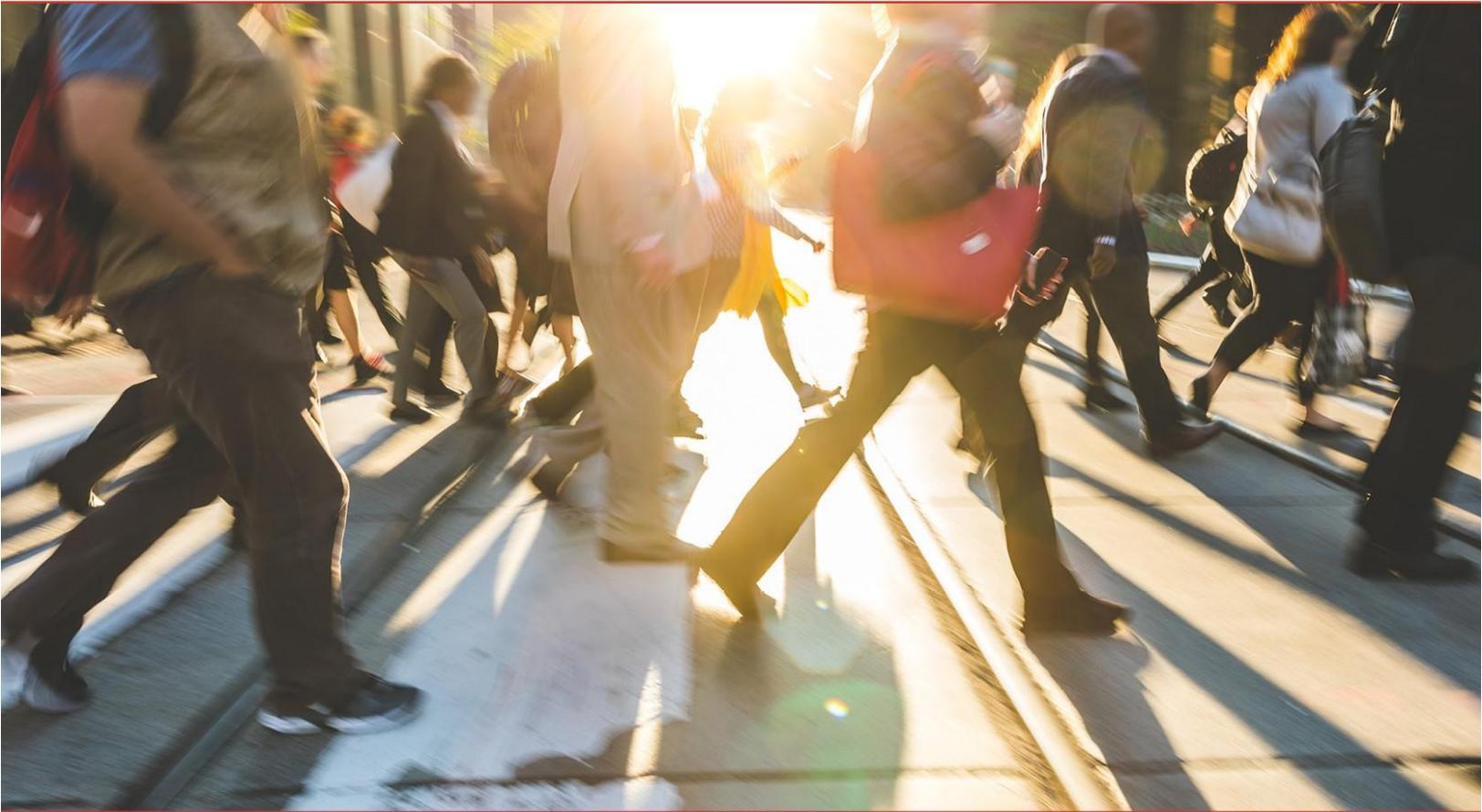


SEATON TAUNTON FIELDGATE COMMERCIAL LANDS

Traffic Sensitivity Analysis
City of Pickering



Prepared For: Fieldgate Commercial Properties

December 2nd, 2025



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1.0 INTRODUCTION

BA Group is retained by Fieldgate Commercial Properties to provide transportation consulting services regarding the proposed commercial development within Neighbourhood 16 of the planned Seaton Community in the City of Pickering Ontario. The development is proposed amongst four separate parcels of land known collectively as the “Taunton Condo & Fieldgate Commercial Lands” located directly north and south of Taunton Road between Burkholder Drive to the west and Aquarius Trail to the east. The Fieldgate Commercial Lands (the “Site”) refer to the southwestern parcel bounded by Taunton Road to the north, Marathon Avenue to the south, Burkholder Drive to the west, and TACC Developments planned Taunton Site B Lands to the east.

The location of the Site amongst all four development blocks in the context of the Neighbourhood 16 Lands are illustrated on **Figure 1**. Accompanying figures are attached in **Appendix A**.

This report provides an update to the traffic operations and impacts related to the Site relative to the summary report and technical appendix entitled *Seaton Transportation Operations Review* which was completed by BA Group in May 2013 and explained in **Section 1.1.1**, and the most recently submitted Traffic Impact Study for the collective Taunton Condo & Fieldgate Commercial Lands completed by BA Group in August 2024 and explained in **Section 1.1.2**. Further, this report addressed transportation related comments received from the City of Pickering in memorandums dated January 7th, 2025, and October 28th, 2025. Responses to comments received are addressed in **Section 9.0** of this report.

1.1 Background

The following is an overview of the relevant submissions and studies completed to date.

1.1.1 Seaton Transportation Operations Review

In May 2013, BA Group completed a transportation planning exercise on behalf of the Seaton Landowners Group and issued a summary report and technical appendix entitled *Seaton Transportation Operations Review* (the “2013 Report”) which examined several transportation-related elements of the entire “full build-out” Seaton community (approximately 61,000 residents and 30,500 jobs).

Starting from draft plans and assumptions regarding future land uses and transportation facilities, the study derived traffic forecasts and, using said forecasts, evaluated projected traffic operations throughout Seaton. Based on this assessment, it identified potential problem areas, recommended mitigation measures, and, in general, commented on several long-term transportation aspects pertaining to the entire future Seaton community.

The traffic volume projections which arose out of this transportation review have since been used by both HDR (*Central Pickering Development Class EA Travel Demand Modelling Analysis* – April 29, 2014) and the Region of Durham (*Operational Analysis for Seaton Arterial Development* – April 16, 2014) in their respective evaluations of future traffic operations along regional arterial roads throughout Seaton. These volumes also constitute the base from which the refined turning movement counts used as part of the current study were derived.

1.1.2 Taunton Condo & Fieldgate Commercial Traffic Impact Study

Since the completion of the 2013 Report, which assessed traffic operations for the entirety and full build-out of the planned Seaton community, BA Group has been involved in a number of Draft Plan of Subdivision applications submitted to the City of Pickering and the Region of Durham which have focused on the interim operations of intersections within the vicinity of each site with updated lane configurations, traffic controls and development proposals.

Among these, BA Group represented TACC Developments and Fieldgate Commercial Properties in the development of a shared Traffic Impact Study for the residential subdivisions and commercial development known collectively as the Taunton Condo & Fieldgate Commercial Lands in a report titled “*Seaton – Taunton Condo Lands & Fieldgate Commercial – Traffic Sensitivity Analysis*”, initially dated August 15, 2023, and most recently amended on August 13, 2024 (the “August 2024 Report”).

The location of these lands, of which the Site is a part of, is illustrated on **Figure 1**.

1.1.3 Site Plan Applications

Transportation related elements of the site plans (including site access, circulation, parking, loading, vehicular access and waste collection) as well as transportation demand management plans will be assessed for each development block of the Taunton Condo & Fieldgate Commercial Lands in separate SPA reports. To date, the following SPA reports have been prepared:

- In March 2023, BA Group prepared a report titled “*Taunton Condo Lands – Site ‘A’ Proposed Residential Development Urban Transportation Considerations*” dated March 17, 2023, which was submitted to the City of Pickering as part of the March 2023 engineering submission for TACC Developments Site A; and,
- In April 2023, BA Group prepared a report titled “*Seaton Commercial Proposed Commercial Development Urban Transportation Considerations*” dated April 14, 2023 (the “April 2023 SPA Report”), which was submitted to the City of Pickering as part of the April 2023 engineering submission for the Fieldgate Commercial Site (i.e. the Site).

Transportation related elements of TACC Developments Site B and Site C development blocks are to be assessed in subsequent submissions. Site plans related to these development blocks were preliminarily discussed in the August 2024 Report and have been used in this report for the purposes of projecting future traffic generation.

Site statistics for all four development blocks are discussed briefly in **Section 2.0**, whilst a site plan for the Fieldgate Commercial Properties Site (i.e. the Site) is illustrated on **Figure 2**. **Sections 4.0, 5.0 and 6.0** review the parking, loading and bicycle parking elements of the current site plan for the Fieldgate Commercial Site, amending the April 2023 SPA Report.

1.2 Report Purpose

The purpose of this report is to provide an update to the 2013 Report and August 2024 Report with respect to traffic operations and impacts related to an amended Fieldgate Commercial Site (herein referred to as the “Site”), and to amend the site plan elements review presented within the April 2023 SPA Report.

Specifically, this will include:

- A review of site plan elements in relation to the Fieldgate Commercial Site, including parking and loading requirements;
- An update to our 2013 model traffic volume forecast to reflect a decrease in the planned residential and retail lands associated with the Taunton Condo & Fieldgate Commercial Lands;
- A review of the changes in road network due to the detailed design of the planned subdivisions, the City of Pickering Seaton Community Class EA (the “City EA”) and the Central Pickering Development Plan Class Environmental Assessment for Regional Services in the City of Pickering (the “Regional EA”);
- An update to the traffic volume assumptions for the Saturday peak hour assessment based upon a review of projected weekday peak hour traffic volumes, existing traffic patterns, and trip generation rates; and,
- An update to the forecasted traffic volumes for the Fieldgate Commercial Site from the August 2024 Report in consideration of the current development proposal.

2.0 TAUNTON CONDO & FIELDGATE COMMERCIAL LANDS

The following is an overview of the latest development plans for TACC Developments residential subdivisions and Fieldgate Commercial Properties commercial block for the purposes of the traffic volumes forecasting and operations analysis detailed in **Section 7.0** and **8.0**, respectively. Site plan elements of the Fieldgate Commercial block (the “Site”) are reviewed in **Sections 4.0, 5.0** and **6.0**.

2.1 Development Programme

The following provides a summary of the development proposal for each block within the Taunton Condo & Fieldgate Commercial Lands. It is noted that the location of TACC Developments Site B and the Fieldgate Commercial Site have swapped lands since that of the August 2024 Report.

- **TACC Developments (TACC) Site A:** Located north of Taunton Road between Burkholder Drive to the west and Peter Matthews Drive to the east, comprising of 387 residential townhouse units and a 436-unit apartment building. Site A has been submitted for Site Plan Approval and is currently under review;
- **TACC Site B:** Located south of Taunton Road and north of Marathon Avenue between a proposed private driveway (Street A) to the west and Peter Matthews Drive to the east. Preliminary plans as of the August 2024 Report suggest 222 residential townhouse units and a 250-unit apartment building;
- **TACC Site C:** Located south of Taunton Road and north of Marathon Avenue between Peter Matthews Drive to the west and Aquarius Trail to the east. Preliminary plans as of the August 2024 Report suggest 136 residential townhouse units and a 250-unit apartment building; and,
- **Fieldgate Commercial Site (the “Site”):** Located south of Taunton Road and north of Marathon Avenue between Burkholder Drive to the west and a proposed private driveway (Street A) to the east, comprising of 12,421 m² (133,703 ft²) of retail GLA (gross leasable area). This is an increase in 929 m² of GLA from the 11,492 m² assumed in the August 2024 Report.

Cumulatively, the Taunton Condo & Fieldgate Commercial Lands are planned to compose of a total of 1,681 residential units and 12,421 m² of retail GLA.

2.2 Vehicular Access

Access to the Taunton Condo & Fieldgate Commercial Lands is available via connections to existing municipal infrastructure including Taunton Road, Peter Matthews Drive, Aquarius Drive, Marathon Avenue and both the existing and proposed extension of Burkholder Drive (north of Taunton Road). A new north-south private road (“Street A”) is proposed between TACC’s Site B and the Site, extending from Taunton Road in the north to Marathon Avenue in the south. Two municipal roads are planned within TACC’s Site A, an east-west municipal road (“Kerr Street”) extending from Burkholder Drive in the west to Peter Matthews Drive in the east and a north-south municipal road (“McNeal Road”) extending from Taunton Road in the south to the proposed Kerr Street in the north.

The following provides a summary of the proposed and assumed accesses for each block:

- **TACC Site A:** A three-quarter moves (right-in/right-out/left-in) access to/from Peter Matthews Drive (Kerr Street), a three-quarter moves access to/from Taunton Road (McNeal Road) and an all-moves access to/from Burkholder Drive (Kerr Street), all of which are submitted for Site Plan Approval and are under review;
- **TACC Site B:** For the purposes of analysis, it is assumed there will be a right-in/right-out access to/from Peter Matthews Drive and two proposed all-moves access to/from Street A;
- **TACC Site C:** For the purposes of analysis, it is assumed there will be a right-in/right-out access to/from Peter Matthews Drive and an all-moves access to/from Aquarius Trail; and,
- **Fieldgate Commercial Site (the “Site”):** As part of this Site Plan Application, a right-in/right-out access to/from Taunton Road, an all-moves access to/from Burkholder Drive, and an all-moves access to/from Street A are proposed.

Transportation related elements of the site plans (including site circulation, parking, loading, vehicular access and waste collection) will be assessed for each development block in their separate SPA reports and are not covered in detail as part of this report. The exception is the Fieldgate Commercial Site for which this report satisfies the requirement of an updated SPA report from that of the April 2023 SPA Report.

A Site plan for the proposed Fieldgate Commercial Site is attached in **Appendix B**.

3.0 TRANSPORTATION CONTEXT

3.1 Roadway Nomenclature

The report uses street names based on the proposed plans. As a result of the adopted roadway nomenclature, there may be some discrepancy between the way streets are labelled in the current document and the way they are referred to on previously dated subdivisions. For clarity, the current and equivalent street naming convention from BA Group's 2013 Report are summarized in **Table 1**.

Table 1 Study Area Street Naming Conventions

BA Group's Report Street Names	Current Street Names
Sideline 22	Peter Matthews Drive
Sideline 24	Burkholder Drive
Street 16AJ	Kerr Street
Street 16AK	Removed from plan
Street 16AL	McNeal Road / North-South Private Road (Street A) / Hibiscus Drive
Street 16AM	Removed from plan
Street 16AN	Dragonfly Avenue
Street 16AP	TACC Site B Access / Fieldgate Commercial Site Access
Street 16AQ	Fieldgate Commercial Site Access
Street 16AS	Removed from plan
Street 16AT	Marathon Avenue / Belcourt Street
Street 16BD	Aquarius Trail

All streets of significance to the current study are shown with the proper nomenclature (the one that applies throughout this document) are illustrated on **Figure 3**.

3.2 Arterial Road Network

Taunton Road

Taunton Road is a Regional Type A arterial road which extends generally in an east-west direction across Durham Region, from the west boundary of Pickering with Toronto and Markham to Highway 35 in Orono. Beyond Pickering to the west, Taunton Road continues as Steeles Avenue and beyond Highway 35 to the east, it continues as Concession Road 6.

Within the study area, Taunton Road operates with four / five traffic lanes, separated by a raised central median. As part of the build-out of Seaton, Taunton Road will be widened to six / seven traffic lanes within the study area, with the curbside lanes operating as High Occupancy Vehicle (HOV) lanes.

Peter Matthews Drive (Sideline 22)

Peter Matthews Drive is a Regional Type B arterial road which extends generally in a north-south direction across the northern limits of the City of Pickering, from Alexander Knox Road to the north and Taunton Road to the south. The extension of Peter Matthews drive to Brock Road in the southeast is currently under construction and is anticipated to complete prior to the development of the Site. The extension will align Peter Matthews Drive with Rossland Road, an existing Regional Type B arterial road extending east.

Within the study area, Peter Matthews Drive operates with four / five traffic lanes, separated by a raised central median. As part of the build-out of Seaton, Peter Matthews Drive will extend northward from Alexander Knox Road to Highway 7 in the north.

Burkholder Drive (Sideline 24)

Burkholder Drive is a City Type C arterial road which extends generally in a north-south direction across the northern limits of the City of Pickering, from Taunton Road to the north and Peter Matthews Drive to the south.

Within the study area, Burkholder Drive operates with three traffic lanes, the centremost being a left turn lane. As part of the build-out of Seaton, Burkholder Drive will extend to Highway 7 in the north.

3.3 Public Transportation

The proposed Site will be served three Durham Regional Transit (DRT) bus routes, all of which include far sided bus stops with dedicated platform lanes at major intersections within the study area. In accordance with the City EA and the Regional EA, the three arterial corridors which will service transit routes are Taunton Road, Peter Matthews Drive and Burkholder Drive.

Far sided bus stops along Taunton Road are proposed at intersections with Burkholder Drive, Peter Matthews Drive and Aquarius Trail. This represents less than a three-minute walk from within the Site's development block and the closest bus stop heading east or westbound.

Far sided bus stops along Peter Matthews Drive are proposed at intersections with Taunton Road and Marathon Avenue. Additionally, far sided bus stops along Burkholder Drive are proposed at the intersection with Taunton Road. This represents less than a four-minute walk from within the Site's development block to the closest bus stop heading north or southbound.

4.0 PARKING CONSIDERATIONS

4.1 Zoning By-law Parking Requirements

The Site is subject to the vehicle parking requirements of City of Pickering Zoning By-law 8149/24. Application of the parking standards within Zoning By-law 8149/24 to proposed development program is summarized in Table 2.

Table 2 City of Pickering Zoning By-law 8149/24 Parking Requirement

Land Use	Gross Leasable Area (GLA)	Minimum Parking Rate	Minimum Parking Required
Retail	12,421 m ²	4.5 spaces per 100 m ² of GLA	559 parking spaces
Total			559 parking spaces

Application of the minimum parking standards outlined in Zoning By-law 8149/24 to the current proposal would require the provision of a minimum 559 parking spaces.

4.2 Proposed Parking Supply

A total of 643 parking spaces is proposed for the Site. The proposed parking supply is distributed through out the Site to permit access to the various retail blocks.

The subject development meets and exceeds Zoning By-law 8149/24 requirements. The proposed parking provisions are considered appropriate and acceptable.

4.3 Accessible Parking

As per City of Pickering Zoning By-law 6604/05, a total of 15 accessible parking spaces is required for the proposed development. Of the 15 accessible parking spaces, 7 parking spaces are required to be designated as Type 'A' accessible parking spaces, and 8 parking spaces are required to be designated as Type 'B' accessible parking spaces.

A total of 26 accessible parking spaces is proposed for the Site. Of the 26 accessible parking spaces, 15 accessible parking spaces are designated as Type 'A' spaces and the remaining accessible parking spaces are designated Type 'B' accessible parking spaces.

The subject development meets and exceeds Zoning By-law 6604/05 requirements. The proposed parking provisions are considered appropriate and acceptable.

5.0 LOADING CONSIDERATIONS

5.1 Zoning By-law Loading Requirements

The Site is subject to the loading standard outlined in City of Pickering Zoning By-law 8149/24. Application of the loading standards within Zoning By-law 8149/24 to proposed development program is summarized in **Table 3**.

Table 3 Zoning By-law 8149/24 Loading Requirement

Land Use	Number of Buildings	Loading Rate	Loading Requirement
Retail	7 buildings	1 Loading Space per building or structure	7 loading spaces
Total			7 loading spaces

Application of the loading standards outlined in Zoning By-law 8149/24 to the current proposal would require the provision of a 7 loading spaces.

5.2 Proposed Parking Supply

A total of 9 loading spaces is proposed for the Site. The subject development meets Zoning By-law 8149/24 requirements. The proposed loading provisions are considered appropriate and acceptable.

Vehicle manoeuvring diagrams for the proposed loading spaces are attached in **Appendix C**. Traffic Control Signage and Pavement Marking plans are attached in **Appendix D**.

6.0 BICYCLE PARKING CONSIDERATIONS

6.1 Bicycle Parking Requirements

The Site is subject to the bicycle parking requirements of City of Pickering Zoning By-law 8149/24. Application of the bicycle parking standards within Zoning By-law 8149/24 to proposed development program is summarized in **Table 4**.

Table 4 Bicycle Parking Requirement

Land Use		GLA	Minimum Rate	Minimum Requirement
Retail	Long Term	12,421 m ²	The greater of 2.0 total long-term bicycle parking spaces or 1.0 bicycle parking space for each 1,000 m ² of gross leasable floor area or portion thereof.	13 bicycle parking spaces
	Short Term		A minimum of one (1) bicycle parking rack for short-term bicycle parking	1 bicycle parking rack
Total	Long Term			13 bicycle parking spaces
	Short Term			1 bicycle parking rack

Application of the minimum parking standards outlined in Zoning By-law 8149/24 to the current proposal would require the provision of a minimum 13 long term bicycle parking spaces and 1 bicycle parking rack for short term bicycle parking.

6.2 Proposed Bicycle Parking Supply

A total of 34 bicycle parking spaces is proposed for the Site. The proposed parking supply is distributed throughout the site to permit access to the various retail blocks.

The subject development meets and exceeds Zoning By-law 8149/24 requirements. The proposed bicycle parking provisions are considered appropriate and acceptable.

7.0 TRAFFIC VOLUMES FORECASTING

The projected future traffic volumes at several area intersections were assessed based upon forecasted vehicular volumes in the vicinity of the Site. Since the full build-out of Seaton and the future supporting road network is expected to occur in phases, the forecast of vehicular volumes and the corresponding assessment of traffic operations were performed under two scenarios, referred to as “interim” conditions and “ultimate” conditions.

Both scenarios were assessed for the weekday morning (AM), weekday afternoon (PM) and Saturday midday (SAT) peak hours. These analysis periods are appropriate in that they reflect the times on the area road network when traffic volumes are at their greatest.

7.1 Ultimate Conditions

7.1.1 Road Network

The future area road network, as well as corresponding lane configurations and intersection controls in the vicinity of the Site under ultimate conditions are illustrated on **Figure 3**. Future intersection layouts have been generally assumed in accordance with the 2013 Report, the City of Pickering Seaton Community Class EA (the “City EA”) and the Central Pickering Development Plan Class Environmental Assessment for Regional Services in the City of Pickering (the “Regional EA”). The exception to this is the intersection of Burkholder Drive / Kerr Street (TACC Site A Access) which is shown in the City EA as a three-quarter moves (right-in/right-out/left-in) intersection but was proposed as an all-moves side-street stop-controlled intersection as part of TACC Developments SPA report for Site A.

The major roadways providing access to and from the subdivisions under ultimate conditions are summarized below. Localized copies of the Regional EA and City EA as it pertains to the Site’s study area are attached in **Appendix E** and **Appendix F**, respectively.

Taunton Road

TACC Site A and the Fieldgate Commercial Site (the “Commercial Site”) will have direct access via Taunton Road. Under ultimate conditions, Taunton Road will consist of a two-way six-lane road in the vicinity of the Site, with the curbside lanes operating as HOV lanes. In addition, exclusive left and right turn lanes will be provided at some of the intersections within the study area.

Peter Matthews Drive

TACC Site A, TACC Site B and TACC Site C will have direct access via Peter Matthews Drive. Under ultimate conditions, Peter Matthews Drive will consist of a two-way four-lane road in the vicinity of the Site. In addition, exclusive left and right turn lanes will be provided at some of the intersections within the study area.

Burkholder Drive

TACC Site A and the Commercial Site will have direct access via Burkholder Drive. Under ultimate conditions, Burkholder Drive will consist of a two-way two-lane road in the vicinity of the Site. In addition, exclusive left and right turn lanes will be provided at some of the intersections within the study area.

7.1.2 Study Area

An assessment of future traffic operations was conducted at key future access locations to the development blocks as follows:

Signalized Intersections

- Taunton Road / Peter Matthews Drive;
- Taunton Road / Burkholder Drive;
- Taunton Road / Aquarius Trail; and,
- Peter Matthews Drive / Marathon Avenue.

Unsignalized Intersections

- Taunton Road / Street A / McNeal Road (TACC Site A Access);
- Taunton Road / Commercial Site Access;
- Peter Matthews Drive / Kerr Street (TACC Site A Access);
- Peter Matthews Drive / TACC Site B Access / TACC Site C Access;
- Burkholder Drive / Marathon Avenue / Belcourt Street;
- Burkholder Drive / Kerr Street (TACC Site A Access);
- Burkholder Drive / Dragonfly Avenue / Commercial Site Access;
- Street A / Marathon Avenue / Hibiscus Drive;
- Street A / TACC Site B Access (North) / Commercial Site Access;
- Street A / TACC Site B Access (South); and,
- Aquarius Trail / TACC Site C Access.

It is noted that the full build-out of Seaton has already been assessed as part of BA Group's 2013 Report, with lane configurations and traffic control addressed further in the subsequent Environmental Assessments. On this basis, the intention of this analysis is to focus specifically on the operations for intersections within the vicinity of the Site with updated lane configurations, traffic controls and development proposal.

7.1.3 Base Traffic Volumes

Future total traffic volumes as outlined in the 2013 Report generally serve as the base future volumes for both the interim and ultimate scenarios. Adjustments have been made to these volumes to develop projected future traffic volumes for the interim and ultimate scenarios based on their respective assumptions, as detailed in the following sections.

Base future traffic volumes overlayed on the 2013 Report's road network are illustrated on **Figure 4**.

7.1.4 Future Background Traffic Volumes

7.1.4.1 Weekday Peak Hours

It is noted that the density and distribution of land use within the Taunton Condo & Fieldgate Commercial Lands have changed significantly from what was considered in the 2013 Report. Therefore, adjustments have been made to ultimate traffic volumes as illustrated in the 2013 Report to isolate and remove traffic generated by the four development blocks and replace them with newly forecasted site traffic layers.

Base Site traffic removals and the resulting ultimate future background traffic volumes are illustrated on **Figure 5** and **Figure 6**, respectively.

7.1.4.2 Saturday Peak Hour

Saturday volumes were not reviewed as part of the 2013 Report. As such, in order to develop base future volumes for the Saturday midday peak hour, weekday peak hour future background traffic volumes have been reviewed alongside existing traffic patterns and trip generation rates to develop corridor and turning movement factors.

Based upon the review, ultimate future background volumes for the Saturday midday (SAT) peak hour have been derived by averaging the ultimate future background volumes during the weekday morning (AM) and afternoon (PM) peak hours, as illustrated on **Figure 6**, and applying the following corridor and trip generation factors:

- 75% of the averaged AM and PM corridor volumes were assumed along major corridors (i.e. Taunton Road, Burkholder Drive, and Peter Matthews Drive); and,
- 90% of the averaged AM and PM turning movement volumes were assumed at all remaining minor street intersections and approaches.

The corresponding ultimate future background traffic volumes for the Saturday peak hour are illustrated alongside weekday peak hour volumes on **Figure 6**.

A description of the data sources reviewed and their application in developing the abovementioned peak hour factors is discussed in greater detail in the following sections.

Existing Traffic Counts – Corridor Volume Factors

Existing traffic patterns were reviewed at the intersection of Taunton Road / Brock Road in February and March 2024 to understand the relationship, if any, between corridor volumes during the four peak hours. The intersection of Taunton Road / Brock Road was selected as the only major intersection of two arterial roads within the vicinity of the site which is not currently under construction or bordering major construction projects. Existing traffic counts collected on behalf of BA Group are attached in **Appendix G**.

Based upon the review, Saturday midday (SAT) volumes are noted to be 73% of the average of the AM and PM peak hour traffic volumes at the intersection. As a conservative measure, a Saturday corridor volume factor of 75% has been adapted from the average of the AM and PM peak hour traffic volume counts.

ITE's Trip Generation Manual – Turning Movement Factors

Trip generation rates and time of day distributions from the ITE Trip Generation Manual have been reviewed to understand the relationship between trips generated by developments bordering the Taunton Road corridor during the three peak hours. Aside from the Commercial Site which proposes 135,204 ft² (12,560 m²) of retail GFA, the majority of trips generated within Neighbourhoods 16 and 17 of Seaton and bordering Taunton Road are anticipated to be home-based trips (i.e. trips originating or destined to residential units). For the purposes of analysis, it has been assumed that the relationship between locally generated future background traffic volumes (i.e. excluding site-generated traffic by the Taunton Condo & Fieldgate Commercial Lands) in each peak hour can be attributed to the relationship between residential trip generation rates by peak hour.

Adopted vehicular trip generation rates in the AM and PM peak hours are summarized in **Table 5**, consistent with the 2013 Report. Adopted vehicular trip generation rates in the SAT peak hour are summarized in **Table 5**, in accordance with the ITE Trip Generation Manual.

Applying the abovementioned trip generation rates to the residential units proposed across Neighbourhoods 16 and 17 of the planned Seaton community as of the 2013 Report, a Saturday midday (SAT) residential trip generation factor is noted to be 87% of the weighted average of the AM and PM two-way trip generation rates. As a conservative measure, a SAT turning movement factor of 90% has been adapted from the average of AM and PM rates.

7.1.5 Future Total Traffic Volumes

Site traffic volumes for the Taunton Condo & Fieldgate Commercial Lands have been forecasted following the general methodology within the 2013 Report and the August 2024 Report. Specifically, the following methodology has been adopted:

- Residential trip generation rates as outlined in the 2013 Report for the AM and PM peak hours.
- Residential trip generation rates for the SAT peak hour in accordance with the ITE Trip Generation Manual. The 9th Edition of the ITE Manual was referenced consistent with the AM and PM peak hours in the 2013 Report.
- Retail trip generation rates in accordance with the equations for Land Use 820 (Shopping Centre) within the ITE Trip Generation Manual 9th Edition, consistent with the 2013 Report. Equations for all peak hours assumed 135,204 ft² (12,560 m²) of retail ground floor area (GFA).
- Pass-by assumptions were made for the AM and PM peak hours in accordance with the 2013 Report.
- Pass-by assumptions were made for the SAT peak hour in accordance with the ITE Trip Generation Handbook 3rd Edition.
- Trips internal to the Taunton Condo & Fieldgate Commercial Lands between residential and retail land uses were based on distributions internal to Neighbourhood 16 outlined in the 2013 Report and were assumed to be pedestrian trips.
- Taunton Condo & Fieldgate Commercial Lands traffic volumes have been assigned based on the distribution outlined in the 2013 Report for Neighbourhood 16.

Adopted vehicular trip generation rates for the Taunton Condo & Fieldgate Commercial Lands are summarized in **Table 5**, and resulting site-related vehicle trips are summarized in **Table 6**. The projected and collective Taunton Condo & Fieldgate Commercial Lands site traffic volumes and future total traffic volumes for the ultimate scenario are illustrated on **Figure 7** and **Figure 8**, respectively.

Table 5 Vehicular Trip Generation Rates

Land Use	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
Residential Townhouse (per unit)	0.11	0.56	0.67	0.46	0.23	0.69	0.25	0.22	0.47
Residential Apartment (per unit)	0.10	0.25	0.35	0.26	0.18	0.44	0.26	0.26	0.52
Retail (per 1,000 ft ²) ¹	0.86	0.53	1.39	2.60	2.82	5.42	4.09	3.78	7.87

Notes:

- Utilizes the ITE Trip Generation 9th Edition logarithmic equation for Land Use 820 (Shopping Centre) with an input size of 135,204 ft² (12,560 m²).

Table 6 Projected Vehicular Trip Generation

Land Use	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
TACC Site A									
Residential Townhouse (387 units)	45	215	260	175	90	265	95	80	175
Residential Apartment (436 units)	40	110	150	115	75	190	115	115	230
Internal Trip Reduction	-5	-5	-10	-15	-15	-30	-20	-20	-40
Site A Trip Generation	80	320	400	275	150	425	190	175	365
TACC Site B									
Residential Townhouse (387 units)	25	125	150	100	50	150	55	50	105
Residential Apartment (436 units)	25	60	85	65	45	110	65	65	130
Internal Trip Reduction	-0	-5	-5	-10	-10	-20	-10	-10	-20
Site A Trip Generation	50	180	230	155	85	240	110	105	215

Land Use	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
TACC Site C									
Residential Townhouse (136 units)	15	75	90	65	30	95	35	30	65
Residential Apartment (250 units)	25	65	90	65	45	110	65	65	130
Internal Trip Reduction	-0	-5	-5	-10	-10	-20	-10	-5	-15
Site C Trip Generation	40	135	175	120	65	185	90	90	180
Fieldgate Commercial Site									
Retail (135,204 ft ²)	115	70	185	350	380	730	550	510	1060
Internal Trip Reduction	-15	-5	-20	-35	-35	-70	-35	-40	-75
Commercial Site Trip Generation	100	65	165	315	345	660	515	470	985
Pass-by ¹	0	0	0	65	65	130	125	125	250
Primary ¹	100	65	165	250	280	530	390	345	735
Total Trip Generation	270	700	970	865	645	1510	905	840	1745
2013 Report's Trip Generation²	510	840	1350	1680	1485	3165	Saturday volumes were not reviewed as part of the 2013 Report		
Change in Trip Generation	-240	-140	-380	-815	-840	-1655			

Notes:

1. Assumes 0% pass-by in the AM, 20% pass-by in the PM and 25% pass-by in the SAT peak hour.
2. To compare the trip generation associated with the current development blocks with that of the 2013 Report, TACC Site C is assumed to occupy 50% of the area of one of the communities analysed within Neighbourhood 16 in the 2013 Report.

7.2 Interim Conditions

7.2.1 Road Network

As previously discussed, the construction of the roadway infrastructure supporting the full build-out of Seaton is expected to occur in phases. For the purpose of analysis, it is assumed that external road infrastructure in the vicinity of the Site assumed to be built under interim conditions are consistent with ultimate conditions, with the exception of:

- Taunton Road is assumed to operate as a four-lane road with exclusive left and right turn lanes provided at some of the intersections within the study area, as per existing conditions; and,
- The intersection of Burkholder Drive / Marathon Avenue / Belcourt Street operates as a two-way stop-controlled intersection in alignment with the short-term intersection control presented in the City EA and as per existing conditions.

The future area road network, as well as corresponding lane configurations and intersection controls in the vicinity of the Site under interim conditions are illustrated on **Figure 9**.

7.2.2 Interim Traffic Volumes

Traffic volume projections for the interim scenario were developed based on the following methodology:

- Adopt ultimate future background traffic volumes as outlined in **Section 7.1.4** and illustrated on **Figure 6** as a base;
- Assume two-thirds of the ultimate condition's future background volumes along Taunton Road to account for the interim nature of Seaton and four lanes on Taunton Road. Interim future background traffic volumes are illustrated on **Figure 10**;
- Reapply the Taunton Condo & Fieldgate Commercial Lands site-related traffic volumes, consistent with the site traffic volume forecasting approach outlined in **Section 7.1.5**. For the purpose of analysis, it is assumed that TACC Site A and the proposed Fieldgate Commercial Site lands will be built and occupied under interim conditions, whereas TACC Site B and TACC Site C have not been assumed; and,
- TACC Site A and Fieldgate Commercial Site-related volumes have been assigned based on the distribution outlined in the 2013 Report for Neighbourhood 16.

The projected TACC Site A and Fieldgate Commercial Site traffic volumes and future total traffic volumes for the interim scenario are illustrated on **Figure 11** and **Figure 12**, respectively.

8.0 INTERSECTION CAPACITY ANALYSIS

Traffic operations were analyzed based on the principles and methodology outlined in the Highway Capacity Manual (HCM). This analysis was performed using Trafficware's Synchro 11 software, in accordance with *The Regional Municipality of Durham's Traffic Impact Study Guidelines* (dated October 2011) and Chapter 9 of *The Regional Municipality of Durham's Design Specifications for Traffic Control Devices, Pavement Markings, Signage and Roadside Protection* (dated April 2023).

For signalized intersections, the volume-to-capacity ratio (v/c) is an indicator of the capacity utilization for the key movements in the intersection. A v/c of 1.00 indicates that certain governing traffic movements through the intersection are operating at or near maximum capacity. The primary overall level of service (LOS) indicator is delay, both on individual movements and expressed as an average for all vehicles processed. Many busy urban intersections operate at LOS D to E, which reflects average delays in the range of 35 to 80 seconds.

For unsignalized intersections, level of service (LOS) characterizes operational conditions for key movements in terms of delay within the traffic stream. LOS A represents a good level of service with short delays. LOS F represents a poor level of service with long delays. The volume to capacity ratio (v/c) is an indicator of the capacity utilization for key movements at the intersection and resultant residual capacity potential.

Existing signal timing plans provided by the Region of Durham were utilized with optimized signal phasing to respond to projected traffic conditions in the interim and ultimate scenario. With the widening of Taunton Road to six / seven lanes under ultimate conditions, cycle lengths at signals along Taunton Road were assumed to be increased to 130 seconds during the weekday morning (AM) and afternoon (PM) peak hour periods and 120 seconds during off-peak periods, inclusive of the Saturday midday (SAT) peak hour assessment.

With regards to HOV lanes within the study area, a lane utilization factor of 0.83 was assumed, which represents 20% of the total traffic in the HOV lanes (for the proposed three lanes in each direction).

Synchro 11 worksheets including detailed input parameters and output results are attached in **Appendix H**.

Traffic analysis results for each of the study area intersections and accesses are discussed in the following sections.

8.1 Taunton Road / Peter Matthews Drive

The results of the traffic operations analysis for the interim and ultimate scenarios for the Taunton Road / Peter Matthews Drive signalized intersection are summarized in **Table 7**.

Table 7 Taunton Road / Peter Matthews Drive Traffic Operations

Lane Group	Ultimate (Full Build-Out) Conditions			Interim Conditions		
	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
EBL	60.5 (18.1) [16.6]	E (B) [B]	0.89 (0.66) [0.61]	21.1 (19.9) [9.0]	C (B) [A]	0.72 (0.57) [0.39]
EBT	11.3 (23.6) [13.5]	B (C) [B]	0.32 (0.79) [0.46]	9.6 (16.3) [9.7]	A (B) [A]	0.29 (0.68) [0.40]
EBR	9.0 (12.6) [9.8]	A (B) [A]	0.02 (0.07) [0.04]	7.8 (9.6) [7.2]	A (A) [A]	0.02 (0.07) [0.04]
WBL	18.7 (19.5) [18.4]	B (B) [B]	0.05 (0.17) [0.10]	14.6 (10.4) [12.8]	B (B) [B]	0.03 (0.07) [0.04]
WBT	32.7 (23.5) [23.4]	C (C) [C]	0.84 (0.53) [0.60]	24.4 (12.2) [17.6]	C (B) [B]	0.75 (0.40) [0.54]
WBR	20.4 (18.6) [17.8]	C (B) [B]	0.20 (0.13) [0.13]	16.3 (10.1) [13.5]	B (B) [B]	0.20 (0.13) [0.13]
NBL	39.4 (38.1) [33.4]	D (D) [C]	0.48 (0.37) [0.38]	28.3 (25.6) [26.7]	C (C) [C]	0.21 (0.13) [0.15]
NBT	42.1 (42.2) [37.0]	D (D) [D]	0.36 (0.46) [0.32]	28.2 (26.9) [27.2]	C (C) [C]	0.24 (0.30) [0.25]
SBL	50.6 (59.3) [34.7]	D (E) [C]	0.73 (0.85) [0.55]	41.7 (46.0) [35.1]	D (D) [D]	0.73 (0.80) [0.64]
SBT	43.1 (39.2) [36.4]	D (D) [D]	0.46 (0.39) [0.34]	29.0 (26.6) [27.4]	C (C) [C]	0.34 (0.27) [0.28]
SBR	40.2 (37.8) [34.8]	D (D) [C]	0.13 (0.22) [0.12]	27.5 (30.0) [26.5]	C (C) [C]	0.13 (0.54) [0.12]
Overall	31.4 (27.9) [22.2]	C (C) [C]	0.87 (0.84) [0.62]	22.4 (19.6) [17.3]	C (B) [B]	0.75 (0.71) [0.55]

Notes:

1. 00 (00) [00] – AM Peak (PM Peak) [SAT Peak]

All movements operate at acceptable levels of service and within capacity. The additional traffic generated by the proposed Commercial Site can be appropriately accommodated at the Taunton Road / Peter Matthews Drive intersection in the interim and ultimate scenarios.

8.2 Taunton Road / Burkholder Drive

The results of the traffic operations analysis for the interim and ultimate scenarios for the Taunton Road / Burkholder Drive signalized intersection are summarized in **Table 8**.

Table 8 Taunton Road / Burkholder Drive Traffic Operations

Lane Group	Ultimate (Full Build-Out) Conditions			Interim Conditions		
	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
EBL	59.9 (23.3) [23.2]	E (C) [C]	0.85 (0.69) [0.67]	50.2 (15.7) [13.1]	D (B) [B]	0.88 (0.58) [0.48]
EBT	-			17.6 (32.0) [18.8]	B (C) [B]	0.43 (0.91) [0.53]
EBR				14.5 (15.1) [14.3]	B (B) [B]	0.10 (0.17) [0.10]
EBTR	21.6 (49.4) [24.2]	C (D) [C]	0.51 (1.01) [0.67]	-		
WBL	17.7 (47.0) [20.5]	B (D) [C]	0.30 (0.75) [0.42]	13.4 (25.5) [14.9]	B (C) [B]	0.18 (0.62) [0.20]
WBTR	46.2 (26.5) [28.1]	D (C) [C]	0.97 (0.62) [0.66]	33.7 (25.9) [22.9]	C (C) [C]	0.91 (0.68) [0.58]
NBL	57.5 (89.1) [35.5]	E (F) [D]	0.90 (1.00) [0.76]	35.1 (40.4) [33.1]	D (D) [C]	0.79 (0.84) [0.77]
NBT	30.7 (32.7) [25.1]	C (C) [C]	0.40 (0.36) [0.29]	22.7 (22.4) [22.5]	C (C) [C]	0.36 (0.33) [0.31]
NBR	27.2 (29.7) [22.9]	C (C) [C]	0.11 (0.10) [0.07]	20.5 (20.2) [20.5]	C (C) [C]	0.10 (0.07) [0.07]
SBL	44.2 (46.5) [41.7]	D (D) [D]	0.23 (0.45) [0.47]	32.2 (31.6) [35.2]	C (C) [D]	0.14 (0.16) [0.36]
SBT	47.7 (48.6) [40.3]	D (D) [D]	0.54 (0.58) [0.40]	36.2 (36.5) [35.6]	D (D) [D]	0.55 (0.59) [0.46]
SBR	45.3 (42.6) [37.6]	D (D) [D]	0.35 (0.14) [0.11]	33.2 (31.3) [32.8]	C (C) [C]	0.28 (0.14) [0.11]
Overall	39.6 (43.8) [27.8]	D (D) [C]	0.96 (1.02) [0.75]	29.1 (28.6) [22.9]	C (C) [C]	0.90 (0.90) [0.67]

Notes:

- 00 (00) [00] – AM Peak (PM Peak) [SAT Peak]

All movements operate at acceptable levels of service and within capacity under interim conditions. As such, the additional traffic generated by the proposed Commercial Site can be appropriately accommodated at the Taunton Road / Burkholder Drive intersection in the interim scenario.

Under ultimate conditions, all movements operate at acceptable levels of service and within capacity during the AM and SAT peak hours. However, the intersection operates at capacity during the PM peak hour, with the shared eastbound through right and northbound left movements operating at v/c's of 1.01 and 1.00, respectively. The results in **Table 8** demonstrate an improvement from the results outlined in the 2013 Report, which projected v/c ratios of 1.06 and 1.07 for the shared eastbound through right and northbound left movements, respectively, during the PM peak hour, albeit marginally more congested than in the August 2023 Report.

It's worth noting that the overall trip generation associated with the revised development proposal for the Taunton Condo & Fieldgate Commercial Lands is significantly less than what was contemplated in the 2013 Report (380 and 1655 fewer two-way vehicle trips in the AM and PM peak hours, respectively). However, capacity has been reduced at this intersection since the assumptions incorporated into the 2013 Report, by virtue of the following:

- A cycle length of 130 seconds has recently been incorporated at this intersection during peak AM and PM periods, compared with a cycle length of 144 seconds assumed in the 2013 Report; and,
- The Regional EA does not include eastbound and westbound right turn lanes at this intersection, which were considered as part of the 2013 Report.

It is also worth noting that the intersection of Taunton Road / Street A / McNeal Road (TACC Site A Access) was previously proposed as an all-moves signalized intersection in the 2013 Report, whereas the intersection was revised to a three-quarter moves stop-controlled intersection in the Regional EA. This results in additional traffic volumes utilizing the Taunton Road / Burkholder Drive intersection for left turn movements out of neighbouring developments.

Overall, the trip generation associated with the current development proposal and the specific intersection volumes are significantly less than what was contemplated in the 2013 Report and therefore represents improved traffic conditions compared with what has previously been contemplated for the Site.

8.2.1 Taunton Road / Burkholder Drive – Weekday Afternoon Sensitivity Analysis

Notwithstanding the Taunton Road / Burkholder Drive intersection operating at capacity during ultimate conditions, a sensitivity analysis has been undertaken during the PM peak hour to assess whether the intersection would operate with improved levels of service under a longer cycle length (e.g., 140 seconds).

The results of this analysis are summarized in **Table 9** and indicate that the increased cycle length would result in all movements at the intersection operating with acceptable levels of service and within capacity.

Table 9 Taunton Road / Burkholder Drive Traffic Operations – 140 Second Cycle Length Weekday Afternoon Sensitivity

Lane Group	Ultimate Conditions – PM Peak Hour Sensitivity		
	Delay (sec)	LOS	V/C
EBL	25.3	C	0.70
EBTR	47.6	D	0.99
WBL	59.6	E	0.81
WBTR	27.8	C	0.61
NBL	79.7	E	0.97
NBT	34.9	C	0.36
NBR	31.8	C	0.11
SBL	51.9	D	0.48
SBT	54.8	D	0.61
SBR	47.3	D	0.14
Overall	43.6	D	1.00

8.3 Taunton Road / Aquarius Trail

The results of the traffic operations analysis for the interim and ultimate scenarios for the Taunton Road / Aquarius Trail signalized intersection are summarized in **Table 10**.

Table 10 Taunton Road / Aquarius Trail Traffic Operations

Lane Group	Ultimate (Full Build-Out) Conditions			Interim Conditions		
	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
EBT	-			5.0 (7.7) [5.5]	A (A) [A]	0.32 (0.63) [0.40]
EBR				3.6 (3.6) [3.6]	A (A) [A]	0.01 (0.02) [0.01]
EBTR	6.0 (9.2) [6.0]	A (A) [A]	0.36 (0.71) [0.44]	-		
WBL	4.4 (10.2) [4.6]	A (B) [A]	0.02 (0.17) [0.06]	3.6 (3.9) [3.7]	A (A) [A]	0.01 (0.03) [0.01]
WBT	8.9 (5.7) [5.9]	A (A) [A]	0.64 (0.41) [0.43]	7.4 (5.5) [5.7]	A (A) [A]	0.60 (0.40) [0.44]
NBL	46.1 (46.3) [46.4]	D (D) [D]	0.26 (0.15) [0.24]	42.7 (42.5) [41.9]	D (D) [D]	0.20 (0.10) [0.13]
NBR	44.0 (45.4) [44.5]	D (D) [D]	0.01 (0.04) [0.00]	41.3 (41.9) [41.0]	D (D) [D]	0.00 (0.00) [0.00]
Overall	8.6 (8.3) [6.6]	A (A) [A]	0.58 (0.64) [0.42]	7.1 (7.0) [6.0]	A (A) [A]	0.55 (0.57) [0.40]

Notes:

- 00 (00) [00] – AM Peak (PM Peak) [SAT Peak]

All movements operate at acceptable levels of service and within capacity. The additional traffic generated by the proposed Commercial Site can be appropriately accommodated at the Taunton Road / Aquarius Trail intersection in the interim and ultimate scenarios.

8.4 Peter Matthews Drive / Marathon Avenue

The results of the traffic operations analysis for the interim and ultimate scenarios for the Peter Matthews Drive / Marathon Avenue signalized intersection are summarized in **Table 11**.

Table 11 Peter Matthews Drive / Marathon Avenue Traffic Operations

Lane Group	Ultimate (Full Build-Out) Conditions			Interim Conditions		
	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
EBL	33.9 (34.4) [34.8]	C (C) [C]	0.12 (0.18) [0.28]	-- (--)[--] ²	-- (--)[--] ²	-- (--)[--] ²
EBTR	33.0 (33.1) [32.8]	C (C) [C]	0.00 (0.01) [0.01]	36.8 (37.8) [36.4]	D (D) [D]	0.00 (0.01) [0.01]
WBL	33.2 (--) ² [33.0]	C (--) ² [C]	0.03 (--) [0.04]	-- (--)[--] ²	-- (--)[--] ²	-- (--)[--] ²
WBTR	33.3 (33.1) [32.8]	C (C) [C]	0.04 (0.01) [0.01]	36.9 (37.8) [36.4]	D (D) [D]	0.02 (0.01) [0.01]
NBL	4.8 (5.0) [4.2]	A (A) [A]	0.01 (0.04) [0.05]	4.3 (3.9) [4.6]	A (A) [A]	0.01 (0.03) [0.05]
NBT	5.1 (5.3) [4.3]	A (A) [A]	0.10 (0.14) [0.09]	4.6 (4.2) [4.7]	A (A) [A]	0.09 (0.13) [0.09]
SBL	4.8 (5.0) [4.0]	A (A) [A]	0.02 (0.04) [0.02]	4.3 (4.0) [4.4]	A (A) [A]	0.01 (0.04) [0.02]
SBT	5.3 (5.4) [4.4]	A (A) [A]	0.14 (0.15) [0.12]	4.8 (4.3) [4.8]	A (A) [A]	0.13 (0.14) [0.11]
Overall	8.1 (7.6) [8.0]	A (A) [A]	0.14 (0.16) [0.14]	6.4 (5.7) [6.8]	A (A) [A]	0.11 (0.13) [0.10]

Notes:

1. 00 (00) [00] – AM Peak (PM Peak) [SAT Peak]
2. Zero volumes projected for movement

All movements operate at acceptable levels of service and within capacity. The additional traffic generated by the proposed Commercial Site can be appropriately accommodated at the Peter Matthews Drive / Marathon Avenue intersection in the interim and ultimate scenarios.

8.5 Burkholder Drive / Marathon Avenue / Belcourt Street

The City EA for Burkholder Drive provides two scenarios for the build out of the intersection of Burkholder Drive / Marathon Avenue / Belcourt Street, referred to as short-term and long-term. The short-term utilizes the existing side street (two-way) stop-controlled intersection, whereas the long-term proposes an all-way stop controlled or signalized intersection. The following sections discuss the traffic analysis of the intersection under interim and ultimate conditions, respectively.

8.5.1 Interim Conditions

The results of the traffic operations analysis for Burkholder Drive / Marathon Avenue / Belcourt Street in the interim condition are summarized in **Table 12**. The results presented assume the short-term condition where the intersection operates as a two-way stop-controlled intersection as per existing conditions.

Table 12 Burkholder Drive / Marathon Avenue / Belcourt Street Interim Traffic Operations

Lane Group	Interim Conditions	
	Delay (sec)	LOS
EBLTR	29.2 (29.7) [19.0]	D (D) [C]
WBLTR	-- (--) [--] ²	-- (--) [--] ²
NBL	8.2 (8.8) [8.1]	A (A) [A]

Notes:

1. 00 (00) [00] – AM Peak (PM Peak) [SAT Peak]
2. Zero volumes projected for movement

All movements operate at acceptable levels of service and within capacity. The additional traffic generated by the proposed Commercial Site can be appropriately accommodated at the Burkholder Drive / Marathon Avenue / Belcourt Street intersection in the interim scenario.

8.5.2 Ultimate Conditions

The results of the traffic operations analysis for Burkholder Drive / Marathon Avenue / Belcourt Street in the ultimate condition are summarized in **Table 13**. The results presented take into consideration both the short and long-term condition where the intersection operates as either a two-way stop-controlled intersection as per existing conditions or as either an all-way stop controlled or signalized intersection as proposed in the City EA in the long-term.

Table 13 Burkholder Drive / Marathon Avenue / Belcourt Street Ultimate Traffic Operations

Lane Group	Ultimate (Full Build-Out) Conditions – Two-Way Stop Control		Ultimate (Full Build-Out) Conditions – All-Way Stop Control		Ultimate (Full Build-Out) Conditions – Signal Control		
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	V/C
EBLTR	46.3 (33.2) [20.7]	E (D) [C]	11.0 (10.3) [9.6]	B (B) [A]	17.6 (19.5) [40.3]	B (B) [D]	0.14 (0.03) [0.10]
WBLTR	19.9 (12.4) [12.9]	C (B) [B]	10.8 (9.4) [8.9]	B (A) [A]	17.4 (19.4) [39.7]	B (B) [D]	0.12 (0.02) [0.03]
NBL	8.2 (8.8) [8.1]	A (A) [A]	8.0 (7.7) [7.5]	A (A) [A]	4.6 (3.8) [2.2]	A (A) [A]	0.01 (0.02) [0.01]
NBTR	-		71.7 (23.5) [15.7]	F (C) [C]	8.7 (5.5) [3.4]	A (A) [A]	0.65 (0.47) [0.31]
SBTR			18.3 (26.5) [12.8]	C (D) [B]	6.2 (5.7) [3.1]	A (A) [A]	0.40 (0.50) [0.26]
Overall	-		-		9.0 (6.4) [6.8]	A (A) [A]	0.53 (0.42) [0.29]

Notes:

1. 00 (00) [00] – AM Peak (PM Peak) [SAT Peak]

Overall, analysis results indicate that the intersection of Burkholder Drive / Marathon Avenue / Belcourt Street is projected to operate appropriately with acceptable delays under ultimate conditions in the PM and SAT peak hours in any of the three scenarios. In accordance with the Region of Durham’s Traffic Impact Study Guidelines, the northbound shared through right movement under the two-way stop-controlled and all-way stop-controlled scenarios have been identified to operate at LOS E (delay of 71.7 seconds) and LOS F (delay of 71.7 seconds), respectively, during the AM peak hour only. It is noted, however, that the northbound movement experiencing LOS E under two-way stop control is projected to operate within capacity, with a v/c ratio of 0.43 during the AM peak hour. Under all-way stop-control, however, the intersection operates above capacity with a v/c ratio of 1.05 during the AM peak hour.

Signal and all-way stop-controlled warrants have been undertaken for the intersection of Burkholder Drive / Marathon Avenue / Belcourt Street under ultimate conditions. Based on the analysis, neither an all-way stop controlled or signalized intersection is projected to be warranted.

However, it is noted that both alternatives would provide a protected crossing for pedestrians heading east and westbound, improving the level of safety for pedestrians at the intersection. Given the location of two potential schools in Neighbourhood 16 relative to the Commercial Site, pedestrian activity is expected to increase at this intersection. It is recommended that the city monitor the existing intersection and consider the implementation of a traffic signal in the future.

Signal and all-way stop warrant results are attached in **Appendix I**.

8.6 Street A / Marathon Avenue / Hibiscus Drive

The results of the traffic operations analysis for the interim and ultimate scenarios for the Street A / Marathon Avenue / Hibiscus Drive unsignalized intersection are summarized in **Table 14**.

