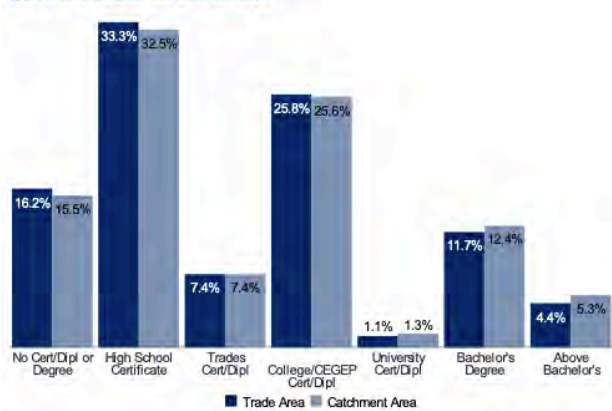
Amherstburg is primarily car-oriented, with the vast majority of residents travelling to work by car: 90% of individuals in the neighbourhood surrounding the subject site use a car as their main means of transport, with approximately 5% of individuals travelling as a passenger. The suburban nature of the community contributes to the high proportion of individuals utilizing a car as their primary mode of transport. **Considering the proportion of individuals who drive is larger than those who use alternative methods of travel, it is important to consider the amount of parking in the development. Although the primary target demographic is retired, or approaching retirement, it is still important to consider parking being that majority of these individuals are likely downsizing from a single-family home and already own a vehicle.**

## EDUCATIONAL ATTAINMENT: HIGHSCHOOL GRADUATE NEIGHBOURHOOD

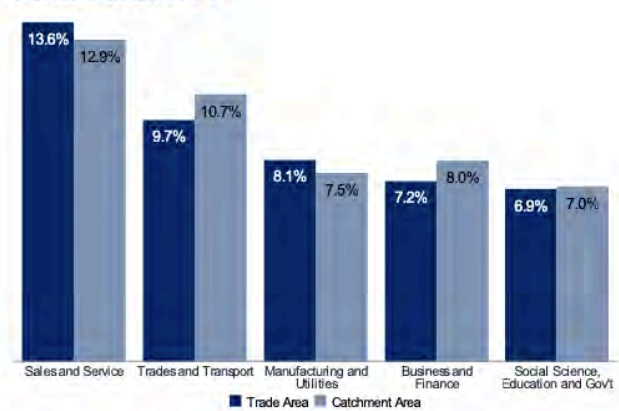
Educational attainment and occupation can determine how much rent a prospective tenant can afford. A higher proportion of college and university educated households correlates with higher average household incomes. This is an important variable as income determines affordability and the likelihood of a household being capable of achieving high rents.

The neighbourhood surrounding the subject site has a higher proportion of high school and college educated households, whereas broader Amherstburg contains a higher relative proportion of post-secondary educated individuals. This should not be treated as a negative indication in the ability of the subject to achieve premium rents as a majority of local neighbourhood residents are retired/down-sizing and have a higher level of affordability due to life-long savings, as well as additional equity acquired through downsizing.

**EDUCATIONAL ATTAINMENT**



**OCCUPATIONS: TOP 5\***



Source: Demostats 2020

## OCCUPATION: BLUE COLLAR OCCUPATIONS

Households in the subject site neighbourhood are overrepresented in blue-collar jobs within *Manufacturing and utilities* as well as *Sales and Services*. Although underrepresented, there still exists a large pool of individuals with bachelors and college degrees. These findings are consistent with the educational attainment as the underrepresented occupations typically demand a higher level of education. The lower levels of educational attainment are not indicative of household affordability due to the older age profile, consisting of primarily downsizers and retirees.

## **SUMMING IT UP: NEIGHBOURHOOD DEMOGRAPHIC PROFILES**

### **DEMOGRAPHIC PROFILES:**

The preceding analysis draws on detailed demographic and economic indicators. But, as people we are a mix of many different indicators including our age, life stage, occupation, immigration history etc. Rather than look at each indicator in isolation, once we have a general feel for the neighbourhood demographics it is useful to combine data to create profiles of different Canadian households.

SVN Rock Advisors uses PRIZM5, which combines hundreds of data points to create 67 unique household profile - we all fit into one of them. The lifestyle types include 14 Baby Boomer segments and almost as many dominated by millennials – each one with its own unique profile. PRIZM5 reflects Canada's cultural diversity, with 16 francophone segments, another 16 culturally diverse segments and one with a significant presence of francophones and diverse groups together, the segments help clients understand who their prospective tenants are, and what they are buying, doing, and thinking.

### **WHO ARE MY TENANTS:**

With 67 lifestyle types, Canada's most comprehensive segmentation system provides insights into who your tenants are, where they live, what they do, and how they think. PRIZM5 links your customer data with neighbourhood demographics, syndicated survey data, and marketing research. It reveals what types of tenants are most likely to live in your building.

### **WHAT ARE THEY LIKE?**

Once SVN has identified and defined your target tenant, we can use PRIZM5 to understand their consumer behaviour.

### **WHAT DO THEY BUY?**

PRIZM5 provides important insights on sales potential within your market through its ability to predict purchasing preferences across all types of industries. This can help with recommendations for building amenities and commercial space.

### **WHERE CAN I FIND THEM?**

By linking PRIZM5 to your customer data SVN can identify your most profitable tenant segments and locate areas where to find them. This classification process means that you can discover where your ideal tenants live and then locate more people like them – anywhere in Canada.

### **HOW CAN I REACH THEM?**


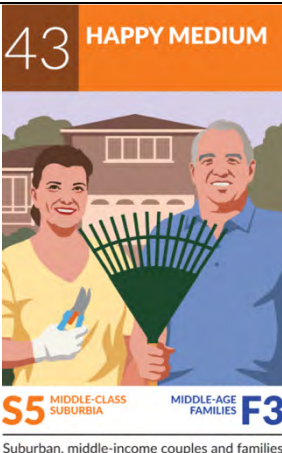

By profiling your target consumers, PRIZM5 can help you determine the best way to reach your target tenant with the right products, services, media mix and messages.


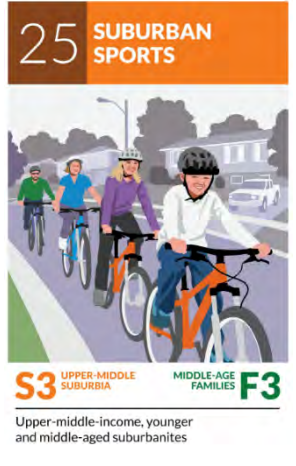
## **CURRENT NEIGHBOURHOOD PROFILE:**

*First, we have to determine the current neighbourhood household composition. This is done by mapping out the top PRIZM5 household types in the neighbourhood surrounding the subject site. This is useful in not only determining which households are predisposed to rent within the neighbourhood, but also where the target renters live, and the relative distribution of specific households across space to determine neighbourhood character.*

The map that follows displays that the most prominent prizm segments within the neighbourhood are **Family Mode, Happy Medium, Country Traditions, Silver Flats,** and **Suburban Sports.**

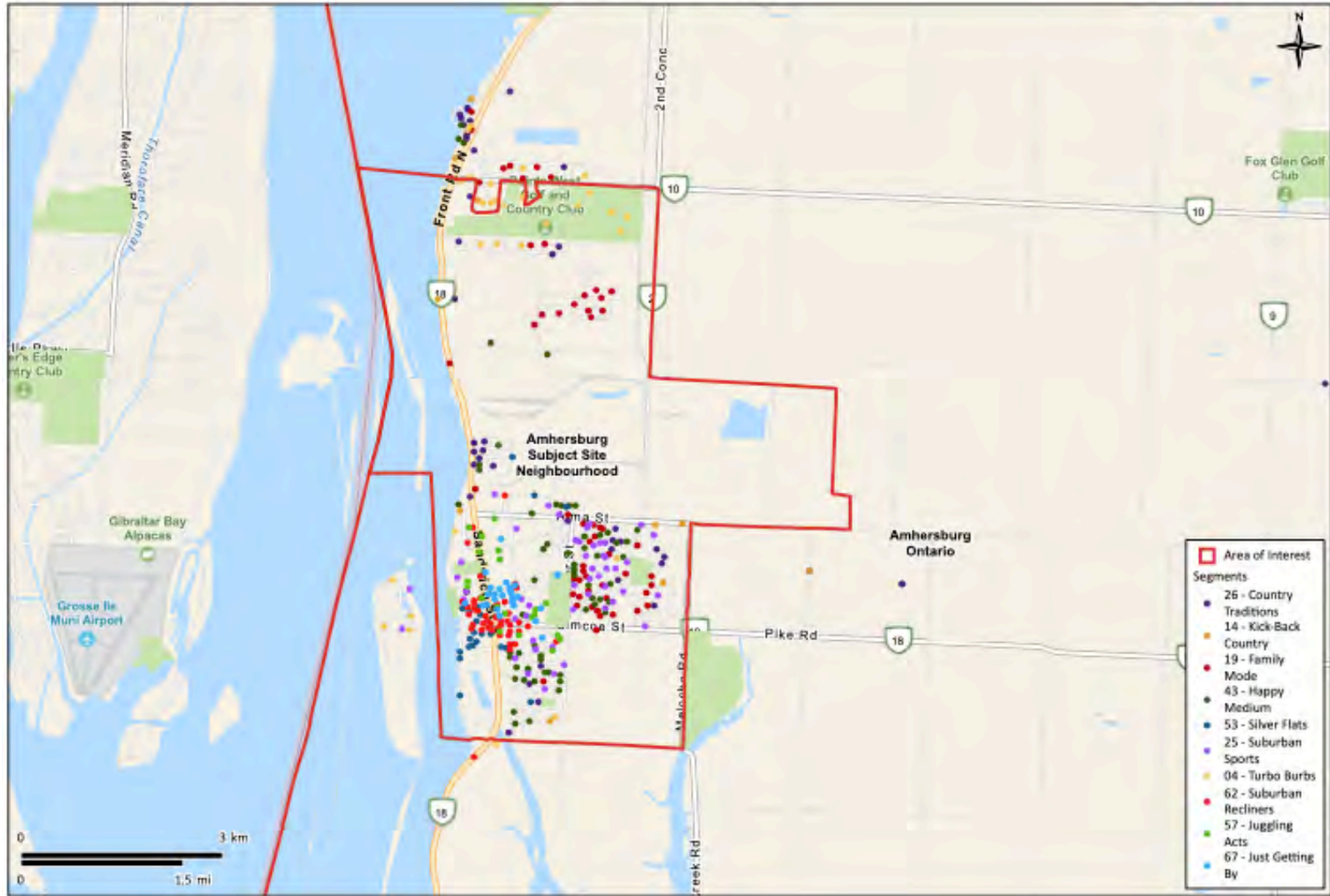
The overall story is that of prodominantly seniors/empty nesters and middle-aged families. Children within older households are beginning to move away from home to pursue post-secondary studies, or employment opportunities in more urban communitites. **Many of the existing households have lived in the neighbourhood for majority of their lives and would like to continue to live in the familiar area, however, with a higher level of convenience and without the maintance required of home ownership.** A large proportion of existing local households are likely to rent at the subject site if brought to market as a market-leading purpose-built rental development and at an appropriate level of luxury. Many have discerning tastes and will demand quality if expected to rent or purchase a unit at the subject site.

Top 5 Neighbourhood Household Profiles		
Target Renter?	Prizm Profile	Description
X		<p>A growing household segment, these individuals can be found in the suburban communities of both smaller secondary, and primary markets. Typically comprised of larger families with children over the age of 10. Working a range of blue-collar to management level jobs they earn strong incomes which enables them to own their own homes, and lead leisure filled lifestyles of boating, jet skiing, RV'ing, and motorcycling. <b>These individuals subscribe to the ideals of home ownership and are not likely to rent at the subject site.</b></p>
X		<p>Happy Medium consists of couples and families living in the outer suburbs of large and midsize cities. These residents are a mix of middle-income households from ages 45 to over 75. Most adults in this segment have completed high school or college. Three-quarters of residents are third-plus generation Canadians. These adults typically hold blue-collar or service sector jobs in manufacturing, construction, mining, and public administration. Their incomes top \$90,000 leading to more than 80 percent owning a home. Typically a single detached home. These adults rely on vehicles to commute to work. <b>This segment does not have high renter potential as most own homes.</b></p>
X		<p>The second wealthiest rural household segment and found in smaller towns scattered across eastern Ontario. Comprised primarily of middle-aged and older couples and families working in trade-oriented professions. Approximately 95% reside in detached single family dwellings. These are multi-generational Canadian households who have old-fashioned hobbies and values with a focus on their local community. <b>These individuals subscribe to the ideals of home ownership and are not likely to rent at the subject site.</b></p>

Top 5 Neighbourhood Household Profiles		
Target Renter?	Prizm Profile	Description
✓		<p>This is the oldest segment. Half of these residents are over the age of 65 and two-thirds are retired. These adults can be found in suburban neighbourhoods around large and midsize cities. This segment has downscale incomes but these adults are still financially sound due to generous pensions, government transfers and tidy nest eggs. These neighbourhoods contain many widows and widowers as this segment has three times the national average in this category. <b>This segment has renter potential with older singles looking for downsize opportunities.</b></p>
X		<p>Located across Canada this is one of the largest suburban household segments containing a range of younger to middle-aged couples and families. They are typically found in either fully detached homes, or duplexes. Although a majority have limited educations and work in mix service sector, and blue-collar jobs, the prevalence of dual incomes has enabled them to achieve a higher standard of living and to own their own homes. <b>These individuals are not likely to rent at the subject site once brought to market.</b></p>



### Top 10 Segments Amherburg Subject Site Neighbourhood

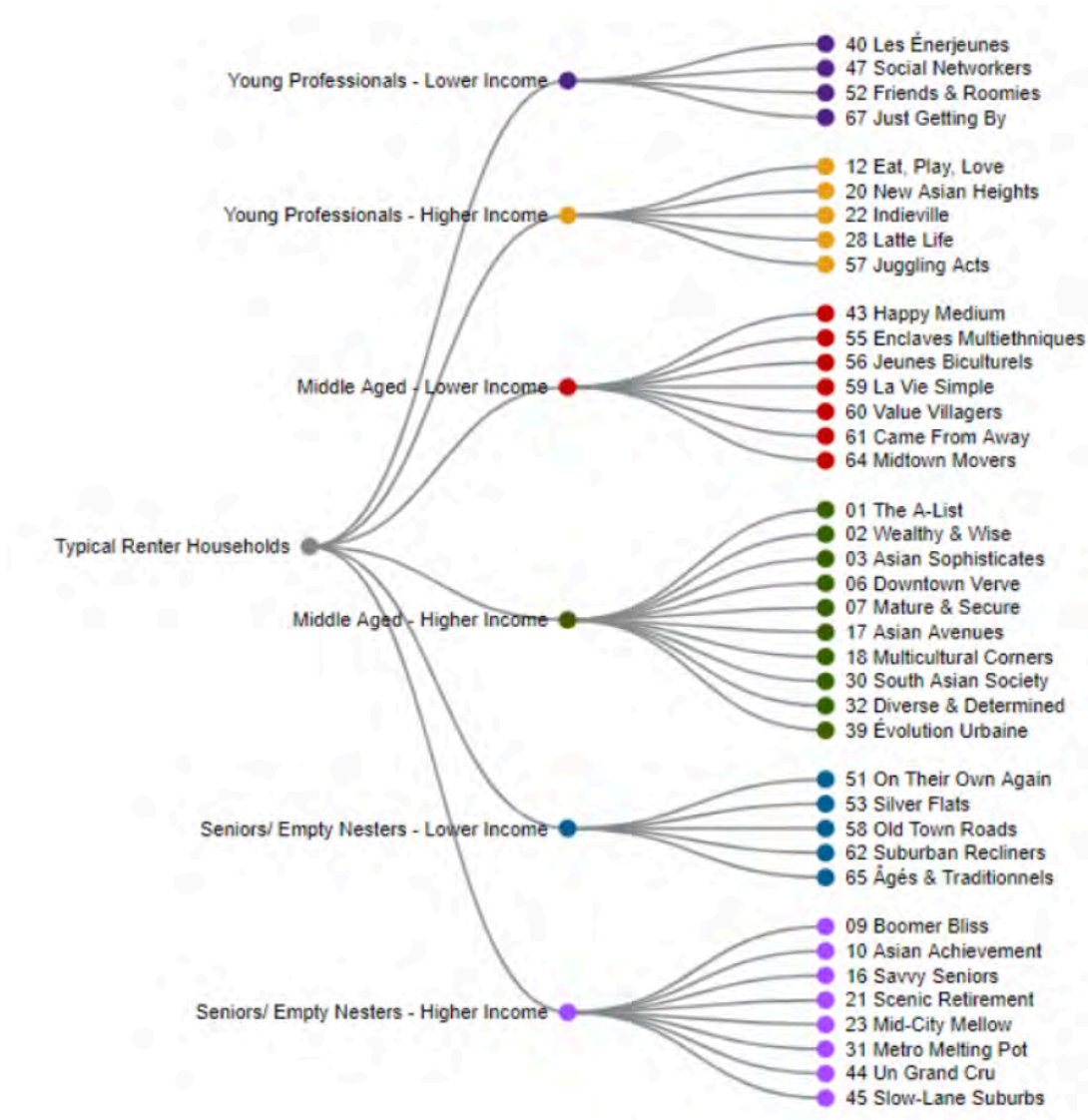


Source: Demostats 2020

**WHERE ARE THE RENTERS?:**

Once the current neighbourhood household composition has been determined **the target renter profile needs to be identified.** The suburban nature and household composition of the neighbourhood will likely attract retirees and downsizers that are currently resided in Amherstburg and neighbouring municipalities. There is currently a large proportion of retirees living within the subject sites neighbourhood, likely due to the proximity to local amenities and the neighbourhood itself being older in nature. Considering the strong location and large number of downsizers/retirees that have a high likelihood of renting, a new purpose-built rental development is likely to succeed at the site.

Included below are PRIZM profiles of students, young professionals, middle-aged, and senior renters. Not all households within these profiles are likely to rent at the subject site, but a majority will and thus should be considered as potential renters.

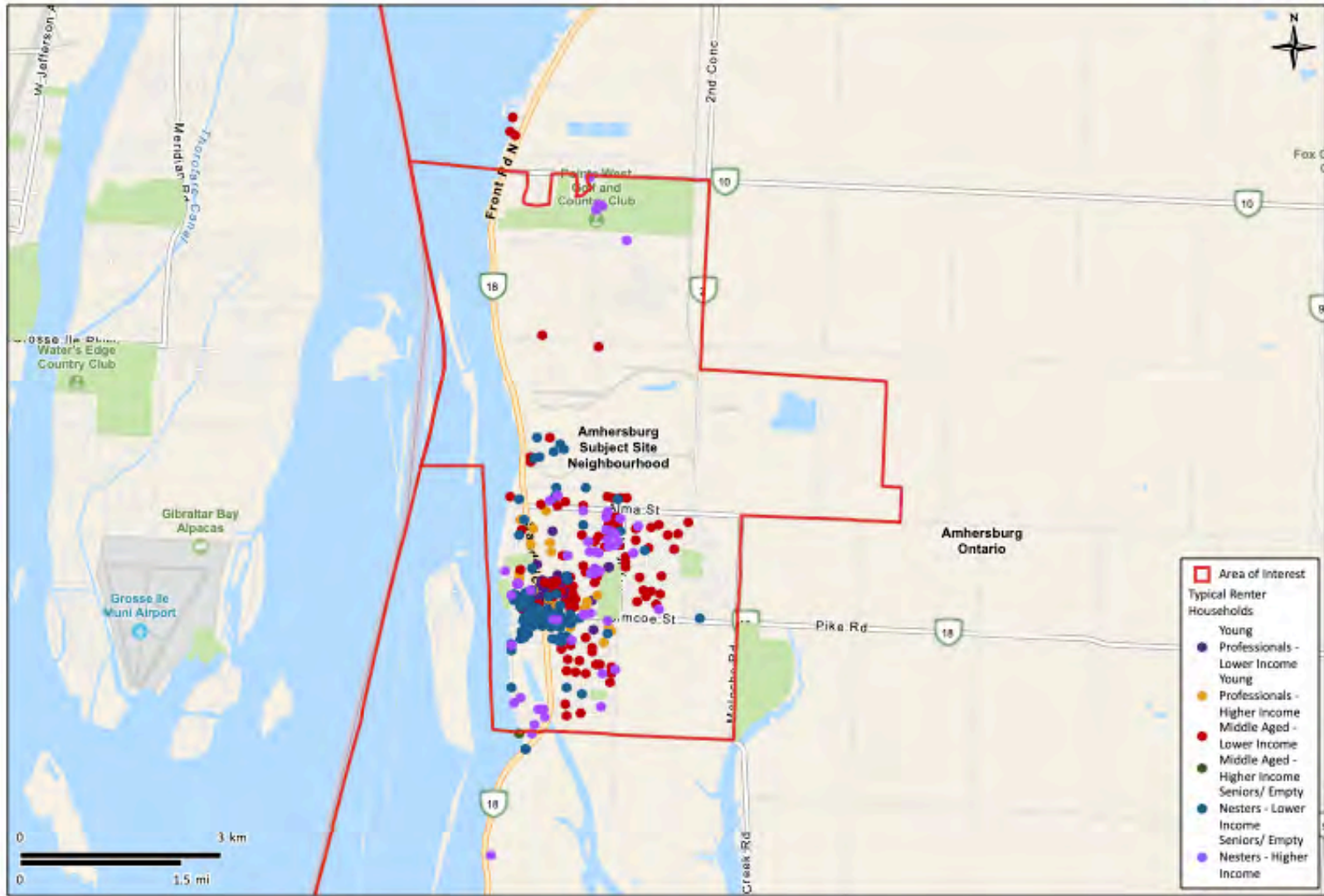


Once mapped, the distribution of potential renter households becomes defined with a dispersed population of potential renters within the neighbourhood and surrounding area, a majority of which are high income seniors/empty nesters located amongst the single-family subdivisions, surrounded with a mix of high- and low- income middle-aged households.

**Seniors/ Empty Nesters** are prevalent and located across Amherstburg and can be seen clustered south of the site amongst single-family subdivisions. These individuals are likely long-term residents whom reside in single-family dwellings that were built/purchased between the 1960's and 1990's. This indicates that the subject site is likely to attract a significant proportion of its prospective renters from the surrounding community, as well as a smaller proportion from broader Amherstburg and neighbouring municipalities. A majority of these individuals are older/retired and will likely appreciate the reduced responsibilities and requirements for maintenance provided by a rental property. These individuals, as with middle-aged households, will however require a substantial level of luxury if they are to be attracted to the subject site.

**Middle-Aged Renter Households** likely represent the second largest group of potential renters at the subject site. Similar to the older demographic, majority of these households are located within the single-family subdivisions surrounding the subject site. At this point in their life stage, children have typically moved out, leaving couples in an unnecessarily large home to maintain; in this event rental becomes an ever more appealing option to cut costs and reduce the need for maintenance. In addition, there will also likely be a small proportion of divorcees in this renter group. These individuals seek larger units to accommodate their visiting children in addition to having extra storage space for their belongings.

### Typical Renter Households Amherburg Subject Site Neighbourhood



Source: Demostats 2020



# Renter Personas: Your Marketing Strategy

The renter personas you just read through above in your 1A feasibility study are the beginning of defining your target renter profile. **Your renter persona profiles will form the backbone of your marketing strategy, and be your leasing staff's 'cheat sheets' to quickly identify the unit types best suited to any potential renter that walks through the door, and how to 'sell' your community at the highest price to different renter households.**

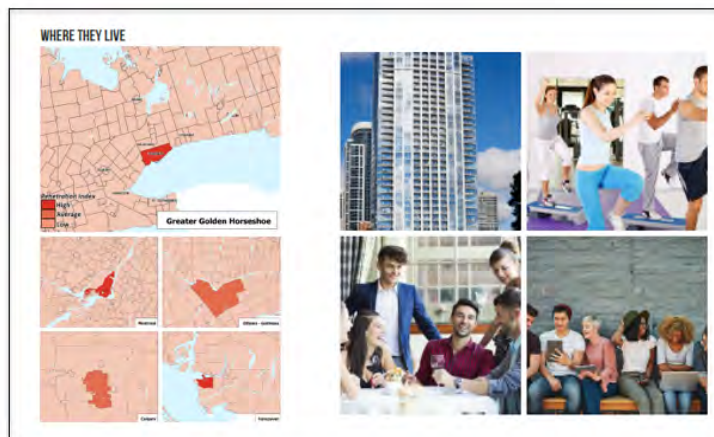
The renter personas above are just the beginning to determine what to build. Once you have your financing in place, you need to start working on your marketing strategy, which is where you identify how you will market to these renters!



We can help you! We've included a sample renter persona that forms the backbone of our marketing strategy with you. Our Account Manager will be in touch once you have completed financing to discuss how to use this information in-house, or with a third-party marketing firm.

Profile Name	Age & Household Size	Employment & Average Income \$	Media & Leisure	Amenity Interest	Unit Requirements	Psychographics	Common Objections
Singles	25 – 39 Years Old - Typically found as one person households	- White-collar jobs in finance, insurance, scientific/ technical services, teaching, and healthcare - Avg Income \$70,000	- Heavy internet usage including Twitter, Reddit, Facebook, Instagram, YouTube, and Netflix - Prefer online shopping - Not typical television viewers	- Cycling, fitness centre, games room including billiards and video games - Available walking and hiking trails nearby - Vibrant nightlife in surrounding community	- Prefer One, and One-bed + den units - Pre-wired internet with fiber availability - Strong mobile data connectivity	- Want to lay a foundation for future growth - Want a place to meet new people and start a family - Value social progressiveness, and environmentally friendliness - Want to live in a vibrant neighbourhood	- Lack of walkability to local amenities - Distance from friends and family - Too expensive - Too small - Too far from work

### Young Professionals



### HOW THEY LIVE



#### LEISURE

Health clubs  
Bars  
Popular music/Rock concerts  
Food and wine shows



#### SHOPPING

Banana Republic  
H&M  
Online grocery stores  
Furniture



#### TRADITIONAL MEDIA

'SNL'  
Modern/alt rock radio  
Daily newspapers  
Fashion magazines



#### DIGITAL MEDIA

Online investment sites  
New sites  
Restaurant guides  
[Linkedin](#)





## HOW THEY LIVE



### FOOD & DRINK

Organic fruits & veg  
Premium coffee  
Starbucks  
Mexican/burrito style  
restaurants



### AUTOMOTIVE

Sub-compact cars  
European imports  
Premium vehicles  
Shorter distances driven



### FINANCIAL

Discount brokers  
Stocks  
TFSA's  
High-interest savings  
accounts



### ATTITUDES

"Young people should be  
taught to question authority"

"It is important to me to  
regularly get away from all  
responsibilities and burdens"

"In order to get what I like, I  
would be prepared to take  
great risks in life"

"I am prepared to pay more for  
products that are a bit different  
from those on sees all over"

Once you've had a chance to digest the feasibility study, we'll be in touch to help you put the profiles we created for you, to work for the rest of your project!

# MARKET SEGMENTATION – SUMMARY

## Demographics and Economy

Indicator	Subject Site Neighbourhood	Town of Amherstburg
<b>Historic &amp; Projected Population Growth:</b>		
Level of Growth	Moderate	Moderate
# New residents 2020-2030:	644	1,235
% Growth 2020-2030:	4.6%	5.2%
<b>Age Profile:</b>		
Age Profile	Older	Older
<b>Car Dependency</b>		
Level of car dependency:	High	High
<b>Education:</b>		
Education Level:	Moderate	High
<b>Occupations</b>		
Typical Occupations:	Blue-collar	Mixed

## Household Composition

Household Group	Age Profile	Family Profile	Incomes	Target Renter?
<b>Family Mode</b>	Middle Aged	Large Family	Medium/Strong	No
<b>Happy Medium</b>	Older/middle Aged	Couple/ Family	Medium	No
<b>Country Traditions</b>	Older/middle Aged	Couple /Single	Strong	No
<b>Silver Flats</b>	Older	Single/Couples	Medium	Yes
<b>Suburban Sports</b>	Young/Middle Aged	Couples/ Family	Medium/Strong	No

### Key Takeaways:

- Strong population growth relative to the market size within the town indicates that Amherstburg is a favourable market for prospective residents and housing demand will likely continue to grow.
- Empty nesters and retirees are overrepresented in the subject site neighbourhood, most of which have moderate educations and likely have strong household incomes through life-long acquired savings.

# HOUSEHOLD AFFORDABILITY

“How much can my prospective tenants afford to pay in rent?”

This section analyzes various indicators of household affordability. Although this data can be considered high-level, it does provide a basis for determining whether the general population can afford a particular range of rental rates. All data in this section is taken from Demostats 2020, CMHC 2020.

