
INTEGRATED TRANSPORTATION STUDY – PHASE 1

PREPARED FOR:
THE TOWN OF CONCEPTION BAY SOUTH

PREPARED BY:
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Executive Summary

Over the past five years, the Town of Conception Bay South (CBS) has seen significant growth in development, population and infrastructure. The current and planned expansions have and will continue to generate additional traffic in CBS. These developments will certainly have a major impact on the transportation network in the Town. These developments include the Gateway development, and various residential developments throughout the Town. The Town's subdivision map (2015) illustrates 839 active lots and 368 proposed lots in CBS. This new development also includes new municipal facilities, including the new Town Hall, new fire hall and new stadium. To address this, CBS will undertake an Integrated Transportation Study to examine the immediate and longer term transportation infrastructure needs in and around the Town.

The Integrated Transportation Plan has been subdivided/organized into two distinct phases. These phases and the intended scopes of work related to each are described below:

Phase 1

The purpose of Phase 1 of the Integrated Transportation Plan is intended to familiarize the consultant with various aspects of the Town's transportation infrastructure. The scope of work included:

- Develop a detailed work plan
- Analysis of existing data including studies from neighbouring municipalities, if applicable
- Review current road classification
- Review existing traffic studies, existing and projected traffic flow and recommend alternative measures to accommodate demand
- Review existing traffic controls
- Review existing trail network
- Identify additional information required to conduct an Integrated Traffic Plan
- Provide a Summary Report for Phase 1
- Develop the scope of work for Phase 2
- Overall general project management

Phase 2

The purpose of Phase 2 is to collect and update the information that will be required to complete the Integrated Transportation Plan. The scope of this phase of the project includes:

- Develop a detailed work plan
- Collect additional information required to conduct an Integrated Traffic Plan
- Carry out initial phase of public consultation
- Provide a summary report for Phase 2
- Develop a scope of work for the Integrated Traffic Plan, Phase 3

Phase 3

Phase 3 of this project involve the actual development of the Integrated Transportation Plan. The scope of this phase of the project includes:

- Develop a detailed work plan
- Recommend improvements to existing intersections
- Recommend improvements to existing traffic controls
- Recommend active transportation improvements to the existing trail network

- Develop associated costs of alternative planning solutions
- Develop an Integrated Transportation Plan
- Develop a communications plan and strategy encompassing project meetings, meetings with stakeholders and preparing for and hosting two (2) Public Information Centers (PICs)
- Prepare and make presentation to Town Council (staff presentation to be provided prior to Council presentation)
- Overall general project management

Harbourside Transportation Consultants has now completed Phase 1 of the Integrated Transportation Plan. We have organized the results of our review into a number of different tasks that we have elaborated on as required in in the body of this report.

Task 1: Project Initiation and Information Gathering

Harbourside Transportation Consultants (HTC) met with the Town of Conception Bay South in January 2016 to initiate the start of Phase 1. At that time, HTC dealt with a number of administrative issues and reviewed the proposed methodology with the staff of the Town of CBS. This meeting initiated the process for transferring information, mapping and various reports that were required by HTC to complete Phase 1 of this project.

Task 2: Site Walkabout/Drive-about

On January 21, 2016, Harbourside Transportation Consultants (HTC) met with members of staff with the Town of Conception Bay South (CBS) to tour many of the problem areas throughout the Town of CBS. A complete listing of these concerns are noted in Section 1.0 of this report.

Task 3: Analysis of Existing Data/Gap Analysis & Task 5: Review of Existing Traffic Studies

HTC reviewed all of the key background traffic reports noted in the terms of reference as part of Phase 1. Summaries of these reports can be found in Section 2.0 of the report.

Task 4: Review of the Street Classification

The Town's present street classification system consists of three classes of streets. HTC is recommending this classification system be revised to fall more in line with the classification system developed by the Transportation Association of Canada (TAC). The TAC classification system is more suitable for use in prioritizing streets for snow clearing and ice control and for determining what streets should be subject to normal traffic calming policies.

Task 6: Review of Collision History

Having access to reliable, accurate and current collision data is extremely important from a traffic operations perspective. Having learned from the experiences of the City of St. John's, HTC is recommending that the Town of CBS purchase the TES software package and obtain and input the collision records themselves. This will ensure the integrity and accuracy of the database on an ongoing basis.

Task 7: Review of Existing Traffic Controls

HTC conducted a high level inspection at 8 different locations throughout the Town of CBS with traffic controls in place, to determine their overall conditions and to get a sense of the magnitude of repairs and upgrading that will have to be completed to get these systems up to industry standards. To complete this work, HTC developed a priority rating system which allocates points to a traffic control system based on the condition of the controller and components of the cabinet, the traffic poles and signal displays, and on

the pedestrian push buttons and related signal displays. The total points rating available for any one control system is 100 points.

It should be noted that the intersections of Dawson's Run/Route 60 and Cherry Lane/Route 60 are controlled by the same traffic controller and were considered as one intersection for the purpose of the inspections. The results of the inspections conducted by HTC indicated that 4 of the 8 locations have conditions ratings of less than 50 points. Three intersections are using controllers that are well beyond their useful life spans and they should be scheduled to be upgraded as soon as possible. 63% of the intersections inspected by HTC have problems with their detection systems. The vast majority of these problems are a result of saw cut loops that have failed. These locations should be upgraded with preformed inductive loops which are much more durable.

HTC has also noted a number of locations with older Pole Systems TD series traffic davits. A more detailed structural assessment should be conducted on these poles to properly assess their condition.

A detailed listing of recommendations for the Town's signal systems is contained in Section 5.3 of the report.

Task 8: Review of Existing Trail Network

HTC reviewed a number of existing studies, documents and maps pertaining the trail networks and pedestrian movements within the Town of CBS. This review included the Municipal Plan and the Open Space/Recreation Master Plan 2008.

Challenges were identified with the existing network. The main concerns including a lack of infrastructure and connectivity between existing infrastructure. A detailed listing of recommendations have been included in Section 6.3 of the report.

1.0 Task 2: Site Walk-about/Drive-about

On January 21, 2016, Harbourside Transportation Consultants (HTC) met with members of staff with the Town of Conception Bay South (CBS) including Elaine Mitchell – Director of Planning and Jennifer Manuel – Director of Engineering and Public Works. The purpose of the meeting was to discuss and visit problem areas of the Town of CBS that they would like addressed in the overall Integrated Transportation Study.

Highlighted areas of concern included:

- Along Route 60 from Manuels Bridge to Kiddy Ades intersection, there is currently sidewalk on the north side of the roadway and the Town would like sidewalk on the south side as well, however there are restrictions due to property boundaries. There are also a number of pedestrian crossings that should be reviewed in compliance with the MUTCDC standards.
- It may be possible to deal with some of this issues along Route 60, by reducing the cross section from a 4-lane cross section to a 3-lane cross section; capacity is a concern.
- The traffic signals at Cherry Lane and Dawson’s Run are currently connected together and allow for a permitted left-turn onto both side streets. However, there are currently two 4-head traffic signals which will accommodate a protected left-turn on both side streets. A traffic count and a review of the existing signal timings is required to properly configure these intersections.
- There are two schools and one church located on the west of Topsail Road near Manuels Bridge. There two entrances provided for the three buildings along Topsail Road and they experience congestion in the morning and afternoon when children are being dropped off and picked up. This backs up to Manuels Bridge intersection and makes it difficult for vehicles making a left-turn onto Topsail Road. A report was prepared by Dillion in relation to the school site circulation.
- Fowler’s Road is a north/south connector from Topsail Road to Route 2 and has a posted speed limit of 40km/hr with sidewalk on the east side of the roadway. There are two roadways that connect into Fowler’s Road and then connect into Topsail Road (Paradise) – Buckingham Drive and Earlston Avenue. Earlston Avenue has had a temporary speed bump installed there in the past and the residents would like it reinstated. Council has also placed three 3-way stop controlled intersections along Haliburton Street from concerns of speeding raised by residents.
- The CBS Industrial Park has submitted multiple proposals to the Town of CBS for development of heavy industrial parcels and potentially a coffee shop/gas station along Fowler’s Road.
- Peacekeeper’s Way has multiple interchanges and a posted speed limit of 90 km/hr until the intersection with Conception Bay Highway. A variety of interchanges require improvements due to high number of collisions or an increase of traffic volumes. They include the following:
 - One-lane Bailey bridge on Ledrew’s Road crosses Peacekeeper’s Way and requires upgrading; DWT responsibility.
 - Legion Road has multiple collisions at the stop-controlled intersection of the westbound off-ramp. Most incidents are vehicles making a left-turn. The vertical alignment requires review.