Table 14 Street A / Marathon Avenue / Hibiscus Drive Traffic Operations

Lane Group	Ultimate (Full Build-Out) Conditions		Interim Conditions	
	Delay (sec)	LOS	Delay (sec)	LOS
EBLTR	3.7 (3.7) [7.4]	A (A) [A]	-- (--) [--] ²	-- (--) [--] ²
WBLTR	-- (--) [--] ²	-- (--) [--] ²	-- (--) [--] ²	-- (--) [--] ²
NBLTR	9.5 (9.7) [9.6]	A (A) [A]	9.3 (9.5) [9.5]	A (A) [A]
SBLTR	9.4 (9.5) [9.6]	A (A) [A]	8.9 (9.3) [9.4]	A (A) [A]

Notes:

1. 00 (00) [00] – AM Peak (PM Peak) [SAT Peak]
2. Zero volumes projected for left turning movement

All movements operate at acceptable levels of service and within capacity. The additional traffic generated by the proposed Commercial Site can be appropriately accommodated at the Street A / Marathon Avenue / Hibiscus Drive intersection in the interim and ultimate scenarios.

8.7 Remaining Unsignalized Intersections

The results of the traffic operations analysis for the interim and ultimate scenarios for remaining unsignalized intersections are summarized in **Table 15**.

All movements operate at acceptable levels of service and within capacity. The additional traffic generated by the proposed Commercial Site can be appropriately accommodated at unsignalized intersections in the interim and ultimate scenarios.

In accordance with the Region of Durham's Traffic Impact Study Guidelines, the eastbound shared left, through and right movement at the intersection of Burkholder Drive / Dragonfly Avenue / Commercial Site Access has been identified to operate at LOS E (delay spanning 37.2 to 43.1 seconds) for each peak hour under ultimate conditions, and for the PM peak hour (delay of 40.3 seconds) under interim conditions. It is noted, however, that the eastbound movement experiencing LOS E is projected to operate within capacity, with a maximum v/c ratio of 0.23 experienced across the peak hours.

Table 15 Site Driveway Traffic Operations

Intersection	Lane Group	Ultimate (Full Build-Out) Conditions		Interim Conditions	
		Delay (sec)	LOS	Delay (sec)	LOS
Taunton Road / Street A / McNeal Road (TACC Site A Access)	EBL	13.4 (11.3) [10.4]	B (B) [B]	11.8 (10.3) [9.4]	B (B) [A]
	WBL	10.4 (15.8) [14.8]	B (C) [B]	9.7 (16.3) [12.5]	A (C) [B]
	NBR	9.3 (13.1) [9.9]	A (B) [A]	9.8 (11.2) [10.6]	A (B) [B]
	SBR	10.5 (9.1) [9.2]	B (A) [A]	10.1 (11.0) [9.7]	B (B) [A]
Taunton Road / Commercial Site Access	NBR	9.1 (13.7) [10.4]	A (B) [B]	9.8 (11.8) [10.6]	A (B) [B]
Peter Matthews Drive / Kerr Street (TACC Site A Access)	EBR	11.3 (12.2) [10.8]	B (B) [B]	11.3 (12.2) [10.8]	B (B) [B]
	NBL	9.3 (10.4) [9.0]	A (B) [A]	9.3 (10.4) [9.0]	A (B) [A]
Peter Matthews Drive / TACC Site B Access / TACC Site C Access	EBR	8.7 (0.0) [8.9]	A (A) [A]	TACC Site B & TACC Site C are not built under interim conditions	
	WBR	9.9 (9.7) [9.7]	A (A) [A]		
Burkholder Drive / Kerr Street (TACC Site A Access)	WBLR	26.3 (19.7) [16.4]	D (C) [C]	21.8 (17.9) [15.4]	C (C) [C]
	SBL	8.7 (8.8) [8.5]	A (A) [A]	8.5 (8.7) [8.4]	A (A) [A]
Burkholder Drive / Dragonfly Avenue / Commercial Site Access	EBLTR	38.8 (43.1) [37.2]	E (E) [E]	32.8 (40.3) [34.4]	D (E) [D]
	WBLTR	15.6 (20.1) [21.1]	C (C) [C]	14.4 (19.2) [19.7]	B (C) [C]
	NBLTR	0.1 (0.3) [0.1]	A (A) [A]	0.1 (0.3) [0.1]	A (A) [A]
	SBLTR	0.2 (0.5) [0.9]	A (A) [A]	0.2 (0.4) [0.9]	A (A) [A]
Street A / TACC Site B Access (North) / Commercial Site Access	EBLTR	9.9 (12.5) [13.5]	A (B) [B]	9.1 (10.3) [11.4]	A (B) [B]
	WBLTR	10.0 (11.3) [12.3]	B (B) [B]	TACC Site B is not built under interim conditions	
	NBLTR	1.9 (4.3) [5.3]	A (A) [A]	7.4 (7.7) [8.0]	A (A) [A]
	SBLTR	2.1 (2.1) [1.3]	A (A) [A]	TACC Site B is not built under interim conditions	
Street A / TACC Site B Access (South)	WBLR	9.6 (9.7) [9.9]	A (A) [A]		
	SBLT	0.5 (2.9) [1.8]	A (A) [A]		
Aquarius Trail / TACC Site C Access	EBLR	9.1 (9.4) [9.3]	A (A) [A]	TACC Site C is not built under interim conditions	

Notes:

- 00 (00) [00] – AM Peak (PM Peak) [SAT Peak]
- Zero volumes projected for movement

9.0 RESPONSE TO CITY COMMENTS

The following provides a response to the transportation related comments provided by the City of Pickering. City of Pickering comments are attached in **Appendix J**.

9.1 Zoning By-law Amendment Application A04/24 – January 7th, 2025

Development Services Transportation & Traffic Comments

Comment 1

Label all access widths and curb radii. Ensure the widths and radii are designed as per the City's standards.

Response

All access widths and curb radii has been labelled on the Site plan. The proposed site driveway width complies with City of Pickering Standard P-605. The curb radii does not comply with the City standard and is based on the truck manoeuvres for the Site. Refer to **Appendix B** for the site plan and **Appendix C** for the vehicle manoeuvring diagrams.

Comment 2

A pavement marking and signage plan is required. Ensure to include the lane way markings (i.e., one-way, two-way travel, etc.) for the aisles within the site.

Response

A Traffic Control Signage and Pavement Marking Plan has been prepared for the Site. The plan illustrates appropriate signage and pavement markings for the site driveway, pedestrian crossings, internal intersection and designated parking spaces. Refer to **Appendix D** for Traffic Control Signage and Pavement Marking Plan.

Comment 3

Provide a pavement marking and signage plan to include lane configuration details for the proposed intersection at the southwest corner of the site.

Response

A Traffic Control Signage and Pavement Marking Plan has been prepared for the Site. The plan illustrates appropriate signage and pavement markings for the Site driveway, pedestrian crossings, internal intersection and designated parking spaces. Refer to **Appendix D** for Traffic Control Signage and Pavement Marking Plan.

Comment 4

Provide autoturn maneuvering diagrams for WB-20 trucks for all the accesses on site.

Response

Vehicle Manoeuvring Diagrams have been prepared for the Site driveway from Burkholder Drive with the MTO WB-20.5 with a 53-foot trailer. The proposed driveway from Burkholder Drive is the primary service access for the Site and provides access to the primary loading area located on the south side of the Site. The Vehicle Manoeuvring Diagrams also includes the manoeuvres for the loading spaces for the Site. Refer to **Appendix C** for the Vehicle Manoeuvring Diagrams.

Comment 5

Confirm if Hibiscus Drive will require a southbound left-turn storage lane since it is currently proposed as a full moves access on Hibiscus Drive.

Response

A southbound left-turn storage lane at the intersection of Hibiscus Drive / Marathon Avenue / Street A is not required. Intersection capacity analysis results detailed in **Section 8.6** demonstrate the intersection operating appropriately with a single lane on each approach.

The southbound approach (northern leg) of this intersection is illustrated to connect with the existing 3-legged intersection on the Traffic Control Signage and Pavement Marking plans attached in **Appendix D**.

Comment 6

Show the existing and proposed traffic controls for all intersections on the site plan and pavement marking and signage plan.

Response

Noted. Traffic Control Signage and Pavement Marking plans are attached in **Appendix D**.

Comment 7

Confirm the minimum corner clearance of the proposed access immediately north of the proposed intersection meets the TAC accesses spacing guidelines.

Response

As per TAC Geometric Design Guide for Canadian Road Chapter 8, Figure 8.8.2, the minimum corner clearance for the Site driveway from the intersection of Burkholder Drive / Marathon Avenue / Belcourt Street is 35m. The proposed Site driveway is located approximately 67m from the intersection, which satisfies the minimum requirement outlined in TAC.

9.2 Official Plan Amendment Application OPA 25-001 & Zoning By-law Amendment Application A06-25 – October 28th, 2025

Development Services Transportation & Traffic Comments

Comment 1

Provide a Transportation Impact Study (TIS) for the proposed development. The TIS must be prepared as per the City of Pickering and the Region of Durham TIS Guidelines.

Response

This report satisfies the requirement of a Transportation Impact Study for the proposed Taunton Fieldgate Commercial Site, in accordance with agency requirements.

Comment 2

Confirm that the minimum intersection corner clearance for the proposed site accesses meets the TAC Guide requirements. Also, confirm that there are no left turning conflicts at any of the proposed accesses points.

Response

As per TAC Geometric Design Guide for Canadian Road Chapter 8, Figure 8.8.2, the minimum corner clearance for the Site driveway from the intersection of Burkholder Drive / Marathon Avenue / Belcourt Street is 35m. The proposed Site driveway is located approximately 67m from the intersection, which satisfies the minimum requirement outlined in TAC.

The northbound left turn lane for Taunton Road / Burkholder Drive does not conflict with the Site driveway. The 95th percentile queue length for the northbound left movement at the Taunton Road / Burkholder Drive intersection is forecasted to be 121 metres or less, whereas a total of 160 metres of storage lane capacity is available for the northbound approach prior to conflicting with the Site driveway or Dragonfly Avenue.

Additionally, no left turn conflicts are observed for the Site driveway along Street A.

Comment 3

Provide a pavement marking and traffic control signage plan.

Response

Noted. Traffic Control Signage and Pavement Marking plans are attached in **Appendix D**.

Comment 4

Ensure that the drawings label all the proposed curb radiuses and pedestrian crosswalk widths.

Response

Noted. Traffic Control Signage and Pavement Marking plans are attached in **Appendix D**.

Comment 5

Provide vehicle maneuvering diagrams for passenger cars, waste vehicles and trucks.

Response

Vehicle Manoeuvring Diagrams have been prepared for the Site driveway from Burkholder Drive with the MTO WB-20.5 with a 53-foot trailer. The proposed driveway from Burkholder Drive is the primary service access for the Site and provides access to the primary loading area located on the south side of the Site. The Vehicle Manoeuvring Diagrams also includes the manoeuvres for the loading spaces for the Site. Refer to **Appendix C** for the Vehicle Manoeuvring Diagrams.

10.0 CONCLUSIONS AND RECOMMENDATIONS

Overview

1. This study examines various transportation aspects related to the proposed commercial development within Neighbourhood 16 of the planned Seaton Community in the City of Pickering Ontario.
2. The development is proposed amongst four separate parcels of land (three residential and one commercial) known collectively as the “Taunton Condo & Fieldgate Commercial Lands” located directly north and south of Taunton Road between Burkholder Drive to the west and Aquarius Trail to the east. The residential blocks include TACC Developments (“TACC”) planned Site A, Site B, and Site C, while the commercial block (the “Site”) is referred to as the Commercial Site. Cumulatively, the developments are planned to compose of a total of 1,691 residential units and approximately 12,421 m² GLA (gross leasable area) of retail.
3. The purpose of this report is to provide an update to the traffic operations and impacts related to the proposed developments relative to the summary report and technical appendix entitled Seaton Transportation Operations Review which was completed by BA Group in May 2013, and the most recently submitted Traffic Impact Study for the collective Taunton Condo & Fieldgate Commercial Lands in August 2023. Transportation related elements of the site plans (including site circulation, parking, loading, vehicular access and waste collection) as well as transportation demand management will be assessed for each development block in separate SPA reports. The exception is the Fieldgate Commercial Site for which this report satisfies the requirement of an updated SPA report from BA Group’s report in April 2023.

Vehicle Parking

4. The Site is subject to the vehicle parking requirements of City of Pickering Zoning By-law 8149/24.
5. Application of the minimum parking standards outlined in Zoning By-law 8149/24 to the current proposal would require the provision of a minimum 559 parking spaces.
6. A total of 643 parking spaces is proposed for the Site. Of the 643 parking spaces, 26 parking spaces are designated as accessible parking spaces.
7. The subject development meets and exceeds Zoning By-law 8149/24 requirements. The proposed parking provisions are considered appropriate and acceptable.

Loading

8. The Site is subject to the loading standard outlined in City of Pickering Zoning By-law 8149/24. Application of the loading standards outlined in Zoning By-law 8149/24 to the current proposal would require the provision of a 7 loading spaces.
9. A total of 9 loading spaces is proposed for the Site.
10. The subject development meets Zoning By-law 8149/24 requirements. The proposed loading provisions are considered appropriate and acceptable.

Bicycle Parking

11. Bicycle parking standards outlined in Zoning By-law 8149/24 requires a total of 13 long bicycle parking spaces and one (1) bicycle parking rack for short term parking.
12. A total of 34 bicycle parking spaces is proposed for the Site.
13. The subject development meets and exceeds Zoning By-law 8149/24 requirements. The proposed bicycle parking provisions are considered appropriate and acceptable.

Traffic Volumes – Ultimate Conditions

14. Future intersection layouts have been generally assumed in accordance with the 2013 Report, the City of Pickering Seaton Community Class EA (the “City EA”) and the Central Pickering Development Plan Class Environmental Assessment for Regional Services in the City of Pickering (the “Regional EA”). The exception to this is the intersection of Burkholder Drive / Kerr Street (TACC Site A Access) which is shown in the City EA as a three-quarter moves (right-in/right-out/left-in) intersection but was proposed as an all-moves side-street stop-controlled intersection as part of TACC Developments SPA report for Site A.
15. The full build-out of Seaton has already been assessed as part of BA Group’s 2013 Report, with lane configurations and traffic control addressed further in the subsequent Environmental Assessments. On this basis, the intention of this analysis is to focus specifically on the operations for intersections within the vicinity of the Site with updated lane configurations, traffic controls and development proposal.
16. Traffic forecasts used in the evaluation of future intersection operations were based on projections obtained from future total traffic volumes outlined in the 2013 Report.
17. The density and distribution of land use within the proposed development have changed significantly from what was considered in the 2013 Report. Therefore, adjustments were made to the ultimate traffic volumes as illustrated in the 2013 Report to respond to these changes.
18. Saturday volumes were not reviewed as part of the 2013 Report. As such, in order to develop future volumes for the Saturday midday peak hour, weekday peak hour future background traffic volumes have been reviewed alongside existing traffic patterns and trip generation rates to develop corridor and turning movement factors. Based upon this review, ultimate future background volumes for the SAT peak hour were derived by averaging future background volumes during AM and PM peak hours and applying the following corridor and trip generation factors:
 - 75% of the averaged AM and PM corridor volumes were assumed along major corridors (i.e. Taunton Road, Burkholder Drive, and Peter Matthews Drive); and,
 - 90% of the averaged AM and PM turning movement volumes were assumed at all remaining minor street intersections and approaches.
19. The cumulative Taunton Condo & Fieldgate Commercial Lands are estimated to generate in the order of 970, 1,510 and 1,745 two-way vehicle trips in the ultimate scenario during the AM, PM and SAT peak hours, respectively.

Traffic Volumes – Interim Conditions

20. The construction of the roadway infrastructure supporting the full build-out of Seaton is expected to occur in phases.
21. For the purpose of analysis, it is assumed that external road infrastructure in the vicinity of the Site assumed to be built under interim conditions are consistent with ultimate conditions, with the exception of:
 - Taunton Road is assumed to operate as a four-lane road with exclusive left and right turn lanes provided at some of the intersections within the study area, as per existing conditions; and,
 - The intersection of Burkholder Drive / Marathon Avenue / Belcourt Street operates as a two-way stop-controlled intersection in alignment with the short-term intersection control presented in the City EA and as per existing conditions.
22. Traffic forecasts used in the evaluation of future intersection operations were based on projections obtained from future total traffic volumes outlined in the 2013 Report and utilized in the ultimate conditions with some additional adjustments made to represent assumed interim conditions.
23. For the purpose of analysis, it is assumed that TACC Site A and the proposed Fieldgate Commercial Site lands will be built and occupied under interim conditions, whereas TACC Site B and TACC Site C have not been assumed.
24. The cumulative TACC Site A and Fieldgate Commercial Site are estimated to generate in the order of 715, 1,085 and 1,350 two-way vehicle trips in the interim scenario during the AM, PM and SAT peak hours, respectively.

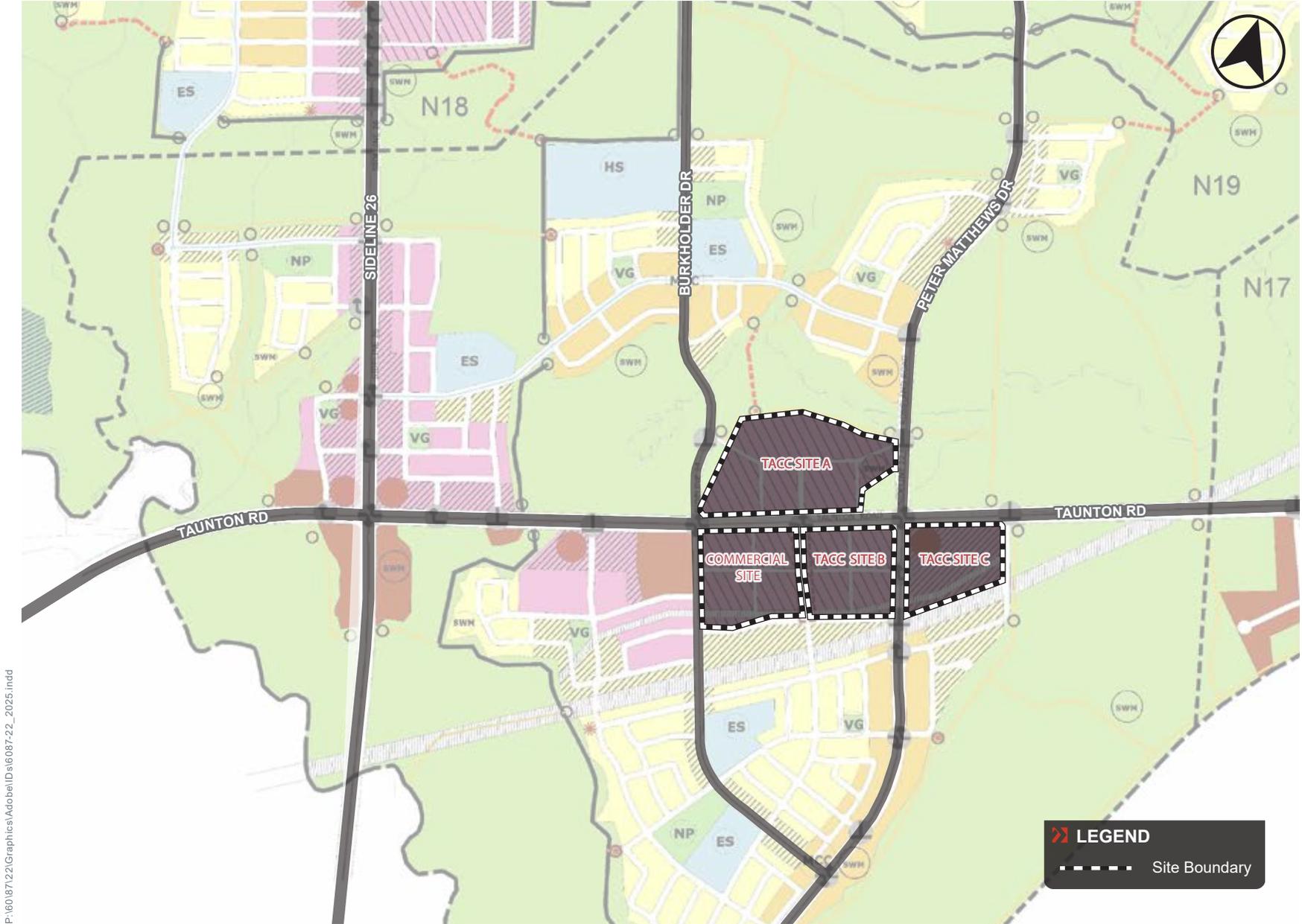
Traffic Operations

25. The analysis indicates that intersections within the study area under both the ultimate and interim condition operate within capacity. The exception is the intersection of Taunton Road / Burkholder Drive which operates at capacity during the PM peak hour, and under ultimate conditions. Notwithstanding, all movements operate at acceptable levels of service and within capacity for all peak hours under interim conditions, and during the AM and SAT peak hours under ultimate conditions.
26. A sensitivity analysis has been undertaken during the PM peak hour to assess whether the intersection would operate with improved levels of service under a longer cycle length (e.g., 140 seconds). Results indicate that the increased cycle length would result in all movements at the intersection operating with acceptable levels of service and within capacity.
27. The City EA for Burkholder Drive provides two scenarios for the build out of the intersection of Burkholder Drive / Marathon Avenue / Belcourt Street, referred to as short-term and long-term. The short-term utilizes the existing side street (two-way) stop-controlled intersection, whereas the long-term proposes an all-way stop controlled or signalized intersection. Interim analysis results utilize the short-term condition, whereas ultimate results take into consideration both the short and long-term condition. Overall, the intersection is projected to operate within capacity under interim conditions and can operate within capacity under ultimate conditions as a two-way stop-controlled intersection, or a traffic signal.

28. Signal and all-way stop-controlled warrants were undertaken at the intersection of Burkholder Drive / Marathon Avenue / Belcourt Street in the ultimate condition. Based on the analysis, neither of which are projected to be warranted. However, it is noted that both alternatives would provide a protected crossing for pedestrians heading east and westbound, improving the level of safety for pedestrians at the intersection. Given the location of two potential schools in Neighbourhood 16 relative to the Commercial Site, pedestrian activity is expected to increase at this intersection. It is recommended that the city monitor the existing intersection and consider the implementation of a traffic signal in the future.

Appendix A: Figures





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Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

FIGURE 1 SITE LOCATION



Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

FIGURE 2 SITE PLAN

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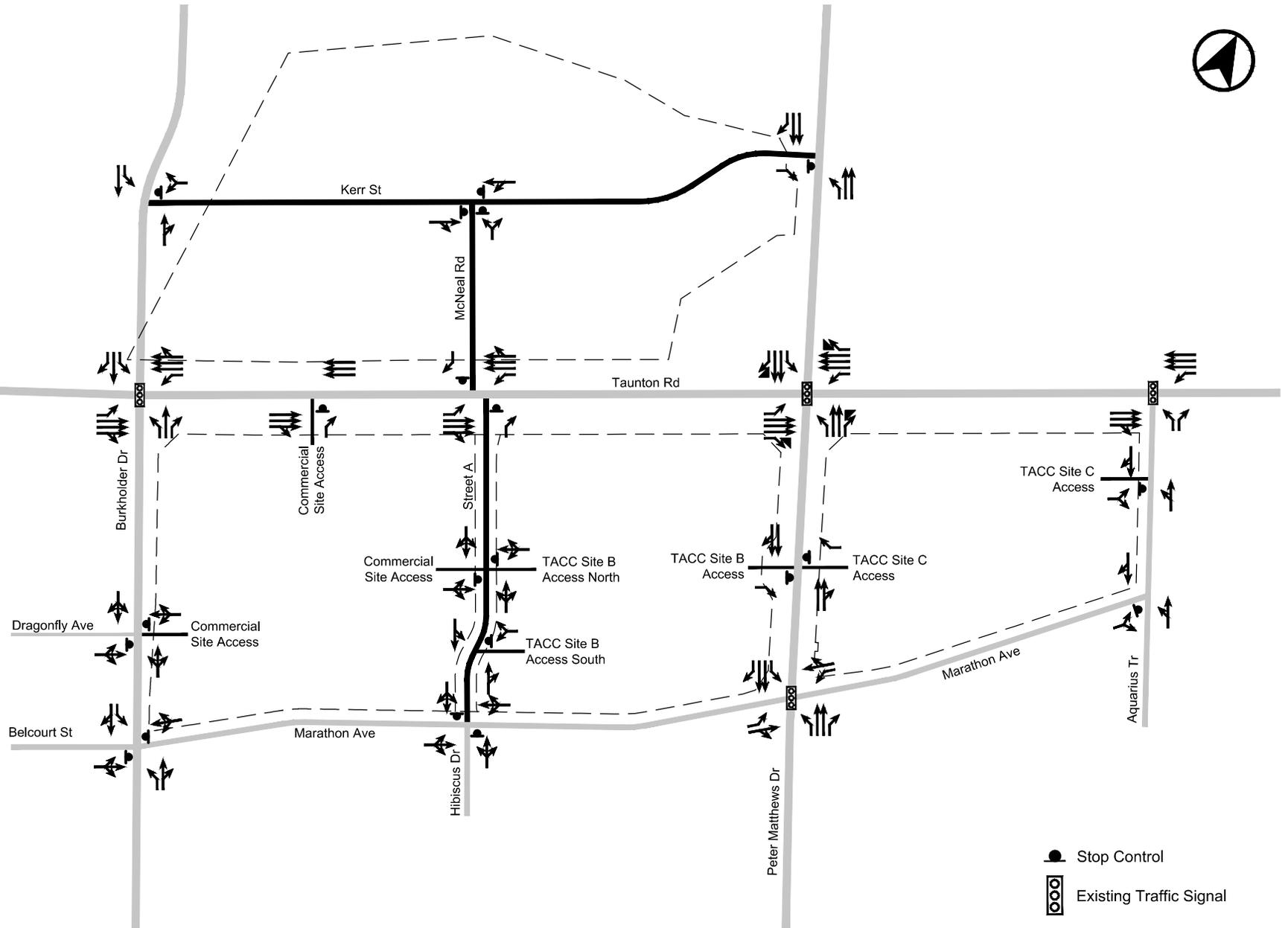


FIGURE 3 LANE CONFIGURATION AND TRAFFIC CONTROL - ULTIMATE (FULL BUILD-OUT) CONDITIONS

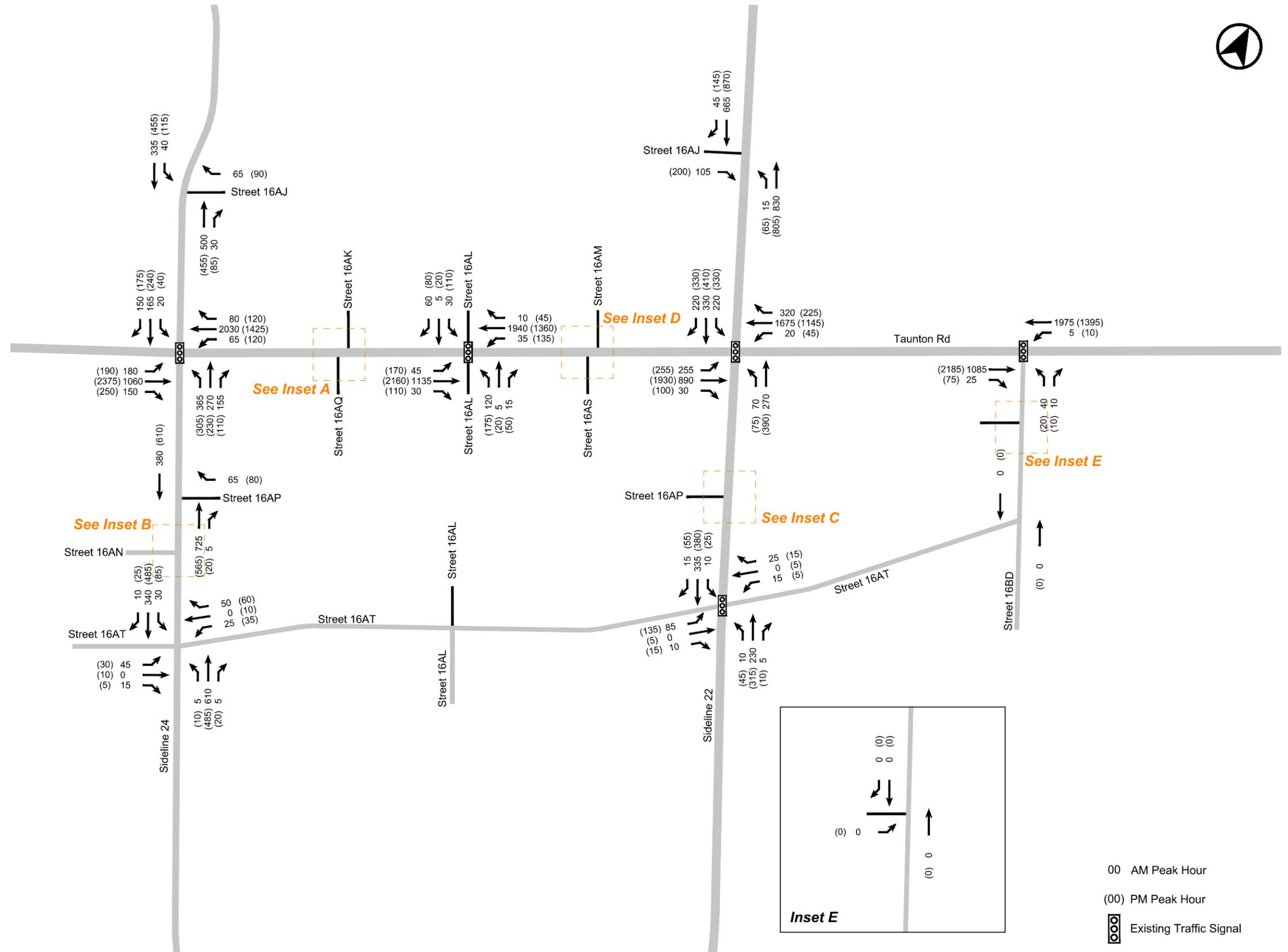
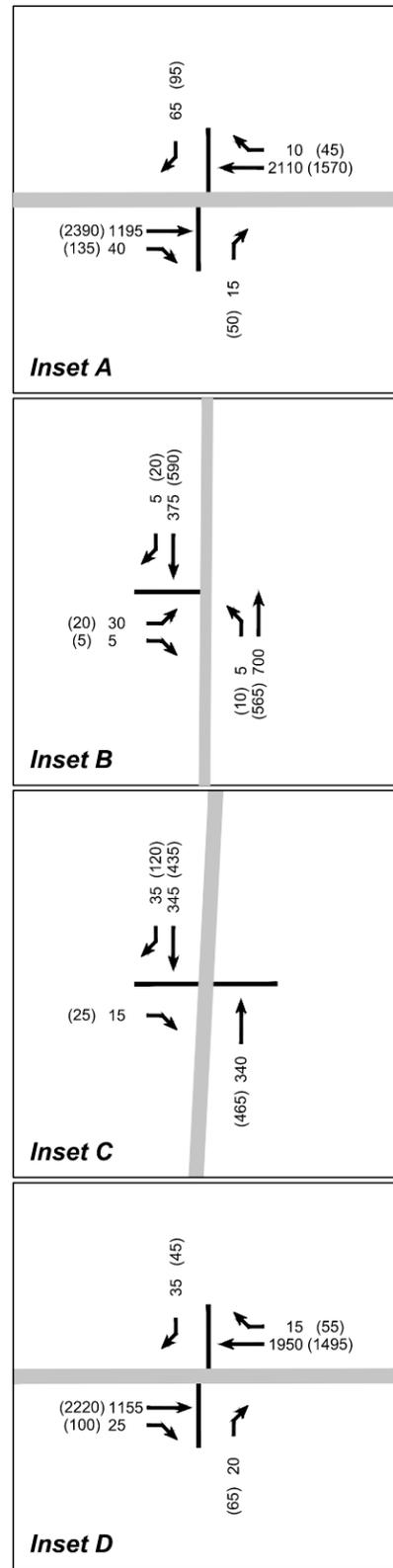


FIGURE 4 BASE FUTURE TRAFFIC VOLUMES
SOURCE: BA 2013 SEATON TRAFFIC MODEL
 TAUNTON FIELDGATE COMMERCIAL LANDS

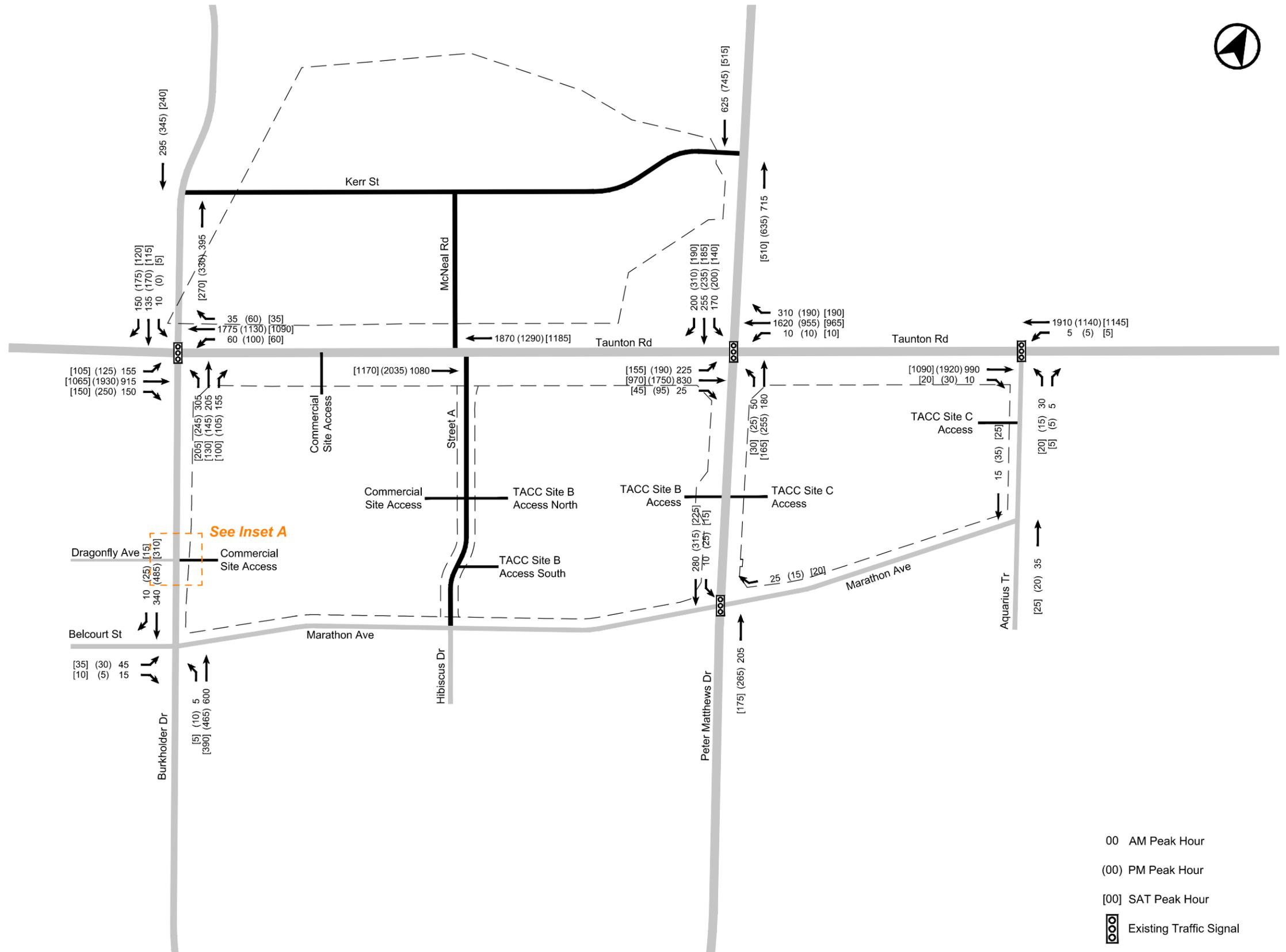
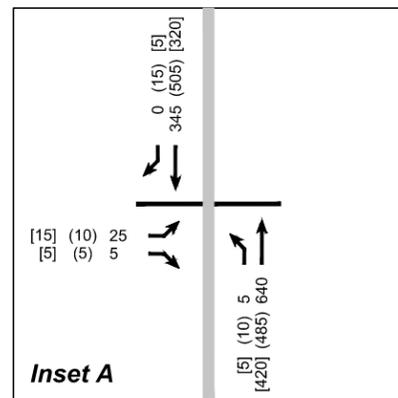


FIGURE 6 FUTURE BACKGROUND TRAFFIC VOLUMES - ULTIMATE (FULL BUILD-OUT) CONDITIONS

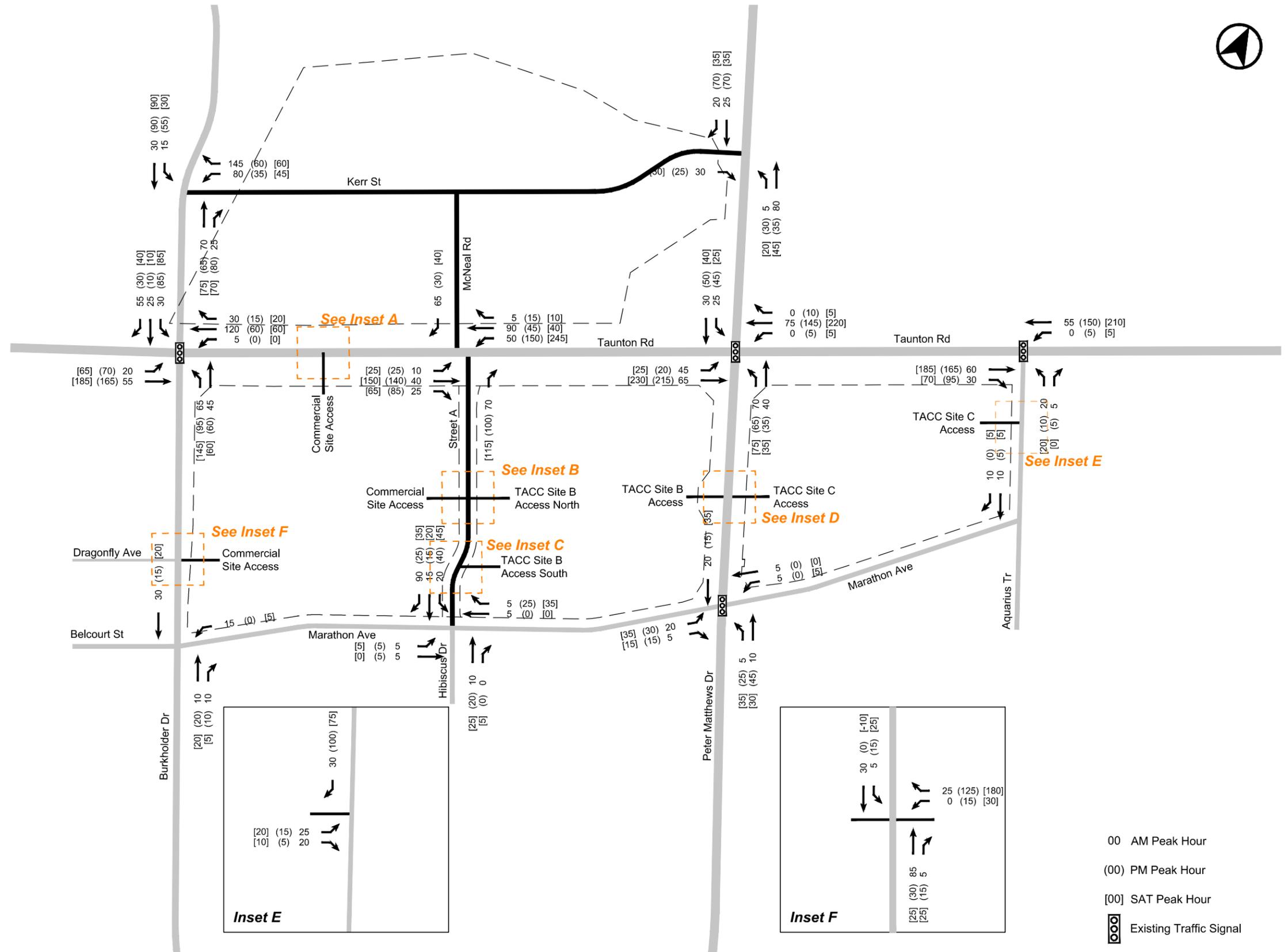
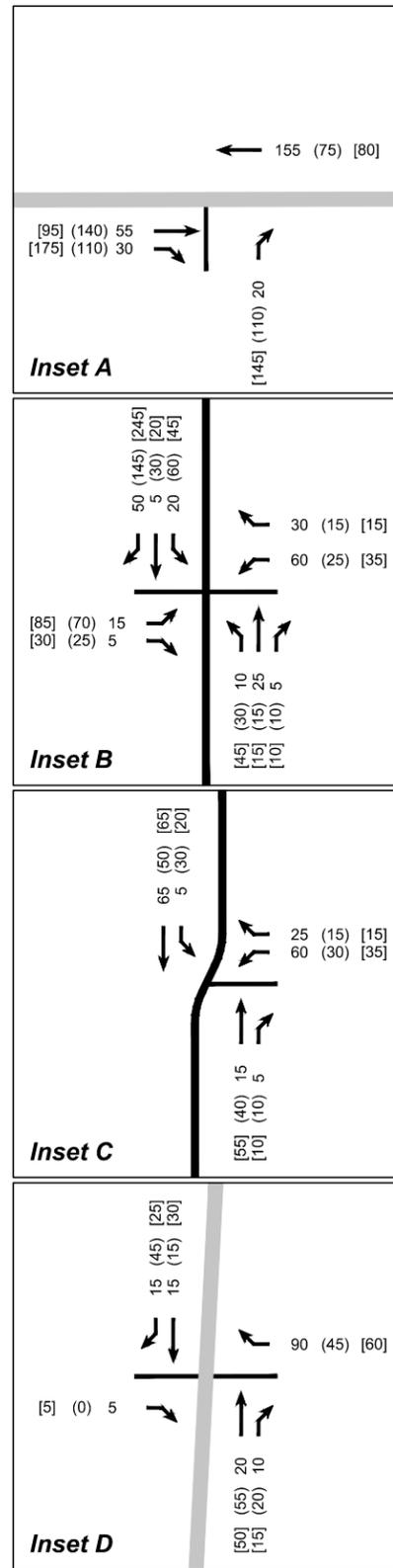


FIGURE 7 SITE TRAFFIC VOLUMES - ULTIMATE (FULL BUILD-OUT) CONDITIONS

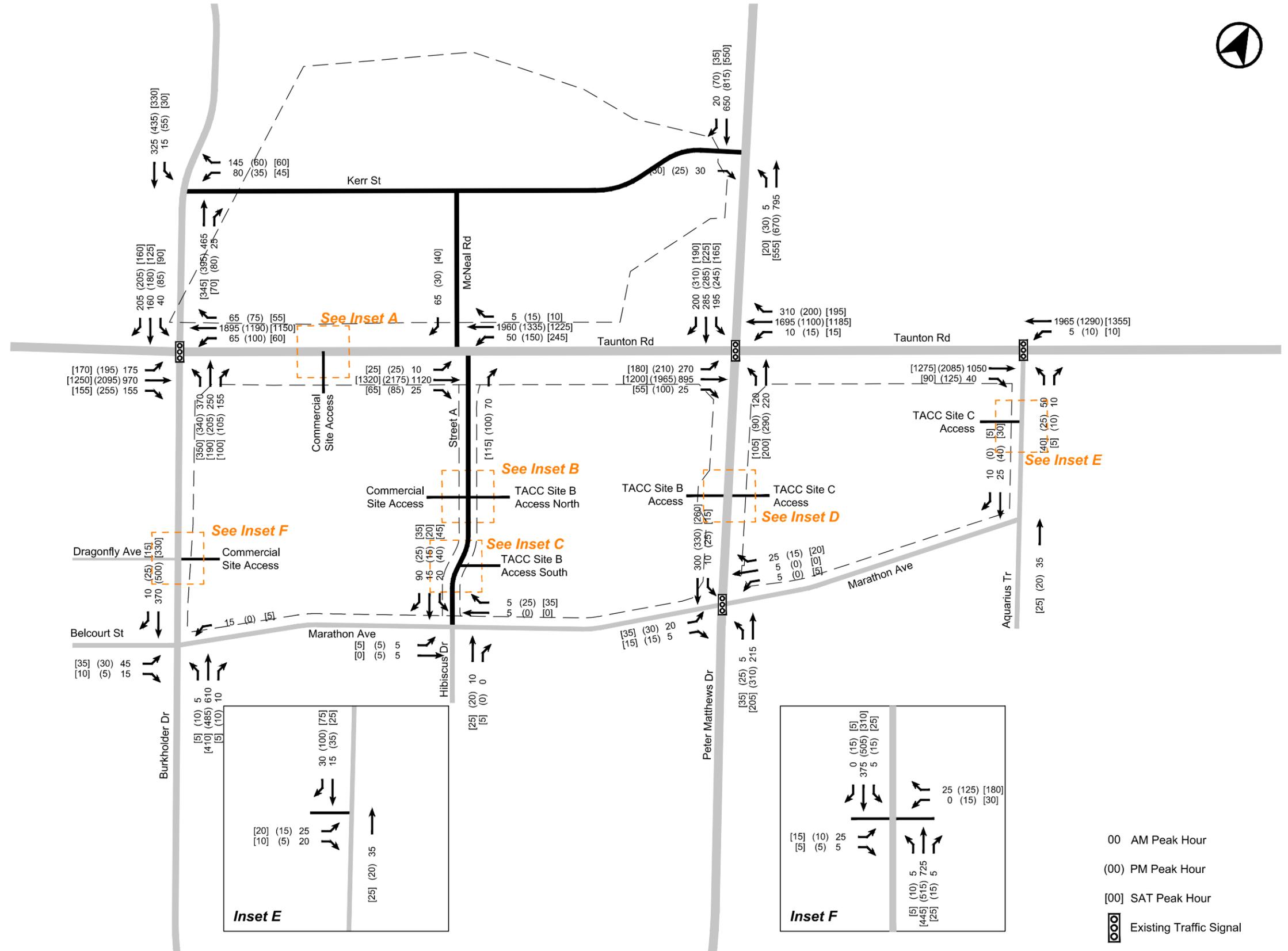
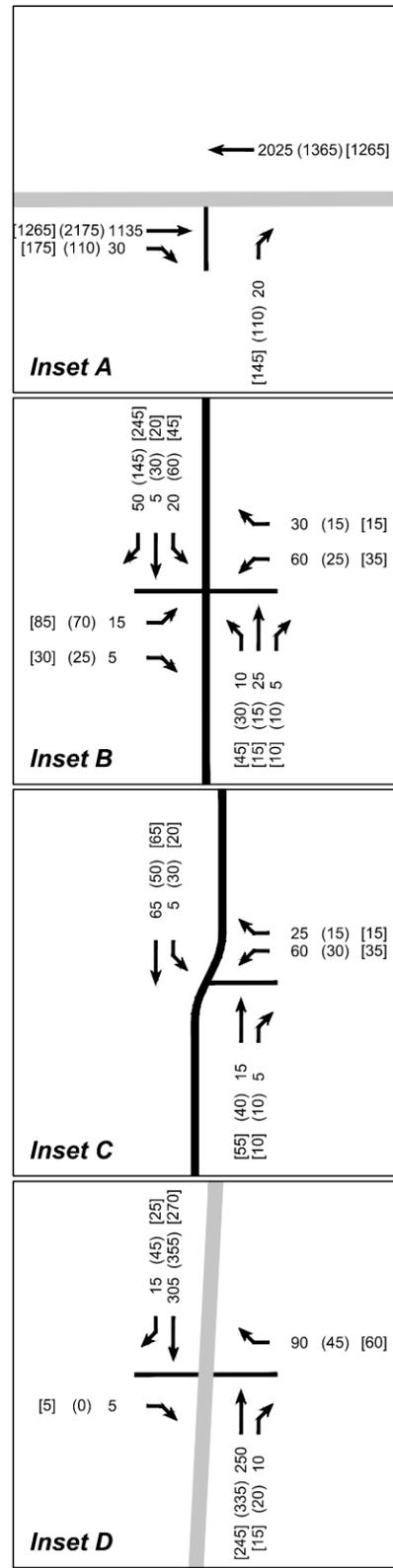


FIGURE 8 FUTURE TOTAL TRAFFIC VOLUMES - ULTIMATE (FULL BUILD-OUT) CONDITIONS

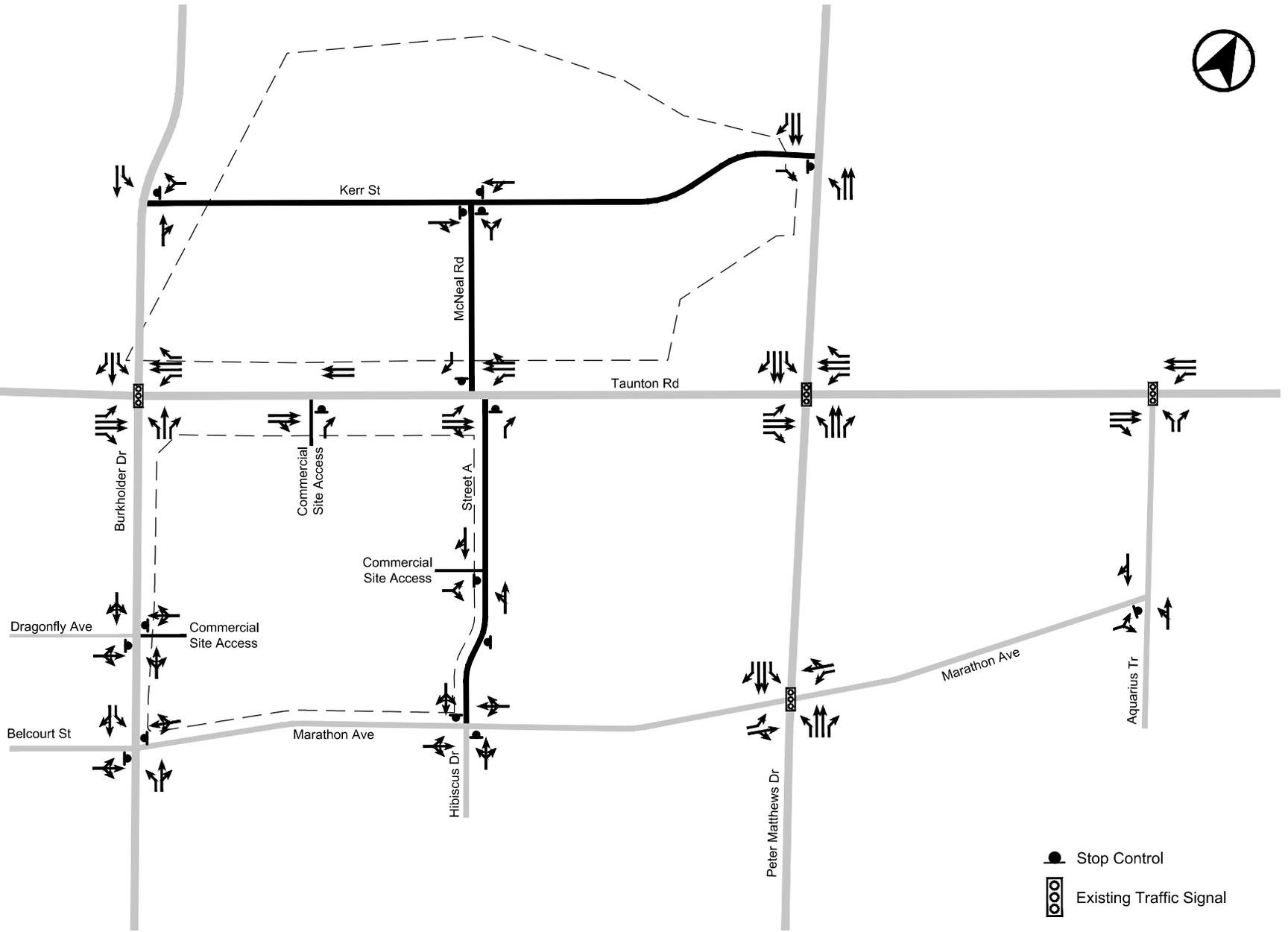
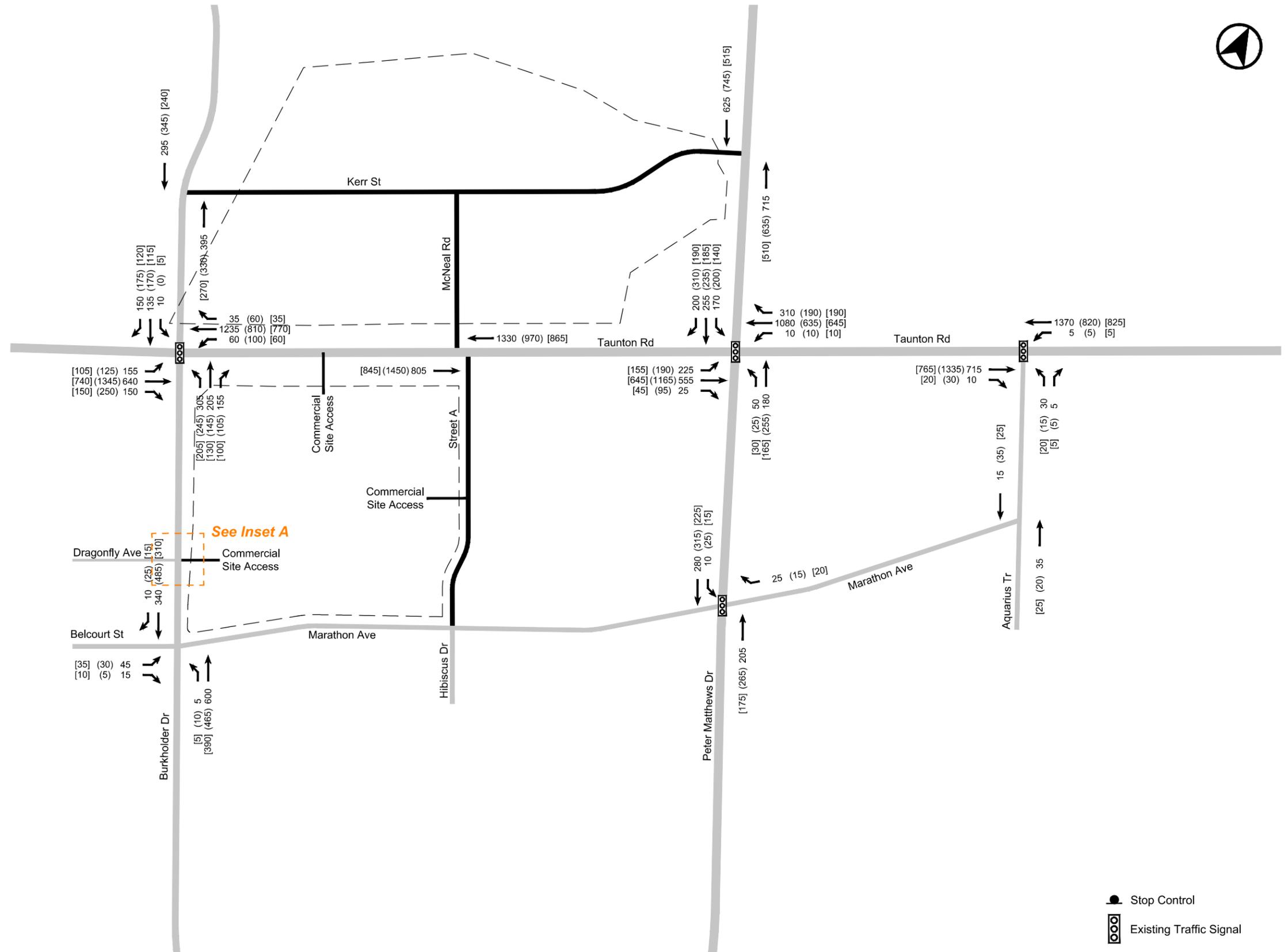
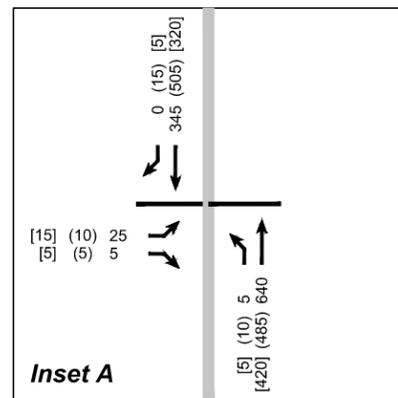


