



SNC · LAVALIN

Asset Management Assessment

Final Report

Town of Amherst



INFRASTRUCTURE AND BUILDINGS

15 | 12 | 2015

FINAL REPORT

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FINAL REPORT SUBMISSION

**TOWN OF AMHERST
ASSET MANAGEMENT ASSESSMENT**

Prepared for:

TOWN OF AMHERST

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Amherst, NS
B4H 1X6**

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15 December 2015

Town of Amherst
98 East Victoria Street
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Attention: Ben Pitman, P. Eng., Town Engineer

Dear Mr. Pitman:

RE: Town of Amherst Asset Management Assessment – Final Report


SLI is pleased to provide two hardcopies and one digital copy of the revised final Facilities and Physical Assets Condition Assessment Management Report for the Town of Amherst, Nova Scotia. The revised report considers comments from the Deputy CAO and the Town Engineer.

As identified in the Terms of Reference we have included an inventory of major Town facilities and physical assets, identified any key infrastructure condition issues requiring further analysis, and identified any significant capital upgrades. We have also undertaken a review of the street lighting system as well as a random infield inspection of pipes and manholes. We have established a 20 year Capital Investment Plan for all items reviewed.

We thank you for the opportunity to assist the Town in establishing a CIP for infrastructure related facilities. Should you have any additional questions please do not hesitate to contact myself.

Yours truly,

SNC · LAVALIN INC.



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JA/cf
Attachments
632668-0001-T-30-REP-000-0001_C01.doc

EXECUTIVE SUMMARY

In September 2015, The Town of Amherst retained SNC-Lavalin Inc. (SLI) to complete an Asset Management Assessment Report for key Infrastructure that the Town owns and operates. The assessment is to include a visual observation condition assessment of Town owned buildings and a field and desk top review of linear assets. This included the review of structural, architectural finishes, mechanical, electrical and civil components of the following:

- ◆ Town Hall;
- ◆ Fire Hall;
- ◆ Public Works Facility;
- ◆ Amherst Police Station;
- ◆ Amherst Stadium;
- ◆ Water Treatment and Distribution System and Booster Station;
- ◆ Wastewater Collection, Pumping Stations and Treatment System;
- ◆ Stormwater Collection System; and,
- ◆ Roads, Curbs and Sidewalks.

Site inspections were carried out on October 14, 2015 and November 17, 2015 by SLI staff. Inspections were limited to exposed and accessible areas of the Town owned facilities and infrastructure.

A description of infrastructure, existing condition and maintenance history, inventory of Town owned facilities and physical assets, assessment of existing conditions, identification of key issues, and recommendations are included in the attached report, along with an estimated 20 year capital investment plan.

The Town of Amherst is located in the northeast portion of the Cumberland Basin. Amherst is strategically situated on the eastern boundary of the Tantramar Marsh approximately 3 kilometres east of the interprovincial border with New Brunswick and 65 kilometres east of the city of Moncton. It is also located 60 kilometres southwest of the New Brunswick abutment of the Confederation Bridge to Prince Edward Island at Cape Jourimain, as such it has become a hub for manufacturing and the storage/movement of dry goods.

Amherst is the shire town and largest population centre in Cumberland County. The Town has a population close to 10,000 who rely on many businesses, municipal services, Policing, Health Care, recreational facilities, park areas, streets, sidewalks, and vehicles and equipment. The Town of Amherst owns and operates a water supply/treatment and delivery system, wastewater collection and treatment system, and stormwater collection systems.

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1 INTRODUCTION

As part of an ongoing initiative to establish a database which details Town of Amherst owned assets, the Town retained SNC-Lavalin Inc (SLI) in September 2015 to provide Engineering services related to the assessment of Town owned assets. In previous years the Town has undertaken a number of individual studies and assessments on infrastructure and buildings. However, this information has not been consolidated into a document which provides direction on capital expenditures. As such, this assessment is twofold, in that it will provide a current status of building conditions and the necessary maintenance required as well as an overview of linear infrastructure and what should be undertaken to better understand the conditions of these assets. The Town's objective is to receive a short and long term capital investment plan for building related operational and maintenance requirements. In addition the identification of linear asset upgrades and associated costs are required where conditions are known. For those assets which conditions are not clearly known, the costs associated with next steps related to investigations are identified. Overall, the assessment evaluates the current condition of the infrastructure in the Town, identifies key items requiring repair, replacement, or further analysis, and recommends a 20 year Capital Investment Plan for significant maintenance, regulatory compliance and capital funding requirements.

The following infrastructure is included in this assessment:

- ◆ Town Hall;
- ◆ Fire Hall;
- ◆ Public Works Facility;
- ◆ Amherst Police Station;
- ◆ Amherst Stadium;
- ◆ Water Treatment, Booster Station and Distribution System;
- ◆ Wastewater Collection, Pumping Stations and Treatment System;
- ◆ Stormwater Collection System; and
- ◆ Roads, Curbs and Sidewalks.

The assessment contained within this report is presented in a tabular format which identifies each asset, and the associated engineering discipline findings. Recommendations are provided. Costs for the recommended upgrades are provided in Appendix B and show immediate expenditure requirements and future costs for maintenance and upgrades over the twenty year capital investment plan. Values shown are in 2015 dollars. It is noted that costs are at a high level and are to be used for forecasting purposes only. Costs are based on database condition information provided by the Town of Amherst and the random field review and Zoom inspections conducted by SLI staff.

2 DOCUMENTATION REVIEW

Subsequent to the award of the assessment program by Town of Amherst procurement staff, SLI provided a request to the Engineering Department for background information related to the assessment. The original Terms of Reference identified a number of reports that had been conducted by others on various assets. These were requested by SLI. In addition the following information was identified as being helpful when identifying the approach to the field program:

- ✓ GIS mapping of linear infrastructure including roads and sidewalks, sewers, storm drainage, outfalls and water distribution systems;
- ✓ Database information for these systems in digital format for computer manipulation and subsequent use in field (from previous studies);
- ✓ Copies of previous study reports;
- ✓ Digital copies of drawings for treatment plants (water/wastewater); and
- ✓ Digital copies of drawings for key buildings (Police, fire, stadium, water, wastewater, Town Hall, public works facility and lift stations).

The SLI team reviewed this information in preparation of the field visits and in consideration of the report which was to be developed. Mapping and as built drawings were uploaded to field tablets for reference in conducting the field assessments.

3 SITE VISITS

Site visits were conducted by (9) civil, electrical, mechanical, and structural engineers along with knowledgeable operators and maintenance personal from the Town of Amherst throughout the day on October 14, 2015. The Town Fire Chief as well as the Director of Public works attended those sites in which they supported. Several town sites were visited from which visual operational assessments were completed by all engineering disciplines. The results and recommendations of these site visits are highlighted in the following sections of this report.

Where opportunity existed, staff asked questions of the individual in which they were meeting with, conducted visual inspections of facilities and system elements, referenced drawings while undertaking the field reviews and captured many photographs of the conditions of the assets. This information is displayed throughout the report and within supporting appendices.

A second site visit was conducted by three personnel from the civil and electrical engineering departments of SLI. This site visit took place on November 17, 2015. The purpose of this site visit was to review the state of the new LED street lights and assess the condition and operation of the McCully Street fire pump station, the Terrace Street lift station and the LaPlanche lift station. The second site visit also provided the opportunity to employ zoom camera investigations on a number of Town pipes and manholes in order to better understand the current condition of the underground sanitary and storm sewers.

4 TOWN HALL

4.1 *Building Description*

The Town of Amherst Town Hall, built in 1935, is located at 98 Victoria Street. The building serves as an office space for local government constituents with two (2) floors above grade and basement. See Appendix A for photos.



4.2 Structural

Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Concrete foundation walls generally in good condition with vertical cracking visible in the mechanical room. 	<ul style="list-style-type: none"> Provide injection crack fill repair in mechanical room foundation wall to prevent water penetration and structural damage due to freeze/thaw. 	
Slab-on-grade	<ul style="list-style-type: none"> Concrete slab on grade in good condition, typical throughout. Exterior concrete ramp is cracked and spalled in fair condition. 	<ul style="list-style-type: none"> Projecting steel anchors in former oil-tank room is a potential tripping hazard, to be removed. Cut, remove and replace deteriorated concrete on exterior ramp. 	S-01
Building Structural Components	<ul style="list-style-type: none"> Six large exterior granite columns with sandstone facade recently restored in excellent condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Misc. Metals	<ul style="list-style-type: none"> Exterior emergency steel stair case in fair condition. 	<ul style="list-style-type: none"> Clean and paint steel structure to prevent further corrosion. 	

4.3 Building Envelope

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Exterior walls consist of original 1935 sand stone construction, recently restored in good condition, and brick veneer in fair condition exhibiting 5-10% joint cracking on all brick faces. 	<ul style="list-style-type: none"> Brick joint repair is required throughout to prevent water damage. Remove and replace old joint repair on 2nd storey west wall. Monitoring and regular maintenance is recommended. 	S-02
Roof	<ul style="list-style-type: none"> Membrane flat roof in good condition 	<ul style="list-style-type: none"> No deficiencies observed. Maintain and provide continuous care to keep roof leak proof. Roof replacement considered in 5-10 years based on 1988 installation year. 	

Walls & Ceilings	<ul style="list-style-type: none"> • Generally the interior walls and ceilings of the office areas are in good condition having been updated in 2012. • Furnace room plaster over structural concrete beams is severely cracked and spalling. • Electrical room in poor condition with significant paint peeling on walls and ceiling along exterior wall. • Mechanical room clay tiles are in poor to fair condition with peeling paint and section loss. 	<ul style="list-style-type: none"> • Repair and paint damaged plaster in furnace room for cosmetics. • Remove and repaint walls and ceiling in electrical room. • Remove and replace damaged and deteriorated clay tiles in mechanical room. Clean, prepare, and paint all tiles for regular maintenance. 	S-03
Doors & Windows	<ul style="list-style-type: none"> • Large bronze doors in good condition. • West side window lintels are corroded and delaminated. No interior damage was noted as a result of the exterior observation. Windows in good condition. 	<ul style="list-style-type: none"> • Clean and caulk damaged steel lintel to prevent possible water infiltration. 	S-04

4.4 Mechanical

Subject	Observations/Comments	Recommendations	Photo Reference
Ventilation	<ul style="list-style-type: none"> • Major HVAC renovations were completed in 2012. • There is a single York air handling unit (AHU) located in the basement serving most of the building. • There is a supplement York packaged air conditioning unit located on the roof which serves council chambers. • Both air handling units contain DX cooling coils. The roof mounted unit's condensing unit is integral to the equipment and the basement air handling unit's condensing unit is pad mounted on the exterior at the back of the building. • All washrooms appear to have dedicated exhaust to the outdoors. • All spaces in the building that are typically occupied appear to have 	<ul style="list-style-type: none"> • Due to the recent comprehensive renovations of the building HVAC systems no major upgrades or equipment replacements are anticipated in the near future. • Install a permanent AC unit in the communications room. 	M-01

Heating	<ul style="list-style-type: none"> ventilation. There was a portable floor AC unit in the basement cooling the room that housed communication equipment. 		
	<ul style="list-style-type: none"> The heating system was upgraded in 2012. A single 80% efficient Weil-McClean natural gas boiler supplies hot water for perimeter and AHU zone heating. The perimeter heating uses the existing cast iron radiators that were installed with the original building. The AHU uses an electric heater to preheat the air and separate hot water coils for zone tempering. Building occupants have noted that the existing perimeter heaters are not the most effective heating source however by reusing them, the aesthetic of the building was preserved. 	<ul style="list-style-type: none"> Additional upgrades and equipment replacement to the heating system are not anticipated at this time. 	M-02
Plumbing	<ul style="list-style-type: none"> The washrooms and plumbing fixtures have been upgraded in 2012. A John Wood electric hot water heater was also installed in 2012. All piping accessible to view on site appeared in good condition. 	<ul style="list-style-type: none"> Any plumbing system upgrades and equipment replacements are not anticipated at this time. 	M-03
Fire Protection	<ul style="list-style-type: none"> The building is not sprinklered. Fire extinguishers were noted on site. Occupants have informed us that the fire protection requirements for the building were reviewed and approved as they currently are by the authority having jurisdiction in 2012. 	<ul style="list-style-type: none"> There are no fire protection upgrade recommendations at this time. 	M-04

4.5 Electrical

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The 120/208V incoming service is run underground to the main electrical room on the lower level. The feed is terminated with a 350A service entrance breaker in the main ITE switchboard. The whole building is also supplied with standby power through an automatic transfer switch. The HVAC equipment in the lower level was upgraded recently and the electrical distribution equipment for this equipment is also new with modern Siemens motor starters, panelboards and contactors. Branch panels are located in corridors throughout the building. It is clear that a number of panels have been replaced with Siemens infrastructure and are mainly located recessed in corridor walls with lockable covers. There are some older FPL (Federal Pioneer Limited) panels that are newer than the original building construction, but were not replaced with the rest of the new Siemens equipment. On the side of the building, an auxiliary power receptacle has been installed for street performances. 	<ul style="list-style-type: none"> Other than being an outdated model, the main ITE switch board is not showing any visible signs of age. There is no indication of any reduced performance of the equipment, however the switchboard is nearing the end of its useful service life as problems may arise with future system modifications of additions. A similar story can be told regarding the FPL branch panels located in the corridors. There is no indication of reduced performance of the branch panels, however they are nearing the end of their service life and their replacement should be budgeted for the future. 	E-01 E-02
Lighting	<ul style="list-style-type: none"> Interior lighting is a mixture of older fluorescent fixtures and new LED fixtures. The front area public space, including the boardroom and city council chamber has been upgraded with modern LED direct/indirect fixtures while the lower level spaces are primarily using surface mounted T8 fluorescent fixtures. 	<ul style="list-style-type: none"> No recommendations at this time. 	