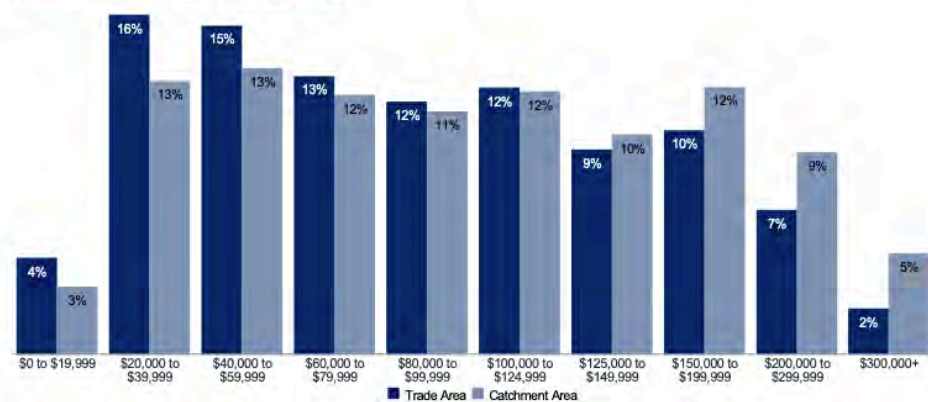
## NEIGHBOURHOOD INCOMES: STRONG INCOMES IN SUBJECT SITE NEIGHBOURHOOD AND BROADER AMHERSTBURG.

Households earning up to \$100,000 annually are underrepresented in the neighbourhood, whereas broader Amherstburg has a larger distribution of individuals earning over \$100,000 annually. 40% of neighbourhood households achieve incomes of \$100,000 or more, compared to 48% in broader Amherstburg. The neighbourhood’s average household income of \$97,474 is approximately \$17,632 lower than that of broader Amherstburg. However, the lower average incomes experienced surrounding the subject site are likely the result of the demographic composition in the area consisting of a large proportion of retirees. This is not a negative indication in the potential success of the proposed development as average household incomes in broader Amherstburg still remain high relative to Ontario’s average household income of \$111,866. **In addition to strong average household incomes, many of the target residents will likely sell off their home providing them with additional equity when searching for new housing accommodations.**

AVERAGE HOUSEHOLD INCOME



HOUSEHOLD INCOME DISTRIBUTION



Source: Demostats 2020

**Due to the limited supply of new rental stock in the area, the proposed development will likely attract wealthier individuals from the immediate neighbourhood and the broader area.**

## OLDER DEMOGRAPHIC NEIGHBOURHOOD INCOMES: STRONG INCOMES IN SUBJECT SITE NEIGHBOURHOOD AND BROADER AMHERSTBURG.

Average household incomes are strong within the subject site neighbourhood for individuals over the age of 55 years old. When compared to the average household income for the overall population, these older households between the ages of 55-64, and 65-74 express greater household incomes by approximately \$27,575 and \$5,548 respectively. As households get older in the neighbourhood, their average household income starts to diminish as a result these individuals entering retirement and relying on their pensions as a source of income. **In addition to strong average household incomes, many of the target residents will likely sell off their home providing them with additional equity when searching for new housing accommodations.**

Trade Area: Amherstburg Ontario

Households: 9,035

### AGE 55 - 64

AVERAGE HOUSEHOLD INCOME

\$125,049

Index:100

HOUSEHOLD INCOME DISTRIBUTION



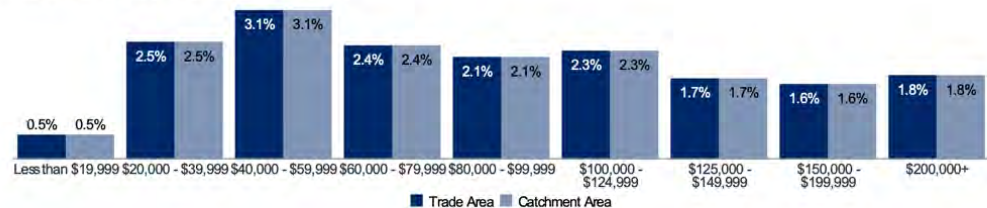
### AGE 65 - 74

AVERAGE HOUSEHOLD INCOME

\$103,022

Index:100

HOUSEHOLD INCOME DISTRIBUTION



### AGE 75+

AVERAGE HOUSEHOLD INCOME

\$90,010

Index:100

HOUSEHOLD INCOME DISTRIBUTION



Source: Demostats 2020

**RENTAL AFFORDABILITY vs. AVERAGE RENTS: STRONGER RENTS & AFFORDABILITY IN NEIGHBORING COMMUNITY**

Rental affordability vs. average rents calculates the difference between the amount a household can theoretically afford to pay for rent (based on the ‘affordability index’) and the average rent a household actually pays according to CMHC (using data from the Fall of last year). Generally speaking, those geographies with the largest gap between the amount a household can theoretically afford to pay for rent and the amount they actually pay is a positive indicator for new apartment development—because these geographies offer the most potential for achieving high rents and realizing significant increases in rent in the future. This indicator combines Statistics Canada and CMHC data using the following methodology:

- A. First, the median household total income obtained from Demostats 2020.
- B. Then affordable monthly rent is calculated, using the widely held rule that 30% of pre-tax monthly income can be spent on shelter costs.
- C. CMHC average rents are provided.
- D. The CMHC average rent (C) is subtracted from the affordable rent (B) to calculate and rank the gap between affordable and actual rents paid in a particular geography.

<b>Rental Affordability Versus Average Rents</b>	<b>A. Median Household Income</b>	<b>B. Affordable Rents</b>	<b>C. Average Actual Rents</b>	<b>D. Gap between Affordable &amp; Avg. Rents</b>
Woodstock (City)	\$77,978	\$1,949	\$1,287	\$662
Leamington (MU)	\$71,556	\$1,789	\$1,144	\$645
Brantford (City)	\$70,055	\$1,751	\$1,132	\$619
Collingwood (Town)	\$74,564	\$1,864	\$1,109	\$755
Sarnia (City)	\$76,868	\$1,922	\$1,073	\$849
<b>Amherstburg (Town)</b>	<b>\$96,705</b>	<b>\$2,418</b>	<b>\$1,062</b>	<b>\$1,356</b>
Stratford (City)	\$75,661	\$1,892	\$1,003	\$889
St. Thomas (City)	\$75,654	\$1,891	\$960	\$931
Owen Sound (City)	\$59,302	\$1,483	\$950	\$533
Windsor (City)	\$61,890	\$1,547	\$950	\$597
Chatham-Kent (MU)	\$66,173	\$1,654	\$831	\$823
Essex (Town)	\$71,936	\$1,798	\$780	\$1,018

Source: SVN Rock Advisors with Demostats 2020, CMHC 2020 – Sorted by average actual rents.  
 Note: \*\* denotes a lack of data from CMHC.

Amherstburg has an average actual rent of \$1,063 with a rental gap of \$1,356. This large rental gap is the highest among benchmarked municipalities and is a positive indicator for new purpose-built rental apartment development as it shows that **the population can afford significantly higher rental rates than those currently being charged in the market.**

**HOUSEHOLD QUANTITIES BY TYPE: LARGE POOL OF WEALTHY RENTERS**

Household quantities by type shows the number of households present which fall into various categories such as age, household type, incomes, etc. This provides us with a theoretical target pool of households who could rent in the proposed development.

<b>HOUSEHOLD QUANTITIES BY TYPE</b>				
Household Types	Neighbourhood	% of Households	Amherstburg	% of Households
Couple Only	1,632	29%	2,826	31%
Singles	1,431	26%	2,033	23%
Seniors (65+)	2,857	20%	4,657	20%
Young (25-34)	1,565	11%	2,514	11%

Household Affordable Rents	# of households	% of Households	# of households	% of Households
\$1,500 - \$2,000 / month	712	13%	1,075	12%
\$2,000 - \$2,500 / month	647	12%	1,006	11%
\$2,500 - \$3,125 / month	<b>683</b>	<b>12%</b>	<b>1,090</b>	<b>12%</b>
\$3,125+ / month	<b>1,582</b>	<b>28%</b>	<b>3,269</b>	<b>36%</b>

Source: SVN Rock Advisors with Demostats 2020

*\*\* Totals do not add up since categories overlap. Categories do not represent entire population and have instead been chosen specifically due to their importance within the neighbourhood*

Both the subject site neighbourhood and broader Amherstburg share a similar distribution in household affordability. Approximately 12% of neighbourhood households and 12% of broader Amherstburg households can afford rents between \$2,500-\$3,125; whereas 28% of local households and 36% of Amherstburg households can achieve rents greater than \$3,125 and hold household incomes greater than \$125,000. As mentioned in prior sections, both Amherstburg and the subject site neighbourhood are home to moderate -high earning households with high levels of affordability. **This is a positive indicator when introducing a new multi-residential development into the market as it suggests that the subject sites surrounding neighbourhood and broader Amherstburg are capable of affording premium housing product.**



# HOUSEHOLD AFFORDABILITY – SUMMARY

## Incomes and Affordability

Indicator	Subject Site Neighbourhood	Town of Amherstburg
<b>Incomes:</b>		
Income Profile	Moderate-High	High
Avg. Household Income (\$):	\$97,474	\$115,106
<b>Household Affordable Rents</b>		
\$1,500 - \$2,000 / month	13%	12%
\$2,000 - \$2,500 / month	12%	11%
\$2,500 - \$3,125 / month	<b>12%</b>	12%
\$3,125+ / month	<b>28%</b>	36%

### Key Takeaways:

- Both the subject site neighbourhood and broader Amherstburg contain moderate-high income earning households that are capable of affording premium rental rates and sales prices.
- 28% of households within the subject site's neighbourhood achieve annual incomes of \$125,000 or more and can afford rents of \$3,125+.

# DEMAND ANALYSIS

“What’s the depth of the market?”

In this section we gauge if the client’s proposed rental building would be successfully absorbed into the rental market, based on the following indicators:

1. **Primary Rental Universe & Unit Mix** – the number of purpose-built apartments in the primary rental market.
2. **Rental Density** – the number of units in the primary rental market per 100 people.
3. **New Apartment Construction** – the number of new primary rental units.
4. **Secondary Rental Universe** – the number of informal/alternative rental units within the rental market.

## PRIMARY RENTAL UNIVERSE & UNIT MIX: LIMITED APARTMENT PRODUCT IN AMHERSTBURG

Primary rental universe unit mix refers to the total number of apartment units rented in a primary rental market, as recorded by CMHC. This constitutes what can be described as the ‘formal’ or ‘purpose-built’ rental apartment market (which excludes condo-rentals and casual rentals such as bedrooms for rent, trailers, etc.). Only buildings with more than 3 units are included in CMHC’s count of the apartment universe.

<b>PRIMARY RENTAL APARTMENT UNIVERSE &amp; UNIT MIX</b>	Bachelor	%	1-Bed	%	2-Bed	%	3-Bed	%	TOTAL
Windsor (City)	1,191	8%	7,530	50%	5,746	38%	669	4%	15,136
Sarnia (City)	162	3%	2,386	39%	3,231	53%	338	6%	6,117
Brantford (City)	70	1%	1,487	28%	2,822	53%	920	17%	5,299
Chatham-Kent (MU)	122	2%	1,646	33%	2,585	52%	592	12%	4,945
St. Thomas (City)	87	3%	898	33%	1,640	59%	134	5%	2,759
Woodstock (City)	23	1%	955	36%	1,590	60%	103	4%	2,671
Stratford (City)	38	2%	903	40%	1,169	52%	157	7%	2,267
Owen Sound (City)	70	4%	691	37%	877	47%	220	12%	1,858
Leamington (MU)	43	4%	436	38%	592	52%	66	6%	1,137
Collingwood (Town)	46	8%	231	41%	262	47%	23	4%	562
Amherstburg (Town)	5	2%	165	56%	114	39%	10	3%	294
Essex (Town)	5	2%	69	26%	144	54%	47	18%	265

Source: SVN Rock Advisors with 2020 CMHC- sorted by total

Amherstburg has one of the smallest primary rental universes when compared to benchmark municipalities, indicating an overall limited supply of rental product in the market. Within Amherstburg, the largest proportion of units consists of 56% one-bedroom, followed by 39% two-bedroom units. Comparatively, the neighbouring municipality of Leamington has a larger proportion of two-bedroom units (52%) and a smaller supply of

one-bedroom units (38%). A large proportion of two-bedroom units is representative of a suburban market, although Amherstburg has a larger proportion of one-bedroom units, it is still largely recognized as a smaller suburban market. **The Consultant recommends putting greater emphasis on larger unit types for the subject development given that the target demographic will require more spacious units as they likely downsize from their single- family homes.**

**RENTAL DENSITY: LOW – UNDERSUPPLIED MARKET**

Rental density is a simple measure of the number of purpose-built rental apartment for every 100 residents. The calculation makes it easier to compare the relative supply of rental apartments between communities, and neighbourhood.

<b>RENTAL DENSITY</b>	Total Population	Primary Apartment Universe	Rental Density: No. of Apartments Per 100 People	New Apartments	New Rental Density: No. of New Apartments Per 100 People
Owen Sound (City)	21,933	1,858	8.5	66	0.3
Sarnia (City)	73,343	6,117	8.3	343	0.5
St. Thomas (City)	41,813	2,759	6.6	231	0.6
Windsor (City)	230,007	15,136	6.6	644	0.3
Stratford (City)	34,547	2,267	6.6	329	1.0
Woodstock (City)	45,505	2,671	5.9	738	1.6
Brantford (City)	104,136	5,299	5.1	359	0.3
Chatham-Kent (MU)	104,277	4,945	4.7	67	0.1
Leamington (MU)	28,098	1,137	4.0	175	0.6
Collingwood (Town)	24,874	562	2.3	31	0.1
Essex (Town)	20,427	265	1.3	4	0.0
<b>Amherstburg (Town)</b>	<b>23,633</b>	<b>294</b>	<b>1.2</b>	<b>**</b>	<b>**</b>

Source: SVN Rock Advisors with Demostats 2020, & 2020 CMHC- Sorted by Rental Density  
 Note: \*\* denotes a lack of data from CMHC.

*Communities with the lowest rental density can be considered under-supplied with rental apartments and therefore offer the greatest opportunity for developing new rental apartments. A high rental density is not necessarily a negative feature of a given market, since it indicates a well-functioning market and proven demand, although with greater competition.*

Amherstburg rental density of 1.2 apartments per 100 people is an indicator of a severely undersupplied rental market. Demand is strong and continues to increase as the local population grows, but the lack of supply in rental stock means tightening market conditions and a need for increased rental apartment construction. This is positive, as it indicates that the local market is undersupplied and capable of absorbing new apartment product when brought to market while maintaining low vacancy rates. **This likely means that the absorption of new rental apartments into the market will likely not be an issue.**

**RENTAL DENSITY SCENARIO ANALYSIS: SUPPLY NOT LIKELY TO OUTPACE DEMAND**

*Below, we summarize the current supply of primary rental units compared with various scenarios wherein 200, 400, 800, and 1,000 units are added to the primary rental market either by the client, competitors, or both. Although the client does not intend on bringing 1,000 units to market the purpose of this table is to display that although there are other developments being brought to market simultaneously; their addition to the rental universe will not adversely affect the local markets ability to absorb new rental stock.*

Our analysis shows that once the development is complete and an additional approximately 400 units are brought to market, Amherstburg rental density will increase to 1.7 apartments per 100 people, or if a total of 1,000 units (assuming competition enters the market) were brought to market the rental density would increase to 5.5. This however does not account for the population growth likely to occur throughout this period suggesting that regardless of the number of new rental apartments the demand for purpose-built rental will outpace the supply of new rental stock being brought to market. **This means that new units are not likely to experience significant issues during lease-up. This is a positive indicator from a rental apartment development perspective.**

<b>RENTAL DENSITY SCENARIO ANALYSIS: Amherstburg</b>	Current	+ 200 Units	+ 400 Units	+ 800 Units	+ 1000 Units
Primary Rental Market	<b>294</b>	<b>494</b>	<b>694</b>	<b>1,094</b>	<b>1,294</b>
Rental Density	<b>1.2</b>	<b>2.1</b>	<b>2.9</b>	<b>4.6</b>	<b>5.5</b>
New Rental Density	<b>0.0</b>	<b>0.8</b>	<b>1.7</b>	<b>3.4</b>	<b>4.2</b>
New Rental Units (%)	0%	40%	58%	73%	77%

Source: Consultant based on 2020 Demostats, & 2020 CMHC

### **NEW APARTMENT CONSTRUCTION: LACK OF CMHC DATA IN AMHERSTBURG**

Here, we compare the number and proportion of newly constructed rentals, which is defined as purpose-built rentals built after 2000:

<b>NEW APARTMENT CONSTRUCTION</b>	<b>Primary Rental Universe (2019)</b>	<b>Estimated New Units (2000-2019)</b>	<b>Estimated New Units (%)</b>
Woodstock (City)	2,671	738	28%
Leamington (MU)	1,137	175	15%
Stratford (City)	2,267	329	15%
St. Thomas (City)	2,759	231	8%
Brantford (City)	5,299	359	7%
Sarnia (City)	6,117	343	6%
Collingwood (Town)	562	31	6%
Windsor (City)	15,136	644	4%
Owen Sound (City)	1,858	66	4%
Essex (Town)	265	4	2%
Chatham-Kent (MU)	4,945	67	1%
<b>Amherstburg (Town)</b>	<b>294</b>	<b>**</b>	<b>**</b>

Source: SVN Rock Advisors with 2020 CMHC- sorted by Estimated new Units (%)

Note: \*\* denotes a lack of data from CMHC.

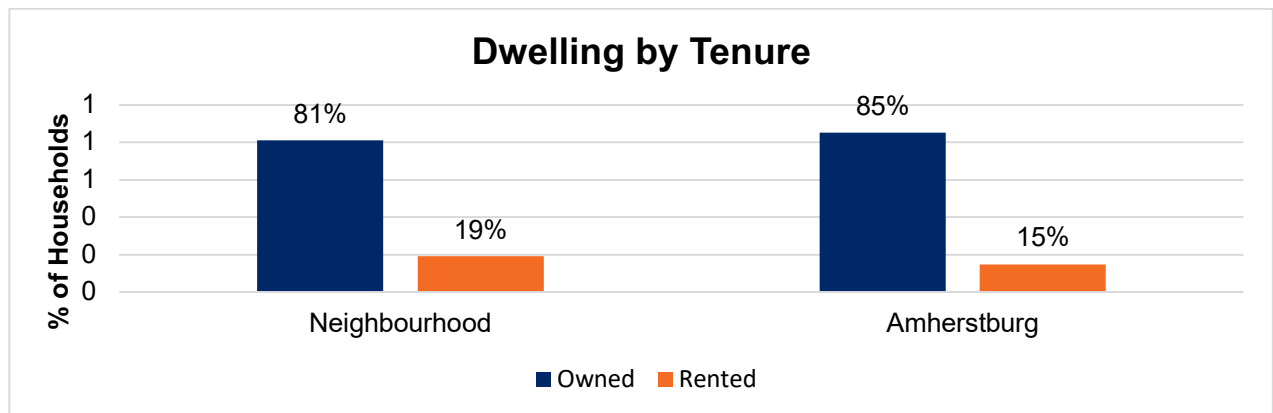
From 2000 to 2020, Amherstburg denotes a lack of CMHC data for new apartment construction. As such, we will evaluate neighbouring municipalities such as Essex and Leamington for the purpose of the study. Essex has experienced an increase of 4 units between 2000 and 2020. Comparatively, Leamington has experienced 175 new units. All of these units are considered new stock rentals (built after 2000) – likely due to the timing of the development in these communities having occurred mostly after 1990s. **The very limited apartment product as a whole in the market diminishes the statistical significant of the estimated new units. Woodstock for example, is a municipality that is heavily supplied with new apartment product, but still, the proportion of new units remains significantly lower than Essex and Leamington due to the overall larger primary rental universe (both old and new stock).**

**The strong projected population growth in the neighbourhood, combined with the limited supply of rental apartments in the local market will likely mean that if brought to market as a purpose-built rental development, lease-up will occur relatively quickly.**

**DWELLING BY TENURE: PRIMARILY HOMEOWNERS- NEW RENTAL DEVELOPMENT TO FILL RENTAL GAP IN MARKET**

The following identifies households by dwelling type – whether they rent or own. Areas with higher proportion of renter households relative to owners indicate a greater propensity to rent rather than traditional home ownership.

The graph below illustrates that approximately 19% of households in the subject site’s surrounding neighbourhood are renters. The lower proportion of renter households is due to the neighbourhood’s highly suburban nature, and the prevalence of single-family dwellings, which are primarily owned by their residents. Additionally, the overall low proportion of rental stock in Amherstburg contributes to the overall lower proportion of renter households. With these caveats noted, it is actually admirable that these communities have this proportion of renters. **The subject property will create a product that fills a current gap.**

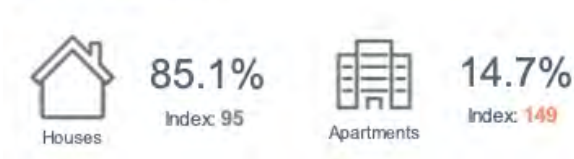


Source: SVN Rock Advisors with Demostats Trends (2020)

**STRUCTURE TYPE: PRIMARILY SINGLE-FAMILY LIVING – UNDERSUPPLIED WITH APARTMENTS**

Within the subject site neighbourhood, approximately 85% of households reside in houses rather than apartments, as expected of a suburban neighbourhood with limited apartment stock. This is not a negative indication for the success of the subject site as a majority of local households are older-middle aged families who are likely to rent at the subject site when they look to downsize.

**STRUCTURE TYPE**



Source: Demostats Trends (2020)



## **SECONDARY APARTMENT RENTAL UNIVERSE: SIGNIFICANT UNMET DEMAND**

The secondary apartment rental universe often referred to as the “alternative”, ‘informal’, or “shadow” rental market—is defined as all rented condominium dwellings which are not included in the primary (purpose-built) rental apartment universe. CMHC provides data on the breakdown of rental households by structure type. The table below uses this data to show the number of renter households living in apartments and condominiums, the number of renter households living in condominiums and the proportion of households living in condominiums.

<b>SECONDARY RENTAL APARTMENT UNIVERSE</b>	Renter Households	Primary Rental Universe	Estimated Secondary Universe	% of Renters in Secondary Market
Collingwood (Town)	2,796	562	2,234	80%
Essex (Town)	1,255	265	990	79%
Amherstburg (Town)	1,333	294	1,039	78%
Leamington (MU)	3,400	1,137	2,263	67%
Brantford (City)	13,583	5,299	8,284	61%
Chatham-Kent (MU)	12,061	4,945	7,116	59%
Windsor (City)	35,717	15,136	20,581	58%
Owen Sound (City)	4,324	1,858	2,466	57%
Woodstock (City)	6,207	2,671	3,536	57%
Stratford (City)	5,033	2,267	2,766	55%
St. Thomas (City)	5,410	2,759	2,651	49%
Sarnia (City)	10,673	6,117	4,556	43%

Source: SVN Rock Advisors with Demostats 2020, and 2020 CMHC- sorted by % of Renters in secondary market

In many markets, there exists a pool of potential renters who would rent in the primary rental market if it existed but reluctantly turn to the secondary market or condominium-rental and casual rental markets for the quality they seek. When primary (purpose-built) rentals are built, renters tend to migrate from the secondary market to the primary market.

The proportion of renters in the secondary market in Amherstburg is very high with 78% of all renter households renting from the secondary market. This is primarily due to the limited supply of rental product in Amherstburg and can likely be driven down by introducing new purpose-built product to the market. **This is a positive indicator as it suggests that there is a robust willingness to rent in the local market and that new rental developments are not likely to experience significant competition when brought to market.**

# DEMAND ANALYSIS - SUMMARY

## Market Demand

Indicator	Amherstburg	Leamington
<b>Existing Rental Stock</b>		
Size of existing rental universe	Small	Small
Total # Units:	294	1,137
Rental Density:	1.2	4.0
<b>Recent New Rental Development</b>		
Size of new rental universe	Unknown	Small
Total # Units:	**	175
% of Total Units:	**	15%
<b>Secondary Market</b>		
Size of Secondary Market:	Large	Large
Total # Households:	1,039	2,263
% Renters:	78%	67%

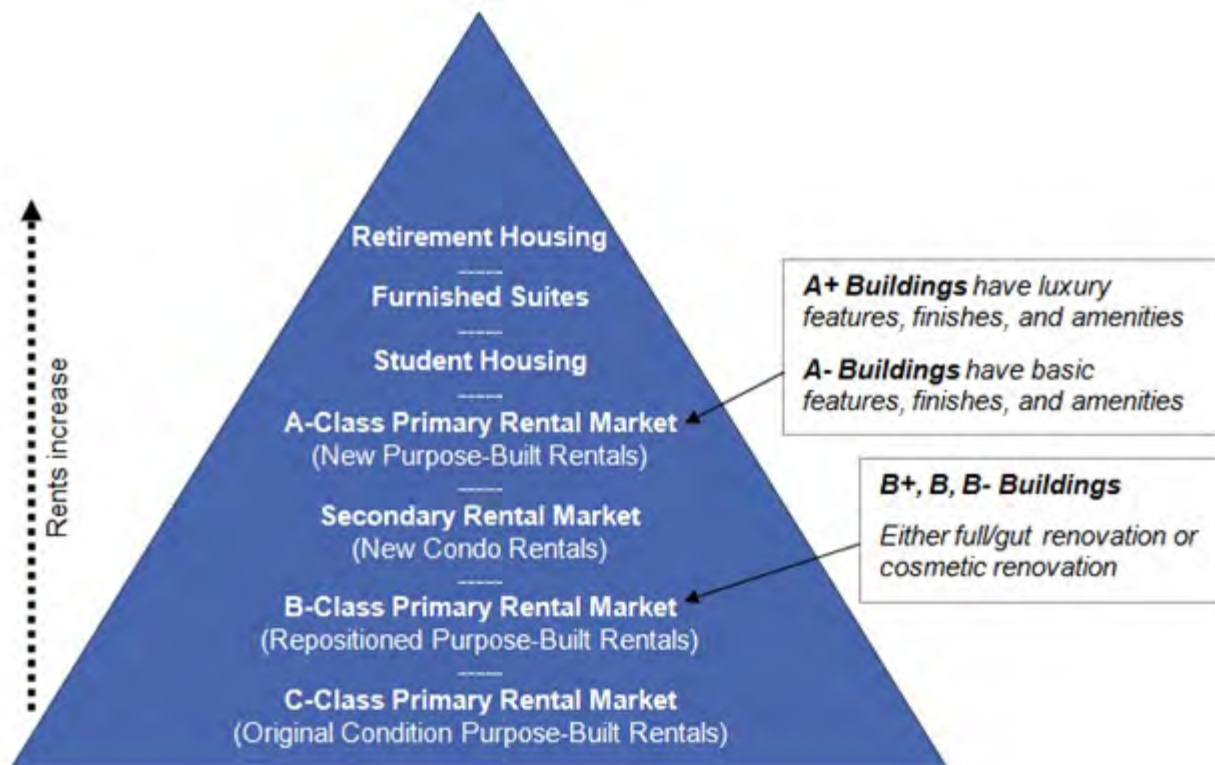
## Key Takeaways:

- Amherstburg has the smallest rental markets among benchmark municipalities indicating a lack of supply in the market.
- The proportion of renters in the secondary market is **very** high in Amherstburg (78%), suggesting a robust willingness to rent in the local market and a severe lack of supply in purpose-built rental product. **New rental developments are not likely to experience significant competition when brought to market due to the limited amount of apartment product in the local area.**

# COMPETITIVE MARKET ANALYSIS

## “Who’s my competition?”

This section first examines the theoretical pricing structure of rental apartment markets, then assesses the macro rental market context using CMHC data. It then identifies A-, B, and C-class primary rental comparables and secondary rental comparables in a detailed market survey of rental rates, unit sizing, and overall building quality. Understanding the theoretical market structure of the rental market is crucial for determining the current and future market position of specific buildings and classes of buildings. This includes conventional rentals, condominium-rentals, student housing, and retirement apartments. Pricing and quality rankings of rentals in Canada’s major rental markets can be structured as follows:



Most large rental housing markets are complex and the ‘value proposition’ of rental apartments—i.e. the relationship between perceived quality, appeal, and achieved rents—is not always easy to define. Sometimes, when examining a rental market, we identify exceptions to the theoretical market structure; these indicate the presence of market inefficiencies which impair the decision-making of renters and landlords, resulting in pricing which does not necessarily reflect a strict hierarchy of value to renters. The highest rents in any rental housing market are usually achieved by newly constructed, purpose-built rental apartment properties. Properties in this category are generally very desirable to renters, especially so-called ‘lifestyle renters’ who value quality as much as price, and in larger markets there often appears to be no ceiling for rents among the

newest and best rental apartment buildings. The highest returns are usually achieved by purpose-built student housing, since more students can be packed into the same square footage than conventional renters, which means a much higher rent/square foot. The next highest rents are usually achieved by condominium-rentals, which typically do not achieve rents as high as newly constructed apartments; This is because individual condo owners are interested in capital gains, not yields, and are setting prices based on what they want to get to cover their mortgage, for example, rather than what the market will bear. Additionally, individual condo owners rarely possess good market knowledge, and none have the support of a professional marketing and leasing organization.

Among old-stock rental apartment properties, we have observed a pricing stratification based on the level of renovations. Old-stock rental properties which remain in original condition, subject only to cleaning and minor repairs on turnover, usually achieve the lowest rents in the rental market. Old-stock properties which have undergone 'cosmetic' renovations or upgrades—such as new cabinetry, lights, and fixtures—are more desirable to renters than properties in original condition and usually achieve significantly higher rents in most rental markets. However, old-stock properties which have undergone a full 'gut' renovation almost always achieve the highest rents among old-stock rentals. These are rental properties which have been stripped of all old cabinetry, fixtures, lights, and common area elements and had brand-new equipment and finishes installed. This sort of transformation justifies significant rent increases in the eyes of renters and we have seen some 'gut' renovated properties achieve rents similar to newly constructed rentals.