- Lawrence Pond Road is a new connection to Peacekeeper’s Way and since the connection, the volume of traffic has increased significantly on the roadway and has not been classified. The Town of CBS has allocated funding to make improvements to the roadway to a collector status. A 3-way stop controlled intersection was placed at Lawrence Pond Road/Comerford’s Road to slow down the traffic. Comerford’s Road is a shortcut that most use to get onto Peacekeeper’s Way.
 - All merge and diverge lanes appear to be shorter than standard, which would not allow sufficient time to merge with through traffic on the highway.
- The alignment of the Intersection at Peacekeeper’s Way and Route 60 is a poor. There is a history of collisions at this location.
 - Along Route 60, from Peacekeeper’s Way to Kelligrew’s, there is no sidewalk and there are no crosswalks. However, Council has requested that 5 crosswalks be placed in the Kelligrews area.
 - The Department of Transportation and Works’ Policy for Highway Access Management is having an impact on development along Route 60 from Peacekeeper’s Way to Kelligrew’s, due to Route 60 being a provincial roadway.
 - The Tim Horton’s near the intersection of Route 60/Legion Road is a high traffic generator and causes vehicle backups back to the signalized intersection.
 - New traffic signals to be placed at the following locations:
 - Greelytown Road/Route 60
 - Greenslades Road & Anchorage Road/Route 60
 - The signalized intersections at Terminal Road/Conception Bay Highway and Bishops Road/Conception Bay Highway are intersections with multiple collisions and some involving pedestrians.
 - Residents have traffic calming concerns through the Town.
 - Miscellaneous operational issues that should be addressed as part of the Integrated Transportation Study :
 - The sight distance of the proposed crosswalk locations are a concern. These crosswalks should be reviewed in detailed and changes suggested as necessary.

All of the concerns noted from the Town staff noted above will be integrated into the terms of reference for Phase 2 of the Integrated Transportation Study.

2.0 Tasks 3 and 5: Existing Data

There have been a number of traffic studies carried out within the Town of Conception Bay South in recent year. These studies have been performed both directly for the Town and for private developers, according to the requirements of the Town. This task is important for creating the picture of what has taken place within the Town for traffic data collection, analysis and recommendations. This will assist HTC in creating the “big picture” of the transportation network within the Town, and the issues within it.

The following paragraphs summarize a selection of studies that have been identified by the Town as the most relevant. These studies have been reviewed by HTC and will be important in the next stage of the Integrated Transportation Plan.

2.1 Town of CBS - Municipal Plan 2011-2021

2.1.1 Neighbourhood Area Plans (Section 4.3.2)

POLICIES:

- i. Council may, during the planning period, specify areas for the preparation and adoption of detailed area plans which are consistent with the goals, objectives and policies of this Plan. Such plans shall identify:
 - a. Opportunities to increase connectivity of streets;
 - b. Integration of pedestrian networks into the Town’s parks and open space system;
 - c. Infrastructure improvements;
 - d. Appropriate locations for neighbourhood commercial uses;
 - e. Environmentally sensitive areas and features; and
 - f. More detailed application of land use zones.

2.1.2 Subdivision of Lands (Section 4.3.3)

POLICIES:

- i. Council will encourage and support alternative and creative forms of subdivision design such as open space, conservation, and cluster subdivisions as a means of preserving community open space and improving the connectivity of street and pedestrian networks.

2.1.3 Open Space Dedication (Section 4.3.4)

POLICIES:

- i. A minimum of ten percent (10%) of land proposed for development shall be dedicated to the Town as useable parkland. Where it is determined by the Town that the land is of insufficient size, inappropriate location, unusable or for any other reason unacceptable, the Town may accept in lieu of land, a sum of money equal to the value of the land that would otherwise be required.
- ii. Lands dedicated to open space shall be planned so as to enhance public open space and facilitate the integration, expansion and increase quality of the Town’s open space system. It shall be a policy of Council to maximize where possible, the contribution of land or cash required for open space dedication from new development to the implementation of the Town’s Open Space and Recreation Master Plan.
- iii. In acquiring lands for public open space through the subdivision approval process. Council shall consider:

- a. The existence of other nearby facilities and the potential for integration with existing parkland;
 - b. Quantity and nature of local recreation demand;
 - c. The suitability of the proposed lands for its intended use;
 - d. Accessibility;
 - e. Compatibility with and impacts on existing and proposed land uses;
 - f. Traffic generation and parking considerations;
 - g. Safety and security; and
 - h. The potential for recreation lands to assist with protecting natural areas.
- iv. Within a development, lands required to be dedicated for open space will be prepared as required by the Town and in accordance with the subdivision agreement, prior to the issuance of building permits to ensure that adequate open space is provided for new families of the development at the outset.

2.1.4 Development Design and Neighbourhood Amenity (Section 4.3.7)

The Town is committed to improving the quality and design of developments within the community.

POLICIES:

- i. No proposed development shall be permitted where Council reasonably expects that it will detract from the quality of the amenity of a neighbourhood or area, generate an excessive amount of traffic, or cause a hazard or nuisance to neighbouring uses.
- ii. The Town will consider the aesthetic character of site and building design in the approval of site plans within all land use designations. In evaluating development proposals, the Town will consider design elements including:
 - a. Layout, setback, height and bulk of buildings.
 - b. The relationship of proposed buildings to one another and to other buildings and development in the area.
 - c. The effect of the proposed development on future development of adjoining properties.
 - d. The exterior appearance of proposed building, including exterior finish and colour.
 - e. Outdoor lighting.
 - f. Signs and advertisements.
 - g. Open space around proposed buildings, including landscaping, buffering, pedestrian walkways.

2.1.5 T’Railway Park (Section 4.3.11)

The Newfoundland T’Railway Park corridor is identified within the Open Space Conservation land use designation. This important recreational and economic asset enhances opportunities for recreational enjoyment of the coastline of the Town, and provides an important opportunity to improve connectivity between neighbourhoods and commercial districts.

POLICIES:

- i. Proposals for development of lands adjacent to the T’Railway shall be assessed for their compatibility, visual impact and potential to provide pedestrian connections. A buffer may be required between the development and the T’Railway.

- ii. It shall be a policy of Council to upgrade and enhance the T’Railway over the planning period as a key asset to the Town’s Parks and Recreation Open Space system. Trail development and use shall be in accordance with trail development plans prepared by the Town.

2.1.6 Open Space Recreation (Section 5.7)

The Town of Conception Bay South has a variety of developed and natural recreational open space areas throughout the town. The Town completed an Open Space and Recreation Master Plan that establishes a roadmap for an integrated system of recreational facilities, open space and trails.

OBJECTIVES:

- To support the development of a safe system of pedestrian walkways linking residential areas of the town to schools, parks, playgrounds and commercial districts.
- Utilize the T’Railway Park as a key recreational corridor in the Town.

POLICIES:

- i. It is the intention of the Council to implement the Conception Bay South Parks and Recreation Master Plan and to ensure that the recreational facilities, waterfront parks, trails and parks are developed in accordance with it.

2.1.7 Transportation (Section 6.0)

GOAL:

- To provide a safe and efficient transportation system network to, from, and within Conception Bay South

OBJECTIVES:

- To provide a hierarchy of roads that allow for the efficient movement of people and goods within the town and connecting to the regional road network.
- To increase the safety and efficiency of the road network through road widening, intersection improvements, traffic control signals where required.
- To improve pedestrian safety by providing sidewalks along arterial and collector roads, improving intersections and by providing crosswalks at appropriate locations.
- Ensure that adequate road capacity exists to accommodate new development.
- Ensure proper access to all residential developments and commercial establishments, and provide a system of traffic circulation which avoids congestion and hazardous intersections.
- Introduce traffic calming measures in commercial districts along the Conception Bay South Highway to provide a safer environment for vehicles and pedestrians.

POLICIES:

- i. Over the planning period, the Town prepares a traffic model to assist in the detailed analysis of various development proposals, prediction of roadway traffic volume and impacts as well as the assessment of specific improvement options. In this regard, the Town will work with the Department of Transportation and Works to assess and monitor the impact of development in the Town on the Conception Bay Highway and Route 2 to identify needed improvements and upgrades to ensure these roads function safely and efficiently.

- ii. Sidewalks – It shall be a policy of Council that sidewalks be installed along streets in new developments, on local street within the 1.7 km no bussing zone around schools and along streets serving community facilities and commercial areas. As funding permits, Council shall provide sidewalks along existing collector roadways where they are not currently provided in conjunction with future roadway and infrastructure upgrades.
- iii. The Town will investigate opportunities to develop parking areas at locations along accesses to Route 2 to encourage commuter ride-sharing and facilitate future public transit.
- iv. The Town will approach the Department of Works, Services and Transportation to replace the Bailey bridge at LeDrews Road in order to facilitate serviced development and provide options for street connectivity in the area south of Route 2 between LeDrews Road and Middle Bright Road.

2.2 Town of CBS – Integrated Community Sustainability Plan 2010

The plan identifies sustainable infrastructure projects for the Town of CBS that will reduce greenhouse gas emissions such as:

- Upgrading and paving Town owned streets.
- Recapping Town owned streets.
- Installing sidewalks along major roads such as the Conception Bay Highway in the vicinity of the Town centres, Minerals Road, Foxtrap Access Road, Legion Road and in the vicinity of schools.
- Implementing the Open Space/Recreation Master Plan.
- Developing trails in Chamberlains Park.
- Assuming responsibility for the T’Railway and develop it as a walking, hiking and biking trail.

2.3 Development Regulations 2011-2021

Sidewalk widths by street class:

- | | |
|---------------------|-------|
| • Arterial | 1.5 m |
| • Collector | 1.5 m |
| • Local residential | 1.5 m |
| • Service | 1.5 m |

2.4 SJURRP – Super-amendment 2014

The Regional Plan Map was revised to include developed areas that are not of significance as ‘Urban Development’. These changes included lands designated as recreation and open space, river courses, and general industrial on the Future Land Use mapping in the Town’s Municipal Plan.