Telecom	<ul style="list-style-type: none"> The telecom services are all located in a storage room on the lower level where the old coal chute was located. This room is secured with access control and a cage around the main equipment. 	<ul style="list-style-type: none"> No recommendations at this time.
Security	<ul style="list-style-type: none"> The building has a security system with card reader access control. 	<ul style="list-style-type: none"> No recommendations at this time.
Fire Alarm	<ul style="list-style-type: none"> There is no fire alarm system in the building. 	<ul style="list-style-type: none"> No recommendations at this time.
Emergency and Exit Lighting	<ul style="list-style-type: none"> The emergency lighting consists of battery packs with remote heads. The equipment was upgraded to the green pictogram style complete with MR16 remote heads. The building is entirely on standby power from the generator, so the battery units are only provided for the time it takes for the generator to start up and switch over from a power outage. 	<ul style="list-style-type: none"> No recommendations at this time.

4.6 *Civil*

Subject	Observations/Comments	Recommendations	Photo Reference
Parking Lot	<ul style="list-style-type: none"> The Town Hall has one large parking lot at the rear of the building. This lot is maintained by the Town of Amherst. Half of this lot is rented out for public parking and the other half is for staff at the Town Hall. The section of the lot used for public parking is in poor condition with visible alligator cracking in various areas. The lot used for Town Hall staff is in moderate condition with some cracking evident. 	<ul style="list-style-type: none"> Patch areas in the public lot where deterioration is evident within the next year. 	C-01

Drainage

- The paved alleyway leading to the rear parking lot gently slopes away from the building foundation towards a catch basin located at the SW corner of the Town Hall.
- No recommendation at this time. C-02

5 FIRE HALL

5.1 *Building Description*

The Fire Hall, located at 62 Albion Street, was built in 1975. The building has two (2) floors above grade and a basement. The main floor serves as apparatus bay and storage, the second floor serves as open bay and offices and the basement serves as a social area. See Appendix A for photos.



5.2 Structural

Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Reinforced concrete foundation with gypsum board interior in good condition. Concrete foundation wall running east/west acting as retaining wall for truck bay has no stress cracks or deformations, in good condition. Reinforced concrete basement entrance stairwell, east side, has visible moisture infiltration on steps and adjacent walls. 	<ul style="list-style-type: none"> Further investigation is required to determine the cause of moisture infiltration in the basement entrance stairwell. Once investigated, restoration work to be completed along exterior wall to remove moisture and dampness. 	
Slab-on-grade	<ul style="list-style-type: none"> Generally, painted concrete slab-on-grade in truck bays in good condition. Significant paint peeling present in the 2 north-west bays. Joint filler missing within damaged bays. Exterior concrete ramp and stair, west side, cracked in poor condition. Concrete entrance platform recently replaced and in good condition. Settlement between new and old construction has caused significant concrete damage. 	<ul style="list-style-type: none"> Prepare and paint damaged truck bays to protect structural slab-on-grade from chemical and chloride attack. Remove and replace joint filler in damaged areas. Remove and replace damaged elements of concrete ramp and stair to prevent weakening of the concrete due to freeze/thaw, resulting in potential tripping hazard. 	S-05
Building Structural Components	<ul style="list-style-type: none"> Structural steel columns and girder joists in good condition. Moveable column supports provided to reinforce floor joists during second storey loading, in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Misc. Metals	<ul style="list-style-type: none"> Exterior emergency exit steel stair case in good condition. Exterior roof access ladder in good condition. 	<ul style="list-style-type: none"> No deficiencies observed. Maintain and provide continuous care. 	

5.3 Building Envelope

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Exterior brick and block facade has visible moisture damage on approx. 25% surface area, each side, and is in fair condition. Brick and block mortar joints are deteriorated with signs of exposed aggregate. Expansion joints are deteriorated. 	<ul style="list-style-type: none"> A moisture inhibitor spray is to be applied to all surface areas to protect exterior finishes and structure from water damage. Mortar joint repointing recommended in 5-10 years to prevent water penetration and loss of structural integrity. It is recommended to remove and replace expansion joint in 1-5 years. 	S-06
Roof	<ul style="list-style-type: none"> Membrane flat roof of main building in good condition. Asphalt shingled roof of the basement entrance, east side, in fair condition. Asphalt shingled roofs of detached storage shed and garage in fair to good condition. 	<ul style="list-style-type: none"> Asphalt roof replacement and repair recommended in 1-5 years to prevent water penetration and loss of structural integrity. Repair mechanical unit roof support curb and provide additional roof drains to alleviate excess water ponding. 	S-07
Walls & Ceilings	<ul style="list-style-type: none"> Painted masonry and gypsum board/stud walls are well maintained and in good condition. Suspended tile throughout and painted gypsum board ceilings are without staining and in good condition. 	<ul style="list-style-type: none"> No deficiencies observed. Maintain and provide continuous care. 	
Floor Finishes	<ul style="list-style-type: none"> Generally in good condition; south entrance tile floor in need of cleaning. Linoleum threshold is peeling creating a tripping hazard. 	<ul style="list-style-type: none"> Repair floor and wall finishes in south entrance for moisture control, good housekeeping, and cosmetics. 	
Doors & Windows	<ul style="list-style-type: none"> South entrance door threshold in poor condition. Water infiltration present with signs of staining. OH Doors in good condition; replacement of east doors addressed. Windows in good condition. 	<ul style="list-style-type: none"> Repair or replace south entrance door threshold to prevent further damage of the entryway and floor finishes. 	S-08

5.4 Mechanical

Subject	Observations/Comments	Recommendations	Photo Reference
Ventilation	<ul style="list-style-type: none"> The majority of the building was constructed in 1975, a section of the garage was extended around 1996 and there are 2 AHU's on the roof. There is no dedicated occupant ventilation equipment for the vehicle storage areas and adjoining storage/utility rooms. The Apparatus Bay is equipped with a local Nederman vehicle exhaust system which is magnetically connected to all of the vehicle tail pipes. Dedicated rooftop vehicle exhaust extraction fan is showing signs of corrosion. The Apparatus Bay is missing constant volume exhaust system (providing ventilation rate of 3.9 l/s/m²) or a purge system that limits the concentration of NOx and CO in the space to concentrations that are pursuant to the 2010 National Building Code of Canada (NBCC). The adjoining storage/utility rooms consist of a washroom, an oil/lubricants storage room, and a machine room housing air compressors. The washroom and the oil/lubricant storage room are not ventilated at all. There is a Lennox rooftop unit (approx. 5+ years old) serving half of the fire hall space on the second floor. The unit is packaged with DX cooling and natural gas heating sections. <p>A rooftop exhaust fan exhausts the air from the kitchen space on the second level.</p> <ul style="list-style-type: none"> The administration side of the 	<ul style="list-style-type: none"> Overhaul the rooftop vehicle exhaust extraction fan in the next 10 years. Provide a NOx and CO activated purge exhaust system for the Apparatus Bay. Exhaust ventilation in the washroom and oil/lubricant storage rooms adjoining the Apparatus Bay should be installed and sized to ASHRAE 62.1 requirements. Ventilation should be provided to the unventilated portion of the 2nd level fire hall. Ventilation should be provided on the administration side of the building to the corridors, offices and basement lounge. These areas are currently only provided with an exhaust and are not in conformance with AHRAE 62.1. 	M-05

<p>Heating</p>	<p>building is served by 5 rooftop exhaust fans and another Lennox rooftop AHU (also approx. 5+ years old).</p> <ul style="list-style-type: none"> • This AHU is also packaged with DX cooling and natural gas heating sections and serves the fire chief's office. • All other spaces in the administration side of the building receive ventilation through the 5 roof top exhaust fans, these spaces include, offices, washrooms, janitor rooms, corridors, a basement lounge and general storage rooms. • There are two split system heat pumps (Mitsubishi and Daikin) recently installed in the main floor office and the control room providing cooling and heating for noted spaces. <ul style="list-style-type: none"> • A dedicated heating system Viessmann condensing natural gas fired boiler was installed recently in the back section of the storage garage. The boiler serves multiple unit heaters within the vehicle storage area. It was noted on site that the hot water heating supply and return lines were not provided with thermal insulation. • Electric radiators & baseboards were noted in several offices, washrooms, stairwells and storage rooms throughout the building. The units were typically the original units that were installed when the building was constructed and are in poor condition. • An electric unit heater was noted in the generator room. 	<p>M-06</p>
<p>Plumbing</p>	<ul style="list-style-type: none"> • The washrooms noted on site appeared in relatively fair to new condition. • The washroom fixtures at the Apparatus Bay were in fair to poor condition. 	<p>M-07</p>

Fire Protection	<ul style="list-style-type: none"> The building is sprinklered throughout. 	<ul style="list-style-type: none"> No recommendations for upgrades at this point. 	M-08
Building Specific Utilities	<ul style="list-style-type: none"> The diesel generator was installed in 1975. Pneumatic actuated louvers open on generator start-up and appear to have been installed relatively recently. The above ground diesel tank serving the generator is located in the same room and was manufactured in 1999. 2 air compressors are located in a utility room off of the vehicle storage area. One compressor provides general usage compressed air and the other one provides breathing air. The intake for the breathing air system is located within the vehicle garage. 	<ul style="list-style-type: none"> The diesel tank serving the generator is over 15 years old, it is recommended to replace the tank within the next 5 years. To safeguard the breathing air's quality, it is recommended to route the intake air duct to the outdoors. 	M-09

5.5 Electrical

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The incoming service is underground from a nearby pole to the main electrical room in the basement. The main switchboard is rated for 1200A @ 120/208V. The whole building is supplied by a 240kW generator which was installed during the original construction in 1975. The transfer switch for the generator is a Westinghouse 'Robonic' model and is also original construction. At 1200A, this switchboard is oversized by more than a factor of 2. Behind the building, there is a receptacle for connecting a standby generator as backup for essential building systems in the event of the main generator failure. The single conductor cables between the switchboard and transfer switch do not have the required spacing between them as is required by code. This could potentially cause local overheating of the cable and degrade the insulators. The load and normal feeders from the transfer switch seem to share a neutral back to the main switchboard. A feeder from the electrical room has been installed with Loomex (NMD90). There is an equipment dryer placed in front of a branch panel "D" next to the rear overhead truck doors. This restricts access to the equipment and is a Code Violation (1m clearance is required). A branch panel in the electrical room is missing some blank fillers. The busbars are exposed. This is a safety issue. 	<ul style="list-style-type: none"> Provide cable supports on the single conductor cables to maintain 1 cable diameter spacing between cables. This will prolong the life of the cables. Relocate the equipment dryer in front of panel "D" at least 1m away from the front face of the panel. Install blank fillers in the branch panel to conceal the busbars and replace the receptacle in the janitor's room with a GFCI type receptacle. 	E-03 E-04

Lighting	<ul style="list-style-type: none"> The receptacle in the basement janitor's room is not GFI protected. 	
	<ul style="list-style-type: none"> Interior lighting is T12 fluorescent for general lighting. Exterior light fixtures are original metal halide wall packs. While we visited during the day, the coverage would not be optimal and may be spreading light onto nearby residential properties. The main lighting fixtures in the truck bays do not have control. The breakers have been used for daily on/off control. Circuit breakers are not intended for general purpose control and may be wearing down the electrical contacts. 	<ul style="list-style-type: none"> Proper control for the truck bay lighting should be considered. This can be achieved with toggle switches or a contactor panel. The T12 fluorescent fixtures are in-efficient and replacement should be considered. The exterior lights could also be replaced to achieve better coverage and reduce glare to nearby residents.
Telecom	<ul style="list-style-type: none"> Telecommunication cables are routed throughout the building with a few exposed cables. The incoming service terminates on the basement level at BIX mounts. The main electrical room also serves as the main telecom room with a small server rack on one side. The room did not seem to be overheating and the firefighters did not mention any issues with the systems. 	<ul style="list-style-type: none"> No recommendations at this time.
Security	<ul style="list-style-type: none"> There is a security system throughout the building. There are no issues with this system. 	<ul style="list-style-type: none"> No recommendations at this time.
Fire Alarm	<ul style="list-style-type: none"> The fire alarm system is a Mircom conventional system. This panel may no longer be supported in the near future. There were no trouble indications on the panel. 	<ul style="list-style-type: none"> Since the panel may no longer be supported in the near future, replacement should be considered before it becomes a major issue.

5.6 Civil

Subject	Observations/Comments	Recommendations	Photo Reference
Parking Lot	<ul style="list-style-type: none"> The Fire Hall has a large main parking lot (south) for public/staff as well as a front lot with truck bays and a few parking spaces. The rear of the building (east) also has two truck bays with no area for public parking. The main public parking lot (south) is in moderate condition with visible alligator cracking and patchwork. The front facing lot is in moderate condition as well with some visible patch work and cracking. The lot at the back of the building (east) consists of an asphalt area which transitions to a gravel lot. The area where the lots transition contains pieces of loose, broken asphalt. Large potholes were visible in the gravel area of the lot. Both concrete and asphalt curb were noted at different locations around the building/parking lots. The existing curb is in moderate condition with some visible cracking and missing pieces. 	<ul style="list-style-type: none"> East and South lots may require repaving in the next 5-10 years. Patch areas where necessary. Back lot with asphalt that transitions to gravel should be cleaned up (i.e., remove loose asphalt pieces) and re-grade gravel areas with large potholes. 	C-03 C-04 C-05
Drainage	<ul style="list-style-type: none"> Generally the parking lots and asphalt areas slope away from the building foundation. Dickie Brook (drainage feature) runs through the southern edge of the property. One catchbasin was visible on site in the patio area (north east corner) of the building. It was confirmed by staff that this drained a few feet away into a vegetated area. 	<ul style="list-style-type: none"> No recommendations at this time. 	C-06

6 PUBLIC WORKS FACILITY

6.1 Building Description

The Amherst Public Works facility, located at 14 McCully Street, consists of 5 buildings; a Maintenance and Office Building, a Pole Barn, the Angus Building, a Carpenter Shop and a Sand Storage Shed. These building were built at different years between 1972 and 2003. See Appendix A for photos.