**AVERAGE RENTAL RATES: NOT INDICATIVE OF ACHIEVABLE RENTAL RATES FOR NEW APARTMENT PRODUCT.**

*Average rental rates for the primary rental market, as recorded by CMHC, are shown below for Amherstburg and surrounding benchmark geographies. Average rents are indicative of the overall rental rate being achieved in a geography but should be treated with caution, as they include buildings of all sizes, ages, and geographic locations within a city.*

Amherstburg has an overall average rent of \$1,063 for 2020, with a decrease of \$13 from the year prior. It is important to note that the rents are based primarily of old-stock rentals (given the limited supply of new rental product) and as such are not representative of the potential achievable rents of new stock rental buildings in the market. **This is not indicative of the subject sites ability to achieve strong rental rates as the target renters will be primarily older, higher-income households that will demand larger unit options. When brought to market the subject site in Amherstburg are likely to achieve significantly higher rents than those of existing old-stock rental comparables.**

Average Rental Rates	Bachelor	1-bed	2-bed	3-bed	Average	Change (2019-2020)
Woodstock (City)	\$687	\$1,147	\$1,394	\$1,203	\$1,287	\$67
Leamington (MU)	**	\$951	\$1,241	\$1,216	\$1,144	\$62
Brantford (City)	\$763	\$1,054	\$1,117	\$1,323	\$1,132	\$81
Collingwood (Town)	\$993	\$1,003	\$1,192	**	\$1,109	\$55
Sarnia (City)	\$786	\$940	\$1,146	\$1,501	\$1,073	\$115
Amherstburg (Town)	**	\$979	\$1,143	**	\$1,062	-\$13
Stratford (City)	\$731	\$899	\$1,077	\$1,197	\$1,003	\$81
St. Thomas (City)	\$643	\$799	\$988	\$1,499	\$960	\$86
Owen Sound (City)	\$673	\$860	\$1,008	\$1,088	\$950	\$51
Windsor (City)	\$699	\$895	\$1,040	\$1,351	\$950	\$82
Chatham-Kent (MU)	\$614	\$764	\$881	\$852	\$831	\$15
Essex (Town)	**	**	\$775	**	\$780	-\$93

Source: SVN Rock Advisors with 2020 CMHC – Sorted by Average.

Note: \*\* indicates a lack of data provided by CMHC – this is usually due to lack of sample size to give an accurate average rental rate.

**CMHC RENTS vs. CURRENT MARKETPLACE RENTS: LARGE GAP DUE TO LIMITED NEW CONSTRUCTION PRODUCTS**

In some municipalities, a large supply of new purpose-built apartment buildings achieving high rental rates can skew this average upwards. Likewise, average rents can appear low in cities that have little if any high-end apartment buildings and where the apartment stock is of low quality. The average listed rent is a statistical mid-point, meaning that half of the universe will be achieving rents above the average listed by CMHC. To provide an example of the problems associated with using average rental rate data for the purpose of rent setting, an example of new purpose-built rental apartment buildings achieving rental rates significantly above the CMHC averages are shown below. **Due to the lack of recently developed purpose-built apartments in Amherstburg, neighbouring municipalities such as Leamington will be used as an example. Once the development is complete in Amherstburg, the achievable rental rates will likely be significantly higher than that of the CMHC average rental rates for each municipality.**

**Leamington Example:**

Seacliff Heights (2016)		CMHC Avg. Rents Newmarket (2020)	Difference: New Apartment Building vs. CMHC Average
Unit Type	Asking Rent		
1 Bed	\$1,600	\$951	+\$649
2 Bed	\$2,300	\$1,241	+\$1059



**AVERAGE VACANCY RATES: HIGH VACANCY RATES FOR AMHERSTBURG**

Average vacancy rates are often a function of the supply of formal apartment units, population growth, demographic structure, and the housing market. It is important to note that while low vacancy can be a strong indicator for demand, it must be analyzed along with other indicators such as the size of the rental universe, because small rental universes will naturally have lower vacancy rates, therefore it does not automatically indicate strong demand.

*On account of the economic disruptions caused by COVID-19 and the associated shutdowns, we have seen a rise in vacancy rates across almost all rental markets across Canada between 2019 and 2020. The average rate across all unit types and markets in Canada was 3.2%, up by 0.9% from the previous year. This is a combination of highs and*



lows: For example, Downtown Edmonton has seen average vacancy rates rise to 9.8% (from 5.7% - an almost doubling) in 2020, while Toronto's core is up to 3.6% vacancy from 1.5% the previous year.

The average vacancy rates displayed below have been collected from CMHC, which records the vacancy rate by unit type across the primary rental markets. Surprisingly, Amherstburg experienced some of the highest vacancy rates among benchmark municipalities. This is largely due to the COVID-19 pandemic. In 2019 the average vacancy rate was 1.2% but increased to 4.7 by 2020, representing an increase of 3.5%. This large increase in vacancy rates can also be seen in benchmark municipalities such as Sarnia. However, most of the purpose-built rental units are built before the year 2000 in Amherstburg. A new, superior quality property will likely have fewer issues with vacancies upon stabilization.

Average Vacancies	Bachelor	1-Bed	2-Bed	3-Bed	Average	% Change (2019-2020)
Sarnia (City)	5.9%	4.9%	4.7%	**	4.9%	2.1
Amherstburg (Town)	**	**	1.9%	**	4.7%	3.5
Windsor (City)	6.7%	3.9%	2.7%	2.7%	3.6%	0.7
Collingwood (Town)	**	4.4%	**	**	3.5%	-0.4
Brantford (City)	**	1.8%	2.1%	2.4%	2.1%	0.8
Owen Sound (City)	5.8%	2.3%	1.4%	0.4%	1.8%	-0.1
Stratford (City)	**	1.8%	1.2%	0.7%	1.6%	0.0
Leamington (MU)	**	0.0%	2.4%	0.0%	1.3%	-0.9
Chatham-Kent (MU)	**	1.5%	1.1%	0.0%	1.2%	-1.7
Woodstock (City)	0.0%	1.3%	1.1%	0.6%	1.1%	-0.2
St. Thomas (City)	0.0%	2.2%	0.3%	0.0%	0.9%	-0.8
Essex (Town)	**	**	0.0%	**	0.0%	-0.7

Source: SVN Rock Advisors with 2020 CMHC – Sorted by Average vacancies.

Note: \*\* indicates a lack of data provided by CMHC – this is usually due to lack of sample size to give an accurate vacancy rate.

**The duration of the continued economic disruption associated with COVID-19 is currently uncertain, but likely tied to the large-scale roll out of vaccinations and opening of the broader economy.**

# PRIMARY MARKET ANALYSIS

## “What’s my competition?”

For the purpose of completing a detailed market analysis, we collected rental data on rental apartment buildings which fall into two categories:

- **New rental buildings near the subject site.** These buildings are indicative of top-of-the-market rents. As the newest rental buildings, these will likely be comparable to the subject property, if built.
- **Old-stock rental buildings near the subject site.** Older buildings typically will not achieve the highest rents in the market, however, some of these buildings have been renovated and are achieving strong rents.

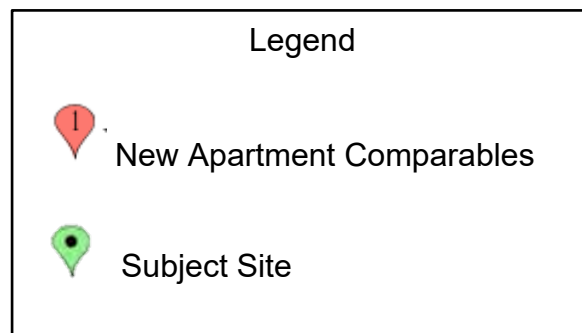
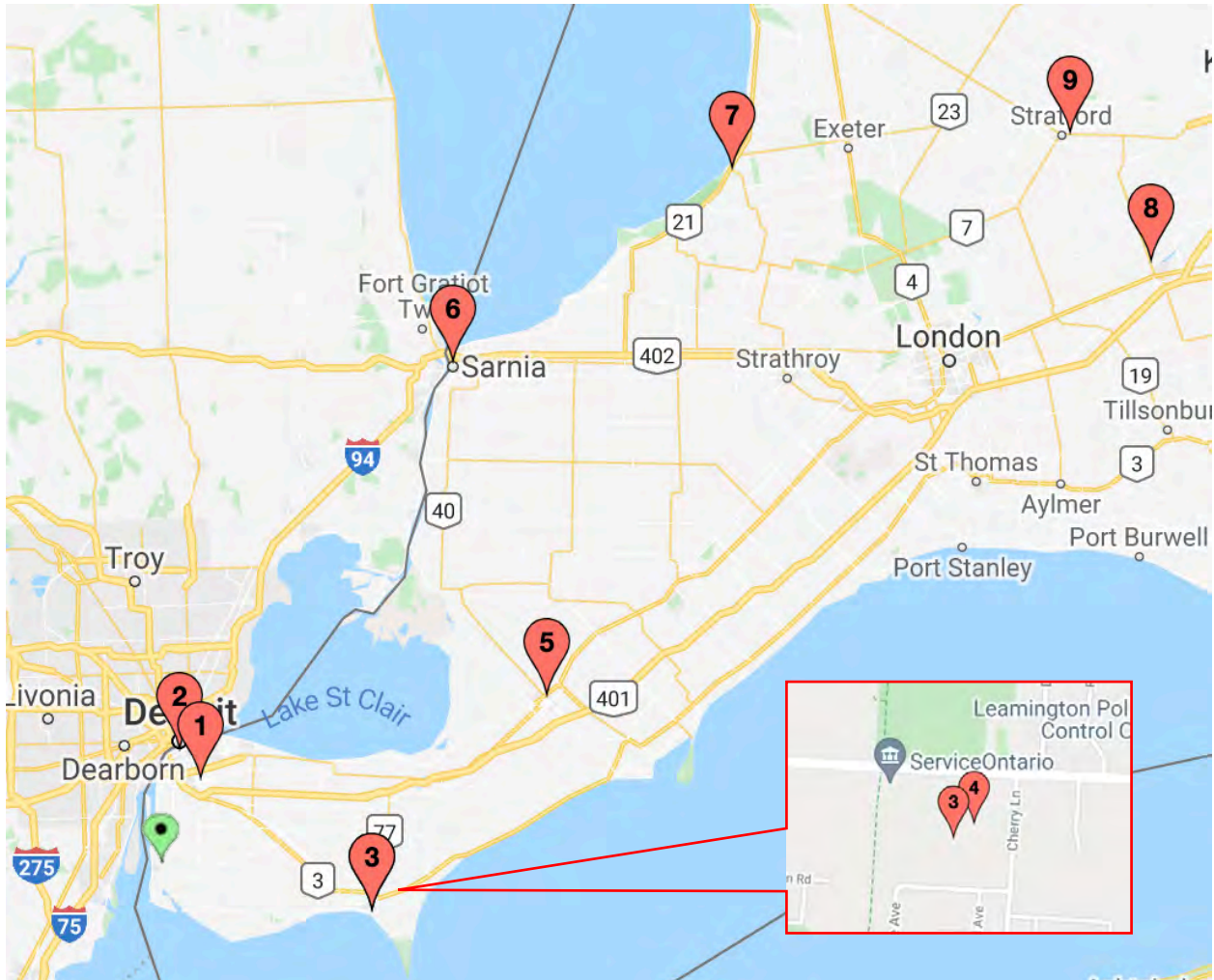
We feel that the analysis of these buildings, in conjunction with the demographic and economic statistics observed in the subject area, provide a sense of what rental rates could be achieved by the client for the proposed rental development.

Below we have included a list of comparables for Amherstburg:

NEW RENTAL COMPARABLES				
Ref #	Name	Address	Class	Comments / Rationale
1	Sandison Residences	550-555 Sandison Street, Windsor, ON, N9E 1R6	New	
2	West Bridge Place	850 Wyandotte Street W, Windsor, ON, N9A 5Y1	New	
3	Seacliff Heights	40 Seacliff Drive E, Leamington, ON, N8H 0C2	New	These buildings are indicative of top-of-the-market rents. The subject property, as a new high-end apartment building, should be aiming to have a similar level of finishes, amenities, and rents as these properties
4	Seacliff Heights II	50 Seacliff Drive E, Leamington, ON, N8H 0C2	New	
5	The Boardwalk	121 King Street W, Chatham, ON, N7M 1E2	New	
6	Waters Edge	392 Front Street N, Sarnia, ON, N7T 0B2	New	
7	Grandview Apartments	10 Summer Grove Road, Grand Bend, ON, N0M 1T0	New	
8	The Greens of Sally Creek	325 Lakeview Drive, Woodstock, ON, N4T 1V3	New	
9	Oxford Haus Apartments	45 & 85 Oxford Street, Stratford, ON, N5A 3P3	New	

\*Sorted by proximity to subject site

**MAP OF SELECTED NEW RENTAL COMPARABLES:**



**PRIMARY RENTAL MARKET COMPARABLES**

1



Sandison Residences  
 550-555 Sandison Street  
 Windsor, ON N9E 1R6  
**Owner**  
 SIC Property (Windsor) Ltd  
**Year Built** 2020  
**Total Units** 47  
**Utilities** No Data  
**Walk Score** 33  
**Transit Score** 29

**Unit Features**

Granite/Quartz Countertops | In-suite W/D | S/S Appliances |

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1	4	680	\$1,695	\$2.49
2/2	4	1,035	\$2,595	\$2.51

GR Parking

2



West Bridge Place  
 850 Wyandotte Street W  
 Windsor, ON N9A 5Y1  
**Owner**  
 Piroli Construction (Piroli Group Developments)  
**Year Built** 2020  
**Total Units** 152  
**Utilities** Inclusive  
**Walk Score** 86  
**Transit Score** 54

**Building Amenities**

Fitness Centre | Keyless Security | Party Room | Security

**Unit Features**

Balcony | Dishwasher | Granite/Quartz Countertops | In-suite

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1		666	\$1,430	\$2.15
1/1		840	\$1,680	\$2.00
1/1 Den		875	\$1,840	\$2.10
2/2		950	\$1,895	\$1.99
2/2		936	\$1,770	\$1.89
2/2		936	\$1,865	\$1.99
2/2		960	\$1,820	\$1.90
2/2		970	\$1,745	\$1.80
2/2		950	\$1,705	\$1.79

SF Parking  
 SF Parking - 2nd

Included  
 \$20

**PRIMARY RENTAL MARKET COMPARABLES**

3



Seacliff Heights  
40 Seacliff Drive E  
Leamington, ON N8H 0C2

**Owner**  
Piroli Construction (Piroli Group Developments)

**Year Built** 2016  
**Total Units** 105  
**Utilities** Inclusive  
**Walk Score** 29

**Building Amenities**

BBQ Area | Fitness Centre | Games Room | Guest Suite(s) |

**Unit Features**

A / C | Balcony | Dishwasher | Granite/Quartz Countertops |

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1		948	\$1,535	\$1.62
1/1		843	\$1,280	\$1.52
1/1 Den		952	\$1,515	\$1.59
1/1 Den		939	\$1,495	\$1.59
1/1 Den		1,114	\$1,860	\$1.67
1/1+Den		939	\$1,765	\$1.88
1/1+Den		952	\$1,790	\$1.88
2/2		1,121	\$1,750	\$1.56
2/2		1,447	\$2,350	\$1.62
2/2		1,447	\$2,495	\$1.72
2/2		1,121	\$2,105	\$1.88
2/2		1,102	\$1,785	\$1.62
CV Parking			\$50	
SF Parking			\$25	
Storage Lockers			\$20	
UG Parking			\$75	

4



Seacliff Heights II  
50 Seacliff Drive E  
Leamington, ON N8H 0C2

**Owner**  
Piroli Construction (Piroli Group Developments)

**Year Built** 2018  
**Total Units** 105  
**Utilities** Inclusive  
**Walk Score** 29

**Building Amenities**

BBQ Area | Fitness Centre | Games Room | Guest Suite(s) |

**Unit Features**

A / C | Balcony | Dishwasher | Granite/Quartz Countertops |

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1		948	\$1,885	\$1.99
1/1		948	\$1,600	\$1.69
1/1 Den		939	\$1,775	\$1.89
2/2		1,447	\$2,200	\$1.52
2/2		1,137	\$2,265	\$1.99
2/2		1,137	\$2,035	\$1.79
2/2		1,447	\$2,445	\$1.69
2/2		1,121	\$1,870	\$1.67
2/2		1,102	\$2,085	\$1.89
2/2		1,102	\$2,195	\$1.99
CV Parking			\$50	
SF Parking			\$25	
UG Parking			\$75	
Storage Lockers			Included	



**PRIMARY RENTAL MARKET COMPARABLES**

5



The Boardwalk  
121 King Street W  
Chatham, ON N7M 1E2

**Owner**  
The Everlast Group  
**Year Built** 2020  
**Total Units** 88  
**Utilities** Plus Hydro  
**Walk Score** 47

**Building Amenities**

Keyless Security | Security Cameras | Storage Lockers |

**Unit Features**

Dishwasher | Granite/Quartz Countertops | In-suite W/D |

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1		1,113	\$2,360	\$2.12
1/1		1,002	\$2,160	\$2.16
1/1		986	\$2,560	\$2.60
1/1		1,276	\$2,700	\$2.12
1/1		1,294	\$2,700	\$2.09
1/1 Den		1,175	\$2,460	\$2.09
1/1 Den		1,391	\$2,860	\$2.06
1/1 Den		1,702	\$2,960	\$1.74
1/1 Den		1,229	\$2,570	\$2.09
2/2		1,230	\$2,570	\$2.09
2/2		1,247	\$2,760	\$2.21
3/2		2,272	\$4,570	\$2.01
3/2		2,281	\$4,590	\$2.01
UG Parking	129		\$100	



**PRIMARY RENTAL MARKET COMPARABLES**

6



Park Place  
550-570 Park Avenue W  
Chatham. ON N7M 1X2

**Owner**  
Piroli Construction (Piroli Group Developments)

**Year Built** 2021  
**Total Units** 244  
**Utilities** Inclusive  
**Walk Score** 7

**Building Amenities**

Fitness Centre | Party Room | Storage Lockers | Swimming

**Unit Features**

A/C | Balconies | Barrier Free | Granite/Quartz Countertops |

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1		790	\$1,635	\$2.07
1/1		700	\$1,505	\$2.15
1/1		700	\$1,465	\$2.09
1/1		700	\$1,475	\$2.11
1/1		700	\$1,495	\$2.14
1/1		700	\$1,515	\$2.16
1/1		700	\$1,485	\$2.12
1/1 BF		790	\$1,645	\$2.08
1/1 BF		790	\$1,635	\$2.07
1/1 BF		940	\$1,965	\$2.09
1/1 BF		940	\$1,955	\$2.08
1/1 BF		790	\$1,675	\$2.12
1/1 BF		790	\$1,665	\$2.11
1/1 BF		1,060	\$2,015	\$1.90
1/1 BF		940	\$1,945	\$2.07
1/1 BF		940	\$1,975	\$2.10
1/1 BF		790	\$1,655	\$2.09
1/1 Den		850	\$1,775	\$2.09
1/1 Den		930	\$1,925	\$2.07
1/1 Den		890	\$1,825	\$2.05
1/1 Den		850	\$1,785	\$2.10
1/1 Den		850	\$1,765	\$2.08
1/1 Den		930	\$1,955	\$2.10
1/1 Den		930	\$1,945	\$2.09
1/1 Den		930	\$1,935	\$2.08
1/1 Den		930	\$1,915	\$2.06
1/1 Den		850	\$1,745	\$2.05
1/1 Den		940	\$1,935	\$2.06
1/1 Den		850	\$1,795	\$2.11
1/1 Den		850	\$1,755	\$2.06
1/1 Den		850	\$1,765	\$2.08
1/1 Den BF		865	\$1,810	\$2.09
1/1 Den BF		865	\$1,775	\$2.05
1/1 Den BF		865	\$1,785	\$2.06
1/1 Den BF		865	\$1,805	\$2.09
1/1 Den BF		865	\$1,795	\$2.08
1/1 Den BF		865	\$1,820	\$2.10

**PRIMARY RENTAL MARKET COMPARABLES**

2/2	1,020	\$2,040	\$2.00
2/2	1,020	\$2,000	\$1.96
2/2	1,050	\$2,100	\$2.00
2/2	1,050	\$2,100	\$2.00
2/2	1,020	\$1,960	\$1.92
2/2	1,020	\$1,980	\$1.94
2/2	1,060	\$2,055	\$1.94
2/2	1,050	\$1,995	\$1.90
2/2	1,050	\$2,015	\$1.92
2/2	1,020	\$2,020	\$1.98
2/2	1,060	\$2,120	\$2.00
2/2	1,050	\$2,075	\$1.98
2/2	1,050	\$2,055	\$1.96
2/2	1,020	\$1,940	\$1.90
2/2	1,050	\$2,035	\$1.94
2/2 BF	1,040	\$2,015	\$1.94
2/2 BF	1,040	\$2,035	\$1.96
2/2 BF	1,060	\$2,075	\$1.96
2/2 BF	1,040	\$1,995	\$1.92
2/2 BF	1,040	\$2,055	\$1.98
2/2 BF	1,060	\$2,095	\$1.98
2/2 BF	1,040	\$2,080	\$2.00
2/2 BF	1,050	\$2,015	\$1.92
2/2 BF	1,060	\$2,035	\$1.92
2/2 BF	1,050	\$2,075	\$1.98
2/2 BF	1,040	\$1,975	\$1.90
SF Parking		\$25	
UG Parking		\$50	
Storage Lockers		\$10	

7



Waters Edge  
392 Front Street N  
Sarnia, ON N7T 0B2

**Owner**  
The Tricar Group  
**Year Built** 2010  
**Total Units** 143  
**Utilities** Plus Hydro  
**Walk Score** 68

**Building Amenities**

Aerobics & Yoga Room | Fitness Centre | Guest Suite(s) |

**Unit Features**

A / C | Balcony | Dishwasher | Granite/Quartz Countertops |

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1		933	\$1,800	\$1.93
2/2		1,187	\$2,600	\$2.19
2/2 Den		1,524	\$3,200	\$2.10
UG Parking			Included	
UG Parking - 2nd			\$60	
Storage Lockers			\$50	

**PRIMARY RENTAL MARKET COMPARABLES**

8



Grandview Apartments  
 10 Summer Grove Road  
 Grand Bend. ON N0M 1T0  
**Owner**  
 266554 Ontario Ltd  
**Year Built** 2012  
**Total Units** 49  
**Utilities** Inclusive  
**Walk Score** 51

**Building Amenities**

Aerobics & Yoga Room | Fitness Centre | Keyless Security |

**Unit Features**

A / C | Balcony | Dishwasher | In-Suite Storage | In-suite W/D

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1	7	700	\$1,495	\$2.14
1/1 Den	2	750	\$1,605	\$2.14
2/1	37	800	\$1,650	\$2.06
2/1 Den	3	900	\$1,805	\$2.01
SF Parking	73		Included	

9



The Greens of Sally Creek  
 325 Lakeview Drive  
 Woodstock. ON N4T 1V3  
**Owner**  
 Starlight Investments Ltd  
**Year Built** 2017  
**Total Units** 103  
**Utilities** Plus Utilities  
**Walk Score** 7

**Building Amenities**

Fitness Centre | Guest Suite(s) | Keyless Security | Lounge |

**Unit Features**

A/C | Balcony | Dishwasher | Granite/Quartz Countertops | In-

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
0/1		284	\$1,190	\$4.19
1/1.5	88	793	\$1,708	\$2.15
2/2.5	15	1,076	\$1,994	\$1.85
CV Parking			\$70	
SF Parking			\$50	
Storage Lockers			\$25	

**PRIMARY RENTAL MARKET COMPARABLES**

10



Oxford Haus Apartments  
45 & 85 Oxford Street  
Stratford, ON N5A 3P3

**Owner**  
Skyline Real Estate Holdings (II) Inc

**Year Built** 2019

**Total Units** 118

**Utilities** Plus Hydro

**Walk Score** 63

**Transit Score** 66

**Building Amenities**

Business Centre | Fitness Centre | Games Room | Keyless

**Unit Features**

Balcony | Granite/Quartz Countertops | In-suite W/D | S/S

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1	12	710	\$1,410	\$1.99
1/1 Den	46	770	\$1,560	\$2.03
1/1 Den		775	\$1,560	\$2.01
2/2	60	904	\$1,670	\$1.85
2/2		985	\$1,920	\$1.95
2/2		960	\$1,920	\$2.00
SF Parking			Included	

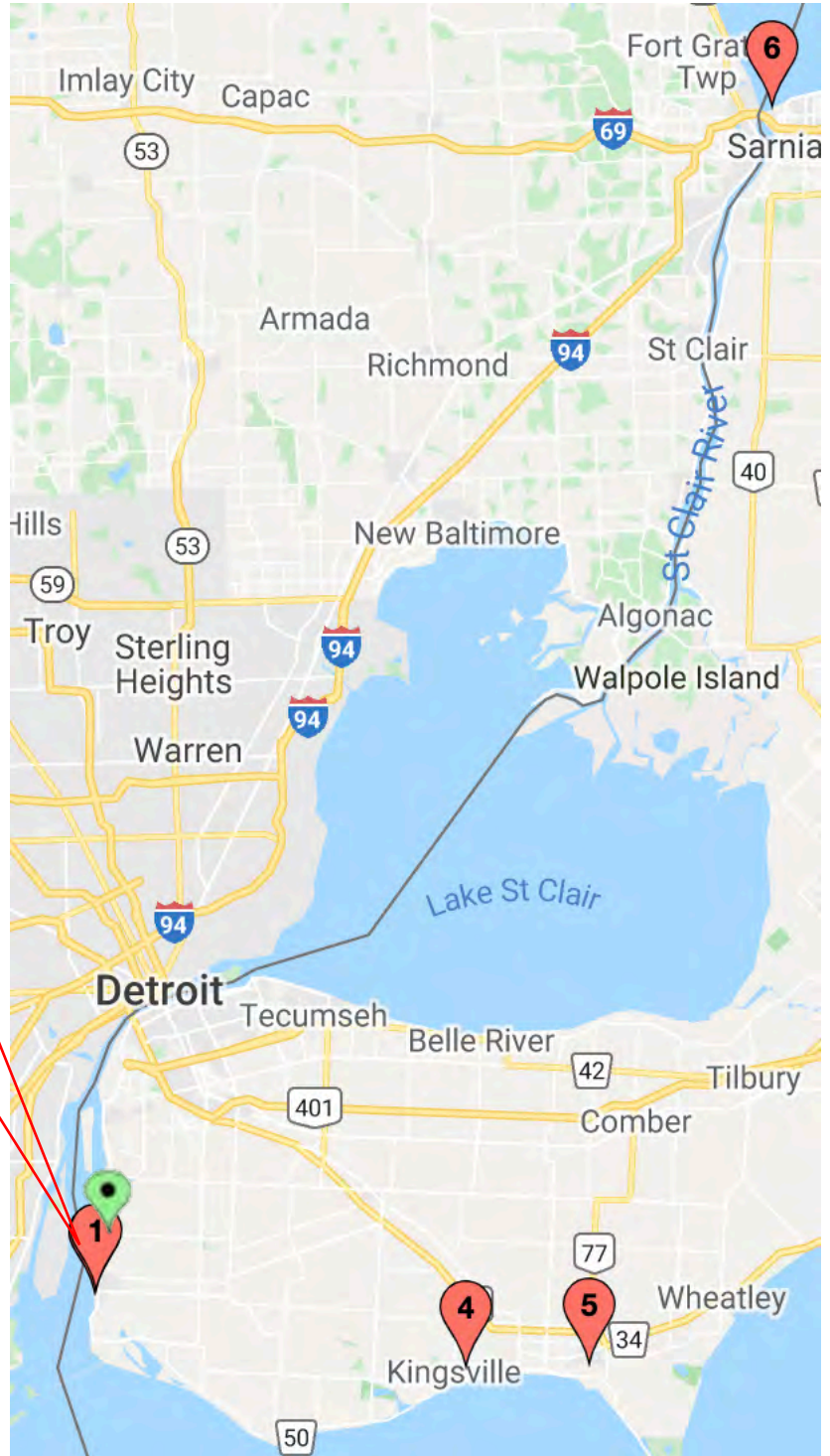
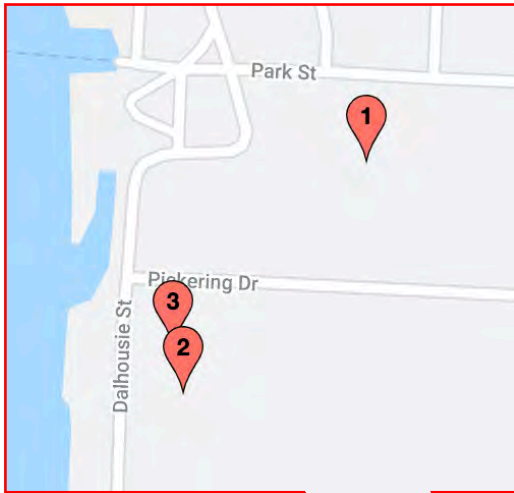
Old-stock rental comparables are classified as all rental developments-built pre-2000. Although the subject sites will be positioned as a market-leading rental developments, it still remains important to analyse proximate old-stock developments in each market as they may have been recently renovated and maintain a level of luxury/refinement comparable to a new stock development. **We have identified key old stock comparables in proximity to the subject site in Amherstburg, as seen in the following pages:**