2.5 CBS Open Space/Recreation Master Plan, 2008

The Plan identifies the current and future open space and recreations need of the Town and describes the physical developments that are required to meet the recreation needs of residents. The plan proposes an integrated trail system where the T’Railway forms the spine of the trail system and supports the development of walking trails to ponds within the Town with potential to develop hiking links into the headwaters of many watersheds. The Plan suggest that recommendations from the CBS T’Railway Study to develop the T’Railway for non-motorized (walking and cycling) traffic be implemented, including the development of an ATV/snowmobile bypass.

2.6 CBS Main Street Improvement Plan

CBCL was retained by the Town of CBS to examine the area along the Conception Bay Highway between Terminal Road and the Manuels River and identify opportunities to improve the area as a commercial district. Measures regarding traffic calming, improved traffic circulation, parking and pedestrian mobility were recommended.

The Plan proposes recommendations with regards to transportation focused on ensuring the efficient movement of vehicles through Main Street while providing space for alternate modes of transportation. Recommendations include:

- Create a pedestrian-friendly environment through cross section changes and the provision of sidewalks along both sides of Main Street and upgrading pedestrian infrastructure on side streets connected to the T’Railway.
- Introduce a grid of secondary road links to the network in the area around Villa Nova Plaza and the Town Hall in order to increase connectivity and provide more efficient vehicular movement in the area.
- Realign the three-way intersections of Main Street and Bishops Road, and Main Street and Talcville Road to create a four-way intersection.
- Equip the intersections of Villa Nova Road and Main Street and the new road between McDonald’s and Villa Nova Plaza and Main Street with traffic signals.

2.7 CBS Traffic Calming Policy, 2015

HTC developed a methodology to assist the Town of CBS in dealing with traffic calming issues in a consistent/appropriate manner.

2.8 Route 60 Traffic Study

In 2007, BAE-Newplan Group Limited was retained by the Town of CBS to review existing conditions on Route 60 within the Town limits and establish future demand. The goal of the study was to identify necessary infrastructure improvements in terms of traffic operations and road safety for all road users in preparation for a potential transfer of ownership from the province. Recommendations for the study include:

- Traffic signal upgrades
- Pedestrian crossing upgrades
- Intersection capacity upgrades
- Installation of sidewalk on south side of Route 60
- Sidewalk widening at select locations
- Installation of left turn auxiliary lanes at select locations
- Modifications to parking areas to provide separation between Route 60 and adjacent parking.
- Width reduction and consolidation of commercial driveways
- Repairs and re-grading of storm drainage manhole and catch basins
- Pavement re-surfacing

2.9 Metrobus Transit Study, 2011

A Market Assessment and Strategic Directions Study was performed for the St. John’s transit system reviewing the demand for regional transit services in the greater St. John’s area. The study recommended developing the existing transit system in St. John’s and Mount Pearl into a regional transit system with

transit services linking Conception Bay South, Paradise and Torbay. The report suggests exploring park-and-ride facilities along the highway corridors in Conception Bay South if regional transit is introduced.

2.10 Northeast Avalon Regional Plan Issues and Analysis Report, 2009

This report describes the need for municipal cooperation to ensure a viable and effective regional transportation system that addresses municipal issues and the needs of residents.

3.0 Task 4: Street Classification

The Town of Conception Bay South classifies its streets into three classes. Each class is intended to reflect the service function and traffic characteristics of the roadway. The three classes described below and the current classification is listed in Table 1 below:

- Arterial Streets – The primary function of an arterial roadway is to move large volumes of vehicular traffic within the road network system. These roads are typically connected to collectors or other arterial roads, individual accesses onto the arterial streets are limited.
- Collector Streets – Roadways with a dual function of providing access to adjacent properties and moving vehicular traffic between local and arterial roads. Collector streets are not generally intended to be through routes or to carry significant volumes of traffic within the overall road network. Accesses to abutting properties on collectors is not restricted but properly planned. The collector streets throughout the Town of CBS are further divided into primary and secondary collectors.
- Local Streets – The primary function of a local street is to provide direct access to individual properties. Local residential streets are not intended for use as through traffic routes, these roads generally accommodate low volumes of traffic, carry the traffic short distances and connect with other local and collector roads

Table 1: Existing Streets Classification System

| Arterial Streets | Collector Streets | Local Streets |
|--|---|-----------------------|
| Provincial Arterial: <ul style="list-style-type: none"> • Manuels Access Road • Conception Bay By-Pass (Route 2) • Conception Bay Highway (Route 60) | Primary Collector: <ul style="list-style-type: none"> • Fowler’s Road • Minerals Road • Foxtrap Access Road • Legion Road • Lawrence Pond Road <hr/> Secondary Collector: <ul style="list-style-type: none"> • Anchorage Road • Seal Cove Road/Indian Pond Road • Middle Bight Road • Red Bridge Road • Tilley’s Road South • Dunn’s Hill Road | All remaining streets |

The road network in the Town of CBS consists of a number of different types of roadways, each providing particular services including providing access to property and facilitating travel between points of trip origin and points of trip destination. A sound road classification system establishes a logical hierarchy of roads that provides a gradation in service functionality leaning towards unrestricted access and limited movement functionality for public lanes and local roadways to varying degrees of access control and larger proportions of through traffic and increasing speeds for both minor and major arterial roadways.

It is recommended that the existing CBS street classification system be altered to conform more to the Transportation Association of Canada's (TAC's) streets classification system. Accordingly, we are suggesting the following classification categories be introduced into a new road classification system for the Town of CBS.

- Local Roads
 - Residential
 - Industrial/Commercial
- Collector Roads
 - Residential
 - Industrial/Commercial
- Arterial Roads
 - Minor
 - Major
- Freeways

The existing three class system should be eliminated.

A properly classified roadway system can be helpful in a number of different ways. For example, some municipalities establish their snow clearing and ice control policies based on the streets classification. Streets that move more traffic and that have higher operating speeds and that may be on transit routes receiving higher priorities than streets that carry lower volumes of traffic and that perhaps have not been established transit routes.

Similarly, many municipalities also use their streets classification system to prioritize their pavement markings programs. Higher volume streets receiving priority for re-striping over lower volume roadways.

Municipalities that have traffic calming policies often use the street classification system to filter the requests they receive. Traffic calming measures are not normally used on roadways classified as either minor or major arterial roadways, or that have a higher classification.

It is recommended as part of the Phase 2 integrated transportation plan, that all roadways within the Town of Conception Bay South be reevaluated with data collected, and re-classified in into the new categories noted above, using the characteristics of each noted by TAC in Table 1.3.4.2 in the Geometric Design Guide for Canadian Roads.

4.0 Task 6: Collision History

Review of four years of collision data (2012-2015) in the Town of Conception Bay South indicates potential safety concerns at the locations listed below. Between 2012 to 2015, 240 injury collisions, 116 no injury collisions and 24 pedestrian collisions were reported. All collision data is shown in Figure 1 and color coded to the following: Injury (Red), No Injury (Blue) and Pedestrian (Green).

Roads:

- Manuels Access Road (12 Injury, 7 No Injury)
- Route 60 Long Pond (commercial area) between Villa Nova Road and Bishops Road (19 Injury, 7 No Injury, 3 Pedestrian)

Intersections:

- Route 60, Topsail Road and Manuels Access Road (5 Injury, 3 No Injury)
- Route 60 and Dunns Hill Road (6 Injury, 2 No Injury)
- Route 60 and Greeley Town Road (T’Railway Crossing) (6 Injury, 2 No Injury)
- Two T-intersections of Route 60, Peachytown Road and Delaney’s Road (4 Injury, 1 No Injury, 1 Pedestrian)
- Route 60 and Foxtrap Access Road (3 Injury, 4 No Injury, 4 Pedestrians)
- Route 60 and Legion Road/Gully Pond Road (4 Injury, 3 No Injury)
- Minerals Road and Conception Bay South Bypass Interchange (5 Injury, 3 No Injury)
- Manuels Road and Conception Bay South Bypass Interchange (4 Injury, 3 No Injury)
- Legion Road and Conception Bay South Bypass Interchange (5 Injury, 2 No Injury)
- Legion Road and Bayview Heights (8 Injury, 1 No Injury)