6.2 Structural

6.2.1 Maintenance & Office Building



Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Concrete foundation generally in good condition. Concrete foundation of salt and cold-mix asphalt storage sheds in very poor condition with exposed reinforcement and significant section loss. 	<ul style="list-style-type: none"> See Building Structural Components for recommendation. 	

Slab-on-grade	<ul style="list-style-type: none"> Concrete slab-on-grade in fair condition with cracking near OH door thresholds of 1972 area and minor hairline cracking throughout. 	<ul style="list-style-type: none"> It is recommended to provide epoxy injection filler crack repair to protect structural slab-on-grade from chemical and chlorides attack. 	
Building Structural Components	<ul style="list-style-type: none"> The building is constructed of steel columns, beams, OWSJ, and interior and exterior masonry walls. Generally in good condition with the exception of the bases of interior columns within maintenance bays which are rusted, delaminated, and in poor condition. A wood construction second storey in the 1972 area supports offices and storage spaces. The offices are new following a structural fire in 2008 and are in good condition. Spliced cantilever floor joists support a mezzanine access gangway. Two supplementary structural supports are provided by 5/8" threaded rod hung through the OWSJ bottom chord to a steel support angle bearing on the cantilever wood framing. A wood framed storage mezzanine in the 1978 area, in fair condition, supports two large brine storage tanks. Salt and cold-mix asphalt sheds, exterior north side, are constructed of wood studs and roof trusses in very poor condition. 	<ul style="list-style-type: none"> It is recommended to prepare and paint steel columns to protect the structural element from exposure to damaging chemical and chloride attack. Cantilevered mezzanine support joists have been notched and are not securely fastened to supported floor joists. Further investigation is recommended into the structural integrity of the mezzanine framing system. Additional structural review of the 1978 wood storage mezzanine is recommended to confirm its resistance capacity under the applied storage loads. Local upgrading may be required. Plywood sheathing is recommended along wood railing for safety. Due to the extensive damage and deterioration of the salt and cold-mix asphalt sheds, it is recommended to demolish, redesign, and rebuild these facilities. 	<p>S-09</p> <p>S-10</p> <p>S-11</p> <p>S-12</p>

6.2.2 Pole Barn



Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Wood foundations supporting wood sill and metal siding in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Slab-on-grade	<ul style="list-style-type: none"> Asphalt slab-on-grade in fair condition. OH Door pipe threshold is exposed and deteriorate. 	<ul style="list-style-type: none"> Repair or replace OH door pipe threshold. 	
Building Structural Components	<ul style="list-style-type: none"> Wood truss roof construction with heavy timber columns and wood K-braces at the building corners in good condition. Wood construction storage mezzanines at building ends and crude tire storage in fair condition. 	<ul style="list-style-type: none"> Further investigation into the structural integrity of the tire storage is recommended. 	

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6.2.3 Angus Building



Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Reinforced concrete curb foundations in fair to good condition with horizontal cracking and spalling at end walls. 	<ul style="list-style-type: none"> To prevent further deterioration it is recommended to cut, remove, and repair cracked and spalled concrete in localized areas. 	
Slab-on-grade	<ul style="list-style-type: none"> Concrete slab-on-grade in fair condition with significant cracking throughout north side and hairline cracking south side. 	<ul style="list-style-type: none"> Concrete crack repair is recommended to prevent chemical, chloride, or water infiltration. 	
Building Structural Components	<ul style="list-style-type: none"> The building is a pre-manufactured corrugated steel accordion-style arch structure with significant rusting in fair condition. Metal closure end wall is damaged and in poor condition. Masonry end walls frame large OH doors and are cracked and broken in poor condition. 	<ul style="list-style-type: none"> To prevent further deterioration and for cosmetics it is recommended to clean surface rust and treat with rust inhibitor. Remove and replace metal flashing to prevent water infiltration and further damage to interior structural elements. 	S-13

- A storage mezzanine in fair condition is constructed of wood and is positioned on the south side.
- A storage/washroom shelter is constructed of wood/plywood on the south side and is in fair condition.
- Due to the location and severity of damaged masonry blocks it is recommended to remove and replace masonry end walls.
- A structural investigation into the framing of the mezzanine and storage shelter under permanent storage loads is recommended. Remove, replace, and reorganize storage structures to ensure a safe work environment.

6.2.4 Carpenter Shop



Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Foundations not visible for review behind painted plywood skirt, in fair condition. 	<ul style="list-style-type: none"> Prepare and paint plywood skirting to protect wood and foundation against deterioration. 	
Slab-on-grade	<ul style="list-style-type: none"> Concrete slab-on-grade in good condition. 	<ul style="list-style-type: none"> See Building Envelope Floor Finishes for recommendation. 	
Building Structural Components	<ul style="list-style-type: none"> The building is a typical two storey residential construction in good condition. Second floor balcony and emergency exit of painted wood construction in fair condition. 	<ul style="list-style-type: none"> Test the effectiveness of exterior emergency ladder. 	

6.2.5 Sand Storage Shed



Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Wood foundations supporting wood sill and metal siding in poor to fair condition. Significant bowing of wood sill visible at areas of damage to the wall system, see Building Structural Components for additional information. 	<ul style="list-style-type: none"> See Building Structural Components for recommendation. 	
Slab-on-grade	<ul style="list-style-type: none"> Slab-on-grade not visible for review. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Building Structural Components	<ul style="list-style-type: none"> Wood truss roof construction with heavy timber columns and wood K-braces at the building corners in fair to good condition. Layered plywood protection boards prevent a complete structural review. Exterior visual inspection shows significant 	<ul style="list-style-type: none"> Further structural review required immediately to determine status of structural elements. It is recommended to remove sand and plywood protection boards to complete the inspection. Structural 	S-14 S-15
	<p>deformation of metal siding due to the interior pressures and impact forces associated with loading and storing sand. Reinforcement of central west wall columns visible above plywood protection boards. As a result of the incomplete review, the structural integrity of the wall assembly is unknown and assumed unstable and inadequate.</p>	<p>reinforcement may be recommended.</p>	

6.3 Building Envelope

6.3.1 Maintenance & Office Building

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Exterior metal siding is generally in good condition however displays several dents, punctures, rips and tears near OH door locations. Painted plywood exterior siding of 	<ul style="list-style-type: none"> Repair metal siding at damaged locations. See Structural Building Components for recommendation. 	

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Roof	<p>the salt storage and cold-mix asphalt sheds are significantly damaged and in very poor condition.</p> <ul style="list-style-type: none"> Decorative painted 2x4 wood siding between OH doors, east side, is deteriorating and peeling but in good condition. Painted plywood soffits above OH doors are peeled and in poor condition. 	<ul style="list-style-type: none"> For continual general maintenance, it is recommended to clean, prepare, and paint wood siding elements and plywood soffits, typical throughout.
	<ul style="list-style-type: none"> Flat modified membrane roof system installed in 2005. Roof not available for review. New metal roof on salt and cold-mix asphalt storage sheds. Asphalt shingles along roof perimeter in fair condition with damaged or missing shingles. 	<ul style="list-style-type: none"> It is recommended to repair or replace damaged or missing shingles along roofs perimeter to prevent water infiltration. A roof replacement is recommended in 10-20 years based on the installation year.
Walls & Ceilings	<ul style="list-style-type: none"> Interior office and storage partitions are wood stud with gypsum board and masonry construction, in good condition. Partition wall between 1972 original building and 1978 addition is masonry block in good condition. 	<ul style="list-style-type: none"> No recommendations at this time.
Floor Finishes	<ul style="list-style-type: none"> Painted wood stairs in fair condition. Laminated floor finishes in office spaces, washrooms and lunch rooms in good condition, require cleaning. 	<ul style="list-style-type: none"> Clean, prepare, and paint wood stairs to prevent further deterioration.
Doors & Windows	<ul style="list-style-type: none"> Tripping hazard present at door threshold between 1972 and 1978 areas. South facing windows in good condition, with larger windows having painted concrete sills in fair condition. 	<ul style="list-style-type: none"> Repair door thresholds to enable safe building egress. Clean, prepare, and paint concrete sills to prevent further deterioration.

6.3.2 Pole Barn

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Metal siding in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Roof	<ul style="list-style-type: none"> Metal roof in good condition. 	<ul style="list-style-type: none"> No deficiencies observed. Maintain and provide continuous care to keep roof leak proof. Roof replacement considered in 10-20 years based on 2000 installation year. 	
Walls & Ceilings	<ul style="list-style-type: none"> Plywood separator wall between Public Works and Amherst Police owned areas in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Doors & Windows	<ul style="list-style-type: none"> OH doors and man doors in good condition. No windows present in building. 	<ul style="list-style-type: none"> See Slab-on-grade for additional information and recommendation. 	

6.3.3 Angus Building

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> South end wall has painted wood siding in poor condition. North end wall has sheet metal siding in fair condition. 	<ul style="list-style-type: none"> Remove and replace painted wood siding on south end wall to protect new masonry end walls. See Building Structural Components for additional information. 	
Walls & Ceilings	<ul style="list-style-type: none"> Insulated plywood/wood stud wall to divide north and south storage areas in fair condition. 	<ul style="list-style-type: none"> Insulation to be repaired on north side to improve thermal break and save on heating costs. 	
Doors & Windows	<ul style="list-style-type: none"> OH and man doors at end walls in good condition. No windows present in building. OH door metal trim rusted and in poor condition. OH door lintel visibly deflected in poor condition. Damaged wood step at north entrance presents safety hazard. 	<ul style="list-style-type: none"> Remove and replace damaged and rusted OH door trim. See Building Structural Components for recommendation to damaged masonry door lintels. Remove and replace wood step to allow ease and safety of building egress. 	S-16

Building Egress	<ul style="list-style-type: none"> Significant debris and equipment create tripping hazard and limit access between north and south storage areas. 	<ul style="list-style-type: none"> General tidying and housekeeping recommended to ensure a safe workflow and building egress.
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6.3.4 Carpenter Shop

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Painted wood siding in poor condition. 	<ul style="list-style-type: none"> Prepare and paint wood siding to prevent further deterioration. 	
Roof	<ul style="list-style-type: none"> Metal roof installed in 2013, new, in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Walls & Ceilings	<ul style="list-style-type: none"> Wood stud and gypsum board walls and ceilings generally in good condition. Second floor gypsum ceiling has minor water damage from 	<ul style="list-style-type: none"> It is recommended to clean and paint second floor ceiling to repair previous water damage. 	
Floor Finishes	<ul style="list-style-type: none"> previous leak in roof. Roof access created in ceiling exposing insulation and wood slats. Exposed concrete slab-on-grade on main floor and exposed wood floor with paint stains and scuff marks on second floor, both in good condition. Painted wood stairs in fair condition. 	<ul style="list-style-type: none"> Provide operable hatch to roof access hole in ceiling. Spills and stains on concrete to be cleaned. General stains on floors considered cosmetic only. Clean, prepare, and paint plywood stairs to prevent further deterioration. 	
Doors & Windows	<ul style="list-style-type: none"> Door and windows in good condition. OH door exterior wood jam is damaged and in poor condition. 	<ul style="list-style-type: none"> Remove and replace painted wood jamb of the south-east OH door. 	

6.3.5 Sand Storage Shed

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Metal siding is visibly bowed and in poor condition. See Building Structural Components for additional information. 	<ul style="list-style-type: none"> See Building Structural Components for recommendation. It is recommended to remove and replace metal siding after structural integrity checks and enhancements are made. 	
Roof	<ul style="list-style-type: none"> Metal roof in good condition. 		
Doors & Windows	<ul style="list-style-type: none"> Large opening on east wall for storage access. Vinyl door frame damaged and missing by equipment. No doors or windows present in shed. 	<ul style="list-style-type: none"> Repair vinyl door frame to provide protection of structural elements during loading and unloading. 	