OLD STOCK RENTAL COMPARABLES				
Ref #	Name	Address	Class	Comments/ Rationale
1	Pickering Tower	130 Pickering Drive, Amherstburg, ON, N9V 3N6	Old	These are older apartment developments. Some are recent renovations and command premium rental prices while others are mid-tier. They are grouped because they are good references for where rents will bottom out.
2	Dalhousie Place	421 Dalhousie Street, Amherstburg, ON, N9V 3L2	Old	
3	Caldwell Tower North	401 Dalhousie Street, Amherstburg, ON, N9V 3N4	Old	
4		27 Remark Drive, Kingsville, ON, N9Y 3N8	Old	
5	Leamington Towers	234 Erie Street S, Leamington, ON, N8H 4K4	Old	
6	Marina Park Place	1275 Sandy Lane, Sarnia, ON, N7V 4H5	Old	



*\*Sorted by proximity to subject site*



### MAP OF SELECTED OLD STOCK RENTAL COMPARABLES



**Legend**

-  Old Apartment Comparables
-  Subject Site



**PRIMARY RENTAL MARKET COMPARABLES**

1



Pickering Tower  
130 Pickering Drive  
Amherstbura. ON N9V 3N6

**Owner**  
Realstar Group Inc  
**Year Built** 1979  
**Total Units** 74  
**Utilities** Plus Hydro  
**Walk Score** 69

**Building Amenities**

Fitness Centre | Keyless Security | Lounge | Party Room |

**Unit Features**

Balcony | Dishwasher | Microwave

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1	73	674	\$1,495	\$2.22
SF Parking			\$35	
UG Parking			\$45	

2



Dalhousie Place  
421 Dalhousie Street  
Amherstbura. ON N9V 3L2

**Owner**  
Realstar Group Inc  
**Year Built** 1976  
**Total Units** 45  
**Utilities** Plus Hydro  
**Walk Score** 47

**Building Amenities**

Keyless Security | Party Room | Security Cameras | Storage

**Unit Features**

Balcony | Dishwasher

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1	16	851	\$1,795	\$2.11
2/1.5	24	1,282	\$2,400	\$1.87
3/1.5	5	1,349	\$2,500	\$1.85
UG Parking			\$45	

3



Caldwell Tower North  
401 Dalhousie Street  
Amherstbura. ON N9V 3N4

**Owner**  
Luca Bulz  
**Year Built** No Data  
**Total Units** 45  
**Utilities** Inclusive  
**Walk Score** 58

**Building Amenities**

Keyless Security |

**Unit Features**

Balcony

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1		900	\$1,350	\$1.50
2/1		1,280	\$1,485	\$1.16
SF Parking			Included	
UG Parking			Included	

**PRIMARY RENTAL MARKET COMPARABLES**

4



27 Remark Drive  
Kingsville, ON N9Y 3N8

**Owner**  
439219 Ontario Limited  
**Year Built** 1979  
**Total Units** 40  
**Utilities** Inclusive  
**Walk Score** 45

**Unit Features**

A / C | Balcony

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1		700	\$1,660	\$2.37
2/1		800	\$1,695	\$2.12

SF Parking

Included

5



Leamington Towers  
234 Erie Street S  
Leamington, ON N8H 4C6

**Owner**  
The Skyline Group of Companies  
**Year Built** 1970  
**Total Units** 71  
**Utilities** Plus Hydro  
**Walk Score** 44

**Building Amenities**

Games Room | Keyless Security | Lounge | Party Room |

**Unit Features**

Balcony

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1 Deluxe	33	719	\$1,280	\$1.78
1/1 Junior		582	\$1,225	\$2.10
2/1	27	849	\$1,475	\$1.74
2/2 Deluxe		956	\$1,690	\$1.77
3/2	11	956	\$1,740	\$1.82
3/2 PH		956	\$1,855	\$1.94
SF Parking			\$28	
UG Parking			\$36	

**PRIMARY RENTAL MARKET COMPARABLES**

6



Marina Park Place  
1275 Sandy Lane  
Sarnia, ON N7V 4H5

**Owner**  
Drewlo Holdings Inc

**Year Built** 1984

**Total Units** 153

**Utilities** Plus Hydro

**Walk Score** 18

**Transit Score**

**Building Amenities**

Fitness Centre | Hot Tub / Whirlpool | Keyless Security | Sauna

**Unit Features**

A / C | Balcony | Dishwasher | In-Suite Storage

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1		902	\$1,206	\$1.34
1/1		973	\$1,425	\$1.46
1/1		921	\$1,306	\$1.42
1/1		811	\$1,522	\$1.88
1/1		902	\$1,301	\$1.44
1/1		816	\$1,117	\$1.37
1/1		896	\$1,143	\$1.28
1/1 Den		956	\$1,578	\$1.65
1/1 Den		917	\$1,578	\$1.72
2/2		1,263	\$1,822	\$1.44
2/2		1,348	\$1,958	\$1.45
2/2		1,275	\$1,456	\$1.14
2/2		1,227	\$1,480	\$1.21
2/2		1,555	\$1,639	\$1.05
2/2		1,424	\$1,498	\$1.05
2/2		1,363	\$1,507	\$1.11
2/2		1,363	\$1,478	\$1.08
2/2 Den		1,314	\$1,978	\$1.51
3/2		1,663	\$1,821	\$1.10
3/2		1,663	\$1,930	\$1.16
3/3		1,934	\$2,568	\$1.33
SF Parking			\$10	
UG Parking			\$25	

Included below are a series of case studies of new rental apartments within proximity to the subject sites. These case studies provide the Client with a detailed overview of overall quality of unit features/finishes and amenities that key comparables offer. **Although these developments are not direct competitors with the Amherstburg developments, they serve as a good benchmark for level of quality that should be offered in a suburban market to remain competitive.**

**Case Study: Sea Cliff Heights I – 40 Seacliff Dr E, Leamington, ON.**

**Total Units: 105**

**Building Location:**

Located by the shore of Lake Erie, Seacliff Heights is situated in central Leamington, close to many retail amenities. These include a grocery store, LCBO, pharmacy, a variety of restaurants, along with a number of commercial retailers. This property’s location is considered to be relatively car dependent, which is represented by a walk score of 48, and the minimal public transit services within the immediate area.



**Unit Comments:**

The unit mix of this property consists of one-bedroom, one-bedroom with den, and two-bedroom units, ranging in size from 766-1447 square feet. This building has strong features and finishes with large open concept floor plans. Units include large balconies, hardwood-style vinyl flooring, stainless steel appliances, granite countertops and a high efficiency wash and dryer.



**Amenity/Common Area Comments**

This building features a number of amenities tailored towards an older demographic including a common room with kitchenette, lounge and billiard room, theatre room, exercise facility, outdoor heated pool + hot tub, luxury cabana’s, outdoor BBQ are and lush landscaped gardens





<p><b>Case Study: The Boardwalk, 121 King Street West, Chatham-Kent</b></p>	
<p><b>Builder: The Everlast Group Ltd.</b></p>	
<p><b>Total Units: 88</b></p>	
<p><b>Building Location:</b>          The Boardwalk is located in the heart of the downtown core in Chatham, with amenities all within walking distance. Community amenities include fine dining establishments, work-out facilities, bars, and the Capitol Theatre. The Boardwalk is also within walking distance to Tecumseh Park.</p>	
<p><b>Project and Unit Details:</b>          The project consists of 13 storeys and contains 88 units. Functionality and desired aesthetics have been integrated throughout the building. The property provides one-bedroom, one-bedroom with den, two-bedroom and three-bedroom units which range in size between 990 - 2270 square feet. Monthly rental rates range from \$1550-\$4570 and will vary based on the type of unit and floor plan residents demand.</p>	
<p><b>Amenity/Common Area/Retail Comments</b>          The Boardwalk offers a lobby providing a gathering place for fellow resident or guests when visiting. Amenities include dishwasher, granite/quartz countertops, en-suite washer/dryer, and stainless-steel appliances.</p>	

**Case Study: Oxford Haus Apartments, 45&85, 65, 105 Oxford Street Stratford, On**

**Rank: New Apartment Construction**

**Relevance: New construction**

**Number of units: 236**

**Building Location:**

This multi-phased, senior housing development is located on the edge of Stratford, at 25, 45, 65 85 and 105 Oxford Street. It is a short walk to the main street with a variety of commercial amenities, including grocers, retailers, and restaurants, as well as a variety of recreational and service amenities.



**Unit Comments:**

The unit mix of this property consists of one-bedroom, one-bedroom with den, and two-bedroom, with either one or two bathrooms, units. One-bedroom units typically range from 710-770 Square feet, with two-bedroom units ranging from 904-960 square feet. Units are equipped with modern finishes including quartz countertops and stainless-steel appliances, vinyl flooring, and side-by-side in-suite laundry.



**Amenity/Common Area Comments:**

This building offers its tenants a central separate clubhouse amenity building with a lounge, outdoor patio, gym, games room, and business centre.





**CAR PARKING SURVEY:** The following table below summarizes parking rates for the selected comparable rental buildings.

Building	Underground Parking	Outdoor Parking
<b>NEW BUILDINGS</b>		
550-555 Sandison Street, Windsor	n/a	n/a
850 Wyandotte Street W, Windsor		Included, 2nd spot \$20
40 Seacliff Drive E, Leamington	Covered \$50	\$25
50 Seacliff Drive E, Leamington	Covered \$50	\$25
121 King Street W, Chatham	\$100	
392 Front Street N, Sarnia	Included, 2nd spot \$60	
10 Summer Grove Road, Grand Bend		Included
325 Lakeview Drive, Woodstock	Covered \$70	\$50
45 & 85 Oxford Street, Stratford		Included
<b>OLD-STOCK BUILDINGS</b>		
130 Pickering Drive, Amherstburg	\$45	\$35
421 Dalhousie Street, Amherstburg	\$45	
401 Dalhousie Street, Amherstburg	Included	Included
27 Remark Drive, Kingsville		Included
234 Erie Street S, Leamington	\$36	\$28
1275 Sandy Lane, Sarnia	\$25	\$10

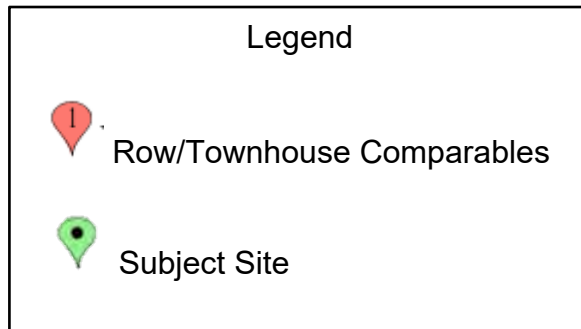
**Parking & Storage Locker Rates:**

Based on the rental comparables in the surrounding market SVN Rock Advisors believes that a parking rate of **\$65** for underground parking and **\$45** for surface parking is likely appropriate at the proposed development. Furthermore, SVN Rock Advisors believes that a storage locker rate of **\$25** is appropriate for the proposed development.

The Client is considering either single dwelling households, or row/townhomes for the area of the lot that is defined under “FD” (Future Development) zoning. **As a result, we have identified some row/townhouse comparables in proximity to the subject site, as seen in the following pages:**

ROW/ TOWNHOUSE RENTAL COMPARABLES				
Ref #	Address	Class	Comments/ Rationale	
1	628 Commisso Crescent, LaSalle, ON, N9H 1H4	TH		
2	101 Arthur Street, Harrow, ON, N0R 1G0	TH		
3	550 Sandison Street, Windsor, ON, N9E 0A3	TH	These are townhouse developments. Some are recent renovations and command premium rental prices while others are mid-tier. They are grouped because they are good references for where rents will bottom out.	
4	3625 Hallee Crescent, Windsor, ON, N8W 0B3	TH		
5	2779 Scarsdale Road, Windsor, ON, N8R 1R2	TH		
6	1054 Lexington Circle, Windsor, ON, N8S 4T3	TH		
7	733 Brownstone Road, Tecumseh, ON, N9K 1C7	TH		
8	404 Caserta Road, Belle River, ON, N0R 1A0	TH		
*Sorted by proximity to subject site				

### MAP OF SELECTED ROW/ TOWNHOUSE RENTAL COMPARABLES



## Row/ Townhouse Comparables

1



628 Commisso Cresent  
Windsor, ON N9H 1H4

**Owner**

Information not availabler

**Year Built** 2017

**Total Units**

**Utilities** Inclusive

**Walk Score** 5

**Transit Score**

**Unit Features**

Ceramic floors | Dishwasher | Hardwood floors |  
Microwave | Stove and fridge | Washer & Dryer

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
2/2 TH		1,340	\$2,700	\$2.01

2



101 Arthur Street  
Essex, ON NOR 1G0

**Owner**

Information not availabler

**Year Built** 2021

**Total Units**

**Utilities** Heat & Hydro

**Walk Score** 44

**Transit Score**

**Unit Features**

Ceramic floors | Dishwasher | Microwave | Stove and  
fridge | Washer & Dryer

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
2/2 TH		1,200	\$2,295	\$1.91

3



Sandison Residences  
550-555 Sandison Street  
Windsor, ON N9E 1R6

**Owner**

SIC Property (Windsor) Ltd

**Year Built** 2020

**Total Units** 47

**Utilities** No Data

**Walk Score** 33

**Transit Score** 29

**Unit Features**

Granite/Quartz Countertops | In-suite W/D | S/S Appliances  
| Walk-In Closets

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
1/1	4	680	\$1,695	\$2.49
1/1	7			
2/1	23			
2/2	3	890		
2/2	4	1,035		
2/2	1	895		
3/2	3	1,190		
3/2	2	1,345	\$2,595	\$1.93

**Row/ Townhouse Comparables**

4



3625 Hallee Crescent  
Windsor, ON

**Owner**  
Information not available

**Year Built** 2019  
**Total Units**  
**Utilities** Inclusive  
**Walk Score** 6  
**Transit Score** 30

**Unit Features**

Dishwasher | Laminated flooring and ceramics | Microwave  
| Stove and fridge | Washer & Dryer

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
2/2 TH			\$2,200	

5



Townhomes of Forest Glade  
2779 Scarsdale Road  
Windsor, ON N8R 1R2

**Owner**  
York Property Management

**Year Built** No Data  
**Total Units** 17  
**Utilities** Plus Utilities  
**Walk Score** 32  
**Transit Score** 37

**Unit Features**

A / C | In-suite W/D

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
3/1 Renovated		922	\$1,750	\$1.90

6



1054 Lexington Circle  
Windsor, ON N8S 4T3

**Owner**  
Information not available

**Year Built** No Data  
**Total Units**  
**Utilities** No Data  
**Walk Score** 35  
**Transit Score** 31

**Unit Features**

Carpet | Ceramic floors | Dishwasher | Hardwood floors |  
Stove and fridge | Washer & Dryer

Unit Type	# of Units	Square Feet	Rent	Rent/Sq Ft
3/3 TH			\$2,150	



**Row/ Townhouse Comparables**

7



733 Brownstone Road  
Tecumseh, Ontario N9K0A8

**Owner**

Information not available

**Year Built** 2021

**Total Units**

**Utilities** Plus Water

**Walk Score** 64

**Transit Score**

**Unit Features**

9' Ceilings | A/C | Balcony | Ceramic floors | Hardwood floors | Quartz Countertops | S/S Appliances | Washer & Dryer

<u>Unit Type</u>	<u># of Units</u>	<u>Square Feet</u>	<u>Rent</u>	<u>Rent/Sq Ft</u>
2/3 TH		1,834	\$2,995	\$1.63

8



404 Caserta Road  
Tecumseh, Ontario N0R 1A0

**Owner**

Information not available

**Year Built** 2021

**Total Units**

**Utilities** Heat & Hydro

**Walk Score** 1

**Transit Score**

**Unit Features**

Carpet | Ceramic floors | Dishwasher | Gas Fireplace | Granite/Quartz Countertops | Hardwood floors | Microwave | Stove and fridge | Washer & Dryer

<u>Unit Type</u>	<u># of Units</u>	<u>Square Feet</u>	<u>Rent</u>	<u>Rent/Sq Ft</u>
4/3 TH			\$2,975	



# SECONDARY MARKET ANALYSIS

**“What rents are being achieved in the non-purpose-built rental market?”**

The secondary rental market is defined as all of the rented dwellings which are not included in the primary (purpose-built) rental apartment universe. Condominiums for rent constitute the upper end of the secondary rental market, but new high-end apartment rentals should, in most cases, be able to achieve higher rents and returns than most condo-rentals. This is because individual condo owners are interested in capital gains, not yields, and are setting prices on what they want to get to cover their mortgage rather than pushing to see what the market will bear. Additionally, individual condo owners rarely possess good market knowledge, and none have the support of a professional marketing and leasing organization. Despite these shortcomings, condo-rental listings can be useful for market surveys since condos are typically newer and offer more amenities than most of the existing rental stock in a given market.

Renters are becoming increasingly aware of the benefits of renting in purpose-built rental apartments as opposed to condominiums leased by an individual owner/investor, including

- Security of tenure, and
- Professional property management.

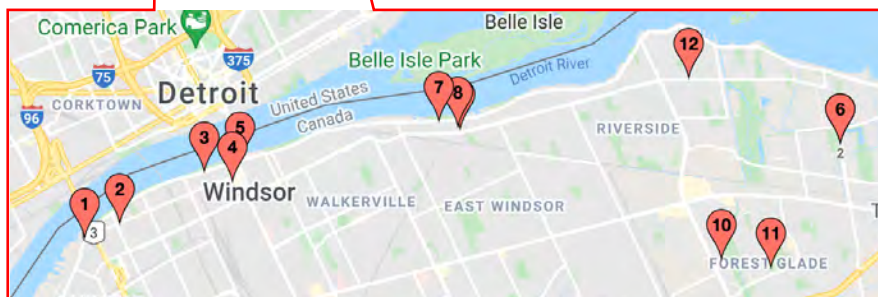
**LEASED CONDO COMPARABLES**

Ref #	Name	Address	Comments / Rationale
1	Harbourview Condominium	3000 Sandwich Street, Windsor	
2	N/A	2345 University Avenue W, Windsor	
3	Waterpark Place Condominiums	515 Riverside Drive, Windsor	These condo developments are leased by private investors on MLS between April-September 2021 in Essex County. These properties vary in levels luxury and year of construction and as such are not directly indicative of current market rents. A detailed breakdown of leased units is provided on the following pages.
4	Victoria Park Place	150 Park West, Windsor	
5	75 Riverside East	75 Riverside E, Windsor	
6	Eastside Horizons	1489 Banwell Road, Windsor	
7	Carriage House	3663 Riverside Drive, Windsor	
8	Colony at the Park	3936 Wyandotte Street E, Windsor	
9	N/A	3950 Wyandotte Street, Windsor	
10	N/A	3000 Meadowbrook Lane, Windsor	
11	Forest Glade	3160 Wildwood Road, Windsor	
12	Rivertown Terrace	8478 Wyandotte Street, Windsor	
13	Eastside horizons	1610 Banwell Road, Windsor	
14	Beachside-Lakeshore	716 Brownstone Road, Lakeshore	



Below we have included a list of leased condo building comparables in Essex County.

*\*Sorted by proximity to subject site\**

### MAP OF LEASED CONDO UNITS



Legend

	Pipeline Development
	Subject Site

## Leased Condominium Units: Essex County

One Bedroom Condo-Rentals								
(Source: SVN Rock Advisors Market Research)								
Building Name	Property Address	Unit Type	Unit Size	Rent (\$)	Rent / Sq Ft	Comments	Data Source	Year Built
Victoria Park Place	150 Park West, Windsor	1/1	650	\$1,500	\$2.31		Realtor.ca	1979
N/A	2345 University Avenue W, Windsor	1/1	824	\$1,350	\$1.64		Rentals.ca	N/A
Colony at the Park	3936 Wyandotte Street E, Windsor	1/1	800	\$1,400	\$1.75		Rentals.ca	1970
Eastside horizons	1610 Banwell Road, Windsor	1/1	955	\$2,050	\$2.15		Rentals.ca	2019
Total/ Avg		4	807	\$1,575	\$1.96			

Two Bedroom Condo-Rentals								
(Source: SVN Rock Advisors Market Research)								
Building Name	Property Address	Unit Type	Unit Size	Rent (\$)	Rent / Sq Ft	Comments	Data Source	Year Built
Waterpark Place Condominiums	515 Riverside Drive, Windsor	2/2	1,008	\$2,300	\$2.28		Realtor	1989
Beachside-Lakeshore	716 Brownstone Road, Lakeshore	2/2	1,155	\$2,145	\$1.86		Realtor	2021
Rivertown Terrace	8478 Wyandotte Street, Windsor	2/2	1,100	\$2,100	\$1.91		Realtor	2016
Eastside Horizons	1489 Banwell Road, Windsor	2/2	1,197	\$2,100	\$1.75		Realtor	2021
N/A	3950 Wyandotte Street, Windsor	2/1	885	\$2,000	\$2.26		Realtor	1986
Forest Glade	3160 Wildwood Road, Windsor	2/2	1,050	\$2,000	\$1.90		Realtor	2004
Carriage House	3663 Riverside Drive, Windsor	2/2	1,232	\$1,950	\$1.58		Realtor	1980
Victoria Park Place	150 Park Street W, Windsor	2/2	798	\$1,800	\$2.26		Rentals.ca	1979
Harbourview Condominium	3000 Sandwich Street, Windsor	2/2	1,000	\$1,600	\$1.60		Rentals.ca	1996
75 Riverside East	75 Riverside E, Windsor	2/2	1,208	\$2,100	\$1.74		Realtor	2020
Total/ Avg		10	1,063	\$2,010	\$1.91			

Two Bedroom Plus Den Condo-Rentals

(Source: SVN Rock Advisors Market Research)

Building Name	Property Address	Unit Type	Unit Size	Rent (\$)	Rent / Sq Ft	Comments	Data Source	Year Built
75 Riverside East	75 Riverside E, Windsor	2/2.5	1,150	\$1,999	\$1.74		Realtor	2020
Total/ Avg		1	1,150	\$1,999	\$1.74			

Three Bedroom Condo-Rentals

(Source: SVN Rock Advisors Market Research)

Building Name	Property Address	Unit Type	Unit Size	Rent (\$)	Rent / Sq Ft	Comments	Data Source	Year Built
N/A	3000 Meadowbrook Lane, Windsor	3/2	1,550	\$1,800	\$1.16	Townhouse	Realtor	1978
Total/ Avg		1	1,550	\$1,800	\$1.16			

<b>SUMMARY: Essex County</b>	One Bed	Two Bed	Two Bed + D	Three Bed
# Units Leased	4	10	1	1
Avg. Leased Rent	\$1,575	\$2,010	\$1,999	\$1,800
Avg. Sq Ft	807	1,063	1,150	1,550
Avg. Rent/Sq Ft	\$1.96	\$1.91	\$1.74	\$1.16

### Secondary Rental Market Findings:

- *Condo data was collected from MLS for Essex County between April-September 2021. Although limited data is available, the available condo listings provide insight regarding achievable rental rates in the market.*
- Two-bedroom apartments had an average monthly rent of \$2,010 with a rent per square foot of \$1.91.
- Similarly, the highest rents were achieved in two-bedroom apartments with a monthly rent of \$2,800.
- **Waterpark Place Condominiums**, located north of the subject site in Windsor is a key condo comparable, achieving the highest rental rates amongst condo comparables.
- **Condo listings vary in rates for the reason that most private investors do not have the same market knowledge as a professional property management company, and therefore typically set their rents in accordance to their mortgage. Although there is a level of variability in condo rental rates, the average rent/sf achieved in new condo product serves as a benchmark during the rent setting process for a purpose-built rental development.**



# The Condo vs. Rental Dilemma: How Purpose-Built Rental Development Builds Long-Term Wealth

The focus of many of our feasibility studies is to help developers understand whether they should build purpose-built rental, versus condo. Ultimately, while your feasibility study will help you understand the pros- and cons- of each of these financially; the choice is ultimately one that you make in consideration of your longer-term goals.

If you think back to the homebuilders and condo developers of the 1960s and 1970s, most have cashed out and are not around today. Meanwhile, the purpose-built rental developers of the same era have built up large portfolios of rental communities that provide long-term cash flow for developers and their future generations.

When you begin building purpose-built rental, you'll likely need to become a merchant apartment builder to start – i.e., building and selling your first several communities. Once you have built up capital and a 'machine' to build, you'll likely look to sell your third or fourth development. This is a model that we call the 'merchant apartment developer': It is one of continually acquiring land to develop to create a pipeline of new product, while remaining comfortable in the model you stamp out.

At SVN Rock Advisors, we have helped many of Canada's most successful **merchant apartment developers**. We can help you build your preferred model of development, assist you in finding and acquiring land, marketing and leasing up your pipeline buildings, and ultimately brokering a sale for those that you chose to sell.

To learn more about the model of Programmatic Apartment Building, [contact us](#) for free access to our Apartment Developer University course on this topic.



# COMPETITIVE MARKET ANALYSIS – SUMMARY

- **Average rental and vacancy rates:** Amherstburg as a rental market has an average monthly rent of \$1,063 across all unit types as recorded by CMHC, however rents being achieved by both secondary market rentals in Amherstburg, and new purpose-built rental apartments in proximate markets are much higher with new purpose-built rental product in Amherstburg achieving starting rents of approximately \$649 - \$1059 higher than CMHC average rents. This suggests that new rental stock in Amherstburg will achieve higher rental rates than both the CMHC average, and the average of the secondary market. Amherstburg's overall vacancy rate of 4.7% is high compared to benchmark municipalities but is likely due to the results of the global pandemic. **Once the subject site is developed, there will likely be minimal competition if positioned as a purpose-built rental apartment.**
- **Newly built comparable buildings:**
  - **Seacliff Heights I** (Leamington) is one of the most geographically proximate, newly constructed rental developments in the Essex County area. Located by the north shore of Lake Erie, this development boasts a strong amenity package including a fitness centre, theater room, a heated outdoor pool and offers spacious unit layouts with a contemporary design. Currently, Seacliff Heights achieves \$1,535 for one-bedroom units at a rent per SF of \$1.62, \$1,790 for one-bedroom plus den at a rent per SF of \$1.88, and \$2,495 for two-bedroom units at a rent per SF of \$1.72.
  - **The Boardwalk** (Chatham) is a luxury rental development that was built in 2020 and is currently managed by The Everlast Group. Although this development is not direct competitors with the subject site, it showcases achievable rental rates in a suburban community. Unit features are strong and a variety of amenities are offered, pushing rents further. One-bedroom units achieve \$2,700 per month at a rent per SF of \$2.12, two-bedroom units achieve \$2,760 at a rent per SF of \$2.21, and three-bedroom units achieve \$4,570 at a rent per SF of \$2.01. Given the positioning and strong amenity offerings, this site likely will achieve higher rents compared to the subject site in Amherstburg.
  - **West Bridge Place** (Windsor) is another property that is one of the most geographically proximate, newly constructed rental development in the Essex County area. Located in the City Center of Windsor, this development provides strong amenity offerings such as a fitness room and party room and offers spacious units. Currently, West Bridge Place achieves \$1,680 for one-bedroom units at a rent per SF of \$2.00, \$1,840 for one-bedroom plus den units at a rent

per SF of \$2.10, and \$1,865 for two-bedroom units at a rent per SF of \$1.99. Given the proximity to local amenities and more urban positioning, this development achieves rental rates higher than what the subject site can achieve in Amherstburg.

- **Old stock comparable buildings:**

- Old Stock comparable buildings achieve lower rental rates than those of new stock rentals due to their older status, lower quality or basic unit interiors, and minimal amenity offering. In addition, they experience a wide range of achievable rents due to the variability found in unit sizes amongst local comparables.
- **Dalhousie Place** (Amherstburg) is the most geographically proximate old stock comparable. Despite a lack of building amenities, its spacious units and additional bathroom space in the larger units continue to drive rents. This building achieves, on average, some of the highest rental rates among old stock rental comparables within the subject site neighbourhood. Currently, Dalhousie Place achieves \$1,795 for one-bedroom units at a rent per SF of \$2.11, \$2,400 for two-bedroom units at a rent per SF of \$1.87, and \$2,500 for three-bedroom units at a rent per SF of \$1.85.
- **Caldwell Tower North** (Amherstburg) is located less than 3km south of the subject site in Amherstburg Ontario. It provides marginal amenity offerings and does not have renovated units which limits rental rates achieved at the development. One-bedroom units achieve a monthly rent of \$1,350 at a rent per SF of \$1.50 and two-bedroom units at \$1,485 with a rent per SF of \$1.16.

# TARGET RESIDENT PROFILE

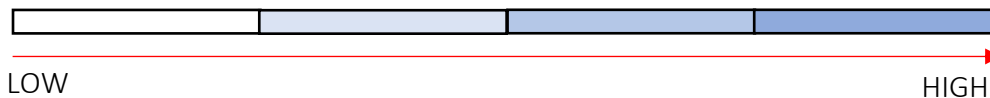
## “Who’s your target renter?”