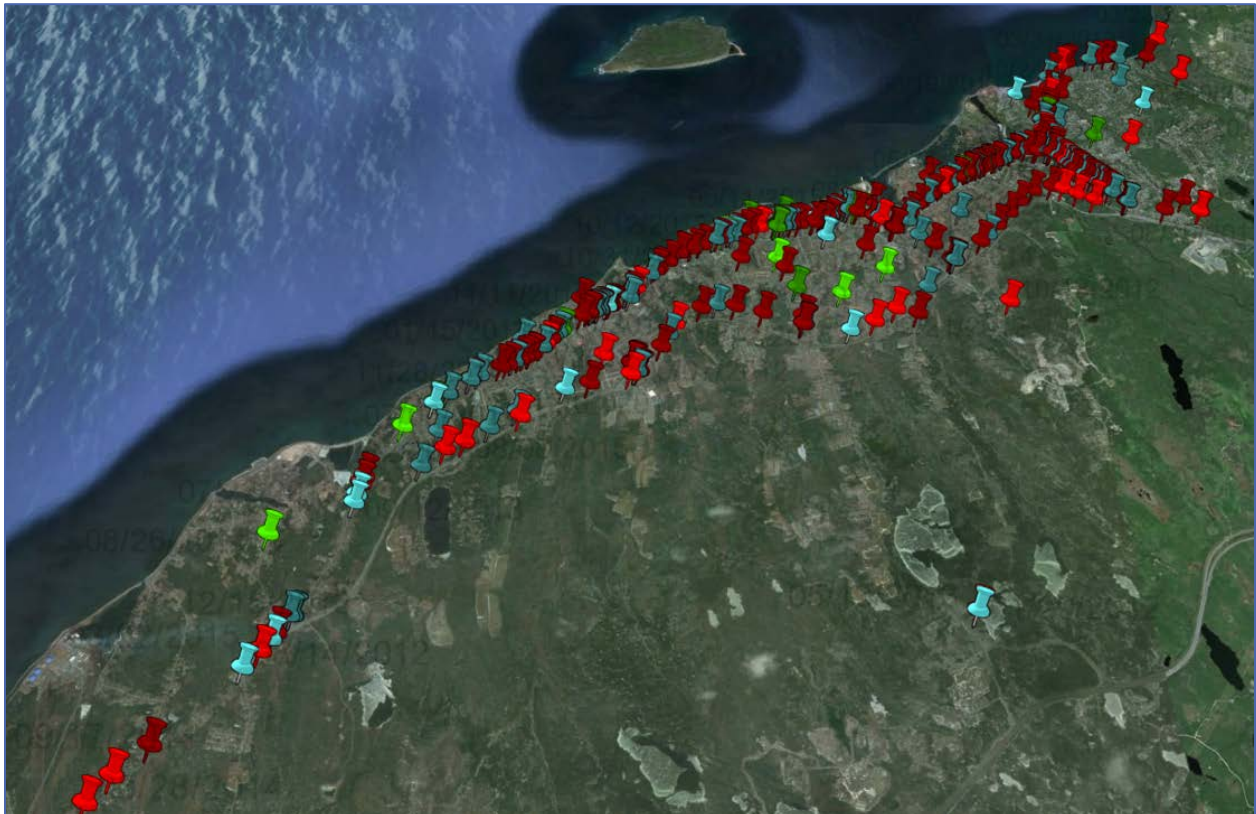


Figure 1: Collision locations throughout the Town of CBS

In 2010, the Provincial Government evaluated the City of St. John’s collision analysis software, the TES software, and decided to procure the same system for use throughout the Province. They decided at the same time to update their collision reporting form to bring it in compliance with national standards pertaining to the same. The Provincial Government implemented the new collision reporting form and started the collection and keying of the collision data in 2012. Unfortunately, the collision reports were not error checked prior to being keyed and the data entry itself was not checked either. These problems, while serious of themselves, were compounded by problems with staff shortages. As a result, only 16 months of data have been keyed thus far since 2012, and the integrity of the data that has been keyed remains questionable.

The Town of CBS has 7 signalized intersections and 1 midblock pedestrian crossing within its jurisdiction. It is therefore very important, from a safety perspective, that the staff in charge of the operation of this equipment to be able to quickly understand the current and historical collision information on each intersection. In this manner, staff can identify movements at an intersection that may be experiencing higher than normal collision rates which could lead to the implementation countermeasures to correct the noted problems.

Harbourside Transportation Consultants is therefore recommending that the Town of CBS make the appropriate efforts to obtain, on an ongoing basis, the collision information for all roadways and intersections falling under the Town’s municipal boundaries. The Town should pursue obtaining and managing this data as it is very important from a safety perspective for traffic operations throughout the Town.

Please note that the TES software also integrates other traffic engineering systems that may prove to be very beneficial as the Town becomes more experienced and sophisticated in its collision analysis capabilities. A complete listing of all the TES modules can be found online at www.tes.ca.

5.0 Task 7: Existing Traffic Controls

5.1 General

As part of Phase 1 of the CBS Integrated Transportation Plan, Harbourside Transportation Consultants (HTC) conducted a high level inspection of the existing traffic control systems throughout the Town of CBS. The inspections were conducted on March 4th, 2016 in conjunction with staff from the Town of CBS.

In total, there were 8 different locations inspected by HTC, including fully-signalized intersections and intersections with half signals installed. HTC looked specifically at the controller equipment, traffic signal displays, traffic poles, pedestrian push buttons and pedestrian signal displays. It should be noted that the intersections of Dawson’s Run/Route 60 and Cherry Lane/Route 60 are controlled by the same traffic controller, for the purpose of the inspections they were considered as one intersection resulting in only 8 locations.

HTC then applied a points rating system intended to reflect the overall condition of the traffic control systems inspected. A total of 60 points was allocated to the traffic controller and related systems. The traffic poles and traffic signal displays received a total of 20 points and the pedestrian crossing push buttons, signage and the pedestrian signal displays received the final 20 points. Each traffic control system was capable of receiving a total of 100 points, as seen below in Table 2.

Table 2: Inspection Points Allocation

| Item | Points |
|---------------------|------------|
| Controller | |
| Cabinet Condition | 5 |
| Controller Vintage | 20 |
| Conflict Monitor | 5 |
| Detection System | 10 |
| BUI | 5 |
| Wiring / Electrical | 10 |
| Pre-emption System | 0 |
| Backpanel | 5 |
| Poles | |
| Condition of Poles | 10 |
| Signal Displays | 5 |
| LED Displays | 5 |
| Pedestrian | |
| Push Buttons | 10 |
| Displays | 5 |
| Count Down Modules | 5 |
| Total | 100 |

The following consideration was given in allocating points to each of the sub categories.

Controller (60 points)

- Cabinet Condition – Points were allocated based on the overall condition of the controller cabinet: presence of graffiti, whether or not the cabinet was properly sealed, and whether or not the locking mechanism was working. HTC also checked for the proper operation of the heaters, although this aspect was noted included in the overall rating. (5 points)
- Controller Vintage – Points were allocated based on the controller technology present at the intersection and the manufacturer of the equipment. The latest Econolite Nema TS2 equipment received full points, TS1 equipment and non Nema standard equipment received less points. (20 points)
- Conflict Monitor – Points were allocated for the presence of a Nema standard conflict monitor. (5 points)
- Detection System – Points were allocated for the presence of the appropriate equipment and whether or not it was operational. (10 points)
- BIU – Points were allocated for the presence of similar brand bus interface units. (5 points)
- Wiring/Electrical – Points were allocated based on how tidy the electrical connections were, whether they were labeled and whether or not the electrical panel cover was present and in place. (10 points)
- Pre-emption System – No points were allocated for the presence of a pre-emption system, but HTC noted the locations and whether or not they looked operational. (0 points)
- Backpanel – Points were allocated based on the presence of a Nema standard back panel. (5 points)

Poles (20 points)

- Condition of the Poles – Points were assigned based on the visual appearance and vintage of the traffic poles. (10 points)
- Signal Displays – Points were assigned on whether or not the signal displays were 12 inch or 8 inch, or combinations thereof. Full points were assigned to intersections having all 12-12-12 signal displays. (5 points)
- LED Displays – Points were assigned to intersections using LED signal displays. (5 points)

Pedestrian (20 points)

- Push Buttons – Points were assigned for the presence of pedestrian push buttons and the appropriate signage. (10 points)
- Displays – Points were assigned to intersections with displays that were in good condition. (5 points)
- Count Down Modules – Points were assigned to intersections having count modules present. (5 points)

The purpose in evaluating each of the 8 traffic control systems within the Town of CBS using the allocation of points for the items in each of the categories as noted previously, was to get an overall sense of the state and operational condition of these traffic control systems. This will assist HTC in providing direction to the Town of CBS as they progress through the various stages of the Integrated Transportation Study as to what needs to be done to each of these systems to get them operating properly, efficiently and according to industry standards.

5.2 Inspection Results

The Town of CBS has a variety of traffic control equipment in good condition, including 1 location with Econolite ASC-3 TS2 controller, 2 locations with Econolite ASC-2S controllers and 1 location with Naztec TS2 controller. There are also locations in the Town with equipment that requires updating, including 1 location with an Econolite CBD controller, 1 location with a KFT controller, 1 location with a TS1 Eagle EPAC300 controller and 1 location with a Naztec MicroCab 682 controller.

Of the 8 traffic control devices in Conception Bay South, 1 is a pedestrian crossing control that is positioned at a mid-block crossing location and 7 of the traffic controls are located at signalized intersections within the Town. The inspection result sheets can be found in Appendix A.

Signalized intersections can operate in one of 3 different modes. First, an intersection can operate in what is known as “fixed time”. In this mode of operation, an intersection will operate on a fixed cycle length, allocating the same amount of time to all of the different phases included in the timing plan on a continuous basis, regardless of the amount of traffic present or whether or not there are pedestrians present at the intersection. This mode of operation is typically not efficient and can be inconvenient to some motorists in off-peak periods when the traffic signal switches to a movement in which there is perhaps no traffic present.