6.4 Mechanical

6.4.1 Maintenance & Office Building

Subject	Observations/Comments	Recommendations	Photo Reference
Ventilation	<ul style="list-style-type: none"> The office areas are ventilated through a residential type heat recovery ventilator (HRV). The HRV appears to be running at its maximum capacity and not much air can be detected at the supply grilles found in the offices. Dedicated exhaust fan was noted in the washrooms. There is a NOx and CO sensor located in the main maintenance bay. When elevated levels of gases are detected, an exhaust fan is actuated and a louver is opened that purges the air from the space. The occupants have stated that the 	<ul style="list-style-type: none"> Review and upgrade the office ventilation system. Upgrade the exhaust purge system in the main maintenance bay (in next 10 to 20 years). Provide combination CO/NOx detection and purge system or provide 3.9 l/s/m² continuous exhaust ventilation in the vehicle parking area on the back of the building in accordance with NBCC requirements. Provide ventilation per ASHRAE 62.1 in the storage area/shop adjoining the parking garage. 	M-10

	<p>system works well.</p> <ul style="list-style-type: none"> • There is a Plymovent fume extraction arm with a dedicated exhaust fan in the maintenance bay that appears to have been installed relatively recently. • The parking garage on the back side of the building is not ventilated. • The storage area/shop adjoining the parking garage is also not ventilated. • Window mounted AC units for provision of cooling in the offices are in fair to poor condition. 	
Heating	<ul style="list-style-type: none"> • Heating is provided through gas fired unit heaters and radiant tube heaters in the vehicle maintenance bay and vehicle storage area. • The offices have electric baseboard heaters that are in good condition. 	<ul style="list-style-type: none"> • Upgrade natural gas fired radiant tube heaters in next 10 to 20 years. M-11 • It recommended to provide a central cooling unit for the offices and eliminate the window mounted residential style AC units.
Plumbing	<ul style="list-style-type: none"> • An electric hot water heater provides hot water to the washroom and sinks in the building. • Domestic water lines (hot and cold) were not insulated • The plumbing fixtures are in fair to poor condition. 	<ul style="list-style-type: none"> • Insulate the domestic water lines. M-12 • Upgrade all plumbing fixtures in next 1- 5 years.
Fire Protection	<ul style="list-style-type: none"> • The building is sprinklered throughout and according to occupants it receives regular annual inspections. • The sprinkler spacing in the maintenance bay and storage garage appeared to be inadequate to serve group 2 ordinary hazard. This should be investigated further. • It appears that sprinklers were not located underneath overhead doors. 	<ul style="list-style-type: none"> • It is recommended to conduct a fire protection requirement analysis for the building to ensure that the fire protection systems in place satisfy the provincial and Canadian fire code requirements. M-13
Building Specific Utilities	<ul style="list-style-type: none"> • 2 air compressors and an air dryer are located on the mezzanine of the vehicle storage area. The compressors and receiver appear in good condition and service tags were noted on these units. 	<ul style="list-style-type: none"> • Update the paint booth area in its entirety. Perform a study on the required ventilation rate for the intended painting operations and provide upgraded ventilation, M-14

- A make shift paint booth was noted adjacent to the vehicle storage bays. The paint booth consists of a drain to the building sanitary, unfiltered exhaust fan to the outdoors and intake air from the storage garage that is preheated with an electric unit heater.
- heating and drainage systems.

6.4.2 Pole Barn

Subject	Observations/Comments	Recommendations	Photo Reference
General Mechanical	<ul style="list-style-type: none"> • This building contains unheated and unventilated storage. 	<ul style="list-style-type: none"> • No recommendations at this time. 	

6.4.3 Angus Building

Subject	Observations/Comments	Recommendations	Photo Reference
All Mechanical	<ul style="list-style-type: none"> • This building is heated through the use of gas fired unit heaters that appear to be in good condition. • There is a small washroom located within the building that is unventilated. • The washroom fixtures appear in fair condition. • There is an air compressor in the building that appears in fair condition providing general use compressed air. • The building is not sprinklered. 	<ul style="list-style-type: none"> • Provide exhaust ventilation in the washroom per ASHRAE 62.1. • It is recommended to conduct a fire protection requirement analysis for the building to ensure that the fire protection systems in place satisfy the provincial and Canadian fire code requirements. 	M-15

6.4.4 Carpenter Shop

Subject	Observations/Comments	Recommendations	Photo Reference
Ventilation	<ul style="list-style-type: none"> There is 1 exhaust fan and a dust collector located in the carpenter shop. The ducting to the dust collector consists of plastic flex duct. The washroom has a dedicated exhaust fan. The upstairs is used for general storage and minor spray painting, there was no ventilation noted in this space. 	<ul style="list-style-type: none"> Provide a ventilation system in accordance with ASHRAE 62.1 Install permanent dust collector ducting with metal flex duct. Install adequate paint booth upstairs where spray painting occurs. 	M-16
Heating	<ul style="list-style-type: none"> Heating is provided through electric unit heaters and baseboards. The units are in fair condition. 	<ul style="list-style-type: none"> Replace the existing electric heaters in next 1 to 5 years. 	M-17
Plumbing	<ul style="list-style-type: none"> There is a small washroom and a service sink located in the building. The service sink appears in poor condition and the washroom fixtures are in fair condition. 	<ul style="list-style-type: none"> Replace the service sink. Insulate the domestic water lines. 	M-18
Fire Protection	<ul style="list-style-type: none"> An electric hot water heater is located in the washroom and the domestic water lines are not insulated. The building is not sprinklered. A fire extinguisher was noted on site. 	<ul style="list-style-type: none"> It is recommended to conduct a fire protection requirement analysis for the building to ensure that the fire protection systems in place satisfy the provincial and Canadian fire code requirements. 	M-19

6.4.5 Fuelling Station

Subject	Observations/Comments	Recommendations	Photo Reference
General Mechanical	<ul style="list-style-type: none"> There are diesel and gasoline fuelling stations located on the grounds. The pumps were installed in 2011 and appear in good condition. There are 3 underground fuel storage tanks serving the pumps. 2 are gasoline and 1 is a diesel tank. The underground tanks vent stacks are clearly labelled. 	<ul style="list-style-type: none"> No recommendations for upgrades at this time. 	M-20

6.5 Electrical

6.5.1 Maintenance & Office Building

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The incoming service is overhead from a nearby pole. The single phase 120/240V utility service enters the main building (Works Garage) and is terminated in a 400A disconnect switch fused at 200A with an indoor utility meter base. The main disconnect feeds a splitter which feeds branch panels and disconnects supplying loads through the building. The splitter also feeds the other four buildings on the site with overhead feeders. The Works Garage has a separate standby electrical distribution for critical services fed from a small Briggs and Stratton natural gas generator. The main equipment and a number of branch panels are located next to 	<ul style="list-style-type: none"> The steel plates in front of the main distribution equipment should be moved and stored somewhere else to maintain clearance in front of the equipment. Install covers on the missing junction box knockouts. The electrical equipment near the vehicle doors that are showing signs of rust, including the main and branch disconnect switches, are nearing the end of their useful life. While there is no visible sign of a safety risk to personnel, complications could arise during any future system modifications or additions. Replacing or refurbishing these 	E-05

	<p>vehicle doors and are showing visible signs of rust due to the proximity to the doors which are likely left open for extended periods of time.</p> <ul style="list-style-type: none"> • The main and branch disconnect switches are outdated models and are nearing the end of their useful life. • There are stacks of steel plates stored on the floor in front of the main distribution equipment. By code, this area needs to be clear for 1 meter in front of all electrical equipment. • A number of knockouts are missing on junction boxes. • The two main branch panels look to have been replaced in the last 10 years and are in good shape. 	<p>panels and disconnect switches should be considered in the near future.</p>
Lighting	<ul style="list-style-type: none"> • The interior lighting is mostly fluorescent T8 strips with reflectors. There are a number of screw-shell incandescent fixtures that have been replaced with fluorescent bulbs or LED retrofit bulbs. • The exterior site lighting has been replaced with LED fixtures. 	<ul style="list-style-type: none"> • No recommendations at this time.
Telecom	<ul style="list-style-type: none"> • The incoming telecom services are fed overhead from a nearby pole. No issues were brought up by the users. 	<ul style="list-style-type: none"> • No recommendations at this time.
Security	<ul style="list-style-type: none"> • There is a security system in each building on the site. Each system seems to be independent. The system in the Works Garage monitors the sprinkler system. No issues were reported. 	<ul style="list-style-type: none"> • No recommendations at this time.
Fire Alarm	<ul style="list-style-type: none"> • There is no fire alarm system present at this location. The sprinkler system is monitored by the security system. 	<ul style="list-style-type: none"> • No recommendations at this time.

Emergency and Exit Lighting	<ul style="list-style-type: none"> The emergency lighting in the Works Garage is fed from the standby generator. The remote buildings all have battery packs with remote heads and exit lighting. 	<ul style="list-style-type: none"> No recommendations at this time.
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6.5.2 Pole Barn

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The incoming service is overhead from poles on site, supplied from disconnects in the Maintenance & Office Building. A small branch panel is fed from the overhead lines with a main breaker. It is in good shape. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Lighting	<ul style="list-style-type: none"> The interior lighting is screw-shell incandescent fixtures. Some have been replaced with fluorescent bulbs or LED retrofit bulbs. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Security	<ul style="list-style-type: none"> There is a security system present. No issues were reported. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Emergency and Exit Lighting	<ul style="list-style-type: none"> The emergency lighting is from battery packs with remote heads and exit lighting. 	<ul style="list-style-type: none"> No recommendations at this time. 	

6.5.3 Angus Building

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The incoming service is overhead from poles on site, supplied from disconnects in the Maintenance & Office Building. There is no standby power in this building. A small branch panel is fed from the overhead lines with a disconnect switch. They are in good shape. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Lighting	<ul style="list-style-type: none"> The interior lighting is f screw-shell incandescent fixtures that have been replaced with fluorescent bulbs or LED retrofit bulbs. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Security	<ul style="list-style-type: none"> There is a security system present. No issues were reported. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Emergency and Exit Lighting	<ul style="list-style-type: none"> The emergency lighting in the Carpenter Shop is from battery packs with remote heads and exit lighting. 	<ul style="list-style-type: none"> No recommendations at this time. 	

6.5.4 Carpenter Shop

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The incoming service is overhead from poles on site, supplied from disconnects in the Maintenance & Office Building. There is no standby power in this building. The main panel is completely blocked by a lumber storage shelf. As above, this is against code as 1 meter of clearance is needed in front of electrical equipment. 	<ul style="list-style-type: none"> The lumber shelf should be cut back to gain 1 meter of clearance in front of the panel. 	

Lighting	<ul style="list-style-type: none"> The interior lighting is fluorescent T8 strips. There are a number of screw-shell incandescent fixtures that have been replaced with fluorescent bulbs or LED retrofit bulbs. 	<ul style="list-style-type: none"> No recommendations at this time.
Security	<ul style="list-style-type: none"> There is a security system present. No issues were reported. 	<ul style="list-style-type: none"> No recommendations at this time.
Emergency and Exit Lighting	<ul style="list-style-type: none"> The emergency lighting is from battery packs with remote heads and exit lighting. 	<ul style="list-style-type: none"> No recommendations at this time.

6.6 Civil

Subject	Observations/Comments	Recommendations	Photo Reference
Parking Lot	<ul style="list-style-type: none"> Parking Lot/Yard areas surrounding the public works buildings are both gravel and paved lots. Paved lots located at the northern and eastern faces of the building are the main public entrances to the lot and are used for general maintenance (north entrance, 4 bays) and staff parking (east entrance). Both of these lots are in poor condition with asphalt patch work, visible gravel patching and alligator cracking. The gravel lots are located on the western and southern faces of the main building. These lots are fenced in and are used for storage of materials. Gravel lots are in moderate condition with some potholes and pooling of water evident. Some asphalt patches are evident in the gravel lots near the building. 	<ul style="list-style-type: none"> Paved lots require resurfacing and patching of asphalt within the next year. Gravel lots should be graded within the next year. 	C-07 C-08

Drainage	<ul style="list-style-type: none"> Gravel and asphalt lots are mostly sloped away from buildings on site. The eastern staff parking lot drains towards one CB on the site. Some potholes with small pools of water were evident in the gravel and front asphalt lot but no significant drainage issues were noted. 	<ul style="list-style-type: none"> Maintain drainage access. Ensure CB is protected in the case of an oil/gas leak from vehicles and nearby gas pumps. 	C-08
Other	<ul style="list-style-type: none"> Wooden perimeter fencing and chain link gates exist at various sections of the property. Overall, both wood and chain link sections are in good condition. 	<ul style="list-style-type: none"> Perform maintenance as required. No apparent issues at present time. 	C-09
Other	<ul style="list-style-type: none"> Two gasoline pumps are present on-site (western side of main building) for vehicle refuelling purposes. Town staff confirmed that these pumps are changed every 5 years. To date, there have not been any spills or leaks resulting from these pumps and there was no evidence of staining on the concrete slab/pavement surround. 	<ul style="list-style-type: none"> Monitor for leaks regularly 	C-10

7 AMHERST POLICE STATION

7.1 *Building Description*

The new Amherst Police Station, built in 2015, is located at 21 Havelock Street. The building has two (2) floors above grade with post disaster structure. The main floor is wheelchair accessible. See Appendix A for photos.



7.2 Structural

Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Reinforced concrete foundations, new. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Slab-on-grade	<ul style="list-style-type: none"> Reinforced concrete slab-on-grade, new. Joint filler missing in vehicle bay. 	<ul style="list-style-type: none"> It is recommended to supply joint filler in vehicle bay to protect concrete edges and extend the life of the slab. 	
Building Structural Components	<ul style="list-style-type: none"> New post-disaster 2 storey steel construction, good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	

7.3 Building Envelope

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Brick, block, and metal panel exterior wall construction, new in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Roof	<ul style="list-style-type: none"> Flat 2-ply mod-bit roof system, new. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Walls & Ceilings	<ul style="list-style-type: none"> Steel stud and gypsum board and painted reinforced concrete block wall systems, typical, new. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Doors & Windows	<ul style="list-style-type: none"> New 	<ul style="list-style-type: none"> No recommendations at this time. 	

