

East Urban Community (EUC)
Phase 3 Area Community Design Plan (CDP)
Master Transportation Study (MTS)

Presented to:

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1.0 INTRODUCTION

The Study Area for the East Urban Community (EUC) Phase 3 Area Community Design Plan (CDP) covers 220 hectares and is located south of Innes Rd., on the east and west sides of Mer Bleue Rd., in the south end of the community of Orléans. The study area is illustrated with a red overlay in Exhibit 1.1.



Exhibit 1.1: Community Design Plan – Study Area

To address appeals received by OPA 150, the City of Ottawa was ordered to undertake an Employment Lands Review (ELR) study, Land Evaluation and Area Review (LEAR) study and consider an extended development projection horizon to 2036. The ELR concluded that there was an oversupply of employment lands within the City and recommended the re-designation of some of the employment lands within the CDP from Employment Area to General Urban Area (west of Frank Bender St.) and Mixed-Use Centre to Urban Employment Area (north of the Hydro Corridor, largely west of Mer Bleue Rd.). The re-designation was implemented through OPA 180 and is reflected on Schedule B of the City’s Official Plan.

A critical element in the CDP process was the coordination of the planning process under the Official Plan with the Municipal Class Environmental Assessment (MCEA) process for proposed infrastructure projects. The coordinated process provides an opportunity to coordinate the approval, review and public consultation of both the EA and the Planning Acts so the requirements of both are met.

The MCEA process recognizes the benefits of coordinating efforts under the Class EA and the Planning Act. Master Plans are defined in the Class EA as “long range plans which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles”. Master Plans allow for a coordinated process with other planning initiatives and provides streamlining opportunities for projects, which have some common elements such as geography or function.

Two Master Planning studies were initiated as part of this CDP: a Master Transportation Study (MTS) and a Master Servicing Study (MSS). These reports have been prepared in conjunction with the Community Design Plan (CDP) for lands within the study area and will be submitted as Class Environmental Assessments.

The required Class EA environmental planning tasks generally include:

- Project need and opportunities;
- Existing conditions;
- Consultation with stakeholders;
- Evaluation of alternatives;
- Identification of effects and mitigation; and
- Documentation and completion of planning documents.

This report presents the methodology, findings and conclusions of the MTS for the East Urban Community: Community Design Plan.

2.0 POLICY AND REGULATORY FRAMEWORK

Several documents were referenced to provide direction and guidance on the transportation policy and framework to be applied to the development of the transportation network of the CDP.

2.1 TRANSPORTATION MASTER PLAN (TMP - 2013)

The City of Ottawa TMP is a guiding principle for planning and developing its transportation network over the next decade. The TMP emphasizes the integration of complete streets, updating modal share targets, advance strategies that improve and support non-auto mode means of transportation such as walking, cycling and transit.

The policies in the TMP will provide a basis for future projects that will remain flexible as priorities evolve over time. The TMP consists of infrastructure projects that are in the affordable network (i.e. projects prior to 2031) and concept network (i.e. post 2031 that are not within the City's budget). The various transportation projects outlined in the TMP relevant to the CDP study area were used as guidance to the study recommendations.

2.2 OTTAWA CYCLING PLAN (OCP - 2013)

The OCP provides guidance for planning, design, implementation and maintenance of cycling facilities within the City of Ottawa. The aim of the OCP is to create policies, facilities and programs that will make cycling an attractive mode of transportation within the City. The City of Ottawa implementation plan includes three phases of investment to 2031 in cycling related infrastructure.

The OCP encourages development of cycling facilities within new communities through the planning stages. Cycling facilities within the CDP area were incorporated as part of the collector roadway system, which provide connections to existing cycling facilities. The connected cycling network would encourage and support all skill level and ages of cyclists.

2.3 OTTAWA PEDESTRIAN PLAN (OPP - 2013)

The OPP is a planning document that provides guidance on how the City can become a vibrant and pedestrian friendly by creating an environment where walking is more attractive, safe and accessible. The desire of the OPP is to make new communities more walkable, connected and maximize opportunities for better walking facilities.

Sidewalks and Multi-use Pathways (MUPs) are planned within the CDP area to provide an environment that encourages walking between communities and employment areas. Grid pattern roads are planned for the CDP study area that encourages and reduces walking distances for pedestrians. The CDP pedestrian facilities also ensure that connectivity is provided to the existing pedestrian facilities.

2.4 BUILDING BETTER AND SMARTER SUBURBS (BBSS)

The City of Ottawa population is expected to increase by roughly 20% (from a 2013 population of 950,000 to approximately 1.15 million) by 2031 or roughly 11,100 persons annually. Aside from the intensification in existing communities, a significant portion of the population growth is expected to be in new suburban communities. As a result of this anticipated growth, the new communities are being designed to accommodate high quality transportation system supporting all modes of travel and a variety of housing types and sizes.

The City of Ottawa BBSS document aims to accomplish the following:

- Ensure that the new communities have a good subdivision design that consist of various land uses that are coordinated with transportation planning;
- Accommodate complete streets that accommodate all users of transportation;
- Provide a variety of safe and reliable transportation options;
- Well designed and attractive suburbs that will create a sense of place and community; and
- Ensure infrastructure is designed, maintained and financially sustainable.

The design and planning of the CDP area aims to accomplish the BBSS objectives and goals.

2.5 COMPLETE STREETS

A complete street ensures that the right-of-way is designed to meet the needs of all users including pedestrians, cyclists, transit and motorists. Complete streets help create safe and livable communities by encouraging other modes of transportation such as walking, cycling and taking transit. The design of the transportation network within the CDP area ensured that it meets all modes of transportation by accommodating:

- Pedestrians through sidewalks and MUPs; with a grid pattern roadway design to reduce walking distances where possible;
- Cyclists through the provision of new MUPs and providing connections to existing cycling facilities;
- Transit routes and stops through the collector road system within the CDP area; and
- Motorists through developing local and collector roads and intersections that reduce travel speeds and encourage traffic flow (i.e. roundabouts).

2.6 TRANSIT-ORIENTED DEVELOPMENT (TOD) GUIDELINES (2007)

The TOD guidelines are applied to communities that are within 600m of a rapid transit stop or station. The Cumberland BRT (albeit beyond 2031) runs parallel to and north of the Brian Coburn Blvd. within the CDP study area. Therefore, land uses north and south of the corridor would fall within the 600m radius of the rapid transit corridor. The TOD guidelines are as follows:

- Land uses – medium-to-high density residential, commercial, employment, institutional and mixed-use areas are planned in close proximity of the rapid transit corridor and stations (i.e. Fern Casey and Mer Bleue stations). The transit supportive land uses within the CDP area would encourage transit ridership in the future.
- Layout – providing a grid pattern roadway system within the CDP area would reduce the need to travel great distances to transit facilities and encourage more ridership.
- Built Form – creating “good design and places” around transit facilities will make for a more attractive public realm.
- Pedestrian and Cyclists – creating a safe and accessible walking and cycling experience would encourage the use of active modes to and from transit facilities. The CDP area

incorporates sidewalks and MUP connections to future transit stations to encourage other modes of travel.

- Vehicles and Parking – reduce conflict between vehicle movements and pedestrians to encourage active modes of transportation. Initiatives such as shared parking arrangements can reduce parking requirements around transit stations.
- Streetscape and Environment – proper planning and design of the areas/path that lead to and from transit stations/facilities is an important element to create a positive experience for transit users.

2.7 BRIAN COBURN EXTENSION / CUMBERLAND TRANSITWAY WESTERLY ALTERNATE CORRIDOR ENVIRONMENTAL ASSESSMENT (EA) (2017 – UNDERWAY)

The EA for the Blackburn Hamlet Bypass Extension (BHBPE) / Cumberland Transitway was completed and approved in 1999. Part of the BHBPE segment (now called Brian Coburn Blvd.) has been built from Navan Road to east of Mer Bleue Road. However, the poor soil conditions in the vicinity and west of Navan Rd / Brian Coburn Blvd. increased the cost of construction significantly, making the previous approved project (1999) uneconomical. As a result, the City of Ottawa has initiated a new EA process to evaluate alternative alignments for Brian Coburn/Cumberland Transitway west of Navan Rd./Brian Coburn Blvd. Various alignments have been considered but a preferred alignment has not been selected. The EA study is also considering interim transit priority options.

3.0 CONSULTATION

Consultation is an integral part of both the Planning and Class Environmental Assessment (EA) processes. A Public Consultation Report (Morrison Hershfield, 2020) has been prepared outlining the process and meeting materials. Information is also available on the City of Ottawa Website¹. Consultation and the exchange of information was undertaken throughout the planning and assessment processes using a variety of methods, including meetings with the general public, regular meetings with the Core Project Team (CPT), consultation with approval agencies and the Ward Councilor. The project proceeded under the direction of the City of Ottawa and benefitted from the direct involvement and guidance of a Technical Advisory Committee (TAC) consisting of representatives from select government agencies, approval bodies and landowners. Table 3.1 lists key issues identified as part of the public consultation process.

¹ <https://ottawa.ca/en/city-hall/public-engagement/projects/east-urban-community-mixed-use-centre-community-design-plan#overview>

Table 3.1: Key Project Issues

Topic	Comment
Transportation	<ul style="list-style-type: none"> • Concerned dead-ending both Renaud and Pagé Roads at Navan Rd. would eliminate direct access from Bradley Estates to the Mixed-Use Centre and existing retail along Innes Rd. • Would like the Brian Coburn extension to continue west of Navan Rd. and connect to Renaud Rd. rather than to the Blackburn Hamlet Bypass. • Would like safe and convenient pedestrian/bicycle access from the East Urban Community- Phase 1 to the commercial area. • Concerned with the existing condition of Mer Bleue Rd. and Renaud Rd. and the traffic associated with construction. Would like the Brian Coburn extension to Pagé /Navan Rd. to be completed sooner rather than later in order to alleviate traffic. • Would like a new park and ride in the area in order to alleviate the need to take express bus routes. • Concerned with cut through traffic along Renaud Rd. and connections to Innes¹. • Upgrade Mer Bleue and Renaud Rd. • Extend Brian Coburn • Construct Belcourt from water tower to Renaud Rd.
Parks, Schools and Greenspace	<ul style="list-style-type: none"> • Residents requested some green space remain, citing it as the reason a lot of people chose to live in the area. • Ensuring the protection of Innes Park Woods • Provision of a community / recreation center for residents with safe access. • Timing for upgrades for Primary school, secondary French school on Renaud?
Commercial	<ul style="list-style-type: none"> • A farmer's market or more local store-type area (as opposed to big box stores), similar to Manotick/Merrickville or Lansdowne, was preferred to “add personality” and create a "town within a town".
Surface Water	<ul style="list-style-type: none"> • Implementation of appropriate flood mitigation and surface water management

1- Renaud Road is currently a 2-lane collector roadway. The ultimate solution to the concern would involve the development of the Brian Coburn West extension to the Innes/Walkley connection to divert traffic from Renaud Road. With the advent of this new infrastructure, the share of cut-through traffic on Renaud Road is anticipated to decline.

These issues were incorporated in the subsequent CDP, MSS and MTS. As part of the coordinated CDP/EA process, Indigenous Groups were provided with information relating to the development of the CDP. More specifically, the Algonquins of Ontario were contacted with an offer to receive comments. No comments have been received. The City of Ottawa’s Development Applications process circulates to area residents with upcoming development applications and associated reports.

Throughout the project, the CPT met with key agency stakeholders and City staff with an interest in the project (TAC). Reports and Plans were circulated for comments and revisions made accordingly.

4.0 PROJECT NEEDS AND OPPORTUNITIES

4.1 PROJECT NEEDS

Schedule B- Urban Policy Plan of the Official Plan currently designates the CDP Study Area as follows:

- General Urban Area;
- Urban Employment Area; and
- Mixed Use Centre.

When the Official Plan for the amalgamated City of Ottawa was developed in 2003, a Mixed-Use Centre designation was established in South Orléans in the approximate location of the two planned BRT stations at Fern Casey Blvd. and Mer Bleue Rd. The boundary of the Mixed-Use Centre designation evolved over time as the lands to the south, southeast, and southwest were developed.

The South Orléans Mixed Use Centre was further modified in 2016 through Official Plan Amendment 180, which implemented recommendations from the City’s ELR. More specifically, the ELR determined that there was an oversupply of employment land in the City of Ottawa and proposed re-designating land in certain areas. In recognition that the lands in South Orléans are challenged to attract employment uses seeking convenient access to highways and high visibility, the ELR recommended that the western half of the South Orléans Employment Area be re-designated to General Urban Area (now in effect). In order to reinforce the remaining Employment Area at the east end of South Orléans, the ELR recommended that the northeast portion of the Mixed-Use Centre designation be designated Urban Employment Area (now in effect).

Through the development of the CDP, it was proposed that the South Orléans Mixed Use Centre designation be removed completely and replaced with the General Urban Area designation. To support the land uses envisioned in the EUC Phase 3 Area the following transportation needs were identified:

- Transit provisions to support the growth;
- Pedestrian and cycling facilities to support growth;
- Local and collector roadways to support growth; and

The City of Ottawa requested that regional wide network improvements indirectly associated with this MTS that are needed to support the entire lands south of Innes Rd. and east of Navan Rd. be addressed.

4.2 PROJECT OPPORTUNITIES

EUC Phase 3 Area is located south of the Innes Rd. Arterial Mainstreet, north of the Trails Edge community and west/east of Mer Bleue. Its location provides for opportunities to connect to existing and planned transportation facilities that would address the project needs noted above.

Pedestrian Facilities

There are currently sidewalks along Mer Bleue Rd. (north-south) and Innes Rd. (north-south) adjacent to the CDP area. Brian Coburn Blvd. provides a MUP for pedestrian travel south of the corridor. There will be opportunities to connect to these existing pedestrian facilities through the proposed intersections. The proposed east-west Multi-Use Pathway (MUP) within the Hydro corridor provides opportunities for connections through to collector roadways within EUC Phase 3 Area.

Cycling Facilities

There are currently on-street cycling lanes along Mer Bleue Rd (north-south), Brian Coburn Blvd. (westbound) and Innes Rd. (east-west) adjacent to EUC Phase 3 Area. The Brian Coburn Blvd. also affords a MUP on the south side of the corridor. There will be opportunities to connect to the existing cycling lanes within the CDP area through collector roadways. The proposed collector roadways are envisioned to include cycling facilities within the community.

Transit Services

The new collector roads within EUC Phase 3 Area will accommodate transit services throughout the community and ensure reasonable walking distances to bus stops. There will be opportunities to modify existing transit services/routes or provide new routes as required to serve the CDP area.

Road Network

The collector roadway system will provide travel for all modes of transportation. The collector roads will connect to adjacent arterial roads (i.e. Innes Rd., Mer Bleue Rd. and Brian Coburn Blvd.) that will provide the primary routes to/from the community. The road network is proposed to provide an indirect connection between Brian Coburn Blvd. and Innes Road through the Fern Casey Blvd., Vanguard Drive and Frank Bender St. corridors. This will provide opportunities for the existing and proposed communities to the south to have another north-south connection.

5.0 EXISTING TRANSPORTATION CONDITIONS

5.1 ROADWAY NETWORK

The major transportation corridors within the planning area are as follows:

- ***Innes Rd.*** is an east-west arterial with 4-lanes of travel (two lanes per-direction). It is one of three access corridors in and out of Orléans from the inner core of the city (the others

being HWY 174 and St. Joseph Blvd.). It is also a major commercial artery between Pagé Rd. and Tenth Line Rd. with big box stores and strip malls along the south side. The north side, in the stretch between Mer Bleue and Pagé, is mostly residential development with a few smaller commercial developments. The posted speed limit along Innes Rd. is 80 km/h as it travels through the Greenbelt (as the Blackburn Hamlet Bypass), but is reduced to 60 km/h east of Orléans Blvd.

- **Brian Coburn Blvd.** is an east-west arterial road characterized by 2-lanes of travel (one lane per-direction) from Navan Rd. to beyond Mer Bleue Rd. Residential subdivisions are currently being built or planned on both the north and south sides. It has a posted speed limit of 60 km/h.
- **Renaud Rd.** is an east-west collector road with 2-lanes of travel (one lane per-direction). Renaud Rd. east of Navan Rd. has the Trailsedge community on the north side, Crème and Eastboro on the south side. West of Navan Rd. are recent developments on the north and south sides (Spring Valley Trails and Bradley Estates). It has a posted speed limit of 50 km/h, which lowers to 40 km/h in the vicinity of Notre-Dame-des-Champs school.
- **Navan Rd.** is an arterial road with 2-lanes of travel (one lane per-direction) running in a north-west to south-east direction. It has a rural cross-section and forms a signalized T-intersection with the Blackburn Hamlet Bypass, a roundabout with Brian Coburn Blvd. within the Greenbelt south-east of Blackburn Hamlet. The posted speed limit is 70 km/h south of the Blackburn Hamlet Bypass and is reduced to 60 km/h near the intersection with Orléans Blvd. There are mostly rural residential and commercial properties along the corridor.
- **Orléans Blvd.** is a 2-lane (one lane per-direction) north-south arterial road that forms a T-intersection with Navan Rd. It becomes a 4-lane roadway (two lanes per-direction) north of the Longleaf Drive / Silverbirch Street intersection. The posted speed limit is 50 km/h north of this intersection and 60 km/h south of it. Orléans Blvd. has residential developments on both sides.
- **Mer Bleue Rd.** is a 4-lane (two lanes per-direction) north-south arterial road that starts south of Innes Rd. and tapers down to 2-lanes just north of Renaud Rd. There are commercial developments on the west and east side within the 4-lane cross-section. Where it tapers down to 2-lanes, Mer Bleue Rd. has a rural cross-section with uncultivated farmland, agricultural land and existing rural residences on both sides. The section between Innes Rd. and Renaud Rd. has a posted speed limit of 60 km/h. The posted speed is reduced to 50km/hr. south of Renaud Rd.

The following points outline the infrastructure improvements that were envisioned within the City of Ottawa 2013 TMP:

- **Blackburn Hamlet By-Pass Extension:** New 4 lane arterial between Orléans Blvd. and Navan Rd. This was anticipated to occur sometime between 2014 and 2019 (Phase 1). This corridor is also planned to extend to Innes Rd. sometime between 2020 and 2025 (Phase 2). However, both extensions identified in the TMP have been determined to no longer be feasible due to costly geotechnical constraints and so alternative alignments

are being considered west of Navan Rd. Presently, there is no defined alignment as the City of Ottawa is in the process of undertaking the EA.

- *Tenth Line Rd.*: This corridor is to be widened from 2 to 4 lanes between Harvest Valley Rd. and Wall Rd. sometime between 2020 and 2025.
- *Navan Rd.*: This corridor is to be widened from 2 to 4 lanes from Brian Coburn Blvd to Mer Bleue Rd. The Navan Rd. widening is classified as a Network Concept and there is no timeline for this improvement.
- *Mer Bleue New 4-lane Realignment*: The Concept Network outlines a new realigned 4-lane Mer Bleue from Renaud Rd. and Navan Rd. There is no timeline for this new section of road.

5.2 PEDESTRIAN FACILITIES

There are sidewalks on both sides of Innes Rd. and Mer Bleue Rd. with a MUP on the south side of Brian Coburn Blvd. to serve pedestrian activities. Also, a MUP is planned along the Hydro corridor that runs from Tenth Line Rd. to just east of Pagé Rd. The CDP collectors propose a collector road configuration that affords a sidewalk on one side with a MUP opposite to support pedestrian activity.

5.3 BICYCLE FACILITIES

The City of Ottawa TMP (2013) indicates that Innes Rd., Mer Bleue Rd. and Navan Rd. are all defined as Spine Routes. Innes Rd. is also considered a cross town bikeway path. Brian Coburn Blvd is considered a Major Pathway. The City of Ottawa Cycling Network indicates that:

- *Innes Rd.* has on-road bike lanes that extend east from the Orléans Blvd. intersection.
- *Brian Coburn Blvd.* has an on-road westbound bike lane and MUP along the south side between Mer Bleue Rd. and Navan Rd.
- *Mer Bleue Rd.* has on-road bike lanes from Innes Rd. to just north of Renaud Rd.

Schedule C of the Official Plan also illustrates an off-route cycling route (i.e. MUP) along the Hydro Corridor. The OCP (2013) indicates that there will be segregated bike lanes along Innes Rd. The implementation plan for such segregated bike lanes are to be implemented during Phase-3 (2026-to-2031).

5.4 TRANSIT

Existing OC Transpo's transit service in the vicinity of the study area is illustrated within Exhibit 5.1.

- Route 25 is a Transitway Route that connects to Line 1 at Blair Station and serves the northern limits of the study area;

- Route 34 (a local route), Route 228 (Connexion route peak hour, peak direction) and the new Chapel Hill Park-and-Ride (which was implemented in the Fall of 2019) all serve the western limit of the study area;
- Route 225 (Connexion routes peak hour, peak direction) serve the southern and western limits of the study area; and
- Route 30 (a local route) serves the eastern limit of the study area along the Mer Bleue corridor.