FIGURE 9 LANE CONFIGURATION AND TRAFFIC CONTROL - INTERIM CONDITIONS



-  Stop Control
-  Existing Traffic Signal

FIGURE 10 FUTURE BACKGROUND TRAFFIC VOLUMES - INTERIM CONDITIONS

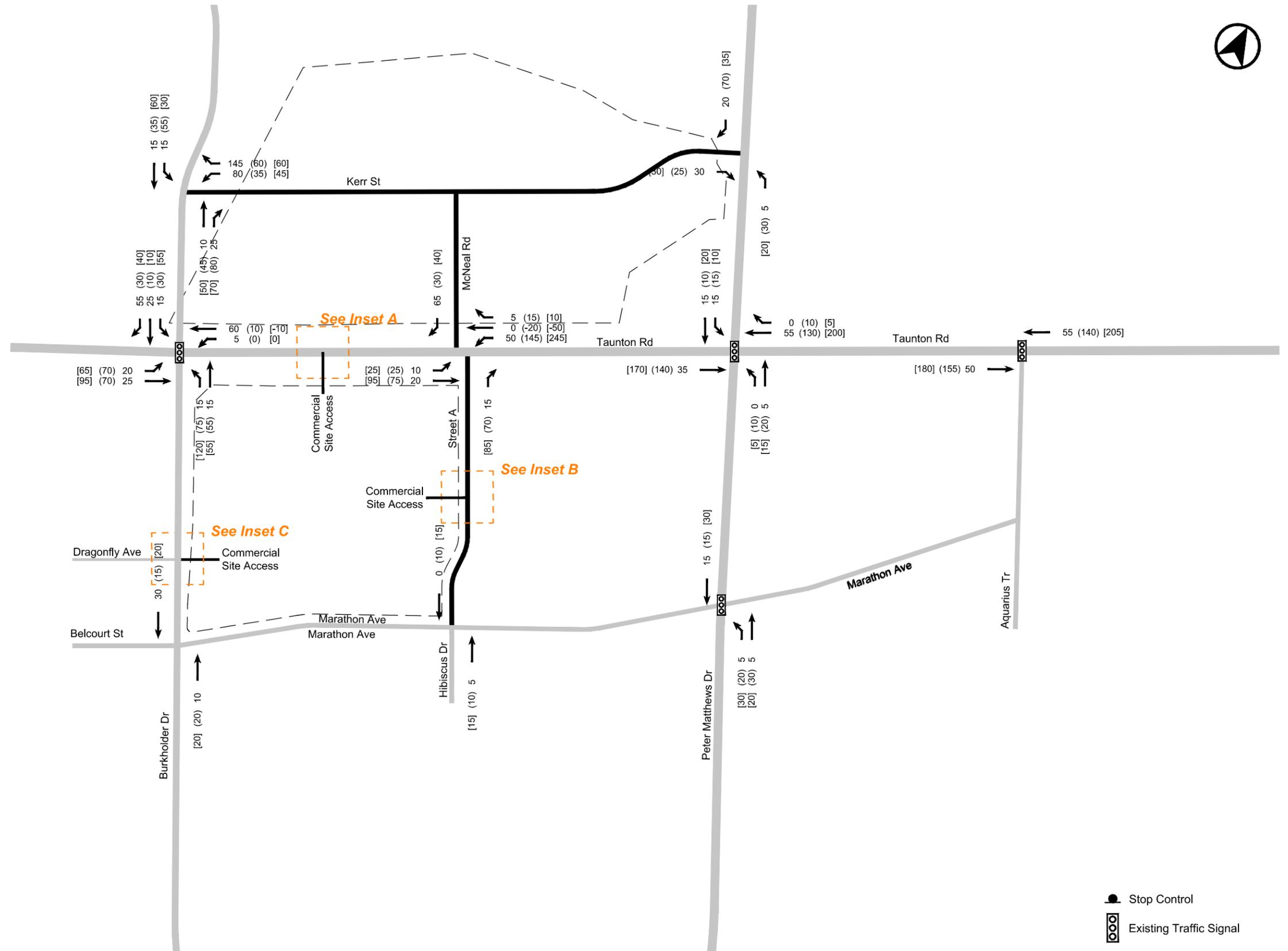
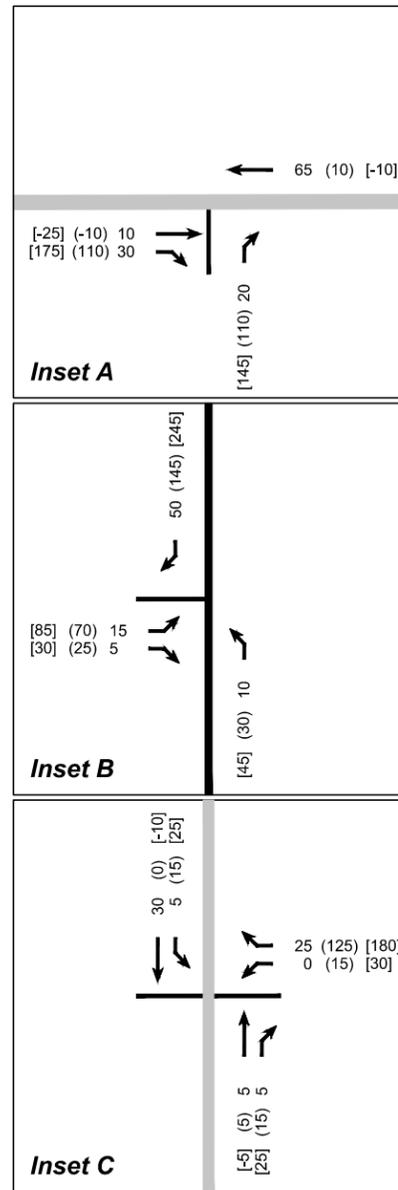


FIGURE 11 SITE TRAFFIC VOLUMES - INTERIM CONDITIONS

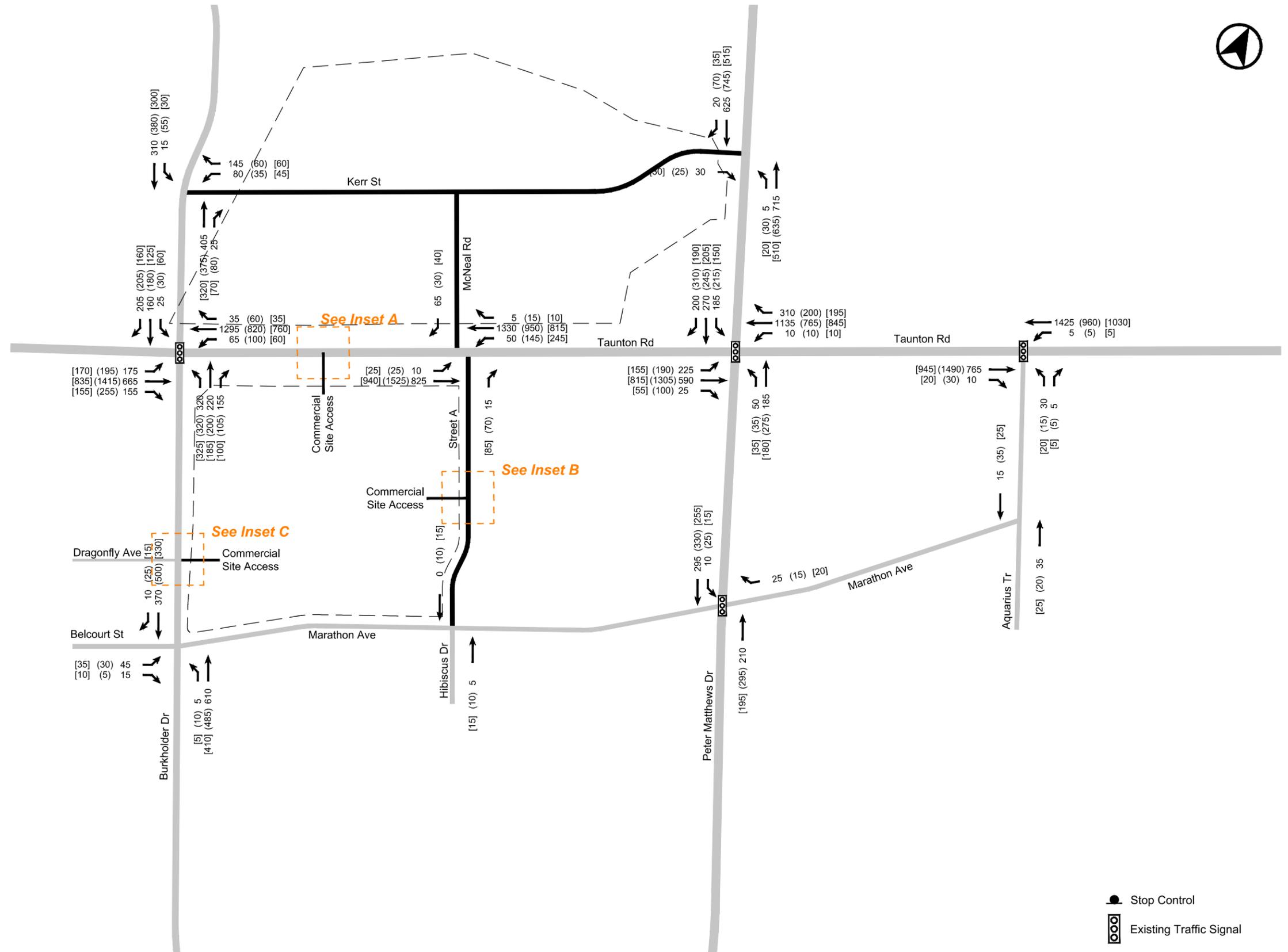
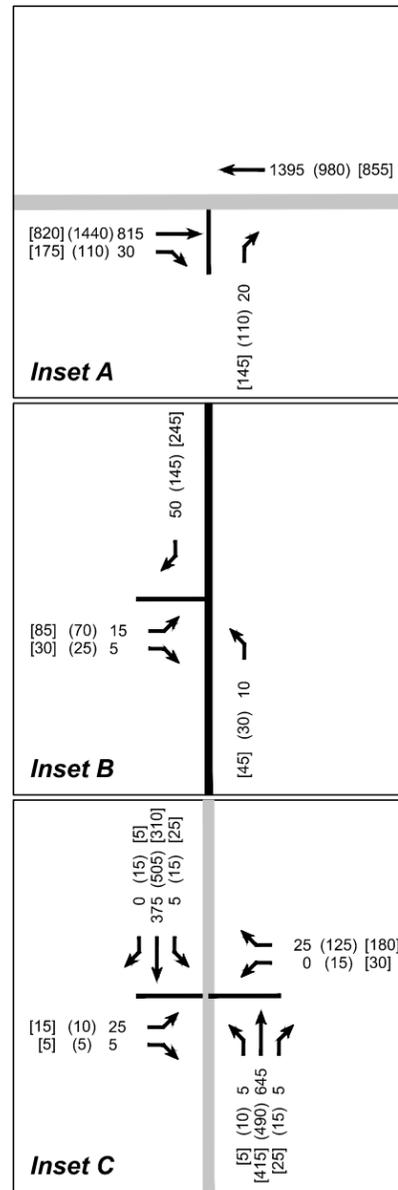
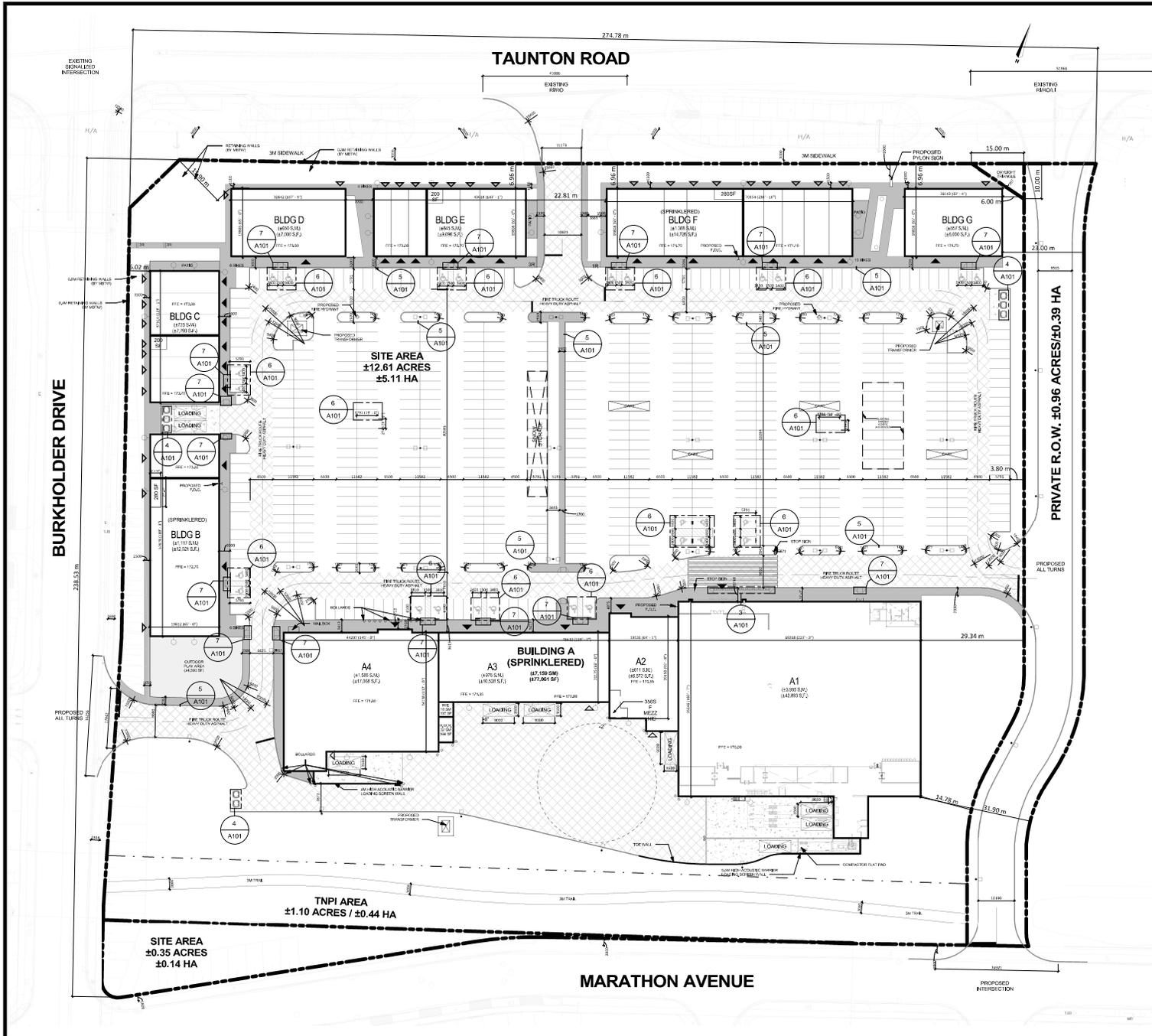


FIGURE 12 FUTURE TOTAL TRAFFIC VOLUMES - INTERIM CONDITIONS

Appendix B: Site Plan





2 KEY PLAN
A100 1: 1750

LEGAL DESCRIPTION:
PLAN 40M2671 BLK 188 & Block 76, PLAN 40M-2664, Part of Lot 23 & 24, Concession 3

ZONING COMPLIANCE CHART: SCN-4 (west) and SCN-4 (east)

REQUIRED	PROVIDED
USE: SOLE/RETAIL COMMERCIAL	RETAIL/COMMERCIAL
PARKING REQUIRED: 563 CARS 2800SM+26,000SM 4.5/100 (2800X300) DRIVE AISLES (6.5M)	643 CARS 5,16100 (2743X5791) 6.5M minimum
LOADING: 1 PER BUILDING (3500X9000); 7	9 SPACES
MIN LOT FRONTAGE: 30M	238M
FRONT YARD-BURKHOLDER: MIN 0M, MAX 3M	6M
SIDE YARD-TAUNTON: 0M OR 7.5M	6M
FLANKAGE YARD-MARATHON: 0-2M	27M
MIN REAR YARD: 5M	23M
LANDSCAPE ABUTTING PARKING 2.5M	3M
BUILDING HEIGHT 5-63M	MINIMUM 6M
GROSS LEASABLE AREA: MAX 60,000SM	12,421SM

STATISTICS

SITE A AREA	± 12.61 AC	± 5.11 HA
TNPI AREA	± 1.10 AC	± 0.44 HA
R.O.W AREA	± 0.96 AC	± 0.39 HA
UNDEVELOPABLE	± 0.35 AC	± 0.14 HA
TOTAL SITE AREA	± 15.02 AC	± 6.06 HA
BUILDING A*	± 77,061 SF	± 7,159 SM
BUILDING B*	± 12,021 SF	± 1,117 SM
BUILDING C	± 7,799 SF	± 725 SM
BUILDING D	± 7,000 SF	± 650 SM
BUILDING E	± 9,096 SF	± 845 SM
BUILDING F*	± 14,726 SF	± 1,368 SM
BUILDING G	± 46,000 SF	± 557 SM
M/F ROOM	± 1,157 SF	± 107 SM
REGIONAL WATER ROOM	± 344 SF	± 32 SM
GROSS BUILDING AREA	± 135,204 SF	± 12,560 SM
GROSS LEASABLE AREA	± 133,703 SF	± 12,421 SM
BIKE RACKS		34 SPACES
LOADING		9 SPACES
PARKING	4.81 / 1000 SF	643 CARS
		5.18 / 100 SM
PARKING (INC. G.C.)	4.67 / 1000 SF	625 CARS
		5.03 / 100 SM

LEGEND

- PRIMARY ENTRANCE
- EMERGENCY DOOR
- PROPOSED FIRE EXIT
- PROPOSED FIRE & TRUCK ROUTE (HEAVY DUTY ASPHALT)
- PROPOSED CONCRETE SIDEWALK
- PROPOSED CONCRETE LOADING

BASE INFORMATION:

1. SURVEY INFORMATION FROM J.D. BARNES.
2. GRADING AND SERVICING INFORMATION FROM KWA.
3. LANDSCAPE INFORMATION FROM THE MBTW GROUP.
4. ELECTRICAL INFORMATION FROM H&J INC.
5. TRAFFIC INFORMATION FROM BA GROUP.

THIS DRAWING, AS AN INSTRUMENT OF SERVICE IS PROVIDED UNDER THE PROVISIONS OF THE ORIGINAL SERVICES. THE CONTRACTOR MUST VERIFY AND ACCEPT RESPONSIBILITY FOR ALL DIMENSIONS AND CONDITIONS ON SITE AND MUST NOTIFY THE DESIGNER IMMEDIATELY OF ANY DISCREPANCIES. THE DESIGNER SHALL NOT BE RESPONSIBLE FOR THE DESIGN OR CONSTRUCTION OF STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER CONSULTANT INFORMATION SHOWN ON THIS DRAWING. REFER TO THE APPROPRIATE CONSULTANTS FOR DIMENSIONS AND REQUIREMENTS OF ANY OTHER CONSULTING CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND REQUIREMENTS OF ANY OTHER CONSULTING CONTRACTOR. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY CORRECTIONS OR DAMAGES RESULTING FROM THIS WORK.

REV.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	DEC 2023

<input type="checkbox"/>	REVISION
<input type="checkbox"/>	ISSUED
<input type="checkbox"/>	APPROVAL



PROJECT:
TAUNTON + BURKHOLDER

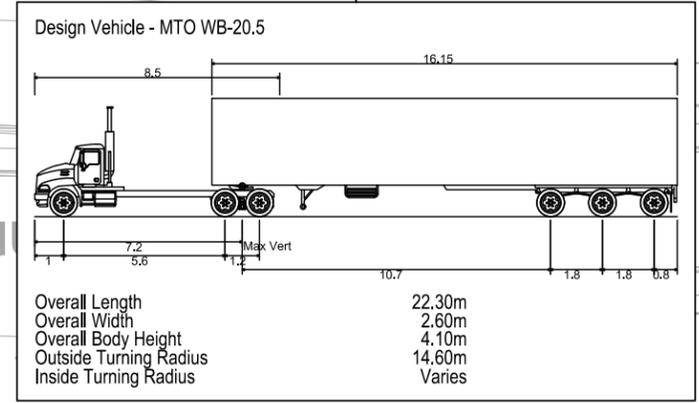
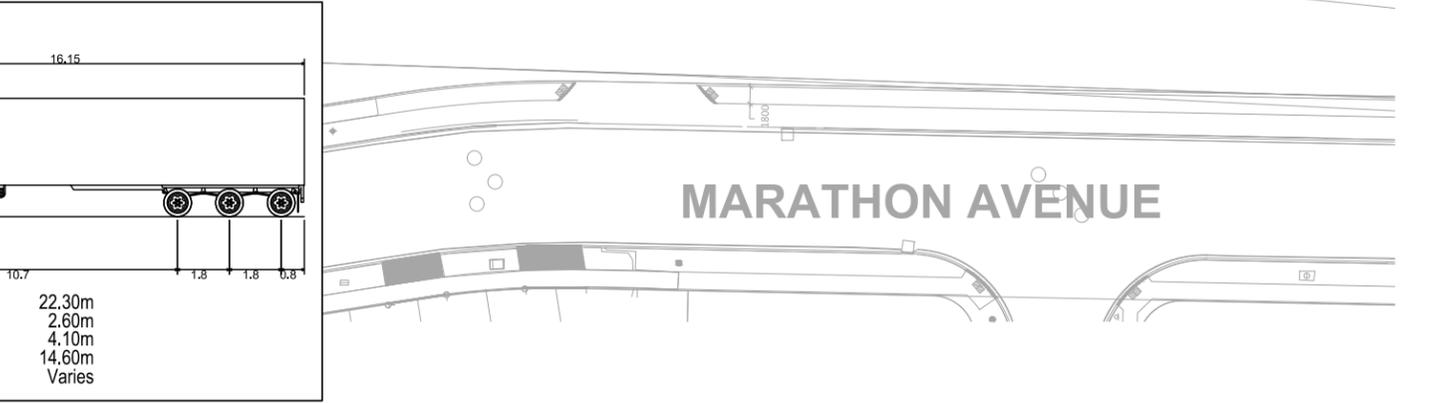
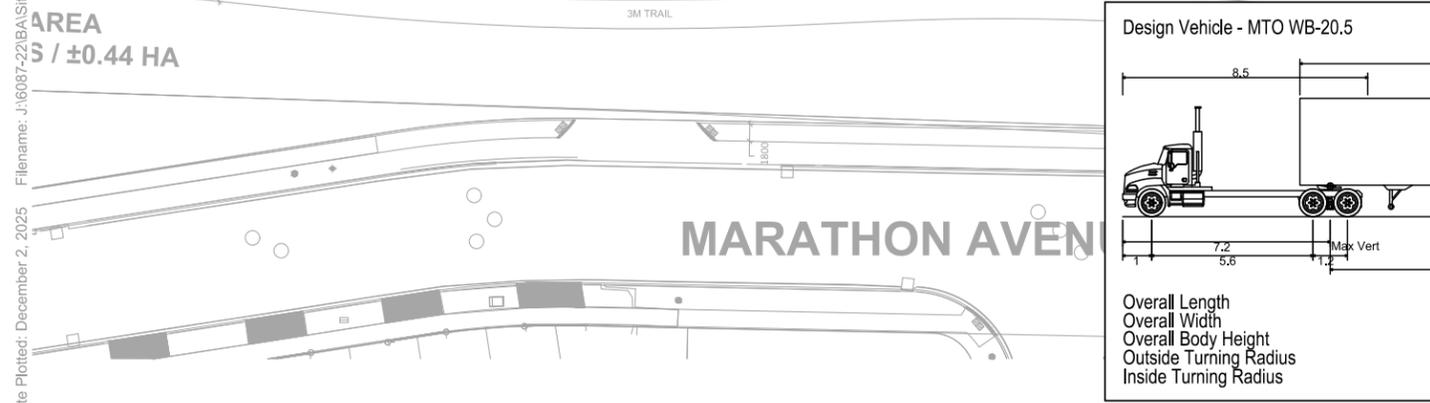
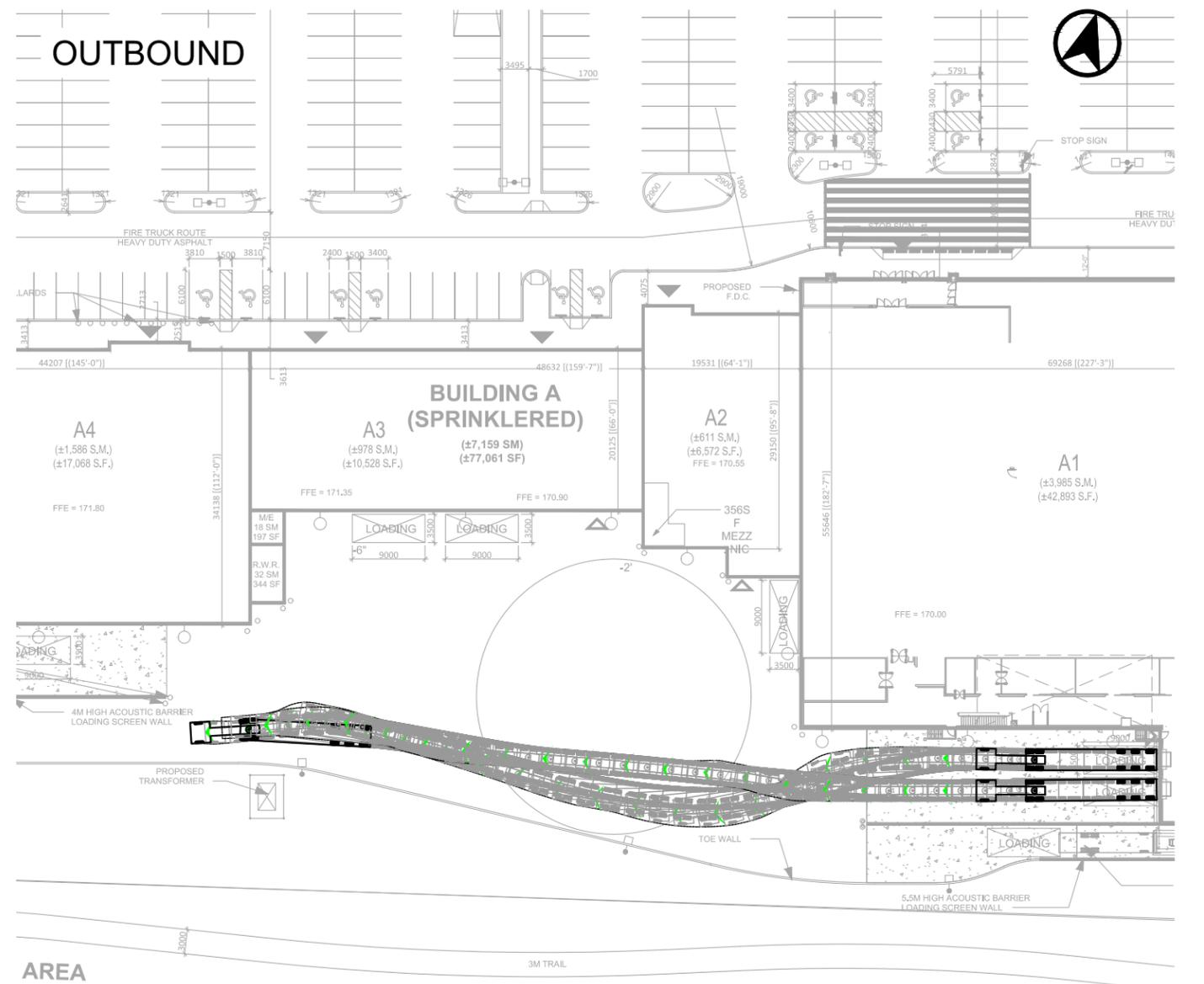
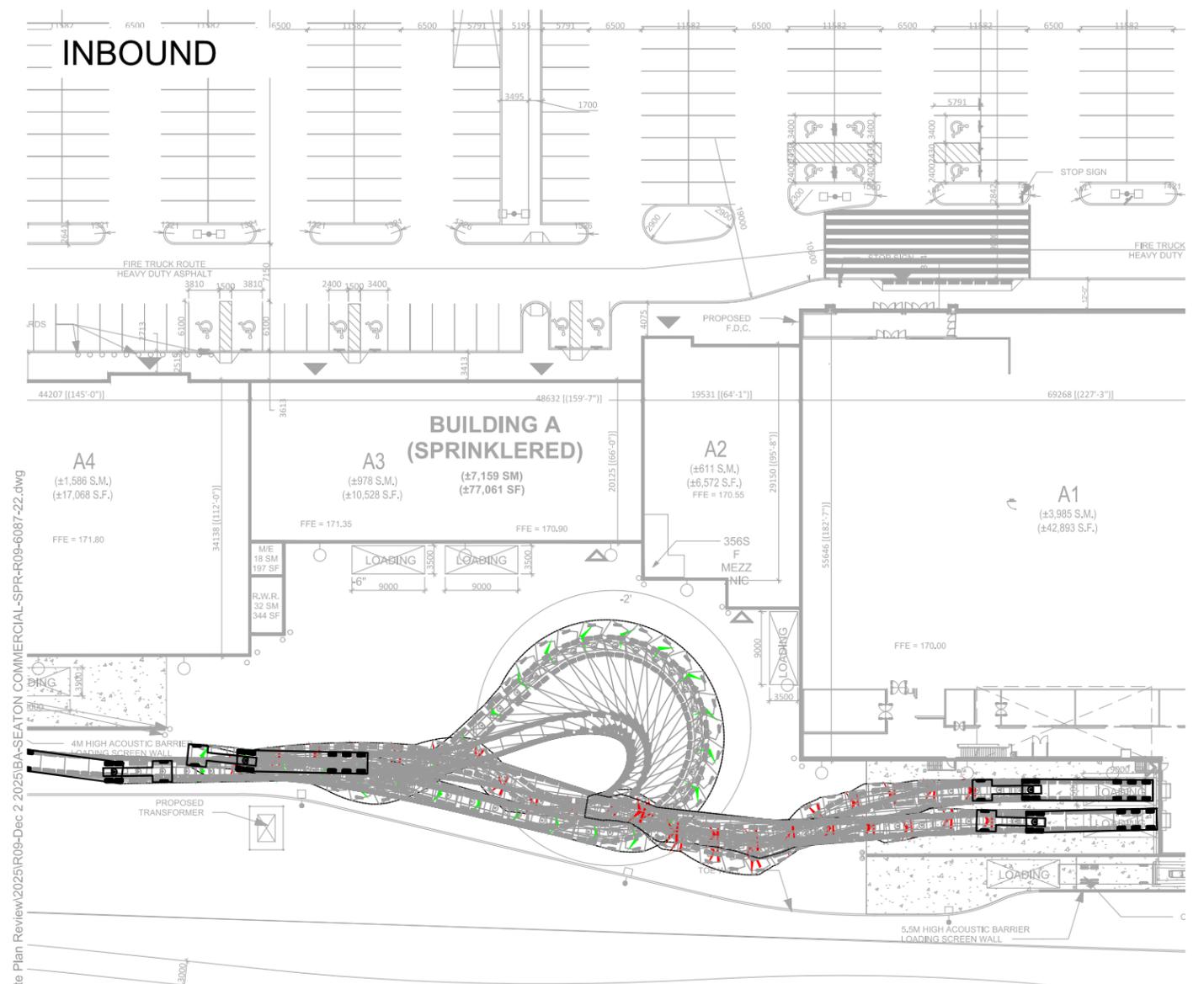
PRE 023-026/22
DRAWING:

SITE PLAN

DRAWN	CHECKED	APPROVED
A100	R3	HA
DATE: 2025-11-21	SCALE: As Indicated	SHEET NUMBER: 25003
DRAWING NUMBER: A100	REGIONAL NUMBER: R3	

Appendix C: Vehicle Manoeuvring Diagrams





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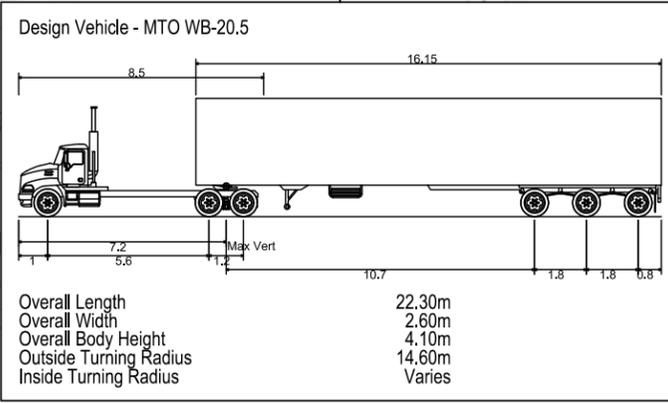
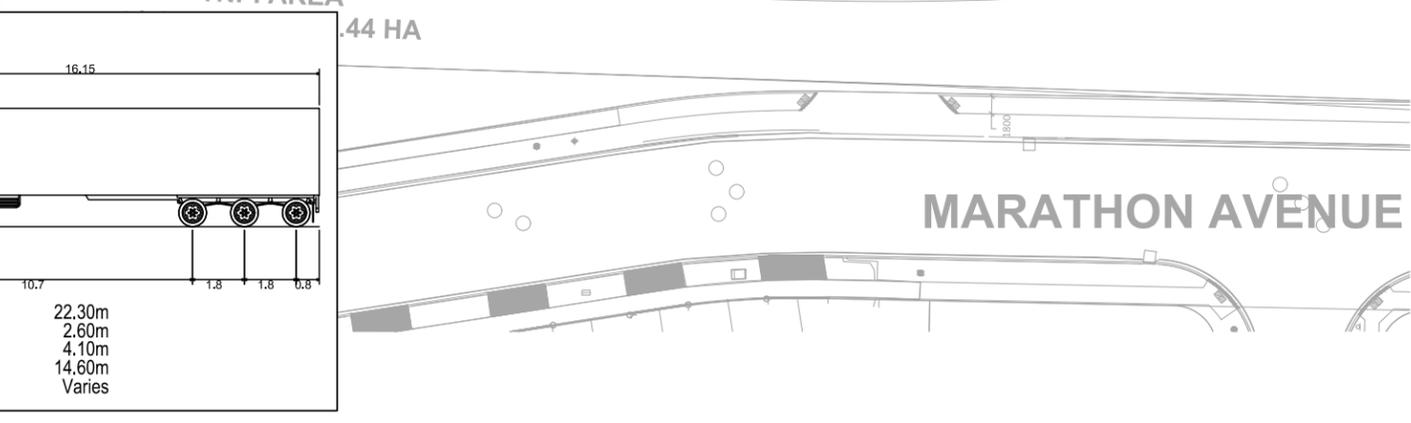
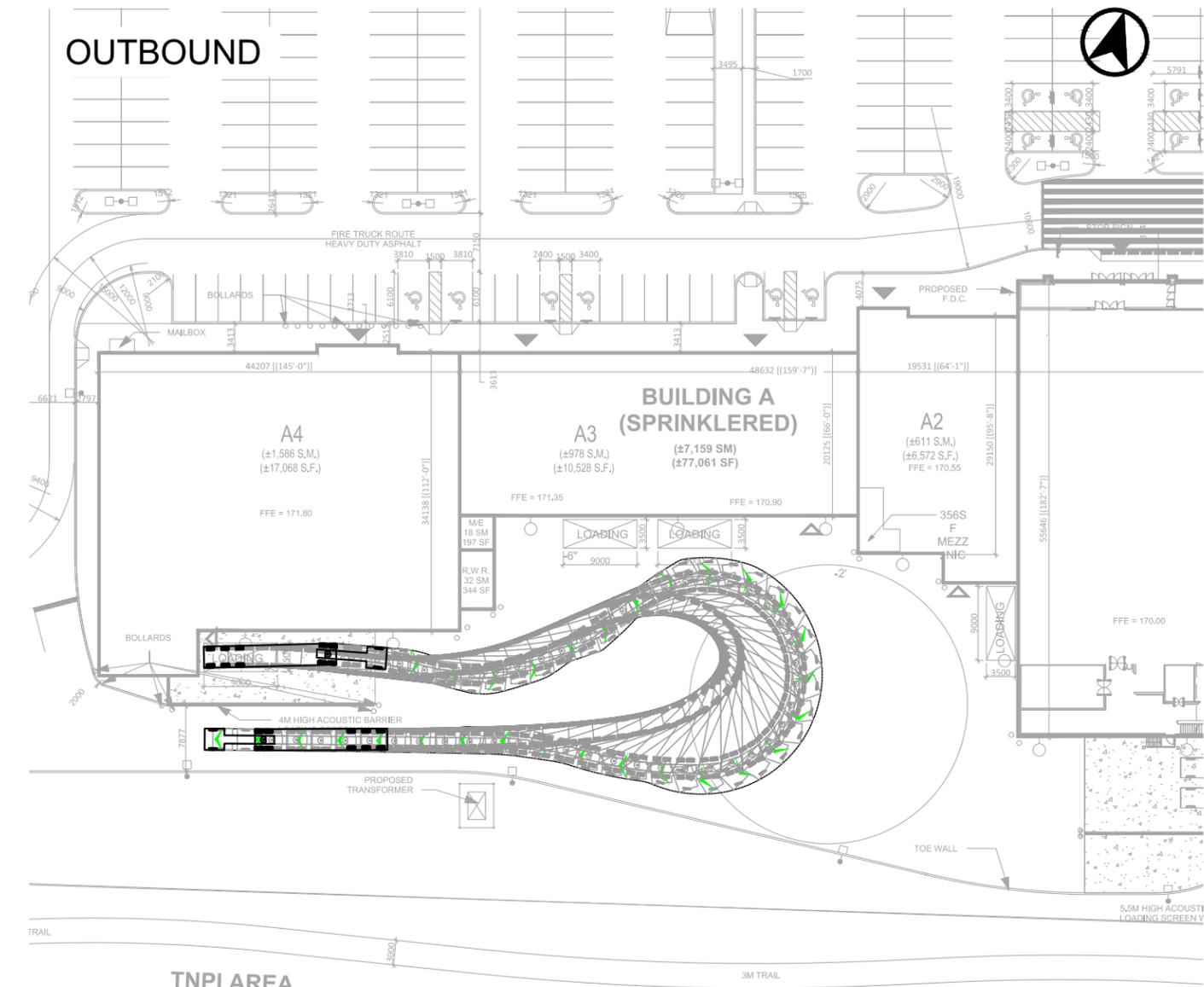
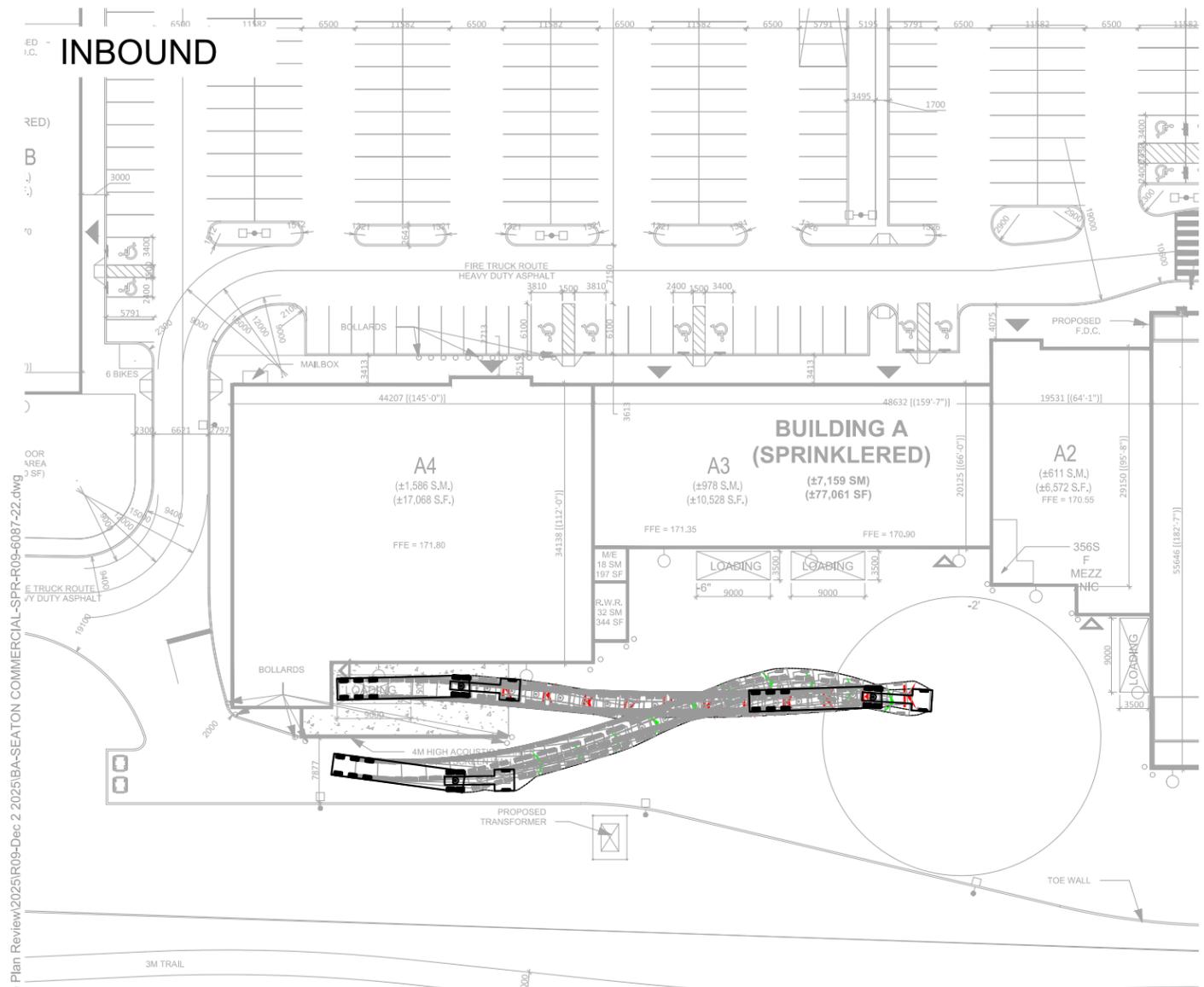


**SEATON COMMERCIAL
 VEHICLE MANOEUVRING DIAGRAM
 BUILDING 'A1' LOADING SPACE
 MTO WB-20.5 WITH 53' TRAILER**

Project: SEATON COMMERCIAL
 Project No. 6087-22
 Date: APRIL 21, 2025
 Revised: DECEMBER 2, 2025

Scale: 1:750

Drawing No. **VMD-02**



**SEATON COMMERCIAL
VEHICLE MANOEUVRING DIAGRAM
BUILDING 'A3' LOADING SPACE
MTO WB-20.5 WITH 53' TRAILER**

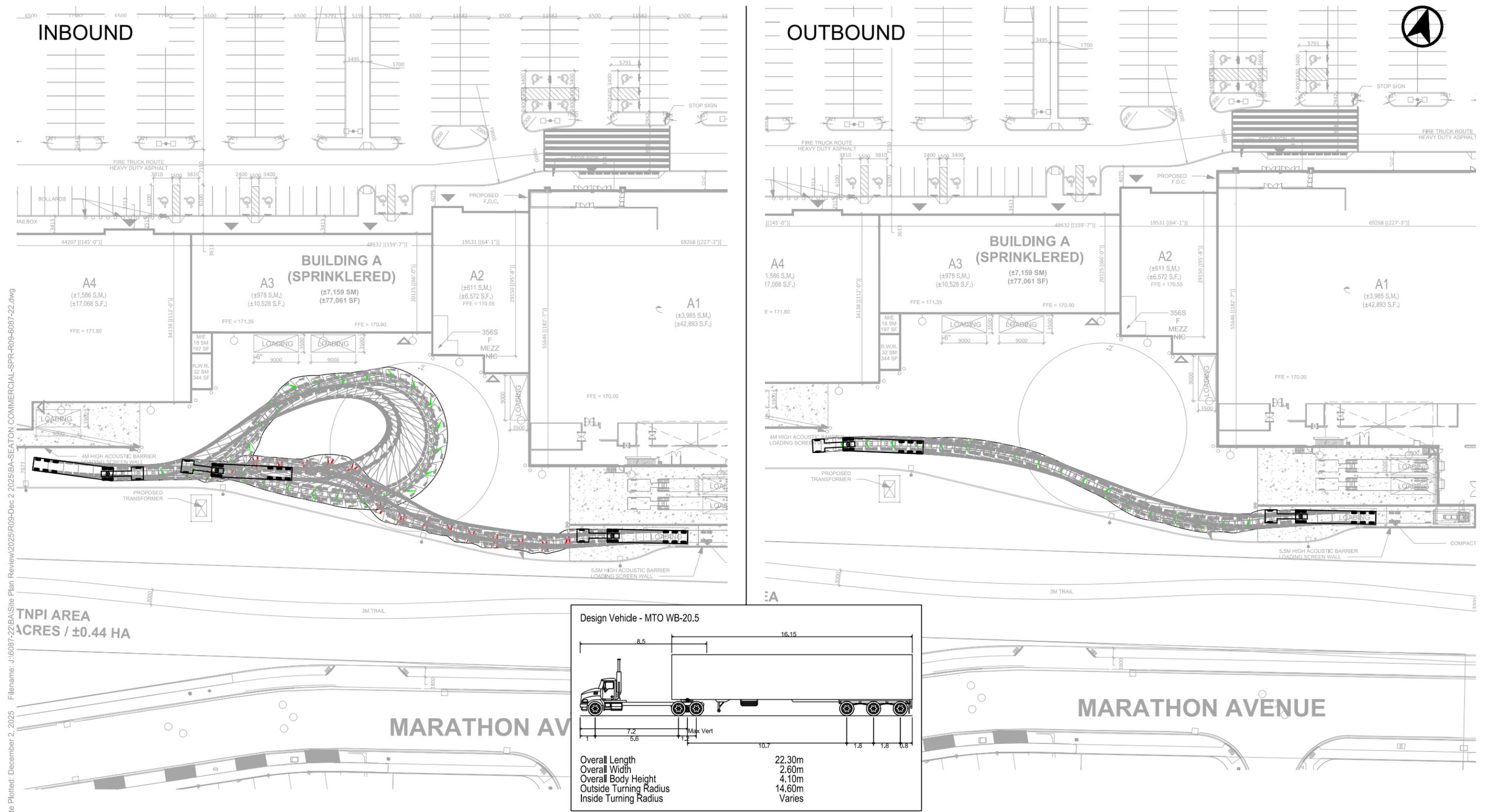
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Project No. 6087-22
Date: APRIL 21, 2025
Revised: DECEMBER 2, 2025

Scale: 1:750
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Drawing No. **VMD-03**

Date Plotted: December 2, 2025 File Name: J:\6087-22\BA\Site Plan Review\2025\R09-Dec-2 2025\BA-SEATON COMMERCIAL-SPR-R09-6087-22.dwg

INBOUND

OUTBOUND



Date Plotted: December 2, 2025 File Name: J:\6087-22\BA\Site Plan Review\2025\R09-Dec-2 2025\BA-SEATON COMMERCIAL-SPR-R09-6087-22.dwg

TNPI AREA
ACRES / ±0.44 HA

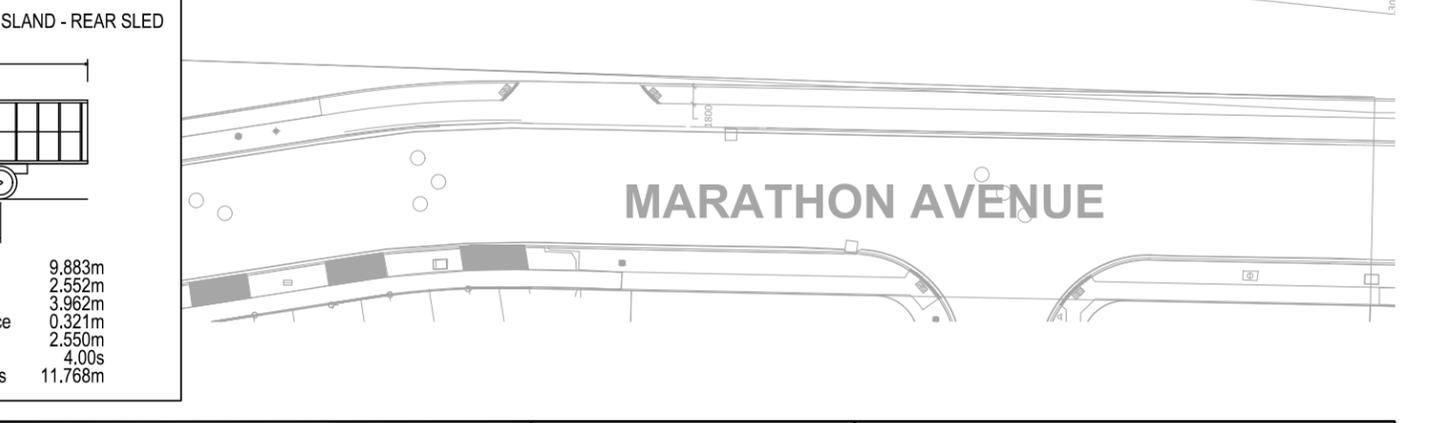
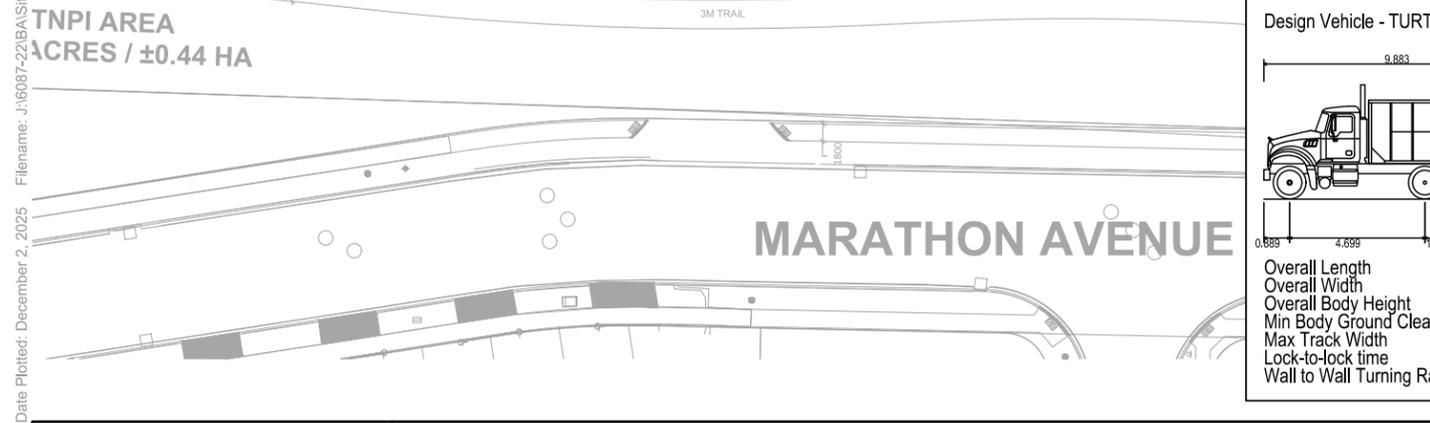
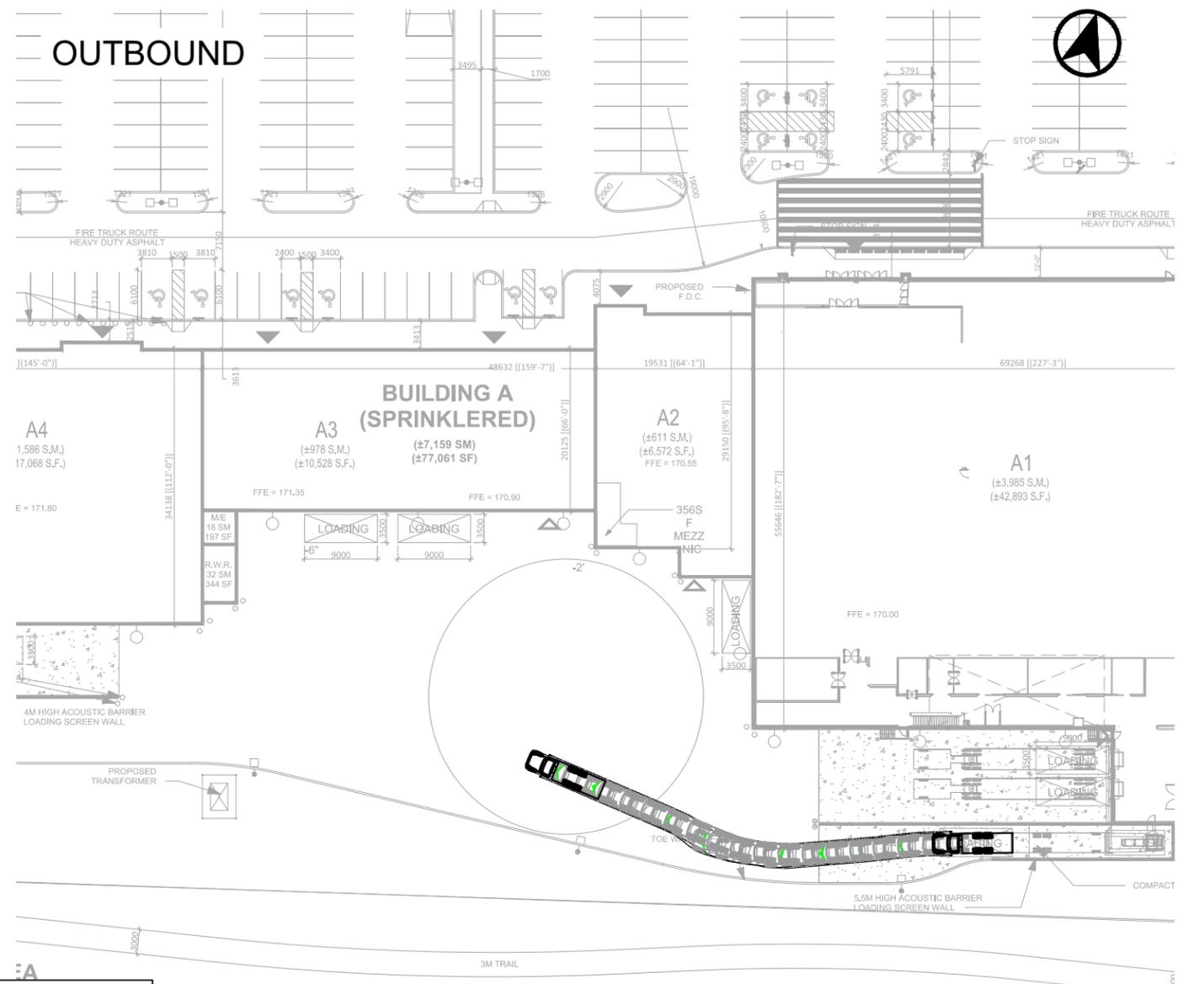
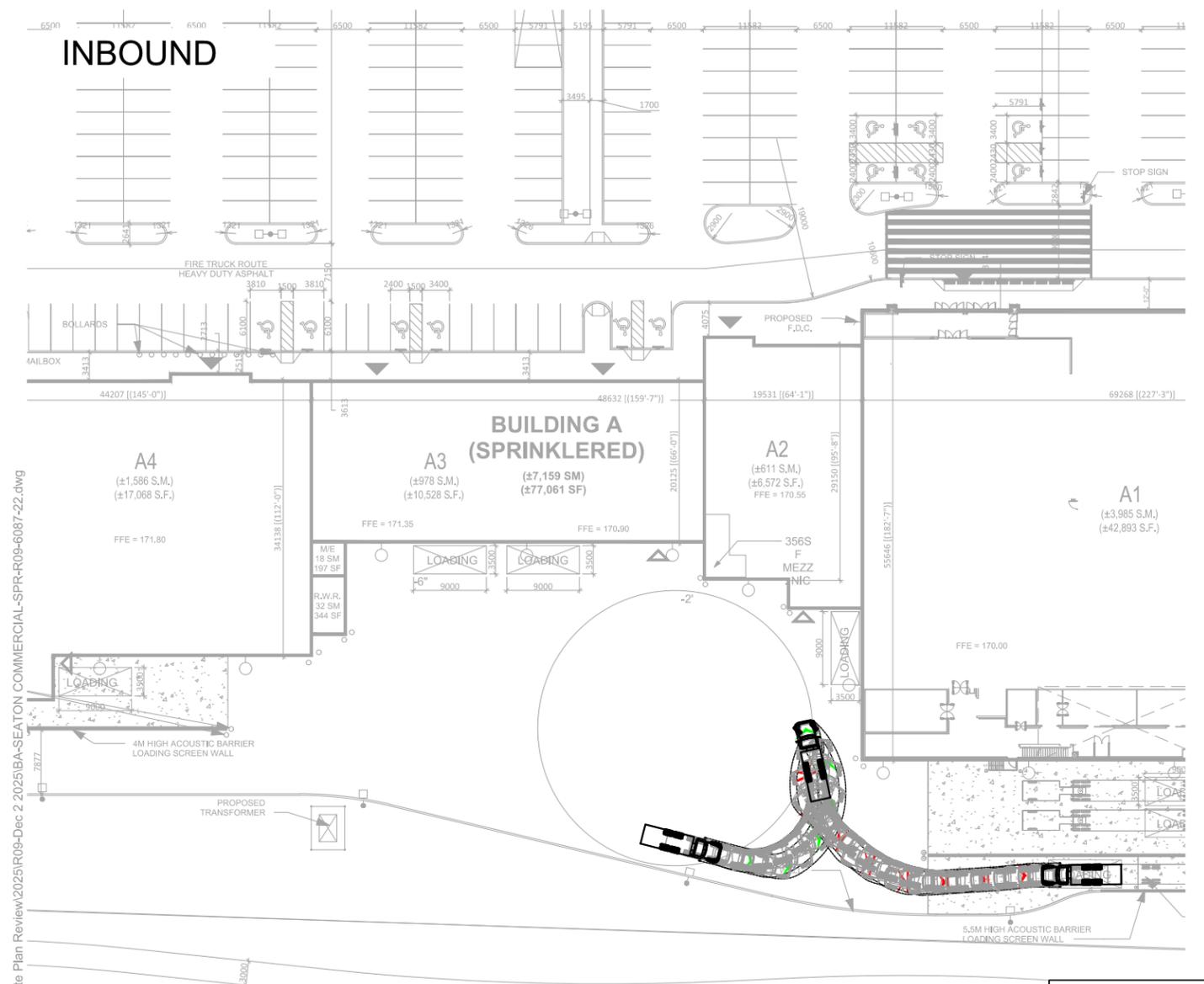