7.4 Mechanical

Subject	Observations/Comments	Recommendations	Photo Reference
Ventilation	<ul style="list-style-type: none"> The Police station was recently constructed and commissioned. All mechanical equipment installed on site was new and in good condition. The ventilation for the occupied areas of the building is provided through four rooftop gas fired AHUs. Ventilation for the garage area consisted of an HRV supplying constant ventilation rate. A purge exhaust fan was also located in the garage area and is activated by NOx and CO sensors. All electrical rooms, mechanical rooms and washrooms have dedicated exhaust fans. The entry vestibule contained only supply air diffusers which were over-pressurizing the space causing the second set of doors to be blown open. The holding cells contained security grilles however the grilles did not appear to be anti-ligature type. Locked evidence storage room appeared to have low ventilation rate. There are several LG heat pump split systems located throughout the facility in such areas as: communication rooms, workout areas, and locker rooms. All related outdoor condensing units are mounted on the roof of the building. 	<ul style="list-style-type: none"> Add return grille with transfer duct to the entrance vestibule to eliminate the space over-pressurization. Confirm that the grilles located in the holding cells are acceptable for jail application and replace if necessary. Increase ventilation rate for the Locked evidence storage room. 	M-21
Heating	<ul style="list-style-type: none"> Heating is provided through natural gas fired AHU's located on the roof and a natural gas fired condensing boiler connected to a heating loop. 	<ul style="list-style-type: none"> There are no recommendations for the heating system upgrades. 	M-22
Plumbing	<ul style="list-style-type: none"> Domestic hot water is provided through an electric hot water heater 	<ul style="list-style-type: none"> There are no recommendations for the plumbing system 	M-23

Fire Protection	located on the first floor mechanical room.	upgrades.	
	<ul style="list-style-type: none"> All visible domestic water and heating system lines were insulated. The building is sprinklered throughout. 	<ul style="list-style-type: none"> There are no recommendations for the fire protection system upgrades. 	M-24

7.5 *Electrical*

Subject	Observations/Comments	Recommendations	Photo Reference
General	<ul style="list-style-type: none"> The building is brand new design and construction. It has all services in good working order; standby generator power, telecom, fire alarm, security and access control. All of the systems are in good condition due to the young age of the facility. 	<ul style="list-style-type: none"> No recommendations at this time. 	

7.6 *Civil*

Subject	Observations/Comments	Recommendations	Photo Reference
Parking Lot	<ul style="list-style-type: none"> Parking lot has been freshly paved. It is in excellent condition with no deterioration noted. Potential for cracking at north edge is noted. 	<ul style="list-style-type: none"> Place additional gravel to support asphalt edge. 	C-11
Drainage	<ul style="list-style-type: none"> Areas of the building are surrounded by grass and others by asphalt (parking lot). The parking area is gently sloped away from building to promote positive drainage. 	<ul style="list-style-type: none"> No recommendations at this time. 	

8 AMHERST STADIUM

8.1 Building Description

The Amherst Stadium, built around 1960 and renovated in 2006-2008, is located at 185 Church Street. The building has two (2) floors above grade. The main floor is wheelchair accessible. See Appendix A for photos.



8.2 Structural

Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Reinforced concrete foundation wall, generally in good condition. Cracked and spalled at corners near door openings. Parging along foundation exterior perimeter, cracked and broken in poor condition. 	<ul style="list-style-type: none"> Repair foundation wall at door openings, typical, and repair parging to protect foundation wall against deterioration. 	S-17
Slab-on-grade	<ul style="list-style-type: none"> Concrete slab-on-grade in good condition. Slab under ice surface not exposed for visual review. No user complaints noted. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Building Structural Components	<ul style="list-style-type: none"> Large pre-engineered steel rigid frames span the width of the arena and are in good condition. Painted block walls perimeter the building and are generally in good condition. Vertical cracking at regular spacing (approx. 23 ft), inside face of block, typical throughout. Similar cracking at window/door lintels. 	<ul style="list-style-type: none"> It is recommended to repair vertical cracking, typical, to extend the life of the masonry block walls and prevent water infiltration. Cut, remove, and replace damaged blocks around cracks as a long term repair solution. 	S-18

8.3 Building Envelope

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Ticket booth sealant vandalized and damaged. Exterior wall construction is a combination of split face block at main entrance and brick veneer typical. Expansion joint filler at interface between block and brick is in fair condition. New and old vertical cracking visible on brick veneer. Brick mortar joints in fair condition. Damaged and missing brick at south-west corner. Exposed painted masonry wall at 	<ul style="list-style-type: none"> To prevent further deterioration and cosmetics it is recommended to repair damaged joint sealant at ticket booth. 	S-19
		<ul style="list-style-type: none"> Remove and replace expansion joint filler in 1-5 years for general maintenance. 	S-20
		<ul style="list-style-type: none"> Remove and replace old brick crack repair. Brick re-pointing is recommended at window and door openings to repair mortar joint section loss and prevent water infiltration. Remove and 	S-21

	west loading entrance in fair condition. Existing mortar joint at wall intersection in poor condition. Existing block vertical crack repair in good condition.	repair damaged brick at south west corner. Clean and maintain exterior finishes from moisture causing vegetation.	S-22
Roof	<ul style="list-style-type: none"> Metal roof construction, upgraded in 2007, in good condition. 	<ul style="list-style-type: none"> Remove existing mortar joint and replace with calked joint filler. Repair cracked and broken block at west (back) entrance. Cut, remove, and replace broken blocks at existing exterior vertical crack as a long term solution in 1-5 years. Maintain and provide continuous care to keep roof leak proof. Roof replacement considered in 10-20 years based on year of upgrades. 	
Walls & Ceilings	<ul style="list-style-type: none"> Interior stud and gypsum board wall construction upgraded in 2006-2007 in good condition. Painted wood construction stadium seating in good condition. Minor cosmetic damages noted, uncommon. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Doors & Windows	<ul style="list-style-type: none"> Windows and doors upgraded in 2008 and in good condition. Base anchorage of steel door bumpers at main entrance is loose. Bumper pad missing. 	<ul style="list-style-type: none"> Repair and reinforce anchorage of steel door bumpers to avoid future damage due to door impact forces. 	

8.4 Mechanical

Subject	Observations/Comments	Recommendations	Photo Reference
Ventilation	<ul style="list-style-type: none"> Major HVAC upgrades were started in the facility in 2006 and consisted of several construction phases. An addition was completed on the front of the building in 2008 and was considered as fourth and final phase. Energy Recovery ventilators and Heat recovery ventilators provide ventilation to the occupied spaces of the facility. The units are in good 	<ul style="list-style-type: none"> There are no ventilation upgrade recommendations at this time. 	M-25

Heating	<p>condition and serve the offices, locker rooms and corridors.</p> <ul style="list-style-type: none"> • Dedicated exhaust fans are provided in the electrical rooms, kitchen, washrooms and utility spaces. All units are in good condition. • There are several split system AC units located on site serving the administration areas. All units are in good condition. 		
	<ul style="list-style-type: none"> • Heating is provided through 3 Weil-McLain natural gas fired boilers serving a hot water heating loop that was installed in 2006. The boiler loop serves in-duct reheat coils at the ERV/HRV units, radiant heating panels in change rooms, perimeter baseboards in front offices and unit heaters in service spaces. • There were several electric unit heaters in service spaces that were in fair condition. • The occupants have indicated that the in-duct hot water reheat coils serving the change rooms are not operating as designed. It appears to be a controls issue and Digicon controls has been in contact with the maintenance staff to diagnose and resolve the issue. • Heating in the arena stands is provided by natural gas radiant tube heaters that are in fair condition. 	<ul style="list-style-type: none"> • Remediate the controls issues with the reheat coils serving the locker rooms as soon as possible. This will ensure efficient heating system operation. • Upgrade the electric heating units and natural gas radiant tube heaters within 10 years. • Upgrade natural gas fired boilers within 10 years. 	M-26
Plumbing	<ul style="list-style-type: none"> • Domestic hot water is provided from the heat recovery system from the ice making refrigeration cycle. When the refrigeration cycle is not in use, domestic hot water is provided indirectly from the boiler loop. • Most of the domestic hot water lines are insulated. 	<ul style="list-style-type: none"> • There are no plumbing upgrade recommendations at this time. 	M-27
Fire Protection	<ul style="list-style-type: none"> • The building is sprinkler throughout. 	<ul style="list-style-type: none"> • There are no fire protection upgrade recommendations at this time. 	M-28

Ice Making Equipment	<ul style="list-style-type: none"> Several pieces of ice making equipment were replaced and installed in 2008. These are: a heat recovery system, surge drum & chiller, expansion tanks, piping, valves and insulation. The remaining equipment appears to have been installed in the mid to late 80's and is generally in fair condition. The building maintenance personnel have indicated that the compressor motors are due for an overhaul. 	<ul style="list-style-type: none"> Planning should be in place to overhaul the equipment that was installed in the 80's, see the facilities register for estimated capital costs. 	M-29
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8.5 Electrical

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The incoming service is overhead from a nearby pole. It seems as though the utility service was recently upgraded, as there is evidence of another feeder to the building that has now been removed. The main disconnect is 400A at 347/600V located in the main mechanical room and feeds a series of splitter troughs and branch disconnect switches for the building loads. There is some earlier model distribution equipment still in service in the mechanical room, however it is clear that a good portion of the equipment was replaced with the newer Siemens disconnect switches and panelboards during the recent renovation of the building. According to information provided by the Town of Amherst, the building is running at 94% capacity in the peak winter season. With the ice plant running, additional loads (such as concerts or other events) may put the electrical service over capacity. 	<ul style="list-style-type: none"> The branch panel installed at a high level is in violation of the code. The location of this panel should be reviewed and relocated to a more suitable location. The clothing that is stored in close proximity to a branch panel in the north side storage room needs to be relocated. Physical barriers should be installed to ensure that the clothing can't be stored within 1 meter of the branch panel. If that is not possible then the panel needs to be relocated. If the electrical capacity is of concern, one solution would be applying power factor correction to the building. A modest system could bring the peak demand down to approximately 85% without increasing service size or losing functionality. 	E-06 E-07

<p>Lighting</p>	<ul style="list-style-type: none"> • A branch panel is located at a very high level at the entrance to the north side change room corridor. This is a code violation as panel boards must be installed with the highest operable handle no more than 1.7 meters above the floor. • A branch panel is located in a storage room off of the north side change room corridor. The storage room is used to store clothing (uniforms, costumes, etc.). This can be interpreted as a code violation as panel boards must not be located in "clothes closets". • Interior general area lighting is fluorescent with modern fixtures. The high bay lighting above the ice surface use induction lighting fixtures and aside from a few outliers, are in good shape. • Induction lighting, while it is theoretically an ideal solution for high-bay lighting, still has complications in practise. Due to the lower market share compared to standard fluorescent, the ballast design and manufacture often cause defects. This is seen with fixtures failing well before the rated life, from either ballast failure or lamp defects. • As the induction light fixtures fail, it will be more cost effective to send maintenance personnel to repair defects in batches, rather than individually. If a trend starts to develop with a significant portion of the fixtures failing, it may be beneficial to replace the fixtures with a different fixture technology, such as LED.
<p>Telecom</p>	<ul style="list-style-type: none"> • The incoming telecom services are fed overhead from a nearby pole. No issues were brought up by the users. • No recommendations at this time.
<p>Fire Alarm</p>	<ul style="list-style-type: none"> • There is a Mircom addressable fire alarm system in the building. • The manual pull stations at the front entrance doors and the rear exit from the boiler room are not in ideal locations and are not in the path of egress. A person exiting the building in an emergency would likely not notice the pull station and would therefore not active the switch. • The locations of the manual pull stations indicated above should be reviewed and relocated to a more suitable location.

Emergency and Exit Lighting

- The emergency lighting and exit signs consists of battery packs with remote heads.
- No recommendations at this time.

8.6 Civil

Subject	Observations/Comments	Recommendations	Photo Reference
Parking Lot	<ul style="list-style-type: none"> • The Amherst Stadium has one main large public parking lot at the front entrance of the stadium (north). This lot slopes downhill (towards the west) and is in moderately good condition overall with some visible large cracks. • The west side of the stadium is also paved and has several additional parking spaces. This side lot is in moderate condition with some visible patchwork. • The back (south) of the building contains a fenced in area which is used for storage and snow removal from the ice surface. This fenced in area is sloped towards the western parking lot where snow melt is directed to a nearby catchbasin. • The eastern side of the building has a paved street which wraps behind the stadium as well as a small skate park. The skate park is in excellent condition with no visible deterioration. The paved street is in moderate condition with visible cracking and asphalt patchwork. 	<ul style="list-style-type: none"> • The main parking lot and side lots may require re-paving in the next 5-10 years. Patch asphalt where necessary. 	C-12 C-13
Drainage	<ul style="list-style-type: none"> • Several catchbasins were visible on site and functioning as designed for site drainage. 	<ul style="list-style-type: none"> • Ensure catchbasins remain clear of leaves and debris. 	C-14 C-15

9 WATER TREATMENT AND DISTRIBUTION SYSTEM

9.1 *System Description*

The Town of Amherst Water Utility consists of a well field with 4 production wells, a chlorination building, approximately 15 kilometres of transmission main, a 2.5 million imperial gallon storage reservoir, a fire pumping station with a 250 thousand imperial gallon reservoir and a distribution system to supply water to local residents.

9.2 *Structural*

9.2.1 Water Reservoir



Subject	Observations/Comments	Recommendations	Photo Reference
Building Structural Components	<ul style="list-style-type: none"> The water reservoir is a 2.5 million imperial gallon gunite wire wrapped construction of unknown condition rating. 	<ul style="list-style-type: none"> Additional interior tank inspection required to provide a complete structural assessment of this facility. See associated costs in Appendix B. 	
Misc. Metals	<ul style="list-style-type: none"> Rooftop tank access hatch and ladder in fair condition. A chain link security fence near the reservoir is damaged and in fair condition. 	<ul style="list-style-type: none"> Maintain and provide continuous care to tank access hatch and ladder through regular painting. Repair damaged segment of security fence. 	