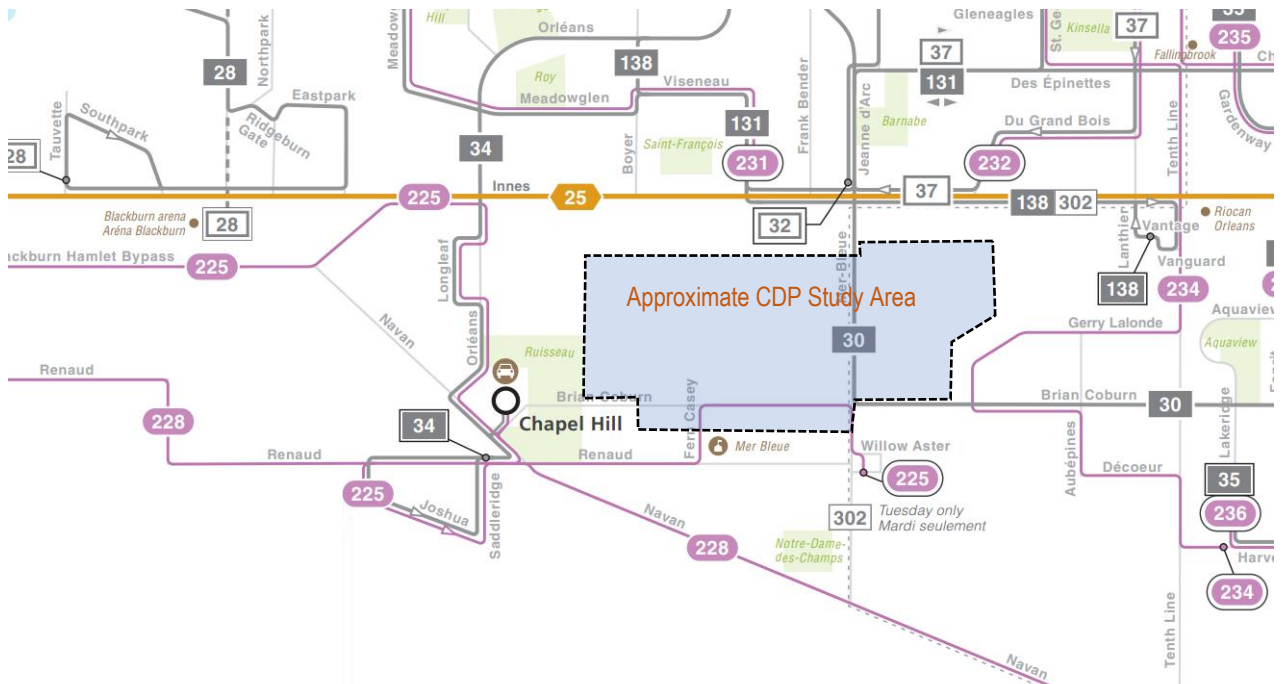


Exhibit 5.1: Existing OC Transpo Routes (Date: March 25th, 2020)

The Affordable Network in the City of Ottawa TMP (Map 5 Affordable Network) has identified the following transit initiatives:

- Transit priority corridors, with isolated transit improvement measures such as transit signal priority and queue jump lanes, are proposed along Innes Road and Brian Coburn Boulevard;
- The LRT is to be extended east of Jeanne d’Arc Boulevard, north of the study area; and
- The Blackburn Hamlet By-Pass / Brian Coburn Boulevard transit priority measures such as continuous transit lanes from Innes Road to Brian Coburn Boulevard, which may include the repurposing of general purpose lanes.

The Concept and Ultimate plans (which are not included in the City’s current affordable network and have unknown timing) envision:

- the future LRT to be extended east to Trim Road (City Council approved extension of the LRT to Trim Rd. with its implementation planned for 2024.);

- a grade separated Bus Rapid Transit (BRT) line proposed through the study area [that would extend from Tenth Line Road alongside Brian Coburn Boulevard to the Blair Road LRT (albeit post 2031)]. This BRT is envisioned to be at-grade at Fern Casey Blvd (former Belcourt Blvd); and
- transit priority initiatives with isolated measures planned along Mer Bleue Road from a future Mer Bleue Road BRT Station north to Innes Road.

The “*East Urban Community Mixed-Use Centre CDP Project Modal Share*”² memorandum [Parsons (June 2014)] indicated the following current peak direction transit characteristics as referenced from transit-person trip travel patterns occurring within the Orléans district (NCR 2011 Trans OD Survey – January 2013):

- Transit person trips associated with the new community south of Innes Road and east of 10th Line Road was found to be in the range of 10%-15%; and
- Transit person trips associated with the established Orleans community was found to be in the order of 30-to-35%.

The existing transit share solely reflects information from the 2011 Trans OD survey and the traffic travel data extracted from the Trans Travel Demand Model. Given that the Trans OD survey was conducted a decade ago, the transit share attributed to the areas south of Innes Road has likely improved since 2011. (This could be substantiated through an analysis of transit boarding and alighting information in the area south of Innes and east of Tenth Line.)

The “existing” 30-to-35% transit share, applicable to the areas north of Innes Road represents a well-established community, that has long had the benefit of dedicated transit facilities along Regional Road 174, supporting Park and Ride facilities at Trim Road & Place D'Orleans and transitway facilities. All of this infrastructure has resulted in the higher mode share for the areas north of Innes Road when compared to the new growing community to the south. Much of this infrastructure to the north has already been in place for well over a decade.

The 10% existing (2016/17) transit share adopted for the existing areas south of Innes are believed to be appropriate as a baseline since transit infrastructure within the area has remained largely unchanged since 2011, until the very recent construction of the Chaplain Mills Park and Ride in the Fall of 2019.

5.5 EXISTING TRAFFIC VOLUMES

Existing traffic volumes for the study area were collected at the following intersections:

- Innes Rd. / Mer Bleue Rd.: May 3rd, 2017
- Innes Rd. / Belcourt Blvd: August 4th, 2015

² “*East Urban Community (EUC) Mixed-Use Centre CDP Projected Modal Share*” Parsons (June 2014)

- Innes Rd. / Viseneau Drive: January 25th, 2017
- Innes Rd. / Pagé Rd.: July 28th, 2015
- Innes Rd. / Orléans Blvd: May 3rd, 2017
- Blackburn Hamlet Bypass / Navan Rd.: May 3rd, 2017
- Navan Rd. / Renaud Rd.: January 28th, 2016.
- Mer Bleue Rd. / Renaud Rd.: January 27th, 2016
- Mer Bleue Rd. / Brian Coburn Blvd: June 1st, 2015

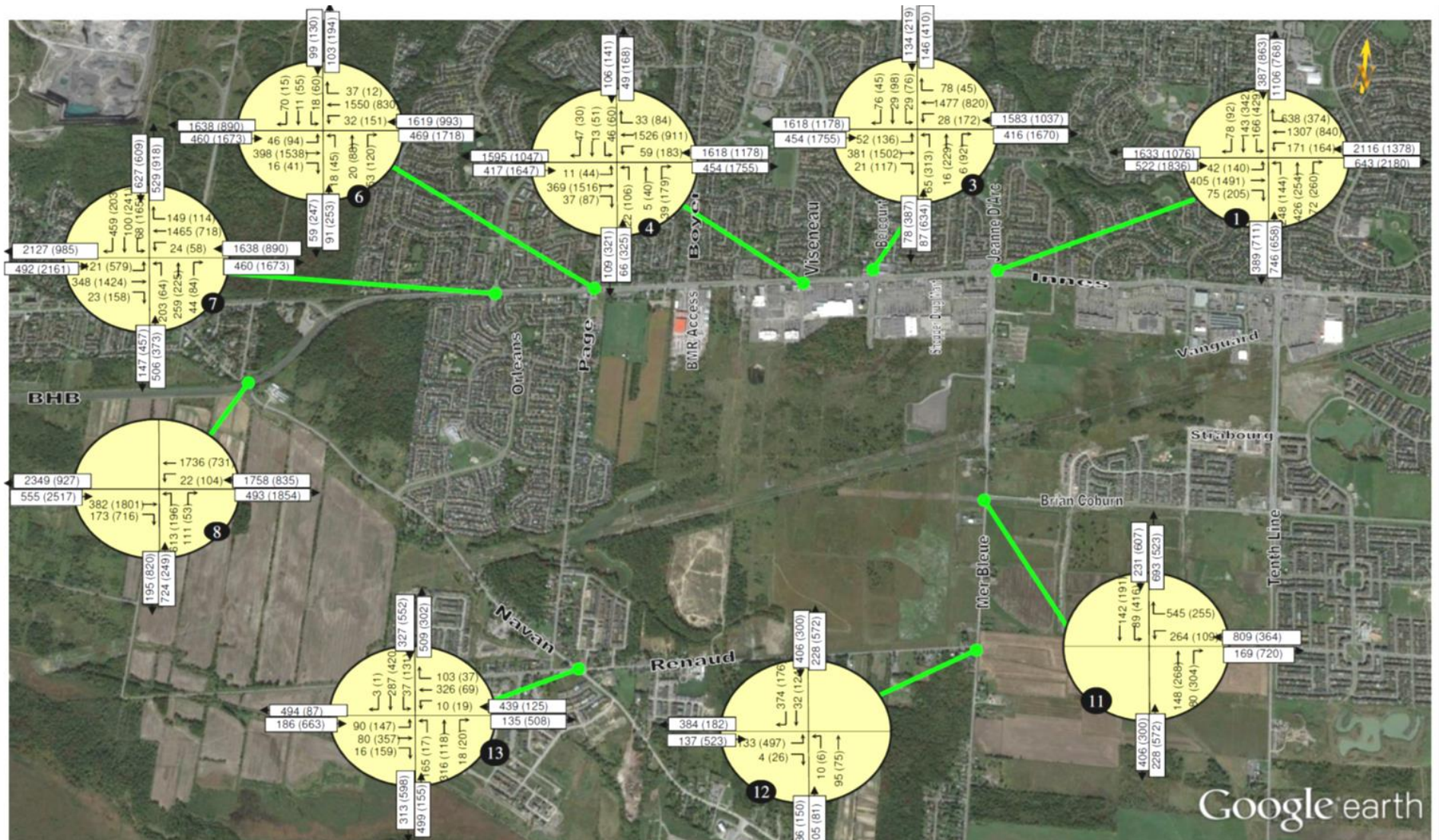
The following steps were undertaken to produce the existing balanced traffic volumes:

- The peak hour (a.m. and p.m.) traffic volumes from each of the intersections were entered into a spreadsheet and the differences between traffic entering one intersection and exiting another were compared to identify where imbalances were present (accounting for mid-block, accesses, etc.).

Exhibit 5.2 illustrates the balanced existing traffic volumes within the study area.

6.0 ALTERNATIVE LAND USE AND INFRASTRUCTURE DESIGN

It is envisioned that the EUC Phase 3 Area will be a hub of activity for the residents of Orléans and surrounding communities. Its mix of housing, offices, shops and commercial services, combined with leisure and recreational opportunities will make it an attractive place to live, work, and play. Rapid transit will have successfully transitioned from bus priority measures on roadways shared with other traffic, to buses travelling on an exclusive BRT right-of-way. The BRT will provide excellent connections for commuters travelling to jobs in other areas or arriving to work in the CDP, which will offer a range of employment opportunities. An off-set grid pattern street network with regularly spaced intersections will allow for efficient transit, cycling, and vehicular travel and pedestrian movements. The Hydro corridor will provide a strong linear corridor for pedestrians and cyclists and will form part of a Greenspace network, which links features such as Innes Park Woods, watercourses, parks, and open spaces. With its compact form, mix of uses, and strong orientation towards walking, cycling and transit, the CDP area will be a model of sustainable design and development.



The following principles have been established to support the vision for the CDP:

- Establish a new, vibrant centre in Orléans, which accommodates a range of uses, such as office, low, medium and highest-density residential, retail, entertainment, and institutional uses, and acts as a central node of activity for the surrounding community and the City as a whole.
- Achieve compact growth which makes efficient use of land and existing infrastructure and is phased in step with required infrastructure improvements.
- In anticipation of the future BRT transitway, establish a Transit-Oriented Development pattern that incorporates “complete streets”, which provide safe, convenient and comfortable conditions for walking, cycling and public transit for all ages and abilities
- Ensure that connections across the Hydro Corridor, the BRT Transitway, and Brian Coburn Blvd. are provided for the safe and efficient passage of pedestrians, cyclists, and motorists from one side of the CDP area to the other.
- Foster growth that complements the existing community of Orléans and facilitates connectivity between the Transit Stations and surrounding neighborhoods through such measures as MUPs, safe road crossings, and an efficient road network.
- Protect, improve and restore the Natural Heritage System within and adjacent to the CDP area and create a Greenspace Network that connects natural features, such as woodlands and stormwater ponds, and community features, such as public parks, and shopping areas.
- Encourage the establishment of a distinct identity for the currently undeveloped CDP area through the creation of area-specific design guidelines, which recognize and celebrate existing features and promote the creation of new public parks and civic spaces that contribute to a sense of place and foster a sense of community.
- Support the economic development potential of Orléans by creating opportunities within this CDP area for a range of employment uses that are well-served by transit.

The following sections presents three concept plans that were prepared as part of this MTS.

6.1 CONCEPT PLAN NO.1

The key features of Concept Plan No.1 include:

- Direct north-south collector route from Fern Casey to Vanguard extension;
- Extension of Frank Bender to future Vanguard extension (west of Mer Bleue);
- Extension of Vanguard from Mer Bleue west through to the neighbouring property and up to Innes Rd.;
- Five connections to arterial roadways;
- Preservation of Innes Park Woods;
- Neighbourhood park abutting storm water management;
- Mixed-use/employment located near future major Mer Bleue transit station;
- Mixed-use/high density residential located near future Fern Casey transit station;
- Opportunity for multiple transit routes; and
- MUPs

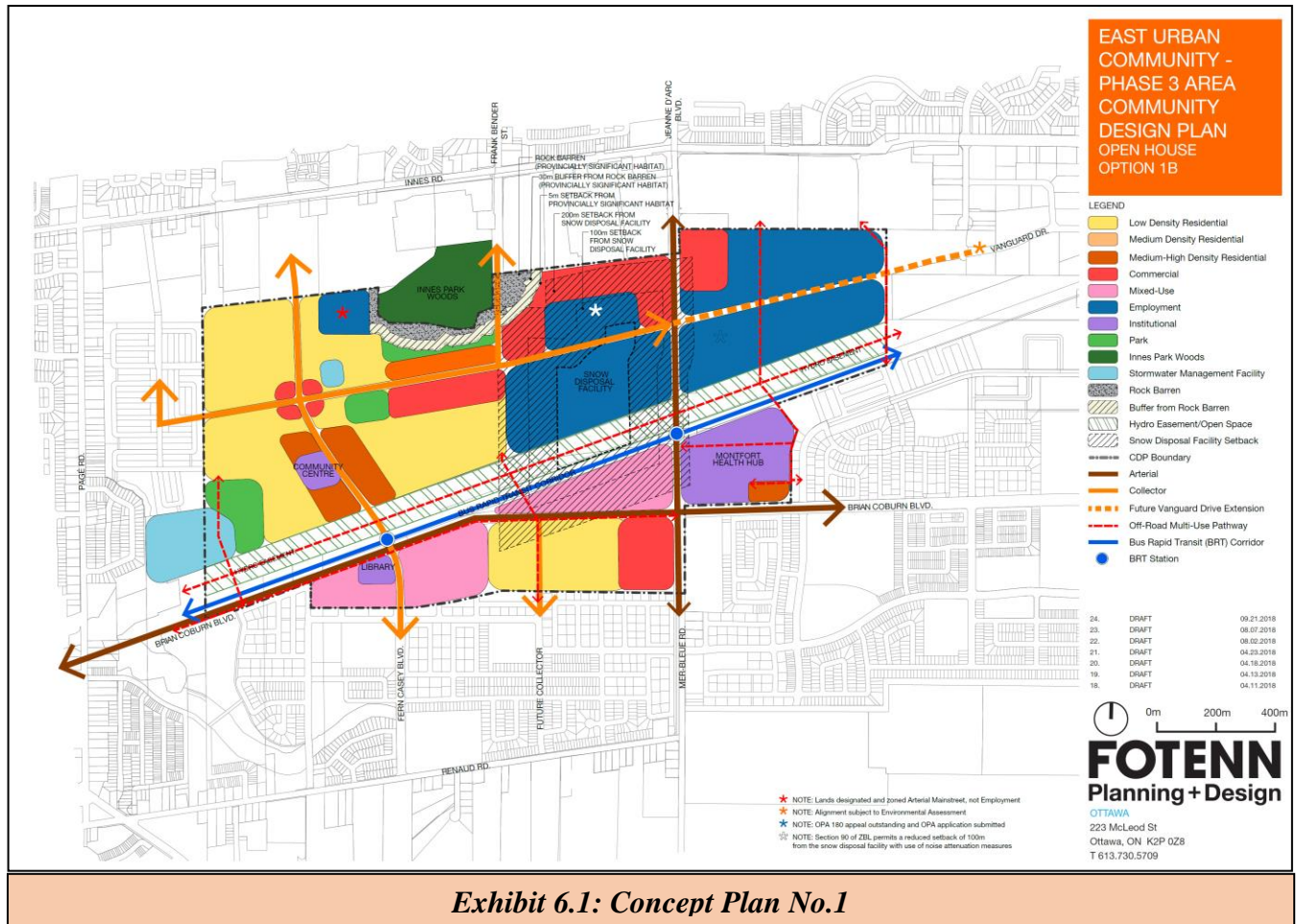
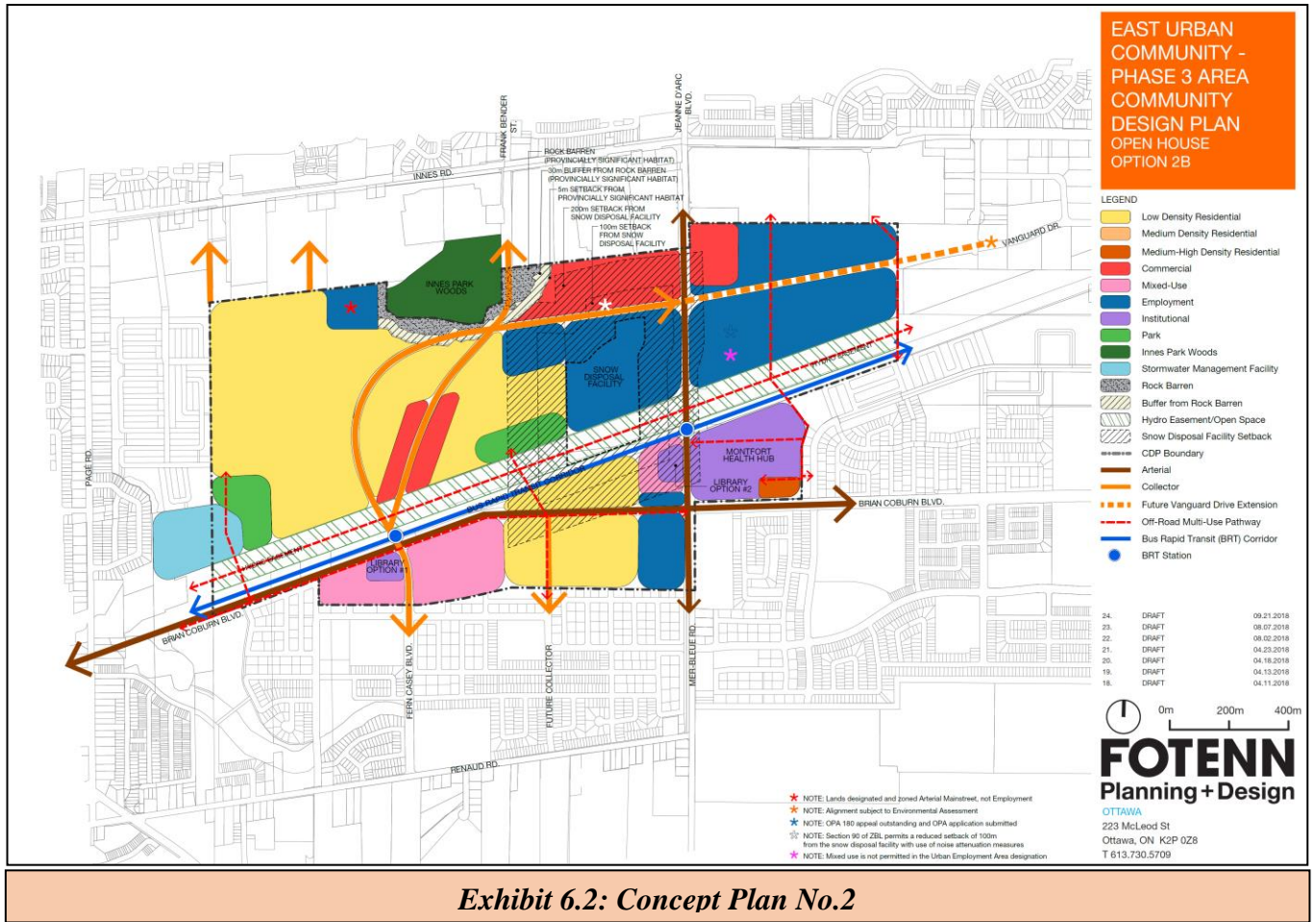


Exhibit 6.1: Concept Plan No.1

6.2 CONCEPT PLAN NO.2

The key features of Concept Plan No.2 include:

- Two direct north-south collectors connecting Fern Casey to Frank Bender;
- Extension of Vanguard west of Mer Bleue that loops south to connect to Fern Casey;
- Six connections to arterial roadways;
- Preservation of Innes Park Woods;
- Neighbourhood park abutting storm water management;
- Mixed-use/employment located near future major Mer Bleue transit station;
- Mixed-use/high density residential located near future Fern Casey transit station;
- Opportunity for multiple transit routes; and
- MUPs.