Second, signalized intersections can be operated in either a fully-actuated or semi-actuated mode. At most signalized intersections in urban settings, signals systems are often semi-actuated to provide the most efficient mode of operation. When a traffic signal is semi-actuated, detection systems are used on the side street approaches and on the main street left-turn bays to detect the presence of vehicles. Depending on the amount of traffic present on the side streets, timing splits can be automatically reduced as necessary and this time reallocated to the main street green phase. Left turn phases can be skipped and the signals can rest in green on the main street, if no traffic is present on the side streets. This mode of operation can be extremely efficient for traffic flow during peak traffic periods, and more so during off peak periods.

Signals can also be operated in a fully-actuated mode, but this is rarely done in an urban setting. Under this type of operation, traffic signals switch from phase to phase, depending on the volumes present. This mode of operation would not be advantageous for any of the traffic control systems in operation within the Town of CBS.

As indicated previously, 7 of the 8 traffic control systems within the Town of CBS are intersection traffic signals. All of these intersections were either set up originally, or have been equipped or partially equipped to function as semi-actuated intersections. At the present time, only 3 of the 8 intersections are functioning in a semi-actuated mode. 5 of the intersections are functioning with problems or faults to some degree, which has resulted in the intersections reverting to fixed time operations. Over half (63%) of the Town’s signalized intersections have malfunctioning or non-operational vehicle detection systems.

The results of the inspection ratings are noted below in Table 3. Traffic control systems having a rating of 39 points and less have been highlighted in red. Control systems with a rating of between 40 and 50 points have been highlighted in yellow and systems scoring above 50 points have been highlighted in green.

Table 3: Signal Systems Inspection Rating

| Location Description | Control Standard | Type of Controller | Condition Rating |
|-------------------------------------|--------------------|-----------------------|------------------|
| Terminal Road @ Route 60 | Non- Nema Standard | Econolite KFT 2400 | 13 |
| Perrins Road @ Route 60 | Non-Nema Standard | Naztec MicroCab 682 | 35 |
| Bishops Road @ Route 60 | Nema TS1 | Eagle EPAC300 | 37 |
| Topsail Road @ Route 60 | Nema TS2 | Naztec Series 900 | 40 |
| Foxtrap Access Road @ Route 60 | Non-Nema Standard | Econolite CBD | 65 |
| Minerals Road & Route 60 | Nema TS2 | Econolite ASC-3 | 68 |
| Cherry Lane/Dawson's Run @ Route 60 | Nema TS2 | Econolite ASC-2S 1000 | 73 |
| Legion Road @ Route 60 | Nema TS2 | Econolite ASC-2S 1000 | 75 |

As indicated in Table 3, there are 4 intersections that have received conditions ratings of below 50 points. The primary reason these intersections received low ratings was due to the older controllers present at these locations. One location has KFT2400 controllers and these controllers are 1970's technology, are no longer supported by their manufacturer, and while it does have a conflict monitor, it does not conform to a NEMA standard. This location needs to be upgraded with a new controller. There is one location with the TS1 EPAC300 controllers. These controllers are 1980's technology, and while they do have a NEMA standard conflict monitor, they are past their useful life and they should be scheduled for replacement. The mid-block pedestrian crossing currently has a Naztec MicroCab 682 controller that is non-nema standard and is past its useful life.

The Town of CBS does have a number of modern controllers: 1 ASC-3 TS2 Econolite controllers, 2 ASC-2S 1000 controller and a Naztec Series 900.

Backpanels at the locations of Route 60 @ Foxtrap Access Road and Route 60 @ Terminal Road need upgrading. No backpanel is present at Route 60 @ Perrins Road.

5 of the 8 locations have sloppy wiring terminations. Overhead wiring is present at Route 60 @ Bishop's Road and Route 60 @ Perrins Road.

As noted previously, 63% of the intersections inspected by HTC have problems with their detection systems. The vast majority of these problems are likely a result of broken saw cut loops. Saw cut loops typically have a life span of only 5 years. Preformed inductive loops placed under the base course asphalt are much more durable. There is also wireless detector option now on the market which could prove advantageous to the Town in this regard.

The vast majority of the signalized locations inspected by HTC have relatively new galvanized steel traffic poles that appear to be in good condition. There are two locations with the older 'Pole Systems' TD series traffic davits. The locations include Route 60 @ Topsail Road and Route 60 @ Terminal Road.

The mid-block crossing along Route 60 near Perrin's Road has damage to the pole on the north side of the road. This pole should be inspected and tested to determine its structural integrity and if it has been compromised. The Town of CBS should consider a more detailed structural inspection of these traffic davits to assess their condition.

The vast majority of the signal displays noted in the HTC inspections were 12-12-12 signal heads with incandescent lighting. The Town should consider upgrading all of their signal displays with LED lighting modules. The savings in electrical costs alone will eventually pay for the capital costs of the fixtures,

including installation, in less than two years. LED signal displays are also much brighter than conventional incandescent displays and require little or no maintenance throughout their life cycles.

Some of the traffic control locations inspected by HTC had pedestrian push buttons that were malfunctioning and/or that were missing signage. These problems should be corrected as soon as possible by the Towns signals systems contractor. It was also noted that there are two intersections that do not accommodate pedestrians, Topsail Road/Route 60 and Terminal Road/Route 60.

The pedestrian signal displays at the signalized intersections inspected by HTC did not have pedestrian countdown modules installed. The Town of CBS should consider upgrading all the pedestrian signal displays with pedestrian countdown modules in the near future. Pedestrian countdown modules provide critical timing information to pedestrians allowing them to make better decisions when crossing at signalized intersections.

Of the 8 intersections throughout the Town of CBS; 4 intersections scored below 50 points and require further investigation as soon as possible.

5.3 Recommendations and Other Considerations

- Based on the points rating assigned to the traffic control systems inspected by HTC, there are three intersections with controllers that need to be upgraded. The KFT controller and MicroCab 682 should be upgraded first, followed by the TS1 EPAC300 controllers.
- All intersection locations that had problems noted with their vehicle detection systems should be repaired as soon as possible. Consideration should be given to implementing a small program under the Town streets rehabilitation program for a period of time to install preformed inductive loops at locations that currently don't have them installed. Conversely there is a wireless option that may be advantageous to the Town in this regard. Correcting the detection problems should help overcome many of the problems that the Town is currently experiencing.
- All intersections and pedestrian crossing locations should be upgraded with LED traffic signal displays and pedestrian countdown modules, as necessary. As indicated previously, the savings in electrical costs alone should pay for the capital costs of the fixtures including installation in less than two years.
- Many of the traffic control locations inspected by HTC had pedestrian push buttons that were malfunctioning and/or were missing signage. These problems should be corrected as soon as possible by the Towns signals systems contractor.
- The vast majority of the signalized locations inspected by HTC have relatively modern galvanized steel traffic poles that visually appear to be in good condition. There are a number of locations with the older Pole Systems TD series traffic davits. The locations include:
 - Route 60 @ Topsail Road
 - Route 60 @ Terminal Road
 - Route 60 @ Perrin's Road – Mid-Block Crossing

The Town of CBS should consider a more detailed structural inspection of these traffic davits to assess their condition.

- All of the TS1 and TS2 NEMA controllers used in the Town’s traffic control systems are equipped with NEMA standard conflict monitors. These conflict monitors (CMU’s and MMU’s) are critical safety components of these control systems that need to be tested annually for proper operation to ensure, most importantly, the safety of the public. Regular testing will also help to protect the Town from tort liability lawsuits. HTC recommends that the Town of CBS test all of its conflict monitors at least once a year.
- Records of the signal timing and phasing plans that are currently being used, or that have been used in the past at the vast majority of the Town’s traffic control systems, do not exist. This in of itself raises a number of serious questions that need to be addressed, including:
 - When was the last time the signal timing plan was updated at an intersection?
 - What type of analysis was used to arrive at the signal timing plan?
 - Are there multiple timing plans in place for the different peak traffic periods of the day?
 - Have the amber and all-red clearance intervals been calculated properly?
 - Have the pedestrian walk and clearance intervals been calculated properly?

Traffic signals should be counted and retimed at least once every two years. By doing this, the new timing plans that are developed reflect changes that have occurred in the traffic volumes as a result of growth in the area and allows for a more efficient flow of traffic.

HTC recommends that AM and PM peak hour traffic counts be conducted for all signal controlled intersections at least once every two years and that new signal timing plans be developed for the peak periods based on a capacity analysis of the collected data. Timing plans should be updated as required.

It is also recommended that the Town of CBS keep detailed records of any changes made in the timing plans for future reference.

6.0 Task 8: Trail Network

6.1 Background

A review of current studies, documents and maps pertaining to trail networks and pedestrian movement in the Town of Conception Bay South was conducted in order to understand existing conditions.

An examination of the Town's **Municipal Plan 2011-2021** reveals a well thought-out vision for the Town supported through guiding principles for development. Improving the quality of residential neighbourhoods, community walkability and pedestrian safety were identified as priorities. The vision supports a balanced network for movement in which an efficient, interconnected network of roads, sidewalks and trails is developed to improved vehicle and pedestrian movement through the Town.

The linear geography of the Town of Conception Bay South has led to residential development with streets having little or no connectivity. To enhance connectivity, the Town is committed to ensuring pedestrian safety through the provision of sidewalks along arterial and collector roads, intersection improvements and the provision of crosswalks at appropriate locations. The Plan identifies the scenic coastline and linear trail network within the Town as existing strengths which should be built upon.