9.2.2 Chlorination Building



Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Reinforced concrete pit foundation in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Slab-on-grade	<ul style="list-style-type: none"> Reinforced suspended slab and slab-on-graded in good condition. Exterior concrete pad cracked but in fair condition. 	<ul style="list-style-type: none"> It is recommended to repair cracks in exterior concrete to prevent water infiltration and the damaging effects of freeze/thaw. 	
Building Structural Components	<ul style="list-style-type: none"> Concrete masonry block and reinforced concrete construction in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Misc. Items	<ul style="list-style-type: none"> Chlorination pit accessible by steel grating platform, in good condition, with painted metal pipe railings, in fair condition, and wood stairs, in good condition. A chain link security fence perimeter the building and is damaged. 	<ul style="list-style-type: none"> Prepare and paint metal railings to protect against moisture damage and deterioration. Repair damaged segment of security fence. 	

9.2.3 McCully Fire Pump Building & Reservoir



Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> The exterior of the reinforced concrete foundation has been excavated and water proofing has been provided last year. Interior walls show signs of efflorescence. 	<ul style="list-style-type: none"> Repair interior concrete surface, clean and paint. 	
Slab-on-grade	<ul style="list-style-type: none"> Concrete slab on grade underlain ceramic floor tiles, in good condition. 	<ul style="list-style-type: none"> See Building Envelope; Floor Finishes for recommendation. 	
Building Structural Components	<ul style="list-style-type: none"> Painted concrete masonry block and OWSJ, in good condition The water reservoir is a 250,000 imperial gallon gunite wire wrapped construction of unknown condition rating. 	<ul style="list-style-type: none"> Clean and paint joists. Additional interior tank inspection required to provide a complete structural assessment of this facility. 	

9.3 Building Envelope

9.3.1 Water Reservoir

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Exterior of the tank is in fair condition with light efflorescence and surface cracks. Protective and cosmetic paint severely stained with minor peeling. 	<ul style="list-style-type: none"> To maintain the structure it is recommended to regularly clean and paint the exterior of the reservoir. 	

9.3.2 Chlorination Building

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Split face block exterior facade in good condition. Expansion joint sealant in good condition. Joint filler around exhaust hood damaged in poor condition. 	<ul style="list-style-type: none"> Remove and replace joint filler around exhaust hood to prevent water infiltration and animal nesting. 	
Roof	<ul style="list-style-type: none"> Membrane roof, flat, not visible for inspection. No interior damage to suggest roof leaking. 	<ul style="list-style-type: none"> Clean and maintain soffits of vegetation and animal nesting. 	
Walls & Ceilings	<ul style="list-style-type: none"> Painted gypsum board interior in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	
Doors & Windows	<ul style="list-style-type: none"> Doors generally in good condition. The door closer mechanism of the electrical room is broken. 	<ul style="list-style-type: none"> Remove and replace the door closer of the electrical room to protect door from damage. 	

9.3.3 McCully Fire Pump Building & Reservoir

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Building exterior includes brick veneer and metal parapet. Staining on brick due to metal attachments. Significant brick deterioration at base of exterior wall due to high moisture presence. Concrete framing at door locations and columns at exterior elevations are cracked, stained, and spalled, in fair condition. Exterior of the tank is in fair condition with efflorescence and surface cracks. Protective and cosmetic paint lightly stained with minor peeling. 	<ul style="list-style-type: none"> Check for missing mortar, repoint and repair as required. Clean and repair deteriorated brick at base of exterior wall. Clean and repair damaged concrete and parging as required. To maintain the structure it is recommended to regularly clean and paint the exterior of the reservoir. 	S-23
Roof	<ul style="list-style-type: none"> Flat roof constructed of wood decking, insulation, and tar and gravel supported on OWSJ, surface replaced 5 years ago, in good condition. 	<ul style="list-style-type: none"> No recommendation at this time 	
Walls and ceilings	<ul style="list-style-type: none"> Exterior wall on street side has a former garage door opening closed in with insulation and poly liner. Interior walls and ceilings are generally in good condition. 	<ul style="list-style-type: none"> Re-establish wall with new stud work, insulation, brick veneer and interior finish. Clean and paint interior walls as required. 	S-24 S-25
Floor Finishes	<ul style="list-style-type: none"> Ceramic floor tiles, appears to be original, are loose, lifted, and cracked. 	<ul style="list-style-type: none"> Remove and replace damaged tiles. Clean finished surface. 	S-26

9.4 Mechanical

9.4.1 Water Reservoir Valve Pit

Subject	Observations/Comments	Recommendations	Photo Reference
Heating	<ul style="list-style-type: none"> Heating was not observed in the water reservoir valve pit. 	<ul style="list-style-type: none"> Provide adequate heater. 	

9.4.2 Chlorination Building

Subject	Observations/Comments	Recommendations	Photo Reference
Ventilation	<ul style="list-style-type: none"> Ventilation is provided to the chlorination building through the use of 2 roof mounted exhaust fans One fan serves the chlorine room and the other one serves the pipe room. Both fans are in fair condition and were installed in roughly 1995. The weather hoods serving the intake air for the exhaust fans appear to be showing signs of corrosion and are in poor condition. 	<ul style="list-style-type: none"> Replace the exterior weather hoods. Replace the exhaust fans within 10 years. 	M-30
Heating	<ul style="list-style-type: none"> Heating is provided through the use of electric baseboard heaters in the pipe room and spark resistant electric baseboard heater in the chlorine room. Both heaters are showing signs of corrosion and are in poor condition. 	<ul style="list-style-type: none"> Replace the electric baseboard heaters within 5 years. 	M-31

9.4.3 McCully Fire Pump Building & Reservoir

Subject	Observations/Comments	Recommendations	Photo Reference
Ventilation	<ul style="list-style-type: none"> Exterior make up air louver appeared inadequate; ventilation wall fan also appeared small for the space. There is no provision of combustion air for the oil fired appliances. 	<ul style="list-style-type: none"> Examine the heat generated from the equipment located within the space and provide an exhaust fan and associated outside air louver properly sized to allow keeping the space at the required temperatures. Install intake air louver and associated ductwork for provision of combustion air. 	M-32
Heating	<ul style="list-style-type: none"> Building space is heated with an old oil fired furnace situated on the floor against the wall. The oil tank is more than 10 years old. 	<ul style="list-style-type: none"> Remove existing oil fired furnace heating system and replace with electric unit heaters. 	
Piping	<ul style="list-style-type: none"> Paint on the water piping surface was peeling and was in disrepair in some areas. Newer valves have been installed and are in good condition. 	<ul style="list-style-type: none"> Clean pipe surfaces, paint and/or replace where required. 	
Fire Pump	<ul style="list-style-type: none"> Diesel water cooled reverse rotation fire pump (Detroit, model #8V71) has a leaking seal and water was flowing across the floor. Some surface corrosion was noted on the pump housing. Electric 250 HP fire pump is being tested regularly and performs well, some surface corrosion was noted. Fuel tanks for fire pump are double walled construction and in good condition. 	<ul style="list-style-type: none"> Repair seal on diesel fire pump. Replace fire pumps within 10 to 20 years; perform a fire protection system analysis to determine that the fire protection flows are adequate. 	

9.5 Electrical

9.5.1 Chlorination Building and Well Heads

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The utility service to the site is metered with a pole mounted metering unit at the main gate. High voltage wiring is run overhead on poles to the Chlorination Building and the well sites. The individual buildings/installations are not separately metered. They are supplied by pole mounted transformers. The electrical service at the Chlorination building and each of the well heads includes a manual transfer switch and a standby generator receptacle. With this system, it is possible to provide temporary generator power during a prolonged power outage. 	<ul style="list-style-type: none"> No recommendations at this time. 	

9.5.2 McCully Fire Pump Building & Reservoir

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The utility service to the building is supplied by a 300kVA padmount transformer. The main service entrance switchboard is showing its age and is nearing the end of its useful service life. The 250HP electric fire pump motor is showing its age and is nearing the end of its useful service life. The motor starter for the electric pump motor is reaching the end of its service life. 	<ul style="list-style-type: none"> The electrical systems at this location (including the switchboard, motor starter, and 250HP motor) are at the end of their useful service life. We recommend a full electrical service upgrade and replacement within the next 5 years. Provide an inspection of the generator batteries and replace if required. The wiring to the 	E-08 E-09 E-10 E-11

Lighting	<ul style="list-style-type: none"> The diesel engine fire pump controller and valve controller are in good condition. They seem to have been replaced recently. Generator batteries are showing severe signs of corrosion on the terminals. 	batteries may also need replacement.
	<ul style="list-style-type: none"> The lighting in the building is T12 magnetic ballast fluorescent fixtures. 	<ul style="list-style-type: none"> Replace indoor lighting with T8 electronic ballast fluorescent fixtures at minimum. LED fixtures may be a good option since servicing the fluorescent lamps would be difficult above the pump equipment.
Emergency Lighting	<ul style="list-style-type: none"> The building is supplied with emergency lighting through unit battery equipment. 	<ul style="list-style-type: none"> No recommendations at this time.

9.6 Civil

9.6.1 Chlorination Building and Well Heads

Subject	Observations/Comments	Recommendations	Photo Reference
Access Road	<ul style="list-style-type: none"> The building is located along the well field access road. The land is graded and in good travel condition. 	<ul style="list-style-type: none"> No recommendation at this time. 	
Parking Area	<ul style="list-style-type: none"> A concrete parking area sloping away from the building is in good condition with some cracking evident. 	<ul style="list-style-type: none"> No recommendation at this time. 	C-16
Fencing	<ul style="list-style-type: none"> Fencing surrounds the building. 	<ul style="list-style-type: none"> No recommendation at this time. 	

9.6.2 McCully Fire Pump Building & Reservoir

Subject	Observations/Comments	Recommendations	Photo Reference
Access Road	<ul style="list-style-type: none"> Building is situated immediately adjacent roadway surface 	<ul style="list-style-type: none"> Ensure snow build-up does not encroach door access points 	
Parking Area	<ul style="list-style-type: none"> Asphalt in front of access door is close to sill elevation, ponding is evident 	<ul style="list-style-type: none"> Re-grade asphalt surface for positive drainage away from building to catchbasins 	C-17
	<ul style="list-style-type: none"> Gravel area to south side of building drains away from building, exterior grassed areas drain to existing catchbasins 	<ul style="list-style-type: none"> No recommendations at this time 	

9.7 Distribution System

The Town of Amherst Water supply system is located 15km north of the Town at the North Tyndall Wellfield. The wellfield consists of 4 production wells, which were commissioned in 2003, and a chlorination building. Transmission mains transfer water to a 2.5 million imperial gallon storage reservoir and then on to a distribution system to supply water to local residents. A SCADA system is used by the operators to control and monitor production wells and the treatment and distribution system.

The Town of Amherst provided SLI with mapping information (GIS) and data collected in 2006 on the water system which detailed location, size, material, type, age and breaks. This information was used to determine the current age of the existing infrastructure. The majority of the older water pipe is cast iron and was installed over 50 years ago. Within the last 50 years, the pipe material is predominantly PVC or ductile iron.

The following table summarizes the quantity and type of distribution piping that services the Town.

632668-0001-T-30-REP-000-0001 C01	Asset Management Assessment – Final Report
11/12/2015	Town of Amherst

Table 9-1: Type, Length and Age of Watermain in the Town of Amherst

Age of Pipe - years since installation	Length of Pipe (m) *	Age of Pipe - years since installation	Length of Pipe (m) *	Age of Pipe - years since installation	Length of Pipe (m) *
Cast Iron		Ductile Iron		PVC Pipe	
25 years or less	-	25 years or less	17,555	25 years or less	5,024
26 - 50	9,322	26 - 50	7,093	26 - 50	6,105
51 - 75	30,503	51 - 75	-	51 - 75	-
76 +	20,668	76 +	-	76 +	-

*Note: These lengths are a summary of the Database information provided by the Town of Amherst to SLI.

SLI recommends that the Town of Amherst build an up-to-date database/GIS system which reflects the current state of the infrastructure. This should include locations of valves, hydrants and watermain, pipe material, size and age and most importantly an accurate representation of breaks, flushing and maintenance activities. With the creation of this database, it will be possible to prioritize sections of pipe which may require pressure and flow testing and subsequent rehabilitation.

9.7.1 Water System Pressure Investigation – January 2014

The Town of Amherst commissioned CBCL to perform a water pressure and system investigation in January 2014. As part of the Asset Management Assessment, SLI has reviewed the CBCL report and offers the following comments.

Low Pressure Recommendations

CBCL presented 3 options to address the low pressure areas. Option 1 was to provide local area boosting to the areas of higher elevation and lower pressure (generally above 43m elevation); Option 2A was to provide a new, high service reservoir capable of servicing the higher elevations. The new reservoir would only be as large as required to service the required areas. Water would be fed to the new reservoir via a booster pump at the main existing reservoir. Option 2B was to build a new main reservoir at a higher elevation to replace the existing 2.5M Imp. Gallon reservoir, and provide pressure reduction to some low lying areas where pressure would be increased due to the higher elevation of the new reservoir.

When reviewed with SLI's Asset Management Study, it was determined that the Willow Street water reservoir does require some maintenance, as well as an interior tank inspection. It is not, however, deemed to be in need of a replacement at this time. Therefore CBCL's Option 2B is not recommended.

SLI would recommend Option 1 from the CBCL report in order to improve water pressure in the areas of higher elevation. This area contains homes, as well as larger buildings with high water demand such as apartment blocks, strip malls, the Amherst Regional High School and other industrial and commercial buildings. A new booster station, as well as some sections of new piping would be required to ensure adequate pressure to these locations. However the structural investigation of the reservoir interior should be performed before any decision is made.