6.3 CONCEPT PLAN NO.3

The key features of Concept Plan No.3 include:

- Indirect north-south collector connecting Fern Casey to Frank Bender;
- Extension of Vanguard from Mer Bleue west through the neighbouring property up to Innes Rd.;
- Five connections to arterial roadways;
- Preservation of Innes Park Woods;
- Neighbourhood park abutting storm water management;
- Multiple parks and parkettes spaced throughout the CDP area;
- Mixed-use/employment located near future major Mer Bleue transit station;
- High density residential located near the future Fern Casey transit station;
- Better segregation of employment and residential lands;
- Opportunity for multiple transit routes; and
- MUPs.

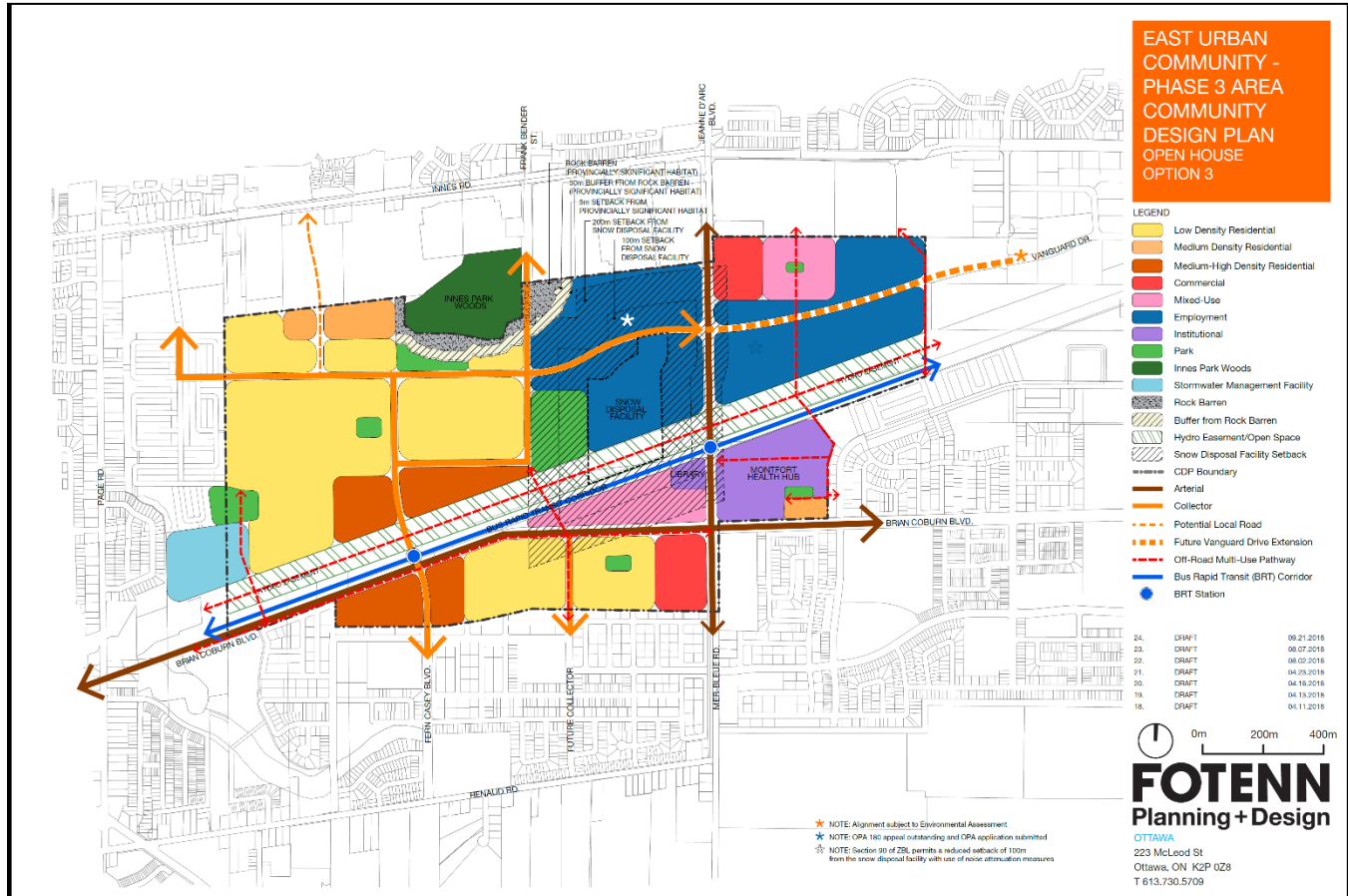




Exhibit 6.3: Concept Plan No.3

7.0 EVALUATION OF ALTERNATIVE LAND USE CONCEPTS

The three concepts were evaluated based on a list of criteria that considered the impacts of the natural and physical environmental, social environmental, transportation, servicing and economics. The impact (positive or negative) and the severity of the evaluation criteria was quantified according to the indicators in Table 7.1.

Table 7.1: Impact Description Table

	Terms describing:		Definitions
	Negative Impacts	Positive Impacts (i.e., Benefits)	
Most Preferred 	Negligible/ Low	Greatest	The impact exists but is of a magnitude small enough that it has little effect or is of limited benefit; or has the least impact compared to all the alternatives. Greatest compliance, contribution or benefit.
	Slight	Good	The impact exists and is of relatively low magnitude. Provides a moderate effect or contribution or benefit.
	Some	Reasonable	The impact exists and has an effect that is of a moderate magnitude. Provides a measurable contribution or benefit.
Least Preferred 	Greatest	Limited	The impact exists and has an effect that is relatively large or has the most impact when compared to other alternatives. Little to no contribution or benefit

Other factors were considered in the evaluation but did not result in a distinguishing difference between the alternatives. These included:

- Provision of Libraries
- Parks adjacent to SWMP
- Mix of uses adjacent to BRT station
- Loss of water courses
- Minimizing upgrades to existing water system requirements
- Compatibility with existing and future municipal infrastructure
- Impacts to existing downstream flood levels
- Disruptions of natural habitat (loss / fragmentation)

The transportation evaluation considered as criterion:

- Traffic infiltration through the community;
- Efficiency of road network;
- Efficiency of the transit system; and
- Active accessible neighbourhoods.

Table 7.2: Evaluation of Land Use Concepts

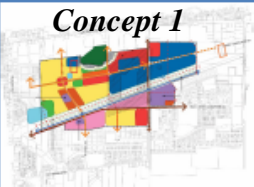
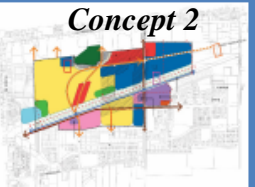
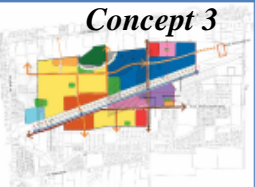
Category Catégorie	Criteria/Objective Critère/Objectif	Option 1B 	Option 2B 	Option 3 
Natural and Physical Environment Environnement naturel et physique	Connectivity within the natural heritage system Connectivité dans le système du patrimoine national	✓	~	✓
	Amount of greenspace (parkland) quantité d'espaces verts (parcs)	~	~	✓
	Hibernacula/ Hibernacula	✓	✗	✓
	Species at Risk/Espèces en péril	✓	~	~
	Protection of recharge areas/ Protection des zones de recharge	~	✗	✓
Social Environment Environnement social	Maximize access to community amenities/services Maximiser l'accès aux équipements communautaires et les services	✓	~	✗
	Parks/Parcs	~	~	✓
	Provide appropriate mix of land uses considering ongoing snow disposal operations / Fournir un mélange approprié d'utilisation de terrains compte tenu des opérations d'élimination de la neige en cours	✓	✗	~
Transportation Transport	Minimize traffic infiltration through the community Minimiser l'infiltration du trafic à travers la communauté	~	~	✓
	Efficiency of road network / Efficacité des réseaux routiers	✓	~	✓
	Create an efficient transit system / Créer un système de transport efficace	✓	~	✓
	Create active accessible neighbourhoods / Créer des quartiers actifs et accessibles	✗	✓	~
Infrastructure / Infrastructure	Reduce construction, maintenance and operations requirements SWMF / Réduire les exigences de construction, d'entretien et d'opérations de l'installation de GEP	✗	✓	✓
	Reduction of construction and operations requirements for sanitary servicing / Réduction de la construction et des exigences des opérations pour les services sanitaires	✓	✗	✓
Economics Économique	Minimize front ending costs and allow for efficient area development / Minimiser les coûts initiaux et optimiser l'aménagement du territoire	✓	✗	✓
Preferred / Prédé				✓

Table 7.2 presents the results of the natural and physical environment, social environment, transportation, servicing and economics evaluation on the three land use concepts. The evaluation concluded that Concept No.3 was the preferred land use plan.

8.0 PREFERRED DEVELOPMENT PLAN

Subsequent to the completion of various public and TAC meetings, the CPT reviewed the feedback and refined the preferred concept plan. The preferred concept plan, which is illustrated in Exhibit 8.1 includes:

- Fern Casey Blvd. that connects Vanguard Drive and Frank Bender;
- Extension of Vanguard from Mer Bleue west, through the CDP area, to the neighbouring property and up to Innes Rd.;
- Five (5) collector-arterial connections (two (2) connections to Innes Rd., two (2) connections to Brian Coburn Blvd, and one (1) to Mer Bleue Rd.);
- Preservation of Innes Park Woods;
- Multiple parks and parkettes spaced throughout the community;
- Mixed-use/employment located near the future major Mer Bleue transit station;
- High density development located near future Fern Casey transit station;
- Commercial located along arterial road;
- Better segregation of employment and residential lands;
- Opportunity for multiple transit routes; and
- MUPs.

8.1 PREFERRED LAND USE

The EUC Phase 3 Area CDP will consist primarily of residential dwellings of low, medium and high density. The proposed employment area will be along collector and arterial roadways (Vanguard Extension and Mer Bleue Rd.) as illustrated in Exhibit 8.1. The concept plan also consists of mixed-use, employment and institutional (Health Hub) land uses. Details of the concept plan include:

- Low density: 2,000 units
- Medium density: 330 units
- Highest density: 1,240 units
- Mixed use: 1,658 units and 420 jobs
- Commercial: 300 jobs
- Institutional: 1,500 jobs [1,500 jobs are associated with Montfort Health Hub. For the purpose of this MTS 350 jobs are anticipated to come on-board before interim year and the remaining are assumed to be ultimate build-out year]
- Employment: 2,545 jobs

**EAST URBAN
COMMUNITY -
PHASE 3 AREA
COMMUNITY
DESIGN PLAN
PREFERRED
LAND USE PLAN**

LEGEND

- Low Density Residential
- Medium Density Residential
- Highest Density Residential
- Commercial
- Mixed-Use
- Employment
- Institutional
- Park
- Innes Park Woods
- Stormwater Management Facility
- Rock Barren
- Land Adjacent to Rock Barren
- Hydro Easement/Open Space
- Snow Disposal Facility Setback
- CDP Boundary
- Arterial
- Major Collector
- Collector
- Future Vanguard Drive Extension
- Bus Rapid Transit (BRT) Corridor
- BRT Station

32.	DRAFT	03.19.2020
31.	DRAFT	04.17.2019
30.	DRAFT	03.12.2019
29.	DRAFT	02.25.2019
28.	DRAFT	02.12.2019
27.	DRAFT	01.17.2019
26.	DRAFT	10.25.2018



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* NOTE: Alignment subject to Environmental Assessment
 † NOTE: Section 90 of ZBL permits a reduced setback of 100m from the snow disposal facility with use of noise attenuation measures

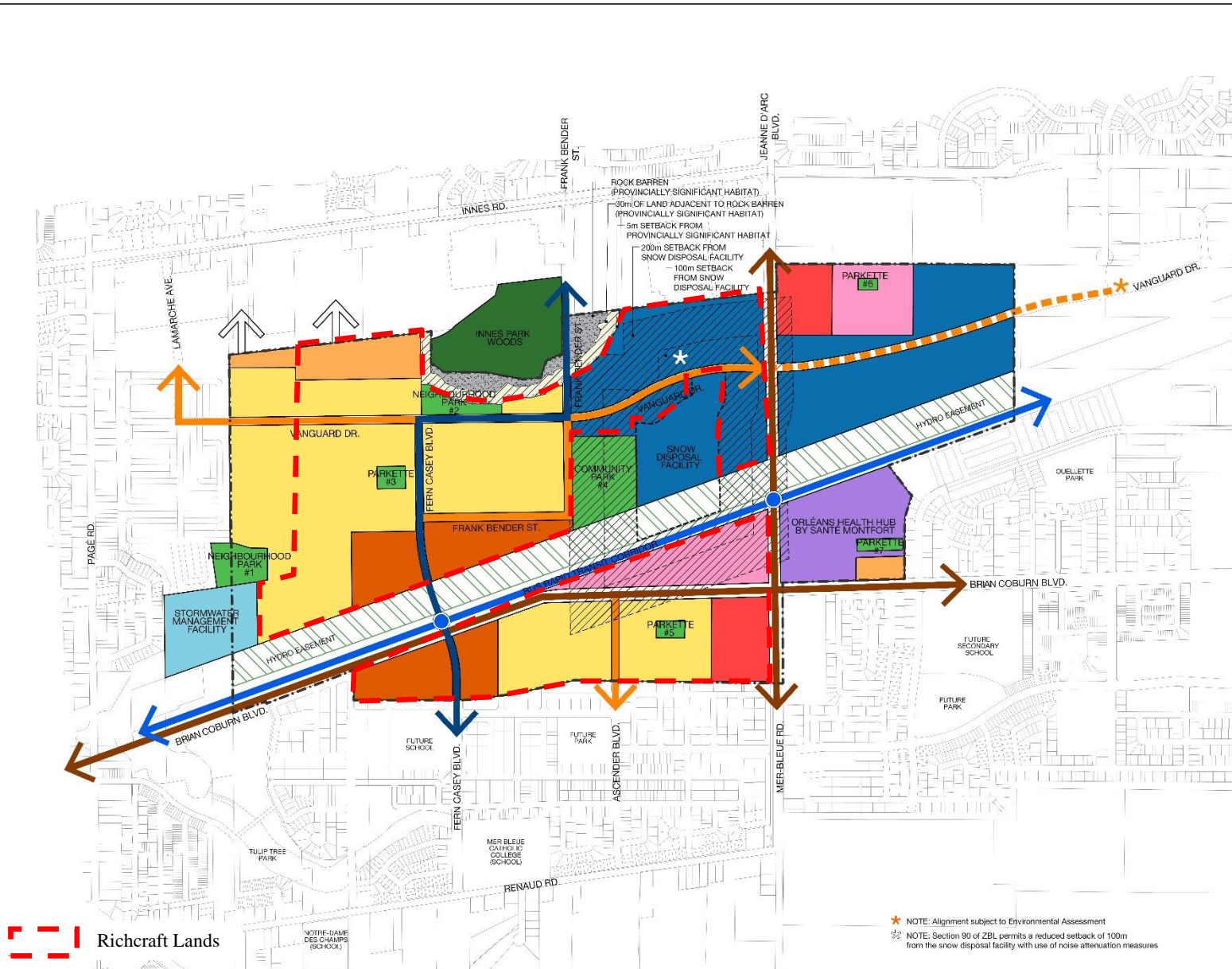


Exhibit 8.1: Preferred Concept Plan

8.2 PROPOSED INTERNAL ROAD NETWORK

The EUC Phase 3 Area CDP is proposing the following collectors:

- **Fern Casey Blvd Extension:** This is a new collector roadway that extends from south of Brian Coburn Blvd. to intersect with Vanguard Street in the north, forming the main corridor from Brian Coburn Blvd. to Innes Rd. Fern Casey Boulevard is envisioned to accommodate 2-lanes of travel through the CDP area. The road is envisioned to be indirect with a roundabout planned at the intersection of Frank Bender Street to slow traffic within the low-density residential area. Fern Casey Blvd. is envisioned to have a right-of-way (ROW) of 24m that would accommodate a sidewalk on one side and a MUP on the other side.
- **Vanguard Dr. Extension:** This collector roadway is envisioned to extend west from Mer Bleue Rd. through the CDP lands and connect to Innes Rd. through the neighbouring property and will provide an east-west route. The road is envisioned to accommodate 2-travel lanes through the CDP area. Vanguard Extension is envisioned to have a ROW of 24m that would accommodate a sidewalk on one side and a MUP on the other side.
- **Frank Bender Street Extension:** It is proposed that Frank Bender St. be extended south and west to intersect with both the east-west Vanguard Dr. and Fern Casey Blvd. as roundabout intersections. The road is proposed to provide a 24m ROW and 2 lanes of travel with a side-walk on one side and a MUP on the other.
- **Ascender Blvd. (south of Brian Coburn Blvd.):** is a new collector road that is envisioned to provide a north-south connection between Brian Coburn Blvd. and Renaud Rd. that would go through the Trails Edge development. The road is envisioned to accommodate 2 travel lanes and have a ROW of 24m. The road is envisioned to accommodate a sidewalk on one side and a MUP on the other side.

8.3 PROPOSED PEDESTRIAN AND CYCLIST FACILITIES

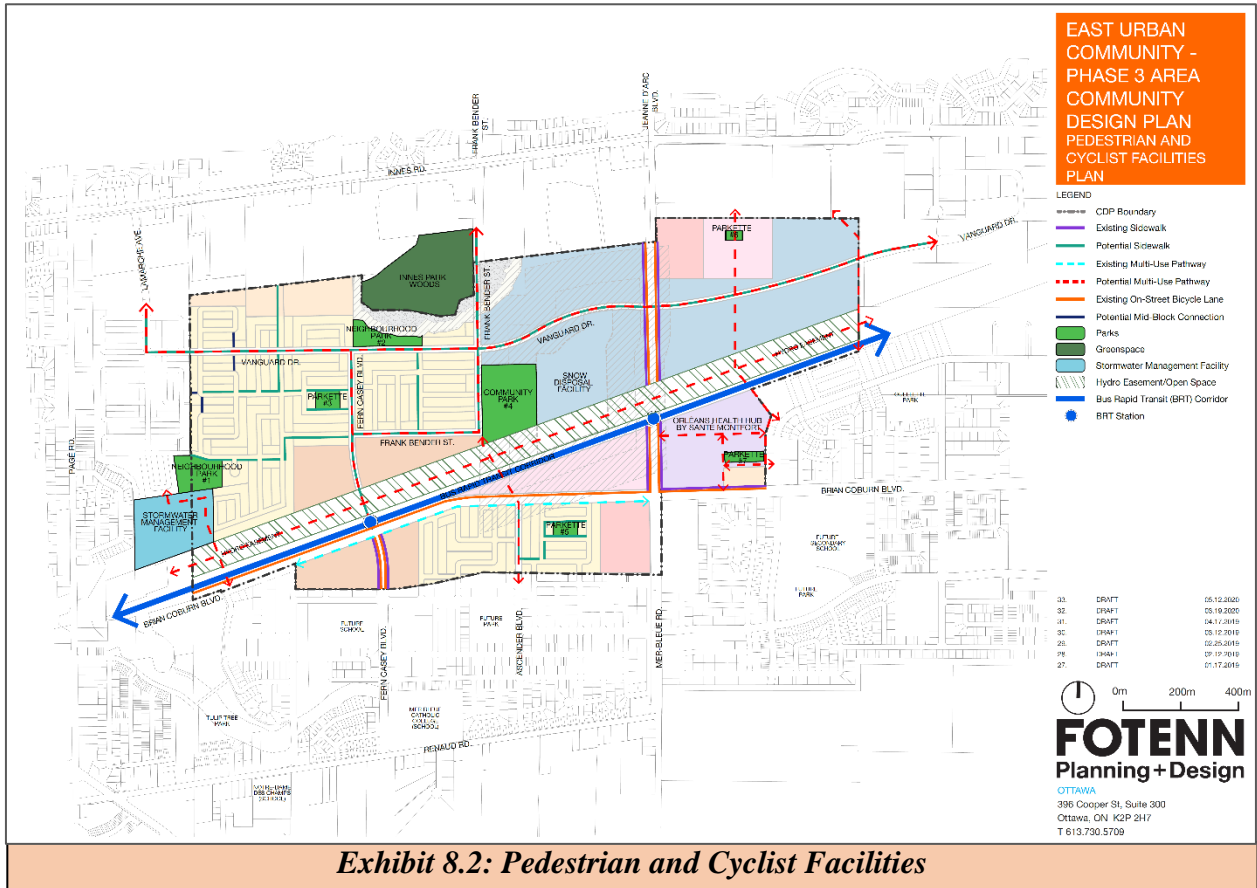
All collector roadways are proposed to provide cycling facilities (i.e. MUPs) within the CDP area. The Frank Bender, Fern Casey and Vanguard corridors will serve as primary north-south and east-west route for cyclists to connect to major arterial roadways such as Innes Rd. and Mer Bleue Rd., which both accommodate cycling lanes. The proposed pedestrian and cycling facilities along Fern Casey Blvd. (Sidewalk and MUPs) and the existing facilities Mer Bleue Rd. (Sidewalks and on-street cycling lanes) are envisioned to provide a connection to the planned future east-west MUP within the Hydro easement.

A combination of a sidewalk and a MUP will be provided on both sides of all collector roads within the CDP area. Select local roads that serve as direct routes to transit stops, schools, parks and commercial areas will have sidewalks on one side of the street.