### HIGH LEVEL RECOMMENDATIONS:

Conventional renter profile(s) for the are highlighted below, with the primary types highlighted, based on the demographic characteristics of the surrounding area. These groups represent high level concepts of target renter profiles. From these high-level recommendations, we later identify target PRIZM5 groups that fit these categories.

RECOMMENDED TARGET RESIDENT PROFILE		
Type of Renter	Market Preferences	Likely Tenure
Luxury Renters	Best units, best views & large balconies	Multi-year
Retirees	1B+D or 2B, seeking primary residence	Multi-year
Middle-aged (No Children)	1B+D or 2B, seeking primary residence	Multi-year
Young Couples (No Children)	1B/1B+D	1 to 3 years
Divorcees	1B/1B+D/2B	1 to 3 years
Singles	Bachelor, 1B, lowest ability to afford rents	High turnover
Young Families	2B, 2B+D, 3B	1 year to multi-year
Students	1B, 2B, 3B, 4B (highest demand)	High turnover

Propensity to rent at the subject site:



We believe that the renter profile in Amherstburg will be primarily older downsizers/retirees (55- 74 year old’s) with a mix of middle-aged renters (no children/divorced) and young professionals. Within this mix will lie a number of renter types, with different preferences:

- **Luxury Renters:** All age groups, highest incomes.
- **Retirees:** 55+, higher income brackets.
- **Middle-Aged (no children):** Middle aged group, mixed incomes.
- **Young couples (no children):** 25-34 year-olds – mixed incomes.
- **Divorcees:** middle aged – mixed incomes, likely middle income.
- **Singles:** 25-34 year-olds and older downsizers – higher income youth.
- **Young Families:** 25-34 year-olds – mixed incomes




Initial marketing will have to not only target these specific renter profiles, but also leverage the available amenities along with the lifestyle afforded by the subject site. This renter profile will demand a high level of amenitization along with a higher level of comfort and refinement. This would likely bring the market position of the subject site property

significantly up-market, allowing the purpose-built apartment to become a market leader in the town of Amherstburg.

**DETAILED DEMOGRAPHIC PROFILES: YOUR TARGET RENTER**

SVN Rock Advisors has reviewed the demographic characteristics of the neighbourhood and identified the following profiles as the ideal target renter for the proposed development if brought to market as purpose-built rental.

There are six distinct target renter groups identified by the consultant; within each are individual household types. Below we have summarized the high-level renter groups. Full descriptions of each target renter can be found in Appendix D

Target Renter?	Group Description
<p style="text-align: center;"></p> <p>Not a target for the subject site, these are shelter renters who typically reside in old stock rentals.</p>	<p><b>Young Professional – Lower Income:</b></p> <p>40 – Les Enerjeunes            47 – Social Networkers            52 – Friends &amp; Roomies            67 – Just Getting By</p>
<p style="text-align: center;"></p> <p><b>Smaller renter group</b>            Will want a mix of one-bed, one-bed + den, and smaller two-bed units.</p>	<p><b>Young Professional – Higher Income:</b></p> <p>12 – Eat, Play, Love            20 – New Asian Heights            22 - Indieville            28 – Latte Life            57 – Juggling Acts</p>
<p style="text-align: center;"></p> <p>Not a target for the subject site, these are shelter renters who typically reside in old stock rentals.</p>	<p><b>Middle Aged – Lower Income:</b></p> <p>43 – Happy Medium            55 – Enclaves Multiethniques            56 – Juences Biculturels            59 – La Vie Simple            60 – Value Villagers            61 – Came From Away            64 – Midtown Movers</p>

 <p><b>Strong renter group</b> Will want one bed plus dens, two-beds, and two-bed + den units.</p>	<p><b>Middle Aged – Higher Income:</b></p> <ul style="list-style-type: none"> <li>01 – The A-List</li> <li>02 – Wealthy &amp; Wise</li> <li>03 – Asian Sophisticates</li> <li>06 – Downtown Verve</li> <li>07 – Mature &amp; Secure</li> <li>17 – Asian Avenues</li> <li>18 – Multicultural Corners</li> <li>30 – South Asian Society</li> <li>32 – Diverse &amp; Determined</li> <li>39 – Evolution Urbaine</li> </ul>
 <p>Not a target for the subject site, these are shelter renters who typically reside in old stock rentals.</p>	<p><b>Seniors/ Empty Nesters – Lower Income:</b></p> <ul style="list-style-type: none"> <li>51 – On Their Own Again</li> <li>53 – Silver Flats</li> <li>58 – Old Town Roads</li> <li>62 – Suburban Recliners</li> <li>65 – Ages &amp; Traditionnels</li> </ul>
 <p><b>Strong renter group</b> Will want large one-bed, one-bed + den, two-bed, and two-bed + den units depending on the household size.</p>	<p><b>Seniors/ Empty Nesters – Higher Income:</b></p> <ul style="list-style-type: none"> <li>09 – Boomer Bliss</li> <li>10 – Asian Achievements</li> <li>16 – Savvy Seniors</li> <li>21 – Scenic Retirement</li> <li>23 – Mid-City Mellow</li> <li>31 – Metro Melting Pot</li> <li>44 – Un Grand Cru</li> <li>45 – Slow Lane Suburbs</li> </ul>



# UNIT RECOMMENDATIONS

## “What should I build?”

The unit features and finishes described below reflect the target resident profile. These recommendations are intended to ensure that the proposed property leads the local rental market in scope and quality.

A 2019 survey completed by multi residential apartment owners found that the top five most desirable features were in order: washer/ dryer, elevator access designated parking, a balcony, and high-speed internet. The consultant believes that units should include the following minimum unit features.

RECOMMENDED UNIT FEATURES	
Feature	Comments
<b>Kitchen Appliances</b>	Fridge, stove, dishwasher, microwave.
<b>On-suite Laundry</b>	On-suite washers and dryers are essential in modern rental buildings. Machines can be either full-size if space allows or stacked.
<b>Breakfast Bar</b>	Smaller sized units benefit especially from the space saving qualities of breakfast bars, but all unit types are helped to achieve more efficient layouts.
<b>Sliding Doors on Dens</b>	Dens will sometimes be used as extra bedrooms by residents and/or home offices so sliding doors make these extra spaces more useful and attractive to renters. Obviously, in units where dens are no larger than nooks, doors do not make sense.
<b>Window Coverings</b>	Make sure to provide blinds since residents will be left to their own devices and the outside appearance of the subject property will inevitably suffer when a few residents use flags or brightly coloured sheets as makeshift window covering.
<b>Suite Alarms</b>	Alarms are an attractive feature in luxury rentals.
<b>Technology Connectivity</b>	Connections in each room for electronics, computers, etc. since today’s affluent renters own every electronic device imaginable.

There are a number of basic (non-negotiable) unit features that any new market rental building should incorporate.

- 9’ ceilings
- 2 bathrooms in two-bedroom units
- modern finishes
- premium cabinetry, countertops, and appliances, and in-suite washer/ dryer.

The client needs to construct a building that is not only the best in the area once

construction is finished, but a building that is best in the area and will remain competitive for many years to come. Units need to have durable finishes that can withstand the higher turnover rate that is associated with renters. These are factors that the client must consider when designing the building.

Unit finishes should be the best possible, but it is beyond the scope of this report to recommend specific finishes. Finishes in common areas and units should be similar to high-end condo units but using materials as indestructible as possible for longevity and turnover maintenance.

**“Do I need finishes on par with a condo building?”**

There is a tendency for many developers to downgrade finishes in rentals significantly compared to condos. This would be a mistake since at the upper end of the rental market most renters could easily afford a condominium or house and are not keen on settling for less, so to speak. Increasingly, many renters are former homeowners who are seeking to downsize from their 4-bedroom detached house to a 2-bed or 2-bed plus den rental apartment unit but still want to live in quality housing which reflects their current lifestyle, and which will serve as their primary residence for years to come. Going cheap on finishes might help improve your project’s construction budget, but it means coming to market with your B-game instead of your A-game.

<b>SAMPLE UNIT FINISHES</b>
-----------------------------

<b>Apartments</b>	<ul style="list-style-type: none"> <li>• Neutral off-white latex painted suites</li> <li>• Balconies and terrace area(s) and private patio(s) with exterior electrical receptacle</li> <li>• All suites are high-speed internet ready for multiple service providers</li> <li>• Pre-wired cable outlet in living room, bedroom(s), den and media area</li> <li>• Designer window coverings in all suites</li> <li>• Premium porcelain floor and wall tiles in all bathrooms</li> <li>• Stacked white high-efficiency front loading washer and dryer</li> <li>• Hardwood style Laminate flooring throughout</li> <li>• Mirrored sliding closets in all suites</li> <li>• Brushed metal door hardware</li> </ul>
<b>Kitchens</b>	<ul style="list-style-type: none"> <li>• In-suite stainless steel appliances</li> <li>• Designer kitchen cabinetry with brushed metal hardware</li> <li>• Quartz countertop with ceramic backsplash</li> <li>• Large kitchen island for extra storage and eat-in breakfast bar</li> <li>• Polished chrome kitchen faucet</li> <li>• Soft close cabinets and drawers</li> </ul>
<b>Bathrooms</b>	<ul style="list-style-type: none"> <li>• Designer vanity cabinetry with brushed metal hardware</li> <li>• White cultured marble vanity top</li> <li>• Vanity-width shelf framed mirror</li> <li>• Polished chrome faucets in all bathroom(s) and powder room(s)</li> <li>• Designer porcelain tiles in tub and shower enclosure</li> <li>• Chrome finished bathroom accessories</li> <li>• Dual flush, energy efficient low-flow high-performance toilet(s)</li> </ul>

# The Floor Plan Audit: Maximizing the Rent you can charge

Once you have received and read through our feasibility study, the next logical step is to engage your architects in a **deep drill** on how you lay out your units. You need to maximize your unit count that will appeal to your target renter profile (which we have provided), and then making sure you're making the **best use of space** within each of your units.

We've seen one-bedroom units function better than larger two-bedroom units if designed properly!

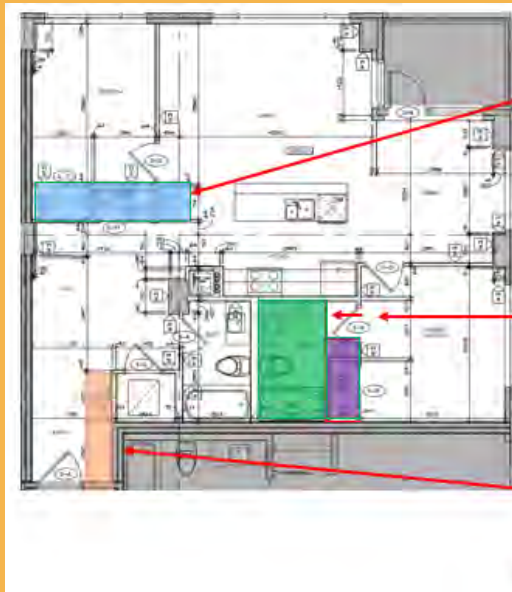
A renter will buy based off of what they **see** in a unit. If you take a prospective renter into a unit that has dead space, and rooms that won't function for them, they're less likely to rent, and your leasing team are less likely to be able to push the rent.

**A floor plan audit can make sure that you create perfect units that will function perfectly for your target renter.**

A typical floor plan audit process goes like this:



This is an example of the type of advice you can expect to receive through a **floor plan audit**:



- Combine old entry way closet with bedroom closet, To give bedroom more storage space. ■
- Move bathroom door further into bathroom. ■
- Expand MB closet into this space. ■
- Add coat closet to foyer. ■

Once you've had a chance to digest your feasibility study, we'll be in touch to work with your architect on your floor plans.

# AMENITY RECOMMENDATIONS

“How much amenity space should I include? and how do I program it to drive rents?”

## **GENERAL RECOMMENDATIONS:**

- Generally speaking, we believe that most Canadian apartment buildings are “under-amenitized” compared to luxury rentals in the United States. As the preceding market analysis identified, amenities in the subject city, even among the newest and best rental properties, are not expansive and the opportunity exists to enter this market with superior amenities and lead the market. Including several low-capital-cost, well-chosen amenities make the subject property more attractive to renters and justifies higher rents. We have seen amenity space in new apartment buildings included at a ratio of 10 SF to 30 SF per unit. However, to understand the impact of amenities and how to do them “the right way”, it is recommended that the client tours upscale rental buildings in the United States and Canada.
- Some amenities drive marketability and rental rates in new buildings more so than others. In a US survey of tenants in 2014, NMHC found that the top five most desirable amenities, in order, were: fitness centres, package delivery rooms, community-wide wireless internet, fitness classes, and an on-site car wash. Other popular choices included a valet trash service, business centre, on-site ATM, and dog park. Few of these amenities can be observed in new rental buildings in Canada. By providing services alongside amenities, a new rental building can differentiate itself from the competition and meet the expectations of upscale and affluent renters. Including the widest possible range of building amenities is recommended in keeping with the proposed renter profile for the subject property: upmarket rentals at the top of the local rental market. The starting point is to take the list of amenities offered by the local benchmark rental buildings and fill in the gaps by adding amenities; this puts you ahead of the competition. The next step, which is more important for success, is to execute amenities in a creative, thoughtful, and attractive way which appeals to target renters. By this, we mean designing the amenity package to have a “wow” factor that impresses prospects, visitors, and residents.

**Specific Amenity Recommendations:**

The Consultant recommends that approximately 20 square feet per unit be allocated to amenities. The Consultant has proposed two density scenarios in the *Unit Sizing & Mix* section that provides a detailed breakdown of the recommended amenity allocation based on different density scenarios.

Building A: If 120 units are developed, 2,400 Sf of indoor amenity space will likely be sufficient given the target renter profile.

Building B: Similarly, if another 120 units are developed, 2,400Sf of indoor amenity space will likely be sufficient given the target renter profile.




These proportions will likely allow for an appropriate level of amenitization which will enable the property to achieve premium rates, as a robust amenity package typically drives rents/sales price further. This does not however include outdoor amenity spaces such as outdoor patio/garden as that should be considered separate from the indoor functional amenities that can be used year-round.






**SPECIFIC AMENITY RECOMMENDATIONS FROM NEIGHBOURHOOD PROFILES:**




Earlier in this report, we identified the target renter profiles for the proposed development – by selecting PRIZM5 demographic segments. The profiles provide detailed behavioural data that can be used to provide recommendations for amenity space that will best appeal to the target renter.



Renter Group	Target Renter?	Top Interests:	Amenity Implications:
<b>Young Professional – Lower Income</b>	<b>X</b>  This renter group will look for affordable accommodations and are not well suited to the proposed development.	<b>Attend:</b> Home/craft shows, parks/gardens, hockey, casinos.  <b>Participate:</b> Billiards, baseball, video games, home exercise.	<ul style="list-style-type: none"> <li>- Party room with independent booking through apps to host events/ get togethers</li> <li>- If space, separate multi-purpose exercise room that functions for yoga and dance.</li> <li>- Pool table in lounge.</li> </ul>
<b>Young Professional – Higher Income</b>	<b>✓</b>  Small renter group  <b>Unit Preferences</b> – One Bed, One Bed plus Den, some two-beds that are	<b>Attend:</b> Home shows, parks/gardens, hockey, concerts.  <b>Participate:</b> Bowling, baseball, video games, gardening, home exercise.	<ul style="list-style-type: none"> <li>- Party room with pool table, independent booking through apps to host events/ get togethers.</li> <li>- Home shows in lounge as standard.</li> <li>- If space, separate multi-purpose exercise room that functions for yoga and dance.</li> <li>- Ample resident storage</li> <li>- Lounge for reading</li> </ul>
<b>Middle Aged – Lower Income</b>	<b>X</b>	<b>Attend:</b> Craft shows, art galleries, baseball, theatre.  <b>Participate:</b> cycling, baseball, video games, home exercise.	<ul style="list-style-type: none"> <li>- Scheduled resident fitness classes.</li> <li>- Ample resident storage</li> <li>- Outdoor garden amenity space</li> </ul>

<p><b>Middle Aged – Higher Income</b></p>	<p style="text-align: center;"></p> <p>Small renter group – divorcees and middle-aged residents.</p> <p><b>Unit Preferences:</b> One bed, One bed plus den</p>	<p><b>Attend:</b> Craft shows, parks/gardens, hockey, concerts.</p> <p><b>Participate:</b> canoeing, golfing, hockey, photography, home exercise.</p>	<ul style="list-style-type: none"> <li>- Common room.</li> <li>- Ample resident storage.</li> <li>- If space, separate multi-purpose exercise room that functions for yoga and dance.</li> <li>- Scheduled fitness classes</li> <li>- Craft Room</li> </ul>
<p><b>Seniors/ Empty Nesters – Lower Income</b></p>	<p style="text-align: center;"></p> <p><b>Unit Preferences:</b> One Bed, One bed plus den.</p>	<p><b>Attend:</b> Craft shows, carnivals, baseball, concerts.</p> <p><b>Participate:</b> Swimming, billiards, hockey, gardening, fitness walking.</p>	<ul style="list-style-type: none"> <li>- Tv in lounge as standard to watch baseball.</li> <li>- Ample resident storage.</li> <li>- Outdoor gardens on ground floor (landscaped)</li> <li>- Quiet lounge space for reading/relaxing</li> </ul>
<p><b>Seniors/ Empty Nesters – Higher Income</b></p>	<p style="text-align: center;"></p> <p>Strong renter group.</p> <p><b>Unit Preferences:</b> Two Bed, Two Bed plus Den</p>	<p><b>Attend:</b> Craft shows, carnivals, baseball, theatres.</p> <p><b>Participate:</b> Swimming, soccer, gardening, photography, fitness walking, home exercise.</p>	<ul style="list-style-type: none"> <li>- Common Room with TV</li> <li>- Ample resident storage.</li> <li>- Craft room.</li> <li>- Outdoor gardens on ground floor (landscaped)</li> <li>- Fitness Centre</li> </ul>

**Recommended amenities** for the subject property, based on the preceding detailed sports and leisure overview are listed below and overleaf, together with photos for illustration only.

AMENITIES	Description	“Nice to have.”	Needed	Approx. SF
	<p><b>Grand Lobby</b> The lobby is the most important amenity the building has as it sells the building repeatedly to potential renters for the lifetime of the building. An upscale rental property must always make a good first impression. When potential renters enter the building, they have to be wowed and enveloped in a precisely manicured and well-appointed lobby. This initial impression often colours their overall view of the property so it must be a positive one.</p>		<p>✓</p> <p>Building A: 500 SF</p> <p>Building B: 500 SF</p>	500 SF
	<p><b>Fitness Centre</b> Fitness centres should be full-service gyms, not just a room with a few exercise machines, so residents who do not want to travel to an outside gym don't need to. The client could arrange a fitness instructor once or twice a week as an extra feature if demand is high enough (see Extra Services section in this study).</p>		<p>✓</p> <p>Building A: 400 SF</p> <p>Building B: 400 SF</p>	400SF
	<p><b>Party Room (with kitchenette)</b> The subject property should include a party room with a kitchenette and tables and chairs for residents to hold events. This space could be connected to a lounge with couches to make it multi-use. This space should have Wi-Fi service, and a large television.</p>		<p>✓</p> <p>Building A: 500 SF</p> <p>Building B: 500 SF</p>	500 SF

AMENITIES	Description	“Nice to have.”	Needed	Approx. SF
	<p><b>Lounge (opt. Games Room)</b>            This space should if possible to be connected to the party room and outdoor patio/BBQ area. The lounge could also double as a games room with a billiards table, and a golf simulator. This space should include a television.</p>		<p>✓            Building A:            500 SF             Building B:            500 SF</p>	<p>500 SF</p>
	<p><b>Arts &amp; Crafts Room</b>            This space allows the residents to get creative with their hobbies, or to work on their school projects in a clean and safe environment.</p>		<p>✓            Building A:            300 SF             Building B:            300 SF</p>	<p>300 SF</p>
	<p><b>Pet Grooming Room</b>            Most new rental buildings have large pet populations, particularly dogs, which can have a negative impact on the property if not managed. Rather than attempting to discourage renters with pets, we recommend preparing for pets and embracing them in creative ways. Consider dedicating one or two floors as “dog floors” to keep disruptive pets contained as much as possible and separated from renters who don’t have pets. Potential for addition of a dog run, and pet grooming station.</p>		<p>✓            Building A:            200 SF             Building B:            200 SF</p>	<p>200 SF</p>

AMENITIES	Description	“Nice to have.”	Needed	Approx. SF
	<p><b>Green space</b> The inclusion of green space and sheltered outdoor seating within the property if marketed appropriately can be used to drive rents. This space would both improve the properties façade and allow for functional outdoor space.</p>	<p>✓</p>		<p>Property exterior should be well manicured and designed to improve overall design of the subject property.</p>
	<p><b>Package Drop &amp; Storage</b> All Luxury apartments offer services that make their tenants lives more comfortable and freer of hassle. A great example of this is a package drop off and storage service. This can be included within rent and can be used to drive rents as well as to reduce apartment turnover by providing significant utility to the residents.</p>			<p>Package storage solutions are available through Canada Post and third parties such as Luxer One. These are parcel storage lockers located in common areas accessible by both couriers and tenants.</p>
<p><b>Total</b></p>	<p><b>Total Indoor Amenity Space: Building A = 2,400 SF Building B =2,400 SF</b></p>			



## Amenity Case Studies

### GYM/ FITNESS:

Below, we include an example of attractively designed amenities. Most apartment developments in Canada give little thought to design for amenities such as gyms, but given the target demographic of the subject property, we believe constructing a high-quality gym with ample machines in a bright space, will be a big draw for residents.



**Example:** North Water Apartments, Chicago, IL



**Example:** 101 St Clair, Toronto, Ontario

This property aims to be the market leader with luxurious upscale unit features and finishes, along with better than condo amenities. To achieve the position of market leader the building had to have the finest attention to detail and provide amenities that are specifically targeted towards the target renter profile. Along with a golf simulator the building also offers a fitness centre, yoga studio, outdoor terrace, dining room, lobby lounge, board room.



## **LOBBY LOUNGE:**

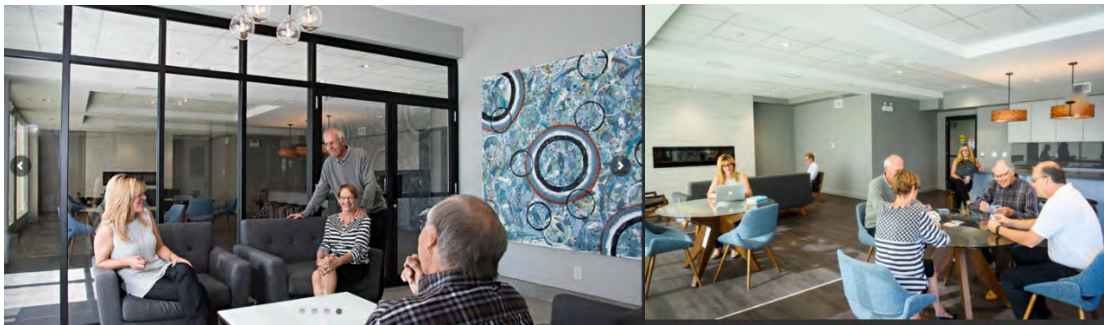
Below we include an example of a Lobby Lounge. Most apartment developments in Canada offer a sitting room, or lounge adjacent to a party room or hallway, but modern market leading properties have begun offering Lobby Lounges. This lounge is typically located on the first floor of a development directly off the main lobby. Usually connected through sliding doors. This allows the space to be kept open during day-to-day operations and closed off during private events.

The space should be luxurious, comfortable, and well appointed. Some important additions to this room would be individual seating, a couch, billiard table, and a wet bar/kitchenette. This room would be important because it not only offers an amenity space to the residents, but also adds to the grandeur of the grand entrance and helps sell the property to potential renters. It is important that this room be located directly across or next to the concierge desk in the main lobby on the main floor. This maximizes visibility and can help reduce anxiety amongst new residents.



**Example:** The Scott Residences. Chicago, IL

This property is considered one of the market leading rental properties in the area. It has a lobby lounge located next to the concierge desk. This lounge is lavishly appointed with hard wood, soft cushioned seating, a wet bar, and a fireplace.



**Example:** Greenbriar Place, Cambridge, Ontario

This property aims to be upscale yet affordable with condo style amenities. This means that while the fit and finish may not be as extravagant, the amenities are all still included. As shown in the image to the left, there is a sitting room directly in the lounge that connects through sliding glass doors into the lobby lounge (image on the right). This space much like the sitting room contains ample seating, but with added full-sized dinner tables, and a wet bar/kitchenette.



**Example:** The Taunton, Oakville, Ontario

From the moment you step into the lobby, you can experience the high-quality craftsmanship that has gone into the design and building of the Taunton. The atmosphere gives the feel of a high-end hotel rather than a suburban rental apartment.



**Example:** The Taunton, Oakville, Ontario

Modern and elegant, yet simple, the lounge in the Taunton provides a relaxing sitting place for all residents to enjoy.



The dining room, which is connected to the lounge, gives residents the opportunity to host events and dinner parties, that many no longer would be able to after downsizing from their large single-family house.

**RESIDENT SERVICES:**

<b>SAMPLE SERVICES</b>	
<b>Service</b>	<b>Comments</b>
<b>Fitness Classes</b>	Fitness, aerobics, and yoga classes with a trainer would be an excellent addition to fitness facilities.
<b>Active Living/ Community Activities</b>	Community organized outdoor activities would be an excellent addition. Similar to an active living community this would organize the residents into groups that would take part in outdoor excursions. Such as biking, Trail walking, Hiking, and even some winter activities on a ski hill.
<b>Dry Cleaning Service</b>	Arrange with a local dry-cleaning company to offer a door-to-door dry cleaning service, with perhaps a drop-off kiosk in the building.
<b>Wi-Fi</b>	Offer free Wi-Fi internet connectivity in all common areas such as the lobby, lounges, BBQ patio, fitness areas, etc.
<b>Security</b>	Renters will value creating a strong perception of security. Multiple security cameras should be installed in common areas, elevators, and parking areas. Keyless fob security access can be matched with cameras in the event of a security problem and allow staff to program customized access to various parts of the property. We recommend looking to the hotel industry for a sense of the future of security in rental apartment buildings.



# Building Functionality Audit:

## Design the Perfectly Functioning Building to Maximize Rents, and Minimize Expenses

Similar to the floor plan audit, while you're going through the process of designing your building, you need to maximize the functionality of your building and common areas – this includes amenities!

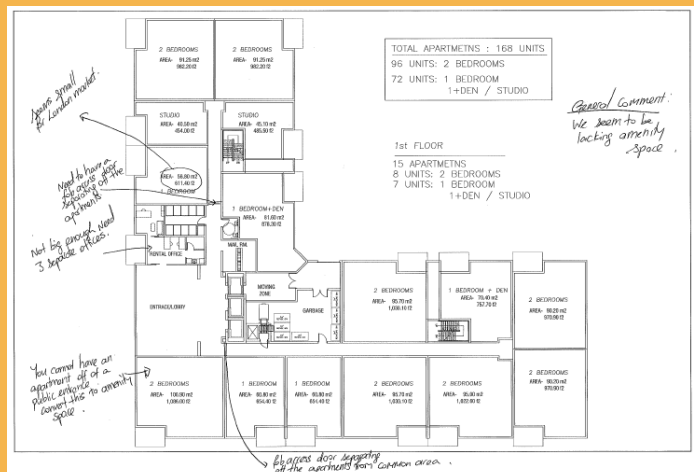
We've seen buildings where garbage pick-up required moving industrial sized garbage containers down a residential corridor in front of amenity space. And amenity areas that are too close to residential units, where residents don't feel safe for long-term tenancy.

In our building functionality audit, we work with your architect (much like our floor plan audit) – to maximize the use of your common space to **drive rents**.

Our process goes like this:



Once we have finished our building functionality audits, we will help with your **marketing strategy** to create a 'cheat sheet' for your leasing team to show the building to the best of its potential.



# UNIT SIZING & MIX

“What’s the optimal unit mix and sizing to build for my target renter?”

SVN Rock Advisors has conducted a series of exercises to maximise the unit count and efficiency on the subject site. *It is important to note that this is a hypothetical exercise providing different density scenarios based on current zoning provisions and local precedent. It is recommended that the Client speaks to an accredited architect for more details on the provided scenario:*

### Ancillary Space Assumptions:

- This is **not** included within the 88% efficiency. Rather, it deducts from the Net Leasable Area (NLA).
- All ancillary space to be placed on the ground floor.
- **Parking:** A parking ratio of 1.0 is sufficient for zoning. However, parking recommendations are discussed later in the report. When deriving the total parking stalls per level, an assumption of 350Sf per parking stall is used which includes the size of the stall itself, driveable areas, ramps, and walkways.
- **Amenity space:** As recommended in previous sections in the report, SVN Rock Advisors believes an amenity allocation of approximately 20Sf of amenity space per unit will be sufficient.
- **Coverage:** A maximum floor coverage of 40% is assumed based on Zoning By-Law 1999-52.

### Subject Site Max Density: Building 1 & 2

As per “RM2” district zoning provisions, the maximum GFA (gross floor area) of 784,080 is calculated using the maximum lot coverage of 40%, with a building height of 6 storeys (22 meters). Since there are two proposed developments on the parcel of land, a lot coverage of 20% is used for both buildings. As such, the maximum GFA for both buildings is 392,040, which is calculated using the lot coverage of 20%, with a building height of 6 storeys (22 meters). Accordingly, a max NLA (net leasable area) of 344,995 is determined using an 88% efficiency across the GFA. Assuming an average unit size of 890Sf in building1, the development will be able to achieve a maximum density of 120 units across 6 floors, with the inclusion of amenity space. Additionally, assuming an average units size of 890Sf in building 2, the development will be able to achieve a maximum density of 120 units across 6 floors, with the inclusion of amenity space.