Fire Volume Recommendations

The CBCL report recommended the replacement of the existing 300 mm dia. mains along Willow Street and Church Street with new 300 mm dia. mains to increase fire flow capacity. After reviewing the GIS information provided by the Town, SLI notes that there is another 300 mm water main along East Pleasant Street that joins the mains on Willow and Church Streets. Street, water, sanitary and storm information for these three streets are presented below:

Willow Street (Robert Angus to Amherst High School):

- PASER Rating: 6
- Water Main: 300 mm, Cast Iron, 1949
- No Sanitary/Storm

East Pleasant Street (Willow to Church):

- PASER Rating: 5/6
- Water Main: 300 mm, Cast Iron, 1949
- Sanitary: 250 mm, Concrete, 1960
- Storm: 250 mm, Corrugated, 1980

Church Street (Brentwood to East Pleasant):

- PASER Rating: 7
- Water Main: 300 mm, Cast Iron, 1906
- Sanitary: 200 – 250 mm, Concrete and PVC, 1960 – 2012
- Storm (only certain areas): 250 mm, Corrugated, 1980

From the infrastructure information compiled for these streets, we can conclude the following:

- Willow Street: There are no sanitary or storm lines located along Willow St. before the Amherst Regional High School. The road has a PASER street rating of 6 (Good) which indicates only preventative maintenance is required. However, if the town had plans to install Storm and Sanitary lines along Willow St. in this area, the 300 mm water main could be replaced at the same time and the road repaved.
- East Pleasant Street: The road has a PASER street rating of 5 or 6 (fair to good) depending on the block. The sanitary line is 250 mm concrete installed in 1960 and is expected to be in good condition; however an investigation should be performed to confirm. The storm sewer is 250 mm Corrugated Steel Pipe installed in 1980. SLI has recommended that all Corrugated storm pipe be replaced in the near future as it tends to show signs of corrosion and deformation sooner than concrete or PVC pipe. However, as the storm pipe is only 35 years old, an investigation is recommended to determine the condition of the pipe prior to intervention. SLI would therefore recommend that the sanitary and storm sewers should be investigated first prior to making a final decision on when to replace the 300 mm water main.
- Church Street: The road has a PASER street rating of 7 (Good). The sanitary sewer varies in this area from 200 mm concrete installed in 1960, to 250 mm PVC installed in 2012. The PVC sanitary pipe is only 3 years old and is therefore anticipated to be in good shape. An investigation is recommended to determine the condition of the 1960 concrete sanitary line. Where present along this section of Church St., the storm sewer is 250 mm Corrugated Steel Pipe installed in 1980. Similar to the CSP storm sewer on East Pleasant Street, SLI would recommend an investigation of the pipe to determine condition prior to intervention. As the street is still in good condition, and if the sanitary and storm are also found to be in good condition, SLI would recommend only replacing the water main. This area of church street could then be skim coated to increase the lifespan.

10 WASTEWATER COLLECTION AND TREATMENT SYSTEM

10.1 System Description

The Town of Amherst Wastewater treatment Plant was commissioned in October of 2012. It collects all wastewater from the Town through a series of sewers, pumping stations and forcemains. The plant has a number of aerated lagoon cells, a settling pond, a control building and wetlands with discharge to the LaPlanche River. This facility is state of the art and serves over 10,000 residents. See Appendix A for photos.



10.2 Structural

Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Reinforced concrete pit foundation, in good condition with minor cracking near exterior expansion joints. 	<ul style="list-style-type: none"> Repair foundation cracks with epoxy joint filler to prevent water infiltration and damage from freeze/thaw. 	S-27
Slab-on-grade	<ul style="list-style-type: none"> Reinforced concrete slab-on-grade, in good condition. UV room floor has some cracking. 	<ul style="list-style-type: none"> Monitor cracking for future considerations. 	
Building Structural Components	<ul style="list-style-type: none"> The building is constructed of pre-engineered wood roof trusses and reinforced concrete block walls, in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	
Misc. Metals	<ul style="list-style-type: none"> Exterior steel access stair in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	

10.3 Building Envelope

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Expansion joints damaged in poor condition, typical. Split face block exterior facade in good condition. 	<ul style="list-style-type: none"> Remove and replace expansion joints to prevent water infiltration and to provide regular maintenance. It is recommended to clean and maintain exterior facade to provide continuous care. Mortar joint and crack repair expected in 10-20 years. 	S-28
Roof	<ul style="list-style-type: none"> Steel slate roofing shingles in good condition. 	<ul style="list-style-type: none"> Maintain and provide continuous care to roof. General roof repairs expected in 10-20 years. 	
Walls & Ceilings	<ul style="list-style-type: none"> Interior painted masonry block walls and gypsum board ceilings in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	
Doors & Windows	<ul style="list-style-type: none"> New, in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	

10.4 Mechanical

Subject	Observations/Comments	Recommendations	Photo Reference
Ventilation	<ul style="list-style-type: none"> The facility was constructed less than 5 years ago and all mechanical equipment is in good condition. Occupant's ventilation is provided by an interior Trane air handler connected to a split system heat pump. Ventilation for the UV room is provided by Engineered Air AHU complete with an electric heating coil and heat pipe recovery system. Ventilation for the Headworks room is provided by Engineered Air AHU complete with an electric heating coil and heat pipe recovery system. Dedicated exhaust fans are located in the labs, washrooms, locker room, electrical room and blower room. Cooling is provided through a heat pump (Trane air handler) or through exhaust cooling. 	<ul style="list-style-type: none"> There are no recommendations at this time for the ventilation system upgrade. 	M-33
Heating	<ul style="list-style-type: none"> Heating is provided through electric unit heaters, electric baseboards and electric duct heating coils. 	<ul style="list-style-type: none"> There are no recommendations at this time for the heating system upgrade. 	M-34
Plumbing	<ul style="list-style-type: none"> Domestic water is provided through a submersible well pump treated with a filter/UV system. Domestic hot water is provided through an electric hot water heater. 	<ul style="list-style-type: none"> There are no recommendations at this time for the plumbing system upgrade. 	
Fire Protection	<ul style="list-style-type: none"> The building is not sprinklered and fire extinguishers were noted on site. 	<ul style="list-style-type: none"> There are no recommendations at this time for the fire protection system upgrade. 	
Process Equipment	<ul style="list-style-type: none"> All of the wastewater process equipment was installed within the last 5 years and is in good condition. It was noted on site that the stainless steel ducting to the pond blower units was not insulated. When the blowers are activated the ducting 	<ul style="list-style-type: none"> It is recommended to insulate the stainless steel ducting to the blower units to reduce the run time of the large exhaust fans located in the blower room if the water treatment process remains 	M-35

becomes quite hot and releases heat to the blower room. unaffected.

10.5 Electrical

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The incoming service is underground from a 500kVA pad mount transformer. The main switchgear is rated for 1200A with an 800A main breaker. The service is fed through an 800A transfer switch that is connected to an indoor diesel generator. The electrical equipment is new and in excellent condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Fire Alarm	<ul style="list-style-type: none"> The fire alarm panel is an Edwards EST addressable system. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Emergency and Exit Lighting	<ul style="list-style-type: none"> The emergency lighting is from the standby generator. The building is completely served with standby power. A battery unit is provided in the electrical room for the transfer switch. 	<ul style="list-style-type: none"> No recommendations at this time. 	

10.6 Civil

Subject	Observations/Comments	Recommendations	Photo Reference
Fencing	<ul style="list-style-type: none"> Yard is enclosed with a chain link fencing in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	
Access Road	<ul style="list-style-type: none"> Gravel access road at plant in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	

Control Building	<ul style="list-style-type: none"> Yard area around control building grated and in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time.
Railway Crossing	<ul style="list-style-type: none"> Access road under TCH is narrow. 	<ul style="list-style-type: none"> May require widening to address safety concerns.

10.7 Description of Collection and Treatment System

10.7.1 Collection System

The Town of Amherst has over 72,000 metres of sanitary/combined piping that conveys sewage to six pump stations and ultimately to the new wastewater facility. This piping can be in excess of 100 years in age and consist of various pipe materials. SLI have reviewed GIS mapping, a sanitary sewer database provided by the Town which identifies age, material type, history with a rating for priority and a random in field view of some manholes. Through our filed review and discussion with Town staff it was learned that generally old brick manholes have seen repairs and or replacement of risers and that manholes are functioning. Typical older manhole conditions are exhibited in the photos below.

SLI has not been provided with CCTV inspection reports and did not conduct video inspection during the one day field overview. The Town of Amherst identified on site that full infrastructure replacement



will occur on Mill Street between West Pleasant street and West Victoria street. This will include the relocation of a sanitary trunk line within an easement to within the Mill Street corridor.

To establish a priority ranking for pipe repair and potential replacement, SLI is of the opinion that additional information should be collected such that a rating for each pipe and manhole in accordance with the NASSCO system can be established. This is typically a PCAP and MCAP ratings system that is developed through the analysis of video information and conditions. Cracks, blockages, sagging, joints, signs of infiltration, root penetration, manhole riser and lid leakage and overall conditions are observed. Consideration of Town collected data on repairs and observations would also be integrated into the condition assessment. Once consolidated, a technical process is applied to establish the overall condition of each pipe section and manhole. From this information a capital

investment strategy can be established for the repair and or replacement of an element. This would be considered in the context of watermain, storm sewer and roadway surface upgrades.



Although the database on the sanitary system provides ratings and costing for improvements, the rationale for the rating and costing is unknown. For this reason SLI is proposing that the Town of Amherst undertake a phased approach to pipe and manhole investigation using both ZOOM camera technology and subsequent CCTV data collection. The existing GIS database is a starting point from which the work can commence.

Given that there are old clay pipes and new PVC pipes SLI has identified the following breakdown of pipe lengths for investigation over a 5 year program. The Town may wish to accelerate this program in order to identify those pipes which require attention in consideration of road surface upgrades. Also, when ZOOM camera investigations occur they typically follow a pre-determined street pattern.



The costs to undertake the investigations are included in Appendix B.

Sizes of sewer pipe range between 150 mm diameter to 750 mm diameter for trunk sewers.

10.7.2 Zoom Investigation

On November 17th, 2015, SLI performed a zoom inspection on several manholes and pipes throughout the Town of Amherst. The pipes inspected were chosen for their pipe type, age and locations, in order to get an idea of the condition of a variety of the pipes currently located throughout the town. Both Sanitary and Stormwater pipes were inspected. The pipes were rated in accordance with the Pipeline Assessment Certification Program (PACP) rating scheme, as recognized throughout North America. Ratings are given for both the structural condition of the pipe (such as cracks, breaks and offset joints), as well as the Operation and Maintenance (O&M) condition of the pipe (such as

blockages, root infiltration, settled fines and water infiltration). Pipes are given a rating from 1 to 5, with 1 indicating no defect was noted and 5 indicating the presence of a severe defect. The results of the inspections are as follows, listing first the manhole location, the Town GIS Unit ID (UID) or pipe Feature ID (FID) and the investigation specific manhole and pipe IDs (ex: MH 5000, PSS5000 etc):

23 Mill St. – UID 534 – MH 5000

- ◆ Pipe FID 965 – PSS5000
 - PVC
 - 300mm
 - Installation year: unknown
 - **Structural Rating: 1**
 - **O&M Rating: 1**
- ◆ Pipe FID 964 – PSS5001
 - Concrete
 - 300mm
 - Installation year: unknown
 - **Structural Rating: 1**
 - **O&M Rating: 1**

14 Hill St. – UID 583 – MH 5001

- ◆ Pipe FID 530 – PSS5002
 - Clay
 - 300mm
 - Installation year: 1910
 - **Structural Rating: 2 (Joint Offset)**
 - **O&M Rating: 4 (Root infiltration, encrustation, settled deposits)**
- ◆ Pipe FID 529 – PSS5003
 - Clay
 - 250mm
 - Installation year: 1910
 - **Structural Rating: 2 (Joint Offset)**
 - **O&M Rating: 2 (Infiltration – Weeper)**

16 Minto St. – UID 594 – MH 5002

- ◆ Pipe FID 516 – PSS5004
 - Clay
 - 300mm
 - Installation year: 1930
 - **Structural Rating: 2 (Joint Offset)**
 - **O&M Rating: 2 (Deposits – Settled <10%)**
- ◆ Pipe FID 518 – PSS5005
 - Clay
 - 300mm
 - Installation year: 1930
 - **Structural Rating: 2 (Joint Offset, Crack Longitudinal)**
 - **O&M Rating: 1**
- ◆ Pipe FID 712 – PSS5006
 - Clay
 - 250mm
 - Installation year: 1930
 - **Structural Rating: 3 (Cracks – Multiple, beginning of pipe)**
 - **O&M Rating: 1**
- ◆ Pipe FID 517 – PSS5007
 - Clay
 - 300mm
 - Installation year: 1950
 - **Structural Rating: 2 (Joint Offset)**
 - **O&M Rating: 3 (Deposits – Settled <20%)**

14 Newton Ave. – UID 621 – MH 5003

- ◆ Pipe FID 41 – PSS5008
 - Clay
 - 250mm
 - Installation year: 1950
 - **Structural Rating: 2 (Crack Longitudinal)**
 - **O&M Rating: 1**

- ◆ Pipe FID 35 – PSS5009
 - Clay
 - 250mm
 - Installation year: 1950
 - **Structural Rating: 2 (Joint Offset)**
 - **O&M Rating: 2 (Infiltration – Weeper)**
- ◆ Pipe FID 38 – PSS5010
 - Clay
 - 250mm
 - Installation year: 1950
 - **Structural Rating: 2 (Joint Offset, Crack Circumferential)**
 - **O&M Rating: 1**
- ◆ Pipe FID 37 – PSS5011
 - Clay
 - 250mm
 - Installation year: 1950
 - **Structural Rating: 2 (Joint Offset)**
 - **O&M Rating: 2 (Deposits Attached Encrustation <10%)**