Two future Bus Rapid Transit stations are envisioned to service the study area. The BRT stations are to be located along Brian Coburn near the intersections with Fern Casey Blvd.

and Mer Bleue Blvd. These stations are connected to the surrounding community by pedestrian and cycling facilities such as sidewalks, on-street bicycle lanes and MUPs.

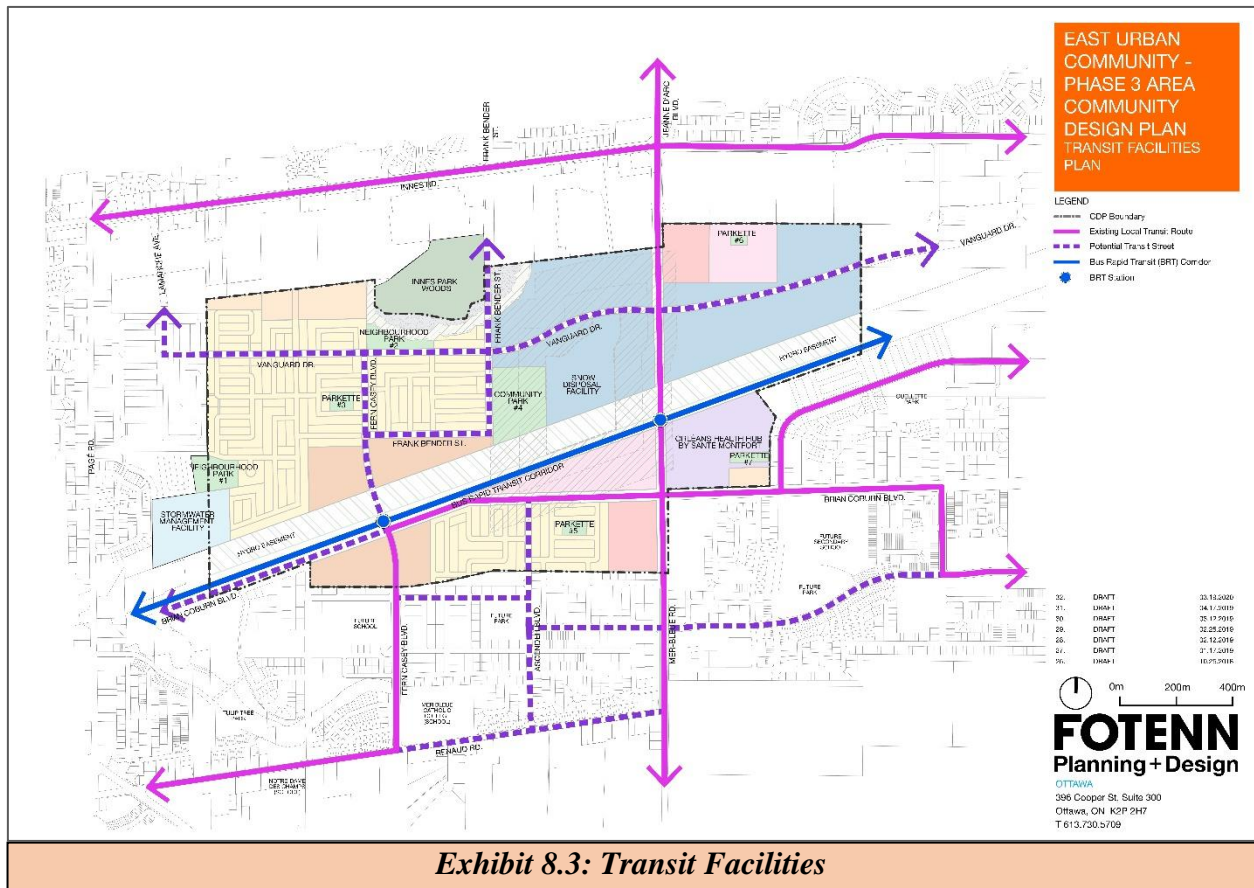
A future MUP is proposed along the Hydro corridor on the north side of Innes Rd. (which proposed to be extended through the study area) along with four north-south MUPs proposed within the CDP area. The MUP at the west end of the study area would provide a connection from the Hydro Corridor MUP around the Stormwater Management Facility to the neighborhood park. The MUP from Ascender Blvd. would cross the Hydro Corridor MUP and connect with Fern Casey Blvd. The two MUPs in the east end of the study area would traverse east of Montfort through the employment areas. Exhibit 8.2 illustrates the proposed BRT stations, pedestrian facilities and cyclist facilities within the CDP area.



8.4 PROPOSED TRANSIT FACILITIES

The provision of transit services will be encouraged during the early plan of subdivision stage of the development through the creation of agreements between the developer and City of Ottawa /OC Transpo. The introduction of new transit services and modifications to existing transit routes will be required to serve the EUC Phase 3 Area CDP. The new collector roadways within the CDP area are envisioned to provide transit service through a 24m right of way. It is envisioned that transit service could operate along any of the new collector roadways, as determined by OC Transpo, in a manner that connects this new community with the existing south Orleans community and to future higher order transit.

The details of the implementation of transit service to the EUC Phase 3 Area will be developed by OC Transpo at the Plan of Subdivision stage for each phase of the development. Transit amenities such as bus pads, shelters and benches will be incorporated into the plan during the detailed subdivision design process.



8.5 PROPOSED RIGHT-OF-WAY AND CROSS-SECTIONS

The following ROW widths are proposed for the new roads in the EUC Phase 3 Area CDP:

- Major Collector & Collector Roads: 24m
- Local Roads: 18m

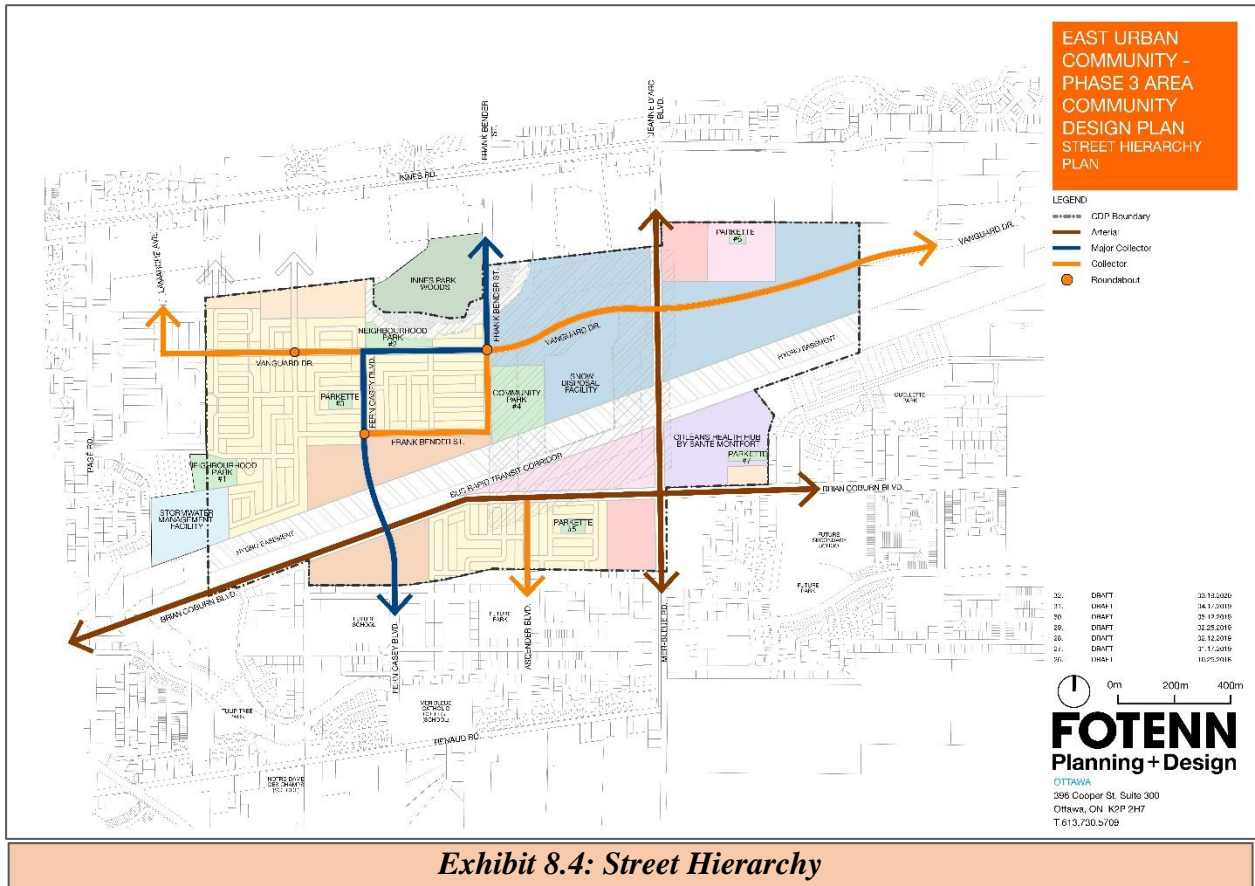
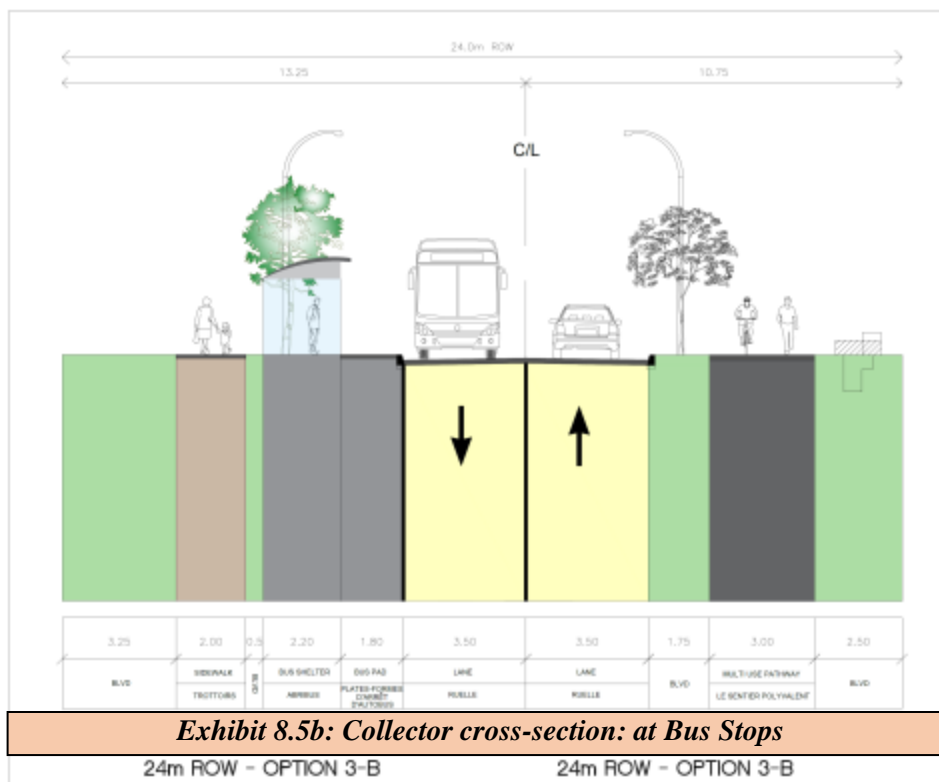
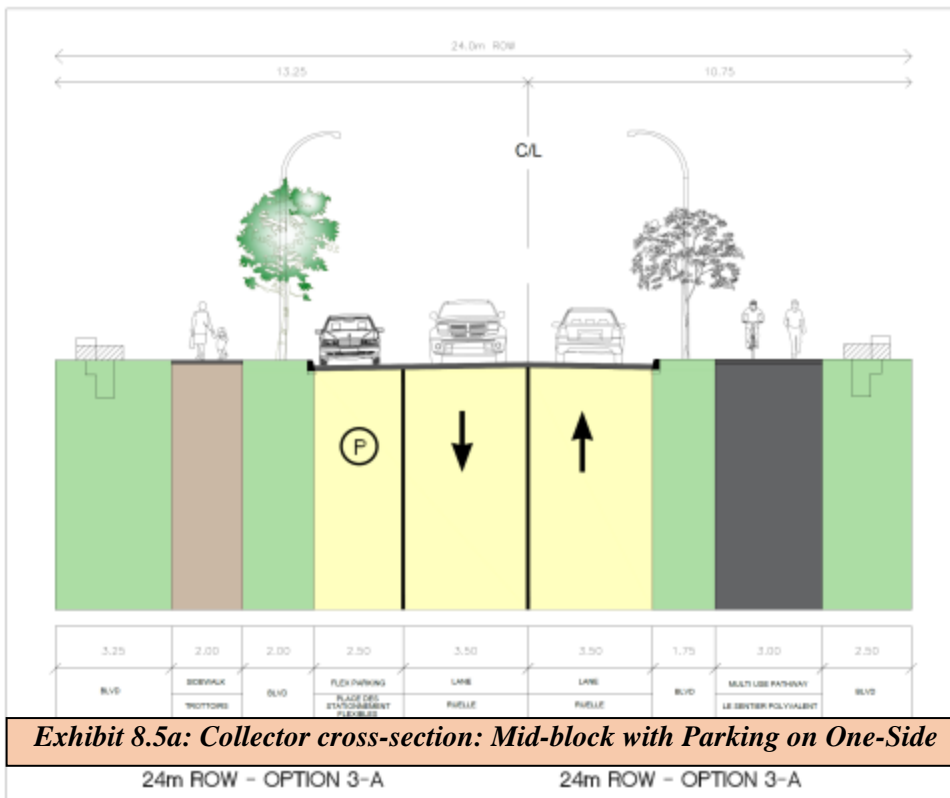


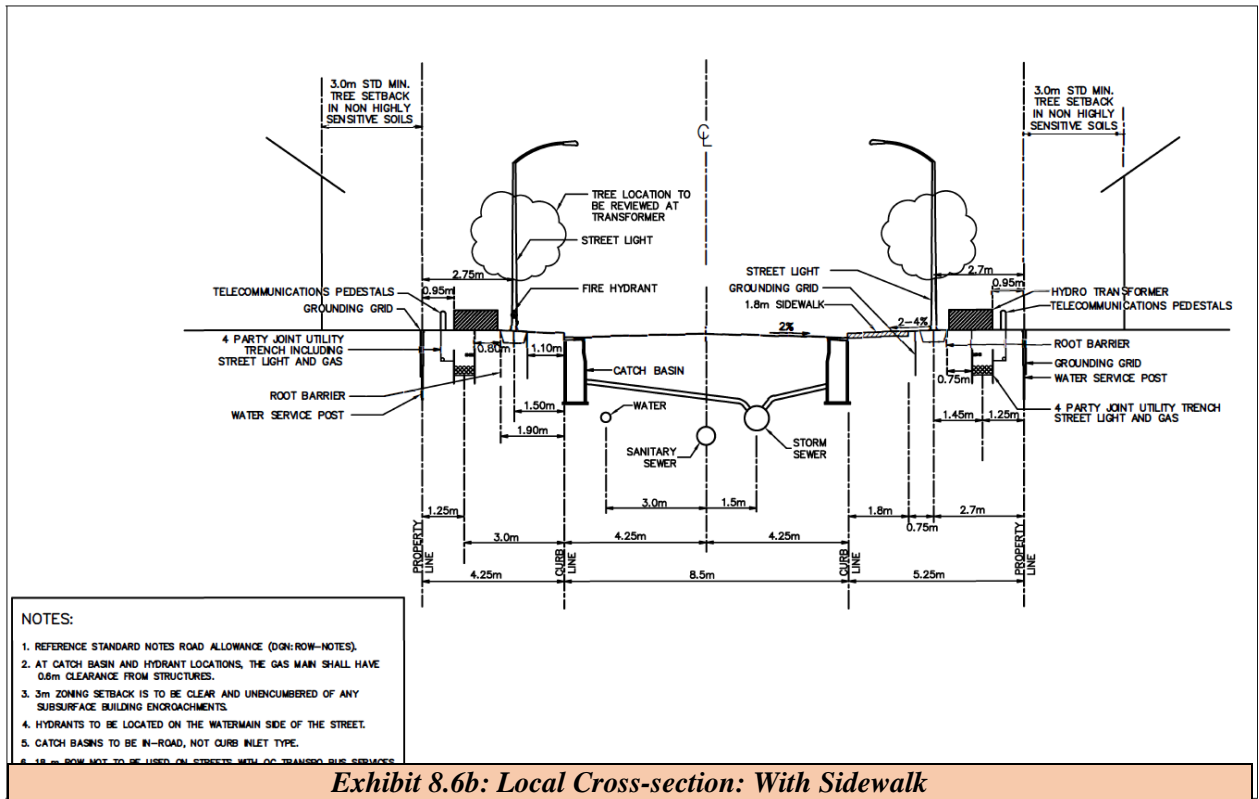
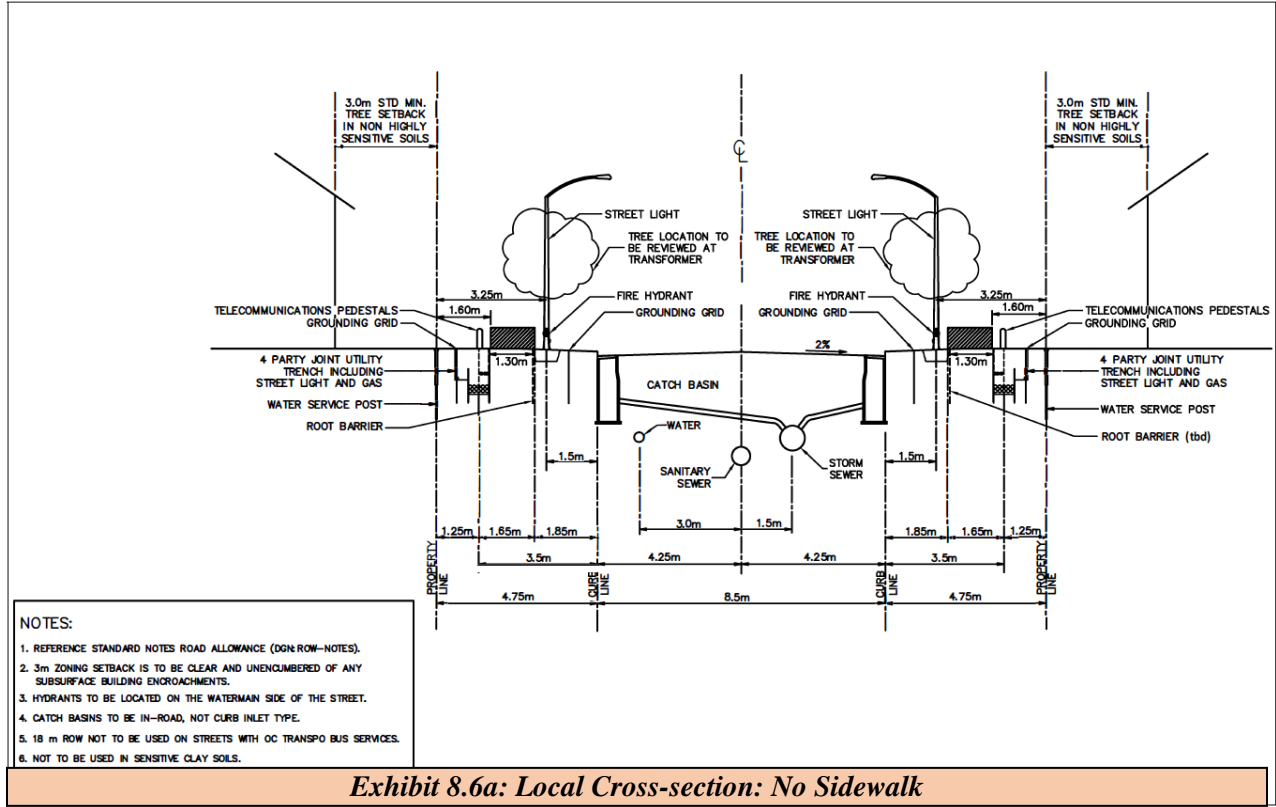
Exhibit 8.4: Street Hierarchy

Exhibit 8.4 illustrates the collector and major collector roadway hierarchy proposed within the EUC Phase 3 lands. Various cross-section options were evaluated for the new collector roadways. A 24m ROW was selected as it provides the opportunity for roads such as Fern Casey, Frank Bender and Vanguard Drive to accommodate transit, a single sidewalk and a MUP to accommodate pedestrians and cyclists. Exhibit 8.5a and 8.5b illustrate the cross-section option elements that were considered due to the flexibility of accommodating parking on one side and also a bus shelter/stop that could be located adjacent to either the sidewalk or the MUP. Various other cross-section options were also considered but not put forward as they did not satisfy:

- foundation to tree setback (of 7.5m) required for sensitive clay soil;
- parking setback requirement of 6.2m from garage door to sidewalk; and
- the required utility setbacks.

The options that were not recommended are illustrated in Appendix “F”.





An alternate local road cross section was proposed to provide sufficient tree setback to address sensitive clay soils. The local road cross-sections are illustrated in Exhibits 8.6a and 8.6b. The local and collector road cross-sections are preliminary and the details of the road arrangement (i.e. sidewalks, cycling facilities, MUPs, on-street parking, transit, etc.), servicing, utilities, street lighting and landscaping will be worked through with the City of Ottawa staff as part of the detailed subdivision design process.