Max Density - Building 1	
Site Size (Sf)	326,700
GFA (Sf)	392,040
Storeys	6
Units Per Floor	20
NLA (Sf)	344,995
Avg. Unit Size	<b>890</b>
No. of Units	<b>120</b>

Building 1	
Amenity Space	Total SF
Grand Lobby	500
Fitness Centre	400
Party Room	500
Lounge	500
Arts & Crafts	300
Pet Grooming Room	200
<b>Total</b>	<b>2400</b>



Recommended Unit Mix - Building 1			
Unit Type	Unit Size (SF)	Unit Count	Unit Mix
1 Bed	650	24	20%
1 Bed + Den	750	18	15%
2 Bed	950	54	45%
2 Bed + Den	1,100	24	20%
<b>TOTAL/AVG.:</b>	<b>890</b>	<b>120</b>	<b>100%</b>

- This unit mix and sizing is likely appropriate given the high proportion of seniors/empty nesters, retirees, and middle-ages families. These households require larger multi-bedroom units as they look to downsize from their larger, single-family homes and require a significant amount of space to fit a lifetime of collected possessions.

Max Density - Building 2	
Site Size (Sf)	326,700
GFA (Sf)	392,040
Storeys	6
Units Per Floor	20
NLA (Sf)	344,995
Avg. Unit Size	<b>890</b>
No. of Units	<b>120</b>

Building 2	
Amenity Space	Total SF
Grand Lobby	500
Fitness Centre	400
Party Room	500
Lounge	500
Arts & Crafts	300
Pet Grooming Room	200
<b>Total</b>	<b>2400</b>

Recommended Unit Mix - Building 2			
Unit Type	Unit Size (SF)	Unit Count	Unit Mix
1 Bed	650	24	20%
1 Bed + Den	750	18	15%
2 Bed	950	54	45%
2 Bed + Den	1,100	24	20%
<b>TOTAL/AVG.:</b>	<b>890</b>	<b>120</b>	<b>100%</b>

- These households are typically in the process of selling off their single-family home and as such require a significant amount of space upon relocating and downsizing to a purpose-built apartment. As such, a greater proportion of larger units with dens will be of value to the target demographic. These units typically lease-up slower, but due to their more flexible unit layouts, larger overall size, and limited proportion, will likely achieve a premium over conventional two-bedroom units.

## Unique Selling Points: Moving from unit mix and sizing to a lease up strategy

Your feasibility study has given you a good idea of what to build in terms of unit mix and sizing. Once we have worked through the **floor plan audit** process, you need to get your leasing team on board to ensure they know how to **sell these units to your target renters**.

For each unit, we create a **unique selling points sheet** to identify your target renter and **how to sell the unit to your prospective renter to maximize rent**.

**This comes after our full floor plan and building audits, and once you're planning lease up.**

Here's an example of a USP sheet – it needs to be carefully created with the target renter in mind. **We will work with you to create a fully integrated marketing strategy that includes the creation of Unique Selling Points for each unit, and help train your staff on how to use them.**

Unit #	111
Suite Type	B3
Beds/Baths	2 Bed/2 Bath
Suite Size	979sf
Views	W
Sister Suites w/ Views	SAME: 115, 213, 217, 313, 317, 409, 412 E: 120, 124, 204, 208, 304, 308, 401, 404
Suite Description	One of our most popular 2 bedroom units
Elevator Pitch	Large two-bedroom unit, perfect for people looking to entertain with a U-shaped kitchen and separate dining area.
Key Pros:	- Luxurious master with ensuite bathroom w/ shower AND bathtub plus WIC and walk through to ensuite.
Foyer	Large foyer area with oversized closet for storage.
Kitchen	Only 2 bed unit of this size and price class with a U-shaped kitchen – provides 5 work surfaces.  Double sink overlooking bar area with potential for 3 places – great for entertaining.  Rounded edges on bar so you don't walk into sharp corners. Still room to place your own dining set between kitchen and living area.  Full stainless steel appliance set – stove, fridge/freezer/dishwasher/microwave. <b>See appliance specs for more talking points.</b>
Balcony	Small but functional balcony – entrance off the living room provides privacy for both bedrooms.
Living/Dining	The perfect living and entertaining space – large U-shaped kitchen opens up onto a spacious living and dining area.  Space for a 3 seater sofa.  Large TV wall – perfect for entertaining – multiple options as to where to put the TV based on preferred layout.
Linen	Separate linen closets in both bathrooms – separate washer/dryer access accessible from the foyer with easy access from all areas of the suite. <b>See appliance specs for washer/dryer talking points.</b>
Master Bathroom	Ensuite – with separate linen closet.  Walk through from master bedroom provides <u>privacy</u> .  Double sink.  Large, luxurious bathtub AND SHOWER!

# PARKING RECOMMENDATIONS

“How much parking should I build? And how much can I charge?”

Renters and lenders prefer projects with a good allocation of car parking, and on this basis, a parking ratio of one space per unit is an appropriate rule of thumb. This ratio can be higher if there is a high ratio of large units or the project is situated in a suburban location and lower if a project has access to public transportation, and of course, the parking provision should meet the minimum spaces required by zoning.

Depending on the final quantity of parking, parking spaces could fill up quickly during initial lease-up, so the client should carefully monitor the allocation of parking during leasing so the building does not run out of spaces. The client should also make sure to include sufficient reserved spaces for prospects visiting the leasing office. Remember to enforce visitor parking otherwise, residents will use them.

The price of car parking frequently corresponds with the rental rates being achieved at a given property, and new higher-end buildings often charge the highest car parking rates.

## Client Proposed Parking:

The site plan identifies 306 surface level parking spaces for the proposed developments. Given the zoning requirements of 1 parking stall per unit, that suggest 240 stalls are allocated towards tenants, while there are 66 additional spots for visitor parking. With a larger proportion of two-bedroom units, prospective tenants will often have more than one vehicle and a total of 306 parking spaces will likely not suffice. Furthermore, Amherstburg is a car dependent town as there is a general lack of public transit which puts further stress on the parking lot capacity as majority of the tenants will own vehicles.



Source: Client Provided Site Plans

### SVN Recommended Parking Scenario

Although local zoning permits 1 parking stall per units, SVN believes that more parking spaces should be allocated to tenant parking. This is largely due to the larger proportion of two-bedroom units, and the overall car dependency of the market area as seen in previous sections. As such, SVN recommends a parking ratio of 1 parking stall for one-bedroom units, and a parking ratio of 1.25 stalls for two-bedroom units. This will allow tenants the flexibility to purchase an additional parking stall if they have more than one vehicle. Furthermore, a visitor parking ratio of 0.25 stalls per unit is likely sufficient given the market area. Therefore, 60 surface spots should be for visitor parking and the remaining 226 surface spots can be allocated for tenant parking. In this situation there is also 53 covered parking stalls which is charged at a higher rate than conventional surface spots. SVN Recommends adding 13 surface parking stalls in building 1, and 16 surface parking spaces in building 2 to properly cater to the target age demographic at the proposed development.

Parking: Building 1 & 2	
Parking Ratios	Stalls
1 Bed (1 Stall/Unit)	84
2 Bed (1.25 Stalls/ Unit)	195
Visitor (0.25 Stalls/Unit)	60
<b>Total Parking Stalls</b>	<b>339</b>
Parking Allocation	Stalls
Surface Parking	286
Covered Parking	53
<b>Total Parking Stalls</b>	<b>339</b>

### PARKING CHARGES:

Based on the market survey of comparable properties, as well as the location of the subject site, a monthly fee of \$65 for covered parking and \$45 for surface parking is likely achievable given the parking rates of local comparables. The subject site will likely not be able to charge for visitor parking however and should carefully monitor visitor lots to ensure they are not abused by local households in search of free parking solutions.

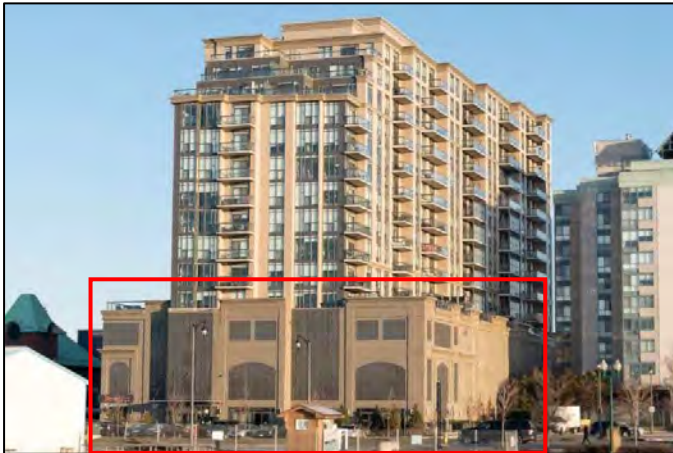


## Parking & Storage Lockers Case Studies

### Parking:

If the Client is unable to negotiate a lower parking ratio with the City, the development of an above ground parkade can be considered. Barrie's *Watercrest Towers* and *The Boardwalk*, in Chatham are two rental developments that showcase a well incorporated above ground parkade. This allows each development to maximize density whilst meeting parking requirements.

**Watercrest Towers, Barrie**



**The Boardwalk, Chatham**



### Storage Lockers:

Given the older target demographic of the subject development, storage will likely be an important factor for prospective residents. A large proportion of residents will likely be downsizing and will need a place to store life-long possessions. The consultant recommends incorporating car park storage boxes along each parking stall, designated to the associated tenant/owner. This is a cost effective storage solution that takes up minimal space and is highly valued by prospects. *The cost to the resident for these storage boxes should be included within the monthly parking rate.*

**Car Park Storage Box**



## Parking Plan: Maximizing Your Rents

Most developers we see assign parking on a ‘first come first serve’ basis. In reality, you need to assign the **best** parking spaces to your **highest rent units**. It is a rent driver!

What makes a great parking space?

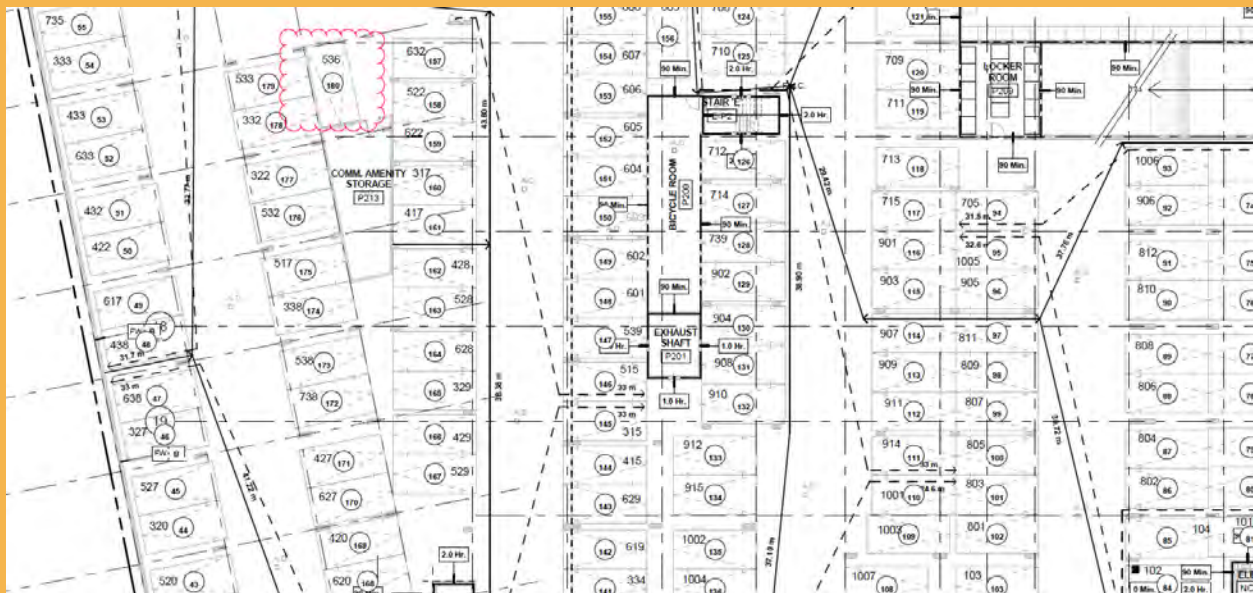
- Proximity to elevators
- Wider spaces by a column
- Level 1 vs. lower levels

We will work with you to assign parking to each unit.

It’s a bargaining tool with prospective residents to take up a lease in a more desirable lease, to get a better parking space.

Also importantly – it allows your leasing team to understand how to allocate parking appropriately. It’s too easy to use parking as a bargaining tool to sign a lease: We want to make sure your leasing team is consistent in providing parking based on price points (which we create in our rent grid).

Below is a sample parking plan. Each spot is assigned to a specific unit based on desirability of unit, and rent level. **We’ll be in contact to create this for you once your building designs are complete.**





# RECOMMENDED RENTS

## “How much can I charge in rent?”

Setting **potential achievable rents** for *proposed* rental buildings can be a challenge since the building does not yet exist and therefore direct comparisons cannot be made with existing rentals or condominiums, nor can future pricing trends be predicted with accuracy or reliability. It, therefore, requires good market sense to set potential rents which should be achievable and likely to be accepted by renters and absorbed into the rental market.

Setting rents at the right level are critical to the success of any new apartment development. Whereas expenses are largely determined by building size, management style, service level, and the quality of the building and units, the rents are chosen and controlled by the developer and should be set as high as the market will bear to ensure that net operating income (NOI) is maximized. Increasing the rents for each unit in an apartment building by \$100, for instance, will have a positive effect on the NOI because operating expenses remain more or less the same. In turn, every \$100 in rent will drastically change the value of a building, since \$100 in rent equates to \$24,000 in value at a 5% capitalization rate (see below).

$$\frac{\text{Net Operating Income}}{\text{Capitalization Rate}} = \text{Purchase Price}$$
$$\frac{\$100 \text{ in Rent X 12 Months}}{5\% \text{ Capitalization Rate}} = \$24,000 \text{ in Value}$$

It is important to understand that errors in setting rents will be amplified when a building is valued at a given capitalization rate, and it is therefore in the best interest of a developer to achieve the highest possible rents in a new rental apartment building right from the start.

Four variables typically affect rent setting:

1. Location.
2. Unit features & finishes.
3. Amenities.
4. Service Offering

Of these variables, normally only the location of the subject property can be assessed with a degree of confidence because unit features, finishes and building amenities are usually unknown factors; this makes identifying potential achievable rents a challenge.

We believe that if the subject property were developed as the market leading rental apartment building—which would be achieved if units are well-designed and efficient, finishes are top-of-the-line, the overall design is modern, amenities are impressive, and being the only property of its type in the market—then market-leading rents could be achieved, as per the table below. See also our recommendations for units in the previous pages.

Recommended Rental Rates - Building 1					
Unit Type	Unit Size (SF)	Unit Count	Unit Mix	Monthly Per Unit	\$/SF
1 Bed	650	24	20%	\$1,475	\$2.27
1 Bed + Den	750	18	15%	\$1,575	\$2.10
2 Bed	950	54	45%	\$1,900	\$2.00
2 Bed + Den	1,100	24	20%	\$2,000	\$1.82
<b>TOTAL/AVG.:</b>	<b>890</b>	<b>120</b>	<b>100%</b>	<b>\$1,786</b>	<b>\$2.03</b>

Recommended Unit Mix - Building 2					
Unit Type	Unit Size (SF)	Unit Count	Unit Mix	Monthly Per Unit	\$/SF
1 Bed	650	24	20%	\$1,475	\$2.27
1 Bed + Den	750	18	15%	\$1,575	\$2.10
2 Bed	950	54	45%	\$1,900	\$2.00
2 Bed + Den	1,100	24	20%	\$2,000	\$1.82
<b>TOTAL/AVG.:</b>	<b>890</b>	<b>120</b>	<b>100%</b>	<b>\$1,785</b>	<b>\$2.03</b>

The client should refer to the preceding market comparables section for detailed rents from the new rental buildings selected as potential competitors. The proposed rents for the property are based on the following rationale:

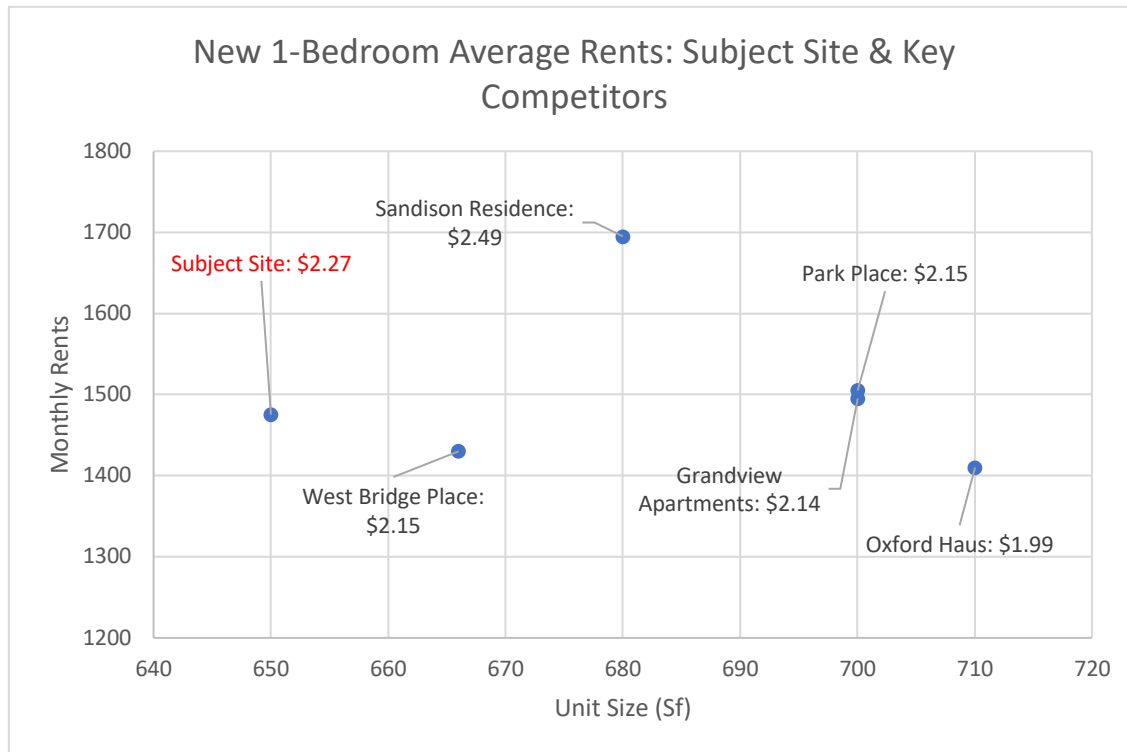
- The subject neighbourhood is a strong location for a purpose-built rental development. The surrounding neighbourhood offers a strong assortment of both community amenities such as parks, trails, and service centres; along with commercial amenities such as grocers, pharmacies, restaurants, fast food locations, and banks all within 2km of the subject site. However, the subject site lacks in connectivity as there is minimal public transit, and approximately 25 minutes away from regional road 3 and highway 401. Although there are connectivity issues, the site is highly attractive to prospective renters, and that once brought to market, the subject site is likely to achieve strong rents relative

to both existing primary market comparables and secondary market rentals in the local market.

- **Market Positioning:** There has been very limited apartment construction in Amherstburg, and the surrounding area primarily consists of single-family homes. If developed with appropriate features, finishes, and thoughtful design considerations, the subject site will enter the top of market in the municipality. This will enable it to preferentially attract existing homeowners and secondary market renters in the surrounding community, and prospective residents from the broader market whilst achieving strong rents.

## One-Bedroom Rental Units

Competitor Market Positioning:

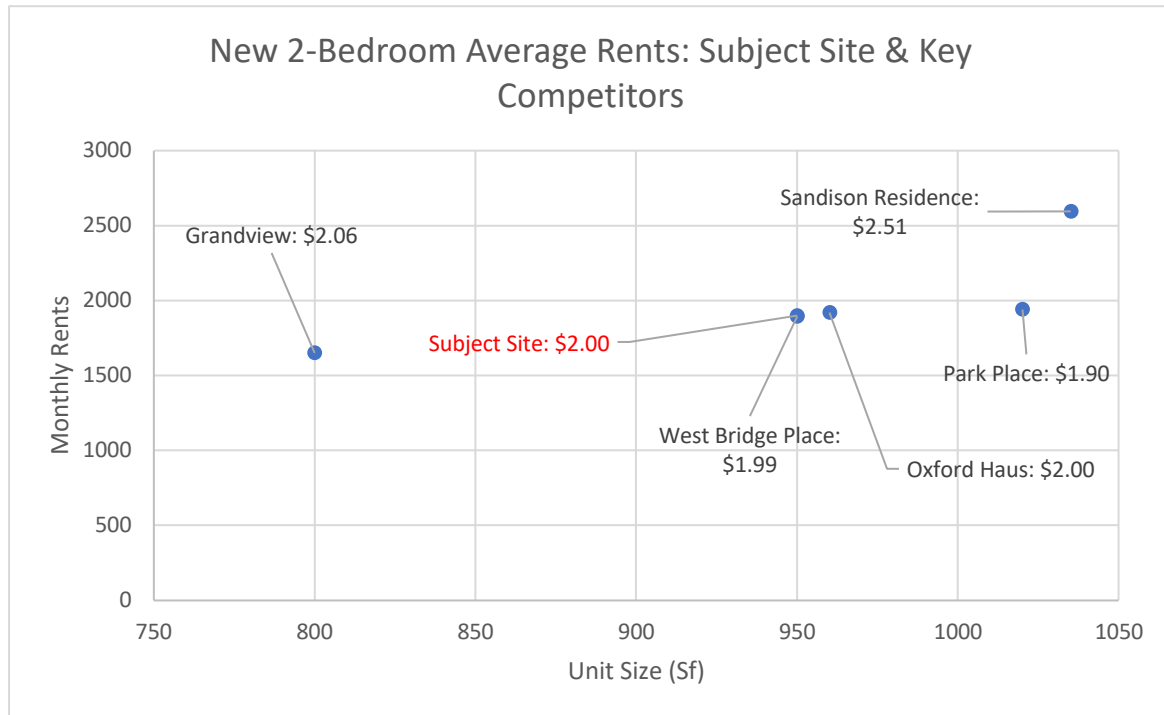


Avg. 1-Bedroom Rents			
Property	Unit Size (Sf)	Monthly Rent	Rent/Sf
Sandison Residence	680	1695	2.49
<b>Subject Site</b>	<b>650</b>	<b>1475</b>	<b>2.27</b>
West Bridge Place	666	1430	2.15
Park Place	700	1505	2.15
Grandview Apartments	700	1495	2.14
Oxford Haus Apartments	710	1410	1.99

- The proposed sizes of one-bedroom units at the subject site are sized slightly smaller than that of *West Bridge Park* at 650Sf with a monthly rental rate of \$1,475. *Sandison Residence* represents luxury rental product in a suburban community. Given Amherstburg is a smaller township, the subject site will likely be able to achieve strong rental rates if the subject development was positioned as top of market luxury product.

## Two-Bedroom Rental Units

Competitor Market Positioning:



Avg. 2-Bedroom Rents			
Property	Unit Size (Sf)	Monthly Rent	Rent/Sf
Sandison Residence	1035	2595	2.51
Grandview Apartments	800	1650	2.06
<b>Subject Site</b>	<b>950</b>	<b>1900</b>	<b>2.00</b>
Oxford Haus Apartments	960	1920	2.00
West Bridge Place	950	1895	1.99
Park Place	1020	1940	1.90

- Two-bedroom units at the subject site are sized at 950Sf and are likely to achieve monthly rental rates of \$1,900. *West Bridge Place* offers similarly sized units at 950Sf which achieve rents of \$1,895 at a rent per Sf of \$1.99.

We make the following **general comments** regarding setting rental rates:

- **Units should be individually priced** based on desirability factors such as height, views, sun load, unit features, unique layouts, design quirks, etc. Pricing units individually almost always mean higher overall revenues.
- Setting rents is a dynamic process and initial pricing will be a “best guess” which will have to be adjusted on a weekly basis depending on rental activity and **closing ratios** during lease-up. The best way to monitor demand for units is to apply a closing ratio test. In a normal rental apartment market for every 100 telephone calls received by leasing agents, approximately 60 appointments are made, 50 appointments are kept, and 10 leases are closed, giving a closing ratio of 20%. By tracking leasing data carefully, the client will be able to determine if traffic proportions and closing ratios match the ones in the table; if they match, or are similar, then you have priced units correctly.
- Using **rent concessions** to fill units is not recommended, except during the initial lease-up phase of a newly constructed rental building. In the first year, when units are sitting empty, offering one month’s free rent or other incentives will help reach full occupancy as quickly as possible, but once full occupancy has been achieved rent concessions should be discontinued.

telephone inquiries	100
appointments made	60
appointments kept	50
leases closed	10
<b>CLOSING RATIO =</b>	<b>20%</b>



# STABILIZED VALUATION

We have prepared a high-level income/expense pro-forma – Based on the recommended density scenarios of 240 units at the North- East corner of Sandwich Street North & Brunner Avenue, in Amherstburg, Ontario.

Our pro-formas use the direct capitalization method, which is considered as the primary approach for the valuation of rental apartment buildings by the industry. The direct capitalization method is based on the assumptions that the motive for investing in an income-producing property is profit-oriented, and that value is created by expected income. In other words, the investment is expected to be acquired by an investor who would be willing to pay to receive an income stream plus reversion value from a property over a period of time.

The direct capitalization method involves capitalizing a fully leased net operating income estimate. The capitalization rate selected should be based on recent transactions of recent properties, but caution must be used since new buildings will not achieve the same capitalization rate as some recently sold older properties with significant repositioning potential that have transacted at extremely low cap rates.

This approach is best utilized with stabilized assets, where there is little volatility in the net income and the growth prospects are also stable. The value that results is what a typical purchaser in the market might reasonably pay for a particular property, however, it is not necessarily what the property might actually sell for.

This stabilized valuation is based on the following assumptions, which are considered to be industry standard and consistent across both pro-formas:

<b>OPERATING ASSUMPTIONS</b>	
<b>Rental Rates</b>	Rental rates assume market-leading unit quality and amenities.
<b>Parking Fees</b>	Monitor local comparables and adjust fees accordingly (see the previous discussion on car parking).
<b>Vacancies</b>	Assumed 2%; This is a conservative estimate based on the limited available rental data available within GTA
<b>Turnover</b>	10% to 15% annually on average given the older renter demographic for the proposed development.
<b>Expenses</b>	Annual Cost per Unit (unless noted otherwise)
<b>Repairs &amp; Maintenance</b>	Minimum of \$950, an industry-accepted number used for newly constructed rental apartments. We cannot speculate on exact figures for repairs and maintenance at this stage, as each building will differ in the level of maintenance required given building features and amenities.
<b>Utilities</b>	\$1,200 per unit— Assuming central heat/chilling, water, and common area hydro. We expect the client will implement energy efficient building features and sub-meter individual units. Hydro rates could fluctuate given current Provincial policies and rebates offered.
<b>Staffing/Security</b>	Given the quality of the project and staffing requirements, we assumed that staffing would be approximately \$163,000 annually.
<b>Property Taxes</b>	Per municipal mill rate for multi-residential buildings in Amherstburg of 0.01796485 for 2021. *Property tax estimates to be confirmed by a property tax specialist.
<b>Marketing</b>	\$125 when stabilized, higher during initial lease-up, as many units will have to be leased at once.
<b>Insurance</b>	Through appraisal data analysed, we have seen that an insurance cost of approximately \$300/unit is reasonable for new rental buildings. The client should procure its own insurance quotes, as well.
<b>Property Management Fee</b>	3% of gross revenues.

Note: that all income and expense items are high-level estimates only and are subject to change (due to changing market conditions, amendments to the client's plans, city approvals etc.). These rent grids and proformas are preliminary, hypothetical, and included for discussion only. Operating expenses and capitalization rates are constantly changing variables, and we strongly recommend the client prepare detailed construction proformas and financial models before making development decisions.