SEATON COMMERCIAL
VEHICLE MANOEUVRING DIAGRAM
BUILDING 'A1' ORGANIC WASTE COLLECTION
MTO WB-20.5 WITH 53' TRAILER

Project: SEATON COMMERCIAL
 Project No. 6087-22
 Date: APRIL 21, 2025
 Revised: DECEMBER 2, 2025

Scale 1:750

Drawing No. **VMD-04**



Design Vehicle - TURTLE ISLAND - REAR SLED

Overall Length	9.883m
Overall Width	2.552m
Overall Body Height	3.962m
Min Body Ground Clearance	0.321m
Max Track Width	2.550m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	11.768m

Date Plotted: December 2, 2025 File Name: J:\6087-22\BA\Site Plan Review\2025\R09-Dec 2 2025\BA-SEATON COMMERCIAL-SPR-R09-6087-22.dwg

TNPI AREA
ACRES / ±0.44 HA

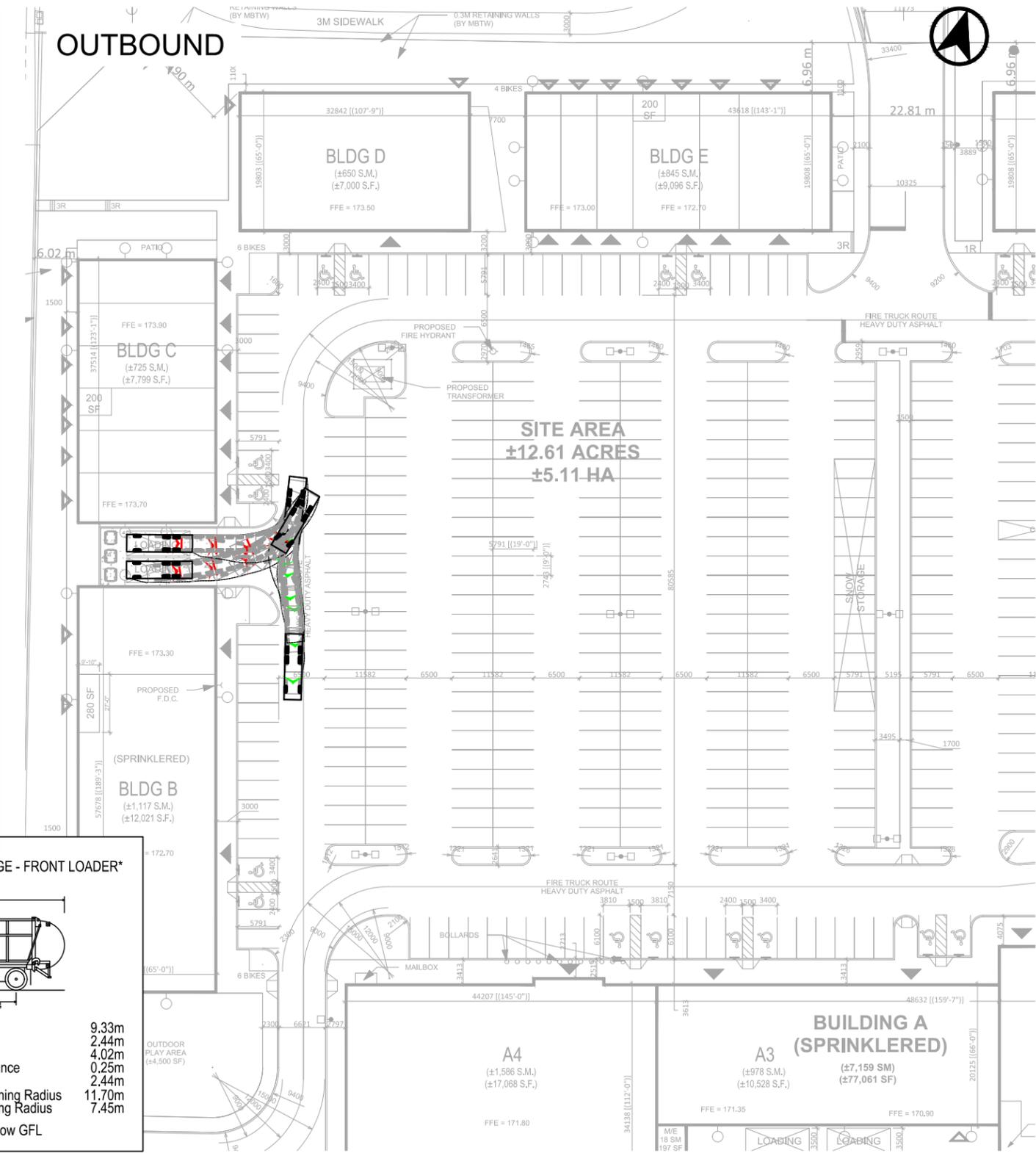
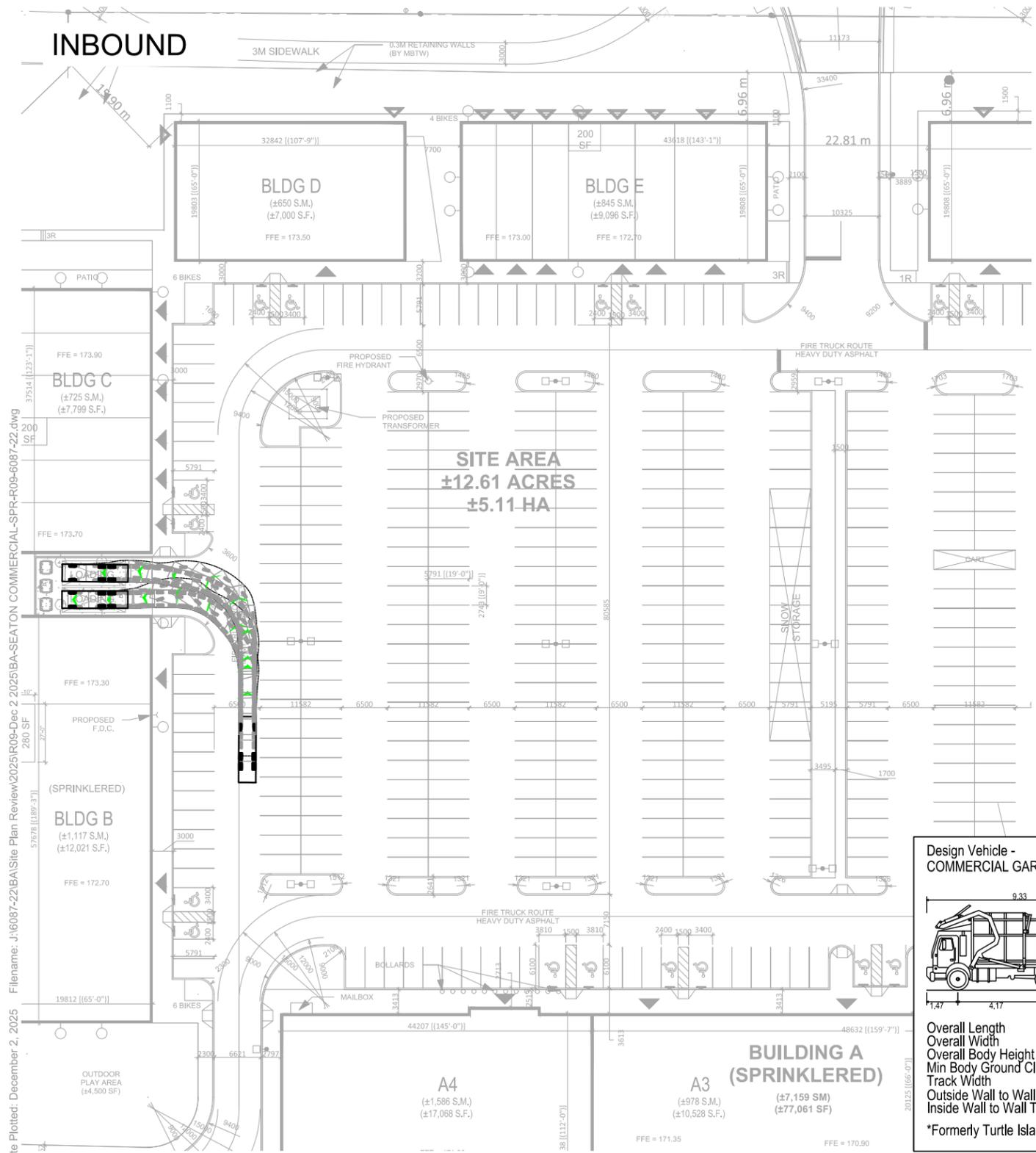


SEATON COMMERCIAL
VEHICLE MANOEUVRING DIAGRAM
BUILDING 'A1' COMPACTOR
TURTLE ISLAND REAR SLED

Project: SEATON COMMERCIAL
Project No. 6087-22
Date: APRIL 21, 2025
Revised: DECEMBER 2, 2025

Scale: 1:750

Drawing No. **VMD-05**

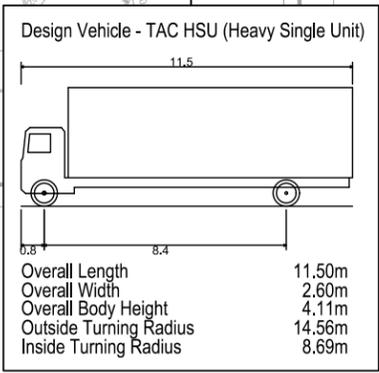
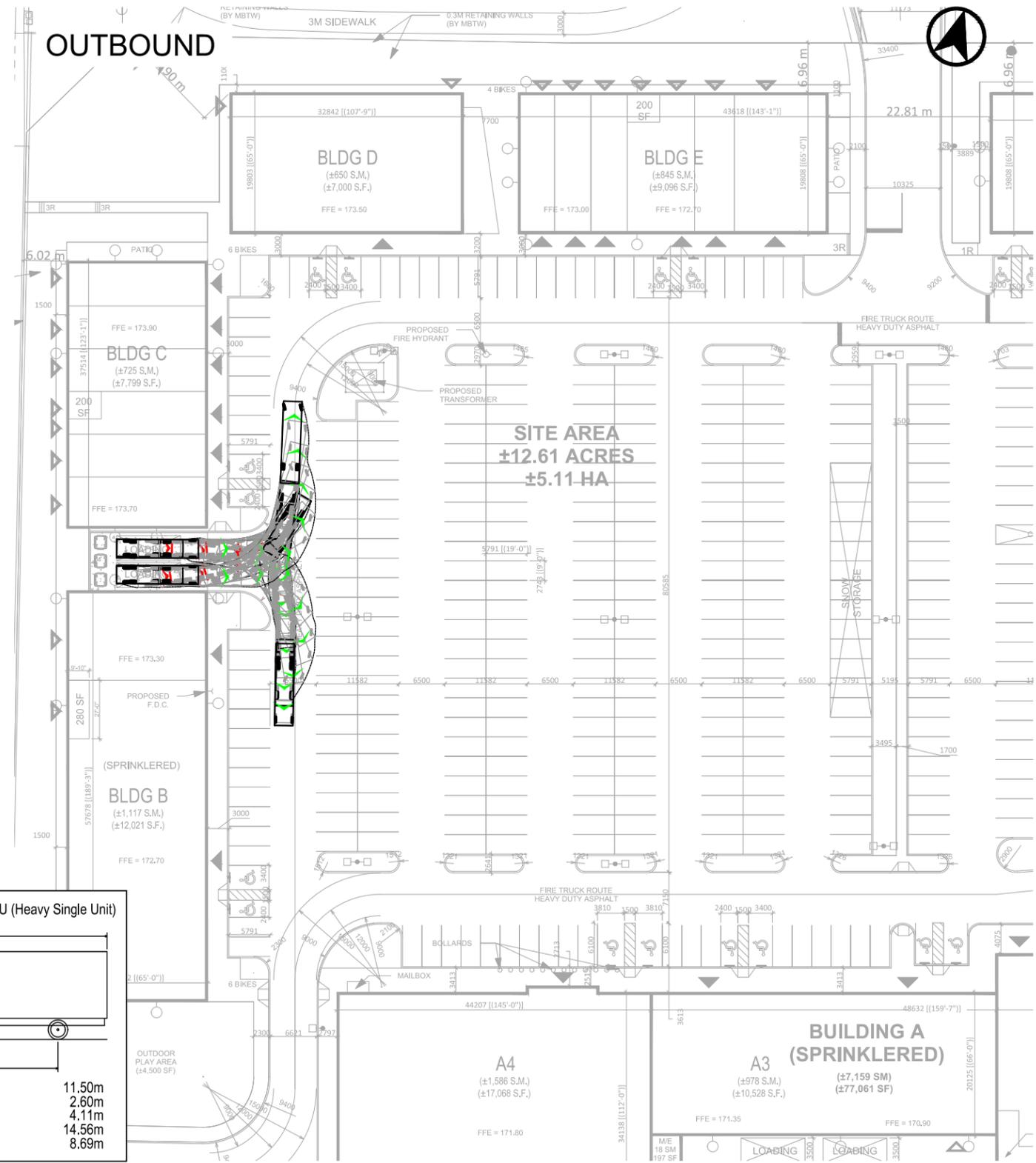


**SEATON COMMERCIAL
VEHICLE MANOEUVRING DIAGRAM
EARTH BINS WESTSIDE #1
FRONT LOADING REFUSE COLLECTION VEHICLE**

Project: SEATON COMMERCIAL
Project No. 6087-22
Date: APRIL 21, 2025
Revised: DECEMBER 2, 2025

Scale
0 15 30m
1:750

Drawing No. **VMD-06**



SEATON COMMERCIAL
VEHICLE MANOEUVRING DIAGRAM
WESTSIDE LOADING AREA
TAC HEAVY SINGLE UNIT (HSU) TRUCK

Project: SEATON COMMERCIAL
Project No. 6087-22
Date: APRIL 21, 2025
Revised: DECEMBER 2, 2025

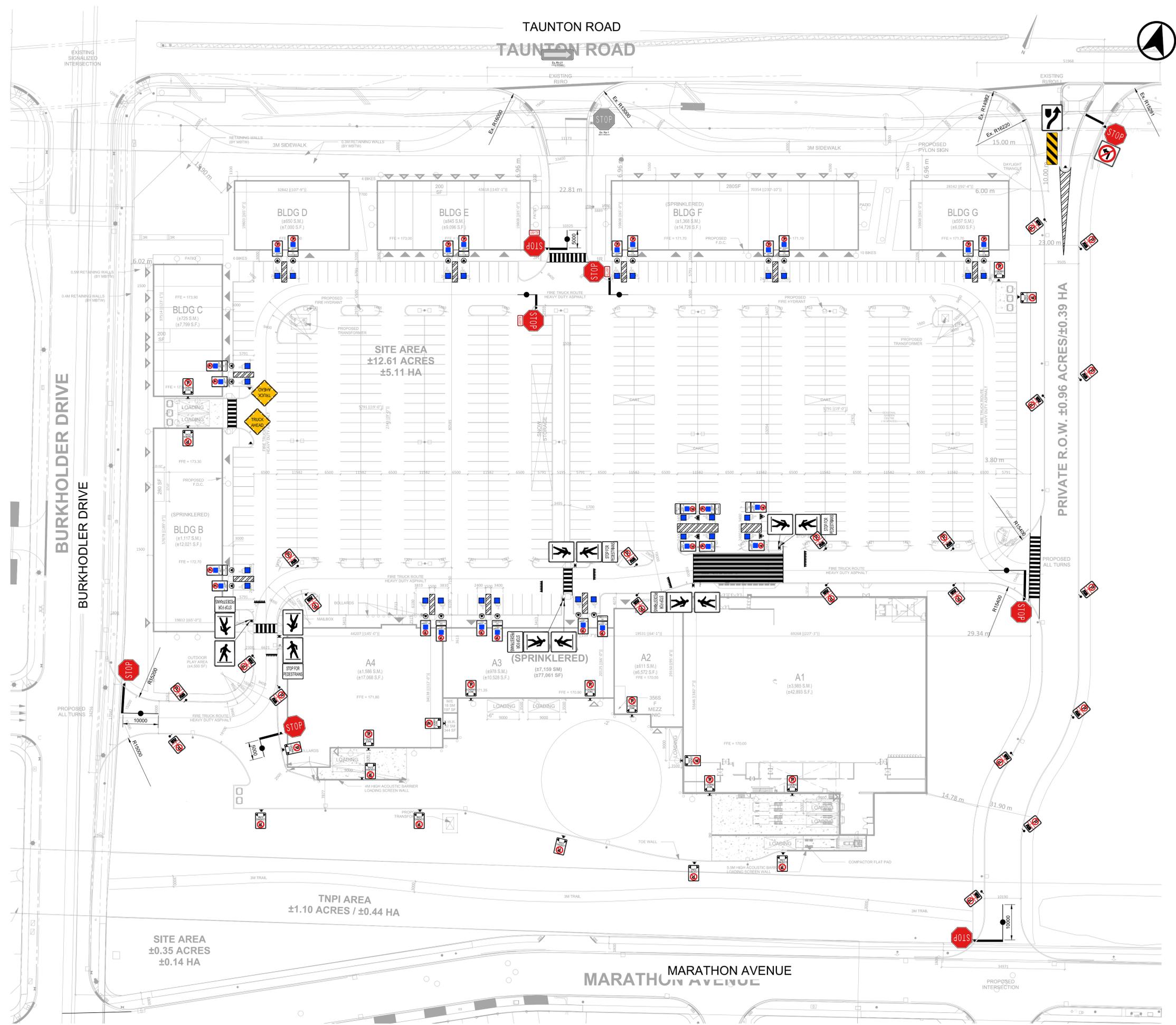
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Appendix D: Traffic Control Signage & Pavement Marking Plan





SIGN LEGEND

SIGN MOUNT LEGEND

ALL SIGNS ARE SHOWN IN APPROXIMATE LOCATIONS AND TO BE DETERMINED ON SITE. SIGNS MUST BE VISIBLE TO DRIVER AND NOT OBSTRUCTED BY LANDSCAPE.

- PROPOSED POST
- PROPOSED POST PROTECTION
- PROPOSED FLEX POST
- PROPOSED POST PERPENDICULAR SIGN
- PROPOSED WALL/COLUMN MOUNT SIGN

PAVEMENT MARKING:

(NOTE-ALL MARKINGS MUST CONFORM TO THE ONTARIO TRAFFIC MANUAL (OTM) BOOK 11)

- 10cm (4 in.) YELLOW SOLID
- ALL STOP BARS TO BE 60cm (2 ft.) WHITE SOLID

ZONE PAINTING

- 10cm SOLID TRAFFIC YELLOW
- 45° ANGLE
- 60cm O/C

PEDESTRIAN CROSSING

- COLD PLASTIC "POLYMERIC"
- WIDTH AS SHOWN
- PATTERN: 60cm PAINTED, 60cm GAP
- TRAFFIC WHITE

INTERNATIONAL SYMBOL OF ACCESS

- 1.5m x 1.5m
- 10cm BORDER - TRAFFIC WHITE
- SYMBOL - TRAFFIC WHITE
- BLUE BACKGROUND

YIELD TO PEDESTRIAN LINE

- 60cm WIDE BY 90cm LONG - 15cm GAP
- TRAFFIC WHITE

04	12-02-25	MSB	ISSUED FOR SUBMISSION
03	04-14-23	MSB	ISSUED FOR SUBMISSION
02	03-02-23	MSB	ISSUED FOR TEAM REVIEW
01	02-27-23	MSB	ISSUED FOR TEAM REVIEW
00	02-05-23	MSB	ISSUED FOR TEAM REVIEW

BA Consulting Group Ltd.
300 - 45 St. Clair Ave. W.
Toronto ON M4V 1K3
Tel: 416-961-7110
www.bagroup.com

MOVEMENT IN URBAN ENVIRONMENTS
BAGROUP.COM

SEATON COMMERCIAL

SIGNAGE & PAVEMENT MARKING PLAN

Date: FEBRUARY 5, 2023

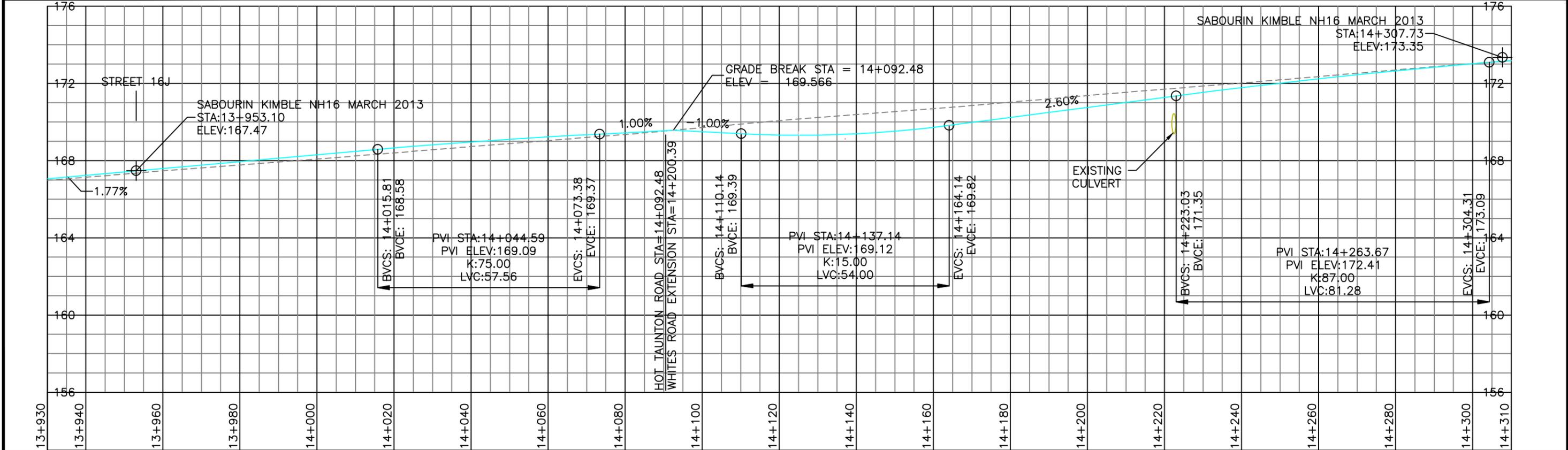
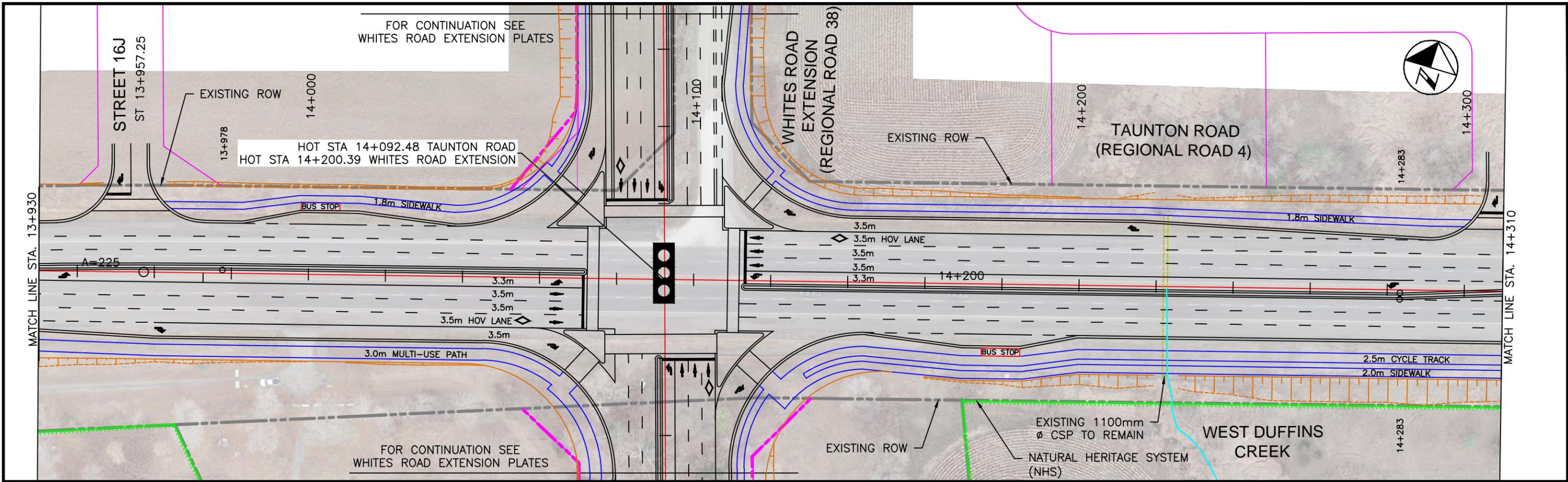
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SN01

Appendix E: Regional Road EA Design





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PLOTTER: B7

CENTRAL PICKERING DEVELOPMENT PLAN
CLASS ENVIRONMENTAL ASSESSMENT
FOR REGIONAL SERVICES IN
THE CITY OF PICKERING

	NATURAL HERITAGE SYSTEM (NHS)		EXISTING PROFILE
	PROPOSED RIGHT OF WAY		PROPOSED PROFILE
	EXISTING RIGHT OF WAY		
	LIMIT OF CUT		
	LIMIT OF FILL		
	CENTRE ALIGNMENT		
	WATER COURSE		

THE REGIONAL MUNICIPALITY OF DURHAM

MAY 22, 2014

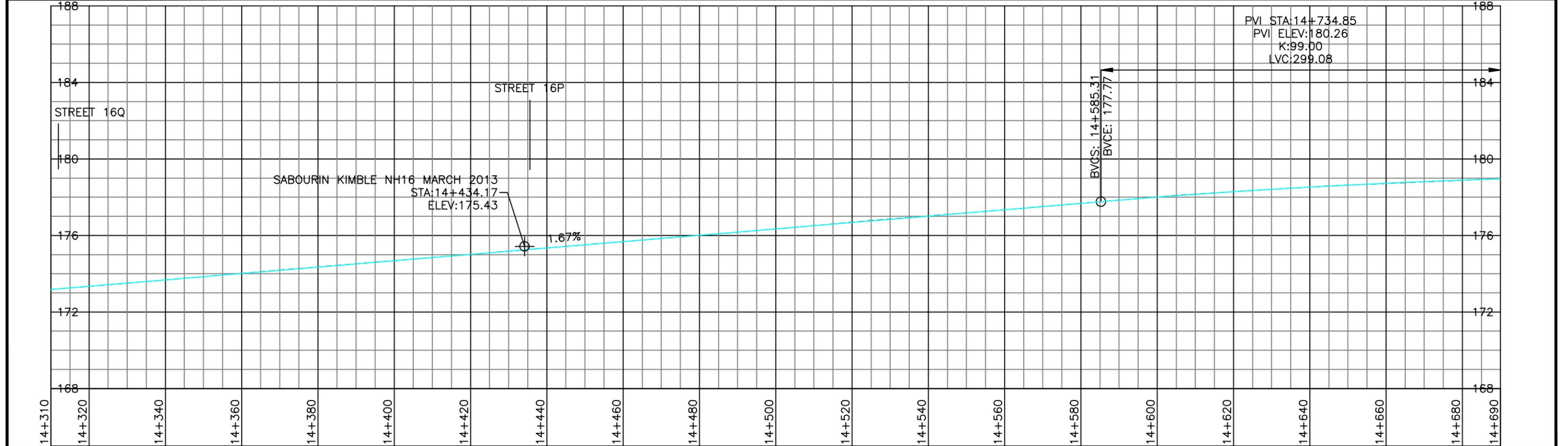
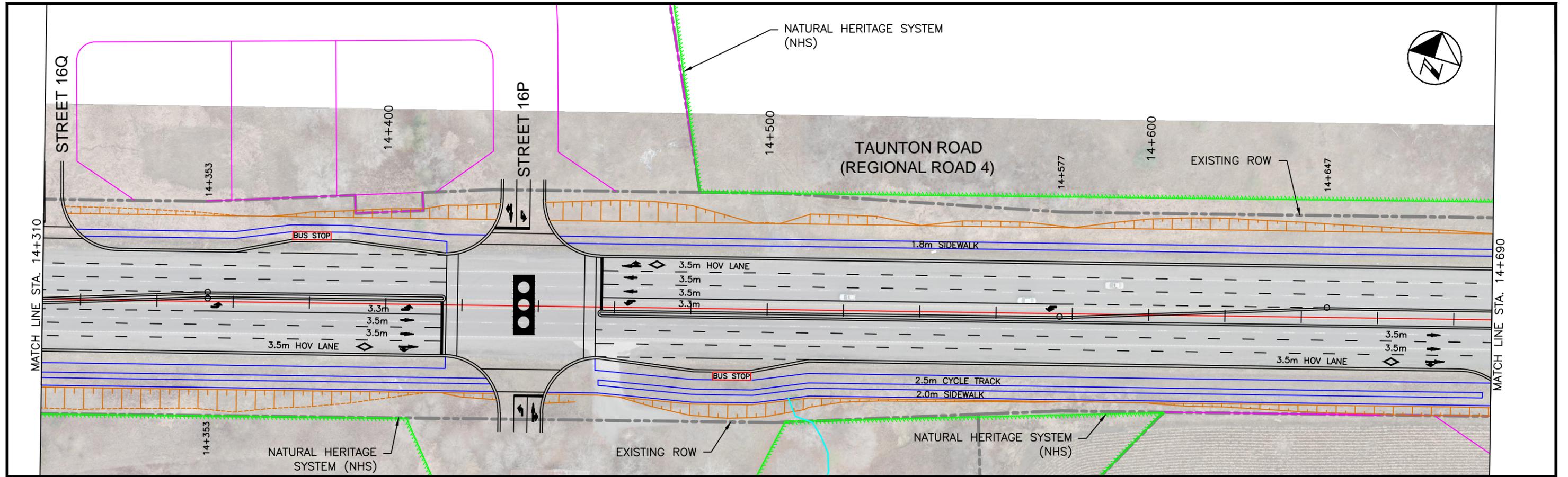
SCALE

HORIZONTAL
10m 0 10m

VERTICAL
2m 0 2m

TAUNTON ROAD
(REGIONAL ROAD 4)
STATION 13+930 TO 14+310

SHEET NO.
12



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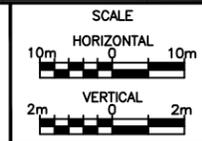
CENTRAL PICKERING DEVELOPMENT PLAN
 CLASS ENVIRONMENTAL ASSESSMENT
 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE
- EXISTING PROFILE
- PROPOSED PROFILE



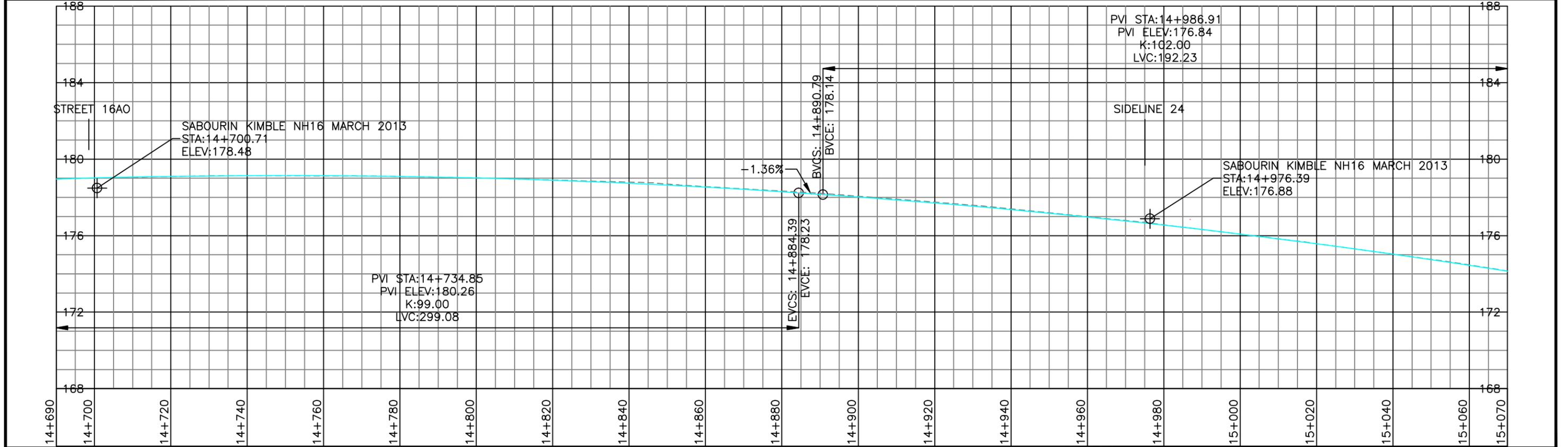
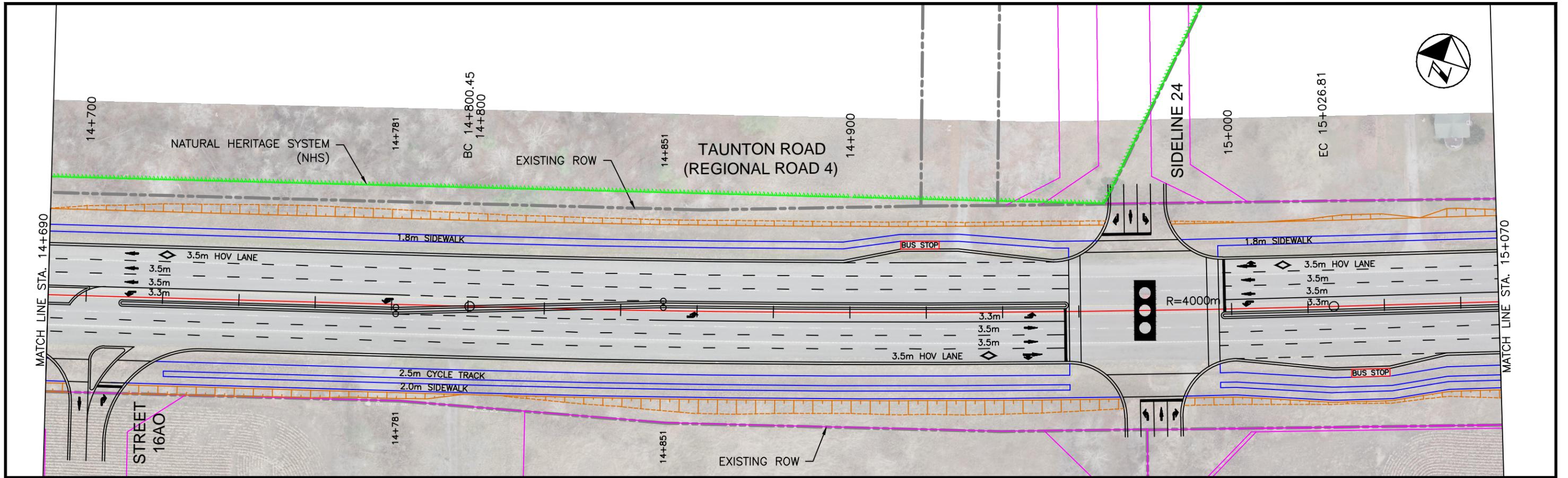
THE REGIONAL
 MUNICIPALITY
 OF DURHAM

MAY 22, 2014



TAUNTON ROAD
 (REGIONAL ROAD 4)
 STATION 14+310 TO 14+690

SHEET NO.
 13



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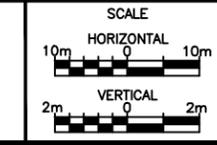
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 CLASS ENVIRONMENTAL ASSESSMENT
 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

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	PROPOSED RIGHT OF WAY		PROPOSED PROFILE
	EXISTING RIGHT OF WAY		
	LIMIT OF CUT		
	LIMIT OF FILL		
	CENTRE ALIGNMENT		
	WATER COURSE		




THE REGIONAL
 MUNICIPALITY
 OF DURHAM

MAY 22, 2014

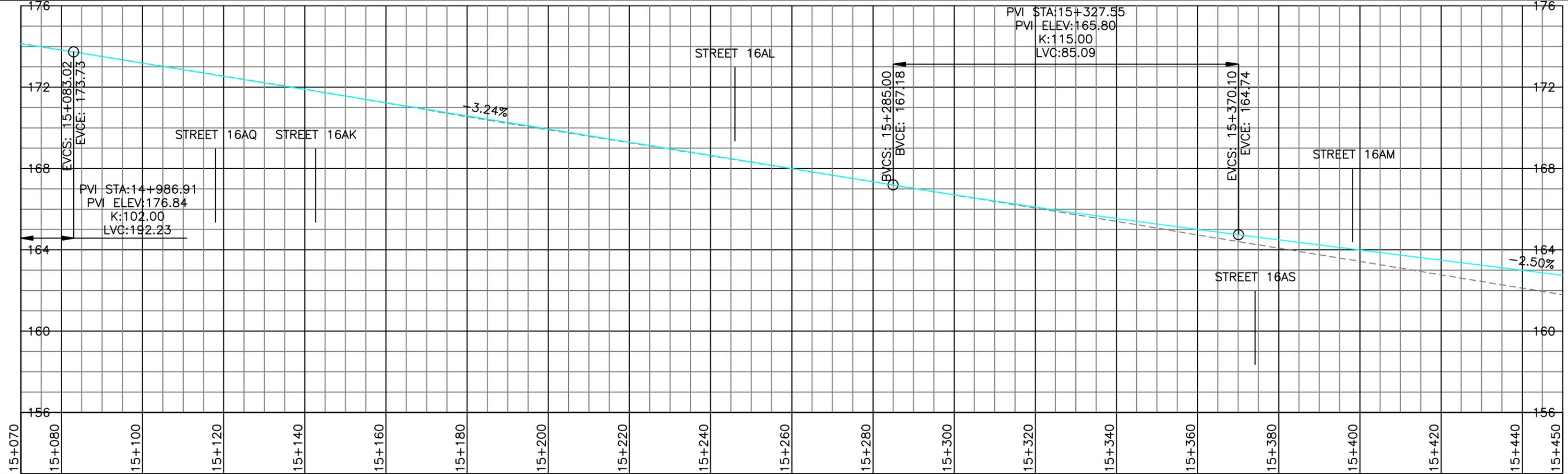
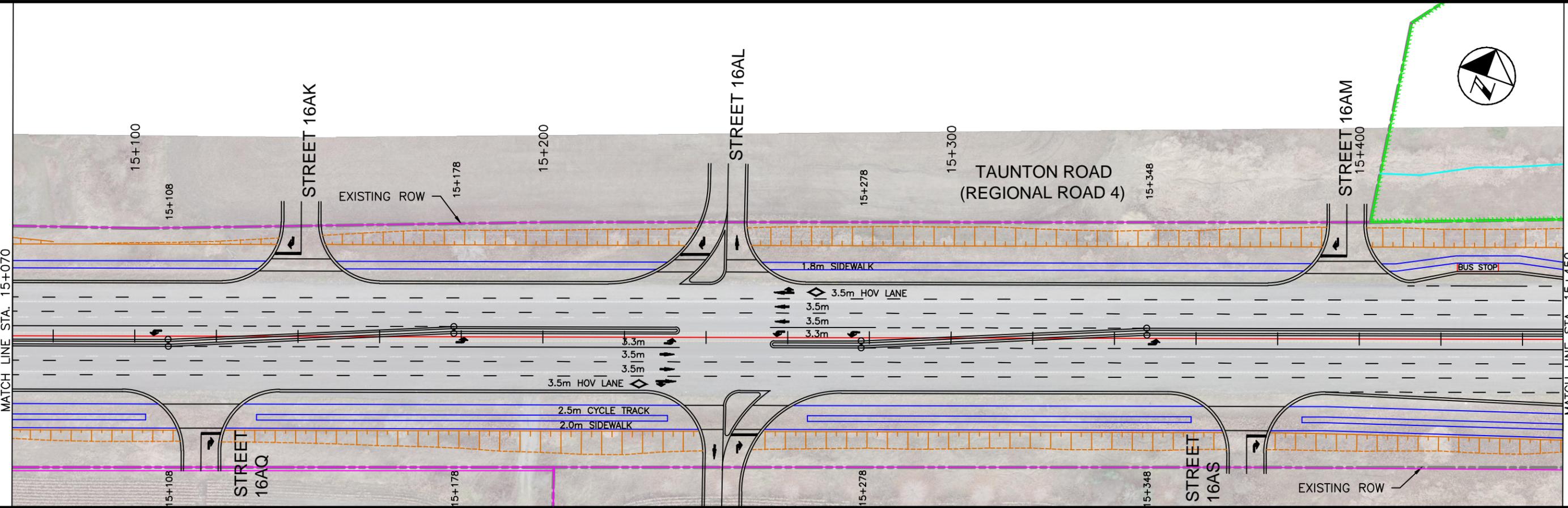


TAUNTON ROAD
 (REGIONAL ROAD 4)
 STATION 14+690 TO 15+070

SHEET NO.
 14

MATCH LINE STA. 15+070

MATCH LINE STA. 15+450



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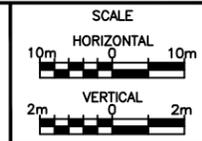
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 CLASS ENVIRONMENTAL ASSESSMENT
 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE
- EXISTING PROFILE
- PROPOSED PROFILE



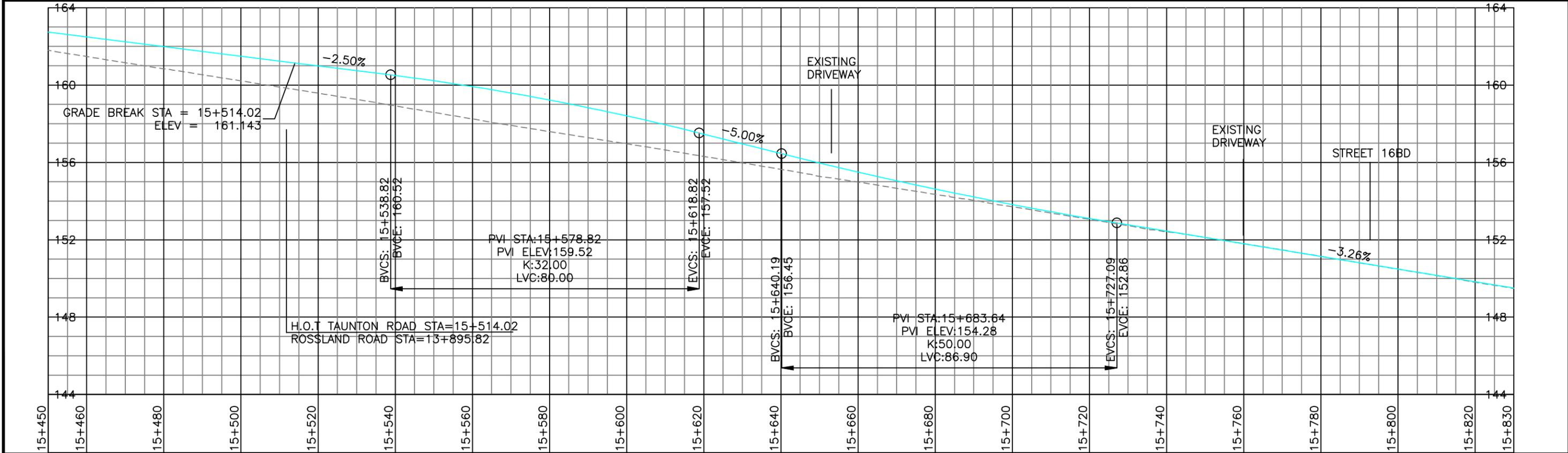
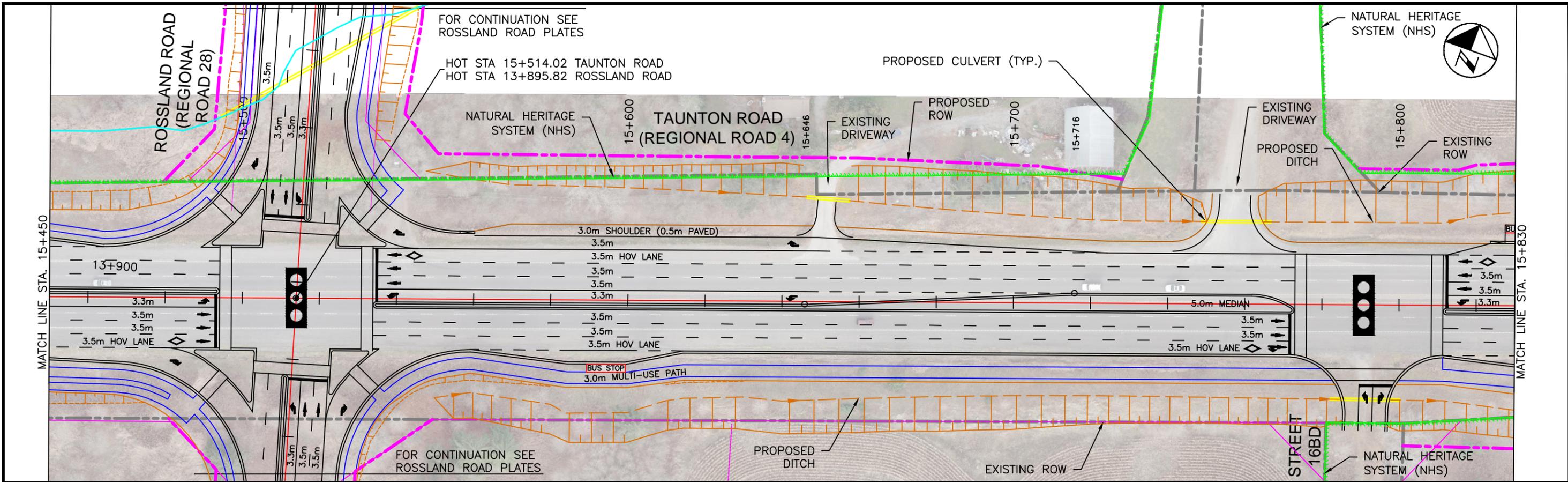
THE REGIONAL
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 OF DURHAM

MAY 22, 2014



TAUNTON ROAD
 (REGIONAL ROAD 4)
 STATION 15+070 TO 15+450

SHEET NO.
 15



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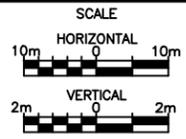
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CLASS ENVIRONMENTAL ASSESSMENT
FOR REGIONAL SERVICES IN
THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE
- EXISTING PROFILE
- PROPOSED PROFILE



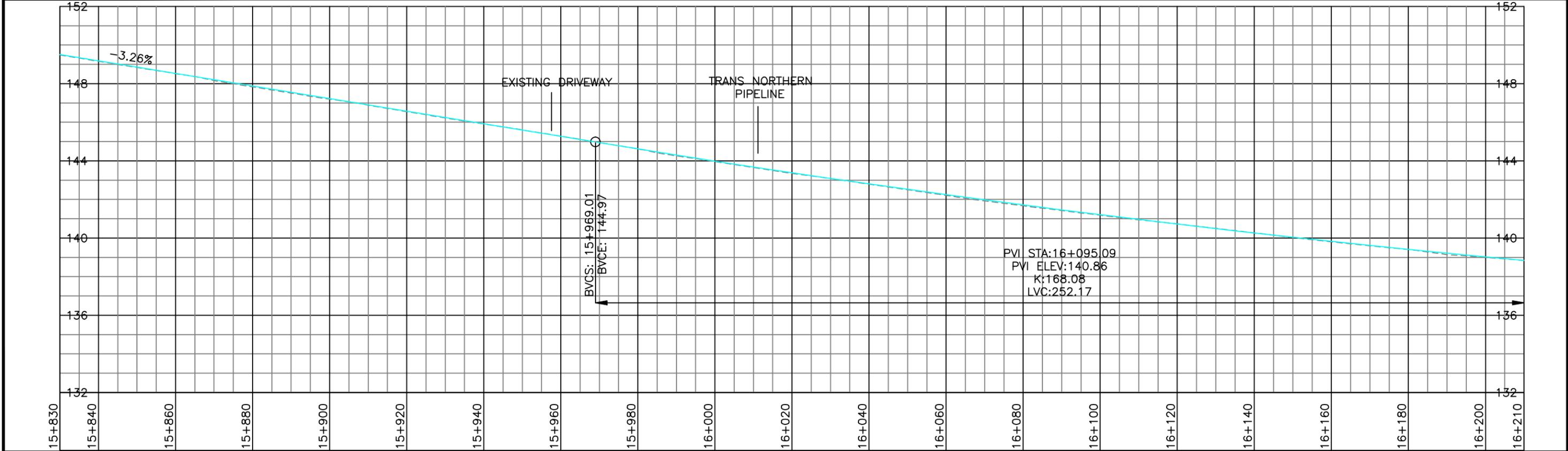
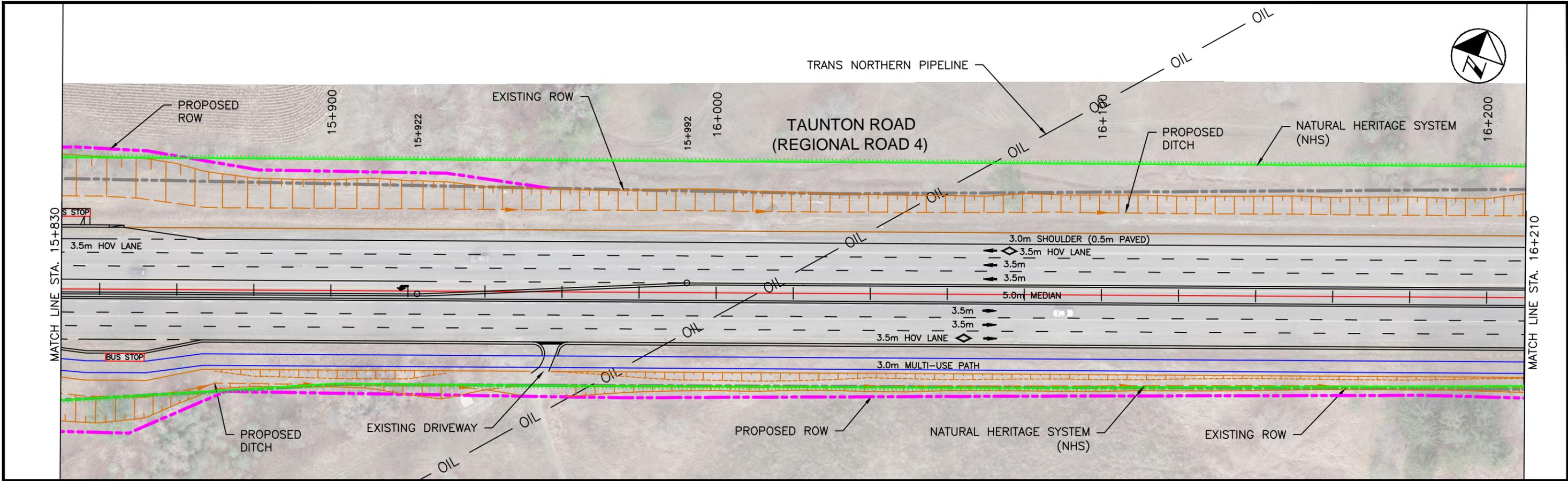
THE REGIONAL MUNICIPALITY OF DURHAM

MAY 22, 2014



TAUNTON ROAD (REGIONAL ROAD 4)
STATION 15+450 TO 15+830

SHEET NO. 16



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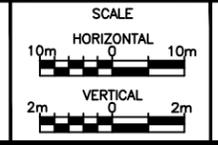
CENTRAL PICKERING DEVELOPMENT PLAN
 CLASS ENVIRONMENTAL ASSESSMENT
 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE



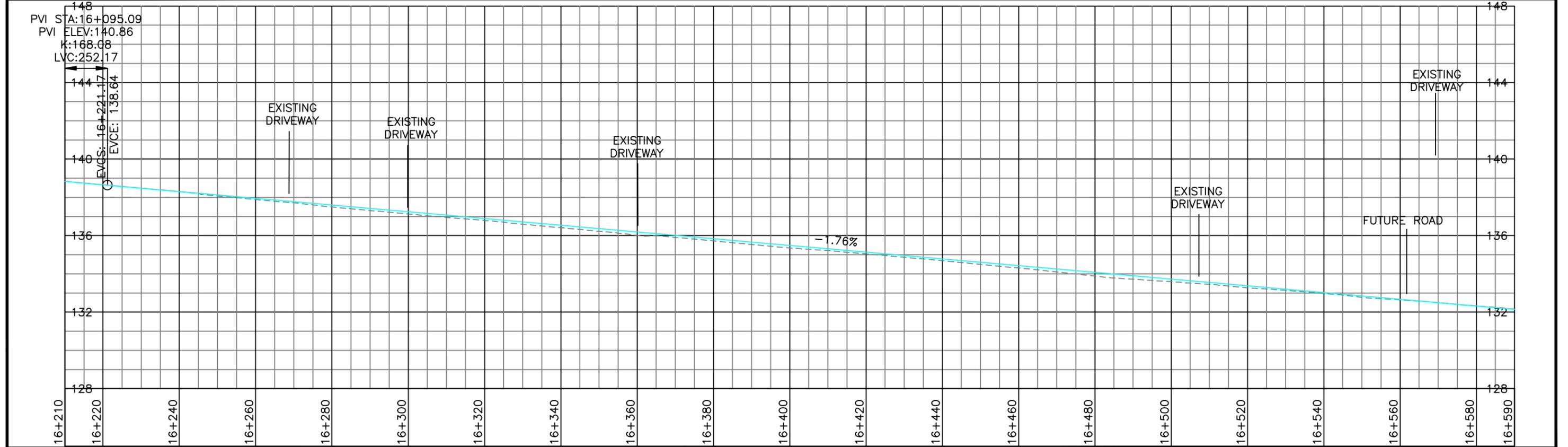
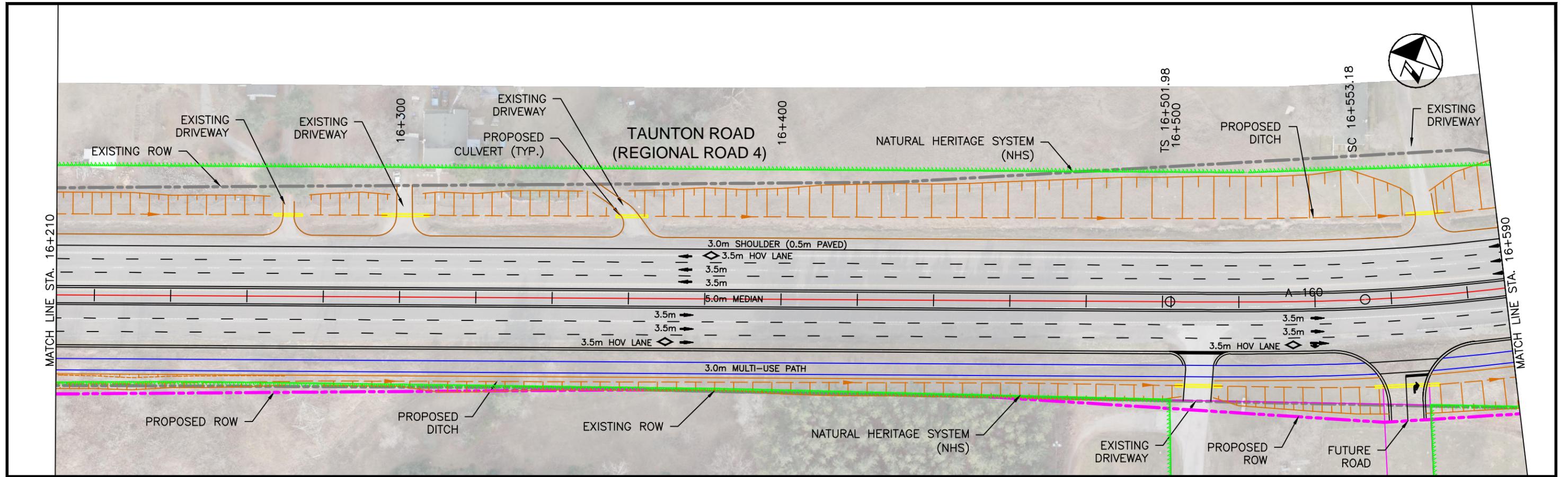
THE REGIONAL
 MUNICIPALITY
 OF DURHAM

MAY 22, 2014



TAUNTON ROAD
 (REGIONAL ROAD 4)
 STATION 15+830 TO 16+210

SHEET NO.
 17



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 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

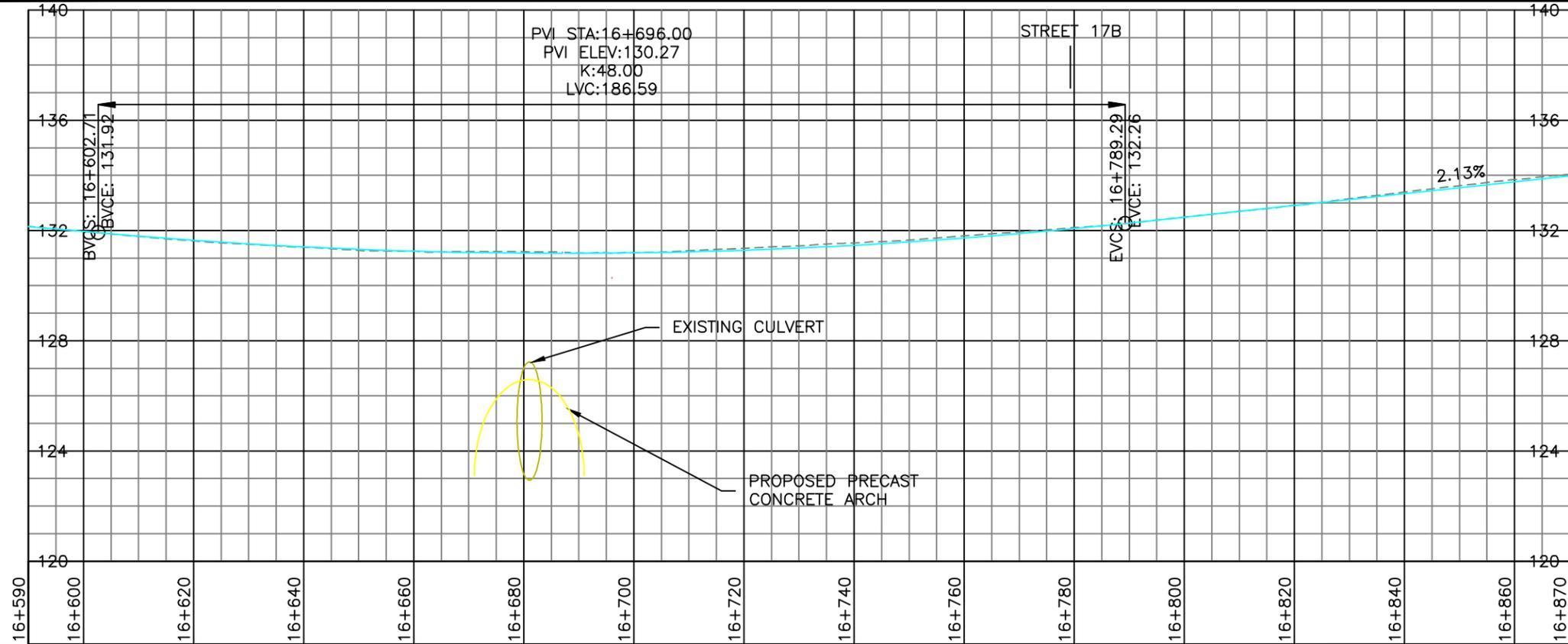
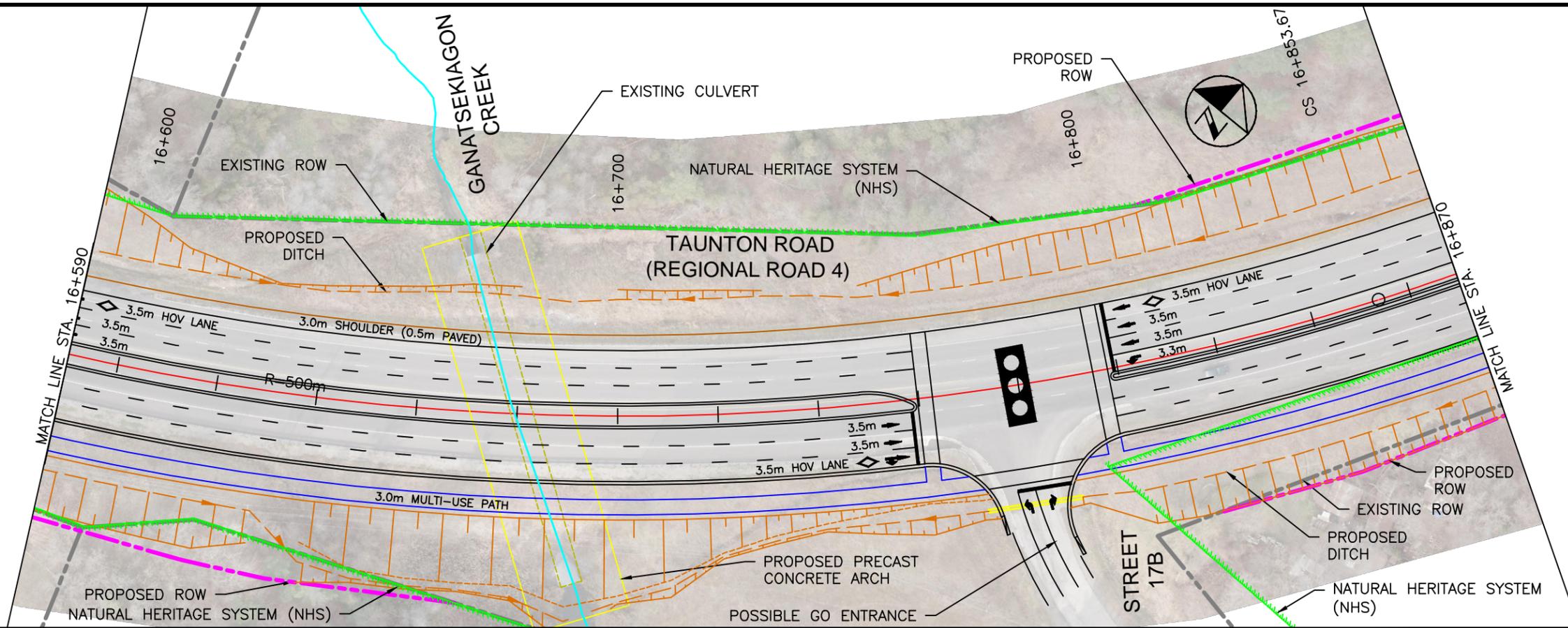
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- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE

THE REGIONAL MUNICIPALITY OF DURHAM

MAY 22, 2014
 SCALE
 HORIZONTAL: 10m / 0 / 10m
 VERTICAL: 2m / 0 / 2m

TAUNTON ROAD
(REGIONAL ROAD 4)
 STATION 16+210 TO 16+590

SHEET NO.
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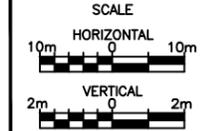
CENTRAL PICKERING DEVELOPMENT PLAN
 CLASS ENVIRONMENTAL ASSESSMENT
 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE



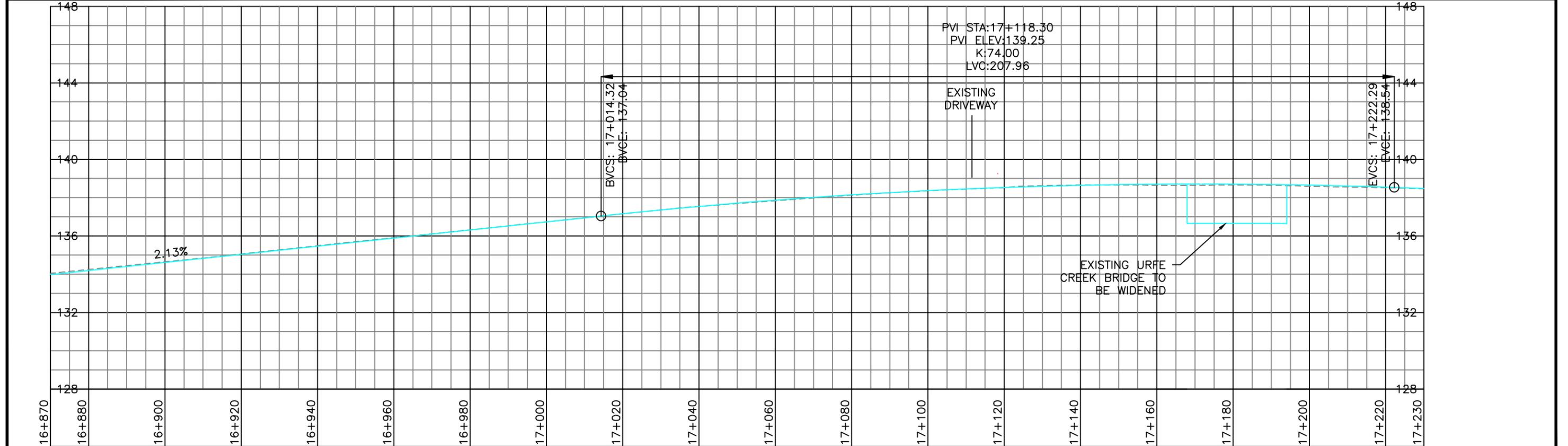
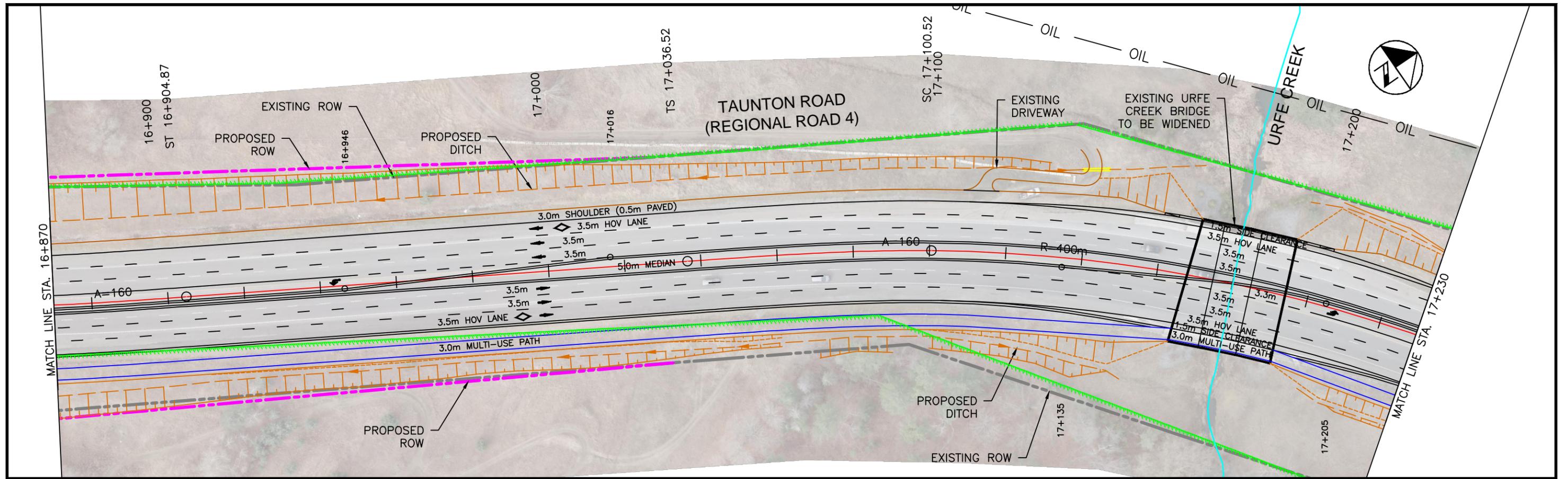
THE REGIONAL
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 OF DURHAM

MAY 22, 2014



TAUNTON ROAD
 (REGIONAL ROAD 4)
 STATION 16+590 TO 16+870

SHEET NO.
 19



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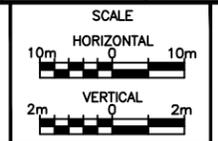
CENTRAL PICKERING DEVELOPMENT PLAN
 CLASS ENVIRONMENTAL ASSESSMENT
 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE



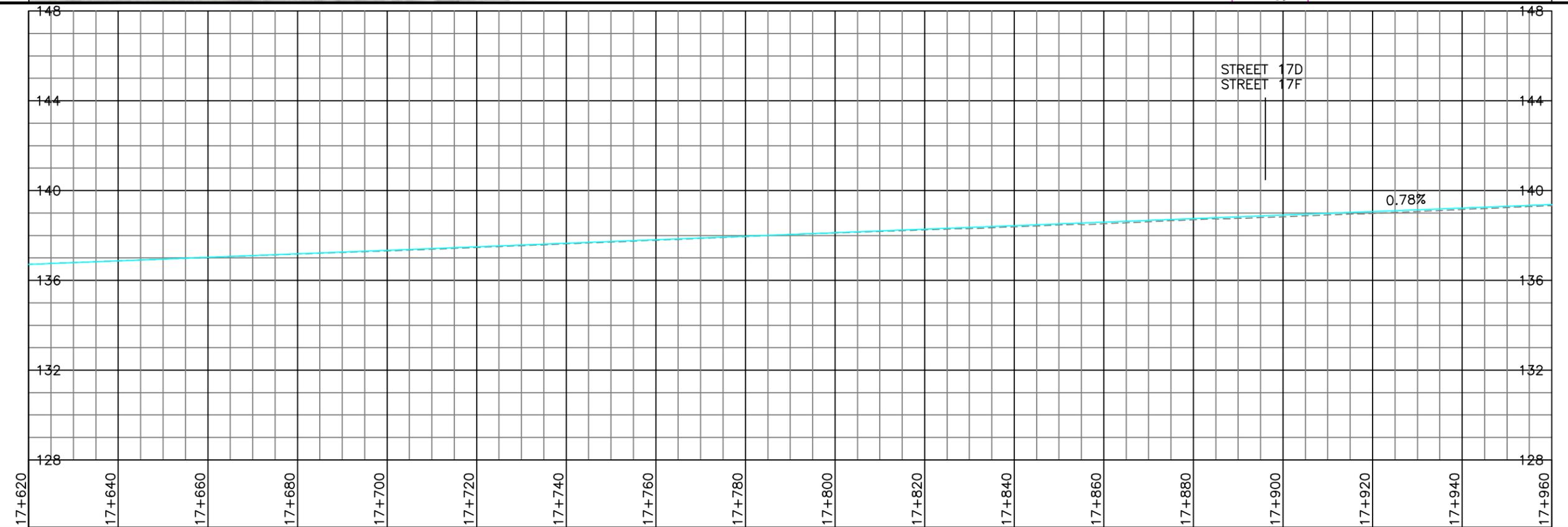
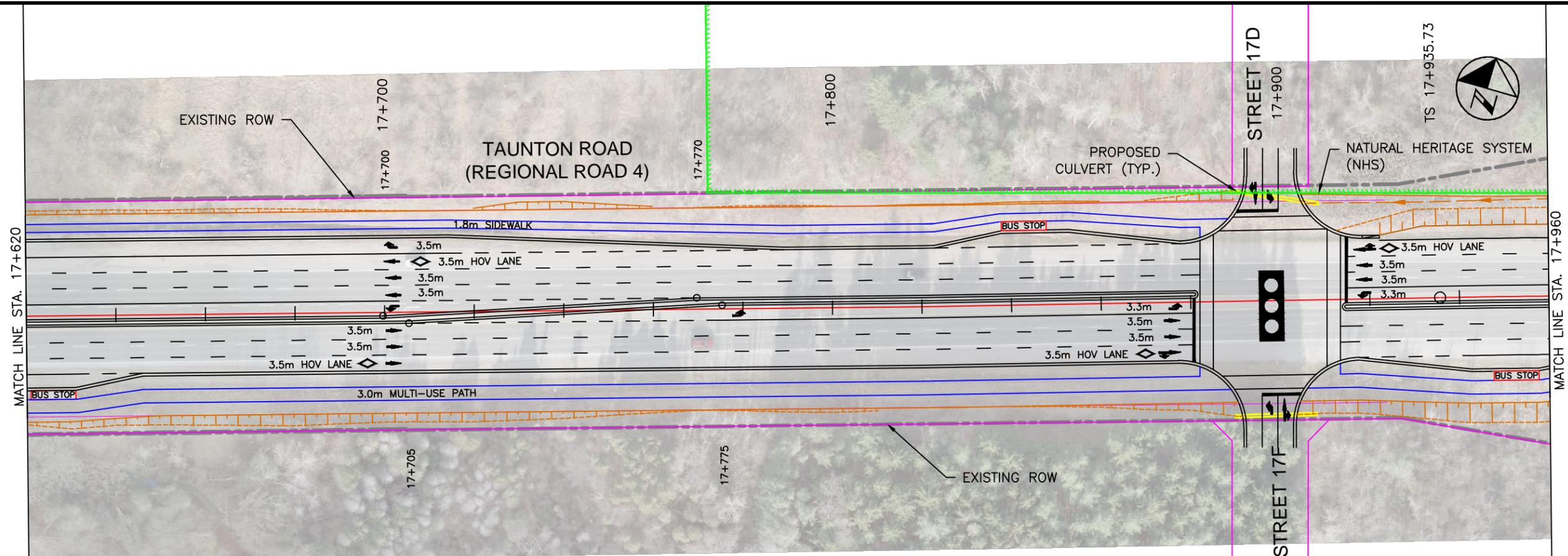
THE REGIONAL
 MUNICIPALITY
 OF DURHAM

MAY 22, 2014



TAUNTON ROAD
(REGIONAL ROAD 4)
 STATION 16+870 TO 17+230

SHEET NO.
 20



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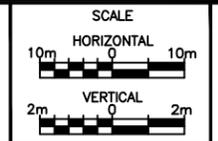
CENTRAL PICKERING DEVELOPMENT PLAN
 CLASS ENVIRONMENTAL ASSESSMENT
 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE



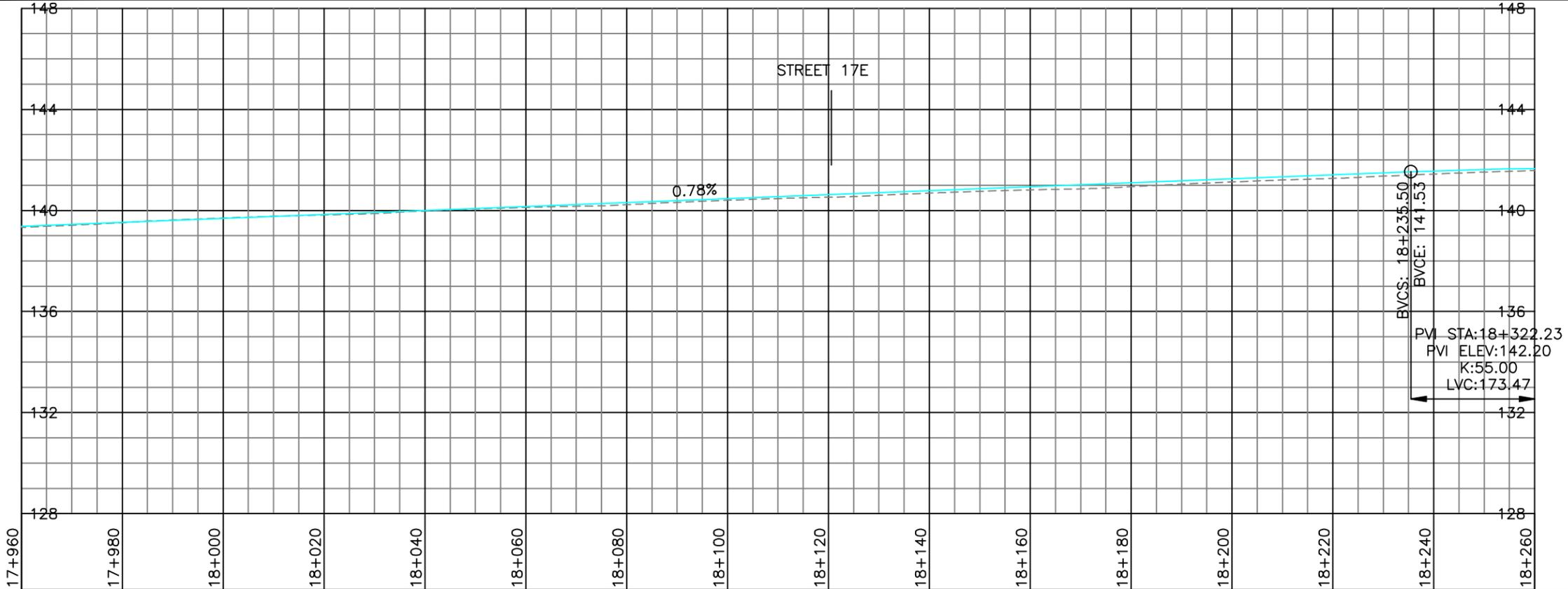
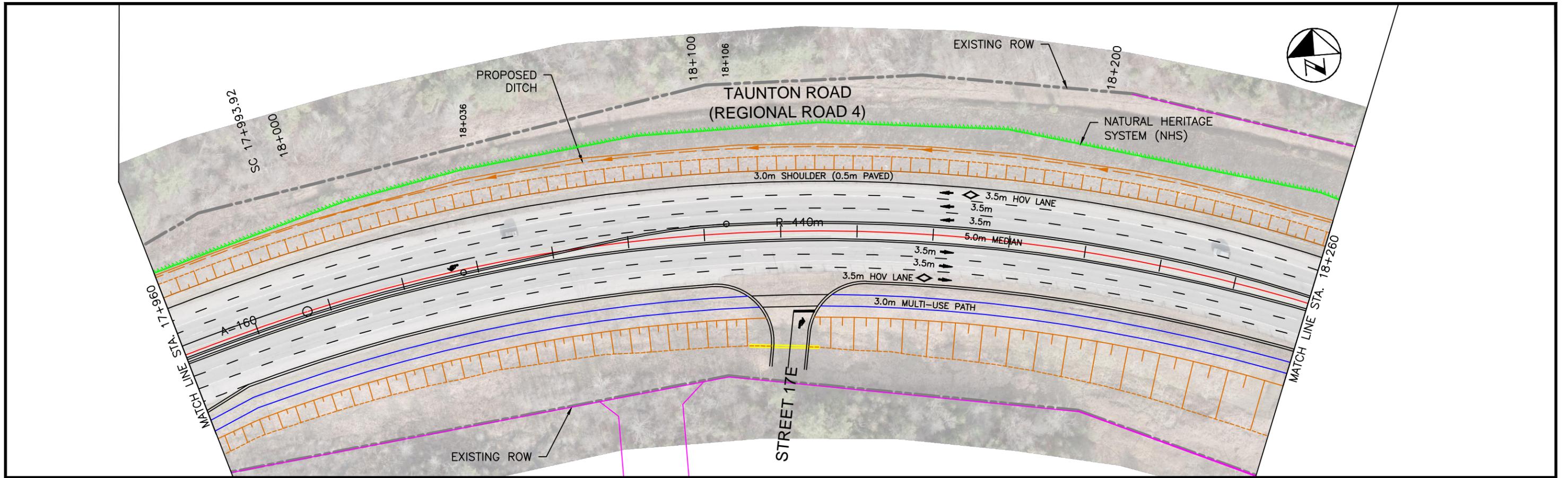
THE REGIONAL
 MUNICIPALITY
 OF DURHAM

MAY 22, 2014



TAUNTON ROAD
 (REGIONAL ROAD 4)
 STATION 17+620 TO 17+960

SHEET NO.
 22



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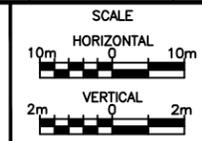
CENTRAL PICKERING DEVELOPMENT PLAN
 CLASS ENVIRONMENTAL ASSESSMENT
 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE



THE REGIONAL
 MUNICIPALITY
 OF DURHAM

MAY 22, 2014



TAUNTON ROAD
 (REGIONAL ROAD 4)
 STATION 17+960 TO 18+260

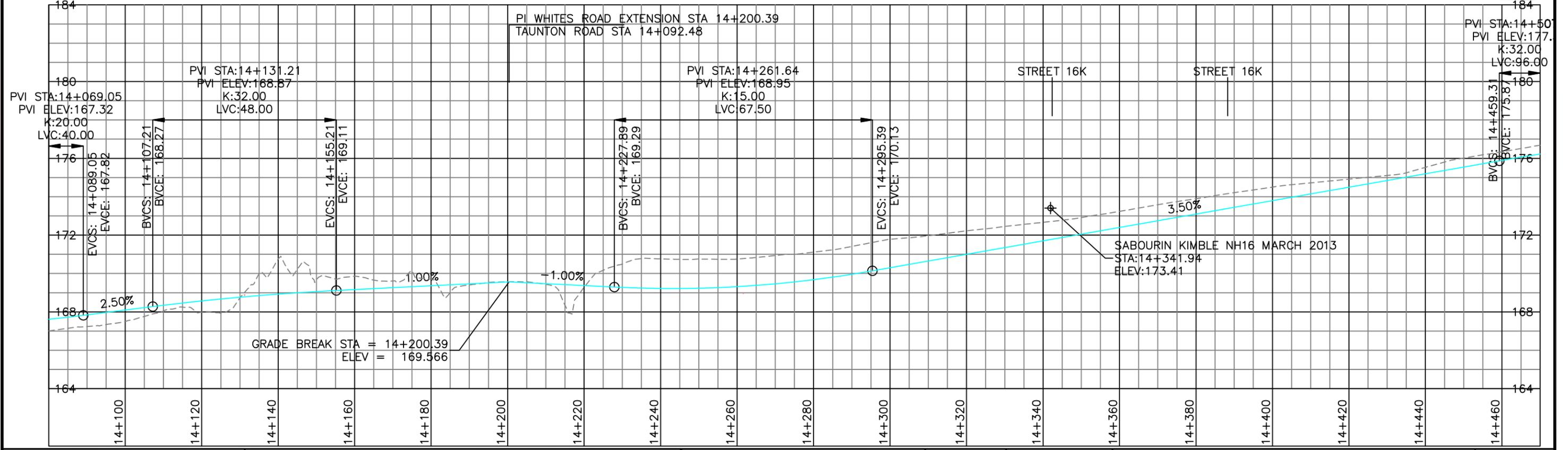
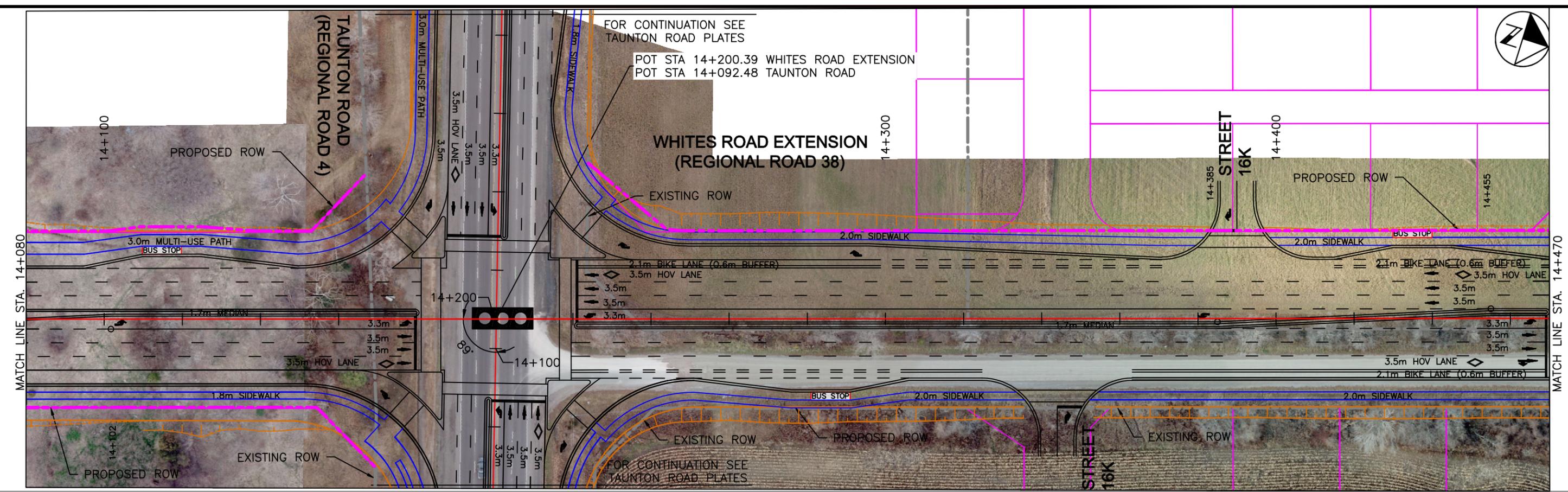
SHEET NO.
 23



FOR CONTINUATION SEE
TAUNTON ROAD PLATES

POT STA 14+200.39 WHITES ROAD EXTENSION
POT STA 14+092.48 TAUNTON ROAD

WHITES ROAD EXTENSION (REGIONAL ROAD 38)



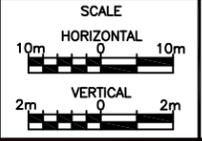
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 PLOTTED: May 21, 2014 3:21 pm
 PLOTTED BY: mhil

CENTRAL PICKERING DEVELOPMENT PLAN
CLASS ENVIRONMENTAL ASSESSMENT
FOR REGIONAL SERVICES IN
THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE
- EXISTING PROFILE
- PROPOSED PROFILE

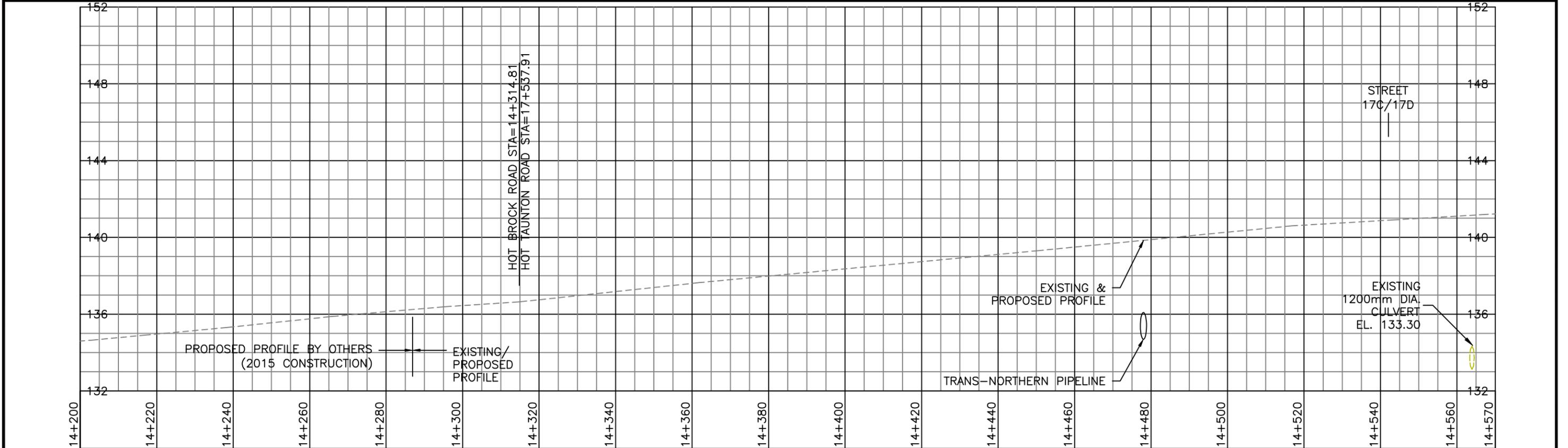
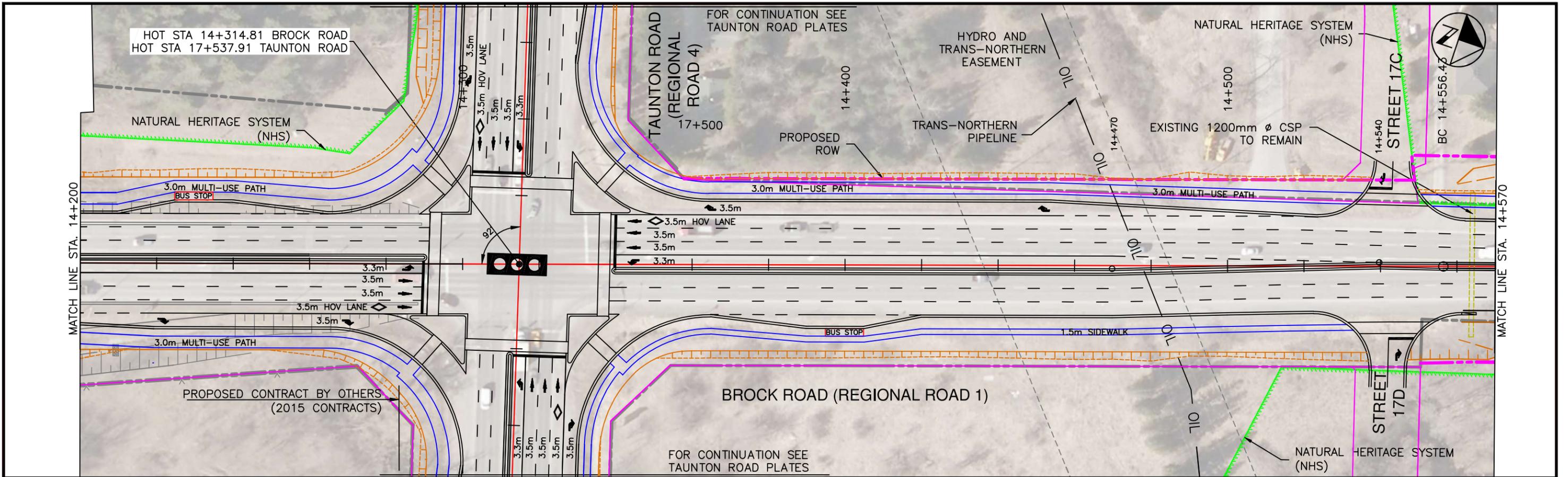


MAY 22, 2014



WHITES ROAD EXTENSION
(REGIONAL ROAD 38)
STATION 14+080 TO 14+470

SHEET NO.
13



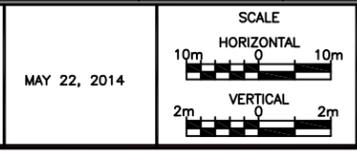
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 PLOTTED: 05/22/2014 10:50am
 PLOTTED BY: mhu

CENTRAL PICKERING DEVELOPMENT PLAN
 CLASS ENVIRONMENTAL ASSESSMENT
 FOR REGIONAL SERVICES IN
 THE CITY OF PICKERING

- NATURAL HERITAGE SYSTEM (NHS)
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- LIMIT OF CUT
- LIMIT OF FILL
- CENTRE ALIGNMENT
- WATER COURSE
- EXISTING PROFILE
- PROPOSED PROFILE

THE REGIONAL MUNICIPALITY OF DURHAM

MAY 22, 2014

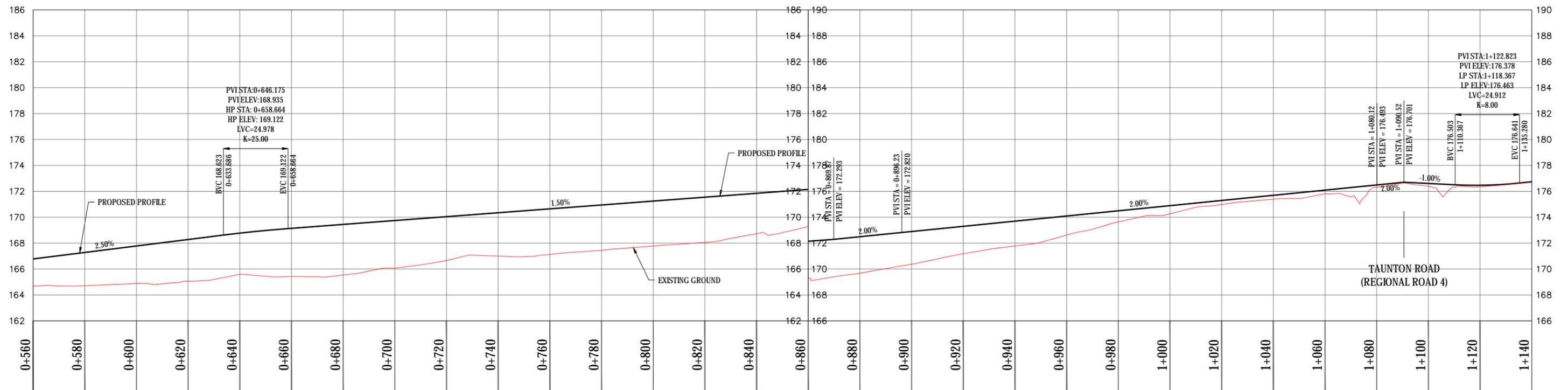
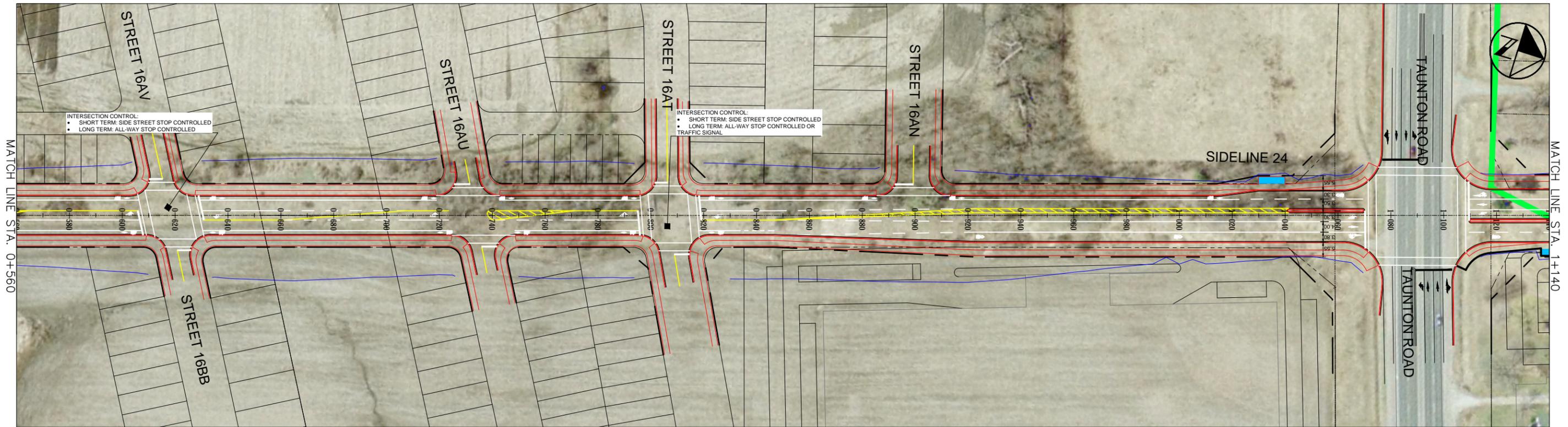


BROCK ROAD (REGIONAL ROAD 1)
 STATION 14+200 TO 14+570

SHEET NO.
13

Appendix F: City Road EA Design





No	Revision	Note	Drawn	Checked	Approved	Date

LEGEND

- TRCA BOUNDARY
- NHS BOUNDARY
- PROPOSED LIMIT OF GRADING
- PROPOSED RIGHT-OF-WAY
- PROVINCIALY PROTECTED SITE
- EXISTING BUTTERNUT
- BUS-STOP PLATFORM

DO NOT SCALE

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Drawn	Z.M.	Designed	Z.M.
Drafting Check	E.H.	Design Check	E.H.
Approved	ED HORBA		
Date	JULY 2017		
Scale	1:1500 HORIZ. 1:300 VERT.	This Drawing must not be used for Construction unless signed as Approved	

Client: **CITY OF PICKERING**

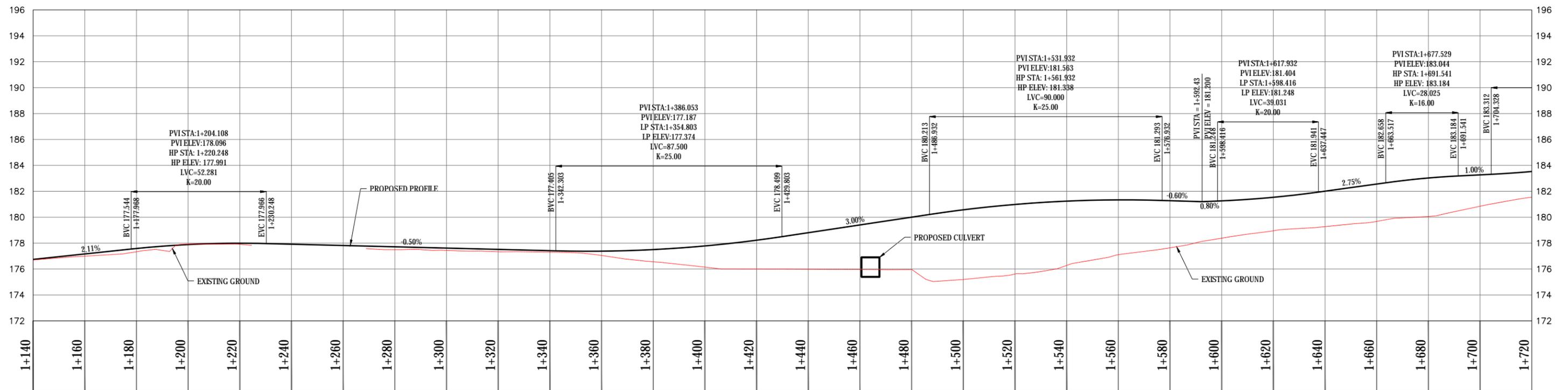
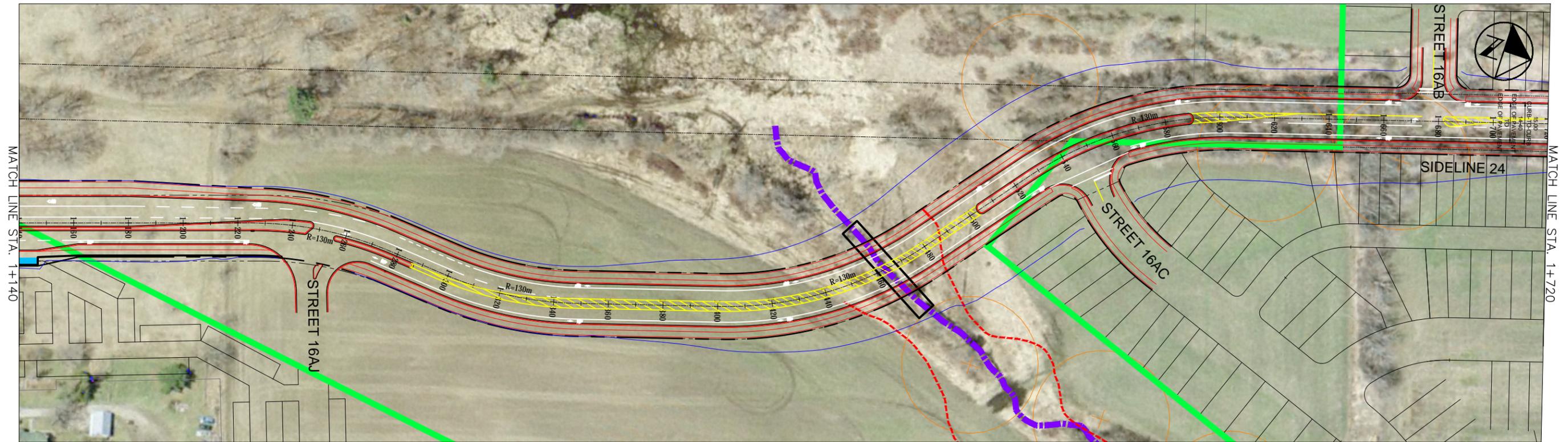
Project: **SEATON COMMUNITY CLASS EA**

Title: **SIDELINE 24 - TYPE "C" ARTERIAL**

Original Size: **Tablet**

Drawing No: **1 - 2**

Rev: **0**



No	Revision	Note	Drawn	Checked	Approved	Date

LEGEND

- TRCA BOUNDARY
- NHS BOUNDARY
- PROPOSED LIMIT OF GRADING
- PROPOSED RIGHT-OF-WAY
- PROVINCIALY PROTECTED SITE
- EXISTING BUTTERNUT
- BUS-STOP PLATFORM

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Drawn	Z.M.	Designed	Z.M.
Drafting Check	E.H.	Design Check	E.H.
Approved	ED HORBA	Date	JULY 2017
Scale	1:1500 HORIZ. 1:300 VERT.	This Drawing must not be used for Construction unless signed as Approved	

Client	CITY OF PICKERING
Project	SEATON COMMUNITY CLASS EA
Title	SIDELINE 24 - TYPE "C" ARTERIAL
Original Size	Drawing No: 1 - 3
Tableid	Rev: 0

Appendix G: Existing Traffic Volume Counts





Turning Movement Count (1 . TAUNTON RD & BROCK RD)

Start Time	N Approach BROCK RD						E Approach TAUNTON RD						S Approach BROCK RD						W Approach TAUNTON RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	7	56	17	0	0	80	32	215	18	0	0	265	12	91	43	0	0	146	25	48	3	0	0	76	567	
07:15:00	13	101	21	0	0	135	60	258	15	0	0	333	8	98	60	0	0	166	29	67	10	0	0	106	740	
07:30:00	10	87	24	0	0	121	66	239	33	0	0	338	18	93	59	0	0	170	52	79	6	0	0	137	766	
07:45:00	8	114	32	0	0	154	62	233	27	0	0	322	21	106	51	0	0	178	48	71	5	0	0	124	778	2851
08:00:00	7	118	29	0	0	154	46	217	52	0	0	315	25	84	53	0	0	162	51	79	7	0	0	137	768	3052
08:15:00	13	112	33	0	0	158	53	224	36	0	0	313	20	100	59	0	0	179	43	99	5	0	0	147	797	3109
08:30:00	8	112	32	0	0	152	50	173	33	0	0	256	30	83	53	0	0	166	49	94	6	0	0	149	723	3066
08:45:00	10	109	44	0	0	163	50	140	41	0	0	231	29	88	39	0	0	156	55	115	7	0	0	177	727	3015
09:00:00	4	82	26	0	0	112	47	130	32	0	0	209	20	74	43	0	0	137	49	71	9	0	0	129	587	2834
09:15:00	3	78	26	0	0	107	19	117	29	0	0	165	17	72	44	0	0	133	39	87	3	0	0	129	534	2571
09:30:00	9	87	32	0	0	128	25	108	20	0	0	153	23	74	44	0	0	141	46	88	8	0	0	142	564	2412
09:45:00	7	64	16	0	0	87	21	84	21	0	0	126	16	58	31	0	0	105	39	83	2	0	0	124	442	2127
10:00:00	8	60	24	0	0	92	19	96	12	0	0	127	21	57	28	0	0	106	31	83	3	0	0	117	442	1982
10:15:00	3	67	23	0	0	93	15	89	17	0	0	121	19	48	32	0	0	99	46	69	4	0	0	119	432	1880
10:30:00	9	67	44	0	0	120	29	97	21	0	0	147	16	59	34	0	0	109	40	67	7	0	0	114	490	1806
10:45:00	5	61	21	0	0	87	14	81	14	0	0	109	22	50	29	0	0	101	38	96	6	0	0	140	437	1801
11:00:00	8	53	19	0	0	80	23	83	12	0	0	118	22	51	32	0	0	105	35	73	5	0	0	113	416	1775
11:15:00	7	71	20	0	0	98	20	90	25	0	0	135	17	41	27	0	0	85	35	85	6	0	0	126	444	1787
11:30:00	12	66	28	0	0	106	18	79	12	0	0	109	20	54	28	0	0	102	35	81	10	0	0	126	443	1740
11:45:00	5	62	26	0	0	93	15	65	14	0	0	94	20	45	28	0	0	93	35	79	12	0	0	126	406	1709
12:00:00	7	70	19	0	0	96	14	71	14	0	0	99	19	57	40	0	0	116	50	87	7	0	0	144	455	1748
12:15:00	4	65	31	0	0	100	19	77	20	1	0	117	29	68	45	0	0	142	39	82	8	0	0	129	488	1792
12:30:00	5	77	27	0	0	109	18	77	23	0	0	118	27	62	36	0	0	125	57	93	6	0	0	156	508	1857
12:45:00	1	55	25	0	0	81	21	76	28	0	0	125	19	52	27	0	0	98	38	78	7	0	0	123	427	1878
13:00:00	11	60	28	0	0	99	27	81	20	0	0	128	10	49	38	0	0	97	33	77	6	0	0	116	440	1863
13:15:00	4	62	22	0	0	88	18	89	17	0	0	124	37	74	31	0	0	142	33	124	4	0	0	161	515	1890
13:30:00	10	70	29	0	0	109	24	67	10	0	0	101	21	57	53	0	0	131	36	122	6	0	0	164	505	1887
13:45:00	5	79	36	0	0	120	17	60	19	0	0	96	23	55	26	0	0	104	36	104	9	0	0	149	469	1929
14:00:00	5	72	31	0	0	108	24	81	22	0	0	127	28	64	37	0	0	129	47	103	9	0	0	159	523	2012
14:15:00	4	55	30	0	0	89	22	97	20	0	0	139	33	62	34	0	0	129	43	114	10	0	0	167	524	2021
14:30:00	11	51	35	0	0	97	26	104	39	0	0	169	30	86	44	0	0	160	41	147	14	0	0	202	628	2144
14:45:00	7	62	32	0	0	101	22	98	29	0	0	149	60	87	55	0	0	202	52	179	9	0	0	240	692	2367
15:00:00	2	58	45	0	0	105	33	86	20	0	0	139	44	102	61	0	0	207	43	148	14	0	0	205	656	2500
15:15:00	10	81	39	0	0	130	35	109	26	0	0	170	55	127	38	0	0	220	45	210	14	0	0	269	789	2765
15:30:00	6	95	50	0	0	151	45	104	35	0	0	184	51	130	45	0	0	226	57	233	11	0	0	301	862	2999
15:45:00	3	93	60	0	0	156	41	107	26	0	0	174	61	146	45	0	0	252	60	215	16	0	0	291	873	3180
16:00:00	13	73	60	0	0	146	37	101	15	0	0	153	64	126	64	0	0	254	69	268	19	0	0	356	909	3433
16:15:00	14	83	56	0	0	153	35	106	28	0	0	169	62	127	46	0	0	235	69	255	26	0	0	350	907	3551
16:30:00	10	99	72	0	0	181	36	99	16	0	0	151	46	160	48	0	0	254	62	309	22	0	0	393	979	3668
16:45:00	3	109	64	0	0	176	28	116	41	0	0	185	49	132	46	0	0	227	77	289	22	0	0	388	976	3771
17:00:00	10	122	73	0	0	205	46	122	37	0	0	205	56	120	51	0	0	227	66	287	24	0	0	377	1014	3876
17:15:00	11	119	84	0	0	214	37	133	39	0	0	209	59	128	58	0	0	245	71	242	11	0	0	324	992	3961
17:30:00	8	126	62	0	0	196	22	113	28	0	0	163	45	113	62	0	0	220	69	232	17	0	0	318	897	3879
17:45:00	6	84	62	0	0	152	22	104	27	0	0	153	61	78	48	1	0	188	77	203	5	0	0	285	778	3681
18:00:00	6	78	45	0	0	129	30	105	30	0	0	165	35	75	51	0	0	161	55	198	8	0	0	261	716	3383