9.0 TRANSPORTATION IMPACT ANALYSIS

The MTS considers two (2) design horizons:

- An “interim” year where approximately 3,500 units would be completed and approximately 1,300 jobs created within the CDP lands (of which 3,200 are located within the Richcraft lands (as illustrated by the boundaries within Exhibit 8.1) along with the following additional adjacent development initiatives outlined in Table 9.1
- An “Ultimate Build-Out” where approximately 2,000 additional dwellings would be completed (of which 250 are located within the Richcraft lands (as illustrated by the boundaries within Exhibit 8.1) and an additional 3,500 jobs created within the CDP lands along with the following additional adjacent development initiatives outlined in Table 9.1

It is critical to appreciate that the current development strategy of the Richcraft lands within the EUC Phase 3 Area indicate that no development will be anticipated prior to the 2031-time horizon (which is only 12 years away from the time of this MTS study) of the City’s Transportation Master Plan. (See Section 9.8)

Table 9.1: Adjacent Developments

No.	Development	Study Referenced	Interim Year	Ultimate Build-out Year (Additional Development)
1	SmartReit Orléans Commercial Development	Stantec TIS (July 2016)	Retail: 183,000ft ² Restaurant: 30,000 ft ² Banks: 10,000 ft ²	n/a
2	East Urban Community Phase II	Delcan CTS (August 2013)	Residential: 700 units Mixed-Use: 320,000 ft ²	Residential: 700 units Mixed-Use: 315,000 ft ²
3	Mer Bleue Expansion Study Area	IBI MTS (April 2017)	Residential: 1,800 units Institutional: 90,000 ft ² Commercial: 2.0 ha	Residential: 1,800 units Institutional: 85,000 ft ² Commercial: 1.9 ha
4	Trails Edge	Castleglenn CTS (November 2016)	Residential: 1,560 units Institutional: 5 ha Commercial block: 5.7 ha	n/a
5	Avalon West	Castleglenn TIA (August 2016)	Residential: 1,900 units Institutional: 56,500 ft ² Commercial: 50,000 ft ²	n/a
6	3490 Innes Rd.	Parson TIS (Dec. 2016)	Residential: 684 units	n/a
7	Chaperal Retail Plaza	Delcan CTS (May 2014)	Retail: 98,000 ft ²	n/a

It is acknowledged that the Chaperal Retail Plaza is on-hold.

Development of the adjacent properties noted in Table 9.1 will also likely occur at a slower rate depending on market conditions.



Exhibit 9.1: Adjacent Development Locations

9.1 TRAVEL PATTERNS

The base traffic volumes used in the MTS assume the section of Brian Coburn Blvd through to Navan Road is not open. As per discussions with City of Ottawa staff³, it was agreed to use the base traffic volumes and make assumptions as to how much traffic would shift to Brian Coburn Blvd. (currently open to Navan Rd.), as the extension of Brian Coburn Blvd. would have impacts on the travel patterns within the study area. The approved **Master Transportation Study for the Mer Bleue Expansion Study Area [MESA] (January 18th, 2018)** relies on traffic assumptions provided by the City’s modelling group regarding the Brian Coburn extension. To remain consistent with the MESA, similar traffic diversion assumptions were applied, which would result in the redirection of 40% of the traffic on Renaud Rd. going to Brian Coburn Blvd. and 5% of traffic to/from north of Innes Rd. The existing traffic volumes were redistributed to account for the above anticipated traffic pattern changes.

³ E-mail with City of Ottawa Project Manager dated Oct. 20th, 2017

9.2 FUTURE BACKGROUND TRAFFIC

9.2.1 Background Traffic Growth – *Orphan Movements*

"*Orphan Movements*" were defined as those turning movements within the study area intersections for which growth can be anticipated but remain unaffected by the known adjacent development initiatives. Growth at these turning movements are attributed to further development intensification within existing developed areas or growth in areas not accounted for within this study. An annual growth rate of 1 percent was applied at the identified turning movements. It should be noted that background growth was not applied to other movements given the level of adjacent development growth assumed in this study.

9.3 TRIP GENERATION

The trip generation associated with the CDP area were estimated using the ITE Trip Generation Manual. The morning and afternoon peak hour rates were used to estimate the CDP area traffic volumes. The ITE trip generation manual is based on data collected throughout North America for suburban areas with low non-auto mode share. It is considered good practice to adjust the trip generation volumes to better reflect local conditions. The vehicle trip generation derived from the ITE data was converted to person trips by using a factor of 1.3 passengers per vehicle.

9.3.1 Existing Mode Share

Once the person trips were determined, they were divided into each travel mode by referencing the "*East Urban Community Mixed-Use Centre CDP Project Modal Share*⁴" memorandum. The report outlines the current travel patterns in the Orléans district (NCR 2011 Trans OD Survey – January 2013) for auto driver, auto passenger, transit and non-auto person trips. Table 9.2 depicts the current modal share for the Orléans district.

Table 9.2: 2011 TRANS Origin-Destination OD Survey - Orléans

<i>Mode</i>	<i>AM Peak (to/from district)</i>	<i>PM Peak (to/from district)</i>
Auto Driver	61% / 55%	56% / 64%
Auto Passenger	13% / 8%	10% / 21%
Transit	10% / 35%	32% / 12%
Non-Auto (Bike, walk, taxi, etc.)	16% / 2%	2% / 3%

The Parsons memorandum also outlined the modal shares for the adjacent community east of the CDP lands (using City's regional TRANS existing conditions model). Table below depicts the regional model for zones 3410 and 3421.

⁴ "*East Urban Community (EUC) Mixed-Use Centre CDP Projected Modal Share*" Parsons (June 2014)

Table 9.3: Existing Regional Model for Zones 3410 & 3421

<i>Mode</i>	<i>AM Peak (to/from district)</i>	<i>PM Peak (to/from district)</i>
Auto Driver	50% / 55%	65% / 55%
Auto Passenger	25% / 20%	20% / 25%
Transit	10% / 15%	10% / 10%
Non-Auto (Bike, walk, taxi, etc.)	15% / 10%	5% / 10%

The derived modal shares summarized in Table 9.3 was assumed to best represent existing conditions for the CDP area given its similarity to the adjacent community (zones 3410 and 3421) in terms of proximity to transit, employment, shopping and other recreational opportunities.

9.3.2 Future Forecasted Mode Share

The following transit improvements would likely increase the current transit share of the area south of Innes Road:

- Isolated transit improvement measures along Innes Road and Brian Coburn Boulevard;
- The Chapel Hill Park and Ride, located at the corner of Navan Road and Brian Coburn Boulevard; and
- The extension of the LRT corridor to east of Jeanne d’Arc Blvd that would permit north-south connections to the study area.

With the anticipated extension of LRT to Trim Rd. station by 2024, north-south transit bus service between the study area and the future LRT stations is anticipated to be established. The advent of formalizing these north-south transit service enhancements could be used to potentially increase the transit share within the study area from its current 10 percent mode share. However, this will result in a similar transit experience for current passengers as it would shift the transit transfer station from Blair Station to a station further. At this point it remains difficult to determine the impact that such enhancements would have upon the future transit share.

Given that the Cumberland Transitway is not currently planned until sometime beyond the 2031 horizon year, the City’s ridership target rate is not expected to be reached by the 2031 timeline of the City’s TMP.

Given the above, and for the purpose of this study, Table 9.4 serves to document a conservative modal share assumption that the Cumberland Transitway will not be in place by the Interim and Ultimate build-out year of the EUC Phase 3 area which is well beyond 2031. This transit increase reflects a doubling in transit share, from the existing 10% transit share to a future 20% transit share, in the absence of additional dedicated transit facilities.

Table 9.4: Future Mode Share
(Interim and Ultimate Build-Out Time Horizon)

<i>Mode</i>	<i>Peak Hour</i>	<i>Rationale</i>
Auto Driver	60%	Auto mode to remain similar to existing mode share
Auto Passenger	15%	
Transit	20%	A 100% increase in Transit due to LRT north of the study area by 2024.
Non-Auto (Bike, walk, taxi, etc.)	5%	

9.3.3 Internal Trips

Internal trips between the employment areas and residential land uses are anticipated within the CDP area. For the purpose of this analysis, it was assumed that approximately 7% of the residential trips would be to/from the employment area (this was in order of 115 vph in the peak direction which were assumed to remain internal to the EUC Phase 3 lands). The residential traffic volumes (115 vph) were subtracted from the employment trips to avoid double counting.

9.3.4 Pass-By Trips

Pass-by trips are trips generated by land uses that are already en-route to their destination. Pass-by trips were assumed for the commercial/retail component of the development.

9.3.5 Trip Generation Summary

Table 9.5 below provides the net vehicular trip generation volumes within the EUC Phase 3 CDP area that were applied to the study area roadway network. Appendix “B” illustrates in details the trip generation rates and the site traffic volumes for all modes of transportation for the CDP area.

Table 9.5: Vehicular Net Trip Generation Summary

<i>Interim Time Horizon</i>						
<i>Land Use</i>	<i>Morning Peak Hour</i>			<i>Afternoon Peak Hour</i>		
	<i>IN</i>	<i>OUT</i>	<i>Total</i>	<i>IN</i>	<i>OUT</i>	<i>Total</i>
Residential Trips	290	1,140	1,430	1,151	615	1,766
Employment Trips	214	102	316	114	222	336
Total	504	1,242	1,746	1,265	837	2102
<i>Ultimate Build-Out Time Horizon</i>						
Residential Trips	407	1,445	1,852	1,450	820	2,270
Employment Trips	855	185	1,040	259	833	1,093
Total	1,262	1,630	2,892	1,709	1,653	3,363

9.4 TRIP DISTRIBUTION

The 2011 Origin-Destination (OD) Survey was reviewed to estimate the traffic distribution patterns likely to be in place during the time of ultimate build-out of the EUC Phase 3 Area. A different distribution pattern was adopted for both residential and employment land uses within the EUC Phase 3 area.

Residential Traffic Distribution: The distribution patterns applied to the residential land uses within the study area are provided below:

- 47% to/from the west;
- 27% to/from the north;
- 17% to/from the east;
- 2% to/from the south; and
- 7% remains within the CDP area (internal).

Employment Traffic Distribution The employment areas with the study area were distributed as follows:

- 25-to-30% to/from the west;
- 30-to-35% to/from the north;
- 35% to/from the east; and
- 5% to/from the south.

The route selection and assignment for each zone was based on a number of factors such as: shortest path, road classification and engineering judgment in favour of those routes most likely to be taken by motorists. The routing exercise resulted in detailed turning movement volumes at study area intersections.

9.5 FORECASTED TRAFFIC VOLUMES

Forecasted total traffic volumes anticipated during the time of interim and ultimate build-out were determined by adding the following layers of traffic:

- existing traffic volumes;
- traffic volumes generated by adjacent developments; and
- Site generated traffic volumes

Appendix “C” serves to illustrate forecast site generated and total traffic volumes.

9.6 INTERSECTION CAPACITY ANALYSIS

An intersection capacity analysis was undertaken for the study area intersections using Synchro 10TM (traffic control signals and stop controlled intersections) and Sidra (roundabouts)

software. For the purpose of this study, a volume-to-capacity (v/c) ratio greater than 0.90 was considered critical. The results are summarized in Tables 9.6 thru 9.8.

9.6.1 Existing Traffic Analysis

An intersection capacity analysis was undertaken for the study intersections using the existing traffic volumes illustrated in Exhibit 5.2 (See Appendix “A” for detailed Synchro sheets).

Table 9.6: Existing Traffic Analysis

Intersection		Morning Peak Hour				Afternoon Peak Hour			
Intersections	Traffic Control	Overall LOS	Critical Approach			Overall LOS	Critical Approach		
			Movement	LOS	V/C		Movement	LOS	V/C
Innes / Mer Bleue	Signalized	D	WB-TH	D	0.95	E	EB-TH SB-LT	F	1.06 0.96
Innes / Frank Bender	Signalized	C	WB-TH	C	0.82	D	NB-LT	F	1.07
Innes / Viseneau	Signalized	C	WB-TH	C	0.82	C	EB-TH	C	0.90
Innes / Pagé	Signalized	C	WB-TH	C	0.82	C	WB-LT	F	0.93
Innes / Orléans	Signalized	F	WB-TH	F	1.27	D	EB-TH	F	1.05
BHP / Navan	Signalized	D	WB-TH	F	1.03	D	EB-TH	D	0.99
Brian Coburn / Mer Bleue	Roundabout	B	WB	C	0.97	A	WB	B	0.51
Renaud / Mer Bleue	Stop Control	B	SB	B	0.48	C	EB	D	0.83
Renaud / Navan	Signalized	C	WB-T/RT	C	0.77	B	EB-TH	B	0.51

The results of the existing intersection capacity analysis (Table 9.6) indicated that:

- Some intersections along the Innes Rd. corridor operate at a congested level of service during peak demand periods.
- The SB left-turn movement at Innes Rd. / Mer Bleue Rd. operates at a congested level of service with v/c ratio of 0.96. Although this movement is accommodated by a double left-turn lane, the failure level of service is due to several heavy movements competing for signal timing.
- The NB left-turn movement at Innes Rd. / Frank Bender operates at a congested level of service with a high v/c ratio during the afternoon peak hour. There is currently over 300 vph making the movement (motorists exiting the shopping plaza) that are competing with other movements for signal timing.

9.6.2 Forecast (Interim) Traffic Analysis

An intersection capacity analysis was undertaken for the study area intersections using the interim forecast total traffic volumes. The road network assumes the extension of Brian Coburn Blvd. to Navan Road (currently open).

Table 9.7 depicts the overall level of service and critical movements at the study area intersections (See Appendix “D” for detailed Synchro sheets).

- *Innes Rd. Corridor Intersections:* The Innes Rd. corridor continues to operate at a congested level of service during the peak demand periods. Improvements to the Innes Rd. intersections are not feasible due to the limited ROW width, especially from Mer Bleue Rd. to Orléans Blvd.
- *Innes Rd / Caivan Access:* The intersection operates at an overall satisfactory LOS “C” during the morning peak hour. The critical movement is the NB-LT, which operates LOS “E” with satisfactory v/c ratio of 0.79.
- *Renaud Rd. / Navan Rd.:* This intersection operates at a failure level of service during the morning peak hour. Several movements exhibit LOS “F” with v/c ratios above 0.90.
 - Given that widening of Navan Rd. is not within the 2031 TMP affordable plan and there is limited ROW along Renaud Rd., a potential feasible solution in the interim would be to implement a dedicated SB right-turn lane from Navan Rd. onto Renaud Rd. This would facilitate over 300 vph forecasted to make the movement during the morning peak hour. The improvement would alleviate pressure on other movements resulting in improved LOS.
- *Mer Bleue Rd. / Renaud Rd.:* The intersection operates at a congested LOS “F” during the afternoon peak hour assuming an All-Way Stop Control.
 - A roundabout was simulated at the intersection that results in an overall LOS improvement of “C” during the afternoon peak hour. The EB movement does operate at a high v/c ratio with a LOS “E” during the afternoon peak hour. However, it should be noted that the feasibility of the 3-leg roundabout depends on the right-of-way requirements and future plans for the realignment of Mer Bleue.
 - Given the above, the intersection was also simulated assuming a traffic signal with auxiliary lanes (NB-LT, SB-RT and EB-RT). The intersection was found to operate at an overall satisfactory LOS “C” during the afternoon peak hour with the EB-LT as a critical movement.

Table 9.7: Forecast Intersection Capacity Analysis Results
Interim Time Horizon

Intersection		Morning Peak Hour				Afternoon Peak Hour			
Intersections	Traffic Control	Overall LOS	Critical Approach			Overall LOS	Critical Approach		
			Movement	LOS	V/C		Movement	LOS	V/C
Innes / Mer Bleue	Signalized	D	WB-TH	F	1.01	F	EB-TH SB-LT WB-LT NB-LT	F	1.24 1.23 1.34 1.11
Innes / Frank Bender	Signalized	C	WB-TH	C	0.85	E	NB-LT WB-LT EB-TH	F	1.07 1.20 1.17
Innes / Viseneau	Signalized	C	WB-TH	C	0.83	C	EB-TH	C	0.97
Innes / Pagé	Signalized	B	WB-TH	B	0.91	C	WB-LT	F	1.41
Innes / Orléans	Signalized	D	WB-TH	F	1.03	E	EB-TH	F	1.14
BHP / Navan	Signalized	E	WB-TH NB-LT	F	1.08 1.05	D	EB-TH	F	1.05
Brian Coburn / Mer Bleue	Roundabout	F	WB	F	2.19	F	WB EB	F	1.26 1.74
	4-lane Brian Coburn	C	WB	C	0.89	C	WB EB	A C	0.52 0.71
Renaud / Mer Bleue	Stop Control	C	SB	C	0.74	F	EB SB	F	1.22 1.38
	Roundabout	B	NB	B	0.58	C	EB	E	1.10
	Traffic Control Signal	A	NB	B	0.53	C	EB-LT	C	0.76
Renaud / Navan	Signalized	F	WB-T/RT EB-LT NB-LT SB-T/RT	F F F D	1.25 1.02 1.81 0.94	C	EB-LT	C	0.85
	Dedicated SB-RT Lane	D	WB-T/RT EB-LT NB-LT SB-RT	E C D E	0.93 0.72 0.82 0.95	C	EB-LT	C	0.84
Brian Coburn / Fern Casey	Roundabout	C	WB SB	C	0.76 0.74	F	EB	F	1.01
	4-lane Brian Coburn	B	WB SB	A B	0.33 0.63	A	EB	A	0.44
Brian Coburn / Navan	Roundabout	F	WB	F	2.45	F	SB NB	F	1.62 1.22
	4-lane Brian Coburn	A	WB-LT	C	0.73	A	SB-TH NB-TH	A B	0.80 0.68
Fern Casey / Frank B.	Roundabout	A	EB	A	0.24	A	NB	A	0.33
Frank B / Vanguard	Roundabout	A	NB	A	0.30	A	SB	A	0.42
Innes / Caivan Access	Signalized	C	NB-LT	E	0.79	B	NB-LT	D	0.60
Mer Bleue / Vanguard Extension	Signalized	A	EB-LT	D	0.64	A	EB-LT	D	0.57

The EUC Phase 3 Area CDP study area intersection capacity results indicate that:

- *Brian Coburn Blvd. Intersections:*
 - The intersections at Mer Bleue Rd., Fern Casey Blvd. and Navan Rd. operate at a congested level of service during peak periods. This indicates that should development progress within the CDP area, Brian Coburn Blvd would require widening to 4-lanes as the interim horizon year approaches.
 - The Ascender Blvd. / Brian Coburn Blvd. intersection can be assumed to be a roundabout or a right-in/right-out. The intersection configuration would also depend on the triangular lands⁵ (located west of Mer Bleue, north of Brian Coburn and south of the Hydro corridor) and their access location. In either case (right-in/right-out or roundabout), the Ascender Blvd. intersection (which initially would be configured as a T-intersection) is anticipated to operate at satisfactory level of service.
 - The widening of Brian Coburn Blvd was found to result in satisfactory level of service at the intersections of Mer Bleue, Fern Casey and Navan Rd. The Navan Rd. / Brian Coburn Blvd. intersection was found to require auxiliary lanes along Navan Rd. to facilitate left-turn and right-turn movements onto Brian Coburn Blvd.
- *Mer Bleue Rd. / Vanguard Ext.:* The intersection is assumed to be configured as a traffic control signal once Vanguard is connected to Mer Bleue Rd. The intersection operates at a satisfactory level of service during both peak AM and PM periods.
- *Roundabouts within the CDP Area:* Roundabouts at Fern Casey / Frank Bender St. and Frank Bender/Vanguard Extension are recommended. Both roundabouts operate at a satisfactory level of service during both peak hours.

9.6.3 Forecast (Ultimate Build-out) Traffic Analysis

An intersection capacity analysis was undertaken for the study intersections using the ultimate build-out forecast traffic volumes. The future road network assumes Brian Coburn Blvd. to be a 4-lane facility. Table 9.8 depicts the overall level of service and critical movements. (See Appendix “D”). The intersection capacity analysis results indicate:

- *Innes Rd. Corridor Intersections:* The Innes Rd. corridor would continue to operate at a congested level of service during AM & PM peak travel demand periods. The constrained movements result in increased v/c ratios as a result of further development within the study area. The study area would require additional transit and roadway infrastructure to accommodate the growth within the study area.
- *Innes Rd / Caivan Access:* The intersection continues to operate at an overall satisfactory LOS “C” during the morning peak hour. The critical movement remains to be the NB-LT, which continues to operate at a satisfactory v/c ratio.
- *Navan Rd. / Renaud Rd.:* This intersection operates at an overall LOS “E” during both peak hour travel demand periods. Several peak direction movements operate at a failure level of service with v/c ratios above 0.90.

⁵ Triangular lands assumed to be build-out by ultimate build-out year for the purpose of this MTS

- The results indicate that widening of Navan Rd. should be considered at the ultimate full-build-out horizon year. By widening Navan Rd., the intersection operates at a satisfactory LOS.
- *Mer Bleue Rd. / Renaud Rd.:* With a single lane roundabout and 2-lanes on Mer Bleue Rd., the intersection experiences congested level of service during the AM & PM peak hour periods.
 - A 4-lane Mer Bleue with dedicated EB left-turn and right-turn lanes results in a satisfactory level of service. The City of Ottawa identifies a new realigned 4-lane Mer Bleue Rd. from Renaud Rd. to Navan Rd. as part of the Network Concept. As there is no timeline for this improvement the new section of road is dependent on development growth. Constructing a roundabout at this location depends on the ROW requirement and the realignment of Mer Bleue Rd.
 - A traffic signal assuming a 2-lane Mer Bleue Rd. results in a satisfactory overall LOS with v/c ratios above 0.90 in the EB direction and SB direction. This further indicates that realignment of the 4-lane Mer Bleue Rd. should be monitored approaching ultimate full build-out year depending on how development progresses within the study area.