# Submetering Your Units

Your 1A Feasibility Study gives you an operating proforma for your building which estimates your revenues and expenses at a high level. **We've included in your proforma, the potential savings associated with submetering:**

**Estimated Stabilized Value - 3239 South Fraser Way, Abbotsford BC**

RECOMMENDED RENTAL RATES									
Unit Type	Unit Size (SF)	Unit Count	Unit Mix	Total SF	Monthly Rent Per Unit	\$/SF	Monthly	Total Annual	
1 Bed	575	42	38%	24,150	\$1,375	\$	2.39	\$	57,750
1 Bed + Den	700	11	10%	7,700	\$1,550	\$	2.21	\$	17,050
2 Bed	825	53	47%	43,725	\$1,675	\$	2.03	\$	88,775
2 Bed + Den	1,000	5	5%	5,000	\$1,875	\$	1.88	\$	11,250
<b>TOTAL AVG.:</b>	<b>728</b>	<b>112</b>	<b>100%</b>	<b>81,575</b>	<b>\$1,561</b>	<b>\$</b>	<b>2.14</b>	<b>\$</b>	<b>174,825</b>

Total Residential Units:	<input type="text" value="112"/>	Net Rentable SF (Residential Units):	<input type="text" value="81,575"/>
		Total Monthly Rent Revenue:	<input type="text" value="\$ 174,825"/>

ESTIMATED OPERATING REVENUE:	#Spaces	Monthly Fee	Annual Per Unit	Monthly Per Unit	Monthly	Total Annual
Rent			\$ 18,731.25	\$ 1,560.94	\$ 174,825.00	\$ 2,097,900
Parking Below Grade	150	\$50	\$ 8,037	\$ 66.96	\$ 7,500.00	\$ 90,000
<b>SUB-TOTAL:</b>			<b>\$ 19,534.82</b>	<b>\$ 1,627.90</b>	<b>\$ 182,325.00</b>	<b>\$ 2,187,900.00</b>
Vacancies (Rent & Parking)	3.02%		\$ (586.04)	\$ (48.84)	\$ (5,469.75)	\$ (65,637.00)
<b>TOTAL:</b>			<b>\$ 18,948.78</b>	<b>\$ 1,579.06</b>	<b>\$ 176,855.25</b>	<b>\$ 2,122,263.00</b>

ESTIMATED OPERATING EXPENSES (INDUSTRY STANDARD)	Units @	Annual Per Unit	Monthly Per Unit	Monthly	Total Annual
Utilities - Common Area Hydro, Water	112	\$ 1,300.00	\$ 108.33	\$ 12,133.33	\$ 145,600
Repairs & Maintenance	112	\$ 600.00	\$ 50.00	\$ 5,600.00	\$ 67,200
Staffing	112	\$ 1,000.00	\$ 83.33	\$ 9,333.33	\$ 112,000
Insurance	112	\$ 300.00	\$ 25.00	\$ 2,800.00	\$ 33,600
Marketing	112	\$ 200.00	\$ 16.67	\$ 1,866.67	\$ 22,400
Miscellaneous	112	\$ 150.00	\$ 12.50	\$ 1,400.00	\$ 16,800
Management Fee	% of Gross Revenue	\$ 4,000.00	\$ 333.36	\$ 3,707.21	\$ 44,487
<b>Submetering Rentance</b>	Units @	\$ (196.00)	\$ (16.10)	\$ (185.10)	\$ (2,221.20)
Property Taxes (Per Municipal Rate)	30.21%	\$ 300,000	\$ 25,000	\$ 276,167.3	\$ 3,314,007
<b>TOTAL:</b>	<b>30.21%</b>	<b>\$ 5,724.46</b>	<b>\$ 477.04</b>	<b>\$ 53,428.28</b>	<b>\$ 641,139</b>

<b>ESTIMATED NET OPERATING INCOME</b>		<b>\$ 13,224</b>	<b>\$ 1,102</b>	<b>\$ 123,427</b>	<b>\$ 1,481,124</b>
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ESTIMATED VALUATION		Residential CAP	Est. Market	Est. Market	Est. Market Value
Market Value @	4.00%	\$	320,589.54	\$	453.51
Market Value @	4.13%	\$	320,589.54	\$	440.16
Market Value @	4.25%	\$	311,160.44	\$	427.21

Utilities are a significant expense line item (upward of \$1,800/year in-suite), and ever increasing rates and regulatory requirements keep increasing their cost. Growing costs put downward pressure on NOI.

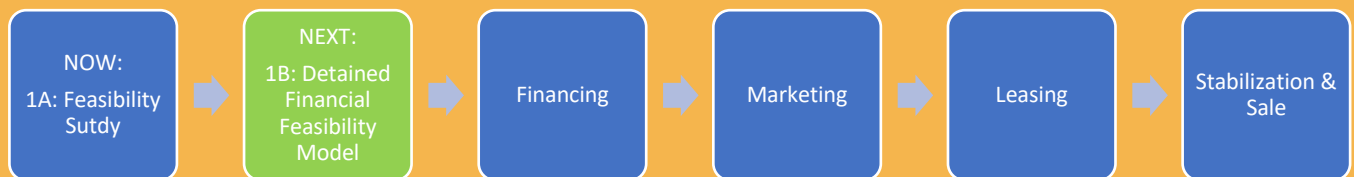
Submetering in-suite utilities significantly reduces building owner expenses, which improves NOI and ultimate valuation. The benefit of submetering for residents, however, is that many are attracted to equitable and sustainable lifestyles: Submetering improves their control over their utility bills and encourages more eco-friendly behaviour.

There are submetering solutions for multiple utilities – electricity, water, thermal, gas – to optimize the efficiency over the life of your building.

Whether you're building to keep or building to sell – submetering is a must for any new building. For long-term property holders, submetering will improve the long-term efficiency of your building and systems. For sellers, reduced utility expenses will boost your NOI and ultimate valuation.

***During your 1A Feasibility Study delivery, we will discuss the benefits associated with submetering, and several options for submetering solutions.***

# Detailed Financial Feasibility Model (1B): Your Next Step



Your 1A Feasibility Study has given you a high level operating proforma with a valuation based on our best estimate of cap rates in your market at time of writing.

The next step is to conduct a deeper drill on the profitability and viability of your building. SVN Rock Advisors' Detailed Financial Feasibility Study (1B) uses your Stabilized Operating Proforma from your 1A report to provide an estimate of **return on cost**, **development yield**, **IRR upon stabilization**, and a **10-Year IRR calculation**. **Based on the preliminary stats for your building and high-level assumptions, we have estimated the return on cost and development yield to be:**

Apartment Pro-forma

Prepared by:  
SVN Rock Advisors, Inc.

Page 1

HEADLINE NUMBERS	
NOI at stabilization	1,560,994
Capitalization Rate	4.13%
Valuation @ \$ 2.37 per sqft avg revenue	37,990,164
Less: Selling costs	(379,902)
Sales Proceeds	37,610,262
Total Cost	(40,031,432)
Profit before taxes if sold at stabilization	- 2,421,170
Return on cost	6.0%
Development Yield	3.9%
IRR upon stabilization if sold	10.3%
IRR 10-Year	7.1%
Construction Costs per unit	357,424
Construction Costs per sqft	491
Value per unit at stabilization	339,198
Value per sqft at stabilization	466

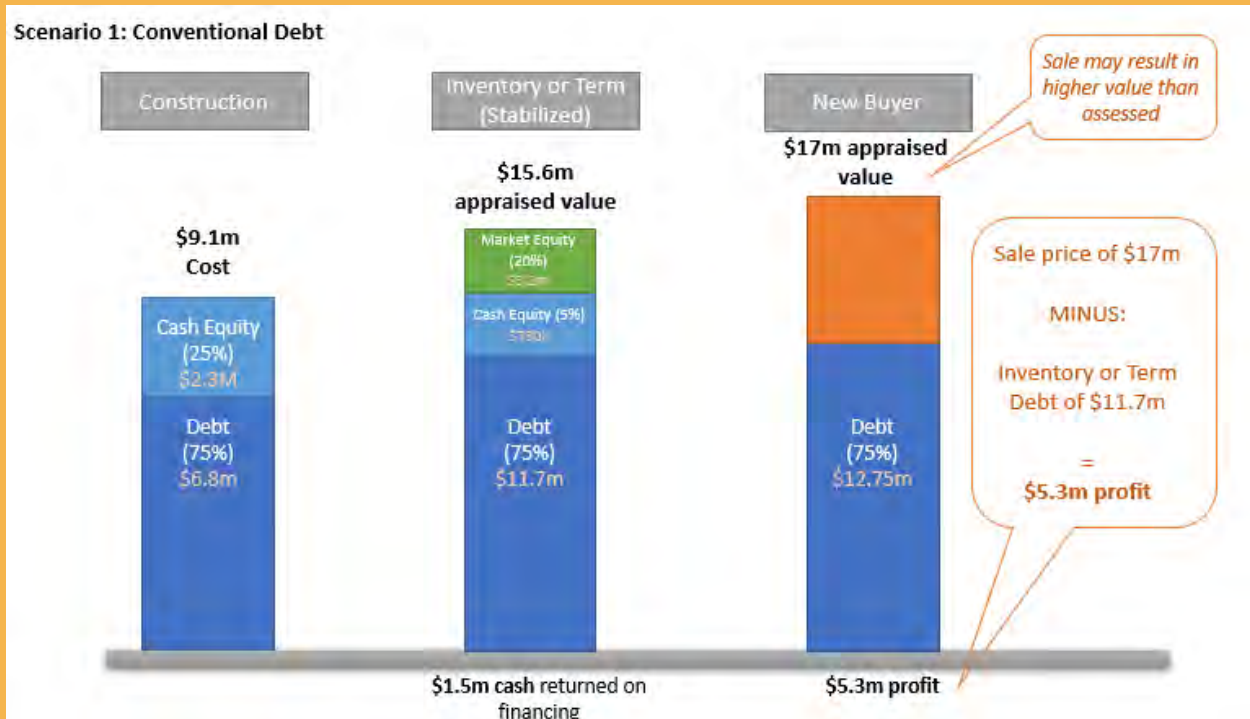
**Our Account Manager will be in touch to discuss how this model can work with your existing model, or whether you need to purchase this separately for lending.**

# Project Financing: Building Your Capital Stack

The next logical step after a feasibility study is to use this document for financing. You'll need to build your capital stack with your preferred lender. **SVN Rock Advisors can refer to you several lenders (both conventional and mezzanine) to build your capital stack based on our estimated value, and your own borrowing preferences.**

SVN Rock Advisors works with lenders with experience in the rental industry to help secure construction financing, mezzanine financing, and/or equity and Joint Venture financing for your development. **Your 1A Rental Feasibility Study** can be used for lending purposes, or as a detailed introduction to your project for a potential equity or Joint Venture partner.

You'll typically require 20%-25% equity for a purpose-built rental project. You can structure your capital stack in a variety of ways. Using our high-level construction costs and assumptions from our preliminary 1B Detailed Financial Feasibility Study, we have identified several capital stack scenarios to consider **and we'll have a lender on our delivery to discuss this with you at a high level.**



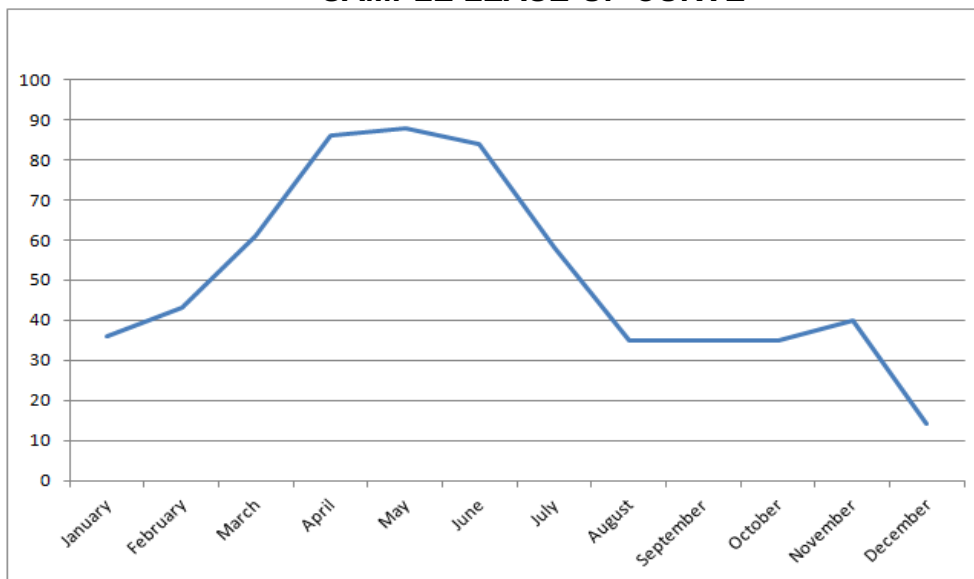


# LEASING AND PROJECT ABSORPTION

A wide range of factors affects leasing and absorption, some of which are beyond the control of developers. Such factors include seasonality and timing, project size, and target tenant profile, and are summarized below:

**Seasonality:** The time of the year when a rental project is delivered can have a significant effect on leasing since many renters don't like to move in the winter and most try to avoid extra spending during the Christmas season. The consultant has direct experience with projects that started leasing at different times of the year and we have seen that leasing activity typically looks like a bell curve with the highest amounts of monthly closes in spring and summer months. If a new rental building is delivered in the autumn, for example, leasing will typically be slow until spring, which means several months of low leasing activity, possibly increasing the duration of the overall lease-up. The graph below shows the real-world lease-up curve for a new rental project with four buildings. Note the seasonal variations: leasing activity declines in autumn, but spikes in spring and stays relatively strong over summer.

**SAMPLE LEASE-UP CURVE**



**Unit mix:**

Smaller units (i.e. bachelors and one-bedroom units) tend to lease quicker but turnover more. In contrast, larger units tend to lease slower but turnover less. This is because renters of larger units typically take longer to rent, especially in instances where homeowners are downsizing to rental apartments and need to sell their property.

The table below summarizes recently absorbed new rental apartment buildings:

SAMPLE ABSORPTION RATES				
Address	Delivery Date	Units	Lease-Up Duration	AVG Units Leased Per Month
91 Westminster Crescent, Fergus	2015	55	2 months	25+ est.
65 Lillian St, Toronto	2010	141	18 months	7.8
305 Roehampton Ave, Toronto	2015	221	14 months	15.8
Luxury Tower, Suburban Ottawa	2016	~150	7.5 months	20
320 Tweedsmuir Ave, Toronto	2013-14	~600	24 months	25
2550 Eglinton Ave, Mississauga	2016	324	9 months	36
105 Harrison Garden, Toronto	2010	332	12 months	27.7
335 Dunsdon St, Brantford	2016	306	12 months	25.5
25 Selby St, Toronto	2018	441	In Lease-Up	15
22 John St, Toronto	2018	370	In Lease-Up	28
55 Smooth Rose Ct, North York	2019	311	In Lease-Up	30

These examples indicate that full occupancy can likely be achieved within 18 months, even by large rental buildings. The consultant, based on these absorption examples, believes that an estimated average **monthly absorption rate of 10 - 15 units per month is appropriate with full occupancy achieved in 25 to 37 months, assuming a density of 370 units.** These ranges depend on the final density for new, high-quality rentals, supported by professional leasing and marketing. We caution that this is an estimate only and many factors can cause this estimated average monthly absorption rate to vary considerably, particularly in large projects.

**Note: It is important that the client is prepared to take time to lease the building up to maximize achievable rents. A building that leases up very rapidly, indicates that rents have been set below what the market will bear. A building that takes longer than average to lease up, has likely set rents too high. As such, rent setting is a dynamic process.**

## Lease-Up

Your 1A Feasibility Study has given you an estimate of how long your building will take to lease up. The lease-up is the most critical stage of the development process – the rents you achieve will determine how much money you make in this deal.



The lease-up is not just about how fast you can fill your building – it's about demonstrating the value of your building to prospective residents, to **maximize the monthly rent they are willing to pay** for the experience of living in your community. This comes down to hiring the right leasing staff, creating the right ambiance in the lobby, serving the right beverages when prospects walk in the building, playing the right music.... setting the stage down to the smallest details to ensure that your future

resident's expectations are not only met but exceeded.

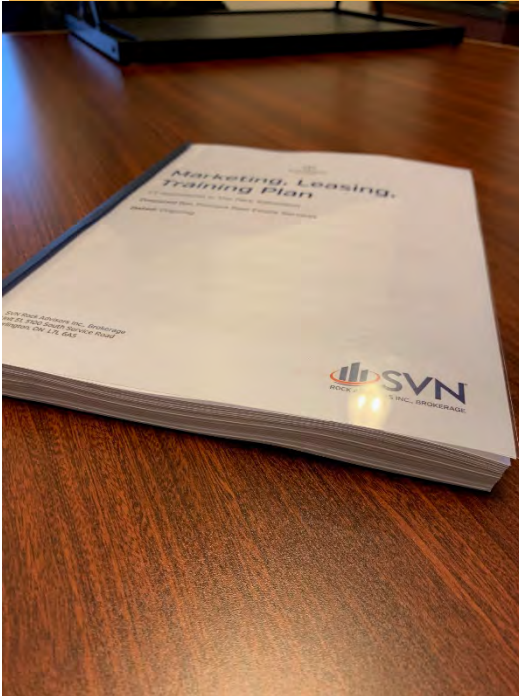
# MARKETING RECOMMENDATIONS

This section describes general marketing recommendations for the subject property, but it is highly recommended that a detailed marketing plan is developed by the client. PRIZM5 profiles provide powerful and detailed consumer behaviour data that should form the basis of any marketing plan or the subject property.

We cannot emphasize enough the necessity for the client to begin planning marketing strategies and tools as early as possible in the development process, long before the “shovel hits the ground”. We recommend developing a detailed marketing plan which provides a detailed step-by-step schedule for each “action item” with a timeline and instructions for implementation by each staff member on a daily, weekly, and monthly basis. We make the following general comments on marketing:

- **Timing:** Marketing should ideally begin up to two years before product delivery to build a “buzz” and interest in the property and allow the creation of a “priority waiting list” (much like a waiting list for condo sales). Having a list of prospective renters ready before leasing begins helps leasing agents can get a jump on leasing.
- **Absorption Studies:** Absorption studies work by setting up a marketing campaign which attracts the attention of prospects. When prospects make contact with the client they are asked to provide information about preferences, including amenities, parking, pricing, services, etc. Absorption studies can also help gauge demand for new apartments, although in this case, we believe depth-of-market is sufficiently deep to easily absorb the subject property if built. Absorption studies can also test marketing strategies and help identify target demographics. Although a fair amount of setup is required, we have found that absorption studies can provide plenty of useful data and a measure of confidence that the proposed project will be successful.
- **Website:** The most important marketing tool for new rental apartment buildings is a carefully targeted website. We recommend setting up a smart, searchable, and interactive website for the subject property. Websites should allow for secure online applications, pre-qualifying, payments, concierge services, and an event bulletin board. Examples of effective websites are The Harrison ([www.myrental.ca](http://www.myrental.ca)), Vertica Services ([www.vertica.ca](http://www.vertica.ca)), and many U.S. operators of luxury rentals.
- **Social Media:** Social media websites are another marketing tool often used in the rental apartment industry. Although opinions vary on the effectiveness of social media campaigns, they are an inevitable part of a comprehensive marketing strategy.
- **Internet Advertising:** Numerous apartment listing sites operate in the GTA and we think you should advertise on the better-quality sites. The consultant has had significant success using online listings since the type of person who can afford to buy a condominium can afford to rent an upscale rental apartment.
- **Signage:** Signage will not likely be a major source of prospect traffic for the subject property, given its location in a smaller community, but regional billboards and other signage can be useful. Signage should be up during construction and pre-leasing stages to generate interest in the property as early as possible (putting signage up once the building opens is far too late). Early signage will likely take the form of construction banners and billboards promoting “luxury rentals coming soon”. Once the building’s exterior is ready, monument signage and permanent marketing signage should be installed.
- **Print Advertising:** Although print advertising is declining in importance compared to online advertising and social media, there is still a role for smart print advertisements that grab the eye and reach the right target audience.
- **Other Advertising:** Other advertising can mean just about anything including coupon promotions, handouts, flyers, media events, cookouts, sponsored trips, etc. You are limited by your imagination and energy.

# Writing Your Marketing Strategy



You may be in the early stages of the development process, but it's never too early to think about how you're going to effectively market your new rental building. **Your 1A Feasibility Study has given you a head start to marketing, by identifying your target renter and providing you with their behavioural and psychographic data.** The next step is to work this into an **actionable marketing plan.**

SVN Rock Advisors Marketing Strategies are comprehensive allow your internal marketing team, or a third party marketing firm (which we will help vet for you) - from pre-construction, through construction, pre-leasing, leasing, to stabilization. Most importantly, it will give you a head-start on your competition to build a targeted priority waiting list, so that when leasing starts you have a **large pool of price-qualified target residents who already know and want to buy your product!**



# NEXT STEPS

Upon the completion and review of a feasibility study, three steps should be considered in the near future:

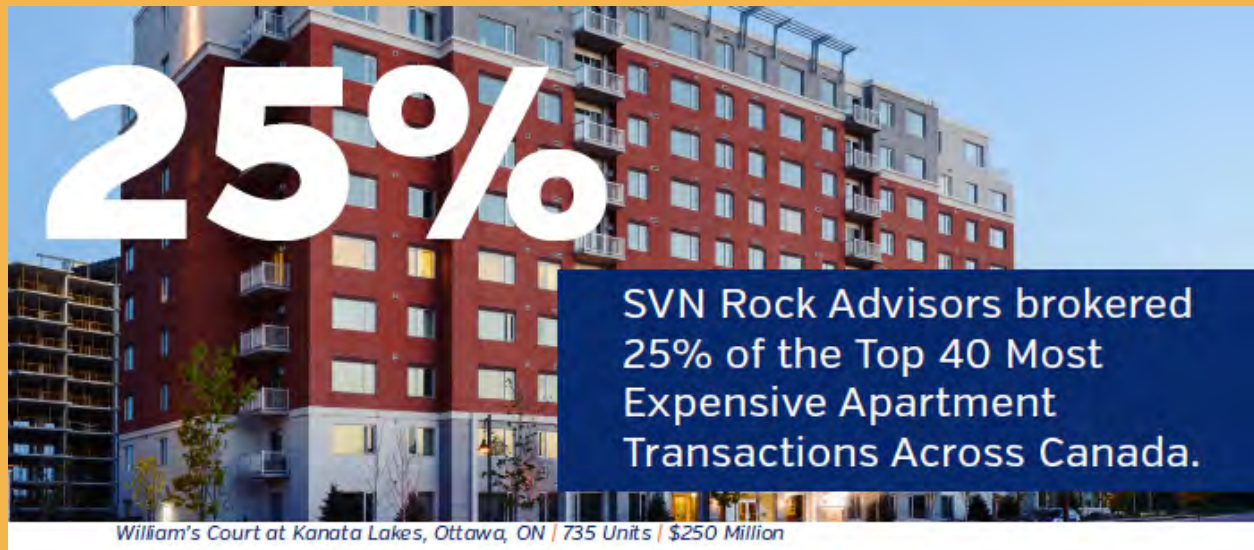
**1. Financial analysis:** After completing a feasibility study and US tour, the client will have a better idea concerning floor plans, unit mix and size, and amenity space in the building. Once decisions are made regarding these topics, the consultant can examine the financial implications of developing, leasing, and selling new purpose-built rental apartments through the completion of a detailed financial analysis utilizing including:

- Detailed lease-up and absorption schedule.
- 10-year cash flow pro forma, including construction, lease-up, and stabilization.
- Sharing of preferred returns between equity partners.
- Cash flow, profit distribution, and valuation of the subject property.
- Sensitivity analysis on all of the above.

**2. Financing:** Affiliates of the consultant offer mezzanine and equity financing programs for developers. These financiers often provide mezzanine construction financing up to the lower of 85% of value or 90% of costs, and in some cases may cover a portion of the additional equity required, all structured by way of second mortgage financing behind conventional construction lenders. Some of these groups expect to be the most logical buyer for the properties they finance, because they will have monitored construction, lease up and preliminary operation of the properties, so any required due diligence to support an acquisition would be limited.

## Brokerage – Exiting the Deal

The first question we would have asked you when you came to us for a 1A Feasibility Study is: 'Are you building this to keep? Or are you building to sell?' The answer to that question is key; and will determine the kind of building you're going to design. The reality is that your decision to hold or sell may change several times during the development process. And that's ok! SVN Rock Advisors has brokered 25% of the 40 most expensive apartment transactions across Canada. We are considered industry leaders in transacting purpose-built rental apartment buildings.



If you decide to sell, we can counsel you on the best timing for maximum profit and run a comprehensive brokerage process to find you the right buyer for your deal.



# APPENDIX A: TERMS OF REFERENCE

SVN Rock Advisors Inc. (the 'consultant') has been retained to study the feasibility of developing new apartment building on the client's sites (herein referred to as the 'subject property') located at the following address:

**North-East Corner of Sandwich Street North & Brunner Avenue, Amherstburg, ON**

The consultant has undertaken a demand analysis and competitive market supply analysis, involving a review of demographic, economic, housing, and rental apartment market data to help the client decide if the proposed project should proceed and to help identify appropriate rents, unit mixes, unit sizes, amenities and services, target renters, overall depth-of-market, potential commercial tenants, commercial rents, and phasing strategies.

## TERMS OF REFERENCE

Readers should refer to the signed project approval form between the consultant and the client for the detailed terms of reference for this feasibility study.

## REPORT DATE

This report is dated February 2021 and was prepared using data collected during December 2020-February 2021. Market conditions change and this final report should be periodically reviewed in light of changes in the market.

## INTENDED USE

The intended use of this report is to provide the client with a demand analysis and competitive market supply analysis, to assist in internal decision making regarding the feasibility of developing rental apartment units at the subject site.

## DATA SOURCES

Throughout this analysis, the consultant focuses on what are considered to be indicators of demand and depth-of-market for new rental apartments. When these indicators are positive, the feasibility of developing new rental apartments is positive. The consultant uses publicly available data published by the government and government organizations, plus data gathered by the consultant in the field through contact with building representatives, superintendents, and leasing agents. The consultant makes no guarantees that the data provided by these persons or organizations is accurate or comprehensive. The information contained within the consultant's database is by no

means complete, and its accuracy cannot be guaranteed. The client should review data sources independently, and periodically update and confirm the data used in this report.

The consultant used the following information sources in this study:

- CMHC (Canada Mortgage and Housing Corporation) market reports: CMHC publishes data on individual rental apartment markets at the end of each year in their Rental Market Report series. CMHC captures purpose-built rentals only, in buildings with 6+ units.
- Statistics Canada Census: Nationwide census is conducted every five years by Statistics Canada. The most recent census was conducted in May 2016.
- The consultant's in-house database of rental apartment buildings across Canada: This in-house database contains over 60,000 rental apartment and student housing buildings across Canada, and is one of the largest databases of its kind. The database is relational, meaning that the consultant not only collects data on buildings, but also collects information about building owners, companies, and contacts. A dedicated team of database researchers maintain the integrity of the database on a daily basis and continually add new and existing rental buildings from across Canada. This database contains data collected from sources such as Geowarehouse, Realnet, Realtrack, and MPAC, as well as primary research conducted by the consultant (such as telephone calls, mystery shops, and data collection from online sources).
- Demostats (2020) and PRIZM5 demographic profiles. A detailed description of these data sets is provided within the report.
- Tours and telephone contacts with comparable properties: as noted throughout the report.

## **REPORT LIMITATIONS & DISCLAIMERS**

- The consultant uses data published and/or provided by governments and government related organizations, plus data gathered by the consultant's research staff in the field via contact with building representatives. We make no guarantees and do not undertake to confirm independently that the data provided by these persons and/or organizations is accurate or comprehensive. We recommend the client independently review data sources and periodically update and confirm the data used in this report.
- The consultant's principals, management, staff, contractors, and associates are real estate consultants only, and observations, findings, analysis, and recommendations in this report are limited to the consultant's area of knowledge, experience, and expertise. The consultant's principals, management, staff, contractors, and associates do not possess the knowledge or expertise to check or verify planning, engineering, architectural, environmental, financial, or legal information or documents provided by the client and we do not accept any legal or

financial responsibility if the client provides inaccurate, incomplete, or misleading information or documents.

- The consultant's observations, analysis, and recommendations in the report are the opinions of the firm's principals and management and the client may interpret data and findings differently and reach different conclusions. The consultant is not responsible for different interpretations or conclusions the client may reach, nor any use by the client of the findings or contents of the report for purposes other than intended by the consultant.
- The consultant's report may contain recommendations, forward-looking statements, and projections and these are based on information available at the time of report preparation. The consultant accepts no responsibility for the impact of changing market conditions and regulations on recommendations, forward-looking statements, and projections. We recommend the client conduct independent and parallel due diligence to confirm or disconfirm recommendations, forward-looking statements, and projections.
- The consultant makes no guarantees, written or otherwise, that if the client adopts or acts on the consultant's observations, findings, analysis, or recommendations in the report that the client's project will be successful, nor do we, as real estate consultants offering our opinion only, accept any legal or financial responsibility or liability for failure, underperformance, or termination of the client's project. If the client changes or alters the project significantly or if the housing market and general economy changes significantly after the date of this report, then the observations, findings, and recommendations in the report may no longer apply to the client's project.



# APPENDIX B: REPORT TERMINOLOGY

**Apartment Universe:** CMHC uses this term to mean the entire supply of rental units which according to their rules includes purpose-built rental apartments and townhouses with 6 or more total units (excluding retirement housing and subsidized units). Generally speaking, only CMHC uses this term.

**Apartments:** Statistics Canada uses the term “apartment” to refer to any dwelling unit in a multi-unit building (with 3 or more units), whether rental or condominium. By contrast, among rental industry players and the general public “apartment” means a *rental* apartment only. The exception is Quebec where apartments can mean either rental or condominium apartments and this is due to a language difference.

**Census Tracts:** The smallest practicable geographies used by Statistics Canada for which Census data is available. The total population of each tract ranges from a few hundred to a few thousand people. Periodically some tracts are split into multiple tracts when major population growth occurs. In some cases, the population of individual tracts is too small to be statistically reliable but for most tracts this is not a problem.