18:15:00	3	90	48	0	0	141	24	108	23	0	0	155	45	85	53	0	0	183	34	160	10	0	0	204	683	3074
18:30:00	9	80	52	0	0	141	32	108	25	0	0	165	29	67	41	0	0	137	51	171	3	0	0	225	668	2845
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Grand Total	352	3873	1804	0	0	6029	1456	5497	1186	1	0	8140	1521	3974	2082	1	0	7578	2283	6479	449	0	0	9211	30958	-
Approach%	5.8%	64.2%	29.9%	0%	-	17.9%	67.5%	14.6%	0%	-	20.1%	52.4%	27.5%	0%	-	24.8%	70.3%	4.9%	0%	-	-	-	-	-	-	-
Totals %	1.1%	12.5%	5.8%	0%	19.5%	4.7%	17.8%	3.8%	0%	26.3%	4.9%	12.8%	6.7%	0%	24.5%	7.4%	20.9%	1.5%	0%	29.8%	-	-	-	-	-	-
Heavy	55	364	113	0	-	77	100	42	0	-	42	371	83	0	-	81	121	40	0	-	-	-	-	-	-	-
Heavy %	15.6%	9.4%	6.3%	0%	-	5.3%	1.8%	3.5%	0%	-	2.8%	9.3%	4%	0%	-	3.5%	1.9%	8.9%	0%	-	-	-	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Selected Hour: 07:30 AM - 08:30 AM Weather:

Start Time	N Approach BROCK RD						E Approach TAUNTON RD						S Approach BROCK RD						W Approach TAUNTON RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:30:00	10	87	24	0	0	121	66	239	33	0	0	338	18	93	59	0	0	170	52	79	6	0	0	137	766
07:45:00	8	114	32	0	0	154	62	233	27	0	0	322	21	106	51	0	0	178	48	71	5	0	0	124	778
08:00:00	7	118	29	0	0	154	46	217	52	0	0	315	25	84	53	0	0	162	51	79	7	0	0	137	768
08:15:00	13	112	33	0	0	158	53	224	36	0	0	313	20	100	59	0	0	179	43	99	5	0	0	147	797
Grand Total	38	431	118	0	0	587	227	913	148	0	0	1288	84	383	222	0	0	689	194	328	23	0	0	545	3109
Approach%	6.5%	73.4%	20.1%	0%		-	17.6%	70.9%	11.5%	0%		-	12.2%	55.6%	32.2%	0%		-	35.6%	60.2%	4.2%	0%		-	-
Totals %	1.2%	13.9%	3.8%	0%		18.9%	7.3%	29.4%	4.8%	0%		41.4%	2.7%	12.3%	7.1%	0%		22.2%	6.2%	10.6%	0.7%	0%		17.5%	-
PHF	0.73	0.91	0.89	0		0.93	0.86	0.96	0.71	0		0.95	0.84	0.9	0.94	0		0.96	0.93	0.83	0.82	0		0.93	-
Heavy	5	30	9	0		44	6	13	6	0		25	6	43	10	0		59	6	10	2	0		18	-
Heavy %	13.2%	7%	7.6%	0%		7.5%	2.6%	1.4%	4.1%	0%		1.9%	7.1%	11.2%	4.5%	0%		8.6%	3.1%	3%	8.7%	0%		3.3%	-
Lights	33	401	109	0		543	221	900	142	0		1263	78	340	212	0		630	188	318	21	0		527	-
Lights %	86.8%	93%	92.4%	0%		92.5%	97.4%	98.6%	95.9%	0%		98.1%	92.9%	88.8%	95.5%	0%		91.4%	96.9%	97%	91.3%	0%		96.7%	-
Single-Unit Trucks	4	18	7	0		29	3	6	3	0		12	4	26	2	0		32	2	7	1	0		10	-
Single-Unit Trucks %	10.5%	4.2%	5.9%	0%		4.9%	1.3%	0.7%	2%	0%		0.9%	4.8%	6.8%	0.9%	0%		4.6%	1%	2.1%	4.3%	0%		1.8%	-
Buses	0	3	0	0		3	0	6	1	0		7	2	3	8	0		13	3	2	1	0		6	-
Buses %	0%	0.7%	0%	0%		0.5%	0%	0.7%	0.7%	0%		0.5%	2.4%	0.8%	3.6%	0%		1.9%	1.5%	0.6%	4.3%	0%		1.1%	-
Articulated Trucks	1	9	2	0		12	3	1	2	0		6	0	14	0	0		14	1	1	0	0		2	-
Articulated Trucks %	2.6%	2.1%	1.7%	0%		2%	1.3%	0.1%	1.4%	0%		0.5%	0%	3.7%	0%	0%		2%	0.5%	0.3%	0%	0%		0.4%	-

Selected Hour: 07:30 AM - 08:30 AM Weather:





Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-6.77 °C)

Start Time	N Approach BROCK RD						E Approach TAUNTON RD						S Approach BROCK RD						W Approach TAUNTON RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	10	99	72	0	0	181	36	99	16	0	0	151	46	160	48	0	0	254	62	309	22	0	0	393	979
16:45:00	3	109	64	0	0	176	28	116	41	0	0	185	49	132	46	0	0	227	77	289	22	0	0	388	976
17:00:00	10	122	73	0	0	205	46	122	37	0	0	205	56	120	51	0	0	227	66	287	24	0	0	377	1014
17:15:00	11	119	84	0	0	214	37	133	39	0	0	209	59	128	58	0	0	245	71	242	11	0	0	324	992
Grand Total	34	449	293	0	0	776	147	470	133	0	0	750	210	540	203	0	0	953	276	1127	79	0	0	1482	3961
Approach%	4.4%	57.9%	37.8%	0%	-	-	19.6%	62.7%	17.7%	0%	-	22%	56.7%	21.3%	0%	-	-	18.6%	76%	5.3%	0%	-	-	-	-
Totals %	0.9%	11.3%	7.4%	0%	19.6%	3.7%	11.9%	3.4%	0%	18.9%	5.3%	13.6%	5.1%	0%	24.1%	7%	28.5%	2%	0%	37.4%	-	-	-	-	-
PHF	0.77	0.92	0.87	0	0.91	0.8	0.88	0.81	0	0.9	0.89	0.84	0.88	0	0.94	0.9	0.91	0.82	0	0.94	-	-	-	-	-
Heavy	1	24	9	0	34	1	7	1	0	9	0	14	3	0	17	12	8	3	0	23	-	-	-	-	-
Heavy %	2.9%	5.3%	3.1%	0%	4.4%	0.7%	1.5%	0.8%	0%	1.2%	0%	2.6%	1.5%	0%	1.8%	4.3%	0.7%	3.8%	0%	1.6%	-	-	-	-	-
Lights	33	425	284	0	742	146	463	132	0	741	210	526	200	0	936	264	1119	76	0	1459	-	-	-	-	-
Lights %	97.1%	94.7%	96.9%	0%	95.6%	99.3%	98.5%	99.2%	0%	98.8%	100%	97.4%	98.5%	0%	98.2%	95.7%	99.3%	96.2%	0%	98.4%	-	-	-	-	-
Single-Unit Trucks	1	16	4	0	21	0	6	0	0	6	0	7	1	0	8	6	3	3	0	12	-	-	-	-	-
Single-Unit Trucks %	2.9%	3.6%	1.4%	0%	2.7%	0%	1.3%	0%	0%	0.8%	0%	1.3%	0.5%	0%	0.8%	2.2%	0.3%	3.8%	0%	0.8%	-	-	-	-	-
Buses	0	3	0	0	3	0	0	1	0	1	0	0	2	0	2	5	2	0	0	7	-	-	-	-	-
Buses %	0%	0.7%	0%	0%	0.4%	0%	0%	0.8%	0%	0.1%	0%	0%	1%	0%	0.2%	1.8%	0.2%	0%	0%	0.5%	-	-	-	-	-
Articulated Trucks	0	5	5	0	10	1	1	0	0	2	0	7	0	0	7	1	3	0	0	4	-	-	-	-	-
Articulated Trucks %	0%	1.1%	1.7%	0%	1.3%	0.7%	0.2%	0%	0%	0.3%	0%	1.3%	0%	0%	0.7%	0.4%	0.3%	0%	0%	0.3%	-	-	-	-	-

Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-6.77 °C)





Turning Movement Count (1 . TAUNTON RD & BROCK RD)

Start Time	N Approach BROCK RD						E Approach TAUNTON RD						S Approach BROCK RD						W Approach TAUNTON RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	7	56	17	0	0	80	32	215	18	0	0	265	12	91	43	0	0	146	25	48	3	0	0	76	567	
07:15:00	13	101	21	0	0	135	60	258	15	0	0	333	8	98	60	0	0	166	29	67	10	0	0	106	740	
07:30:00	10	87	24	0	0	121	66	239	33	0	0	338	18	93	59	0	0	170	52	79	6	0	0	137	766	
07:45:00	8	114	32	0	0	154	62	233	27	0	0	322	21	106	51	0	0	178	48	71	5	0	0	124	778	2851
08:00:00	7	118	29	0	0	154	46	217	52	0	0	315	25	84	53	0	0	162	51	79	7	0	0	137	768	3052
08:15:00	13	112	33	0	0	158	53	224	36	0	0	313	20	100	59	0	0	179	43	99	5	0	0	147	797	3109
08:30:00	8	112	32	0	0	152	50	173	33	0	0	256	30	83	53	0	0	166	49	94	6	0	0	149	723	3066
08:45:00	10	109	44	0	0	163	50	140	41	0	0	231	29	88	39	0	0	156	55	115	7	0	0	177	727	3015
09:00:00	4	82	26	0	0	112	47	130	32	0	0	209	20	74	43	0	0	137	49	71	9	0	0	129	587	2834
09:15:00	3	78	26	0	0	107	19	117	29	0	0	165	17	72	44	0	0	133	39	87	3	0	0	129	534	2571
09:30:00	9	87	32	0	0	128	25	108	20	0	0	153	23	74	44	0	0	141	46	88	8	0	0	142	564	2412
09:45:00	7	64	16	0	0	87	21	84	21	0	0	126	16	58	31	0	0	105	39	83	2	0	0	124	442	2127
10:00:00	8	60	24	0	0	92	19	96	12	0	0	127	21	57	28	0	0	106	31	83	3	0	0	117	442	1982
10:15:00	3	67	23	0	0	93	15	89	17	0	0	121	19	48	32	0	0	99	46	69	4	0	0	119	432	1880
10:30:00	9	67	44	0	0	120	29	97	21	0	0	147	16	59	34	0	0	109	40	67	7	0	0	114	490	1806
10:45:00	5	61	21	0	0	87	14	81	14	0	0	109	22	50	29	0	0	101	38	96	6	0	0	140	437	1801
11:00:00	8	53	19	0	0	80	23	83	12	0	0	118	22	51	32	0	0	105	35	73	5	0	0	113	416	1775
11:15:00	7	71	20	0	0	98	20	90	25	0	0	135	17	41	27	0	0	85	35	85	6	0	0	126	444	1787
11:30:00	12	66	28	0	0	106	18	79	12	0	0	109	20	54	28	0	0	102	35	81	10	0	0	126	443	1740
11:45:00	5	62	26	0	0	93	15	65	14	0	0	94	20	45	28	0	0	93	35	79	12	0	0	126	406	1709
12:00:00	7	70	19	0	0	96	14	71	14	0	0	99	19	57	40	0	0	116	50	87	7	0	0	144	455	1748
12:15:00	4	65	31	0	0	100	19	77	20	1	0	117	29	68	45	0	0	142	39	82	8	0	0	129	488	1792
12:30:00	5	77	27	0	0	109	18	77	23	0	0	118	27	62	36	0	0	125	57	93	6	0	0	156	508	1857
12:45:00	1	55	25	0	0	81	21	76	28	0	0	125	19	52	27	0	0	98	38	78	7	0	0	123	427	1878
13:00:00	11	60	28	0	0	99	27	81	20	0	0	128	10	49	38	0	0	97	33	77	6	0	0	116	440	1863
13:15:00	4	62	22	0	0	88	18	89	17	0	0	124	37	74	31	0	0	142	33	124	4	0	0	161	515	1890
13:30:00	10	70	29	0	0	109	24	67	10	0	0	101	21	57	53	0	0	131	36	122	6	0	0	164	505	1887
13:45:00	5	79	36	0	0	120	17	60	19	0	0	96	23	55	26	0	0	104	36	104	9	0	0	149	469	1929
14:00:00	5	72	31	0	0	108	24	81	22	0	0	127	28	64	37	0	0	129	47	103	9	0	0	159	523	2012
14:15:00	4	55	30	0	0	89	22	97	20	0	0	139	33	62	34	0	0	129	43	114	10	0	0	167	524	2021
14:30:00	11	51	35	0	0	97	26	104	39	0	0	169	30	86	44	0	0	160	41	147	14	0	0	202	628	2144
14:45:00	7	62	32	0	0	101	22	98	29	0	0	149	60	87	55	0	0	202	52	179	9	0	0	240	692	2367
15:00:00	2	58	45	0	0	105	33	86	20	0	0	139	44	102	61	0	0	207	43	148	14	0	0	205	656	2500
15:15:00	10	81	39	0	0	130	35	109	26	0	0	170	55	127	38	0	0	220	45	210	14	0	0	269	789	2765
15:30:00	6	95	50	0	0	151	45	104	35	0	0	184	51	130	45	0	0	226	57	233	11	0	0	301	862	2999
15:45:00	3	93	60	0	0	156	41	107	26	0	0	174	61	146	45	0	0	252	60	215	16	0	0	291	873	3180
16:00:00	13	73	60	0	0	146	37	101	15	0	0	153	64	126	64	0	0	254	69	268	19	0	0	356	909	3433
16:15:00	14	83	56	0	0	153	35	106	28	0	0	169	62	127	46	0	0	235	69	255	26	0	0	350	907	3551
16:30:00	10	99	72	0	0	181	36	99	16	0	0	151	46	160	48	0	0	254	62	309	22	0	0	393	979	3668
16:45:00	3	109	64	0	0	176	28	116	41	0	0	185	49	132	46	0	0	227	77	289	22	0	0	388	976	3771
17:00:00	10	122	73	0	0	205	46	122	37	0	0	205	56	120	51	0	0	227	66	287	24	0	0	377	1014	3876
17:15:00	11	119	84	0	0	214	37	133	39	0	0	209	59	128	58	0	0	245	71	242	11	0	0	324	992	3961
17:30:00	8	126	62	0	0	196	22	113	28	0	0	163	45	113	62	0	0	220	69	232	17	0	0	318	897	3879
17:45:00	6	84	62	0	0	152	22	104	27	0	0	153	61	78	48	1	0	188	77	203	5	0	0	285	778	3681
18:00:00	6	78	45	0	0	129	30	105	30	0	0	165	35	75	51	0	0	161	55	198	8	0	0	261	716	3383



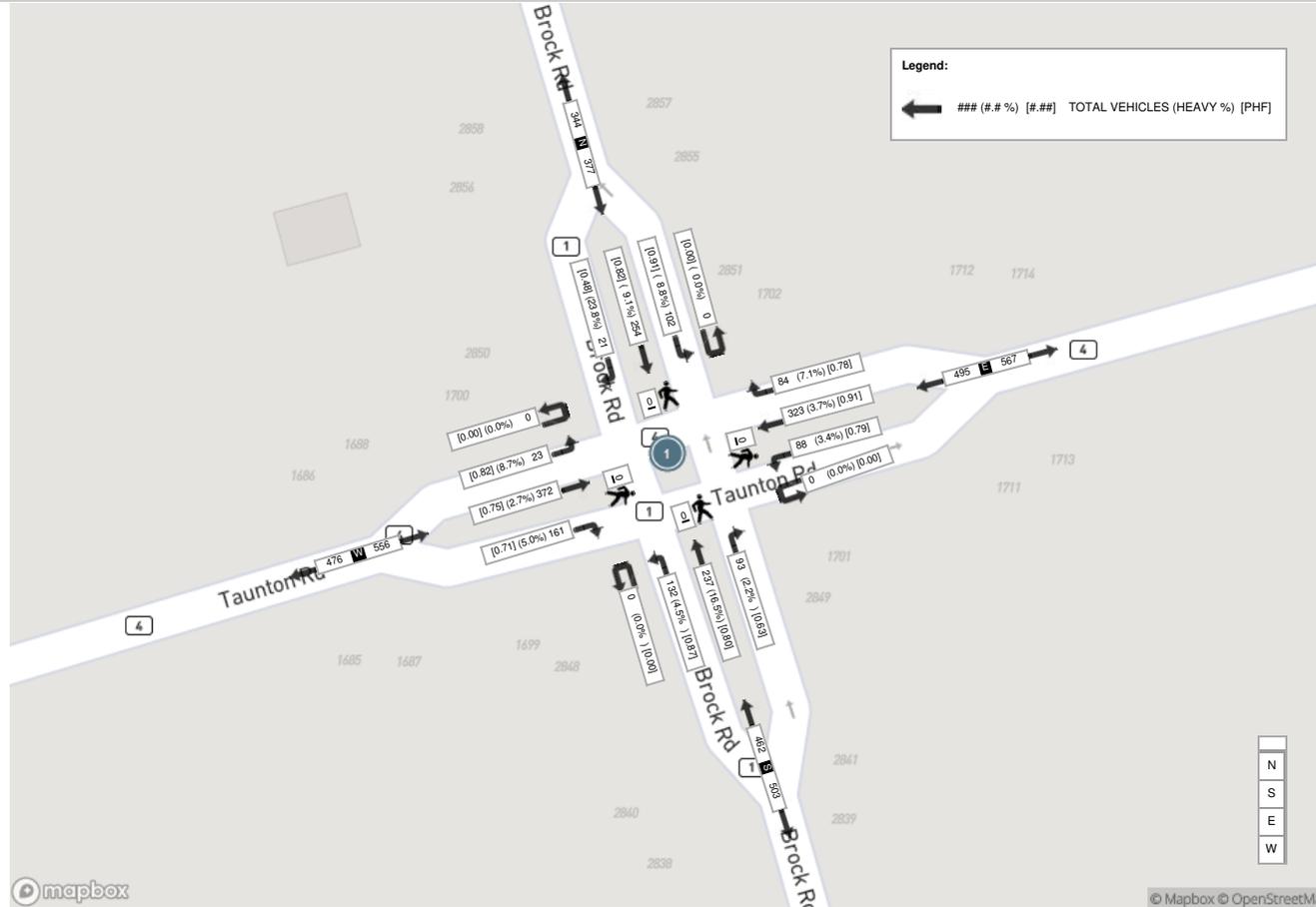
18:15:00	3	90	48	0	0	141	24	108	23	0	0	155	45	85	53	0	0	183	34	160	10	0	0	204	683	3074
18:30:00	9	80	52	0	0	141	32	108	25	0	0	165	29	67	41	0	0	137	51	171	3	0	0	225	668	2845
18:45:00	8	78	50	0	0	136	17	80	25	0	0	122	27	59	42	0	0	128	53	135	8	0	0	196	582	2649
Grand Total	352	3873	1804	0	0	6029	1456	5497	1186	1	0	8140	1521	3974	2082	1	0	7578	2283	6479	449	0	0	9211	30958	-
Approach%	5.8%	64.2%	29.9%	0%	-	17.9%	67.5%	14.6%	0%	-	20.1%	52.4%	27.5%	0%	-	24.8%	70.3%	4.9%	0%	-	-	-	-	-	-	-
Totals %	1.1%	12.5%	5.8%	0%	19.5%	4.7%	17.8%	3.8%	0%	26.3%	4.9%	12.8%	6.7%	0%	24.5%	7.4%	20.9%	1.5%	0%	29.8%	-	-	-	-	-	-
Heavy	55	364	113	0	-	77	100	42	0	-	42	371	83	0	-	81	121	40	0	-	-	-	-	-	-	-
Heavy %	15.6%	9.4%	6.3%	0%	-	5.3%	1.8%	3.5%	0%	-	2.8%	9.3%	4%	0%	-	3.5%	1.9%	8.9%	0%	-	-	-	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Selected Hour: 12:30 PM - 01:30 PM Weather:

Start Time	N Approach BROCK RD						E Approach TAUNTON RD						S Approach BROCK RD						W Approach TAUNTON RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
12:30:00	5	77	27	0	0	109	18	77	23	0	0	118	27	62	36	0	0	125	57	93	6	0	0	156	508
12:45:00	1	55	25	0	0	81	21	76	28	0	0	125	19	52	27	0	0	98	38	78	7	0	0	123	427
13:00:00	11	60	28	0	0	99	27	81	20	0	0	128	10	49	38	0	0	97	33	77	6	0	0	116	440
13:15:00	4	62	22	0	0	88	18	89	17	0	0	124	37	74	31	0	0	142	33	124	4	0	0	161	515
Grand Total	21	254	102	0	0	377	84	323	88	0	0	495	93	237	132	0	0	462	161	372	23	0	0	556	1890
Approach%	5.6%	67.4%	27.1%	0%	-	-	17%	65.3%	17.8%	0%	-	-	20.1%	51.3%	28.6%	0%	-	-	29%	66.9%	4.1%	0%	-	-	-
Totals %	1.1%	13.4%	5.4%	0%	19.9%	4.4%	17.1%	4.7%	0%	26.2%	4.9%	12.5%	7%	0%	24.4%	8.5%	19.7%	1.2%	0%	29.4%	-	-	-	-	-
PHF	0.48	0.82	0.91	0	0.86	0.78	0.91	0.79	0	0.97	0.63	0.8	0.87	0	0.81	0.71	0.75	0.82	0	0.86	-	-	-	-	-
Heavy	5	23	9	0	37	6	12	3	0	21	2	39	6	0	47	8	10	2	0	20	-	-	-	-	-
Heavy %	23.8%	9.1%	8.8%	0%	9.8%	7.1%	3.7%	3.4%	0%	4.2%	2.2%	16.5%	4.5%	0%	10.2%	5%	2.7%	8.7%	0%	3.6%	-	-	-	-	-
Lights	16	231	93	0	340	78	311	85	0	474	91	198	126	0	415	153	362	21	0	536	-	-	-	-	-
Lights %	76.2%	90.9%	91.2%	0%	90.2%	92.9%	96.3%	96.6%	0%	95.8%	97.8%	83.5%	95.5%	0%	89.8%	95%	97.3%	91.3%	0%	96.4%	-	-	-	-	-
Single-Unit Trucks	5	19	7	0	31	6	11	1	0	18	2	27	4	0	33	5	9	2	0	16	-	-	-	-	-
Single-Unit Trucks %	23.8%	7.5%	6.9%	0%	8.2%	7.1%	3.4%	1.1%	0%	3.6%	2.2%	11.4%	3%	0%	7.1%	3.1%	2.4%	8.7%	0%	2.9%	-	-	-	-	-
Buses	0	0	0	0	0	0	0	1	0	1	0	0	2	0	2	2	1	0	0	3	-	-	-	-	-
Buses %	0%	0%	0%	0%	0%	0%	0%	1.1%	0%	0.2%	0%	0%	1.5%	0%	0.4%	1.2%	0.3%	0%	0%	0.5%	-	-	-	-	-
Articulated Trucks	0	4	2	0	6	0	1	1	0	2	0	12	0	0	12	1	0	0	0	1	-	-	-	-	-
Articulated Trucks %	0%	1.6%	2%	0%	1.6%	0%	0.3%	1.1%	0%	0.4%	0%	5.1%	0%	0%	2.6%	0.6%	0%	0%	0%	0.2%	-	-	-	-	-

Selected Hour: 12:30 PM - 01:30 PM Weather:





Turning Movement Count (1 . TAUNTON RD & BROCK RD)

Start Time	N Approach BROCK RD						E Approach TAUNTON RD						S Approach BROCK RD						W Approach TAUNTON RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
11:00:00	8	54	27	0	0	89	26	110	18	0	0	154	25	62	45	0	0	132	45	113	6	0	0	164	539	
11:15:00	3	65	27	0	0	95	18	106	20	0	0	144	19	50	48	0	0	117	41	128	8	0	0	177	533	
11:30:00	5	76	32	0	0	113	21	116	27	0	0	164	28	65	38	0	0	131	45	105	10	1	0	161	569	
11:45:00	9	68	26	0	0	103	18	133	27	0	0	178	27	63	44	1	0	135	41	121	12	0	0	174	590	2231
12:00:00	12	74	30	0	0	116	19	129	28	0	0	176	23	68	40	0	0	131	45	72	13	0	0	130	553	2245
12:15:00	3	55	24	0	0	82	22	138	32	0	0	192	27	52	38	0	0	117	38	104	8	0	0	150	541	2253
12:30:00	9	73	36	0	0	118	22	136	23	0	0	181	23	61	43	0	0	127	50	125	10	0	0	185	611	2295
12:45:00	9	86	36	0	0	131	29	169	27	0	0	225	28	71	50	0	0	149	58	139	15	0	0	212	717	2422
13:00:00	3	67	35	0	0	105	31	124	31	0	0	186	33	76	36	0	0	145	42	133	5	0	0	180	616	2485
13:15:00	10	80	38	0	0	128	29	135	23	0	0	187	33	73	38	0	0	144	43	113	13	0	0	169	628	2572
13:30:00	6	70	41	0	0	117	29	132	31	0	0	192	28	50	49	0	0	127	48	108	7	0	0	163	599	2560
13:45:00	14	88	33	0	0	135	28	134	29	0	0	191	39	59	40	0	0	138	48	138	6	0	0	192	656	2499
14:00:00	11	72	28	0	0	111	26	117	19	0	0	162	31	60	47	0	0	138	37	112	10	0	0	159	570	2453
14:15:00	9	62	30	0	0	101	28	125	24	0	0	177	26	72	45	0	0	143	57	149	4	0	0	210	631	2456
14:30:00	6	90	33	0	0	129	29	97	19	0	0	145	26	49	40	0	0	115	47	137	8	0	0	192	581	2438
14:45:00	7	82	42	0	0	131	34	118	37	0	0	189	30	88	43	0	0	161	53	144	9	0	0	206	687	2469
Grand Total	124	1162	518	0	0	1804	409	2019	415	0	0	2843	446	1019	684	1	0	2150	738	1941	144	1	0	2824	9621	-
Approach%	6.9%	64.4%	28.7%	0%	-	-	14.4%	71%	14.6%	0%	-	-	20.7%	47.4%	31.8%	0%	-	-	26.1%	68.7%	5.1%	0%	-	-	-	
Totals %	1.3%	12.1%	5.4%	0%	18.8%	-	4.3%	21%	4.3%	0%	29.5%	-	4.6%	10.6%	7.1%	0%	22.3%	-	7.7%	20.2%	1.5%	0%	29.4%	-	-	
Heavy	0	11	4	0	-	-	3	12	2	0	-	-	4	12	3	0	-	-	5	10	1	0	-	-	-	
Heavy %	0%	0.9%	0.8%	0%	-	-	0.7%	0.6%	0.5%	0%	-	-	0.9%	1.2%	0.4%	0%	-	-	0.7%	0.5%	0.7%	0%	-	-	-	
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Peak Hour: 12:30 PM - 01:30 PM Weather: Moderate Rain (4.53 °C)

Start Time	N Approach BROCK RD						E Approach TAUNTON RD						S Approach BROCK RD						W Approach TAUNTON RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
12:30:00	9	73	36	0	0	118	22	136	23	0	0	181	23	61	43	0	0	127	50	125	10	0	0	185	611
12:45:00	9	86	36	0	0	131	29	169	27	0	0	225	28	71	50	0	0	149	58	139	15	0	0	212	717
13:00:00	3	67	35	0	0	105	31	124	31	0	0	186	33	76	36	0	0	145	42	133	5	0	0	180	616
13:15:00	10	80	38	0	0	128	29	135	23	0	0	187	33	73	38	0	0	144	43	113	13	0	0	169	628
Grand Total	31	306	145	0	0	482	111	564	104	0	0	779	117	281	167	0	0	565	193	510	43	0	0	746	2572
Approach%	6.4%	63.5%	30.1%	0%		-	14.2%	72.4%	13.4%	0%		-	20.7%	49.7%	29.6%	0%		-	25.9%	68.4%	5.8%	0%		-	-
Totals %	1.2%	11.9%	5.6%	0%		18.7%	4.3%	21.9%	4%	0%		30.3%	4.5%	10.9%	6.5%	0%		22%	7.5%	19.8%	1.7%	0%		29%	-
PHF	0.78	0.89	0.95	0		0.92	0.9	0.83	0.84	0		0.87	0.89	0.92	0.84	0		0.95	0.83	0.92	0.72	0		0.88	-
Heavy	0	2	0	0		2	2	5	0	0		7	2	3	2	0		7	1	2	1	0		4	-
Heavy %	0%	0.7%	0%	0%		0.4%	1.8%	0.9%	0%	0%		0.9%	1.7%	1.1%	1.2%	0%		1.2%	0.5%	0.4%	2.3%	0%		0.5%	-
Lights	31	304	145	0		480	109	559	104	0		772	115	278	165	0		558	192	508	42	0		742	-
Lights %	100%	99.3%	100%	0%		99.6%	98.2%	99.1%	100%	0%		99.1%	98.3%	98.9%	98.8%	0%		98.8%	99.5%	99.6%	97.7%	0%		99.5%	-
Single-Unit Trucks	0	1	0	0		1	1	5	0	0		6	2	2	2	0		6	1	2	1	0		4	-
Single-Unit Trucks %	0%	0.3%	0%	0%		0.2%	0.9%	0.9%	0%	0%		0.8%	1.7%	0.7%	1.2%	0%		1.1%	0.5%	0.4%	2.3%	0%		0.5%	-
Articulated Trucks	0	1	0	0		1	1	0	0	0		1	0	1	0	0		1	0	0	0	0		0	-
Articulated Trucks %	0%	0.3%	0%	0%		0.2%	0.9%	0%	0%	0%		0.1%	0%	0.4%	0%	0%		0.2%	0%	0%	0%	0%		0%	-

Peak Hour: 12:30 PM - 01:30 PM Weather: Moderate Rain (4.53 °C)



Appendix H: Synchro Printout Sheets



HCM Signalized Intersection Capacity Analysis

1: Peter Matthews Drive & Taunton Road

Ultimate AM Future Total

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  			 			 		
Traffic Volume (vph)	270	895	25	10	1695	310	120	220	0	195	285	200	
Future Volume (vph)	270	895	25	10	1695	310	120	220	0	195	285	200	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	
Total Lost time (s)	3.0	8.7	8.7	8.7	8.7	8.7	3.0	8.2		3.0	8.2	8.2	
Lane Util. Factor	1.00	*0.83	1.00	1.00	*0.83	1.00	1.00	0.95		1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00		0.99	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1711	4587	1519	1701	4587	1519	1701	3500		1699	3500	1524	
Flt Permitted	0.07	1.00	1.00	0.28	1.00	1.00	0.57	1.00		0.61	1.00	1.00	
Satd. Flow (perm)	134	4587	1519	501	4587	1519	1012	3500		1099	3500	1524	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	270	895	25	10	1695	310	120	220	0	195	285	200	
RTOR Reduction (vph)	0	0	10	0	0	173	0	0	0	0	0	165	
Lane Group Flow (vph)	270	895	15	10	1695	137	120	220	0	195	285	35	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15	
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	7	4			8		5	2		1	6		
Permitted Phases	4		4	8		8	2		2	6		6	
Actuated Green, G (s)	69.9	69.9	69.9	50.8	50.8	50.8	25.2	20.2		25.2	20.2	20.2	
Effective Green, g (s)	69.9	69.9	69.9	50.8	50.8	50.8	25.2	20.2		25.2	20.2	20.2	
Actuated g/C Ratio	0.61	0.61	0.61	0.44	0.44	0.44	0.22	0.18		0.22	0.18	0.18	
Clearance Time (s)	3.0	8.7	8.7	8.7	8.7	8.7	3.0	8.2		3.0	8.2	8.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	302	2788	923	221	2026	671	251	614		266	614	267	
v/s Ratio Prot	c0.13	0.20			0.37		0.02	0.06		c0.03	0.08		
v/s Ratio Perm	c0.42		0.01	0.02		0.09	0.08			c0.13		0.02	
v/c Ratio	0.89	0.32	0.02	0.05	0.84	0.20	0.48	0.36		0.73	0.46	0.13	
Uniform Delay, d1	33.9	11.0	8.9	18.3	28.4	19.7	38.0	41.7		40.6	42.5	40.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	26.6	0.3	0.0	0.4	4.3	0.7	1.4	0.4		10.0	0.6	0.2	
Delay (s)	60.5	11.3	9.0	18.7	32.7	20.4	39.4	42.1		50.6	43.1	40.2	
Level of Service	E	B	A	B	C	C	D	D		D	D	D	
Approach Delay (s)		22.4			30.8			41.1			44.4		
Approach LOS		C			C			D			D		
Intersection Summary													
HCM 2000 Control Delay			31.4		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.87										
Actuated Cycle Length (s)			115.0		Sum of lost time (s)						22.9		
Intersection Capacity Utilization			94.5%		ICU Level of Service						F		
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: Burkholder Drive & Taunton Road

Ultimate AM Future Total

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	970	155	65	1895	65	370	250	155	40	160	205
Future Volume (vph)	175	970	155	65	1895	65	370	250	155	40	160	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.5	3.5	3.5	3.3	3.5	3.3	3.3	3.5	3.3
Total Lost time (s)	3.0	6.9		3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	*0.83		1.00	*0.83		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	4458		1748	4556		1702	1842	1486	1690	1842	1486
Flt Permitted	0.07	1.00		0.18	1.00		0.46	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	129	4458		335	4556		820	1842	1486	1074	1842	1486
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	175	970	155	65	1895	65	370	250	155	40	160	205
RTOR Reduction (vph)	0	13	0	0	2	0	0	0	102	0	0	120
Lane Group Flow (vph)	175	1112	0	65	1958	0	370	250	53	40	160	85
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	66.1	58.4		57.7	53.0		40.4	40.4	40.4	19.4	19.4	19.4
Effective Green, g (s)	66.1	58.4		57.7	53.0		40.4	40.4	40.4	19.4	19.4	19.4
Actuated g/C Ratio	0.55	0.49		0.48	0.44		0.34	0.34	0.34	0.16	0.16	0.16
Clearance Time (s)	3.0	6.9		3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	205	2180		217	2022		410	623	502	174	299	241
v/s Ratio Prot	c0.07	0.25		0.01	c0.43		c0.14	0.14			0.09	
v/s Ratio Perm	0.40			0.13			c0.17		0.04	0.04		0.06
v/c Ratio	0.85	0.51		0.30	0.97		0.90	0.40	0.11	0.23	0.54	0.35
Uniform Delay, d1	32.4	20.8		16.9	32.4		35.0	30.2	27.1	43.5	45.9	44.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.5	0.9		0.8	13.8		22.5	0.4	0.1	0.7	1.8	0.9
Delay (s)	59.9	21.6		17.7	46.2		57.5	30.7	27.2	44.2	47.7	45.3
Level of Service	E	C		B	D		E	C	C	D	D	D
Approach Delay (s)		26.8			45.3			42.8			46.2	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			39.6			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			119.4			Sum of lost time (s)		18.9				
Intersection Capacity Utilization			101.0%			ICU Level of Service		G				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Aquarius Trail & Taunton Road

Ultimate AM Future Total

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑	↘	↗
Traffic Volume (vph)	1050	40	5	1965	50	10
Future Volume (vph)	1050	40	5	1965	50	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.3	3.5	3.3	3.3
Total Lost time (s)	8.7		8.7	8.7	8.2	8.2
Lane Util. Factor	*0.83		1.00	*0.83	1.00	1.00
Frbp, ped/bikes	1.00		1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00		0.99	1.00	0.98	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4552		1699	4587	1680	1485
Flt Permitted	1.00		0.19	1.00	0.95	1.00
Satd. Flow (perm)	4552		348	4587	1680	1485
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1141	43	5	2136	54	11
RTOR Reduction (vph)	2	0	0	0	0	10
Lane Group Flow (vph)	1182	0	5	2136	54	1
Confl. Peds. (#/hr)		15	15		15	15
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		8	8
Actuated Green, G (s)	83.5		83.5	83.5	14.3	14.3
Effective Green, g (s)	83.5		83.5	83.5	14.3	14.3
Actuated g/C Ratio	0.73		0.73	0.73	0.12	0.12
Clearance Time (s)	8.7		8.7	8.7	8.2	8.2
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3313		253	3339	209	185
v/s Ratio Prot	0.26			c0.47		
v/s Ratio Perm			0.01		c0.03	0.00
v/c Ratio	0.36		0.02	0.64	0.26	0.01
Uniform Delay, d1	5.7		4.3	7.9	45.4	44.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3		0.1	1.0	0.7	0.0
Delay (s)	6.0		4.4	8.9	46.1	44.0
Level of Service	A		A	A	D	D
Approach Delay (s)	6.0			8.9	45.7	
Approach LOS	A			A	D	
Intersection Summary						
HCM 2000 Control Delay			8.6		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			114.7		Sum of lost time (s)	16.9
Intersection Capacity Utilization			65.6%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
 4: Street A/TACC Site A Access & Taunton Road

Ultimate AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1120	25	50	1960	5	0	0	70	0	0	65
Future Volume (Veh/h)	10	1120	25	50	1960	5	0	0	70	0	0	65
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	1217	27	54	2130	5	0	0	76	0	0	71
Pedestrians	15			15			15			15		
Lane Width (m)	3.5			3.5			3.3			3.3		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)	274			262								
pX, platoon unblocked	0.68			0.87			0.75	0.75	0.87	0.75	0.75	0.68
vC, conflicting volume	2150			1259			2100	3526	449	2698	3536	742
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1065			772			122	2024	0	920	2038	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			93			100	100	92	100	100	90
cM capacity (veh/h)	440			721			504	38	921	138	37	725
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	11	487	487	270	54	852	852	431	76	71		
Volume Left	11	0	0	0	54	0	0	0	0	0		
Volume Right	0	0	0	27	0	0	0	5	76	71		
cSH	440	1700	1700	1700	721	1700	1700	1700	921	725		
Volume to Capacity	0.03	0.29	0.29	0.16	0.07	0.50	0.50	0.25	0.08	0.10		
Queue Length 95th (m)	0.6	0.0	0.0	0.0	1.9	0.0	0.0	0.0	2.2	2.6		
Control Delay (s)	13.4	0.0	0.0	0.0	10.4	0.0	0.0	0.0	9.3	10.5		
Lane LOS	B			B			A			B		
Approach Delay (s)	0.1				0.3				9.3	10.5		
Approach LOS							A			B		
Intersection Summary												
Average Delay	0.6											
Intersection Capacity Utilization	53.2%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

6: Peter Matthews Drive & Marathon Avenue

Ultimate AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	0	5	5	5	25	5	215	0	10	300	0
Future Volume (vph)	20	0	5	5	5	25	5	215	0	10	300	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Total Lost time (s)	8.2	8.2		8.2	8.2		8.7	8.7		8.7	8.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1689	1527		1688	1575		1676	3500		1672	3500	
Flt Permitted	0.74	1.00		0.75	1.00		0.55	1.00		0.61	1.00	
Satd. Flow (perm)	1309	1527		1341	1575		979	3500		1066	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	0	5	5	5	27	5	234	0	11	326	0
RTOR Reduction (vph)	0	4	0	0	23	0	0	0	0	0	0	0
Lane Group Flow (vph)	22	1	0	5	9	0	5	234	0	11	326	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2		2	6	6
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	12.0	12.0		12.0	12.0		59.5	59.5		59.5	59.5	
Effective Green, g (s)	12.0	12.0		12.0	12.0		59.5	59.5		59.5	59.5	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.67	0.67		0.67	0.67	
Clearance Time (s)	8.2	8.2		8.2	8.2		8.7	8.7		8.7	8.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	177	207		182	213		658	2355		717	2355	
v/s Ratio Prot		0.00			0.01			0.07			c0.09	
v/s Ratio Perm	c0.02			0.00			0.01			0.01		
v/c Ratio	0.12	0.00		0.03	0.04		0.01	0.10		0.02	0.14	
Uniform Delay, d1	33.6	33.0		33.1	33.2		4.7	5.1		4.8	5.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.0		0.1	0.1		0.0	0.1		0.0	0.1	
Delay (s)	33.9	33.0		33.2	33.3		4.8	5.1		4.8	5.3	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		33.7			33.3			5.1			5.3	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.1				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.14									
Actuated Cycle Length (s)			88.4				Sum of lost time (s)			16.9		
Intersection Capacity Utilization			69.4%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 7: Peter Matthews Drive & TACC Site A Access

Ultimate AM Future Total

							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	0	30	5	795	650	20	
Future Volume (Veh/h)	0	30	5	795	650	20	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	33	5	864	707	22	
Pedestrians	15			15	15		
Lane Width (m)	3.3			3.4	3.5		
Walking Speed (m/s)	1.2			1.2	1.2		
Percent Blockage	1			1	1		
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)	189						
pX, platoon unblocked	0.96						
vC, conflicting volume	1179	384	744				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1107	384	744				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	95	99				
cM capacity (veh/h)	191	600	850				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	33	5	432	432	354	354	22
Volume Left	0	5	0	0	0	0	0
Volume Right	33	0	0	0	0	0	22
cSH	600	850	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.01	0.25	0.25	0.21	0.21	0.01
Queue Length 95th (m)	1.4	0.1	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.3	9.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	11.3	0.1	0.0				
Approach LOS	B						
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utilization			35.9%	ICU Level of Service	A		
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Peter Matthews Drive & TACC Site B Access/TACC Site C Access

Ultimate AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	0	0	90	0	250	10	0	305	15
Future Volume (Veh/h)	0	0	5	0	0	90	0	250	10	0	305	15
Sign Control	Stop			Stop				Free			Free	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	5	0	0	98	0	272	11	0	332	16
Pedestrians	15			15				15			15	
Lane Width (m)	3.3			3.3				3.5			3.5	
Walking Speed (m/s)	1.2			1.2				1.2			1.2	
Percent Blockage	1			1				1			1	
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)							102			145		
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94	1.00	0.94				1.00	
vC, conflicting volume	604	653	204	478	656	172	363				298	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	435	487	11	300	490	169	181				295	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	99	100	100	88	100				100	
cM capacity (veh/h)	400	438	975	562	437	825	1287				1247	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	5	98	181	102	221	127						
Volume Left	0	0	0	0	0	0						
Volume Right	5	98	0	11	0	16						
cSH	975	825	1700	1700	1700	1700						
Volume to Capacity	0.01	0.12	0.11	0.06	0.13	0.07						
Queue Length 95th (m)	0.1	3.2	0.0	0.0	0.0	0.0						
Control Delay (s)	8.7	9.9	0.0	0.0	0.0	0.0						
Lane LOS	A	A										
Approach Delay (s)	8.7	9.9	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			25.9%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Burkholder Drive & Belcourt Street/Marathon Avenue

Ultimate AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	45	0	15	15	0	80	5	610	10	0	370	10
Future Volume (vph)	45	0	15	15	0	80	5	610	10	0	370	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	0	16	16	0	87	5	663	11	0	402	11
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	65	103	5	674	0	413						
Volume Left (vph)	49	16	5	0	0	0						
Volume Right (vph)	16	87	0	11	0	11						
Hadj (s)	0.04	-0.44	0.53	0.02	0.00	0.02						
Departure Headway (s)	7.0	6.4	6.1	5.6	5.8	5.8						
Degree Utilization, x	0.13	0.18	0.01	1.05	0.00	0.66						
Capacity (veh/h)	474	521	570	642	622	604						
Control Delay (s)	11.0	10.8	8.0	71.7	7.6	18.3						
Approach Delay (s)	11.0	10.8	71.2		18.3							
Approach LOS	B	B	F		C							
Intersection Summary												
Delay			45.8									
Level of Service			E									
Intersection Capacity Utilization			51.0%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9: Burkholder Drive & Belcourt Street/Marathon Avenue

Ultimate AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	0	15	15	0	80	5	610	10	0	370	10
Future Volume (Veh/h)	45	0	15	15	0	80	5	610	10	0	370	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	0	16	16	0	87	5	663	11	0	402	11
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.4			3.4	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												283
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	1198	1122	438	1126	1122	698	428			689		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1179	1098	371	1103	1098	698	361			689		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	59	100	97	90	100	80	100			100		
cM capacity (veh/h)	120	195	620	165	195	430	1113			894		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	65	103	5	674	0	413						
Volume Left	49	16	5	0	0	0						
Volume Right	16	87	0	11	0	11						
cSH	150	344	1113	1700	1700	1700						
Volume to Capacity	0.43	0.30	0.00	0.40	0.00	0.24						
Queue Length 95th (m)	15.5	9.9	0.1	0.0	0.0	0.0						
Control Delay (s)	46.3	19.9	8.2	0.0	0.0	0.0						
Lane LOS	E	C	A									
Approach Delay (s)	46.3	19.9	0.1		0.0							
Approach LOS	E	C										
Intersection Summary												
Average Delay			4.0									
Intersection Capacity Utilization			51.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

9: Burkholder Drive & Belcourt Street/Marathon Avenue

Ultimate AM Future Total

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	45	0	15	15	0	80	5	610	10	0	370	10	
Future Volume (vph)	45	0	15	15	0	80	5	610	10	0	370	10	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	
Total Lost time (s)		6.0			6.0		6.9	6.9			6.9		
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00		
Frbp, ped/bikes		0.99			0.97		1.00	1.00			1.00		
Flpb, ped/bikes		0.99			1.00		0.99	1.00			1.00		
Frt		0.97			0.89		1.00	1.00			1.00		
Flt Protected		0.96			0.99		0.95	1.00			1.00		
Satd. Flow (prot)		1681			1565		1694	1836			1833		
Flt Permitted		0.71			0.93		0.52	1.00			1.00		
Satd. Flow (perm)		1243			1469		928	1836			1833		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	49	0	16	16	0	87	5	663	11	0	402	11	
RTOR Reduction (vph)	0	36	0	0	72	0	0	1	0	0	1	0	
Lane Group Flow (vph)	0	29	0	0	31	0	5	673	0	0	412	0	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		8.3			8.3		27.7	27.7			27.7		
Effective Green, g (s)		8.3			8.3		27.7	27.7			27.7		
Actuated g/C Ratio		0.17			0.17		0.57	0.57			0.57		
Clearance Time (s)		6.0			6.0		6.9	6.9			6.9		
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0		
Lane Grp Cap (vph)		210			249		525	1040			1038		
v/s Ratio Prot								c0.37			0.22		
v/s Ratio Perm		c0.02			0.02		0.01						
v/c Ratio		0.14			0.12		0.01	0.65			0.40		
Uniform Delay, d1		17.3			17.2		4.6	7.3			5.9		
Progression Factor		1.00			1.00		1.00	1.00			1.00		
Incremental Delay, d2		0.3			0.2		0.0	1.4			0.3		
Delay (s)		17.6			17.4		4.6	8.7			6.2		
Level of Service		B			B		A	A			A		
Approach Delay (s)		17.6			17.4			8.6			6.2		
Approach LOS		B			B			A			A		
Intersection Summary													
HCM 2000 Control Delay			9.0									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.53										
Actuated Cycle Length (s)			48.9									Sum of lost time (s)	12.9
Intersection Capacity Utilization			56.7%									ICU Level of Service	B
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

10: Burkholder Drive & TACC Site A Access

Ultimate AM Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	145	465	25	15	325
Future Volume (Veh/h)	80	145	465	25	15	325
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	158	505	27	16	353
Pedestrians	15		15			15
Lane Width (m)	3.5		3.5		3.4	
Walking Speed (m/s)	1.2		1.2		1.2	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	155					
pX, platoon unblocked	0.85	0.85			0.85	
vC, conflicting volume	934	548			547	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	836	385			384	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	71			98	
cM capacity (veh/h)	276	552			991	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	245	532	16	353		
Volume Left	87	0	16	0		
Volume Right	158	27	0	0		
cSH	408	1700	991	1700		
Volume to Capacity	0.60	0.31	0.02	0.21		
Queue Length 95th (m)	30.5	0.0	0.4	0.0		
Control Delay (s)	26.3	0.0	8.7	0.0		
Lane LOS	D		A			
Approach Delay (s)	26.3	0.0	0.4			
Approach LOS	D					
Intersection Summary						
Average Delay			5.7			
Intersection Capacity Utilization			47.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Hibiscus Drive/Street A & Marathon Avenue

Ultimate AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	0	0	5	5	0	10	0	20	15	90
Future Volume (Veh/h)	5	5	0	0	5	5	0	10	0	20	15	90
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	0	0	5	5	0	11	0	22	16	98
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					264							
pX, platoon unblocked												
vC, conflicting volume	25			20			158	55	35	58	52	38
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	25			20			158	55	35	58	52	38
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	100	98	98	90
cM capacity (veh/h)	1570			1577			686	813	1013	888	816	1010
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	10	10	11	136								
Volume Left	5	0	0	22								
Volume Right	0	5	0	98								
cSH	1570	1577	813	961								
Volume to Capacity	0.00	0.00	0.01	0.14								
Queue Length 95th (m)	0.1	0.0	0.3	3.9								
Control Delay (s)	3.7	0.0	9.5	9.4								
Lane LOS	A		A	A								
Approach Delay (s)	3.7	0.0	9.5	9.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay			8.5									
Intersection Capacity Utilization			30.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

13: Street A & Commercial Site Access/TACC Site B Access (North)

Ultimate AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	5	60	0	30	10	25	5	20	5	50
Future Volume (Veh/h)	15	0	5	60	0	30	10	25	5	20	5	50
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	5	65	0	33	11	27	5	22	5	54
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	190	160	62	162	184	60	74			47		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	190	160	62	162	184	60	74			47		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	91	100	97	99			99		
cM capacity (veh/h)	701	699	979	752	678	982	1507			1541		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	21	98	43	81								
Volume Left	16	65	11	22								
Volume Right	5	33	5	54								
cSH	751	817	1507	1541								
Volume to Capacity	0.03	0.12	0.01	0.01								
Queue Length 95th (m)	0.7	3.3	0.2	0.3								
Control Delay (s)	9.9	10.0	1.9	2.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.9	10.0	1.9	2.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			5.9									
Intersection Capacity Utilization			25.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 14: Street A & TACC Site B Access (South)

Ultimate AM Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	60	25	15	5	5	65
Future Volume (Veh/h)	60	25	15	5	5	65
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	27	16	5	5	71
Pedestrians	15		15		15	
Lane Width (m)	3.5		3.5		3.5	
Walking Speed (m/s)	1.2		1.2		1.2	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	130	48			36	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	130	48			36	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	97			100	
cM capacity (veh/h)	841	996			1556	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	92	21	76			
Volume Left	65	0	5			
Volume Right	27	5	0			
cSH	881	1700	1556			
Volume to Capacity	0.10	0.01	0.00			
Queue Length 95th (m)	2.8	0.0	0.1			
Control Delay (s)	9.6	0.0	0.5			
Lane LOS	A		A			
Approach Delay (s)	9.6	0.0	0.5			
Approach LOS	A					
Intersection Summary						
Average Delay			4.9			
Intersection Capacity Utilization			22.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Aquarius Trail & TACC Site C Access

Ultimate AM Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	20	0	35	15	30
Future Volume (Veh/h)	25	20	0	35	15	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	22	0	38	16	33
Pedestrians	15			15	15	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						78
pX, platoon unblocked						
vC, conflicting volume	100	62	64			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100	62	64			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	98	100			
cM capacity (veh/h)	876	978	1520			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	49	38	49			
Volume Left	27	0	0			
Volume Right	22	0	33			
cSH	919	1520	1700			
Volume to Capacity	0.05	0.00	0.03			
Queue Length 95th (m)	1.3	0.0	0.0			
Control Delay (s)	9.1	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.1	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization			21.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

18: Commercial Site Access & Taunton Road

Ultimate AM Future Total

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑	↘		
Traffic Volume (veh/h)	1135	30	0	2025	0	20	
Future Volume (Veh/h)	1135	30	0	2025	0	20	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	1234	33	0	2201	0	22	
Pedestrians	15			15	15		
Lane Width (m)	3.5			3.5	3.5		
Walking Speed (m/s)	1.2			1.2	1.2		
Percent Blockage	1			1	1		
Right turn flare (veh)							
Median type	None			None			
Median storage veh							
Upstream signal (m)	161			375			
pX, platoon unblocked				0.85	0.76	0.85	
vC, conflicting volume				1282	2014	458	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol				715	0	0	
tC, single (s)				4.1	6.8	6.9	
tC, 2 stage (s)							
tF (s)				2.2	3.5	3.3	
p0 queue free %				100	100	98	
cM capacity (veh/h)				740	762	900	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	494	494	280	734	734	734	22
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	33	0	0	0	22
cSH	1700	1700	1700	1700	1700	1700	900
Volume to Capacity	0.29	0.29	0.16	0.43	0.43	0.43	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.1
Lane LOS							A
Approach Delay (s)	0.0			0.0		9.1	
Approach LOS							A
Intersection Summary							
Average Delay				0.1			
Intersection Capacity Utilization				53.1%	ICU Level of Service		A
Analysis Period (min)				15			

HCM Unsignalized Intersection Capacity Analysis

19: Burkholder Drive & Dragonfly Avenue/Commercial Site Access

Ultimate AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	5	0	0	25	5	725	5	5	375	0
Future Volume (Veh/h)	25	0	5	0	0	25	5	725	5	5	375	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	0	5	0	0	27	5	788	5	5	408	0
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)											190	
pX, platoon unblocked	0.93	0.93	0.93	0.93	0.93		0.93					
vC, conflicting volume	1276	1251	438	1254	1248	820	423			808		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1258	1232	356	1235	1229	820	340			808		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	78	100	99	100	100	93	100			99		
cM capacity (veh/h)	121	159	623	134	159	366	1118			807		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	32	27	798	413								
Volume Left	27	0	5	5								
Volume Right	5	27	5	0								
cSH	138	366	1118	807								
Volume to Capacity	0.23	0.07	0.00	0.01								
Queue Length 95th (m)	6.8	1.9	0.1	0.1								
Control Delay (s)	38.8	15.6	0.1	0.2								
Lane LOS	E	C	A	A								
Approach Delay (s)	38.8	15.6	0.1	0.2								
Approach LOS	E	C										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			58.5%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Peter Matthews Drive & Taunton Road

Ultimate PM Future Total

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1965	100	15	1100	200	90	290	0	245	285	310
Future Volume (vph)	210	1965	100	15	1100	200	90	290	0	245	285	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Total Lost time (s)	3.0	8.7	8.7	3.0	8.7	8.7	3.0	8.2		3.0	8.2	8.2
Lane Util. Factor	1.00	*0.83	1.00	1.00	*0.83	1.00	1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	4587	1519	1711	4587	1519	1701	3500		1703	3500	1524
Flt Permitted	0.16	1.00	1.00	0.08	1.00	1.00	0.58	1.00		0.49	1.00	1.00
Satd. Flow (perm)	291	4587	1519	141	4587	1519	1033	3500		878	3500	1524
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	210	1965	100	15	1100	200	90	290	0	245	285	310
RTOR Reduction (vph)	0	0	43	0	0	110	0	0	0	0	0	239
Lane Group Flow (vph)	210	1965	57	15	1100	90	90	290	0	245	285	71
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	66.2	61.5	61.5	52.9	51.2	51.2	24.3	20.4		30.5	23.6	23.6
Effective Green, g (s)	66.2	61.5	61.5	52.9	51.2	51.2	24.3	20.4		30.5	23.6	23.6
Actuated g/C Ratio	0.58	0.54	0.54	0.47	0.45	0.45	0.21	0.18		0.27	0.21	0.21
Clearance Time (s)	3.0	8.7	8.7	3.0	8.7	8.7	3.0	8.2		3.0	8.2	8.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	319	2483	822	89	2067	684	243	628		287	727	316
v/s Ratio Prot	c0.07	c0.43		0.00	0.24		0.01	0.08		c0.05	0.08	
v/s Ratio Perm	0.31		0.04	0.08		0.06	0.07			c0.18		0.05
v/c Ratio	0.66	0.79	0.07	0.17	0.53	0.13	0.37	0.46		0.85	0.39	0.22
Uniform Delay, d1	13.3	20.9	12.4	18.6	22.5	18.2	37.1	41.7		38.3	38.8	37.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.8	2.7	0.2	0.9	1.0	0.4	1.0	0.5		21.1	0.4	0.4
Delay (s)	18.1	23.6	12.6	19.5	23.5	18.6	38.1	42.2		59.3	39.2	37.8
Level of Service	B	C	B	B	C	B	D	D		E	D	D
Approach Delay (s)		22.6			22.7			41.2			44.5	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			27.9	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			113.6	Sum of lost time (s)				22.9				
Intersection Capacity Utilization			92.5%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: Burkholder Drive & Taunton Road