The EUC Phase 3 area intersection results indicate that:

- *Brian Coburn Blvd. Intersections:* The intersections at Mer Bleue Rd. and Navan Rd. operate at a congested level of service during the AM & PM peak periods of travel demand. Further improvements would be required at the two intersections.
 - Navan Rd. would require widening to 4-lanes to accommodate additional growth within the study area. The Brian Coburn Blvd / Navan Rd. intersection would operate at a satisfactory level of service with 4-lanes on Navan Rd.
 - The Mer Bleue Rd. / Brian Coburn Blvd would require auxiliary right-turn lanes at all approaches to separate the right-turn movements from through/left-turn movements. This would result in satisfactory level of service.
 - For the purpose of this MTS, it was assumed that once the mixed-use block is developed, an access opposite Ascender Blvd. would be provided. The intersection was assumed to be a roundabout, which results in satisfactory level of service. However, access to the mixed used block could also be configured as right-in/right-out if preferred.
- *Mer Bleue Rd. / Vanguard Extension:* The intersection continues to operate at a satisfactory level of service during both peak hour travel demand periods as a traffic control signal.
- *Roundabouts within CDP Area:* Roundabouts at Fern Casey / Frank Bender and Frank Bender/Vanguard Extension continue to operate at a satisfactory level of service during both peak hour travel demand periods.

Table 9.8: Forecast Intersection Capacity Analysis Results
 Ultimate Build-out Time Horizon

Intersection		Morning Peak Hour				Afternoon Peak Hour			
Intersections	Traffic Control	Overall LOS	Critical Approach			Overall LOS	Critical Approach		
			Movement	LOS	V/C		Movement	LOS	V/C
Innes / Mer Bleue	Signalized	E	WB-TH	F	1.08	F	EB-TH	F	1.39
			NB-LT		0.95		SB-LT		1.32
			SB-LT		0.94		WB-LT		1.53
							NB-LT		1.34
						SB-TH		1.05	
Innes / Frank Bender	Signalized	C	WB-TH	C	0.89	F	NB-LT	F	1.05
							WB-LT		1.26
							EB-TH		1.27
Innes / Viseneau	Signalized	C	WB-TH	C	0.85	D	EB-TH	F	1.01
							WB-LT		0.98
Innes / Pagé	Signalized	B	WB-TH	B	0.91	D	WB-LT	F	1.78 ³
Innes / Orléans	Signalized	E	WB-TH	F	1.10	F	EB-TH	F	1.30
							EB-LT		1.00
							WB-TH		1.00
BHP / Navan	Signalized	F	WB-TH	F	1.24	D	EB-TH	F	1.16
			NB-LT		1.13		NB-LT		1.11
							WB-LT		1.08
Brian Coburn / Mer Bleue	4-lane Brian Coburn	F	WB	F	1.21	F	NB	F	1.00
	Channelized dedicated RT lanes on all approaches ²	C	WB-RT	C	0.74	E	NB-T/LT	B	0.62
							SB-TH	E	0.95
							EB-T/LT	C	0.75
Renaud / Mer Bleue	Roundabout	C	NB	F	1.00	F	EB	F	1.68
	4-lane Mer Bleue & dedicated EB LT/RT lanes	A	NB	A	0.41	B	EB-LT	D	0.96
							SB	A	0.50
	Traffic Signal-2-lane Mer Bleue	B	NB	0.66	B	D	EB-LT	E	0.96
							SB-TH	D	0.96
Renaud / Navan	Dedicated SB-RT Lane	E	WB-T/RT	F	1.07	E	EB-LT	F	1.00
			EB-LT	D	0.70		WB-T/RT		1.11
				NB-LT	E	0.89			0.96
			SB-RT	F	0.98		SB-TH		
4-lane Navan Channelized SB-RT lane ¹	D	D	WB-T/RT	D	0.90	C	EB-LT	C	0.84
			EB-LT	C	0.71		WB-T/RT	D	0.83
			NB-LT	D	0.79		SB-TH	C	0.69
Brian Coburn/Fern Casey	4-lane Brian Coburn	B	SB	B	0.68	A	EB	A	0.53
Brian Coburn / Navan	4-lane Brian Coburn	D	WB-LT	F	1.32	D	SB-TH	F	1.16
			NB-TH	1.03	NB-TH		1.11		
	4-lane Navan	A	WB-LT	C	0.81	B	SB	B	0.89
			NB-TH	A	0.59		NB	C	0.94
Fern Casey / Frank B.	Roundabout	A	EB	A	0.23	A	NB	A	0.35
Frank B / Vanguard	Roundabout	A	NB	A	0.36	A	SB	A	0.45
Mer Bleue / Vanguard	Signalized	B	EB-LT	D	0.68	B	EB-LT	D	0.63
Innes / Caivan Access	Signalized	C	NB-LT	E	0.85	B	NB-LT	E	0.69
Brian Coburn /Triangle Land Access	Roundabout	A	WB	A	0.29	A	EB	A	0.69

1- Delay for channelized RT movements are excluded from intersection delay calculations. 2. If ROW is available to include dedicated RT lanes.
 3- With Pagé Rd Cul-de-Sac'd, the WB left-turn movement is expected to be reduced. Base traffic volumes were undertaken at time when Pagé Rd was open. The high v/c ratio is due to high thru volumes where the left-turn is not afforded enough gaps. Changing the phasing from permitted to protected/permitted phase does improve the v/c to ~1.00. However, this would impact on the WB through movement.

9.7 SUMMARY OF INFRASTRUCTURE IMPROVEMENTS

Table 9.9 summarizes the infrastructure improvements that fall within the EUC Phase 3 Area. The infrastructure improvements should be confirmed by subsequent traffic studies for each phase of the EUC Phase 3 development.

Table 9.9: EUC Phase 3 Area Proposed Improvements

Corridors	Interim Year	Ultimate Build-out
Brian Coburn Corridor (Mer Bleue to Navan)	Widening Brian Coburn to 4-lane facility was found to be required to provide more east-west capacity. This is dependent on how development progresses within the study area.	
Intersections	Interim Year	Ultimate Build-out
Mer Bleue / Brian Coburn		Dedicated RT lanes along all approaches
Mer Bleue / Vanguard	Traffic Control Signal	Traffic Control Signal

The forecast interim and ultimate build-out traffic conditions and infrastructure improvements outlined in this section (and Sections 9.6.2, 9.6.3 & 9.7) assume a significant portion of the EUC Phase 3 Area and adjacent development lands (Table 9.1) would be completed. This interim and ultimate build-out assumptions were developed to establish the traffic impacts and infrastructure requirements on the study area roads and intersections. However, the anticipated build-out of the EUC Phase 3 Area and Richcraft lands in particular are not anticipated to occur within the next decade. The Richcraft lands (See Exhibit 8.1) are anticipated to commence development well beyond the TMP horizon year of 2031.

Development and the Brian Coburn Corridor

A realistic high-level assumption was produced for the EUC Phase 3 Area to determine the impact within the City’s TMP 2031 time-lines specifically to determine the impacts to the Brian Coburn Blvd corridor. Currently the widening of Brian Coburn Blvd. to a 4-lane cross-section from Mer Bleue Rd. to Navan Rd. is not in the “affordable projects” category of the City’s Development Charge projects and is not funded. Table 9.10 illustrates the potential traffic impacts upon the Brian Coburn Blvd. corridor anticipated to occur during the 2026 horizon year. The forecasts are based upon a more realistic development growth scenario for the EUC Phase 3 Area. The table assumes:

- the Richcraft EUC Phase 3 Area is very unlikely to commence development within the next 7 years. Richcraft’s development plans would only commence after the Trails Edge East community (bordered by Renaud Rd. to the south, Page Rd. to the west, Brian Coburn Blvd. to the north and Mer Bleue Rd. to the east) to the south have been built-out.
- The development potential of the entirety of the Trails Edge lands is approximately 2,000-to-2,500 units.

- Richcraft’s development rate of Trails Edge has historically been in the area of roughly 72 units/year for the lands south of Brian Coburn Blvd. Extrapolating between 2019-and-2026 would see an addition 500 units within the Trails Edge community adding approximately 60 vph to the peak direction of travel along Brian Coburn Blvd.
- Richcraft had already completed (2019) approximately 400 dwellings within the Trails Edge lands. This translates to an existing estimate of approximately 50 vph that currently use the 2-lane Brain Coburn Blvd corridor and a future development capacity from 2019 on of approximately 1,600-to-2,100 units before Trails Edge is built-out.
- a 3% growth rate along Brian Coburn Blvd. corridor over the next 7-years as a result of surrounding adjacent development was taken into consideration. This impact would see an additional 180-to-190 vph in the peak direction of demand upon the Brian Coburn Blvd corridor.

Conclusion: The more realistic development scenario results in the conclusion that a 2-lane Brian Coburn Blvd. could suffice by the 2026 horizon year. The Mer Bleue Rd. / Vanguard Extension intersection is dependent on the timing of the westerly extension of Vanguard to Mer Bleue Rd.

Table 9.10 Brian Coburn (Navan to Mer Bleue)
2026 Forecast Traffic Impacts (Two-Way Volumes) - (vph = Vehicles per hour)

<i>Contribution</i>	<i>Brian Coburn (Fern Casey to Navan) West Side</i>		<i>Brian Coburn (Mer Bleue to Fern Casey) East Side</i>	
	<i>Morning Peak Hour</i>	<i>Afternoon Peak Hour</i>	<i>Morning Peak Hour</i>	<i>Afternoon Peak Hour</i>
Likely Richcraft Development in EUC Phase 3 CDP lands up to 2026 – Fern Cassey is not anticipated to be extended northward	0	0	0	0
Richcraft: New Trails Edge East Units Contribution (500 units over 7 years)	51	63	23	30
Richcraft: Completed 2019 Units Trails Edge Contribution (~400 units)	41	51	18	24
Richcraft Anticipated Contribution (2026)	92 (9%)	114 (12%)	41 (4%)	54 (5%)
Existing Traffic from All Other Lands (2019) – Excluding Trails Edge	780	700	829	879
All Other Lands (2019-to 2026) 3% growth/annum	172	158	178	190
Total Impact (2026)	1,044-to-1,125¹	972-to-1,310¹	1,048	1,123

1. Values noted in forecast volumes

Table 9.11 summarizes a similar approach that was undertaken depicting the impacts along the Brian Coburn Blvd. corridor assuming a 2031 horizon year.

Table 9.11: Brian Coburn (Navan to Mer Bleue) 2031 Forecast Traffic Impacts (Two-Way Volumes) - (vph = Vehicles per hour)				
Contribution	Brian Coburn (Fern Casey to Navan) West Side		Brian Coburn (Mer Bleue to Fern Casey) East Side	
	Morning Peak Hour	Afternoon Peak Hour	Morning Peak Hour	Afternoon Peak Hour
Likely Richcraft Development in CDP lands up to 2031:	0	0	0	0
Richcraft: New Trails Edge East Units Contribution (+360 units for a total 860 units)	87	107	39	51
Richcraft: Completed 2019 Units Trails Edge Contribution (~400 units)	41	51	18	24
Richcraft Anticipated Contribution (2031)	128 (11%)	158 (14%)	57 (5%)	75 (6%)
Existing Traffic from All Other Lands (2019) – Excluding Trails Edge	780	700	829	879
All Other Lands (2019-to 2031) - 12 years 3% growth/annum	281	252	298	316
Total Impact (2031)	1,189-to-1,400¹	1,110-to-1,600¹	1,184	1,270

Once again, the Richcraft lands within the CDP area are not anticipated to commence by 2031 as development would continue within the Trails Edge area over the next 12 years. Table 9.11 indicates that:

- An additional 360 units would be anticipated to be constructed over the following 5-years (from 2026 to 2031) beyond 2026 within the Trails Edge community. This is anticipated to result in an additional 40 vph in the peak direction along Brian Coburn Blvd.
- The study assumes a 3% growth along Brian Coburn Blvd. over this additional 5-year (from 2026 to 2031) period resulting in an additional 120-to-130 vph in the peak direction along Brian Coburn Blvd. that can be attributed to adjacent developments in the area.

Conclusion: The timing of Brian Coburn Blvd. widening to a 4-lane cross-section may not be warranted by the 2031-time horizon of the City’s TMP. Despite this finding, the next TMP should ideally review the timing of the need for widening of the corridor. Once again, the Mer Bleue Rd. / Vanguard Extension is dependent on the timing of the westerly extension of Vanguard to Mer Bleue Rd.

9.8 SUMMARY OF SUPPORTING ADJACENT REGION-WIDE INFRASTRUCTURE IMPROVEMENTS

Table 9.12 summarizes the adjacent region-wide infrastructure improvements that are needed to support the entire lands south of Innes Rd. and east of Navan Rd. be addressed.

Table 9.12: Supporting Adjacent Region-Wide Proposed Improvements

Corridors	Interim Year	Ultimate Build-out
Navan Rd (Renaud to Brian Coburn)		Widen from 2-lane to 4-lane. This is dependent on how development progresses within the study area.
Intersections	Interim Year	Ultimate Build-out
Navan / Brian Coburn	Widen Navan at the intersection to provide a separate SB left-turn lane and NB Right-turn lane along Navan to separate the heavy through movements from turning movements. This would require widening to a 2-lane roundabout.	
Navan / Renaud	Dedicated SB right-turn lane from Navan onto Renaud Rd. The storage length was assumed to be 70m ¹ .	Channelized SB right-turn movement
Mer Bleue / Renaud	Convert the All-Way Stop control to a <u>single lane roundabout</u> or traffic control signal. If <u>traffic control signal</u> ³ , storage length calculated from Ultimate build-out requirements. - EB-RT = 50m storage - NB-LT = 45m storage - SB-RT = 80m storage	<u>Roundabout</u> : Expansion to a 2-lane roundabout would be required with Dedicated EB LT and RT lane along Renaud Rd ² If <u>traffic control signal</u> : - EB-RT = 50m storage - NB-LT = 45m storage - SB-RT = 80m storage
Innes / Caivan Access	Traffic Control Signal	Traffic Control Signal

1- Assuming a cycle length of 120 sec, a storage length of 115m is required. However, RT lane is constrained by Pagé Rd intersection with Navan, therefore a 70m storage length to allow for taper length.

2- The City of Ottawa identifies a new realigned 4-lane Mer Bleue Rd. from Renaud Rd. to Navan part of the Network Concept. Therefore, there is no timeline for this improvement. The new section of Rd. is dependent on the development growth within the study area (especially south Renaud Rd.).

3- The storage lanes were calculated based on a cycle length of 100 sec.

9.9 MULTI-MODAL LEVEL OF SERVICE (MMLOS)

A Multi-Modal Level of Service (MMLOS) evaluates the convenience and comfort level of all roadway users at intersections and roadway segments. The MMLOS was undertaken to evaluate the:

- **Pedestrian Level of Service (PLOS):** The PLOS evaluates and quantifies the pedestrian comfort, safety and convenience. The segment analysis evaluates the quality of the pedestrian facility, while the intersection analysis evaluates pedestrian delay and exposure to traffic at signalized intersections.
- **Bicycle Level of Service (BLOS):** The BLOS evaluates the level of stress cyclists experience using the roadway segment and traffic control signal intersections.
- **Transit Level of Service (TLOS):** The TLOS evaluates the transit travel time and priority afforded to the buses based on different facilities and conditions. The level of service for

transit in the MMLOS Guidelines is intended to be determined along roadways with rapid transit or transit priority measures.

- *Truck Level of Service (TkLOS)*: The TkLOS accounts for the physical space provided for trucks to negotiate corners and operate safely within the travelled lanes. Given that the study area corridors are not anticipated to be designated as truck routes, the TkLOS was not assessed as part of this MTS. However, corridor with regular bus routes would need to ensure that transit vehicle movements can be accommodated (i.e. curb radii, width, etc.).

The intersection MMLOS is only applied at signalized locations. A traffic control signal is assumed at the Mer Bleue Rd. / Vanguard Extension intersection. However, given several factors are unknown at this point (such as crosswalk treatment, corner radius, exact crossing distances, cycling facility configuration at the intersection, etc.) at this early stage, intersection MMLOS was not undertaken as part of this MTS.

The roadway segments that were included in the MMLOS analysis include the collector roads within the CDP area: Fern Casey Blvd, Vanguard Extension, Frank Bender St., and Ascender Blvd. Given all were assumed to have a 24m ROW and a similar cross-section (as illustrated in Exhibit 8.5), the MMLOS applies to all four collector roads.

Table 9.13: Segment MMLOS

Road Segment	PLOS		BLOS		TLOS	
	Actual ¹	Target ⁴	Actual ²	Target ⁴	Actual ³	Target ⁴
Collector Roads	B	C	A	C	D	NA

1- Assumes a 2m sidewalk, 0.5-to-2m Blvd, on-street parking, >3,000 AADT

2- Assumes a physical separated bikeway (MUP)

3- Assumes mixed traffic transit type facility (no dedicated bus routes along collector roads) and limited friction (driveways/parking frictions)

4- Assumes General Urban Area as per Exhibit 22 of MMLOS Guidelines

10.0 REGIONAL IMPACTS

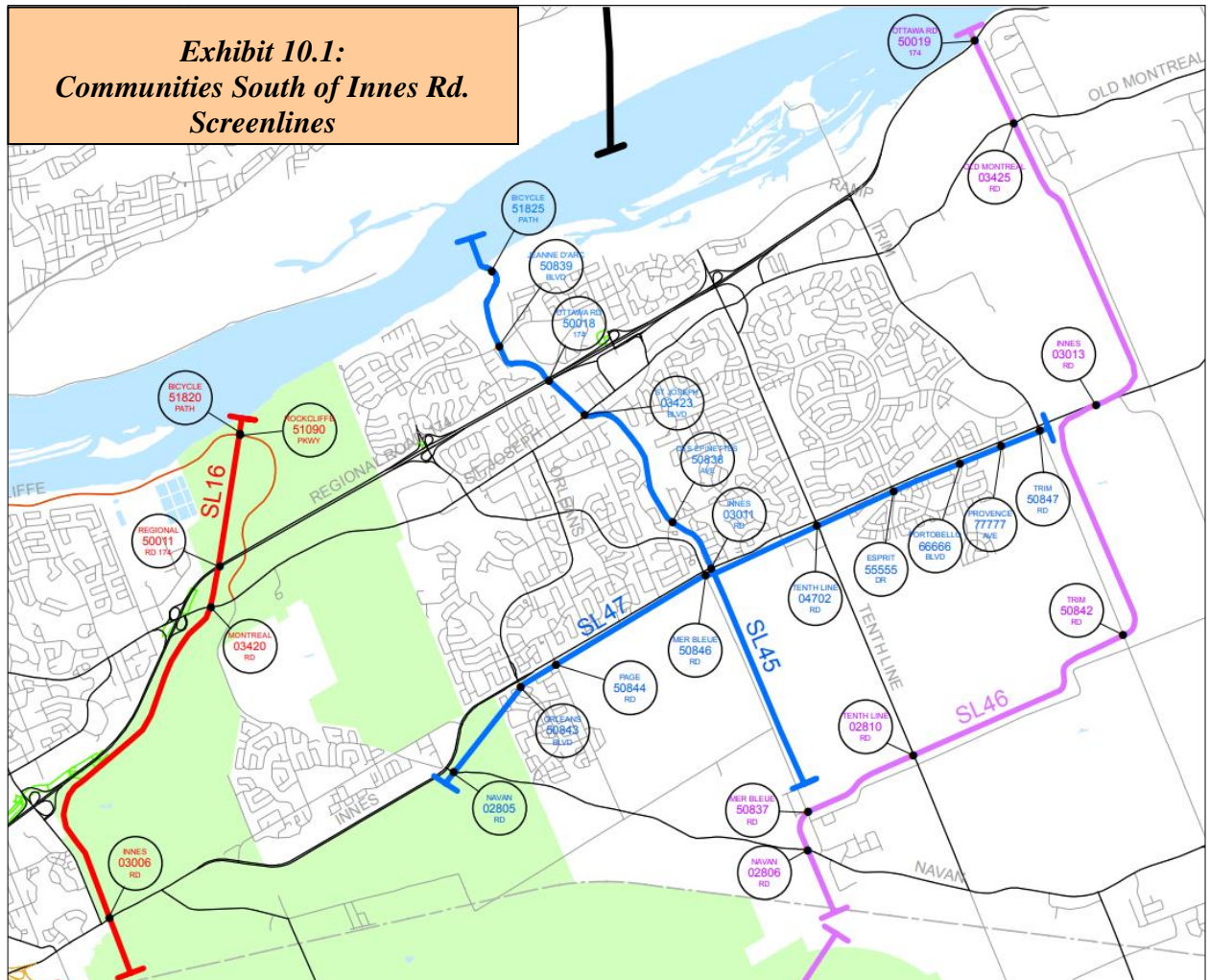
The development of all lands to the east of the Greens Creek screenline (SL-16 – See Exhibit 10.1) will result in continued increasing transportation demand for additional east-west travel. The transportation infrastructure, which currently comprise this screenline include:

- Rockcliffe Parkway (2-lane Urban Parkway Undivided);
- Highway 174 (4-lane Urban Freeway Divided with dedicated Transit lanes in each direction);
- St. Joseph Blvd. (4-lane Urban Arterial Divided); and
- Innes Rd. (6-lane Urban Arterial Divided).