With respect to the subdivision of land, the Municipal Plan recognizes the importance of good design in the development of land throughout the Town and the need to connect and integrate the open space system into the pedestrian network. To accomplish this goal, a minimum of 10% of the land developed for the subdivision will be dedicated to the Town as useable parkland, with a preference for land that enhances public open space and facilitates the integration, expansion and quality of the Town's open space system. Where the Town finds the lands unsuitable, it may accept cash in lieu of these lands.

The Town supports the development of trails in open space areas and the development of pedestrian infrastructure to provide connections between new neighbourhoods and existing neighbourhoods. Wherever appropriate, linkages to pedestrian trailways, such as the T'Railway Park and other recreational areas are to be provided. Sidewalks shall be provided along streets in new developments, on local streets within the 1.6 km 'no-bussing' zone around schools and along streets serving community facilities and commercial areas.

The Newfoundland T'Railway corridor is a key recreational and economic asset within the Town of CBS and provides the opportunity to improve connectivity between neighbourhoods and commercial districts. The Municipal Plan proposes the continued enhancement of the T'Railway, trail improvements and the provision of facilities and services which would enhance the function and safety of the T'Railway are permitted within the T'Railway right-of-way. Improving and maintaining the integrity of the trail is a priority. Co-operation with local and regional authorities and community groups is required to enhance the trail network as an important recreational facility and tourism attraction.

The Town's **Open Spaces and Recreation Master Plan (2008)** supports an integrated trail system where the T'Railway forms the spine of the system. The Town's extensive open space network creates the potential for the development of a parks and trail system where the T'Railway provides pedestrian links between the Town's existing trails and recreational facilities.

The corridor provides an important connection to the communities to the east (Paradise, Mount Pearl, and St. John's) and west (Holyrood) with the potential ability to link the Town's recreational assets. A number of streams running through the watersheds have been zoned as open space in the Town's municipal plan.

The watersheds generally running north-south and their associated ponds are identified as key assets for the Town and provide opportunities for trail development. The Plan proposes the development of walking trails and parks linking the T’Railway to these watersheds. The Plan suggests that recommendations from the CBS T’Railway Study to enhance the T’Railway for non-motorized uses such as walking and cycling be implemented. The recommendation includes the development of a separate bypass to redirect motorized traffic. The Plan also identifies the need for pedestrian pathways and recommends measures to improve the walkability of the community. Among its recommendations for developments up to and including 2016 are the following:

- Develop a 1.5 m wide granular walking trail around Indian Pond and provide future link to open space to the west
- Kelligrew’s Pond/St. Edward’s School (existing access to T’Railway)
 - Pedestrian walkway around Kelligrew’s Pond with pedestrian bridge
 - Trail access to pond along the T’Railway and connection to Kelligrew’s Station
 - Trail from St. Edward’s Cemetery to St. Edward’s School
- Lower Gully Pond/Kiwanis Grounds: Develop a boardwalk around pond with pedestrian bridge and develop granular walking trail around Lower Gully River to Kiwanis. Provide a link to the T’Railway for pedestrians and cyclists and develop a trail link to the CBS Stadium.
- Create a coastal park at Seal Cove Pond with access to the T’Railway and develop trail linking to Butter Pot Park
- Provide link from Worsley Park to Manuels River trails
- Develop trails to provide neighbourhood access to Upper Gullies Elementary
- Link All Saint’s School to T’Railway
- Link St. George’s Elementary to Long Pond Basin
- Develop cycling and walking loops and trail link to T’Railway at Richard Parsons Park
- The Foxtrap Marina area is a gateway for the T’Railway, bicycle rentals could be made available

While the T’Railway serves as an east-west link at the coastline, creating east-west linkages between watersheds in the developed areas of the Town, between the coastline and the Conception Bay South Bypass, and in the upper reaches of the watersheds which are generally undeveloped were identified as challenging in the Open Spaces and Recreation Master Plan.

Conception Bay South strives to ensure an efficient street network connecting safe, well-designed neighbourhoods that enable healthy and active lifestyles. Consultations have shown that residents of CBS place a high value on the accessibility of neighbourhoods to walking trails and open space. Future residential development is projected to occur in the westward in the Seal Cove area and the development of a Regional Centre “the Gateway at Conception Bay South”, including retail, office, recreation and leisure facilities, is proposed for the lands adjacent to the CBS Bypass Road at Legion Road. Development in these new areas and existing areas should reflect the Town’s vision.

6.2 Existing Conditions

The Town of CBS has an existing system of trails and open spaces. This open space network incorporates amenities such as the Newfoundland T’Railway Provincial Park, the Manuels River Trail, the Kelligrews Trail and Chamberlain’s Park. Currently there are no designated bike lanes on roadways in CBS.

The T’Railway in CBS runs primarily along the Town’s coastline, it is the longest section of the Trans Canada Trail in the province exposed to coastline. A total of 43 recognized accesses via side streets exist and five parking areas are provided along the 18 km long section and are indicated with signage. In 2013, the Town, in partnership with the Grand Concourse Authority, began to redevelop the T’Railway for non-motorized (pedestrians and cyclists) traffic only. Upgrading along approximately 10 km of the T’Railway from Spruce Hill Road to Pond Road has been completed. Upgraded sections include signage, rest stops and waste receptacles.

The project also includes the development of a separate ATV/snowmobile bypass for which detailed design and engineering work is anticipated for 2016. Funding was announced in March 2016 for redevelopment of an additional 4 km of the existing T’Railway from Pond Road to Doyles Road, as well as the development of a 3 kilometer looped trail to serve as a link between the T’Railway and the Gateway business park. Completion of these trails is anticipated for Spring 2017.

The watershed areas zoned as open space provide a basis for a network but require formalized trail connections to create a true system. Currently only one trail system exists (the Manuels River Trail) consisting of 5 km of hiking trails along the Manuels River. The Trail is considered one of the Town’s most used outdoor recreation facility. A Manuel’s River Trail Master Plan has recently been completed with plans to upgrade and expand the trail network, the implementation of the plan is anticipated for 2017.

The linear geography of the Town of Conception Bay South creates challenges when developing active transportation (walking and biking) infrastructure. The biggest challenges to developing a trail network in a north/south orientation are Route 60 and the Conception Bay South Bypass Road.

Route 60 is the Town’s main street on which 8 signalized locations are installed. Cross-sections and speed limits vary along the 21 km length of the road. In the Town’s major commercial areas, four lanes of traffic are present and there is currently sidewalk on the north side of the roadway only.

The Main Street Improvement Plan recommended sidewalks also be provided on the south side, and implementation of a section is anticipated for 2016. Route 60 experiences high volumes of commuter traffic and high speeds, leading to few opportunities for pedestrian/trail crossings. Available intersections that may provide opportunities for pedestrian crossings require in-depth examination.

Similarly, the CBS Bypass Road is a two-lane high speed facility intended to support commuter traffic in and out of CBS. High speeds, combined with poor lighting and few crossing opportunities, lead to an environment that does not encourage walking or cycling.

Existing conditions reveal various gaps related to recreation and the open space system, such as:

- Lack of connectivity in the road and pedestrian network, internally (streets within a neighbourhood) and externally (connections with arterials and to other neighbourhoods)
 - Lack of sidewalks and crosswalks along Route 60:
 - From Peacekeeper’s Way to Kelligrew’s, there is no sidewalk and there are no crosswalks.

- There are multiple connections to T’Railway via side streets, however the majority of these side streets lack pedestrian or cycling infrastructure
- There exists many informal trails that may give way to future development and roadways
- Trail lighting is not provided on any existing trails

6.3 Recommendations

A number of actions are recommended to deal with the issue of gaps that will enhance the open space system and trail network. Some recommendations may be long-term solutions that require further investigation and resolution so that they may be implemented, while others are feasible actions that can be achieved in the short term. They are as follows:

- Create a map to show existing sidewalks and trails, along with recreation facilities and parks. For clarity, add the open space system and public uses (schools, churches and the like) recreation buildings as building footprints.
- Create a comprehensive Trails Master Plan that addresses long-term trail development and enhancement and builds upon creating loops and linkages to enhance existing trails, and proposes connections in a north/south direction and among adjacent municipalities. The Trails Master Plan should focus on 2 or 3 key routes that are looped and allow pedestrians and cyclists to navigate the Town on a continuous path.
- Ensure future developments provide an appropriate trail system with linkages to adjacent neighbourhoods, open spaces and parks and areas of particular interest and benefit to residents.
- Ensure all new development, especially residential subdivision layout and designs, incorporate trails, networks and connections to existing trails and link community facilities and amenities – paying particular attention to steep slopes and geometry in order to accommodate trails and sidewalks.
- Use open space land dedication for trail development in new subdivisions, negotiate with developers, and ensure that development schemes for new subdivisions and master plans are prepared and followed.
- Alternately, the Town should accept cash in lieu of open space lands and develop trails and connections on Town-owned lands, open spaces and available R-O-Ws and easements.
- Negotiate with landowners in established neighbourhoods or commercial areas, to allow the Town to provide trail access, links across private lands to connect to existing trails such as the T’Railway.
- Consider the installation of lighting on the T’Railway and other trails and provide additional trail amenities such as bike parking.
- Improve connections to the T’Railway by providing sidewalks on side streets recognized as accesses.
- Identify other opportunities for trail connections to other municipalities by creating new trails, using existing roadways with AT principles modes, i.e. adding dedicated cycling lanes.
- In the event public transit services to the Town CBS are provided, ensure bus routes provide convenient access to trail networks and that buses are equipped with bike racks.