Ultimate PM Future Total

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	2095	255	100	1190	75	340	205	105	85	180	205
Future Volume (vph)	195	2095	255	100	1190	75	340	205	105	85	180	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.5	3.5	3.5	3.3	3.5	3.3	3.3	3.5	3.3
Total Lost time (s)	3.0	6.9		3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	*0.83		1.00	*0.83		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	4485		1750	4531		1703	1842	1486	1688	1842	1486
Flt Permitted	0.11	1.00		0.07	1.00		0.42	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	202	4485		137	4531		752	1842	1486	1118	1842	1486
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	195	2095	255	100	1190	75	340	205	105	85	180	205
RTOR Reduction (vph)	0	9	0	0	4	0	0	0	61	0	0	171
Lane Group Flow (vph)	195	2341	0	100	1261	0	340	205	44	85	180	34
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	69.9	61.9		58.7	53.7		36.7	36.7	36.7	20.1	20.1	20.1
Effective Green, g (s)	69.9	61.9		58.7	53.7		36.7	36.7	36.7	20.1	20.1	20.1
Actuated g/C Ratio	0.58	0.52		0.49	0.45		0.31	0.31	0.31	0.17	0.17	0.17
Clearance Time (s)	3.0	6.9		3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	284	2323		134	2036		339	565	456	188	309	249
v/s Ratio Prot	c0.08	c0.52		0.03	0.28		c0.11	0.11			0.10	
v/s Ratio Perm	0.33			0.33			c0.19		0.03	0.08		0.02
v/c Ratio	0.69	1.01		0.75	0.62		1.00	0.36	0.10	0.45	0.58	0.14
Uniform Delay, d1	16.6	28.8		27.0	25.1		39.4	32.3	29.6	44.7	45.8	42.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.7	20.6		20.0	1.4		49.6	0.4	0.1	1.7	2.8	0.3
Delay (s)	23.3	49.4		47.0	26.5		89.1	32.7	29.7	46.5	48.6	42.6
Level of Service	C	D		D	C		F	C	C	D	D	D
Approach Delay (s)		47.4			28.0			61.7			45.6	
Approach LOS		D			C			E			D	
Intersection Summary												
HCM 2000 Control Delay			43.8	HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			119.5	Sum of lost time (s)				18.9				
Intersection Capacity Utilization			104.0%	ICU Level of Service				G				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: Burkholder Drive & Taunton Road

Ultimate PM Future Total - 140s CL

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	195	2095	255	100	1190	75	340	205	105	85	180	205	
Future Volume (vph)	195	2095	255	100	1190	75	340	205	105	85	180	205	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.5	3.5	3.5	3.5	3.5	3.3	3.5	3.3	3.3	3.5	3.3	
Total Lost time (s)	3.0	6.9		3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	*0.83		1.00	*0.83		1.00	1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1710	4484		1750	4530		1703	1842	1484	1686	1842	1484	
Flt Permitted	0.11	1.00		0.07	1.00		0.40	1.00	1.00	0.63	1.00	1.00	
Satd. Flow (perm)	204	4484		124	4530		708	1842	1484	1117	1842	1484	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	195	2095	255	100	1190	75	340	205	105	85	180	205	
RTOR Reduction (vph)	0	9	0	0	4	0	0	0	55	0	0	172	
Lane Group Flow (vph)	195	2341	0	100	1261	0	340	205	50	85	180	33	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	
Protected Phases	5	2		1	6		3	8			4		
Permitted Phases	2			6			8		8	4		4	
Actuated Green, G (s)	76.4	68.4		64.6	59.6		40.8	40.8	40.8	20.7	20.7	20.7	
Effective Green, g (s)	76.4	68.4		64.6	59.6		40.8	40.8	40.8	20.7	20.7	20.7	
Actuated g/C Ratio	0.59	0.53		0.50	0.46		0.31	0.31	0.31	0.16	0.16	0.16	
Clearance Time (s)	3.0	6.9		3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	279	2357		124	2075		352	577	465	177	293	236	
v/s Ratio Prot	0.07	c0.52		c0.03	0.28		c0.13	0.11			0.10		
v/s Ratio Perm	0.34			0.37			c0.18		0.03	0.08		0.02	
v/c Ratio	0.70	0.99		0.81	0.61		0.97	0.36	0.11	0.48	0.61	0.14	
Uniform Delay, d1	17.9	30.6		29.2	26.5		41.1	34.5	31.7	49.8	51.0	47.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.4	17.0		30.5	1.3		38.6	0.4	0.1	2.0	3.8	0.3	
Delay (s)	25.3	47.6		59.6	27.8		79.7	34.9	31.8	51.9	54.8	47.3	
Level of Service	C	D		E	C		E	C	C	D	D	D	
Approach Delay (s)		45.9			30.1			57.8			51.0		
Approach LOS		D			C			E			D		
Intersection Summary													
HCM 2000 Control Delay			43.6									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.00										
Actuated Cycle Length (s)			130.1									Sum of lost time (s)	18.9
Intersection Capacity Utilization			104.0%									ICU Level of Service	G
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Aquarius Trail & Taunton Road

Ultimate PM Future Total

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑	↘	↗
Traffic Volume (vph)	2085	125	10	1290	25	10
Future Volume (vph)	2085	125	10	1290	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.3	3.5	3.3	3.3
Total Lost time (s)	8.7		8.7	8.7	8.2	8.2
Lane Util. Factor	*0.83		1.00	*0.83	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00		1.00	1.00	0.98	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4533		1711	4587	1681	1486
Flt Permitted	1.00		0.05	1.00	0.95	1.00
Satd. Flow (perm)	4533		85	4587	1681	1486
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2266	136	11	1402	27	11
RTOR Reduction (vph)	3	0	0	0	0	5
Lane Group Flow (vph)	2399	0	11	1402	27	6
Confl. Peds. (#/hr)		15	15		15	15
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		8	8
Actuated Green, G (s)	84.3		84.3	84.3	12.2	12.2
Effective Green, g (s)	84.3		84.3	84.3	12.2	12.2
Actuated g/C Ratio	0.74		0.74	0.74	0.11	0.11
Clearance Time (s)	8.7		8.7	8.7	8.2	8.2
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3369		63	3409	180	159
v/s Ratio Prot	c0.53			0.31		
v/s Ratio Perm			0.13		c0.02	0.00
v/c Ratio	0.71		0.17	0.41	0.15	0.04
Uniform Delay, d1	7.9		4.3	5.4	45.9	45.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3		5.9	0.4	0.4	0.1
Delay (s)	9.2		10.2	5.7	46.3	45.4
Level of Service	A		B	A	D	D
Approach Delay (s)	9.2			5.8	46.0	
Approach LOS	A			A	D	
Intersection Summary						
HCM 2000 Control Delay			8.3		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			113.4		Sum of lost time (s)	16.9
Intersection Capacity Utilization			70.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

4: Street A/TACC Site A Access & Taunton Road

Ultimate PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	25	2175	85	150	1335	15	0	0	100	0	0	30
Future Volume (Veh/h)	25	2175	85	150	1335	15	0	0	100	0	0	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	2364	92	163	1451	16	0	0	109	0	0	33
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.3			3.3	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		274			262							
pX, platoon unblocked	0.85			0.52			0.60	0.60	0.52	0.60	0.60	0.85
vC, conflicting volume	1482			2471			3304	4287	864	2657	4325	522
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	963			616			828	2479	0	0	2543	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			67			100	100	80	100	100	96
cM capacity (veh/h)	599			496			105	11	553	339	10	904
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	27	946	946	565	163	580	580	306	109	33		
Volume Left	27	0	0	0	163	0	0	0	0	0		
Volume Right	0	0	0	92	0	0	0	16	109	33		
cSH	599	1700	1700	1700	496	1700	1700	1700	553	904		
Volume to Capacity	0.05	0.56	0.56	0.33	0.33	0.34	0.34	0.18	0.20	0.04		
Queue Length 95th (m)	1.1	0.0	0.0	0.0	11.4	0.0	0.0	0.0	5.8	0.9		
Control Delay (s)	11.3	0.0	0.0	0.0	15.8	0.0	0.0	0.0	13.1	9.1		
Lane LOS	B				C				B	A		
Approach Delay (s)	0.1				1.6				13.1	9.1		
Approach LOS									B	A		
Intersection Summary												
Average Delay				1.1								
Intersection Capacity Utilization			60.5%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

6: Peter Matthews Drive & Marathon Avenue

Ultimate PM Future Total

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	0	15	0	0	15	25	310	0	25	330	0
Future Volume (vph)	30	0	15	0	0	15	25	310	0	25	330	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Total Lost time (s)	8.2	8.2			8.2		8.7	8.7		8.7	8.7	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.97			0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.85			0.85		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1688	1527			1527		1678	3500		1677	3500	
Flt Permitted	0.75	1.00			1.00		0.54	1.00		0.55	1.00	
Satd. Flow (perm)	1328	1527			1527		949	3500		969	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	0	16	0	0	16	27	337	0	27	359	0
RTOR Reduction (vph)	0	14	0	0	14	0	0	0	0	0	0	0
Lane Group Flow (vph)	33	2	0	0	2	0	27	337	0	27	359	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	12.0	12.0			12.0		59.6	59.6		59.6	59.6	
Effective Green, g (s)	12.0	12.0			12.0		59.6	59.6		59.6	59.6	
Actuated g/C Ratio	0.14	0.14			0.14		0.67	0.67		0.67	0.67	
Clearance Time (s)	8.2	8.2			8.2		8.7	8.7		8.7	8.7	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	180	207			207		639	2357		652	2357	
v/s Ratio Prot		0.00			0.00			0.10			c0.10	
v/s Ratio Perm	c0.02						0.03			0.03		
v/c Ratio	0.18	0.01			0.01		0.04	0.14		0.04	0.15	
Uniform Delay, d1	33.9	33.1			33.1		4.9	5.2		4.9	5.3	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.0			0.0		0.1	0.1		0.1	0.1	
Delay (s)	34.4	33.1			33.1		5.0	5.3		5.0	5.4	
Level of Service	C	C			C		A	A		A	A	
Approach Delay (s)		34.0			33.1			5.3			5.4	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.6				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.16									
Actuated Cycle Length (s)			88.5				Sum of lost time (s)			16.9		
Intersection Capacity Utilization			69.4%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

7: Peter Matthews Drive & TACC Site A Access

Ultimate PM Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations		↗	↘	↕	↕	↗	
Traffic Volume (veh/h)	0	25	30	670	815	70	
Future Volume (Veh/h)	0	25	30	670	815	70	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	27	33	728	886	76	
Pedestrians	15			15	15		
Lane Width (m)	3.3			3.4	3.5		
Walking Speed (m/s)	1.2			1.2	1.2		
Percent Blockage	1			1	1		
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)	189						
pX, platoon unblocked	0.94						
vC, conflicting volume	1346	473	977				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1245	473	977				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	95	95				
cM capacity (veh/h)	146	525	694				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	27	33	364	364	443	443	76
Volume Left	0	33	0	0	0	0	0
Volume Right	27	0	0	0	0	0	76
cSH	525	694	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.05	0.21	0.21	0.26	0.26	0.04
Queue Length 95th (m)	1.3	1.2	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	12.2	10.4	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	12.2	0.5	0.0				
Approach LOS	B						
Intersection Summary							
Average Delay	0.4						
Intersection Capacity Utilization	38.9%			ICU Level of Service	A		
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis

8: Peter Matthews Drive & TACC Site B Access/TACC Site C Access

Ultimate PM Future Total

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	0	0	0	45	0	335	20	0	355	45	
Future Volume (Veh/h)	0	0	0	0	0	45	0	335	20	0	355	45	
Sign Control	Stop			Stop				Free			Free		
Grade	0%			0%				0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	0	0	0	49	0	364	22	0	386	49	
Pedestrians	15			15				15			15		
Lane Width (m)	3.3			3.3				3.5			3.5		
Walking Speed (m/s)	1.2			1.2				1.2			1.2		
Percent Blockage	1			1				1			1		
Right turn flare (veh)													
Median type							None						
Median storage veh													
Upstream signal (m)							102						
pX, platoon unblocked	0.95	0.95	0.94	0.95	0.95	0.98	0.94			0.98			
vC, conflicting volume	672	826	248	598	840	223	450			401			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	452	615	67	375	630	168	283			349			
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1			
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2			
p0 queue free %	100	100	100	100	100	94	100			100			
cM capacity (veh/h)	420	375	900	507	368	811	1184			1169			
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	0	49	243	143	257	178							
Volume Left	0	0	0	0	0	0							
Volume Right	0	49	0	22	0	49							
cSH	1700	811	1700	1700	1700	1700							
Volume to Capacity	0.01	0.06	0.14	0.08	0.15	0.10							
Queue Length 95th (m)	0.0	1.5	0.0	0.0	0.0	0.0							
Control Delay (s)	0.0	9.7	0.0	0.0	0.0	0.0							
Lane LOS	A	A											
Approach Delay (s)	0.0	9.7	0.0	0.0									
Approach LOS	A	A											
Intersection Summary													
Average Delay			0.5										
Intersection Capacity Utilization			26.1%	ICU Level of Service		A							
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 9: Burkholder Drive & Belcourt Street/Marathon Avenue

Ultimate PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	30	0	5	0	0	25	10	485	10	0	500	25
Future Volume (vph)	30	0	5	0	0	25	10	485	10	0	500	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	0	5	0	0	27	11	527	11	0	543	27
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	38	27	11	538	0	570						
Volume Left (vph)	33	0	11	0	0	0						
Volume Right (vph)	5	27	0	11	0	27						
Hadj (s)	0.13	-0.57	0.53	0.02	0.00	0.00						
Departure Headway (s)	6.8	6.1	5.8	5.3	5.2	5.2						
Degree Utilization, x	0.07	0.05	0.02	0.79	0.00	0.82						
Capacity (veh/h)	489	537	603	671	682	680						
Control Delay (s)	10.3	9.4	7.7	23.5	7.0	26.5						
Approach Delay (s)	10.3	9.4	23.1		26.5							
Approach LOS	B	A	C		D							
Intersection Summary												
Delay			24.1									
Level of Service			C									
Intersection Capacity Utilization			45.2%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9: Burkholder Drive & Belcourt Street/Marathon Avenue

Ultimate PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	5	0	0	25	10	485	10	0	500	25
Future Volume (Veh/h)	30	0	5	0	0	25	10	485	10	0	500	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	0	5	0	0	27	11	527	11	0	543	27
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.4			3.4	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												283
pX, platoon unblocked	0.93	0.93	0.93	0.93	0.93		0.93					
vC, conflicting volume	1162	1146	586	1132	1154	562	585			553		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1138	1121	521	1106	1130	562	520			553		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	78	100	99	100	100	95	99			100		
cM capacity (veh/h)	150	186	506	165	183	514	965			1005		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	38	27	11	538	0	570						
Volume Left	33	0	11	0	0	0						
Volume Right	5	27	0	11	0	27						
cSH	165	514	965	1700	1700	1700						
Volume to Capacity	0.23	0.05	0.01	0.32	0.00	0.34						
Queue Length 95th (m)	6.8	1.3	0.3	0.0	0.0	0.0						
Control Delay (s)	33.2	12.4	8.8	0.0	0.0	0.0						
Lane LOS	D	B	A									
Approach Delay (s)	33.2	12.4	0.2		0.0							
Approach LOS	D	B										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			45.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

9: Burkholder Drive & Belcourt Street/Marathon Avenue

Ultimate PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	0	5	0	0	25	10	485	10	0	500	25
Future Volume (vph)	30	0	5	0	0	25	10	485	10	0	500	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Total Lost time (s)		6.0			6.0		6.9	6.9			6.9	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frbp, ped/bikes		1.00			0.96		1.00	1.00			1.00	
Flpb, ped/bikes		0.98			1.00		0.99	1.00			1.00	
Frt		0.98			0.86		1.00	1.00			0.99	
Flt Protected		0.96			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1699			1533		1697	1835			1826	
Flt Permitted		0.73			1.00		0.42	1.00			1.00	
Satd. Flow (perm)		1303			1533		751	1835			1826	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	0	5	0	0	27	11	527	11	0	543	27
RTOR Reduction (vph)	0	33	0	0	24	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	5	0	0	3	0	11	537	0	0	568	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		6.5			6.5		31.5	31.5			31.5	
Effective Green, g (s)		6.5			6.5		31.5	31.5			31.5	
Actuated g/C Ratio		0.13			0.13		0.62	0.62			0.62	
Clearance Time (s)		6.0			6.0		6.9	6.9			6.9	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		166			195		464	1135			1130	
v/s Ratio Prot					0.00			0.29			c0.31	
v/s Ratio Perm		c0.00					0.01					
v/c Ratio		0.03			0.02		0.02	0.47			0.50	
Uniform Delay, d1		19.4			19.4		3.8	5.2			5.4	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.1			0.0		0.0	0.3			0.4	
Delay (s)		19.5			19.4		3.8	5.5			5.7	
Level of Service		B			B		A	A			A	
Approach Delay (s)		19.5			19.4			5.5			5.7	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.4				HCM 2000 Level of Service				A	
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			50.9				Sum of lost time (s)			12.9		
Intersection Capacity Utilization			50.9%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 10: Burkholder Drive & TACC Site A Access

Ultimate PM Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	60	395	80	55	435
Future Volume (Veh/h)	35	60	395	80	55	435
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	65	429	87	60	473
Pedestrians	15		15			15
Lane Width (m)	3.5		3.5			3.4
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			155			
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	1096	502			531	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1034	351			383	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	81	89			94	
cM capacity (veh/h)	205	587			1007	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	103	516	60	473		
Volume Left	38	0	60	0		
Volume Right	65	87	0	0		
cSH	348	1700	1007	1700		
Volume to Capacity	0.30	0.30	0.06	0.28		
Queue Length 95th (m)	9.7	0.0	1.5	0.0		
Control Delay (s)	19.7	0.0	8.8	0.0		
Lane LOS	C		A			
Approach Delay (s)	19.7	0.0	1.0			
Approach LOS	C					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			48.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Hibiscus Drive/Street A & Marathon Avenue

Ultimate PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	0	0	0	25	0	20	0	40	15	25
Future Volume (Veh/h)	5	5	0	0	0	25	0	20	0	40	15	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	0	0	0	27	0	22	0	43	16	27
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					264							
pX, platoon unblocked												
vC, conflicting volume	42			20			94	72	35	70	58	44
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	42			20			94	72	35	70	58	44
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	97	100	95	98	97
cM capacity (veh/h)	1548			1577			815	796	1013	863	810	1002
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	10	27	22	86								
Volume Left	5	0	0	43								
Volume Right	0	27	0	27								
cSH	1548	1577	796	891								
Volume to Capacity	0.00	0.00	0.03	0.10								
Queue Length 95th (m)	0.1	0.0	0.7	2.6								
Control Delay (s)	3.7	0.0	9.7	9.5								
Lane LOS	A		A	A								
Approach Delay (s)	3.7	0.0	9.7	9.5								
Approach LOS			A	A								
Intersection Summary												
Average Delay			7.3									
Intersection Capacity Utilization			27.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

13: Street A & Commercial Site Access/TACC Site B Access (North)

Ultimate PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	0	25	25	0	15	30	15	10	60	30	145
Future Volume (Veh/h)	70	0	25	25	0	15	30	15	10	60	30	145
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	0	27	27	0	16	33	16	11	65	33	158
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	376	365	142	386	438	52	206			42		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	376	365	142	386	438	52	206			42		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	100	97	95	100	98	98			96		
cM capacity (veh/h)	521	514	884	505	467	992	1349			1548		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	103	43	60	256								
Volume Left	76	27	33	65								
Volume Right	27	16	11	158								
cSH	584	618	1349	1548								
Volume to Capacity	0.18	0.07	0.02	0.04								
Queue Length 95th (m)	5.1	1.8	0.6	1.1								
Control Delay (s)	12.5	11.3	4.3	2.1								
Lane LOS	B	B	A	A								
Approach Delay (s)	12.5	11.3	4.3	2.1								
Approach LOS	B	B										
Intersection Summary												
Average Delay			5.6									
Intersection Capacity Utilization			31.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 14: Street A & TACC Site B Access (South)

Ultimate PM Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	15	40	10	30	50
Future Volume (Veh/h)	30	15	40	10	30	50
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	16	43	11	33	54
Pedestrians	15		15		15	
Lane Width (m)	3.5		3.5		3.5	
Walking Speed (m/s)	1.2		1.2		1.2	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	198	78			69	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198	78			69	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			98	
cM capacity (veh/h)	754	958			1513	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	49	54	87			
Volume Left	33	0	33			
Volume Right	16	11	0			
cSH	811	1700	1513			
Volume to Capacity	0.06	0.03	0.02			
Queue Length 95th (m)	1.5	0.0	0.5			
Control Delay (s)	9.7	0.0	2.9			
Lane LOS	A		A			
Approach Delay (s)	9.7	0.0	2.9			
Approach LOS	A					
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			24.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Aquarius Trail & TACC Site C Access

Ultimate PM Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	0	20	35	100
Future Volume (Veh/h)	15	5	0	20	35	100
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	5	0	22	38	109
Pedestrians	15			15	15	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						78
pX, platoon unblocked						
vC, conflicting volume	144	122	162			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	144	122	162			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	828	906	1400			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	21	22	147			
Volume Left	16	0	0			
Volume Right	5	0	109			
cSH	845	1400	1700			
Volume to Capacity	0.02	0.00	0.09			
Queue Length 95th (m)	0.6	0.0	0.0			
Control Delay (s)	9.4	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.4	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			24.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 18: Commercial Site Access & Taunton Road

Ultimate PM Future Total

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑			↑↑↑	↑↓			
Traffic Volume (veh/h)	2175	110	0	1365	0	110		
Future Volume (Veh/h)	2175	110	0	1365	0	110		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	2364	120	0	1484	0	120		
Pedestrians	15			15	15			
Lane Width (m)	3.5			3.5	3.5			
Walking Speed (m/s)	1.2			1.2	1.2			
Percent Blockage	1			1	1			
Right turn flare (veh)								
Median type	None			None				
Median storage (veh)								
Upstream signal (m)	161			375				
pX, platoon unblocked				0.50	0.57	0.50		
vC, conflicting volume				2499	2949	878		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol				519	188	0		
tC, single (s)				4.1	6.8	6.9		
tC, 2 stage (s)								
tF (s)				2.2	3.5	3.3		
p0 queue free %				100	100	77		
cM capacity (veh/h)				518	436	532		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	
Volume Total	946	946	593	495	495	495	120	
Volume Left	0	0	0	0	0	0	0	
Volume Right	0	0	120	0	0	0	120	
cSH	1700	1700	1700	1700	1700	1700	532	
Volume to Capacity	0.56	0.56	0.35	0.29	0.29	0.29	0.23	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	6.9	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.7	
Lane LOS							B	
Approach Delay (s)	0.0			0.0			13.7	
Approach LOS							B	
Intersection Summary								
Average Delay				0.4				
Intersection Capacity Utilization				61.5%		ICU Level of Service		B
Analysis Period (min)	15							

HCM Unsignalized Intersection Capacity Analysis

19: Burkholder Drive & Dragonfly Avenue/Commercial Site Access

Ultimate PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	15	0	125	10	515	15	15	505	15
Future Volume (Veh/h)	10	0	5	15	0	125	10	515	15	15	505	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	5	16	0	136	11	560	16	16	549	16
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)											190	
pX, platoon unblocked	0.91	0.91	0.91	0.91	0.91		0.91					
vC, conflicting volume	1345	1217	587	1214	1217	598	580			591		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1330	1190	499	1187	1190	598	492			591		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	99	89	100	72	99			98		
cM capacity (veh/h)	81	162	509	140	162	490	966			973		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	16	152	587	581								
Volume Left	11	16	11	16								
Volume Right	5	136	16	16								
cSH	110	388	966	973								
Volume to Capacity	0.14	0.39	0.01	0.02								
Queue Length 95th (m)	3.9	14.6	0.3	0.4								
Control Delay (s)	43.1	20.1	0.3	0.5								
Lane LOS	E	C	A	A								
Approach Delay (s)	43.1	20.1	0.3	0.5								
Approach LOS	E	C										
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			53.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Peter Matthews Drive & Taunton Road

Ultimate SAT Future Total

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1200	55	15	1185	195	105	200	0	165	225	190
Future Volume (vph)	180	1200	55	15	1185	195	105	200	0	165	225	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Total Lost time (s)	3.0	8.7	8.7	8.7	8.7	8.7	3.0	8.2		3.0	8.2	8.2
Lane Util. Factor	1.00	*0.83	1.00	1.00	*0.83	1.00	1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00		0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	4587	1522	1705	4587	1522	1701	3500		1701	3500	1526
Flt Permitted	0.14	1.00	1.00	0.20	1.00	1.00	0.61	1.00		0.59	1.00	1.00
Satd. Flow (perm)	246	4587	1522	354	4587	1522	1094	3500		1062	3500	1526
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	1200	55	15	1185	195	105	200	0	165	225	190
RTOR Reduction (vph)	0	0	24	0	0	110	0	0	0	0	0	154
Lane Group Flow (vph)	180	1200	31	15	1185	85	105	200	0	165	225	36
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	58.1	58.1	58.1	44.3	44.3	44.3	23.2	18.1		25.2	19.1	19.1
Effective Green, g (s)	58.1	58.1	58.1	44.3	44.3	44.3	23.2	18.1		25.2	19.1	19.1
Actuated g/C Ratio	0.57	0.57	0.57	0.43	0.43	0.43	0.23	0.18		0.25	0.19	0.19
Clearance Time (s)	3.0	8.7	8.7	8.7	8.7	8.7	3.0	8.2		3.0	8.2	8.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	294	2607	865	153	1988	659	278	619		300	654	285
v/s Ratio Prot	c0.06	0.26			0.26		0.02	0.06		c0.03	0.06	
v/s Ratio Perm	c0.28		0.02	0.04		0.06	0.07			c0.10		0.02
v/c Ratio	0.61	0.46	0.04	0.10	0.60	0.13	0.38	0.32		0.55	0.34	0.12
Uniform Delay, d1	12.9	12.9	9.7	17.1	22.1	17.4	32.5	36.7		32.5	36.1	34.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.7	0.6	0.1	1.3	1.3	0.4	0.9	0.3		2.2	0.3	0.2
Delay (s)	16.6	13.5	9.8	18.4	23.4	17.8	33.4	37.0		34.7	36.4	34.8
Level of Service	B	B	A	B	C	B	C	D		C	D	C
Approach Delay (s)		13.7			22.6			35.8			35.4	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			22.2	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			102.2	Sum of lost time (s)				22.9				
Intersection Capacity Utilization			89.0%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: Burkholder Drive & Taunton Road

Ultimate SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	170	1250	155	60	1150	55	350	190	100	90	125	160
Future Volume (vph)	170	1250	155	60	1150	55	350	190	100	90	125	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.5	3.5	3.5	3.3	3.5	3.3	3.3	3.5	3.3
Total Lost time (s)	3.0	6.9		3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	*0.83		1.00	*0.83		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	4485		1750	4545		1699	1842	1489	1690	1842	1489
Flt Permitted	0.11	1.00		0.11	1.00		0.56	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	200	4485		201	4545		1003	1842	1489	1135	1842	1489
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	1250	155	60	1150	55	350	190	100	90	125	160
RTOR Reduction (vph)	0	10	0	0	4	0	0	0	65	0	0	133
Lane Group Flow (vph)	170	1395	0	60	1201	0	350	190	35	90	125	27
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	56.0	49.1		46.3	42.4		37.5	37.5	37.5	18.0	18.0	18.0
Effective Green, g (s)	56.0	49.1		46.3	42.4		37.5	37.5	37.5	18.0	18.0	18.0
Actuated g/C Ratio	0.53	0.46		0.44	0.40		0.35	0.35	0.35	0.17	0.17	0.17
Clearance Time (s)	3.0	6.9		3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	255	2069		144	1811		461	649	524	192	311	251
v/s Ratio Prot	c0.07	c0.31		0.02	0.26		c0.12	0.10			0.07	
v/s Ratio Perm	0.28			0.17			c0.15		0.02	0.08		0.02
v/c Ratio	0.67	0.67		0.42	0.66		0.76	0.29	0.07	0.47	0.40	0.11
Uniform Delay, d1	16.8	22.4		18.5	26.2		28.5	24.9	22.8	39.9	39.4	37.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	1.8		1.9	1.9		7.1	0.3	0.1	1.8	0.9	0.2
Delay (s)	23.2	24.2		20.5	28.1		35.5	25.1	22.9	41.7	40.3	37.6
Level of Service	C	C		C	C		D	C	C	D	D	D
Approach Delay (s)		24.1			27.7			30.5			39.5	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			27.8	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			106.4	Sum of lost time (s)				18.9				
Intersection Capacity Utilization			83.9%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Aquarius Trail & Taunton Road

Ultimate SAT Future Total

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↕	↑↑↑	↕	↗
Traffic Volume (vph)	1275	90	10	1355	40	5
Future Volume (vph)	1275	90	10	1355	40	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.3	3.5	3.3	3.3
Total Lost time (s)	8.7		8.7	8.7	8.2	8.2
Lane Util. Factor	*0.83		1.00	*0.83	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00		1.00	1.00	0.98	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4525		1704	4587	1681	1486
Flt Permitted	1.00		0.13	1.00	0.95	1.00
Satd. Flow (perm)	4525		237	4587	1681	1486
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1386	98	11	1473	43	5
RTOR Reduction (vph)	4	0	0	0	0	4
Lane Group Flow (vph)	1480	0	11	1473	43	1
Confl. Peds. (#/hr)		15	15		15	15
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		8	8
Actuated Green, G (s)	82.9		82.9	82.9	12.1	12.1
Effective Green, g (s)	82.9		82.9	82.9	12.1	12.1
Actuated g/C Ratio	0.74		0.74	0.74	0.11	0.11
Clearance Time (s)	8.7		8.7	8.7	8.2	8.2
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3352		175	3398	181	160
v/s Ratio Prot	c0.33			0.32		
v/s Ratio Perm			0.05		c0.03	0.00
v/c Ratio	0.44		0.06	0.43	0.24	0.00
Uniform Delay, d1	5.6		3.9	5.5	45.7	44.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.7	0.4	0.7	0.0
Delay (s)	6.0		4.6	5.9	46.4	44.5
Level of Service	A		A	A	D	D
Approach Delay (s)	6.0			5.9	46.2	
Approach LOS	A			A	D	
Intersection Summary						
HCM 2000 Control Delay			6.6		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.42			
Actuated Cycle Length (s)			111.9		Sum of lost time (s)	16.9
Intersection Capacity Utilization			54.4%		ICU Level of Service	A
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Street A/TACC Site A Access & Taunton Road

Ultimate SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1320	65	245	1225	10	0	0	115	0	0	40
Future Volume (Veh/h)	25	1320	65	245	1225	10	0	0	115	0	0	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	1435	71	266	1332	11	0	0	125	0	0	43
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.3			3.3	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		274			262							
pX, platoon unblocked	0.84			0.82			0.90	0.90	0.82	0.90	0.90	0.84
vC, conflicting volume	1358			1521			2530	3430	544	2432	3460	480
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	775			857			1123	2126	0	1013	2160	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			58			100	100	86	100	100	95
cM capacity (veh/h)	698			630			86	24	866	93	23	893
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	27	574	574	358	266	533	533	277	125	43		
Volume Left	27	0	0	0	266	0	0	0	0	0		
Volume Right	0	0	0	71	0	0	0	11	125	43		
cSH	698	1700	1700	1700	630	1700	1700	1700	866	893		
Volume to Capacity	0.04	0.34	0.34	0.21	0.42	0.31	0.31	0.16	0.14	0.05		
Queue Length 95th (m)	1.0	0.0	0.0	0.0	16.8	0.0	0.0	0.0	4.0	1.2		
Control Delay (s)	10.4	0.0	0.0	0.0	14.8	0.0	0.0	0.0	9.9	9.2		
Lane LOS	B				B				A	A		
Approach Delay (s)	0.2				2.5				9.9	9.2		
Approach LOS									A	A		
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			47.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

6: Peter Matthews Drive & Marathon Avenue

Ultimate SAT Future Total

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	35	0	15	5	0	20	35	205	0	15	260	0	
Future Volume (vph)	35	0	15	5	0	20	35	205	0	15	260	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	
Total Lost time (s)	8.2	8.2		8.2	8.2		8.7	8.7		8.7	8.7		
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95		
Frbp, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00		
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00		0.98	1.00		
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1690	1528		1690	1528		1677	3500		1674	3500		
Flt Permitted	0.74	1.00		0.75	1.00		0.58	1.00		0.61	1.00		
Satd. Flow (perm)	1322	1528		1329	1528		1021	3500		1079	3500		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	38	0	16	5	0	22	38	223	0	16	283	0	
RTOR Reduction (vph)	0	14	0	0	20	0	0	0	0	0	0	0	
Lane Group Flow (vph)	38	2	0	5	2	0	38	223	0	16	283	0	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm	
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2		2	6		6	
Actuated Green, G (s)	8.3	8.3		8.3	8.3		56.0	56.0		56.0	56.0		
Effective Green, g (s)	8.3	8.3		8.3	8.3		56.0	56.0		56.0	56.0		
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.69	0.69		0.69	0.69		
Clearance Time (s)	8.2	8.2		8.2	8.2		8.7	8.7		8.7	8.7		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	135	156		135	156		704	2413		744	2413		
v/s Ratio Prot		0.00			0.00			0.06			c0.08		
v/s Ratio Perm	c0.03			0.00			0.04			0.01			
v/c Ratio	0.28	0.01		0.04	0.01		0.05	0.09		0.02	0.12		
Uniform Delay, d1	33.7	32.8		32.8	32.8		4.1	4.2		4.0	4.3		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	1.1	0.0		0.1	0.0		0.1	0.1		0.1	0.1		
Delay (s)	34.8	32.8		33.0	32.8		4.2	4.3		4.0	4.4		
Level of Service	C	C		C	C		A	A		A	A		
Approach Delay (s)		34.2			32.8			4.2			4.3		
Approach LOS		C			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.0				HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.14										
Actuated Cycle Length (s)			81.2				Sum of lost time (s)			16.9			
Intersection Capacity Utilization			69.4%				ICU Level of Service			C			
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 7: Peter Matthews Drive & TACC Site A Access

Ultimate SAT Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations		↗	↖	↕	↕	↗	
Traffic Volume (veh/h)	0	30	20	555	550	35	
Future Volume (Veh/h)	0	30	20	555	550	35	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	33	22	603	598	38	
Pedestrians	15			15	15		
Lane Width (m)	3.3			3.4	3.5		
Walking Speed (m/s)	1.2			1.2	1.2		
Percent Blockage	1			1	1		
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)				189			
pX, platoon unblocked	0.98						
vC, conflicting volume	974	329	651				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	926	329	651				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	95	98				
cM capacity (veh/h)	249	651	921				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	33	22	302	302	299	299	38
Volume Left	0	22	0	0	0	0	0
Volume Right	33	0	0	0	0	0	38
cSH	651	921	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.02	0.18	0.18	0.18	0.18	0.02
Queue Length 95th (m)	1.3	0.6	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	10.8	9.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	10.8	0.3			0.0		
Approach LOS	B						
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utilization			30.6%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Peter Matthews Drive & TACC Site B Access/TACC Site C Access

Ultimate SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	0	0	60	0	245	15	0	270	25
Future Volume (Veh/h)	0	0	5	0	0	60	0	245	15	0	270	25
Sign Control	Stop			Stop				Free			Free	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	5	0	0	65	0	266	16	0	293	27
Pedestrians	15			15				15			15	
Lane Width (m)	3.3			3.3				3.5			3.5	
Walking Speed (m/s)	1.2			1.2				1.2			1.2	
Percent Blockage	1			1				1			1	
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)							102			145		
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	534	618	190	456	624	171	335			297		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	425	513	66	343	519	171	217			297		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	92	100			100		
cM capacity (veh/h)	434	433	921	536	430	823	1278			1247		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	5	65	177	105	195	125						
Volume Left	0	0	0	0	0	0						
Volume Right	5	65	0	16	0	27						
cSH	921	823	1700	1700	1700	1700						
Volume to Capacity	0.01	0.08	0.10	0.06	0.11	0.07						
Queue Length 95th (m)	0.1	2.1	0.0	0.0	0.0	0.0						
Control Delay (s)	8.9	9.7	0.0	0.0	0.0	0.0						
Lane LOS	A	A										
Approach Delay (s)	8.9	9.7	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.0									
Intersection Capacity Utilization			24.8%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Burkholder Drive & Belcourt Street/Marathon Avenue

Ultimate SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	0	10	5	0	30	5	410	5	0	330	15
Future Volume (vph)	35	0	10	5	0	30	5	410	5	0	330	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	0	11	5	0	33	5	446	5	0	359	16
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	49	38	5	451	0	375						
Volume Left (vph)	38	5	5	0	0	0						
Volume Right (vph)	11	33	0	5	0	16						
Hadj (s)	0.05	-0.46	0.53	0.03	0.00	0.00						
Departure Headway (s)	6.1	5.6	5.6	5.1	5.2	5.2						
Degree Utilization, x	0.08	0.06	0.01	0.64	0.00	0.54						
Capacity (veh/h)	509	540	617	690	685	682						
Control Delay (s)	9.6	8.9	7.5	15.7	7.0	12.8						
Approach Delay (s)	9.6	8.9	15.6		12.8							
Approach LOS	A	A	C		B							
Intersection Summary												
Delay			13.9									
Level of Service			B									
Intersection Capacity Utilization			39.6%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9: Burkholder Drive & Belcourt Street/Marathon Avenue

Ultimate SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	0	10	5	0	30	5	410	5	0	330	15
Future Volume (Veh/h)	35	0	10	5	0	30	5	410	5	0	330	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	0	11	5	0	33	5	446	5	0	359	16
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.4			3.4	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												283
pX, platoon unblocked	0.99	0.99	0.99	0.99	0.99		0.99					
vC, conflicting volume	886	858	397	858	864	478	390			466		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	879	850	384	851	856	478	377			466		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	84	100	98	98	100	94	100			100		
cM capacity (veh/h)	239	286	640	260	283	573	1154			1082		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	49	38	5	451	0	375						
Volume Left	38	5	5	0	0	0						
Volume Right	11	33	0	5	0	16						
cSH	278	495	1154	1700	1700	1700						
Volume to Capacity	0.18	0.08	0.00	0.27	0.00	0.22						
Queue Length 95th (m)	5.0	2.0	0.1	0.0	0.0	0.0						
Control Delay (s)	20.7	12.9	8.1	0.0	0.0	0.0						
Lane LOS	C	B	A									
Approach Delay (s)	20.7	12.9	0.1		0.0							
Approach LOS	C	B										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			39.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

9: Burkholder Drive & Belcourt Street/Marathon Avenue

Ultimate SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	0	10	5	0	30	5	410	5	0	330	15
Future Volume (vph)	35	0	10	5	0	30	5	410	5	0	330	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Total Lost time (s)		6.0			6.0		6.9	6.9			6.9	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frbp, ped/bikes		0.99			0.95		1.00	1.00			1.00	
Flpb, ped/bikes		0.98			1.00		0.98	1.00			1.00	
Frt		0.97			0.88		1.00	1.00			0.99	
Flt Protected		0.96			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1658			1536		1677	1838			1826	
Flt Permitted		0.75			0.94		0.54	1.00			1.00	
Satd. Flow (perm)		1290			1460		951	1838			1826	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	0	11	5	0	33	5	446	5	0	359	16
RTOR Reduction (vph)	0	40	0	0	35	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	9	0	0	3	0	5	451	0	0	374	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.0			7.0		72.7	72.7			72.7	
Effective Green, g (s)		7.0			7.0		72.7	72.7			72.7	
Actuated g/C Ratio		0.08			0.08		0.79	0.79			0.79	
Clearance Time (s)		6.0			6.0		6.9	6.9			6.9	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		97			110		746	1443			1433	
v/s Ratio Prot								c0.25			0.20	
v/s Ratio Perm		c0.01			0.00		0.01					
v/c Ratio		0.10			0.03		0.01	0.31			0.26	
Uniform Delay, d1		39.9			39.6		2.1	2.8			2.7	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.4			0.1		0.0	0.6			0.4	
Delay (s)		40.3			39.7		2.2	3.4			3.1	
Level of Service		D			D		A	A			A	
Approach Delay (s)		40.3			39.7			3.4			3.1	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.8				HCM 2000 Level of Service				A	
HCM 2000 Volume to Capacity ratio			0.29									
Actuated Cycle Length (s)			92.6				Sum of lost time (s)			12.9		
Intersection Capacity Utilization			45.3%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

10: Burkholder Drive & TACC Site A Access

Ultimate SAT Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	45	60	345	70	30	330
Future Volume (Veh/h)	45	60	345	70	30	330
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	65	375	76	33	359
Pedestrians	15		15		15	
Lane Width (m)	3.5		3.5		3.4	
Walking Speed (m/s)	1.2		1.2		1.2	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	155					
pX, platoon unblocked	0.89	0.89			0.89	
vC, conflicting volume	868	443			466	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	790	312			338	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	90			97	
cM capacity (veh/h)	302	632			1073	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	114	451	33	359		
Volume Left	49	0	33	0		
Volume Right	65	76	0	0		
cSH	430	1700	1073	1700		
Volume to Capacity	0.26	0.27	0.03	0.21		
Queue Length 95th (m)	8.4	0.0	0.8	0.0		
Control Delay (s)	16.4	0.0	8.5	0.0		
Lane LOS	C		A			
Approach Delay (s)	16.4	0.0	0.7			
Approach LOS	C					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			41.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Hibiscus Drive/Street A & Marathon Avenue

Ultimate SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	0	0	0	35	0	25	5	45	20	35
Future Volume (Veh/h)	5	0	0	0	0	35	0	25	5	45	20	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	0	0	0	0	38	0	27	5	49	22	38
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					264							
pX, platoon unblocked												
vC, conflicting volume	53			15			108	78	30	78	59	49
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	53			15			108	78	30	78	59	49
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	97	100	94	97	96
cM capacity (veh/h)	1534			1583			784	790	1019	844	809	995
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	5	38	32	109								
Volume Left	5	0	0	49								
Volume Right	0	38	5	38								
cSH	1534	1583	819	883								
Volume to Capacity	0.00	0.00	0.04	0.12								
Queue Length 95th (m)	0.1	0.0	1.0	3.4								
Control Delay (s)	7.4	0.0	9.6	9.6								
Lane LOS	A		A	A								
Approach Delay (s)	7.4	0.0	9.6	9.6								
Approach LOS			A	A								
Intersection Summary												
Average Delay			7.6									
Intersection Capacity Utilization			27.5%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

13: Street A & Commercial Site Access/TACC Site B Access (North)

Ultimate SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	0	30	35	0	15	45	15	10	45	20	245
Future Volume (Veh/h)	85	0	30	35	0	15	45	15	10	45	20	245
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	92	0	33	38	0	16	49	16	11	49	22	266
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	418	408	185	436	536	52	303			42		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418	408	185	436	536	52	303			42		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	81	100	96	92	100	98	96			97		
cM capacity (veh/h)	486	484	837	463	410	992	1243			1548		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	125	54	76	337								
Volume Left	92	38	49	49								
Volume Right	33	16	11	266								
cSH	547	549	1243	1548								
Volume to Capacity	0.23	0.10	0.04	0.03								
Queue Length 95th (m)	7.0	2.6	1.0	0.8								
Control Delay (s)	13.5	12.3	5.3	1.3								
Lane LOS	B	B	A	A								
Approach Delay (s)	13.5	12.3	5.3	1.3								
Approach LOS	B	B										
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			36.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 14: Street A & TACC Site B Access (South)

Ultimate SAT Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	15	55	10	20	65
Future Volume (Veh/h)	35	15	55	10	20	65
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	16	60	11	22	71
Pedestrians	15		15		15	
Lane Width (m)	3.5		3.5		3.5	
Walking Speed (m/s)	1.2		1.2		1.2	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	210	96			86	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	210	96			86	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	98			99	
cM capacity (veh/h)	748	938			1492	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	54	71	93			
Volume Left	38	0	22			
Volume Right	16	11	0			
cSH	796	1700	1492			
Volume to Capacity	0.07	0.04	0.01			
Queue Length 95th (m)	1.7	0.0	0.4			
Control Delay (s)	9.9	0.0	1.8			
Lane LOS	A		A			
Approach Delay (s)	9.9	0.0	1.8			
Approach LOS	A					
Intersection Summary						
Average Delay			3.2			
Intersection Capacity Utilization			25.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Aquarius Trail & TACC Site C Access

Ultimate SAT Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	10	0	25	25	75
Future Volume (Veh/h)	20	10	0	25	25	75
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	11	0	27	27	82
Pedestrians	15			15	15	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						78
pX, platoon unblocked						
vC, conflicting volume	125	98	124			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	125	98	124			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	100			
cM capacity (veh/h)	849	935	1445			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	33	27	109			
Volume Left	22	0	0			
Volume Right	11	0	82			
cSH	876	1445	1700			
Volume to Capacity	0.04	0.00	0.06			
Queue Length 95th (m)	0.9	0.0	0.0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			23.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

18: Commercial Site Access & Taunton Road

Ultimate SAT Future Total

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑↑			↑↑↑		↘	
Traffic Volume (veh/h)	1265	175	0	1265	0	145	
Future Volume (Veh/h)	1265	175	0	1265	0	145	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	1375	190	0	1375	0	158	
Pedestrians	15			15	15		
Lane Width (m)	3.5			3.5	3.5		
Walking Speed (m/s)	1.2			1.2	1.2		
Percent Blockage	1			1	1		
Right turn flare (veh)							
Median type	None			None			
Median storage veh							
Upstream signal (m)	161			375			
pX, platoon unblocked				0.77	0.84	0.77	
vC, conflicting volume				1580	1958	583	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol				731	383	0	
tC, single (s)				4.1	6.8	6.9	
tC, 2 stage (s)							
tF (s)				2.2	3.5	3.3	
p0 queue free %				100	100	81	
cM capacity (veh/h)				665	488	820	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	550	550	465	458	458	458	158
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	190	0	0	0	158
cSH	1700	1700	1700	1700	1700	1700	820
Volume to Capacity	0.32	0.32	0.27	0.27	0.27	0.27	0.19
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	5.7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS							B
Approach Delay (s)	0.0			0.0		10.4	
Approach LOS							B
Intersection Summary							
Average Delay				0.5			
Intersection Capacity Utilization	46.8%			ICU Level of Service			A
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis

19: Burkholder Drive & Dragonfly Avenue/Commercial Site Access

Ultimate SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	5	30	0	180	5	445	25	25	310	5
Future Volume (Veh/h)	15	0	5	30	0	180	5	445	25	25	310	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	5	33	0	196	5	484	27	27	337	5
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)											190	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	1127	944	370	936	934	528	357			526		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1110	919	317	910	907	528	304			526		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	100	99	85	100	64	100			97		
cM capacity (veh/h)	106	245	675	227	249	537	1187			1028		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	21	229	516	369								
Volume Left	16	33	5	27								
Volume Right	5	196	27	5								
cSH	133	449	1187	1028								
Volume to Capacity	0.16	0.51	0.00	0.03								
Queue Length 95th (m)	4.3	22.7	0.1	0.6								
Control Delay (s)	37.2	21.1	0.1	0.9								
Lane LOS	E	C	A	A								
Approach Delay (s)	37.2	21.1	0.1	0.9								
Approach LOS	E	C										
Intersection Summary												
Average Delay			5.3									
Intersection Capacity Utilization			52.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Peter Matthews Drive & Taunton Road

Interim AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	590	25	10	1135	310	50	185	0	185	270	200
Future Volume (vph)	225	590	25	10	1135	310	50	185	0	185	270	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Total Lost time (s)	3.0	8.7	8.7	8.7	8.7	8.7	8.2	8.2		8.2	8.2	8.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00		0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	3500	1525	1700	3500	1525	1695	3500		1693	3500	1527
Flt Permitted	0.13	1.00	1.00	0.43	1.00	1.00	0.59	1.00		0.64	1.00	1.00
Satd. Flow (perm)	241	3500	1525	768	3500	1525	1045	3500		1132	3500	1527
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	225	590	25	10	1135	310	50	185	0	185	270	200
RTOR Reduction (vph)	0	0	10	0	0	176	0	0	0	0	0	155
Lane Group Flow (vph)	225	590	15	10	1135	134	50	185	0	185	270	45
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	51.6	51.6	51.6	38.3	38.3	38.3	19.9	19.9		19.9	19.9	19.9
Effective Green, g (s)	51.6	51.6	51.6	38.3	38.3	38.3	19.9	19.9		19.9	19.9	19.9
Actuated g/C Ratio	0.58	0.58	0.58	0.43	0.43	0.43	0.23	0.23		0.23	0.23	0.23
Clearance Time (s)	3.0	8.7	8.7	8.7	8.7	8.7	8.2	8.2		8.2	8.2	8.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	311	2042	890	332	1516	660	235	787		254	787	343
v/s Ratio Prot	c0.08	0.17			0.32			0.05			0.08	
v/s Ratio Perm	c0.34		0.01	0.01		0.09	0.05			c0.16		0.03
v/c Ratio	0.72	0.29	0.02	0.03	0.75	0.20	0.21	0.24		0.73	0.34	0.13
Uniform Delay, d1	13.0	9.2	7.7	14.4	21.0	15.6	27.9	28.0		31.7	28.8	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.1	0.4	0.0	0.2	3.4	0.7	0.5	0.2		10.0	0.3	0.2
Delay (s)	21.1	9.6	7.8	14.6	24.4	16.3	28.3	28.2		41.7	29.0	27.5
Level of Service	C	A	A	B	C	B	C	C		D	C	C
Approach Delay (s)		12.6			22.6			28.2			32.2	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.4	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			88.4	Sum of lost time (s)				19.9				
Intersection Capacity Utilization			92.3%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: Burkholder Drive & Taunton Road

Interim AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	175	665	155	65	1295	35	320	220	155	25	160	205
Future Volume (vph)	175	665	155	65	1295	35	320	220	155	25	160	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.5	3.5	3.5	3.3	3.5	3.3	3.3	3.5	3.3
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	3500	1494	1744	3482		1701	1842	1488	1691	1842	1488
Flt Permitted	0.10	1.00	1.00	0.37	1.00		0.49	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	185	3500	1494	677	3482		882	1842	1488	1105	1842	1488
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	175	665	155	65	1295	35	320	220	155	25	160	205
RTOR Reduction (vph)	0	0	86	0	2	0	0	0	104	0	0	139
Lane Group Flow (vph)	175	665	69	65	1328	0	320	220	51	25	160	66
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	45.0	39.0	39.0	40.8	36.9		29.0	29.0	29.0	13.9	13.9	13.9
Effective Green, g (s)	45.0	39.0	39.0	40.8	36.9		29.0	29.0	29.0	13.9	13.9	13.9
Actuated g/C Ratio	0.51	0.44	0.44	0.46	0.42		0.33	0.33	0.33	0.16	0.16	0.16
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	1554	663	361	1463		404	608	491	174	291	235
v/s Ratio Prot	c0.06	0.19		0.01	0.38		c0.11	0.12			0.09	
v/s Ratio Perm	c0.39		0.05	0.08			c0.15		0.03	0.02		0.04
v/c Ratio	0.88	0.43	0.10	0.18	0.91		0.79	0.36	0.10	0.14	0.55	0.28
Uniform Delay, d1	17.6	16.7	14.2	13.1	23.9		24.9	22.4	20.4	31.8	34.1	32.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.6	0.9	0.3	0.2	9.8		10.2	0.4	0.1	0.4	2.1	0.7
Delay (s)	50.2	17.6	14.5	13.4	33.7		35.1	22.7	20.5	32.2	36.2	33.2
Level of Service	D	B	B	B	C		D	C	C	C	D	C
Approach Delay (s)		22.9			32.7			27.9			34.4	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			29.1	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			87.8	Sum of lost time (s)				18.9				
Intersection Capacity Utilization			95.1%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Aquarius Trail & Taunton Road

Interim AM Future Total



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	765	10	5	1425	30	5
Future Volume (vph)	765	10	5	1425	30	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.3	3.5	3.3	3.3
Total Lost time (s)	8.7	8.7	8.7	8.7	8.2	8.2
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.95	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	0.99	1.00	0.98	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1484	1693	3500	1678	1484
Flt Permitted	1.00	1.00	0.34	1.00	0.95	1.00
Satd. Flow (perm)	3500	1484	603	3500	1678	1484
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	832	11	5	1549	33	5
RTOR Reduction (vph)	0	3	0	0	0	5
Lane Group Flow (vph)	832	8	5	1549	33	0
Confl. Peds. (#/hr)		15	15		15	15
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	74.6	74.6	74.6	74.6	9.9	9.9
Effective Green, g (s)	74.6	74.6	74.6	74.6	9.9	9.9
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.10	0.10
Clearance Time (s)	8.7	8.7	8.7	8.7	8.2	8.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2574	1091	443	2574	163	144
v/s Ratio Prot	0.24			c0.44		
v/s Ratio Perm		0.01	0.01		c0.02	0.00
v/c Ratio	0.32	0.01	0.01	0.60	0.20	0.00
Uniform Delay, d1	4.6	3.6	3.6	6.4	42.1	41.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.0	0.0	1.1	0.6	0.0
Delay (s)	5.0	3.6	3.6	7.4	42.7	41.3
Level of Service	A	A	A	A	D	D
Approach Delay (s)	5.0			7.4	42.5	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	16.9
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Street A/TACC Site A Access & Taunton Road

Interim AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	10	825	0	50	1330	5	0	0	15	0	0	65
Future Volume (Veh/h)	10	825	0	50	1330	5	0	0	15	0	0	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	897	0	54	1446	5	0	0	16	0	0	71
Pedestrians		15			15			15			15	
Lane Width (m)		3.4			3.4			3.3			3.3	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		274			262							
pX, platoon unblocked	0.73			0.88			0.79	0.79	0.88	0.79	0.79	0.73
vC, conflicting volume	1466			912			1780	2508	478	2057	2506	756
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	890			632			772	1698	140	1124	1694	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			100	100	98	100	100	91
cM capacity (veh/h)	544			825			186	64	760	111	65	770
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	11	598	299	54	964	487	16	71				
Volume Left	11	0	0	54	0	0	0	0				
Volume Right	0	0	0	0	0	5	16	71				
cSH	544	1700	1700	825	1700	1700	760	770				
Volume to Capacity	0.02	0.35	0.18	0.07	0.57	0.29	0.02	0.09				
Queue Length 95th (m)	0.5	0.0	0.0	1.7	0.0	0.0	0.5	2.4				
Control Delay (s)	11.8	0.0	0.0	9.7	0.0	0.0	9.8	10.1				
Lane LOS	B			A			A	B				
Approach Delay (s)	0.1			0.3			9.8	10.1				
Approach LOS							A	B				
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			52.2%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