Currently, the east-west peak period travel demands crossing this screenline can best be described as congested. Analysis of the Blair Rd./Innes Rd. intersection station, in particular, during the peak hours of travel demand represent critical traffic operational conditions.

An evaluation of current transit demand in the study area indicated that the Orléans district (NCR 2011 Trans OD Survey – January 2013) transit characteristics:

- associated with the new community south of Innes Rd. and east of 10th Line Rd. is in the order of 10%; and
- associated with the established Orleans community is in the order of 30-to-35%.



10.1 SCREEN-LINE EVALUATION AND ANALYSES

a) *The Transportation Master Plan Evaluation*

The City’s TMP⁶ provided analyses along several screenline corridors which highlights forecast travel demand compared to future available capacity for several regional screenline corridors.

Table 10.1 highlight extracts from an evaluation that was carried out as part of the TMP initiative and indicated existing and forecast volume-to-capacity results for the various screenlines within the

6 “Transportation Master Plan Update – Road Network Development Report” (Sept. 2013), Exhibits 3-4 and 4.8

regional area surrounding the proposed CDP lands. The report presents v/c ratios for the following time horizons:

- a 2011 Base Scenario (Do-Nothing);
- a 2031 Base Scenario (includes existing roads and projects under construction or committed for implementation); and
- a 2031 Network Concept (includes additional projects arising from new CDPs, EAs and other studies).

The report presents v/c ratios for the following screenlines within the study area:

- *Billberry Creek Screenline (No.45)* runs north-south along Billberry Creek and Mer Bleue Rd. between Navan Rd. and the Ottawa River;
- *Frank Kenny Road Screenline (No.46)* runs north-south along Frank Kenny from Ottawa River down along Trim Rd. and ends south of Navan Rd. / Tenth Line Rd.;
- *Innes Rd. Screenline (No.47)* runs east-west along Innes Rd. from Trim Rd. to Navan Rd.; and
- *Greens Creek Screenline (No.16)* runs north south between the Blackburn Hamlet and Beacon Hill communities on the south side of the Hwy 174 corridor and east of Blair Rd.

Table 10.1 provides a summary of this TMP information and clearly indicates that the Greens Creek Screenline (SL-16) is characterized by deficient residual capacity during the morning peak hour of travel demand.

Table 10.1: Screenline Analysis (TMP Update)

Scenario	Screenline	Inbound (Morning Peak Hour)		
		Vehicles	Capacity	V/C Ratio
2011 Base Network¹	Billberry Creek (SL 45)	6,179	8,000	0.77
	Frank Kenny (SL 46)	2,224	7,800	0.29
	Innes Rd (SL 47)	2,277	7,600	0.30
	Greens Creek (SL-16)	9,512	8,800	1.08
2031 Base Network¹	Billberry Creek (SL 45)	7,871	8,400	0.94
	Frank Kenny (SL 46)	3,678	10,200	0.36
	Innes Rd (SL 47)	4,172	7,200	0.58
	Greens Creek (SL-16)	10,739	8,800	1.22
2031 Network Concept²	Billberry Creek (SL 45)	7,681	11,600	0.66
	Frank Kenny (SL 46)	3,880	9,800	0.40
	Innes Rd (SL 47)	4,278	12,200	0.35
	Greens Creek (SL-16)	10,897	10,600	1.03

* Source: "Transportation Master Plan Update – Road Network Development Report (Sept. 2013)

1- Exhibit 3-4: Screenline and Cordon Travel Volumes (Motorized Travel Modes) – Inbound 2011 and 2031 Base (Do-Nothing) Scenario

2- Exhibit 4-8: Screenline and Cordon Travel Volumes (Motorized Travel Modes) – Inbound 2031 Base Scenario and 2031 Network Concept

As part of the Regional traffic assessment, an analysis was conducted to estimate the impact of development upon the Greens Creek Screenline and its more critical intersections such as the Innes Rd./Blair Rd. intersection.

b) The Impact of East Urban Community Phase 3 Area on the Greens Creek Screenline

The development of the EUC Phase 3 Area represents a component in the overall development potential of the community south of Innes Rd. and as such a Region-wide perspective is required to assess the ultimate pressures that are anticipated to be exerted upon the Greens Creek Screenline.

The traffic analysis and assumptions adopted for the EUC Phase 3 Area concluded the following:

- The buildout of the entire community was assumed to be comprised of a maximum of approximately 5,500 dwellings and 4,800 employees, (of which ~ 3,200 units represent Richcraft lands);
- The anticipated vehicle traffic generated by this development was determined to be an additional 3,460 two-way vehicle trips during the peak hour of travel demand assuming a peak direction 20% transit service level. Keeping in mind that the population/employment ratio at build-out is roughly 52% population-to-48% employment, the peak directional traffic volume was found to be 1,760 vehicles per hour during the peak hour of travel demand.
- The study assumptions included a 7% internalization assumption. This resulted in a reduction of 115 vehicle trips from the directional peak hour trips generated by the East Urban Community Phase 3 Area.
- Approximately 71% of the external trips could potentially be assigned to destinations west of the East Urban Community Phase 3 Area. This translates into an additional demand of 1,165 vehicle trips in the peak direction of travel crossing the Greens Creek Screenline west of the community.
- This 71% (1,165 vph) would be shared along the Innes (39%), St. Joseph (5%), Hwy 174 (15%) and Renaud Rd. (12%) corridors.
- The impact of the “ultimate” development of the East Urban Community Phase 3 Area upon the Innes Rd. corridor would therefore see an additional 640 vph added to the future traffic demands.

c) Traffic Impact of Remaining Community South of Innes

The development of the entire Community south of Innes Rd. includes several lands adjacent to the EUC Phase 3 Area. The following initiatives were identified as part of this study which include:

- East Urban Community Phase II
- Mer Bleue Expansion Study Area
- Trails Edge
- Avalon West
- 3490 Innes Rd. (Caivan Development)
- SmartReit Orléans Commercial Development

The combined development potential of the above was estimated at build-out to result in an additional 9,000-to-10,000 dwellings excluding additional retail, institutional and commercial land uses internal to these developments.

The anticipated impact in terms of traffic demand (assuming a 15-to-20% transit service level) was found to result in an additional:

- 3,000-to-3,500 new peak direction vehicle trips across the Greens Creek Screenline; and
- 1,500-to-2,000 new peak direction vehicle trips along the Innes Rd. corridor.

In addition to these traffic volumes

- traffic generated by the development of all lands east of the Tenth Line Rd. corridor must also be considered; and
- external traffic demands generated by outlying sub-urban development outside of the City of Ottawa, (such as the Community of Clarence-Rockland) will continue to add demand across the Greens Creek Screenline.

d) Total Traffic Demand and Impact

The above analysis highlights that in total:

- The anticipated impact in terms of traffic demand of the approximate 15,000 new dwellings (assuming a 15-to-20% transit service level) associated with new growth within the planned approved urban development area of the Communities south of Innes can contribute as much as:
 - an additional 4,200-to-4,700 vph (peak direction) vehicle trips crossing the Greens Creek Screenline; and
 - an additional 2,150-to-2,650 vph (peak direction) vehicle trips crossing the Innes Rd./Blair Rd. station of the Screenline.
- A comparison of forecast and existing demand at the Greens Creek Screenline (outlined in Table 10.1) indicates that demand is expected to increase by only 1,400 vph along the entire Greens Creek screenline. (10,897 vph less 9,512vph). This represents
 - an annual increase of less than 1% growth in the peak direction of auto-vehicle travel demand.
 - roughly only a 3rd of the anticipated growth in demand forecast by the 4,200-to-4,700 vph (peak direction) vehicle trips noted above.
- In addition, it should be noted that the 2031 horizon adopted for the TMP does not reflect the buildout year of the entire communities south of Innes Rd.

Conclusion: Continued development of the entirety of the lands east of the Greens Creek Screenline inclusive of external traffic destined to Greater Ottawa is expected to exert considerable demand for additional capacity across the Greens Creek Screenline and its critical stations such as the Innes Rd./Blair Rd. corridor.

10.2 INFRASTRUCTURE SOLUTIONS TO ADDRESS REGIONAL CONSTRAINTS

The solution to the Regional constraints identified above are two-fold in that both expanded transit and additional roadway network infrastructure form the necessary components to assist in partially addressing the above noted capacity constraints.

10.2.1 Regional Transit Solutions

The following future East-West transit infrastructure initiatives would provide for additional east-west transit capacity from a Regional perspective include:

- The Stage 2 Light Rail (Confederation East) Initiative;
- The Cumberland Transitway (Bus Rapid Transit); and
- Incorporation of transit priority measures on existing roadways and future roadways (i.e. additional/expanded transit services such as transit routes to/from LRT Stage 2 stations, Park and Ride facilities).

The above transit infrastructure would be critical to serve and provide east-west transit capacity to the communities south of Innes Rd.

It is acknowledged that the City of Ottawa has recently initiated the Brian Coburn Extension/Cumberland Transitway Westerly Alternative Corridor EA. Although the westerly extension of Brian Coburn Blvd. is considered a roadway (and not transit initiative), an interim transit option may potentially consist of accommodating dedicated either bus lanes or transit priority along the Brian Coburn Blvd. Westerly Extension until such time as the Cumberland Transitway can be developed.

Clearly, the ultimate demand upon the Greens Creek Screenline necessitates the full development of the Cumberland Transitway (Bus Rapid Transit) solution.

10.2.2 Regional Roadway Infrastructure Improvements

In addition, roadway concepts and plans have been, and continue to be, evaluated which include:

- The Innes / Walkley / Hunt Club connection;
- Widening of the Blackburn Hamlet Bypass; and
- Options with regard to the Brian Coburn West Extension (alignment to be determined).

The City of Ottawa 2013 TMP indicates that the Blackburn Hamlet Bypass Extension is planned to connect Navan/Brian Coburn to the Bypass and will run parallel to Navan Rd. However, the soil conditions within the corridor increased the cost of construction significantly, making the project uneconomical. The City of Ottawa has initiated the

environmental assessment of the Brian Coburn Blvd. Extension west of Navan Rd. To the best of Castleglenn’s knowledge, the EA process is at the initial stages and no preferred alignment has been identified.

The above roadway infrastructures especially the Brian Coburn Blvd. extension and Innes/Walkley/Hunt Club connection would be critical in providing additional east-west capacity that would alleviate traffic pressure at the Innes/Blair Rd. screenline.

10.2.3 Lessons Learned

The above analysis underscores the necessity to assure transit initiatives are accelerated in the developing communities to the south of Innes Road where the current transit share is currently in the order of 10%. These initiatives include:

- The development of alternative expanded east-west transit infrastructure to serve the developing community (which has been estimated to reach approximately 15,000 dwellings at build-out) located south of Innes Road corridor;
- consideration given to widening the Brian Coburn Blvd. corridor to provide dedicated transit priority lanes prior to any expansion that would accommodate motor-vehicle traffic;
- The development of north-south transit corridors through the East Urban Community Phase 3 Area (as well as existing corridors outside of the Phase 3 Area) that would connect with the Stage 2 Light Rail transit stations. This would include incorporation of transit priority measures on existing and future roadways inclusive of motor-vehicle turning prohibitions and the potential removal of existing traffic calming measures to facilitate bus maneuvers; and
- The development of a Park and Ride at Navan Rd and Brian Coburn Blvd.

To serve the communities south of Innes Rd., it is imperative that projects oriented at increasing vehicle capacity of the Regional Road network be accelerated as well such as:

- The Innes / Walkley / Hunt Club connection;
- Widening of the Blackburn Hamlet Bypass; and
- Options with regard to the Brian Coburn Blvd. Westerly Extension.

11.0 ROADWAY INFRASTRUCTURE

Exhibit 11.1 illustrates the collector roadways required to support the EUC Phase 3 Area development and identifies the EA Schedule for each collector roadway:

- All the collector roadways within EUC Phase 3 are identified as 24m ROWs;
- Vanguard Drive Extension west of Mer Bleue Rd. and the Fern Casey Extension north to Frank Bender are Schedule “C” projects; and
- The Fern Casey extension from Frank Bender to the Vanguard Drive Extension and Ascender Blvd. are Schedule “B” projects.

The MCEA schedules for the above noted Schedule B and C projects (Exhibit 11.1) are subject to change as part of upcoming amendments to the MCEA process.

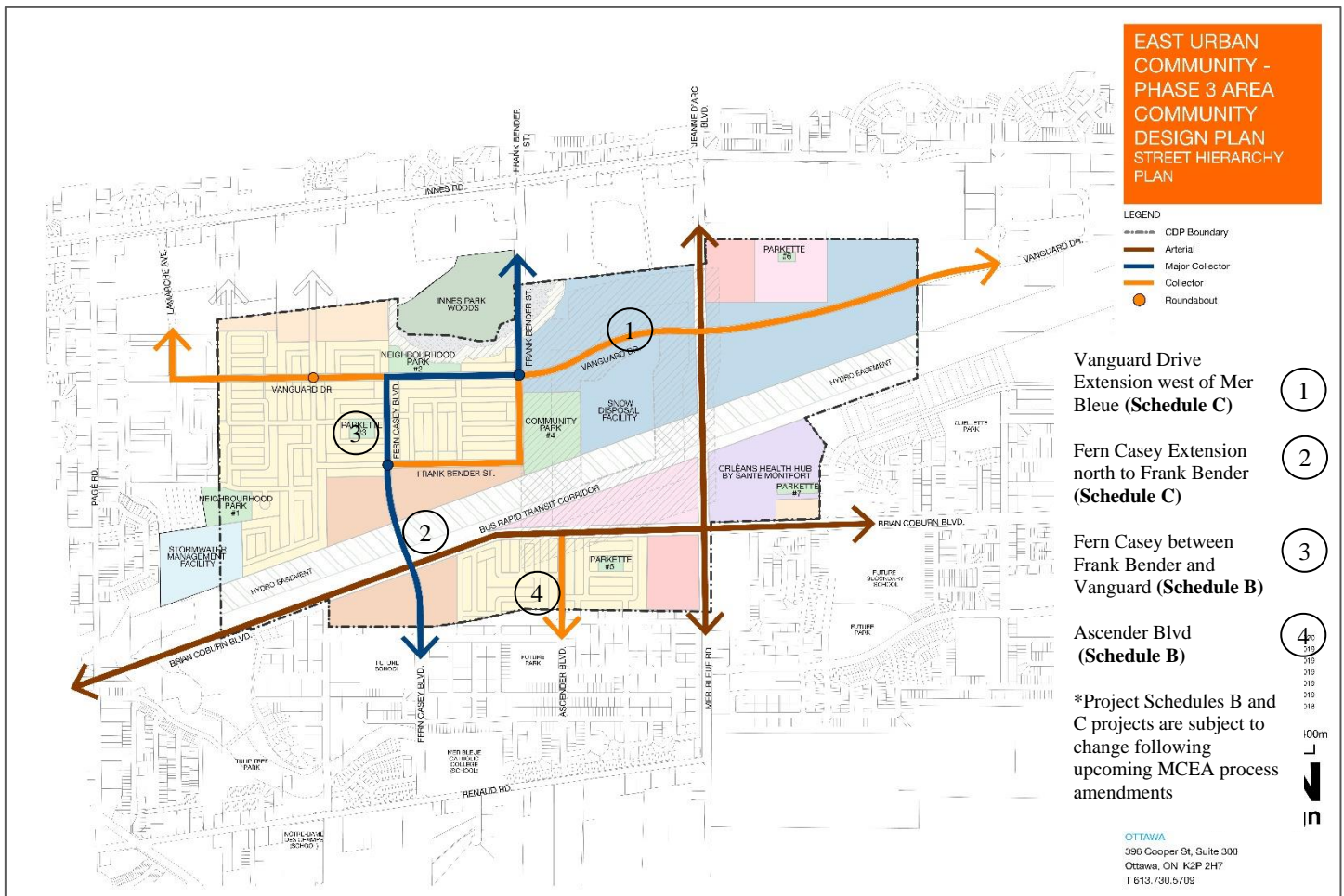


Exhibit 11.1: Roadway Infrastructure

12.0 DEVELOPMENT CHARGE (DC) PROJECTS

The MTS also identified eligible DC projects within the CDP study area. Exhibit 12.1 illustrates the intersections within the CDP area that are envisioned to be DC projects.

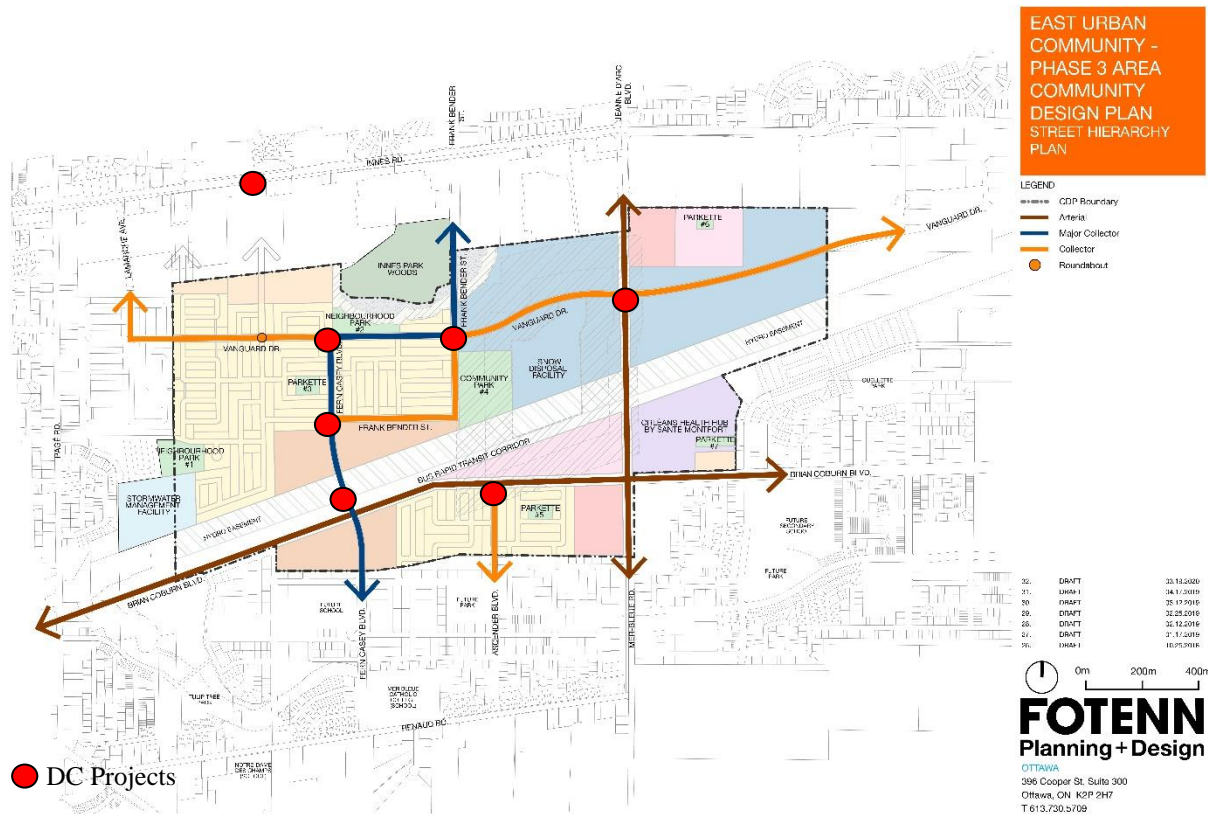


Exhibit 12.1: Eligible DC Projects

The DC charge intersections include:

- Future north-south road at Innes Rd;
- Vanguard Extension at Fern Casey Blvd.;
- Vanguard Extension at Frank Bender St.;
- Vanguard Extension at Mer Bleue Rd.;
- Fern Casey Blvd. at BRT;
- Fern Casey Blvd. at Frank Bender St.; and
- Brian Coburn Blvd. at Ascender Blvd.

13.0 IMPACTS, MITIGATION AND MONITORING

13.1 TRANSPORTATION IMPACTS AND MITIGATION

Table 13.1 provides a summary of the potential transportation activities during the construction period for the various EA projects within the CDP area. For each activity identified, potential mitigation and monitoring measures, along with the significance of the impact are provided. The list provided in Table 11.1 is high-level and should be further refined in detail for each phase of the development during the site plan / plan of subdivision process.

The developer would need to work with City of Ottawa staff prior to construction start-up to provide proper traffic management plans, as well as mitigation and monitoring measures where required. The purpose of the plan will be to maintain safe and clear pedestrian routes, cycling paths (where required), maintain traffic flow as close as possible to current conditions and outline road and detour signage where required.

The project impact/activities were assessed in terms of their significance and are categorized according to the following:

- *Negligible* – means nearly zero or hardly noticeable effect. This could affect a specific group of individuals within a localized area and/or over a short period;
- *Insignificant* - could mean one of the followings:
 - Not widespread;
 - Temporary or short-term duration;
 - Affecting a specific group of individuals or community within a localized area; and
 - Not permanent and after project activity is complete, the integrity of the system would resume.
- *Significant* - could mean one of the followings:
 - Widespread;
 - Permanent or breach of standards, policies or guidelines, etc.; and
 - Permanent impact on environmental, underground services, archaeological/heritage resources, community character, land use patterns, etc.