- Some existing areas of high traffic volumes and speeds, especially where trails are to be extended or already exist, should provide safety measures or active modes such as signalized pedestrian crossovers, roundabouts or pedestrian bridges (overpass). These locations include Route 60 and the CBS Bypass.
- At a minimum, ensure sidewalks are installed on all streets as per the roadway hierarchy described by the Development Regulations.
- Ensure that all shared use trails are a minimum 3m wide and preferably hard surfaced and install appropriate lighting, bike parking or storage and amenities like benches, litter cans, etc.
- Designate certain trail loops that will be maintained in the winter.
- Design appropriate maintenance schedule and budget for it.

7.0 Phase 2 Scope of Work

Phase 2 of the Integrated Transportation Plan will involve the collection of additional traffic data that will be required to complete Phase 3 of this project. HTC has identified the following scope of work for Phase 2:

1. The consultant will be required to collect updated traffic counts at all signalized intersections within the Town of CBS. The data should be collected when school is in session and traffic patterns within the Town are considered to be normal. Traffic counts should be collected during on a Tuesday, Wednesday and/or Thursday during the following hours 7:00am to 9:00am, 11:00am to 1:00pm and from 4:00pm to 6:00pm. Counts should be collected at the following signalized intersections:
 - Route 60 @ Topsail Road
 - Route 60 @ Cherry Lane/Dawson’s Run
 - Route 60 @ Bishops Road
 - Route 60 @ Minerals Road/Rideout’s Road
 - Route 60 @ Terminal Road
 - Route 60 @ Foxtrap Access Road
 - Route 60 @ Legion Road
2. The consultant will be required to also collect traffic counts at 20 additional intersections throughout the Town of CBS. The data should be collected when school is in session and traffic patterns within the Town are considered to be normal. Traffic counts should be collected during on a Tuesday, Wednesday and/or Thursday during the following hours 7:00am to 9:00am, 11:00am to 1:00pm and from 4:00pm to 6:00pm. The traffic count locations will be discussed at the kick-off meeting for Phase 2.
3. The 7 signalized intersections and the mid-block pedestrian crossing locations should have complete condition assessments done to determine the upgrading that will be required to bring the bring the control devices up to industry standards. The assessments should include:
 - a. The preparation of intersection signal drawings
 - b. Signal timing and phasing data
 - c. Controller and related equipment assessment
 - d. Vehicle detection systems assessment
 - e. Pre-emption systems assessment
 - f. Pedestrian systems assessment
 - g. Pole and signal indications assessment
 - h. Signage and wayfinding assessment
 - i. Communications assessment
 - j. Upgrading cost estimates
4. As part of the road classification review, additional road characteristic data should be gathered on roadways likely to be reclassified. Data should include, but not necessarily limited to, ADT traffic volumes, speed data, pedestrian facilities, access restrictions and transit usage.
5. Synchro model should be constructed for all intersections throughout the town that have traffic counts completed from Task 1 & 2 mentioned above. These models should be populated with collected count

data and existing intersection attributes including the signal timing and phasing plans. The models should be ready for use in Phase 3 of this project.

6. An operations/maintenance program should be developed for all 7 signalized intersections and for pedestrian midblock crossing. This operations/maintenance program will provide the necessary guidance to ensure the signals and signal systems within the Town of CBS are properly maintained to industry standards in the future.
7. With respect to the trail network, the following tasks should be considered for Phase 2:
 - Collect additional data – existing sidewalk locations and widths and connections or potential connections to existing trails. Determine whether curb cuts are installed and functioning.
 - Examine traffic calming measures and opportunities to install features to enhance pedestrian safety such as curb cuts, corner bulges, and median refuges.
 - Create a map showing existing sidewalks and trails, along with parks and open space system, recreation amenities commercial areas, institutional, employment lands to understand and identify trail connections and options for Active Transportation.
 - Examine sidewalk and trail connectors that will enhance the trail network.
 - Examine new residential subdivisions, open space lands and intended use and whether trails and trail connections are proposed.
 - Examine open space areas in watersheds to determine feasibility of using these areas for trail system.
 - Pull together recommendations of existing documents – Municipal Plan, Open Spaces and Recreation Master Plan and Main Street Improvement Plan – dealing with trail, overlay compare recommendations and their impacts.
 - Examine support for year-round Active Transportation to make walking, cycling, cross-country skiing and snow-shoeing safer and more convenient for residents in all types of weather.
 - Determine those elements to be included in a Trails Master Plan.
8. A strong public engagement and consultation strategy is vital in establishing a holistic and engaging plan for Phase 2 of the Integrated Transportation Plan for the Town of CBS. HTC is proposing that three different tasks are carried out, which include: first, Project branding, Invitation and Advertising, second, Council/Staff Workshop and finally, a Public Involvement Centre (PIC). It is critical that the PIC be held before the end of the school year, in order to maximize the participation and ensure the overall schedule for the integrated Transportation Plan is kept on schedule.

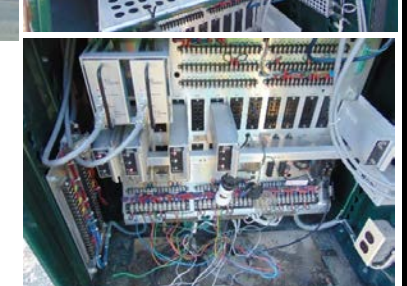
APPENDIX A

Existing Traffic Control Inspection Sheets

Location: Route 60 & Topsail Road

| Item | Points | Comments | Rating |
|---------------------|--------|---|--------|
| Controller | | | |
| Cabinet Condition | 5 | Good | 5 |
| Controller Vintage | 20 | Naztec TS2 - Series 900 in good shape | 10 |
| Conflict Monitor | 5 | Standard 16 channel MMU in good shape | 5 |
| Detection System | 10 | No detection present | 0 |
| BIU | 5 | BIU's all Naztec | 5 |
| Wiring / Electrical | 10 | Sloppy wiring terminations | 5 |
| Pre-emption System | 0 | N/A | 0 |
| Backpanel | 5 | 12 position backpanel capable of handling all functions of 3-way intersection | 5 |
| Poles | | | |
| Condition of Poles | 10 | Older poles, Poles system TD Series | 0 |
| Signal Displays | 5 | All 12-12-12 Highways heads | 5 |
| LED Displays | 5 | None present | 0 |
| Pedestrian | | | |
| Push Buttons | 10 | None present - No Accommodations for pedestrians | 0 |
| Displays | 5 | None present | 0 |
| Count Down Modules | 5 | None present | 0 |

Summary 40



Date of Inspection: March 4, 2016

Location: Route 60 & Minerals Road

| Item | Points | Comments | Rating |
|---------------------|--------|---|--------|
| Controller | | | |
| Cabinet Condition | 5 | Standard Econolite Cabinet in good shape | 5 |
| Controller Vintage | 20 | ASC-3 Controller in good shape | 20 |
| Conflict Monitor | 5 | Standard 16 channel MMU in good shape | 5 |
| Detection System | 10 | BIU and detectors present - saw-cut loops are not functional | 0 |
| BIU | 5 | All Econolite BIU and detectors present | 5 |
| Wiring / Electrical | 10 | Sloppy wiring terminations | 5 |
| Pre-emption System | 0 | N/A | 0 |
| Backpanel | 5 | 12 position backpanel capable of handling all functions of 4 way intersection | 5 |
| Poles | | | |
| Condition of Poles | 10 | Poles in good shape | 10 |
| Signal Displays | 5 | All 12-12-12 Highway heads, questionable in term of meeting any standard for visibility | 5 |
| LED Displays | 5 | None present | 0 |
| Pedestrian | | | |
| Push Buttons | 10 | Only one push button with signage | 5 |
| Displays | 5 | Some displays not working | 3 |
| Count Down Modules | 5 | None present | 0 |

Summary 68



Date of Inspection: March 4, 2016

Location: Route 60 & Legion Road

| Item | Points | Comments | Rating |
|---------------------|--------|---|--------|
| Controller | | | |
| Cabinet Condition | 5 | Standard Econolite cabinet in good shape however it is dirty | 5 |
| Controller Vintage | 20 | ASC-2S 1000 controller in good shape | 15 |
| Conflict Monitor | 5 | Standard 16 channel MMU in good shape | 5 |
| Detection System | 10 | 3 detectors and working. Phase 3 & 7 detectors are not working | 5 |
| BIU | 5 | BIU's present are Econolite | 5 |
| Wiring / Electrical | 10 | Sloppy wiring terminations | 5 |
| Pre-emption System | 0 | N/A | 0 |
| Backpanel | 5 | 16 position backpanel capable of handling all functions of 4 way intersection | 5 |
| Poles | | | |
| Condition of Poles | 10 | Poles in good shape | 10 |
| Signal Displays | 5 | All 12-12-12 highway heads | 5 |
| LED Displays | 5 | None present | 0 |
| Pedestrian | | | |
| Push Buttons | 10 | Buttons and signage present | 10 |
| Displays | 5 | All seem to be working | 5 |
| Count Down Modules | 5 | None present | 0 |