6: Peter Matthews Drive & Marathon Avenue

Interim AM Future Total

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	5	0	0	25	5	210	0	10	295	0	
Future Volume (vph)	0	0	5	0	0	25	5	210	0	10	295	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	
Total Lost time (s)		8.2			8.2		8.7	8.7		8.7	8.7		
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95		
Frbp, ped/bikes		0.97			0.97		1.00	1.00		1.00	1.00		
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.98	1.00		
Frt		0.85			0.85		1.00	1.00		1.00	1.00		
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1525			1525		1673	3500		1668	3500		
Flt Permitted		1.00			1.00		0.56	1.00		0.61	1.00		
Satd. Flow (perm)		1525			1525		982	3500		1070	3500		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	5	0	0	27	5	228	0	11	321	0	
RTOR Reduction (vph)	0	4	0	0	24	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	1	0	0	3	0	5	228	0	11	321	0	
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm	
Protected Phases		4			8			2		6	6		
Permitted Phases	4			8			2		2	6		6	
Actuated Green, G (s)		11.6			11.6		66.9	66.9		66.9	66.9		
Effective Green, g (s)		11.6			11.6		66.9	66.9		66.9	66.9		
Actuated g/C Ratio		0.12			0.12		0.70	0.70		0.70	0.70		
Clearance Time (s)		8.2			8.2		8.7	8.7		8.7	8.7		
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)		185			185		688	2454		750	2454		
v/s Ratio Prot		0.00			c0.00			0.07			c0.09		
v/s Ratio Perm							0.01			0.01			
v/c Ratio		0.00			0.02		0.01	0.09		0.01	0.13		
Uniform Delay, d1		36.8			36.9		4.3	4.6		4.3	4.7		
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2		0.0			0.0		0.0	0.1		0.0	0.1		
Delay (s)		36.8			36.9		4.3	4.6		4.3	4.8		
Level of Service		D			D		A	A		A	A		
Approach Delay (s)		36.8			36.9			4.6			4.8		
Approach LOS		D			D			A			A		
Intersection Summary													
HCM 2000 Control Delay			6.4				HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.11										
Actuated Cycle Length (s)			95.4				Sum of lost time (s)			16.9			
Intersection Capacity Utilization			69.4%				ICU Level of Service			C			
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 7: Peter Matthews Drive & TACC Site A Access

Interim AM Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations		↗	↖	↕	↕	↗	
Traffic Volume (veh/h)	0	30	5	715	625	20	
Future Volume (Veh/h)	0	30	5	715	625	20	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	33	5	777	679	22	
Pedestrians	15			15	15		
Lane Width (m)	3.3			3.4	3.5		
Walking Speed (m/s)	1.2			1.2	1.2		
Percent Blockage	1			1	1		
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)	189						
pX, platoon unblocked	0.99						
vC, conflicting volume	1108	370	716				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1093	370	716				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	95	99				
cM capacity (veh/h)	201	613	870				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	33	5	388	388	340	340	22
Volume Left	0	5	0	0	0	0	0
Volume Right	33	0	0	0	0	0	22
cSH	613	870	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.01	0.23	0.23	0.20	0.20	0.01
Queue Length 95th (m)	1.4	0.1	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.2	9.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	11.2	0.1	0.0				
Approach LOS	B						
Intersection Summary							
Average Delay	0.3						
Intersection Capacity Utilization	33.7%			ICU Level of Service	A		
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis

8: Peter Matthews Drive & TACC Site B Access/TACC Site C Access

Interim AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	235	0	0	305	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	235	0	0	305	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	255	0	0	332	0
Pedestrians	15			15			15			15		
Lane Width (m)	3.3			3.3			3.5			3.5		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)							102			145		
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	490	617	196	451	617	158	347					
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	359	493	50	318	493	158	209					
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1					
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					
p0 queue free %	100	100	100	100	100	100	100					
cM capacity (veh/h)	522	442	935	557	442	840	1277					
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	0	0	170	85	221	111						
Volume Left	0	0	0	0	0	0						
Volume Right	0	0	0	0	0	0						
cSH	1700	1700	1700	1700	1700	1700						
Volume to Capacity	0.01	0.08	0.10	0.05	0.13	0.07						
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0						
Lane LOS	A	A										
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			24.3%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Burkholder Drive & Belcourt Street/Marathon Avenue

Interim AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	0	15	0	0	0	5	610	0	0	370	10
Future Volume (Veh/h)	45	0	15	0	0	0	5	610	0	0	370	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	0	16	0	0	0	5	663	0	0	402	11
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.4			3.4	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												283
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	1110	1110	438	1121	1116	693	428			678		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1094	1094	394	1105	1100	693	384			678		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	72	100	97	100	100	100	100			100		
cM capacity (veh/h)	175	199	614	168	198	433	1114			903		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	65	0	5	663	0	413						
Volume Left	49	0	5	0	0	0						
Volume Right	16	0	0	0	0	11						
cSH	213	1700	1114	1700	1700	1700						
Volume to Capacity	0.31	0.08	0.00	0.39	0.00	0.24						
Queue Length 95th (m)	9.9	0.0	0.1	0.0	0.0	0.0						
Control Delay (s)	29.2	0.0	8.2	0.0	0.0	0.0						
Lane LOS	D	A	A									
Approach Delay (s)	29.2	0.0	0.1		0.0							
Approach LOS	D	A										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			47.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

10: Burkholder Drive & TACC Site A Access

Interim AM Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	145	405	25	15	310
Future Volume (Veh/h)	80	145	405	25	15	310
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	158	440	27	16	337
Pedestrians	15		15			15
Lane Width (m)	3.5		3.5			3.4
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			155			
pX, platoon unblocked	0.88	0.88			0.88	
vC, conflicting volume	852	484			482	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	761	340			338	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	72	74			98	
cM capacity (veh/h)	314	601			1057	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	245	467	16	337		
Volume Left	87	0	16	0		
Volume Right	158	27	0	0		
cSH	454	1700	1057	1700		
Volume to Capacity	0.54	0.27	0.02	0.20		
Queue Length 95th (m)	25.1	0.0	0.4	0.0		
Control Delay (s)	21.8	0.0	8.5	0.0		
Lane LOS	C		A			
Approach Delay (s)	21.8	0.0	0.4			
Approach LOS	C					
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utilization			43.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Hibiscus Drive/Street A & Marathon Avenue

Interim AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	5	0	5	0	5	0	0
Future Volume (Veh/h)	0	0	0	0	0	5	0	5	0	5	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	5	0	5	0	5	0	0
Pedestrians	15			15			15			15		
Lane Width (m)	3.5			3.5			3.5			3.5		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)	264											
pX, platoon unblocked												
vC, conflicting volume	20			15			32	35	30	35	32	32
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	20			15			32	35	30	35	32	32
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	100	99	100	100
cM capacity (veh/h)	1577			1583			934	837	1019	926	839	1016
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	5	5	5								
Volume Left	0	0	0	5								
Volume Right	0	5	0	0								
cSH	1700	1583	837	926								
Volume to Capacity	0.00	0.00	0.01	0.01								
Queue Length 95th (m)	0.0	0.0	0.1	0.1								
Control Delay (s)	0.0	0.0	9.3	8.9								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	9.3	8.9								
Approach LOS			A	A								
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utilization			21.7%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

13: Street A & Commercial Site Access/TACC Site B Access (North)

Interim AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	5	0	0	0	10	0	0	0	0	50
Future Volume (Veh/h)	15	0	5	0	0	0	10	0	0	0	0	50
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	5	0	0	0	11	0	0	0	0	54
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	79	79	57	84	106	30	69			15		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	79	79	57	84	106	30	69			15		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	100	100	100	99			100		
cM capacity (veh/h)	866	786	985	856	760	1019	1513			1583		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	21	0	11	54								
Volume Left	16	0	11	0								
Volume Right	5	0	0	54								
cSH	892	1700	1513	1583								
Volume to Capacity	0.02	0.10	0.01	0.00								
Queue Length 95th (m)	0.6	0.0	0.2	0.0								
Control Delay (s)	9.1	0.0	7.4	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	9.1	0.0	7.4	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			23.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 14: Street A & TACC Site B Access (South)

Interim AM Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	10	0	0	5
Future Volume (Veh/h)	0	0	10	0	0	5
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	11	0	0	5
Pedestrians	15		15			15
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	46	41			26	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	46	41			26	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	941	1005			1569	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	11	5			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1569			
Volume to Capacity	0.07	0.01	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			21.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Aquarius Trail & TACC Site C Access

Interim AM Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	35	15	0
Future Volume (Veh/h)	0	0	0	35	15	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	38	16	0
Pedestrians	15			15	15	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						78
pX, platoon unblocked						
vC, conflicting volume	84	46	31			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84	46	31			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	895	999	1562			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	38	16			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1562	1700			
Volume to Capacity	0.04	0.00	0.01			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			21.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

18: Commercial Site Access & Taunton Road

Interim AM Future Total

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	815	30	0	1395	0	20
Future Volume (Veh/h)	815	30	0	1395	0	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	886	33	0	1516	0	22
Pedestrians	15			15	15	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	161			375		
pX, platoon unblocked				0.87	0.79	0.87
vC, conflicting volume				934	1690	490
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				632	621	122
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	97
cM capacity (veh/h)				816	324	771
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	591	328	758	758	22	
Volume Left	0	0	0	0	0	
Volume Right	0	33	0	0	22	
cSH	1700	1700	1700	1700	771	
Volume to Capacity	0.35	0.19	0.45	0.45	0.03	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.7	
Control Delay (s)	0.0	0.0	0.0	0.0	9.8	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		9.8	
Approach LOS					A	
Intersection Summary						
Average Delay				0.1		
Intersection Capacity Utilization				52.5%	ICU Level of Service	A
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis

19: Burkholder Drive & Dragonfly Avenue/Commercial Site Access

Interim AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	5	0	0	25	5	645	5	5	375	0
Future Volume (Veh/h)	25	0	5	0	0	25	5	645	5	5	375	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	0	5	0	0	27	5	701	5	5	408	0
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)											190	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	1188	1164	438	1166	1162	734	423			721		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1168	1141	366	1144	1139	734	350			721		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	81	100	99	100	100	93	100			99		
cM capacity (veh/h)	142	181	621	156	182	410	1118			870		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	32	27	711	413								
Volume Left	27	0	5	5								
Volume Right	5	27	5	0								
cSH	161	410	1118	870								
Volume to Capacity	0.20	0.07	0.00	0.01								
Queue Length 95th (m)	5.7	1.7	0.1	0.1								
Control Delay (s)	32.8	14.4	0.1	0.2								
Lane LOS	D	B	A	A								
Approach Delay (s)	32.8	14.4	0.1	0.2								
Approach LOS	D	B										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			54.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Peter Matthews Drive & Taunton Road

Interim PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1305	100	10	765	200	35	275	0	215	245	310
Future Volume (vph)	190	1305	100	10	765	200	35	275	0	215	245	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Total Lost time (s)	8.7	8.7	8.7	8.7	8.7	8.7	8.2	8.2		8.2	8.2	8.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00		0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1703	3500	1525	1708	3500	1525	1694	3500		1695	3500	1526
Flt Permitted	0.34	1.00	1.00	0.14	1.00	1.00	0.60	1.00		0.58	1.00	1.00
Satd. Flow (perm)	610	3500	1525	256	3500	1525	1069	3500		1039	3500	1526
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	190	1305	100	10	765	200	35	275	0	215	245	310
RTOR Reduction (vph)	0	0	39	0	0	90	0	0	0	0	0	96
Lane Group Flow (vph)	190	1305	61	10	765	110	35	275	0	215	245	214
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	49.6	49.6	49.6	49.6	49.6	49.6	23.4	23.4		23.4	23.4	23.4
Effective Green, g (s)	49.6	49.6	49.6	49.6	49.6	49.6	23.4	23.4		23.4	23.4	23.4
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55	0.26	0.26		0.26	0.26	0.26
Clearance Time (s)	8.7	8.7	8.7	8.7	8.7	8.7	8.2	8.2		8.2	8.2	8.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	336	1931	841	141	1931	841	278	911		270	911	397
v/s Ratio Prot		c0.37			0.22			0.08				0.07
v/s Ratio Perm	0.31		0.04	0.04		0.07	0.03			c0.21		0.14
v/c Ratio	0.57	0.68	0.07	0.07	0.40	0.13	0.13	0.30		0.80	0.27	0.54
Uniform Delay, d1	13.1	14.4	9.4	9.4	11.6	9.7	25.4	26.7		31.0	26.4	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.7	1.9	0.2	1.0	0.6	0.3	0.2	0.2		14.9	0.2	1.4
Delay (s)	19.9	16.3	9.6	10.4	12.2	10.1	25.6	26.9		46.0	26.6	30.0
Level of Service	B	B	A	B	B	B	C	C		D	C	C
Approach Delay (s)		16.3			11.7			26.7			33.4	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			19.6				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			89.9				Sum of lost time (s)				16.9	
Intersection Capacity Utilization			107.3%				ICU Level of Service				G	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: Burkholder Drive & Taunton Road

Interim PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	1415	255	100	820	60	320	200	105	30	180	205
Future Volume (vph)	195	1415	255	100	820	60	320	200	105	30	180	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.5	3.5	3.5	3.3	3.5	3.3	3.3	3.5	3.3
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1709	3500	1494	1750	3453		1703	1842	1489	1690	1842	1489
Flt Permitted	0.19	1.00	1.00	0.12	1.00		0.46	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	335	3500	1494	226	3453		820	1842	1489	1125	1842	1489
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	195	1415	255	100	820	60	320	200	105	30	180	205
RTOR Reduction (vph)	0	0	142	0	5	0	0	0	71	0	0	171
Lane Group Flow (vph)	195	1415	113	100	875	0	320	200	34	30	180	34
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	45.8	38.9	38.9	36.5	32.6		28.7	28.7	28.7	14.6	14.6	14.6
Effective Green, g (s)	45.8	38.9	38.9	36.5	32.6		28.7	28.7	28.7	14.6	14.6	14.6
Actuated g/C Ratio	0.52	0.45	0.45	0.42	0.37		0.33	0.33	0.33	0.17	0.17	0.17
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	335	1557	664	162	1287		381	604	488	187	307	248
v/s Ratio Prot	c0.07	c0.40		0.03	0.25		c0.11	0.11			0.10	
v/s Ratio Perm	0.24		0.08	0.23			c0.17		0.02	0.03		0.02
v/c Ratio	0.58	0.91	0.17	0.62	0.68		0.84	0.33	0.07	0.16	0.59	0.14
Uniform Delay, d1	13.1	22.6	14.6	18.7	23.0		25.4	22.1	20.2	31.2	33.6	31.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	9.4	0.6	6.8	2.9		14.9	0.3	0.1	0.4	2.8	0.3
Delay (s)	15.7	32.0	15.1	25.5	25.9		40.4	22.4	20.2	31.6	36.5	31.3
Level of Service	B	C	B	C	C		D	C	C	C	D	C
Approach Delay (s)		28.0			25.9			31.3			33.6	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			28.6	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			87.4	Sum of lost time (s)				18.9				
Intersection Capacity Utilization			93.7%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Aquarius Trail & Taunton Road

Interim PM Future Total

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Volume (vph)	1490	30	5	960	15	5
Future Volume (vph)	1490	30	5	960	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.3	3.5	3.3	3.3
Total Lost time (s)	8.7	8.7	8.7	8.7	8.2	8.2
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frbp, ped/bikes	1.00	0.95	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.98	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1483	1707	3500	1678	1483
Flt Permitted	1.00	1.00	0.12	1.00	0.95	1.00
Satd. Flow (perm)	3500	1483	219	3500	1678	1483
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1620	33	5	1043	16	5
RTOR Reduction (vph)	0	9	0	0	0	5
Lane Group Flow (vph)	1620	24	5	1043	16	0
Confl. Peds. (#/hr)		15	15		15	15
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	75.7	75.7	75.7	75.7	9.9	9.9
Effective Green, g (s)	75.7	75.7	75.7	75.7	9.9	9.9
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.10	0.10
Clearance Time (s)	8.7	8.7	8.7	8.7	8.2	8.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2584	1095	161	2584	162	143
v/s Ratio Prot	c0.46			0.30		
v/s Ratio Perm		0.02	0.02		c0.01	0.00
v/c Ratio	0.63	0.02	0.03	0.40	0.10	0.00
Uniform Delay, d1	6.5	3.6	3.6	5.0	42.2	41.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.0	0.4	0.5	0.3	0.0
Delay (s)	7.7	3.6	3.9	5.5	42.5	41.9
Level of Service	A	A	A	A	D	D
Approach Delay (s)	7.6			5.5	42.3	
Approach LOS	A			A	D	
Intersection Summary						
HCM 2000 Control Delay			7.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			102.5		Sum of lost time (s)	16.9
Intersection Capacity Utilization			67.2%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
 4: Street A/TACC Site A Access & Taunton Road

Interim PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	25	1525	0	145	950	15	0	0	70	0	0	30
Future Volume (Veh/h)	25	1525	0	145	950	15	0	0	70	0	0	30
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	1658	0	158	1033	16	0	0	76	0	0	33
Pedestrians	15			15			15			15		
Lane Width (m)	3.4			3.4			3.3			3.3		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)	274			262								
pX, platoon unblocked	0.90			0.62			0.67	0.67	0.62	0.67	0.67	0.90
vC, conflicting volume	1064			1673			2574	3107	859	2270	3099	554
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	839			870			1676	2465	0	1225	2453	271
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			67			100	100	88	100	100	95
cM capacity (veh/h)	701			475			28	13	660	56	13	636
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	27	1105	553	158	689	360	76	33				
Volume Left	27	0	0	158	0	0	0	0				
Volume Right	0	0	0	0	0	16	76	33				
cSH	701	1700	1700	475	1700	1700	660	636				
Volume to Capacity	0.04	0.65	0.33	0.33	0.41	0.21	0.12	0.05				
Queue Length 95th (m)	1.0	0.0	0.0	11.6	0.0	0.0	3.1	1.3				
Control Delay (s)	10.3	0.0	0.0	16.3	0.0	0.0	11.2	11.0				
Lane LOS	B			C			B		B			
Approach Delay (s)	0.2			2.1			11.2		11.0			
Approach LOS							B		B			
Intersection Summary												
Average Delay	1.4											
Intersection Capacity Utilization	57.6%			ICU Level of Service				B				
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

6: Peter Matthews Drive & Marathon Avenue

Interim PM Future Total

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	15	0	0	15	20	295	0	25	330	0
Future Volume (vph)	0	0	15	0	0	15	20	295	0	25	330	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Total Lost time (s)		8.2			8.2		8.7	8.7		8.7	8.7	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.97			0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.98	1.00	
Frt		0.85			0.85		1.00	1.00		1.00	1.00	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1525			1525		1676	3500		1674	3500	
Flt Permitted		1.00			1.00		0.54	1.00		0.56	1.00	
Satd. Flow (perm)		1525			1525		948	3500		982	3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	16	0	0	16	22	321	0	27	359	0
RTOR Reduction (vph)	0	14	0	0	14	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	2	0	22	321	0	27	359	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		9.6			9.6		67.1	67.1		67.1	67.1	
Effective Green, g (s)		9.6			9.6		67.1	67.1		67.1	67.1	
Actuated g/C Ratio		0.10			0.10		0.72	0.72		0.72	0.72	
Clearance Time (s)		8.2			8.2		8.7	8.7		8.7	8.7	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		156			156		679	2509		703	2509	
v/s Ratio Prot		c0.00			0.00			0.09			c0.10	
v/s Ratio Perm							0.02			0.03		
v/c Ratio		0.01			0.01		0.03	0.13		0.04	0.14	
Uniform Delay, d1		37.7			37.7		3.8	4.1		3.9	4.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			0.0		0.1	0.1		0.1	0.1	
Delay (s)		37.8			37.8		3.9	4.2		4.0	4.3	
Level of Service		D			D		A	A		A	A	
Approach Delay (s)		37.8			37.8			4.2			4.3	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			5.7				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.13									
Actuated Cycle Length (s)			93.6				Sum of lost time (s)			16.9		
Intersection Capacity Utilization			69.4%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

7: Peter Matthews Drive & TACC Site A Access

Interim PM Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations		↗	↘	↑↑	↑↑	↗	
Traffic Volume (veh/h)	0	25	30	635	745	70	
Future Volume (Veh/h)	0	25	30	635	745	70	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	27	33	690	810	76	
Pedestrians	15			15	15		
Lane Width (m)	3.3			3.4	3.5		
Walking Speed (m/s)	1.2			1.2	1.2		
Percent Blockage	1			1	1		
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)	189						
pX, platoon unblocked	0.97						
vC, conflicting volume	1251	435	901				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1189	435	901				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	95	96				
cM capacity (veh/h)	163	556	741				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	27	33	345	345	405	405	76
Volume Left	0	33	0	0	0	0	0
Volume Right	27	0	0	0	0	0	76
cSH	556	741	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.04	0.20	0.20	0.24	0.24	0.04
Queue Length 95th (m)	1.2	1.1	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.8	10.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	11.8	0.5	0.0				
Approach LOS	B						
Intersection Summary							
Average Delay	0.4						
Intersection Capacity Utilization	38.9%			ICU Level of Service	A		
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis

8: Peter Matthews Drive & TACC Site B Access/TACC Site C Access

Interim PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	310	0	0	355	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	310	0	0	355	0
Sign Control	Stop			Stop				Free			Free	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	337	0	0	386	0
Pedestrians	15			15				15			15	
Lane Width (m)	3.3			3.3				3.5			3.5	
Walking Speed (m/s)	1.2			1.2				1.2			1.2	
Percent Blockage	1			1				1			1	
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)							102			145		
pX, platoon unblocked	0.97	0.97	0.96	0.97	0.97	0.99	0.96			0.99		
vC, conflicting volume	584	753	223	560	753	198	401			352		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	448	622	112	422	622	165	297			320		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	459	379	864	478	379	821	1199			1208		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	0	0	225	112	257	129						
Volume Left	0	0	0	0	0	0						
Volume Right	0	0	0	0	0	0						
cSH	1700	1700	1700	1700	1700	1700						
Volume to Capacity	0.01	0.08	0.13	0.07	0.15	0.08						
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0						
Lane LOS	A	A										
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			25.1%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9: Burkholder Drive & Belcourt Street/Marathon Avenue

Interim PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	5	0	0	0	10	485	0	0	500	25
Future Volume (Veh/h)	30	0	5	0	0	0	10	485	0	0	500	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	0	5	0	0	0	11	527	0	0	543	27
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.4			3.4	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												283
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	1136	1136	586	1127	1149	557	585			542		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1118	1118	542	1109	1132	557	540			542		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	100	99	100	100	100	99			100		
cM capacity (veh/h)	167	190	503	168	187	517	968			1014		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	38	0	11	527	0	570						
Volume Left	33	0	11	0	0	0						
Volume Right	5	0	0	0	0	27						
cSH	183	1700	968	1700	1700	1700						
Volume to Capacity	0.21	0.08	0.01	0.31	0.00	0.34						
Queue Length 95th (m)	6.0	0.0	0.3	0.0	0.0	0.0						
Control Delay (s)	29.7	0.0	8.8	0.0	0.0	0.0						
Lane LOS	D	A	A									
Approach Delay (s)	29.7	0.0	0.2		0.0							
Approach LOS	D	A										
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			41.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

10: Burkholder Drive & TACC Site A Access

Interim PM Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	60	375	80	55	380
Future Volume (Veh/h)	35	60	375	80	55	380
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	65	408	87	60	413
Pedestrians	15		15		15	
Lane Width (m)	3.5		3.5		3.4	
Walking Speed (m/s)	1.2		1.2		1.2	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	155					
pX, platoon unblocked	0.88	0.88			0.88	
vC, conflicting volume	1014	482			510	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	946	339			371	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	89			94	
cM capacity (veh/h)	234	602			1029	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	103	495	60	413		
Volume Left	38	0	60	0		
Volume Right	65	87	0	0		
cSH	381	1700	1029	1700		
Volume to Capacity	0.27	0.29	0.06	0.24		
Queue Length 95th (m)	8.6	0.0	1.5	0.0		
Control Delay (s)	17.9	0.0	8.7	0.0		
Lane LOS	C		A			
Approach Delay (s)	17.9	0.0	1.1			
Approach LOS	C					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			47.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Hibiscus Drive/Street A & Marathon Avenue

Interim PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	20	0	10	0	15	10	0
Future Volume (Veh/h)	0	0	0	0	0	20	0	10	0	15	10	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	22	0	11	0	16	11	0
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					264							
pX, platoon unblocked												
vC, conflicting volume	37			15			46	52	30	46	41	41
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	37			15			46	52	30	46	41	41
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	100	98	99	100
cM capacity (veh/h)	1554			1583			905	819	1019	905	830	1005
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	22	11	27								
Volume Left	0	0	0	16								
Volume Right	0	22	0	0								
cSH	1700	1583	819	873								
Volume to Capacity	0.00	0.00	0.01	0.03								
Queue Length 95th (m)	0.0	0.0	0.3	0.8								
Control Delay (s)	0.0	0.0	9.5	9.3								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	9.5	9.3								
Approach LOS			A	A								
Intersection Summary												
Average Delay			5.9									
Intersection Capacity Utilization			24.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

13: Street A & Commercial Site Access/TACC Site B Access (North)

Interim PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	0	25	0	0	0	30	0	0	0	0	145
Future Volume (Veh/h)	70	0	25	0	0	0	30	0	0	0	0	145
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	0	27	0	0	0	33	0	0	0	0	158
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	175	175	109	202	254	30	173			15		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	175	175	109	202	254	30	173			15		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	100	97	100	100	100	98			100		
cM capacity (veh/h)	741	684	922	690	619	1019	1387			1583		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	103	0	33	158								
Volume Left	76	0	33	0								
Volume Right	27	0	0	158								
cSH	781	1700	1387	1583								
Volume to Capacity	0.13	0.10	0.02	0.00								
Queue Length 95th (m)	3.6	0.0	0.6	0.0								
Control Delay (s)	10.3	0.0	7.7	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	10.3	0.0	7.7	0.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization			39.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 14: Street A & TACC Site B Access (South)

Interim PM Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	30	0	0	25
Future Volume (Veh/h)	0	0	30	0	0	25
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	33	0	0	27
Pedestrians	15		15			15
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	90	63			48	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	90	63			48	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	888	977			1540	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	33	27			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1540			
Volume to Capacity	0.07	0.02	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			21.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

16: Aquarius Trail & TACC Site C Access

Interim PM Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	20	35	0
Future Volume (Veh/h)	0	0	0	20	35	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	22	38	0
Pedestrians	15			15	15	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						78
pX, platoon unblocked						
vC, conflicting volume	90	68	53			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	90	68	53			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	888	971	1534			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	22	38			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1534	1700			
Volume to Capacity	0.04	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay	0.0					
Intersection Capacity Utilization	21.2%		ICU Level of Service	A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

18: Commercial Site Access & Taunton Road

Interim PM Future Total

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1440	110	0	980	0	110
Future Volume (Veh/h)	1440	110	0	980	0	110
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1565	120	0	1065	0	120
Pedestrians	15			15	15	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)	161			375		
pX, platoon unblocked				0.61	0.66	0.61
vC, conflicting volume				1700	2188	872
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				876	1155	0
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	81
cM capacity (veh/h)				463	122	648
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	1043	642	532	532	120	
Volume Left	0	0	0	0	0	
Volume Right	0	120	0	0	120	
cSH	1700	1700	1700	1700	648	
Volume to Capacity	0.61	0.38	0.31	0.31	0.19	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.4	
Control Delay (s)	0.0	0.0	0.0	0.0	11.8	
Lane LOS						B
Approach Delay (s)	0.0		0.0		11.8	
Approach LOS						B
Intersection Summary						
Average Delay				0.5		
Intersection Capacity Utilization				60.4%	ICU Level of Service	B
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis

19: Burkholder Drive & Dragonfly Avenue/Commercial Site Access

Interim PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	15	0	125	10	490	15	15	505	15
Future Volume (Veh/h)	10	0	5	15	0	125	10	490	15	15	505	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	5	16	0	136	11	533	16	16	549	16
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)											190	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	1318	1190	587	1187	1190	571	580			564		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1303	1164	512	1161	1164	571	504			564		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	99	89	100	73	99			98		
cM capacity (veh/h)	87	170	507	148	170	508	968			995		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	16	152	560	581								
Volume Left	11	16	11	16								
Volume Right	5	136	16	16								
cSH	118	404	968	995								
Volume to Capacity	0.14	0.38	0.01	0.02								
Queue Length 95th (m)	3.6	13.7	0.3	0.4								
Control Delay (s)	40.3	19.2	0.3	0.4								
Lane LOS	E	C	A	A								
Approach Delay (s)	40.3	19.2	0.3	0.4								
Approach LOS	E	C										
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			53.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

4: Street A/TACC Site A Access & Taunton Road

Interim SAT Future Total

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 								
Traffic Volume (veh/h)	25	940	0	245	815	10	0	0	85	0	0	40	
Future Volume (Veh/h)	25	940	0	245	815	10	0	0	85	0	0	40	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	27	1022	0	266	886	11	0	0	92	0	0	43	
Pedestrians	15			15			15			15			
Lane Width (m)	3.4			3.4			3.3			3.3			
Walking Speed (m/s)	1.2			1.2			1.2			1.2			
Percent Blockage	1			1			1			1			
Right turn flare (veh)													
Median type	None			None									
Median storage (veh)													
Upstream signal (m)	274			262									
pX, platoon unblocked	0.87			0.86			0.93	0.93	0.86	0.93	0.93	0.87	
vC, conflicting volume	912			1037			2081	2535	541	2018	2530	478	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	588			718			1358	1847	141	1290	1841	88	
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	97			64			100	100	88	100	100	95	
cM capacity (veh/h)	841			747			64	42	740	67	42	806	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	27	681	341	266	591	306	92	43					
Volume Left	27	0	0	266	0	0	0	0					
Volume Right	0	0	0	0	0	11	92	43					
cSH	841	1700	1700	747	1700	1700	740	806					
Volume to Capacity	0.03	0.40	0.20	0.36	0.35	0.18	0.12	0.05					
Queue Length 95th (m)	0.8	0.0	0.0	12.9	0.0	0.0	3.4	1.3					
Control Delay (s)	9.4	0.0	0.0	12.5	0.0	0.0	10.6	9.7					
Lane LOS	A			B			B		A				
Approach Delay (s)	0.2			2.8			10.6		9.7				
Approach LOS							B		A				
Intersection Summary													
Average Delay	2.1												
Intersection Capacity Utilization	46.2%			ICU Level of Service					A				
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

7: Peter Matthews Drive & TACC Site A Access

Interim SAT Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations		↗	↘	↑↑	↑↑	↘	
Traffic Volume (veh/h)	0	30	20	510	515	35	
Future Volume (Veh/h)	0	30	20	510	515	35	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	33	22	554	560	38	
Pedestrians	15			15	15		
Lane Width (m)	3.3			3.4	3.5		
Walking Speed (m/s)	1.2			1.2	1.2		
Percent Blockage	1			1	1		
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)	189						
pX, platoon unblocked							
vC, conflicting volume	911	310	613				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	911	310	613				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	95	98				
cM capacity (veh/h)	261	670	951				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	33	22	277	277	280	280	38
Volume Left	0	22	0	0	0	0	0
Volume Right	33	0	0	0	0	0	38
cSH	670	951	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.02	0.16	0.16	0.16	0.16	0.02
Queue Length 95th (m)	1.2	0.6	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	10.7	8.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	10.7	0.3	0.0				
Approach LOS	B						
Intersection Summary							
Average Delay	0.5						
Intersection Capacity Utilization	30.6%			ICU Level of Service	A		
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis

8: Peter Matthews Drive & TACC Site B Access/TACC Site C Access

Interim SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	215	0	0	270	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	215	0	0	270	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	234	0	0	293	0
Pedestrians	15			15			15			15		
Lane Width (m)	3.3			3.3			3.5			3.5		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)							102			145		
pX, platoon unblocked	0.97	0.97	0.97	0.97	0.97		0.97					
vC, conflicting volume	440	557	176	410	557	147	308	249				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	372	492	102	342	492	147	237	249				
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1	4.1				
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2				
p0 queue free %	100	100	100	100	100	100	100	100				
cM capacity (veh/h)	523	453	888	550	453	853	1278	1299				
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	0	0	156	78	195	98						
Volume Left	0	0	0	0	0	0						
Volume Right	0	0	0	0	0	0						
cSH	1700	1700	1700	1700	1700	1700						
Volume to Capacity	0.01	0.08	0.09	0.05	0.11	0.06						
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0						
Lane LOS	A	A										
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			23.7%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 9: Burkholder Drive & Belcourt Street/Marathon Avenue

Interim SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	0	10	0	0	0	5	410	0	0	330	15
Future Volume (Veh/h)	35	0	10	0	0	0	5	410	0	0	330	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	0	11	0	0	0	5	446	0	0	359	16
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.4			3.4	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)											283	
pX, platoon unblocked												
vC, conflicting volume	853	853	397	856	861	476	390			461		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	853	853	397	856	861	476	390			461		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	98	100	100	100	100			100		
cM capacity (veh/h)	267	288	637	261	285	575	1154			1087		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	49	0	5	446	0	375						
Volume Left	38	0	5	0	0	0						
Volume Right	11	0	0	0	0	16						
cSH	307	1700	1154	1700	1700	1700						
Volume to Capacity	0.16	0.08	0.00	0.26	0.00	0.22						
Queue Length 95th (m)	4.5	0.0	0.1	0.0	0.0	0.0						
Control Delay (s)	19.0	0.0	8.1	0.0	0.0	0.0						
Lane LOS	C	A	A									
Approach Delay (s)	19.0	0.0	0.1		0.0							
Approach LOS	C	A										
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			36.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

10: Burkholder Drive & TACC Site A Access

Interim SAT Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	45	60	320	70	30	300
Future Volume (Veh/h)	45	60	320	70	30	300
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	65	348	76	33	326
Pedestrians	15		15		15	
Lane Width (m)	3.5		3.5		3.4	
Walking Speed (m/s)	1.2		1.2		1.2	
Percent Blockage	1		1		1	
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (m)	155					
pX, platoon unblocked	0.90	0.90			0.90	
vC, conflicting volume	808	416			439	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	294			320	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	90			97	
cM capacity (veh/h)	331	654			1101	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	114	424	33	326		
Volume Left	49	0	33	0		
Volume Right	65	76	0	0		
cSH	461	1700	1101	1700		
Volume to Capacity	0.25	0.25	0.03	0.19		
Queue Length 95th (m)	7.7	0.0	0.7	0.0		
Control Delay (s)	15.4	0.0	8.4	0.0		
Lane LOS	C		A			
Approach Delay (s)	15.4	0.0	0.8			
Approach LOS	C					
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			41.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Hibiscus Drive/Street A & Marathon Avenue

Interim SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	30	0	15	0	15	15	0
Future Volume (Veh/h)	0	0	0	0	0	30	0	15	0	15	15	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	33	0	16	0	16	16	0
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					264							
pX, platoon unblocked												
vC, conflicting volume	48			15			54	63	30	54	46	46
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	48			15			54	63	30	54	46	46
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	98	100	98	98	100
cM capacity (veh/h)	1540			1583			890	808	1019	890	825	998
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	33	16	32								
Volume Left	0	0	0	16								
Volume Right	0	33	0	0								
cSH	1700	1583	808	856								
Volume to Capacity	0.00	0.00	0.02	0.04								
Queue Length 95th (m)	0.0	0.0	0.5	0.9								
Control Delay (s)	0.0	0.0	9.5	9.4								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	9.5	9.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay			5.6									
Intersection Capacity Utilization			24.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

13: Street A & Commercial Site Access/TACC Site B Access (North)

Interim SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	0	30	0	0	0	45	0	0	0	0	245
Future Volume (Veh/h)	85	0	30	0	0	0	45	0	0	0	0	245
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	92	0	33	0	0	0	49	0	0	0	0	266
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	261	261	163	294	394	30	281			15		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	261	261	163	294	394	30	281			15		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	96	100	100	100	96			100		
cM capacity (veh/h)	643	604	860	588	509	1019	1266			1583		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	125	0	49	266								
Volume Left	92	0	49	0								
Volume Right	33	0	0	266								
cSH	689	1700	1266	1583								
Volume to Capacity	0.18	0.10	0.04	0.00								
Queue Length 95th (m)	5.3	0.0	1.0	0.0								
Control Delay (s)	11.4	0.0	8.0	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	11.4	0.0	8.0	0.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			45.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 14: Street A & TACC Site B Access (South)

Interim SAT Future Total

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	45	0	0	30
Future Volume (Veh/h)	0	0	45	0	0	30
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	49	0	0	33
Pedestrians	15		15			15
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	112	79			64	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112	79			64	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	863	958			1520	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	49	33			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1520			
Volume to Capacity	0.07	0.03	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			21.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Aquarius Trail & TACC Site C Access

Interim SAT Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	25	25	0
Future Volume (Veh/h)	0	0	0	25	25	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	27	27	0
Pedestrians	15			15	15	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						78
pX, platoon unblocked						
vC, conflicting volume	84	57	42			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84	57	42			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	895	985	1548			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	27	27			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1548	1700			
Volume to Capacity	0.04	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			21.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

18: Commercial Site Access & Taunton Road

Interim SAT Future Total



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	820	175	0	855	0	145
Future Volume (Veh/h)	820	175	0	855	0	145
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	891	190	0	929	0	158
Pedestrians	15			15	15	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	161			375		
pX, platoon unblocked				0.83	0.88	0.83
vC, conflicting volume				1096	1480	570
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				700	709	65
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	80
cM capacity (veh/h)				730	318	796
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	594	487	464	464	158	
Volume Left	0	0	0	0	0	
Volume Right	0	190	0	0	158	
cSH	1700	1700	1700	1700	796	
Volume to Capacity	0.35	0.29	0.27	0.27	0.20	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.9	
Control Delay (s)	0.0	0.0	0.0	0.0	10.6	
Lane LOS						B
Approach Delay (s)	0.0		0.0		10.6	
Approach LOS						B
Intersection Summary						
Average Delay				0.8		
Intersection Capacity Utilization				46.8%	ICU Level of Service	A
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis

19: Burkholder Drive & Dragonfly Avenue/Commercial Site Access

Interim SAT Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	5	30	0	180	5	415	25	25	310	5
Future Volume (Veh/h)	15	0	5	30	0	180	5	415	25	25	310	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	5	33	0	196	5	451	27	27	337	5
Pedestrians		15			15			15			15	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)											190	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	1094	912	370	903	900	494	357			493		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1078	888	325	879	877	494	312			493		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	99	86	100	65	100			97		
cM capacity (veh/h)	115	257	672	239	261	561	1186			1058		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	21	229	483	369								
Volume Left	16	33	5	27								
Volume Right	5	196	27	5								
cSH	143	470	1186	1058								
Volume to Capacity	0.15	0.49	0.00	0.03								
Queue Length 95th (m)	4.0	21.0	0.1	0.6								
Control Delay (s)	34.4	19.7	0.1	0.9								
Lane LOS	D	C	A	A								
Approach Delay (s)	34.4	19.7	0.1	0.9								
Approach LOS	D	C										
Intersection Summary												
Average Delay			5.1									
Intersection Capacity Utilization			52.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Appendix I: Signal & All-Way Stop Controlled Warrants



BA GROUP

6087-22 Taunton Fieldgate Commercial

ALL-WAY STOP MINIMUM VOLUME WARRANT - BURKHOLDER DRIVE & MARATHON AVENUE / BELCOURT STREET - ULTIMATE SCENARIO

Ontario Traffic Manual - Book 5 - Regulatory Signs

All-Way Stop Minimum Volume Warrant (Urban Arterial Roads)

All-way stop control may be considered on urban arterial roads where the following conditions are met:

- The total vehicle volume on all intersection approaches exceeds 500 vehicles per hour for each of the highest eight hours of the day; and,
- The combined vehicle and pedestrian volume on the minor street exceeds 200 units per hour (all vehicles plus pedestrians wishing to enter the intersection) for each of the same eight hours as the total volume; OR the combined vehicle and pedestrian volume on the minor street exceeds 150 units per hour (all vehicles plus pedestrians wishing to enter the intersection) for each of the same eight hours as the total volume, with an average delay to all minor street traffic (vehicles and pedestrians) of greater than 30 seconds for the entire eight hour period; and,
- The volume split does not exceed 70/30 (that is the minor street must not be less than 30% of the total volume entering the intersection) as measured over the entire eight-hour count period. Volume on the major street is defined as vehicles only. Volume on the minor street includes all vehicles plus any pedestrians wishing to cross the major roadway. For three-legged intersections a volume split of 75/25 is permissible.

Condition 1	
Total Volume on All Intersection Approaches	
	Vehicles
7:00am-8:00am	979
8:00am-9:00am	1160
9:00am-10:00am	610
11:00am-12:00pm	584
12:00pm-1:00pm	574
4:00pm-5:00pm	1061
5:00pm-6:00pm	1090
6:00pm-7:00pm	982
Minimum Requirement	574
Warranted	500
	Yes

Condition 2			
Combined Vehicle and Pedestrian Volume on Minor Approach			
	Vehicles	Pedestrians	Total
7:00am-8:00am	122	30	152
8:00am-9:00am	155	30	185
9:00am-10:00am	23	30	53
11:00am-12:00pm	49	30	79
12:00pm-1:00pm	12	30	42
4:00pm-5:00pm	32	30	62
5:00pm-6:00pm	60	30	90
6:00pm-7:00pm	45	30	75
Minimum Requirement			42
Warranted			200
			No

Condition 3				
Volume Split				
	Major Street Vehicles	Minor Street Vehicles + Pedestrians	Major Street Split	Minor Street Split
7:00am-8:00am	857	152	85%	15%
8:00am-9:00am	1005	185	84%	16%
9:00am-10:00am	587	53	92%	8%
11:00am-12:00pm	535	79	87%	13%
12:00pm-1:00pm	562	42	93%	7%
4:00pm-5:00pm	1029	62	94%	6%
5:00pm-6:00pm	1030	90	92%	8%
6:00pm-7:00pm	937	75	93%	7%
Average Requirement			90%	10%
Warranted			At Least 70%/30%	
			No	

Input Data Sheet

[Analysis Sheet](#)

[Results Sheet](#)

[Proposed Collision](#)

GO TO Justification:

What are the intersecting roadways?

Burkholder Drive & Marathon Avenue / Belcourt Street - Ultimate

What is the direction of the Main Road street?

North-South

When was the data collected?

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Urban

Population >= 10,000

AND

Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
08:00	3	523	7	35	0	12	0	317	7	12	0	63	
09:00	5	610	10	45	0	15	0	370	10	15	0	80	
10:00	3	355	7	7	0	2	0	215	7	2	0	12	
12:00	6	314	12	14	0	5	0	191	12	5	0	25	
13:00	4	268	4	6	0	1	0	276	10	0	0	5	
17:00	13	478	13	16	0	3	0	493	32	0	0	13	
18:00	10	485	10	30	0	5	0	500	25	0	0	25	
19:00	11	437	11	22	0	4	0	450	28	0	0	19	
Total	55	3,470	74	175	0	47	0	2,812	131	34	0	242	0

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	
13-24	
25-36	

* Include only collisions that are susceptible to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume									
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate									
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds									
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	0%		0%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	08:00	09:00	10:00	12:00	13:00	17:00	18:00	19:00		
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
1A	480	720	600	900	979	1,160	610	584	574	1,061	1,090	982		
	COMPLIANCE %				100	100	85	81	80	100	100	100	746	93
1B	120	170	120	170	122	155	23	49	12	32	60	45		
	COMPLIANCE %				72	91	14	29	7	19	35	26	293	37
Restricted Flow Signal Justification 1:					Both 1A and 1B 100% Fulfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
													Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	08:00	09:00	10:00	12:00	13:00	17:00	18:00	19:00		
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
2A	480	720	600	900	857	1,005	587	535	562	1,029	1,030	937		
	COMPLIANCE %				100	100	82	74	78	100	100	100	734	92
2B	50	75	50	75	47	60	9	19	6	16	30	22		
	COMPLIANCE %				63	80	12	25	8	21	40	29	279	35
Restricted Flow Signal Justification 2:					Both 2A and 2B 100% fulfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
													Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Justification 3: Combination

Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimum Vehicle Volume	YES <input type="checkbox"/>	IO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES <input type="checkbox"/>	IO <input checked="" type="checkbox"/>	NOT JUSTIFIED	

Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
Justification 4	09:00	1,005	95	101	94 %	43 %
	17:00	1,029	19	96	20 %	
	18:00	1,030	35	96	36 %	
	19:00	937	26	116	23 %	

Analysis Sheet

[Input Sheet](#)

[Results Sheet](#)

[Proposed Collision](#)

GO TO Justification:

Intersection: Burkholder Drive & Marathon Avenue / Belcourt Street - Ultim; Count Date:

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
Justification 5	1-12	0 %	0 %
	13-24	0 %	
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular Volume V_8	Net 8 Hour Pedestrian Volume				
		< 200	200 - 275	276 - 475	476 - 1000	>1000
Justification 6A	< 1440	Not Justified				
	1440 - 2600					
	2601 - 7000					
	> 7000					

Pedestrian Delay Analysis

	Net Total 8 Hour Volume of Total Pedestrians	Net Total 8 Hour Volume of Delayed Pedestrians		
		< 75	75 - 130	> 130
Justification 6B	< 200	Not Justified		
	200 - 300			
	> 300			

Results Sheet

[Input Sheet](#)

[Analysis Sheet](#)

[Proposed Collision](#)

[GO TO Justification:](#)

Intersection: Burkholder Drive & Marathon Avenue / Belcourt Stree Count Date:

Summary Results

	Justification	Compliance	Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	93 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	37 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	92 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	35 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	37 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	35 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		43 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience		0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Appendix J: Agency Comments



To: Liam Crawford
Planner II January 7, 2025

From: Richard Holborn
Director, Engineering Services

Copy: Division Head, Capital Projects & Infrastructure
Division Head, Water Resources & Development Services
Manager, Landscape & Parks Development
Manager, Transportation & Traffic
Manager, Water Resources
Supervisor, Development Approvals
Coordinator, Development Approvals (JL)

Subject: Zoning By-law Amendment Application A04/24
- Seaton Commercial Developments Ltd.
- Part of Blk 188, 40M-2671
File: D-3300

The Engineering Services Department has reviewed the above noted application and comment as follows:

Please ensure the first site plan submission includes a letter re-stating the City's comment followed by an appropriate response, immediately afterwards, outlining how the proponent addressed the comment. The response must also outline any revisions which impact the overall site design.

Development Services

General Comments

1. Confirm all proposed construction works, including restoration requirements, within the Taunton Road and Peter Matthews Drive right-of-ways, are to the satisfaction of the Region of Durham. Provide a copy to the City of Pickering. This includes the following:
 - a. The requirement for dedicated daylight triangles at the intersection of Taunton Road and Hibiscus Drive.
 - b. Confirmation if all turns along Peter Matthews Drive will be allowed.
 - c. Confirmation if the reconfiguration of the intersection of Taunton Road and proposed public road along the west side will be allowed. The intersection was originally constructed as a private entrance allowing right-in, right-out, and left-in movements.

However, the proposal has now been revised to an all moves signalized intersection and designating it as a public road.

2. The public right-of-way west of the site was proposed to be a private road in the original draft plan of subdivision. Engineering Services has concerns with this proposed change, as outlined in the Water Resources comments below. Should the road remain a public road, the applicant will be required to enter into a Road Servicing Agreement with the City for all off-site works. A draft Agreement will be provided to the applicant for review.
3. Label all the road names on all drawings.

Site Plan

4. Label the existing/proposed sidewalks and walkways with the width and material.
5. The proposed entrances on Hibiscus Drive are to be designed as per City of Pickering standard P-605. Provide the required radii and width for all proposed entrances.
6. Revise the existing sidewalk on Marathon Avenue to be continuous through the driveways as per City of Pickering Standard P-605.

Site Grading Plan

7. Label the existing/proposed sidewalks, walkways and multi-use pathways with the width and material. Ensure the multi-use pathways on Peter Matthews Drive are fully shown on the plan.
8. Ensure the plan is coordinated with the Site Plan. Currently, the middle portion of the median on Peter Matthews Drive is blanked out. Update all relevant drawings as required.
9. The existing abandoned east entrance on Marathon Avenue must be shown as removed, and the roadway should be restored as per the Site Plan.

Site Servicing Plan

10. Development Services has no comments on the Site Servicing Plan.

Landscape Plan

11. Development Services has no comments on the Landscape Plan.

Water Resources Comments

1. Due to insufficient supporting documentation and analysis, the City cannot determine whether servicing and grading the public ROW is feasible. The proponent shall provide a complete SWM Report, engineering plans, details and calculations functionally addressing the ensuing comments in order to support the proposal.
-

2. The proposed storm sewer connection to Marathon Avenue is not permitted. All flows from the proposed public ROW must be conveyed to the approved outlet at the southeast corner of the commercial site. The City requires easements through the private commercial site, straddling the north limit of the TNPI Easement, to the existing control maintenance hole.
 3. Similar to the criteria outlined for the private commercial site (S06/23), quantity control for the public ROW must be provided in accordance with the SWM Report for Taunton Road and Taunton West Subdivisions (Cole Eng., 2017). Target flows from the commercial block shall be as per the VO model for Catchment A-8.2 which has been summarized in Table 5.5. Furthermore, in accordance with the Seaton SWMF#2 design and SWM Report, Visual OTTHYMO (VO) shall be used to determine the flows and storage requirements using the 12 hour AES storm distribution as per the 2012 Duffins Creek Hydrology Update (DCHU).
 4. The City does not accept infiltration galleries or any other LIDs within the public ROW due to operations/maintenance constraints and current staff and resource restrictions.
 5. Major system capture is required along the proposed public ROW with no flows permitted to spill over onto Marathon Avenue. A PCSWMM Dual Drainage Model shall be provided in accordance with the attached modeling criteria.
 6. To assess the feasibility of the proposal, plan and profile drawings are required for the public ROW and storm sewer easement through the commercial site.
-

Capital Projects

General Comments

1. Show the sidewalk connections on Peter Matthews Drive from Taunton Road to Marathon Avenue on all plans. Remove all Tactile Walking Surface Indicators from Taunton Road, Peter Matthews Drive, Marathon Avenue. Revise the existing sidewalks and multi-use pathways to ensure they are continuous through the driveways as per City of Pickering Standards P-605 and P-606.
 2. Show the sidewalk connections on Hibiscus Drive from Taunton Road to Marathon Avenue on all plans. Ensure that the proposed commercial entrance off Hibiscus Drive includes a continuous sidewalk as per City of Pickering Standard P-605.
 3. Further review of the Hibiscus Drive ROW will be required through a separate detailed design application. Confirm that the proposed 17m ROW matches the existing Hibiscus Drive ROW width south of Marathon Drive.
-

Transportation & Traffic Comments

1. Label all access widths and curb radii. Ensure the widths and radii are designed as per the City's standards.
-

2. A pavement marking and signage plan is required. Ensure to include the lane way markings (i.e., one-way, two-way travel, etc.) for the aisles within the site.
 3. Provide a pavement marking and signage plan to include lane configuration details for the proposed intersection at the southwest corner of the site.
 4. Provide autoturn maneuvering diagrams for WB-20 trucks for all the accesses on site.
 5. Confirm if Hibiscus Drive will require a southbound left-turn storage lane since it is currently proposed as a full moves access on Hibiscus Drive.
 6. Show the existing and proposed traffic controls for all intersections on the site plan and pavement marking and signage plan.
 7. Confirm the minimum corner clearance of the proposed access immediately north of the proposed intersection meets the TAC accesses spacing guidelines.
-

Landscape & Parks Development Comments

1. Confirm whether the TNPI easement will remain in private ownership or be transferred to the City. In the Mattamy development to the west, the land was transferred to City ownership and now includes an asphalt multi-use pathway (MUP). There may be an opportunity to extend this trail through the current area and, in the future, connect it through the lots between this site and the existing trail. If an MUP is built through the TNPI easement, sections of the sidewalk already constructed on the north side of Marathon Avenue may no longer be necessary.
2. The concept landscape plan shows a large area of hard surfacing at the Peter Matthews Drive corner and between Buildings D and E and Taunton Road. Since this is on the regional boulevard, it will require regional approval. Confirm the intended function of this hard-surfaced area. Consider leaving some of it as green and permeable space to reduce stormwater runoff, similar to the design at the Hibiscus Drive entrance.



PH:jl

Attachment PCSWMM Dual Drainage Criteria

To: Liam Crawford
Planner II

October 28, 2025

From: Richard Holborn
Director, Engineering Services

Copy: Director, City Infrastructure
Division Head, Water Resources & Development Services
Manager, Landscape & Parks Development
Manager, Transportation & Traffic
Manager, Water Resources
Supervisor, Development Approvals
Coordinator, Development Approvals (JL)

Subject: Official Plan Amendment Application OPA 25-001
Zoning By-law Amendment Application A06-25
- Seaton Commercial Developments Ltd.
- Part of Blk 188, 40M-2671
File: D-3300

The Engineering Services Department has reviewed the above noted application and comment as follows:

Please ensure the next submission includes a letter re-stating the City's comment followed by an appropriate response, immediately afterwards, outlining how the proponent addressed the comment. The response must also outline any revisions which impact the overall site design.

Development Services

General Comments

1. Confirm all proposed construction works, including restoration requirements, within the Taunton Road right-of-way, are to the satisfaction of the Region of Durham. Provide a copy to the City of Pickering. This includes the requirement for dedicated daylight triangles at the intersection of Taunton Road and Burkholder Drive, and Taunton Road and Hibiscus Drive.
2. The City's preference is to keep the Hibiscus Drive extension as a private road. Revise the design accordingly. Further discussion may be required to explore alternative solutions if the road is to remain a public road.

Site Plan

The following comments can be addressed at the detailed design stage.

3. Show the north arrow on the plan.
 4. Label all the road names on all drawings.
 5. Label the existing/proposed sidewalks and walkways with the width and material.
 6. The proposed entrances on Burkholder Drive are to be designed as per City of Pickering standard P-605. Provide the required radii and width for all proposed entrances.
 7. Revise the existing sidewalk on Marathon Avenue to be continuous through the driveways as per City of Pickering Standard P-605.
-

Water Resources Comments

1. Water Resources has no comments related to the Official Plan Amendment Application and Zoning By-law Amendment Application. Further comments will be provided at detailed design stage.
-

City Infrastructure

General Comments

1. Remove all Tactile Walking Surface Indicators on Marathon Avenue. Revise the existing sidewalks to ensure they are continuous through the driveways as per City of Pickering Standards P-605.
 2. Show the sidewalk connections on Hibiscus Drive from Taunton Road to Marathon Avenue on all plans.
-

Transportation & Traffic Comments

1. Provide a Transportation Impact Study (TIS) for the proposed development. The TIS must be prepared as per the City of Pickering and the Region of Durham TIS Guidelines.
2. Confirm that the minimum intersection corner clearance for the proposed site accesses meets the TAC Guide requirements. Also, confirm that there are no left turning conflicts at any of the proposed accesses points.

The following comments can be addressed at the detailed design stage.

3. Provide a pavement marking and traffic control signage plan.
 4. Ensure that the drawings label all the proposed curb radiuses and pedestrian crosswalk widths.
 5. Provide vehicle maneuvering diagrams for passenger cars, waste vehicles and trucks.
-

Landscape & Parks Development Comments

1. Landscape & Parks Development has no comments on the Official Plan Amendment Application and Zoning By-law Amendment Application. Further comments will be provided at detailed design stage.

A handwritten signature in black ink, appearing to read "Richard Holt", with a long horizontal flourish extending to the right.

PH:jl