Table 13.1: Transportation EA Projects – Impacts, Mitigation and Monitoring

Criteria	Project Activity/Impact	Mitigation Measures	Monitoring	Impact
Level of Service/Delay	<ul style="list-style-type: none"> Construction activities could impact traffic LOS/delay and capacity of roads specifically at the major corridors such as Vanguard at Mer Bleue and Fern Casey at Brian Coburn. Delays can result at those major intersections with existing arterial roads as a result of construction 	<ul style="list-style-type: none"> Contractor to prepare traffic management plan that complies with City of Ottawa standards and policies. Ensure delay to emergency responders is minimized. Police assistance at major roads/intersections when required Off-peak hour constructions during construction especially at major arterials/collectors and critical intersections. Temporary detour routes may be required. Impacted stakeholders to be consulted/notified of the construction activities 	<ul style="list-style-type: none"> Construction monitoring Coordination with City of Ottawa staff TIS/TIA in support of the plan of subdivision to review and identify interim roadway capacity requirements and construction accesses 	Insignificant
Transit Services	<ul style="list-style-type: none"> Construction activities could impact transit activities at the major road such as Mer Bleue, Brian Coburn and Navan 	<ul style="list-style-type: none"> Construction phasing to allow for good connectivity to interim transit routes/stations Allow road network to maximize transit service and provide flexibility for routing 	<ul style="list-style-type: none"> Coordination with City of Ottawa and OC Transpo 	Insignificant
Infiltration to adjacent local community	<ul style="list-style-type: none"> Construction activities of the new roads within CDP could cause intrusions to adjacent new/existing communities 	<ul style="list-style-type: none"> Consultation/communication strategy Traffic management strategy to minimize impact on adjacent local roads Truck access on major roads rather than local (where possible) 	<ul style="list-style-type: none"> Construction monitoring Liaison with City of Ottawa / local communities 	Insignificant

13.2 ENVIRONMENTAL IMPACTS AND MITIGATION

Mitigation measures including planning decisions, design features, construction requirements and construction constraints, will be employed to reduce potential project impacts on the environment. The following mitigation measures and Best Management Practices will be brought forward as part of the project implementation. Best Management Practices (BMP):

- Completion of an Environmental Impact Statement (EIS) prior to construction
- Air Quality and Noise Complaints Protocol
- Tree Planting Compensation for EUC Pond 1 Expansion Tree Removals
- Erosion and Sediment Control Plan
- Construction and Traffic Management Plan
- Cultural Heritage Resource Management Plan
- Emergency Response Plan
- Environmental Protection Plan
- Landscape Plan
- Slope Stability Management Plan
- Waste and Contaminated Materials Management Plan
- Well Decommissioning Plan

Based on the results of the field investigations, the following Species at Risk (SAR) have been identified: Bobolink, Least Bittern, Barn Swallow, Eastern Wood Pewee, Bank Swallow, Wood Thrush and Eastern Meadowlark. The Recommendations in Table 13.2, identify the recommended mitigation measures as well as potential permitting requirements.

Table 13.2: Species at Risk Mitigation Measures and Permitting Requirements

Constraint (Feature or Species)	Guiding Policies	Significance/ Rationale	Recommendations
Bobolink	Provincially and Federally Threatened Species (COSSARO,2017; COSEWIC, 2017) Protected under the Ontario Endangered Species Act (2007) and Migratory Birds Convention Act (Gov. Canada, 1994). Habitat protected under the City of Ottawa Official Plan (2003) Sections 2.4.2 and 4.7.4	Identified in Community 1 south of Community 9	Prior to development at the Environmental Impact Statement (EIS) stage a qualified biologist should reassess the property for bobolink habitat. If habitat exists discussions with the Ministry of Natural Resources and Forestry (MNRF) should occur to decide the best course of action and requirements under the Endangered Species Act. A SAR permit may be required from Ministry of the Environment, Conservation, and Parks (MECP) if bobolink still exists within the field meadows. Possible compensation required on-site or off-site if removal of habitat is needed and detailed mitigation measures to be developed. Site preparation activities, no clearing to occur within the peak breeding bird period (April 15 th to August 15 th) as per Environment Canada

Constraint (Feature or Species)	Guiding Policies	Significance/ Rationale	Recommendations
Least Bittern	Provincially and Federally Threatened Species (COSSARO, 2017; COSEWIC, 2017) Protected under the Ontario Endangered Species Act (2007), Species at Risk Act and Migratory Birds Convention Act (Gov. Canada, 1994). Habitat protected under the City of Ottawa Official Plan (2003) Sections 2.4.2 and 4.7.4	One individual identified in Community 9	Prior to development at the EIS stage a qualified biologist should reassess the property for least bittern habitat. If habitat exists discussions with MNRF should occur to decide the best course of action and requirements under the Endangered Species Act. Endangered Species Act permit may be required from MECP if least bittern still exists within the storm water pond prior to construction. Possible compensation required if removal of habitat is needed and detailed mitigation measures to be developed. No clearing to occur within the peak breeding bird period (Mid-April to end of August) as per Environment Canada. If dredging or other works are proposed in this pond, MNRF and MECP should be contacted regarding the need for permits under the Endangered Species Act.
Barn Swallow	Provincially and Federally Threatened Species (COSSARO, 2017; COSEWIC, 2017) Protected under the Ontario Endangered Species Act (2007) and Migratory Birds Convention Act (Gov. Canada, 1994). Habitat Protected under the City of Ottawa Official Plan (2003) Sections 2.4.2 and 4.7.4	Several individuals identified foraging over a snow dump pile in Community 1 on the northwest limits of the study property.	No further action is required. Only nests on structures are protected. Currently no structures with active barn swallow nests in Study Area. The presence/absence barn swallow nests should be conducted prior to removal of any potential barn swallow nesting structures.
Eastern Wood-peewee	Federally and provincially a special concern species (COSEWIC, 2017; COSSARO, 2017) Protected under Migratory Birds Convention Act (Gov. Canada, 1994) and the Significant Wildlife Habitat Technical Guide (MNR, 2000) Habitat protected under the City of Ottawa Official Plan (2003) Sections 2.4.2 and 4.7.8	Identified in Community 8	Prior to development at the EIS stage a qualified biologist should reassess the property for eastern wood-peewee habitat. Protect the entire UNF (Innes Park Woods UNA). Special concern species covered under Significant Wildlife Habitat policies in PPS and City of Ottawa Official Plan. Forest to be preserved, no tree cutting.

Constraint (Feature or Species)	Guiding Policies	Significance/ Rationale	Recommendations
Bank Swallow	Federally and provincially threatened species (COSEWIC, 2017; COSSARO, 2017) Protected under the Migratory Birds Convention Act (Gov. Canada, 1994) Habitat Protected under the City of Ottawa Official Plan (2003) Sections 2.4.2 and 4.7.4	Birds identified foraging over the property (north-west corner of Community 1 over a snow dump), no nesting habitat identified.	Currently no nesting colonies present, therefore no action under the ESA is required. Prior to development at the EIS stage a qualified biologist should reassess the property for bank swallow habitat. As these birds are opportunistic and can use temporary storage piles as nesting sites, the presence of suitable habitat and colonies should be assessed at the EIS stage. City of Ottawa Recommendation: site specific mitigation measures are needed regarding storage of topsoil/fill/etc. on-site, to avoid potential issues.
Wood Thrush	Federally threatened species (COSEWIC, 2017) and a special concern species provincially (COSSARO, 2017) Protected under the Migratory Birds Convention Act (Gov. Canada, 1994) and the Significant Wildlife Habitat Technical Guide (MNR, 2000) Habitat protected under the City of Ottawa Official Plan (2003) Sections 2.4.2 and 4.7.8	Identified in Community 8	Protect the entire Urban Natural Feature (UNF) (Innes Park Woods). Special concern species covered under Significant Wildlife Habitat policies in PPS and City of Ottawa Official Plan. Prior to development at the EIS stage a qualified biologist should reassess the property for wood thrush habitat. No cutting of forest permitted until this is completed.
Eastern Meadowlark	Federally and provincially threatened species (COSEWIC, 2017; COSSARO, 2017) Protected under the Ontario Endangered Species Act (2007) and Migratory Birds Convention Act. Habitat protected under the City of Ottawa Official Plan (2003) Sections 2.4.2 and 4.7.4	Identified in Community 14	Prior to development at the EIS stage a qualified biologist should reassess the property for eastern meadowlark habitat. Permit required from MECP under the Endangered Species Act if eastern meadowlark still exists within the field meadows. Discussions with the MNRF may be required. Possible compensation required if removal of habitat is needed. No clearing to occur within the breeding bird period (April 15th to August 15th) as per Environment Canada.

Community Design Policies and Guidelines provide a framework for the overall identity and structure of the CDP area, as well as for the characteristics of new buildings, streetscapes, and parks within the community. Their purpose is to ensure a consistently high-quality design standard throughout the community. These policies and guidelines have been developed within an environmental context and contain guidance related to: noise control, visual conformity and

design aesthetics, transit infrastructure, multi-modal transportation, streetscaping, vegetation planting, use of existing natural elements and greenspace planning, and stormwater management policies and guidelines. Environmental Responsibilities and Approvals anticipated in the next steps of the area development, including the responsible authority are outlined in Table 13.3 below.

Table 13.3: Environmental Approvals

Action	Responsibility	Timing/Process/Permits and Approvals
Woodlands and Forests <ul style="list-style-type: none"> Review opportunities for retention of woodlots / trees and incorporation into Parkland. 	City	Area Parks Plan (APP)
Tree Conservation Report (TCR) and Landscape Plan <ul style="list-style-type: none"> Address opportunities for tree retention. Consider transplanting where appropriate. Provide tree planting recommendations to achieve 30% tree canopy in new parks and to enhance urban forest and canopy cover throughout the community, using native species (Appendix C). 	Developers	Plan of Subdivision Endangered Species Act if butternut is found to be present Urban Tree Conservation By-law
Environmental Impact Statement <ul style="list-style-type: none"> Complete EIS for development applications within 30 meters of designated Urban Natural Features (Innes Park Woods and the rock barren) to identify necessary mitigation measures for protection of the features and their functions. These 30 meters of land is already identified on the CDP Land Use and Demonstration Plans and will be designated Major Open Space (and therefore be undevelopable). Complete the EIS to confirm presence of known or potential SAR, extent of any SAR habitat, and associated mitigation / compensation requirements, as well as other potential natural heritage features If necessary, obtain SAR permit or other authorization from the Ministry of Environment, Conservation and Parks (MECP) for bobolink, least bittern, eastern meadowlark, bank swallow and/or barn swallow. 	Developers	Plan of Subdivision <i>Endangered Species Act if protected SAR or SAR habitat are present</i> <i>Environment Impact Statement</i>
Wildlife Protection <ul style="list-style-type: none"> Develop site specific Protocol for Wildlife Protection. 	Developers	Plan of Subdivision City of Ottawa Protocol for Wildlife Protection
Water and Sewer <ul style="list-style-type: none"> Apply for Environmental Compliance Approval (ECA) from the MECP 	Developers	Plan of Subdivision Environmental Protection Act ECA MECP
Permit to Take Water (PTTW) <ul style="list-style-type: none"> Permit to Take Water if more than 4000,000 l/day or registration on the Environmental Activity and Sector Registry (EASR) if between 50,000 to 400,000 l/day. 	Developers	MECP Ontario Water Resources Act (OWRA) Water Taking Regulation (O. Reg. 387/04)
Previous Land Uses <ul style="list-style-type: none"> Decommission wells. Remove agricultural tile drains. Remove septic systems. 	Developers	Environmental Protection Act Ontario Water Resources Act

Headwater Drainage Features <ul style="list-style-type: none"> Implement the recommendations of the Headwater Drainage Features Summary report prepared by Niblett (March 28, 2018) 	Developers	Permit from appropriate Conservation Authority under Conservation Authorities Act
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14.0 AMENDMENT PROCESS

Master Plans, by MCEA definition, are long range plans, which coordinate infrastructure requirements and future land uses. Over time, due to unforeseen circumstances, it may not be feasible to implement the projects as described in the CDP or Master Plans/EAs. Significant or major changes to the project, or change in the environmental setting, will need to be reviewed and a determination made as to whether an addendum to the Master Plan Projects is required.

Major Changes would be considered to be those which change the intent of the EAs or appreciably change the expected net impacts or outcomes associated with the project. An example of a major change would result from a proposed major shift in a preferred design alignment or configuration which would warrant changes in mitigation as described in the EA. If the proposed modification is major, an addendum to the Master Plans may be required to: document the change; identify the associated impacts and mitigation measures; and allow related concerns to be addressed and reviewed by the appropriate stakeholders and public.

Minor design changes are considered to be changes which do not appreciably change the expected net impacts or outcomes associated with the project. The majority of such changes could be dealt with during the detailed design and development approvals phase and would remain the responsibility of the proponent to ensure that all relevant issues are taken into account. For example, a design change in lighting treatment, landscaping, noise attenuation, median width, pathway connections, underground infrastructure sizes, increases in sanitary/stormwater outflows, and increases in water demands would be considered minor. A change would also be considered as minor if it is required to comply with another Act, a regulation made under another Act, an order, permit, approval or other instrument issued under another Act, or if required to comply with the requirements of approval authorities such as the City of Ottawa or Conservation Authorities. Changes in infrastructure alignment or facility footprints or tributary areas would also be considered as minor if they do not affect non-consenting landowners and do not warrant changes in mitigation as described in the EA.

At the time of publication of this study, amendments to the Municipal Class Environmental Assessment are being considered by MECP, and therefore this report has been prepared with consideration for the potential amendments.

15.0 FINDING AND CONCLUSIONS

The findings and conclusions of the Master Transportation Study (MTS) are based on the land use assumptions and analysis outlined above.

15.1 FINDINGS

- The full build-out of the EUC Phase 3 Area is anticipated to generate a total of over 2,700 vehicular trips during the morning peak hour and 3,400 during the afternoon peak hour of travel demand.
- The Richcraft portion of the EUC Phase 3 Area is not anticipated to commence before the 2031-time horizon of the City's TMP.
- The current transit share of the growing community south of Innes Rd. is currently in the order of 10%. This compares to the 30%-to-35% peak hour mode share for communities north of Innes Road.
- Continued development of the EUC Phase 3 Area and all lands south of Innes Rd. is expected to exert considerable demand for additional capacity across the Greens Creek Screenline and its critical stations such as the Innes Rd./Blair Rd. corridor.
- Several movements along the *Innes Rd.* corridor intersections currently operate at congested levels of services during the peak periods. The v/c ratios and delays are anticipated to increase during peak periods as development progresses within the study area. Improvements along Innes Rd. corridor are not feasible due to the limited ROW width along the corridor.
- There is a necessity to assure transit initiatives are accelerated to serve the developing communities to the south of Innes Rd., which in the immediate time frame would involve establishing north-south linkages to the immanent Stage 2 LRT stations.

15.2 CONCLUSIONS

The following conclusions involving required infrastructure initiatives were identified within this MTS and involve infrastructure local to the EUC Phase 3 Area, supporting major arterial infrastructure and region-wide initiatives necessary to sustain the entirety of the development of all lands east of the Greens Creek Screenline.

15.2.1 EUC Phase 3 Area Local Initiatives

- **Roadway Initiatives Internal to the EUC Phase 3 Area:** New collector roads and intersections will be required as part of the development of the EUC Phase 3 Area:
 - Fern Casey Extension to Vanguard Drive;
 - Vanguard Dr. Extension west of Mer Bleue Rd.
 - The Frank Bender St. Extension to south of Vanguard to meet Fern Casey Blvd. in the west;
 - Ascender Blvd. south of Brian Coburn to Renaud Rd.
 - Roundabouts are recommended within EUC Phase 3 Area:

- Frank Bender St. and the Vanguard Extension;
 - Fern Casey Blvd. and Frank Bender St.; and
 - Vanguard Dr. Extension at Future North-South Rd.
- Ascender Blvd. intersection at Brian Coburn Blvd.
- Vanguard Extension at Mer Bleue is assumed to be a traffic control signal.
- **Local Cycling Infrastructure:** The proposed EUC Phase 3 Area network includes cycling facilities along the collector roads by way of a MUP on one side of the collector roads. The cycling provisions would provide connections to the existing cycling facilities along the arterial roadway system such Innes Rd. and Mer Bleue Rd.
- **Local Pedestrian Infrastructure:** MUPs are proposed on one side of all collector roads, with a sidewalk proposed on the opposite side. Sidewalks are also proposed on one side of select local roads.
- **Local Transit Infrastructure:** Transit service is expected to be provided along the collector roadway system within EUC Phase 3 Area. The details of the transit routes and transit support services will dependent highly upon the phasing/staging of the EUC Phase 3 Area and are best addressed at development at the plan of subdivision stage. Such infrastructure such as the location of bus routes, bus stops, shelters and related infrastructure must be coordinated with OC Transpo/City of Ottawa at of each phase of development.

15.2.2 Supporting Major Arterial Infrastructure

- **Adjacent Arterial Roadway Initiatives:** The following roadway infrastructure improvements were identified to be required to sustain the development the growing urban community east of Navan Road inclusive of the adjacent lands identified within Table 9.1.
 - *Brian Coburn Blvd.* was determined to require widening to 4-lanes (Mer Bleue to Navan) by interim year to provide east-west capacity and support the projected development within the study area, but is contingent on the pace of development within the study area. The City’s 2013 TMP acknowledges that Brian Coburn Blvd will ultimately be a 4-lane corridor, but does not provide a timeline for this improvement. It is recommended that the timing of the widening of Brian Coburn Blvd to 4-lanes be further reviewed when the next TMP update is undertaken.
 - *Navan Rd.* was determined to require widening to 4-lanes by ultimate full-build-out to address development growth within the study area. The City’s 2013 TMP acknowledges that Navan Rd. will ultimately be a 4-lane corridor as part of the Network Concept, but does not provide a timeline for this improvement. It is recommended that the timing of the widening of Navan Rd. to 4-lanes be further reviewed when the next TMP update is undertaken.
 - *Mer Bleue Rd. / Brian Coburn Blvd.* was determined to require additional capacity along Brian Coburn. As indicated above, a 4-lane Brian Coburn from Mer Bleue Rd. to Navan Rd. is anticipated to be required should development progress within the study area. The intersection was also found to require additional dedicated right-turn

lanes on all approaches ultimate build-out year. The right-turn lanes are dependent on the right-of-way availability at the intersection.

- *Navan Rd. / Brian Coburn Blvd.* was determined to require a dedicated SB left-turn lane and NB Right-turn lane along Navan to separate the heavy through movements from turning movements by the interim scenario. This would require a 2-lane roundabout. As indicated above, by ultimate build-out year Navan Rd. was determined to require widening.
- *Navan Rd. / Renaud Rd.* was found to operate at a congested level of service as development progressed within the study area. Improvements might not be feasible along Renaud Rd. due to lack of right-of-way availability. Improvements in the interim year were proposed by providing a dedicated SB right-turn lane along Navan Rd. By ultimate build-out year, Navan Rd. was found to require widening to 4-lanes.
- *Mer Bleue Rd. / Renaud Rd.* was determined to require improvements to either a roundabout or traffic control signal. The feasibility of the 3-leg roundabout is dependent on the right-of-way requirement at the intersection.

15.2.3 Region-wide Initiatives

- **Regional Infrastructure Initiatives:** In addition to arterial investments within close proximity to the EUC Phase 3 Area, it is imperative that projects oriented at increasing vehicle capacity of Region-wide infrastructure be accelerated to include such additional roadway facilities as:
 - The Innes / Walkley / Hunt Club connection;
 - Widening of the Blackburn Hamlet Bypass; and
 - options with regard to the Brian Coburn Blvd. Westerly Extension.
- **Region-Wide Transit Initiatives:** The following transit infrastructure improvements were identified to be required to sustain the development of the lands east of the Navan Road corridor inclusive of the adjacent lands identified within Table 9.1. Transit initiatives include:
 - The development of alternative expanded east-west transit infrastructure to serve the developing community (which has been estimated to reach approximately 15,000 dwellings at build-out) located south of Innes Road corridor;
 - consideration given to widening the Brian Coburn Blvd. corridor to provide dedicated transit priority lanes prior to any expansion that would accommodate motor-vehicle traffic;
 - The development of north-south transit corridors through the East Urban Community Phase 3 Area (as well as existing corridors outside of the Phase 3 Area) that would connect with the Stage 2 Light Rail transit stations are encouraged to improve the transit share of developments south of Innes Rd. This would include incorporation of transit priority measures on existing and future roadways; and
 - The development of a Park and Ride at Navan Rd and Brian Coburn Blvd.

It is recognized that the infrastructure conclusions are dependent on how development progresses within the areas east of Navan Road.

16.0 RECOMMENDATIONS


Based on the above findings and conclusions it is recommended that for:

EUC Phase 3 Area Initiative:

- local Initiatives (as outlined in section 15.2.1) be undertaken to support the EUC Phase 3 Area development;
- the EUC Phase 3 Area be recognized as a single component of the entire development potential of all of the lands east of Navan Road;
- subsequent transportation impact studies be initiated for each phase of development of the EUC Phase 3 Area as development proceeds; and
- this MTS receive approval as a component of the overall community design plan.

Region-Wide Initiative:

- the need for several region-wide roadway and transit infrastructure initiatives (section 15.2.3) as identified within this MTS remain imperative to accommodate the ultimate development forecasts of all lands east of Navan Road; and
- the upcoming City of Ottawa TMP address the timing, phasing and multi-modal alternatives for the Brian Coburn Blvd. corridor inclusive of its potential western extension.



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