Summary 75



Date of Inspection: March 4, 2016

Location: Route 60 & Foxtrap Access Road

| Item | Points | Comments | Rating |
|---------------------|--------|---|--------|
| Controller | | | |
| Cabinet Condition | 5 | Standard Econolite cabinet | 5 |
| Controller Vintage | 20 | Econolite CBD controller | 10 |
| Conflict Monitor | 5 | MMU-8RM in good shape, 8 channels | 5 |
| Detection System | 10 | One detector, seems to be working, questionable saw-cut or pre-formed | 5 |
| BIU | 5 | BIU's present are Econolite | 5 |
| Wiring / Electrical | 10 | Wiring is tidy and terminations are capped | 10 |
| Pre-emption System | 0 | N/A | 0 |
| Backpanel | 5 | 6 panels, should be upgraded to a 12 panel back panel | 0 |
| Poles | | | |
| Condition of Poles | 10 | Poles in good shape | 10 |
| Signal Displays | 5 | All 12-12-12 highway heads | 5 |
| LED Displays | 5 | None present | 0 |
| Pedestrian | | | |
| Push Buttons | 10 | Buttons present, no signage present | 5 |
| Displays | 5 | All seem to be working | 5 |
| Count Down Modules | 5 | None present | 0 |

Summary 65



Date of Inspection: March 4, 2016

Location: Route 60 & Perrins Road

| Item | Points | Comments | Rating |
|---------------------|--------|---|-----------|
| Controller | | | |
| Cabinet Condition | 5 | Cabinet in good shape, pole mounted - accessibility issue | 5 |
| Controller Vintage | 20 | Naztec - Micro Cab 682 | 0 |
| Conflict Monitor | 5 | None present | 0 |
| Detection System | 10 | None present | 0 |
| BIU | 5 | None present | 0 |
| Wiring / Electrical | 10 | Overhead wiring and sloppy wiring terminations | 5 |
| Pre-emption System | 0 | N/A | 0 |
| Backpanel | 5 | None present | 0 |
| Poles | | | |
| Condition of Poles | 10 | Pole on North side of Route 60 significantly damaged and electrical conduit should be sealed better or replaced | 5 |
| Signal Displays | 5 | All 12-12-12 and mighty mounted | 5 |
| LED Displays | 5 | None present | 0 |
| Pedestrian | | | |
| Push Buttons | 10 | Buttons and signage present | 10 |
| Displays | 5 | All seem to be working | 5 |
| Count Down Modules | 5 | None present | 0 |
| Summary | | | 35 |



Date of Inspection: March 4, 2016

Location: Route 60 & Cherry Lane & Dawson's Run

| Item | Points | Comments | Rating |
|---------------------|--------|---|--------|
| Controller | | | |
| Cabinet Condition | 5 | Standard Econolite cabinet in good shape | 5 |
| Controller Vintage | 20 | ASC-2S 1000 controller in good shape | 15 |
| Conflict Monitor | 5 | Standard 16 channel MMU in good shape | 5 |
| Detection System | 10 | 1 detector and working | 10 |
| BIU | 5 | BIU's present are Econolite | 5 |
| Wiring / Electrical | 10 | Poor wiring terminations | 0 |
| Pre-emption System | 0 | N/A | 0 |
| Backpanel | 5 | 16 position backpanel capable of handling all functions of 4 way intersection | 5 |
| Poles | | | |
| Condition of Poles | 10 | Poles in good shape | 10 |
| Signal Displays | 5 | All 12-12-12 highway heads | 5 |
| LED Displays | 5 | None present | 0 |
| Pedestrian | | | |
| Push Buttons | 10 | Buttons and signage present on most poles | 8 |
| Displays | 5 | All seem to be working | 5 |
| Count Down Modules | 5 | None present | 0 |

Summary 73

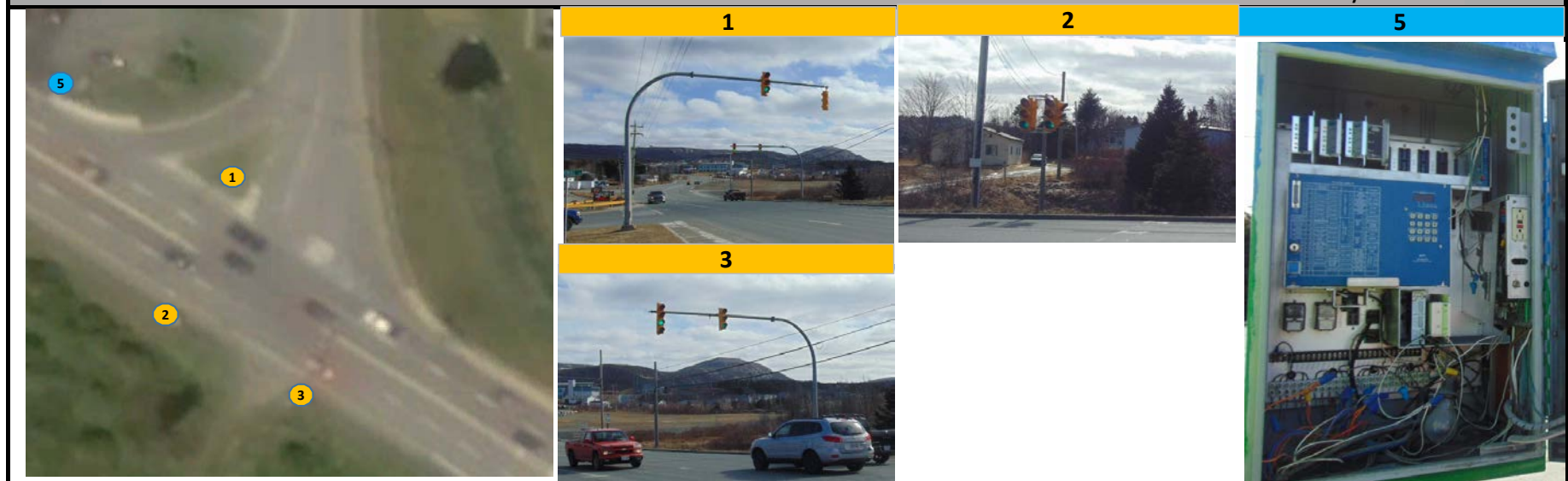


Date of Inspection: March 4, 2016

Location: Route 60 & Terminal Road

| Item | Points | Comments | Rating |
|---------------------|--------|--|--------|
| Controller | | | |
| Cabinet Condition | 5 | Cabinet is pole mounted with conduit at the base | 0 |
| Controller Vintage | 20 | KFT 2400. Old controller and no longer supported by Econolite. | 0 |
| Conflict Monitor | 5 | Non standard conflict monitor | 0 |
| Detection System | 10 | Saw-cut loops on side street, do not seem to be functioning | 0 |
| BIU | 5 | N/A | 0 |
| Wiring / Electrical | 10 | Sloppy wiring terminations | 5 |
| Pre-emption System | 0 | N/A | 0 |
| Backpanel | 5 | 8 position back panel - not Nema compliant | 0 |
| Poles | | | |
| Condition of Poles | 10 | Older poles | 5 |
| Signal Displays | 5 | All 12-12-12 Highway Heads except two are 12-8-8 | 3 |
| LED Displays | 5 | None present | 0 |
| Pedestrian | | | |
| Push Buttons | 10 | None present - No Accommodations for Pedestrians | 0 |
| Displays | 5 | None present | 0 |
| Count Down Modules | 5 | None present | 0 |

Summary 13



Date of Inspection: March 4, 2016

Location: Route 60 & Bishop's Road

| Item | Points | Comments | Rating |
|---------------------|--------|---|--------|
| Controller | | | |
| Cabinet Condition | 5 | Standard Type M Cabinet - Art Painted in Good Condition | 3 |
| Controller Vintage | 20 | EPAC300 - Automatic Signal / Eagle Signal TS1 Controller | 5 |
| Conflict Monitor | 5 | 6 Channel EDI Conflict Monitor - Meets Nema TS1 Standard | 3 |
| Detection System | 10 | TS1 Self contained shelf detectors - Appear to be on Recall, Saw Cut Loops - Non Standard Size - Not Working Properly | 3 |
| BIU | 5 | N/A | 0 |
| Wiring / Electrical | 10 | Acceptable wiring termination - labelled | 3 |
| Pre-emption System | 0 | N/A | 0 |
| Backpanel | 5 | 8 position back panel - 6 load switches in use | 2 |
| Poles | | | |
| Condition of Poles | 10 | Poles in good shape, overhead wiring | 8 |
| Signal Displays | 5 | Two 12-8-8 displays all others are 12-12-12 | 2 |
| LED Displays | 5 | None present | 0 |
| Pedestrian | | | |
| Push Buttons | 10 | Working but old and corroded/ no signage | 5 |
| Displays | 5 | displays working, missing visors, mounting hardware upgrade required | 3 |
| Count Down Modules | 5 | None present | 0 |

| | | | | | |
|--|----------|--|-----------|--|----------|
| | | Summary | 37 | | |
|  | 1 |  | 2 |  | |
| | 3 |  | 4 | | 5 |
| | | | | | |
| | | | | | |
| | | | | | |

Date of Inspection: March 4, 2016