**Chunk Rent:** Chunk rent is the asking rent per unit per month. Renters always think in terms of chunk rent, i.e. \$1,000 for a one-bedroom unit, as opposed to the rent per square foot.

**City vs CMA:** Statistics Canada separates most major cities into the City and the CMA, or Census Metropolitan Area. The CMA typically includes the City plus surrounding rural and suburban areas and should be considered a sort of ‘regional’ geography, whereas the City is the urban municipality only. The City boundary is typically the preferred geography for the purposes of studying rentals, although it is not always possible to use the City since CMHC does not always provide data for City separate from the CMA, often making it difficult to compare Census data from Statistics Canada with rental data from CMHC. This is an important point to understand and we provide examples below.

**CMHC Zones:** These are groups of Census Tracts which CMHC combines to organize data for rentals in major cities. The City of Toronto, for example, is divided into seventeen CMHC zones. In some cities, including Toronto, the boundaries of zones appear to be arbitrary and do not seem to reflect local knowledge.



**Condominiums:** Commonly used term which refers to dwelling units in multi-unit buildings which are part of a condominium corporation and are privately owned (and bought and sold).

**Conventional Renters:** We use this term to describe ‘average joe’ renters usually between the ages of 25 and 65 who are seeking rental housing for themselves or their family. We do not consider seniors or students to be conventional renters.

**Dwelling vs Household:** Statistics Canada uses the terms dwelling and household almost interchangeably and in terms of quantity the two are the same. In other words, one dwelling unit equals one household in Census data.

**Empty Nesters:** Couples (some singles) aged 55 to 65 whose children have moved out and who are seeking to move from their large family homes to smaller or better-located rentals or condominiums. When renters, these are usually “lifestyle renters” since they can afford to own a house but prefer a rental apartment for location, convenience, size, and amenity advantages.

**Lifestyle Renter:** Renters who choose to rent (compare with “shelter renters”). Lifestyle renters are found everywhere but usually in larger cities and upscale suburban areas and typically prefer newer, high-quality rentals with desirable amenities and locations. Lifestyle renters can be of any age theoretically, and are mostly upper-income persons who could afford to buy a house or condominium but choose to rent (in Toronto, for instance, upscale rentals are typically priced high enough to match or exceed hypothetical mortgage payments). Most newly constructed rentals in central Toronto target lifestyle renters and given how expensive housing of all types is in Toronto we expect that future new rentals will have no choice but to target lifestyle renters too.

**New Apartment Construction:** We use this term to mean any purpose-built rentals constructed from the year 1991 to date. In reality, most newly constructed apartments have been built after the year 2000.

**Primary Rental Market:** CMHC uses this term to describe purpose-built rental apartments.

**Purpose-Built Rentals:** We use this term to refer to rentals which were originally built as rentals only and continue to be leased as rentals. By comparison, condominiums which are being rented are not considered purpose-built rentals.

**Rental Market:** We use this term to mean the entire rental housing market for a city or town, including purpose-built rentals and condos and freehold dwellings being rented. Depending on the size of the city or town, this can mean thousands to hundreds of thousands of rental units.

**Rental Sub-Market:** We use this term to mean the rental market in a neighbourhood or section of a city or town and usually contains several hundred or a thousand rental units in 10 to 20 rental buildings.

**Returns:** Return is the rent per square foot, e.g. \$2.50/SF. There is a tendency among developers to think that units should be priced on a rent per square foot basis since this is the way that condominium units are priced (an 810SF condominium unit will likely achieve a higher sales price than an 800SF unit, for example). However, in rental apartments, the renter will only understand the chunk rent of a unit and units should be priced accordingly (an 810SF rental unit is unlikely to achieve a different rental rate than an 800SF unit, for example).

**Secondary Rental Market:** CMHC uses this term to describe non-purpose-built rentals (i.e. “informal” rentals). We characterize informal rentals as composed of a pool of potential rental prospects who are renting outside the purpose-built rental supply because they are not finding what the rental housing they need within the purpose-built rental supply for a variety of reasons including cost, quality, amenities, unit configurations, location, etc.

**Shelter Renters:** Renters who rent for economic reasons and not by choice. Typically these are renters with poor credit, low incomes, or other factors which mean they cannot acquire or support a mortgage and therefore have no choice but to rent. Compare with “lifestyle renters.”

**Student Renters:** Students enrolled in a post-secondary educational education, either university or college, who are renting in the rental market. Student renters are typically short-term renters who stay in a rental unit for 12 months but not longer than 4 years (university students) or 2 or 3 years (college students).

## APPENDIX C: RENTAL FORMULA

### How does the purpose-built rental 'formula' differ from condos?

There are several fundamental differences in the formula for developing successful purpose-built rental product, versus the development of a condominium building. These differences stem from:

- a. Who is ultimately responsible for the long-term maintenance of the building; and
- b. Who is ultimately responsible for who the long-term tenancy of the building.

A condo developer's primary goal is to maximize short-term profit. This motivation leads to small units, cheaper finishes, minimal amenities, and construction techniques focused on lowering price points rather than long-term durability. A condo developer sells units through plans, meaning that actual finishes, unit sizes and configurations, amenities, etc. do not need to be particularly durable or functional. Parking is less of a financial concern for a condo developer than in purpose-built rental product as the cost of construction can be charged up front to a purchaser.

Conversely, the primary goal of a long-term holder of purpose-built rental product is to maximize long-term profit. This is achieved through owning a building that is built with durability in mind: The interior finishing's must be practical and sufficiently durable to last through tenant turnover. The lobby and other amenities will be used to sell the building over and over to prospective tenants and as such must be high quality, and highly functional. Units must be rented through showing tenants the physical unit they will be living in. Accordingly, units will need to be larger than your typical condo unit, and extremely functional in terms of layout. The exterior/building construction must be durable to minimize long-term capital expenditure as this responsibility falls on the building owner. Construction should also focus on techniques that conserve energy, given that the building owner is also responsible for common area utilities.

From our review of the marketplace, we have identified two types of rental apartment developers:

1. The Merchant Apartment Builder; and
2. The Long-Term Apartment Builder.

The merchant apartment builder develops purpose-built rental product to sell on to a long-term holder. As such, this builder is less concerned with the long-term durability of the product, however remains concerned with the quality and functionality of units and amenities as the value of the building relies on strong rents to drive price, and low vacancy

and turnover. These are driven by large, attractive, and functional units, and strong amenities.

The long-term apartment builder constructs the purpose-built rental product with a focus on durability both inside and out, given that they expect to have to endure the cost of maintenance and capital expenditure over the long-term. These distinctions are summarized in the following table:

<b>Item</b>	<b>Condo Builder</b>	<b>Merchant Apartment Builder</b>	<b>Long-Term Rental Apartment Builder</b>
<b>Utilities</b>	Bulk	Bulk/Submeter	Submeter what you can
<b>Parking</b>	Sells spots (some flexibility based on sales)	Minimum	Minimum + What is really needed
<b>Amenities</b>	Minimized: Price point driven	Similar to a condo developer	Relatively speaking - amenity rich. Aiming at what the tenant profile really wants e.g. a dramatic gym (millennials), much smaller gym for seniors.
<b>Lobby</b>	Units sold from plans: May be dramatic, but non-functional	Better than a condo	Focusing on arrival experience and sometimes the building being 'hotel ready'.
<b>Move-In Date</b>	As early as possible	Early, in tranches	Early, in tranches, OR once amenities and lobby is finished.
<b>Ceiling Heights</b>	Lowest you can get away with.	Medium	High
<b>Apartment/Unit Specs</b>	Varies: Owner pays for upgrades.	Medium	High, with a focus on durability.
<b>Size</b>	Small - based on saleability	Medium	Targeted to the long-term demographics of the area: I.e., if the future resident is an older demographic, developer will build larger apartments

<b>Item</b>	<b>Condo Builder</b>	<b>Merchant Apartment Builder</b>	<b>Long-Term Rental Apartment Builder</b>
<b>Unit Mix</b>	Driven by condo sales and developer experience.	Driven by leasability: I.e. the developer may not want to build larger units because they take longer to lease, and price per unit for sale makes it hard for a buyer to digest.	Is prepared to build larger units than typical condos because the developer recognizes the lifestyle renter and longer-term profitability.
<b>Rooftop Garden</b>	No	No	Yes
<b>Quality of the retail tenant (Quality, not rent received)</b>	Lowest you can get away with.	Medium	High
<b>Move-In Facilities</b>	Lowest you can get away with.	Medium	High
<b>Finishes</b>	Low quality	Lower quality	Highest quality
<b>Green Energy</b>	Unlikely to adopt	Unlikely to adopt	More likely to adopt e.g. tankless water heaters
<b>Sub-metering</b>	No	Yes	Yes
<b>Sound Attenuation</b>	Less focused, sells on plans	More focused	Very focused

# APPENDIX D: LEISURE & BEHAVIOURAL PROFILES

Target Group: Young Professionals - Higher Income (12, 20, 22, 28, 57)

Household Population 12+: 493

## Top Shows & Exhibitions



## Top Local Attractions & Destinations



## Top Professional Sports



## Top Concert & Theatre Venues



Target Group: Young Professionals - Higher Income (12, 20, 22, 28, 57)

Household Population 12+: 493

## Top Individual Sports



## Top Team Sports



## Top Activities



## Top Fitness





Target Group: Middle Aged - Higher Income (01, 02, 03, 06, 17, 18, 30, 32, 39, 07)

Household Population 12+: 0

**Top Shows & Exhibitions**



**Top Local Attractions & Destinations**



**Top Professional Sports**



**Top Concert & Theatre Venues**



Target Group: Middle Aged - Higher Income (01, 02, 03, 06, 17, 18, 30, 32, 39, 07)

Household Population 12+: 0

**Top Individual Sports**



**Top Team Sports**



**Top Activities**



**Top Fitness**



Target Group: Seniors/ Empty Nesters - Higher Income (09, 10, 16, 21, 23, 31, 44, 45)

Household Population 12+: 1,015

### Top Shows & Exhibitions



### Top Local Attractions & Destinations



### Top Professional Sports



### Top Concert & Theatre Venues



Target Group: Seniors/ Empty Nesters - Higher Income (09, 10, 16, 21, 23, 31, 44, 45)

Household Population 12+: 1,015

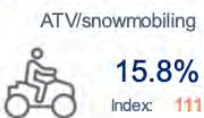
### Top Individual Sports



### Top Team Sports



### Top Activities



### Top Fitness





SVN Rock Advisors Inc., Brokerage  
Unit 51, 5100 South Service Road  
Burlington, ON  
L7L 6A5

905-331-5700

# RIVERVIEW APARTMENTS AMHERSTBURG

FOR PIROLI CONSTRUCTION (1603941 ONTARIO LTD.)





# RIVERVIEW APARTMENTS AMHERSTBURG

## 1.0 INTRODUCTION & WELCOME

- IN THIS PRESENTATION:
  - DESCRIPTION OF PROPOSAL
  - ANALYSIS REGARDING PLANNING APPROVALS
  - CONCLUSION REGARDING PLANNING MERITS
  - QUESTIONS
- OTHER SIMILAR PROJECTS
  - LEAMINGTON
  - WINDSOR
  - CHATHAM

# RIVERVIEW APARTMENTS AMHERSTBURG

Seacliff Heights 1 and 2  
40 and 50 Seacliff Drive East, Leamington



Opened June 1<sup>st</sup>, 2016, and November 1<sup>st</sup>, 2018, respectively.

[seacliffheights.ca](http://seacliffheights.ca)



# RIVERVIEW APARTMENTS AMHERSTBURG

## West Bridge Place

850 Wyandotte Street West, Windsor



**WB** West Bridge Place



Opened August 1<sup>st</sup>, 2020

[wbplace.ca](http://wbplace.ca)



# RIVERVIEW APARTMENTS AMHERSTBURG

Park Place Apartments 1

Park Place 2 (Currently in Construction)

550 Park Ave West, Chatham



Opened October 1<sup>st</sup>, 2021

[parkplacechatham.com](http://parkplacechatham.com)

## 2.0 SITE CHARACTERISTICS & PROPOSED DEVELOPMENT

### 2.1 SITE

- SITE IS 6.4 HECTARE FLAG-SHAPED PARCEL AT THE NORTHEAST CORNER OF INTERSECTION OF BRUNNER AVENUE AND SANDWICH STREET NORTH, ACQUIRED BY PIROLI IN 2021



# RIVERVIEW APARTMENTS AMHERSTBURG





# RIVERVIEW APARTMENTS AMHERSTBURG

## 2.2 PROPOSED DEVELOPMENT

- TWO, SIX-STOREY APARTMENT BUILDINGS, 115 UNITS EACH ON 2.5 HA (6 AC.) PORTION FRONTING ON SANDWICH STREET NORTH
- THIS AREA IS DESIGNATED GENERAL COMMERCIAL IN THE OFFICIAL PLAN WHICH PERMITS STAND-ALONE APARTMENT TOWERS UP TO EIGHT STOREYS IN THE SANDWICH STREET CORRIDOR
- ZONED GC-5 (GENERAL COMMERCIAL EXCEPTION AREA 5) WHICH DOES NOT LIST RESIDENTIAL AS A PERMITTED USE. THUS A REZONING IS NECESSARY PIROLI IS PROCEEDING WITH THE APARTMENT BUILDINGS AS PHASES 1 & 2 IN ITS PRESENT APPLICATION TO THE TOWN
- PRESENT APPLICATIONS ARE AS FOLLOWS:
  - PHASE 1 – ZONING AND SITE PLAN APPROVAL FOR APARTMENT BUILDING AT THE CORNER OF BRUNNER AND SANDWICH STREET NORTH
  - PHASE 2 – ZONING FOR APARTMENT BUILDING NORTH OF PHASE 1 (SITE PLAN APPLICATION TO COME LATER)

# RIVERVIEW APARTMENTS AMHERSTBURG

## OPTION 3





# RIVERVIEW APARTMENTS AMHERSTBURG

## OPTION 4



# RIVERVIEW APARTMENTS AMHERSTBURG

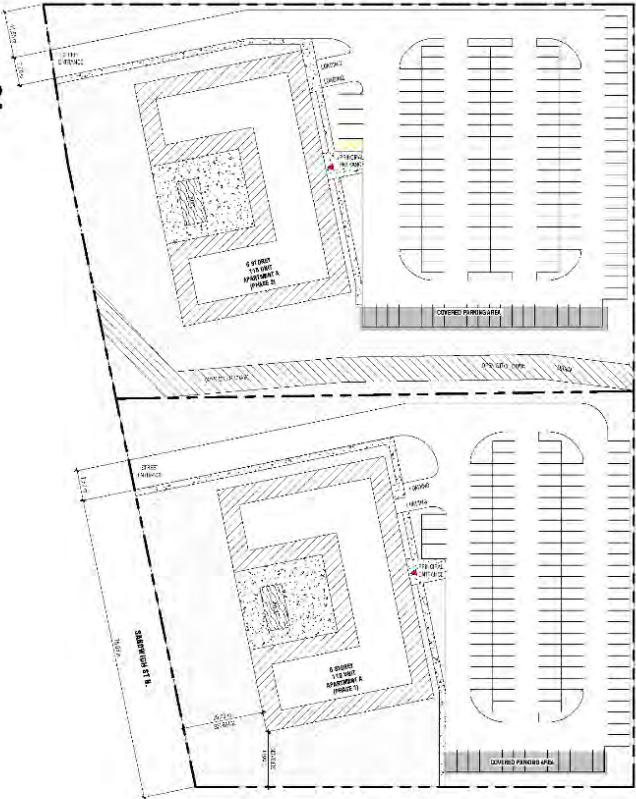


102 - 27 Phlox Street, Leamington, Ontario N8H 2G9  
705 - 555 Provincial Road, Windsor, Ontario N9B 3M1

## 21-108 RIVERVIEW APARTMENTS - PHASE 1 & 2 AMHERSTBURG, ONTARIO

DESIGN 2014 - SITE PLAN 1

SANDWICH ST. N & BRUNNER AVE DEVELOPMENT  
AMHERSTBURG, ON



PHASE 2

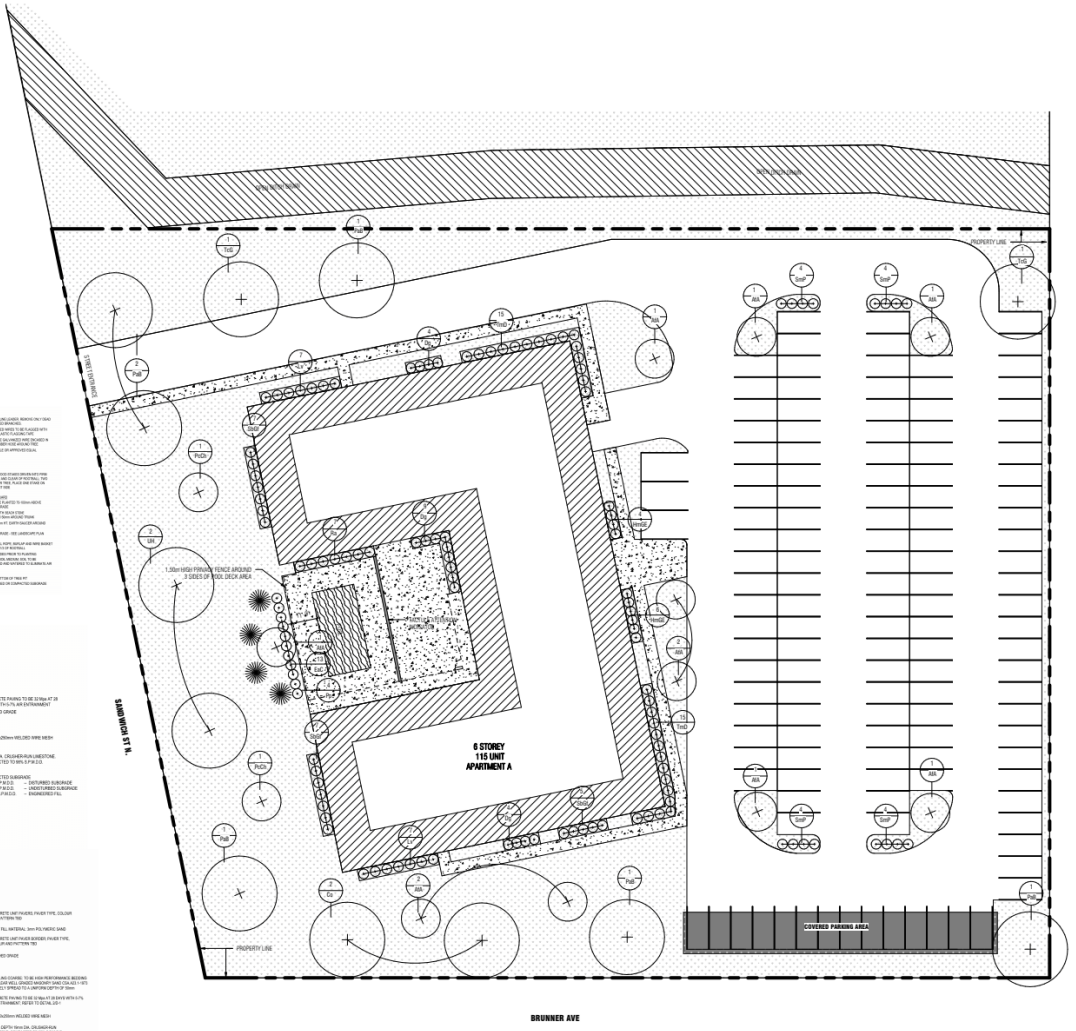
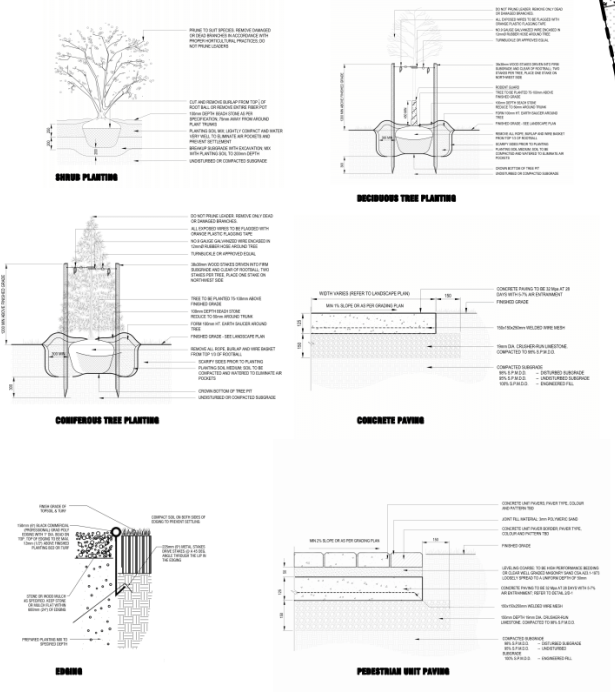
PHASE 1

**SANDWICH ST N & BRUNNER AVE - PHASE 1 & 2**  
SCALE: 1" = 40'-0"



# RIVERVIEW APARTMENTS AMHERSTBURG

PLANT LIST				
<b>DECIDUOUS TREES</b>				
AIA	ACER FREEMANNI - ARMSTRONG (ARMSTRONG MAPLE)	70mm	WB	10
Ca	CELTIS OCCIDENTALIS (COMMON HACKBERRY)	70mm	WB	2
PlB	PLATANUS ACERIFOLIA - BLOODGOOD (BLOODGOOD LONDON PLANETREE)	70mm	WB	6
PcH	PIRUS CALLERYANA - CHANTICLEER (CHANTICLEER FLOWERING PEAR)	60mm	WB	2
TcG	TILIA CORDATA - GREENSPIRE (GREENSPIRE LINDEN)	70mm	WB	2
UH	ULMUS X - HOMESTEAD (HOMESTEAD ELM)	70mm	WB	2
<b>CONIFEROUS TREES</b>				
Pp	PICEA PLUNGENS (COLORADO SPRUCE)	200cm	WB	4
<b>DECIDUOUS SHRUBS</b>				
Dg	DEUTZIA GRACILIS (SLENDER DEUTZIA)	50cm	POT	17
EaC	EUONYMUS ALATA - COMPACTA (DWARF BURNING BUSH)	50cm	POT	13
HeGE	HYDRANGEA MACRO - GLOWING EMBERS (GLOWING EMBERS FLOREST HYDRANGEA)	50cm	POT	10
Lx	LIGUSTRUM VICARYI (GOLDEN PRIVET)	60cm	POT	14
Ra	RIBES ALPIMUM (ALPINE CURRANT)	50cm	POT	7
SaGf	SPYRAEA BUNALDA - GOLDFLAME (GOLDFLAME SPYREA)	40cm	POT	19
SmP	SYRINGEA MEYERI - PALBIN (PALBIN DWARF LILAC)	50cm	POT	16
<b>EVERGREENS</b>				
ThD	TAXUS MEDIA - DENSIFORMIS (DENSE YEW)	50cm	POT	30



**LANDSCAPE PLAN**  
SCALE: 1:250

**BAIRDIAE**  
Landscape Architecture  
1000 - 267 Palliser Street  
Windsor ON N9A 4K4

**PIROLI GROUP**  
Landscape Architecture

**ONONDIA ASSOCIATES**  
ARCHITECTS  
LAW OFFICES  
LAW OFFICES

**RIVERVIEW APARTMENTS - PHASE 1**  
200 SANDWICH STREET NORTH  
AMHERSTBURG, ONTARIO

**LANDSCAPE PLAN**

09

## 3.0 PLANNING ANALYSIS

### 3.1 PLANNING HISTORY

- 2004 APPLICATION FOR SUBSTANTIAL COMMERCIAL REDEVELOPMENT
- APPEALED TO ONTARIO MUNICIPAL BOARD
- THREE PARTY SETTLEMENT IN 2006 – TOWN, DEVELOPER & HONEYWELL RESULTING IN OPA 6 TO THE FORMER OP AND REZONING WHICH HAS BEEN CARRIED FORWARD IN PRESENT OFFICIAL PLAN
- TOWN PLANNER EVIDENCE THAT FULL MUNICIPAL SERVICES WERE AVAILABLE AND THERE WERE NO ENVIRONMENTAL OR HERITAGE ISSUES ACCEPTED BY OMB

# RIVERVIEW APARTMENTS AMHERSTBURG

## 3.2 PROVINCIAL POLICY STATEMENT AND COUNTY OFFICIAL PLAN

- DEVELOPMENT OCCURRING IN PRIMARY SETTLEMENT AREA
- IMPLEMENTING IMPORTANT POLICIES REGARDING HOUSING INTENSIFICATION AND BROWNFIELD REDEVELOPMENT

## 3.3 AMHERSTBURG OFFICIAL PLAN

- APPROVED IN 2010
- INCORPORATED PREVIOUS OPA 6 (NOW SPA 10)
- GENERAL COMMERCIAL PERMITS UP TO EIGHT-STOREY APT.BUILDINGS
- OPA 1 – DEALS WITH HONEYWELL LANDS
  - BASICALLY BASED ON AGREEMENT WITH MINISTRY OF THE ENVIRONMENT NO DEVELOPMENT UNTIL ALL BUILDINGS REMOVED (2018) AND SITE REMEDIATED.

## 3.4 AMHERSTBURG ZONING BY-LAW

- NEED TO AMEND SITE-SPECIFIC ZONE SO AS TO PERMIT RESIDENTIAL USE
- REGULATIONS FOR RESIDENTIAL USE SHOULD REFLECT SETBACKS SHOWN ON SITE PLAN



# RIVERVIEW APARTMENTS AMHERSTBURG

## 4.0 SUPPORTING STUDIES / DOCUMENTS

- PLANNING JUSTIFICATION REPORT
- TRAFFIC IMPACT STUDY
- FUNCTIONAL ENGINEERING REPORT
- ARCHAEOLOGICAL ASSESSMENT
- SPECIES-AT-RISK INFORMATION
- PHASE 2 ENVIRONMENTAL ASSESSMENT
- MARKET STUDY
- ACOUSTICS STUDY
- PETITION FROM NEIGHBOURING RESIDENTS SUPPORTING PROJECT (11 SIGNATURES) FOLLOWING NOVEMBER 16, 2021 PRESENTATION OF PROJECT BY PIROLI

# RIVERVIEW APARTMENTS AMHERSTBURG

## 5.0 CONCLUSION

- IT IS AN EFFICIENT USE OF LAND WITH LITTLE TO NO INFRASTRUCTURE IMPROVEMENTS REQUIRED
- IT WILL ADD SUBSTANTIAL ASSESSMENT TO THE MUNICIPAL TAX BASE
- IT WILL IMPLEMENT IMPORTANT POLICIES REGARDING INTENSIFICATION AND REDEVELOPMENT ON A BROWNFIELD SITE
- IT WILL ASSIST THE TOWN IN PROVISION FOR A HOUSING OPTION FOR WHICH THERE IS A DEMONSTRATED PROJECTED MARKET
- PLANNING CONTROLS PRESENTLY IN PLACE ON NEIGHBOURING FORMER INDUSTRIAL LANDS IN NEED OF REMEDIATION WILL REDUCE, MITIGATE OR ELIMINATE A POTENTIAL LAND USE COMPATIBILITY ISSUE BETWEEN A FUTURE INDUSTRIAL LAND USE AND SENSITIVE LAND USE (RIVERVIEW APARTMENTS)

## 5.0 CONCLUSION (CONTINUED)

- ORIGINAL TOWN GOALS ACHIEVED IN 2006 SETTLEMENT ARE MAINTAINED:
  - NO IMPACT ON PLANNED FUNCTION OF COMMERCIAL CORE
  - NO ADVERSE IMPACT ON NEIGHBOURING RESIDENTIAL USE
  - **THE DEVELOPMENT WILL IMPLEMENT THE “NORTHERN GATEWAY” POLICY ROLE**
- THE PROJECT COULD ACT AS A TRIGGER FOR REDEVELOPMENT OF THE HONEYWELL LANDS

# RIVERVIEW APARTMENTS AMHERSTBURG

## 6.0 STATUTORY PUBLIC MEETING

- IT IS NOTED THAT THIS MARCH 9, 2022 MEETING IS FOR INFORMATION PURPOSES ONLY, AND FURTHER, THE PUBLIC IS INVITED TO SUBMIT COMMENTS TO THE MUNICIPAL CLERK PRIOR TO THE MARCH 28, 2022 STATUTORY PUBLIC MEETING

### **STATUTORY PUBLIC MEETING:**

**TAKE NOTICE** that the Council of the Corporation of the Town of Amherstburg will hold a public meeting, by electronic means, on **Monday, March 28, 2022 commencing at 4:00 p.m.** in the Town of Amherstburg Council Chambers, 271 Sandwich Street South, Amherstburg, Ontario. The purpose of this meeting is to consider a proposed amendment to the Town of Amherstburg Zoning By-law 1999-52, under Section 34 of the Planning Act.

**ANY PERSON** who wishes to attend and address Council by electronic means, must register with the Clerk's Office no later than 4:00 pm on Thursday, March 24, 2022. To register for electronic participation please email the Deputy Clerk at [tfowkes@amherstburg.ca](mailto:tfowkes@amherstburg.ca) . Once you register, you will be given information on how to make your submission at the electronic meeting by electronic participation. To participate, you will need access to a computer or tablet with internet service or a telephone.

**ANY PERSON** who wishes watch the meeting proceedings only, please visit <http://video.islive.ca/amherstburg/live.html>



## 7.0 QUESTIONS