22 Christie St. – UID 11-12 – MH 6000

- ◆ Pipe FID 116 – PSW6000
 - Corrugated Steel Pipe (CSP)
 - 450mm
 - Installation year: 1980
 - **Structural Rating: 5 (Deformed >10%)**
 - **O&M Rating: 3 (Deposits Settled Gravel <20%)**
- ◆ Pipe FID 119 – PSW6001
 - Corrugated Steel Pipe (CSP)
 - 450mm
 - Installation year: 1980
 - **Structural Rating: 3 (Surface Damage – Corrosion)**
 - **O&M Rating: 2 (Deposits Settled Fines <10%)**

- ◆ Pipe FID 115 – PSW6002
 - Corrugated Steel Pipe (CSP)
 - 450mm
 - Installation year: 1980
 - **Structural Rating: 3 (Surface Damage – Corrosion)**
 - **O&M Rating: 4 (Deposits Settled Fines <30%)**

8 Admore Ave. – UID 9-13 – MH 6001

- ◆ Pipe FID 3 – PSW6003
 - Corrugated Steel Pipe (CSP)
 - 250mm
 - Installation year: 1980
 - **Structural Rating: 3 (Surface Damage – Corrosion)**
 - **O&M Rating: 1**
- ◆ Pipe FID 747– PSW6004
 - Corrugated Steel Pipe (CSP)
 - 250mm
 - Installation year: 1980
 - **Structural Rating: 3 (Surface Damage – Corrosion)**
 - **O&M Rating: 1**

125 Church St. – UID 15-64 – MH 6002

- ◆ Pipe FID 1447 – PSW6005
 - Corrugated Steel Pipe (CSP)
 - 1200 x 750 mm
 - Installation year: 1970
 - **Structural Rating: 3 (Surface Damage – Corrosion)**
 - **O&M Rating: 3 (Roots at Joints – Medium)**
- ◆ Pipe FID 1446 – PSW6006
 - Corrugated Steel Pipe (CSP)
 - 1200 x 750 mm
 - Installation year: 1970
 - **Structural Rating: 3 (Surface Damage – Corrosion)**
 - **O&M Rating: 3 (Tap Break-In <20%)**

Table 10-1: Type, Length and Age of Sanitary Sewer Pipe in the Town of Amherst

Age of Pipe - years since installation	Length of Pipe (m)*	Age of Pipe - years since installation	Length of Pipe (m)*	Age of Pipe - years since installation	Length of Pipe (m)*
Clay Pipe		Concrete Pipe		PVC Pipe	
25 years or less	-	25 years or less	1,165	25 years or less	3,427
25 - 50	-	25 - 50	8,415	25 - 50	8,851
51 - 75	16,596	51 - 75	11,415	51 - 75	-
76 +	22,303	76 +	-	76 +	-

*Note: These lengths are a summary of the Database information provided by the Town of Amherst to SLI.

10.7.3 Lift Stations

The Town of Amherst currently has six (6) lift stations in operation throughout the town limits. These lift stations were built at different times as the needs have arisen, and now pump all gathered town sanitary sewage to the new Wastewater Treatment Plant.

The following is a list of the six lift stations and associated issues, as visited by SLI during the field investigation and summarized by Public Works (PW) staff:

Derby Street Lift Station

- ◆ Constructed in 2007.
- ◆ PW staff indicated that the station has 2 KSB pumps, KRT series.
- ◆ There is a back-up generator in case of power interruption.

Racetrack Road Lift Station

- ◆ Original pump station was construction in approximately 1985, however the controls have been recently upgraded.
- ◆ The station consists of 3 Flygt pumps, 9.5hp each.
- ◆ The station consists of a wet well, valve chamber and flow meter.
- ◆ PW staff suggested this station is currently unable to handle peak flows during wet weather conditions, and will overflow on occasion. (Image C-32)
- ◆ SLI recommends performing a sanitary flow/feasibility study to identify opportunities for the mitigation of overflows with the current overflow issues.

Eddy Street Lift Station

- ◆ Constructed in 2009.
- ◆ The station consists of 3 KSB pumps, 15hp each.
- ◆ The station has 3 Variable Frequency Drives (VFD).
- ◆ The maximum flow passing through the station is 186 m³/hr.
- ◆ PW staff indicated there are no current issues with this pump station.

Terrace Street Lift Station

- ◆ Constructed in 1995 with three pumps. Fourth pump added in 2014.
- ◆ The station consists of 4 Worthington pumps, 30hp each.
- ◆ The chamber also consists of a manual screen, which needs to be cleaned on occasion.
- ◆ The station also has an overflow to the nearby river in times of high flows during wet weather conditions. The current station is not able to handle the peak flows seen during wet weather events.
- ◆ As with the Racetrack Road Pump Station, SLI recommends performing a sanitary flow/feasibility study to identify opportunities for the mitigation of overflows with the current overflow issues.



Structural

Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Reinforced concrete pit foundation, in good condition 	<ul style="list-style-type: none"> No recommendations at this time. 	
Building Structural Components	<ul style="list-style-type: none"> The building is constructed of concrete block walls, in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	
Misc. Metals	<ul style="list-style-type: none"> Interior steel stairs and grating in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	S-29

Building Envelope

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> Split face block exterior facade in good condition. Moisture present at corners and under mechanical hood. Metal skirting at base of wall, damaged, in poor condition. 	<ul style="list-style-type: none"> It is recommended to clean and maintain exterior facade to provide continuous care. Investigate cause of moisture damage at mechanical hoods and corners. Mortar joint and crack repair expected in 10-20 years. Replace metal skirting. 	S-30 S-31
Roof	<ul style="list-style-type: none"> Flat sloping concrete panel roof with tar and gravel construction, in good condition. Metal roof trim and gutter system in place. 	<ul style="list-style-type: none"> Maintain and provide continuous care to roof. General roof repairs expected in 10-20 years. Investigate potential damage to the gutter at corner causing moisture damage on exterior facade. 	
Walls & Ceilings	<ul style="list-style-type: none"> Interior painted masonry block walls in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	
Doors & Windows	<ul style="list-style-type: none"> Metal doors in good condition. 	<ul style="list-style-type: none"> No Recommendation at this time. 	

Mechanical

Subject	Observations/Comments	Recommendations	Photo Reference
Pumps	<ul style="list-style-type: none"> 4 - Worthington 30 HP discharge pumps are in good condition 	<ul style="list-style-type: none"> Provide manufacturer recommended maintenance on pumps. Clean surfaces and paint as necessary. 	
Piping	<ul style="list-style-type: none"> Some piping showing signs of corrosion. 	<ul style="list-style-type: none"> Clean rusted areas, replace where required. 	M-36
Ventilation	<ul style="list-style-type: none"> Outside air intake and exhaust vents are in good condition. Ventilation in the wet well side of building shows signs of clogged screens. 	<ul style="list-style-type: none"> Clean ductwork and screens as required. 	
Heating	<ul style="list-style-type: none"> Open space has two unit heaters at opposite corners which are in good condition. 	<ul style="list-style-type: none"> No upgrade recommendations at this time. 	

Electrical

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The incoming utility service is underground. The service is metered with an outdoor mounted utility meter base. Through a manual transfer switch, the facility is able to connect a portable standby generator through a plug-in connection on the outside of the building. The electrical service at this location is in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Lighting	<ul style="list-style-type: none"> The lighting appears to be T8 fluorescent vapour-tight fixtures. The lighting is in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Emergency Lighting	<ul style="list-style-type: none"> The building is supplied with emergency lighting through unit battery equipment. 	<ul style="list-style-type: none"> No recommendations at this time. 	

Civil

Subject	Observations/Comments	Recommendations	Photo Reference
Access Road	<ul style="list-style-type: none"> Paved access road in good condition 	<ul style="list-style-type: none"> No recommendation at this time 	
Yard Grading	<ul style="list-style-type: none"> Exterior grassed surface drain away from building. 	<ul style="list-style-type: none"> No recommendation at this time 	
Parking	<ul style="list-style-type: none"> Asphalt parking area in good condition. 	<ul style="list-style-type: none"> No recommendation at this time 	

Hospital Lift Station

- ◆ Constructed in 2001.
- ◆ The station consists of 2 KSB pumps, 28hp each.
- ◆ One pump is capable of pumping 78 m³/hr.
- ◆ The station also has a large storage chamber to accommodate the added flow during flooding of a nearby stream.

LaPlanche River Lift Station

- ◆ Constructed in 2003.
- ◆ The station consists of 3 KSB pumps, 60hp each.
- ◆ The station has Variable Frequency Drives (VFD).
- ◆ This station is the final lift station before the Wastewater Treatment Plant (WWTP) and handles all the sanitary and combined flow from the Town.
- ◆ The station is approximately 32 ft deep and 20 ft in diameter.
- ◆ The maximum flow passing through the station is 1050 m³/hr, with an average flow of 350 m³/hr.
- ◆ An 18 inch forcemain leaves the lift station and proceeds to the WWTP.
- ◆ The station has an issue with rags, tissue and other sediment passing the screen and getting caught in the pumps. This requires annual cleaning and pump maintenance of approximately \$12,000. It also requires that the wastewater be bypassed into the river for the 8 hour period during cleaning. SLI recommends that an investigation be conducted with reporting to identify how debris can be managed at this site.



Structural

Subject	Observations/Comments	Recommendations	Photo Reference
Foundations	<ul style="list-style-type: none"> Reinforced concrete foundation and pit chamber of control building, in good condition. Staining present at pipe penetrations. 	<ul style="list-style-type: none"> Clean and recaulk stained concrete at pipe penetrations. 	S-32
Slab-on-grade	<ul style="list-style-type: none"> Concrete slab supporting the access building, in good condition. 	<ul style="list-style-type: none"> No recommendation at this time. 	
Building Structural Components	<ul style="list-style-type: none"> The access building is wood frame construction in good condition. The control building is constructed of concrete masonry block walls and wood trusses in good condition. 	<ul style="list-style-type: none"> No recommendation at this time. 	

Building Envelope

Subject	Observations/Comments	Recommendations	Photo Reference
Exterior Finishes	<ul style="list-style-type: none"> • Metal siding on access building, in good condition. Damage to siding at base. • Brick veneer exterior finish of control building in good condition. 	<ul style="list-style-type: none"> • Repair damaged metal siding as required. • It is recommended to clean and maintain exterior facade to provide continuous care. Mortar joint and crack repair expected in 10-20 years. 	
Roof	<ul style="list-style-type: none"> • Metal roof on access building and asphalt shingle roof on control building in good condition. 	<ul style="list-style-type: none"> • Maintain and provide continuous care to roof. General roof repairs expected in 10-20 years. 	
Walls & Ceilings	<ul style="list-style-type: none"> • Interior painted masonry block walls in good condition. 	<ul style="list-style-type: none"> • No recommendation at this time. 	
Doors & Windows	<ul style="list-style-type: none"> • Metal doors in good condition. No windows present. 	<ul style="list-style-type: none"> • No recommendation at this time. 	

Mechanical

Subject	Observations/Comments	Recommendations	Photo Reference
Pumps	<ul style="list-style-type: none"> • 3 - 60 HP KSB discharge pumps are in good condition. Operators have indicated having issues with impellers continually clogging with rags, debris, etc. 	<ul style="list-style-type: none"> • Contact pump supplier to explore options for the replacement of impellers with alternates (open, cutting, etc. impellers). 	
Piping	<ul style="list-style-type: none"> • Piping gallery severely rusted considering only 12 years old. 	<ul style="list-style-type: none"> • Clean, replace where required, all rusted piping, valves and stands. 	M-37
Ventilation	<ul style="list-style-type: none"> • Make up air intake and exhaust vents in good condition in the Control building. Ventilation in piping vault is not available except when the door is opened for operator's access. 	<ul style="list-style-type: none"> • No upgrade recommendations at this time. 	M-38

Heating	<ul style="list-style-type: none"> Control building has one electric unit heater in good condition. 	<ul style="list-style-type: none"> No upgrade recommendations at this time. 	M-39
Hot water	<ul style="list-style-type: none"> A Rheem hot water tank is installed within the Control building serving a sink, both are in good condition. 	<ul style="list-style-type: none"> No upgrade recommendations at this time. 	

Electrical

Subject	Observations/Comments	Recommendations	Photo Reference
Service and Distribution	<ul style="list-style-type: none"> The incoming utility service is underground. The service is metered with an outdoor mounted utility meter base. Through a manual transfer switch, the facility is able to connect a portable standby generator through a plug-in connection on the outside of the building. The electrical service at this location is in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Lighting	<ul style="list-style-type: none"> The lighting appears to be T8 fluorescent fixtures with electronic ballasts and reflectors. The lighting is in good condition. 	<ul style="list-style-type: none"> No recommendations at this time. 	
Emergency Lighting	<ul style="list-style-type: none"> The building is supplied with emergency lighting through unit battery equipment. 	<ul style="list-style-type: none"> No recommendations at this time. 	

10.7.4 Wastewater Treatment Plant

Beginning with its founding in 1764, Amherst, like many Canadian communities, discharged its municipal wastewater untreated to nearby watercourses. For many years, the town's raw sanitary effluent discharged to a series of outfalls along the Tantramar Marsh, with the flow proceeding to the LaPlanche River and ultimately the Bay of Fundy. Efforts to address the town's wastewater treatment requirements extend back to 1979. Over the next 30 years a series of studies resulted in the Town receiving funding from Federal and Provincial partners to build a state of the art lagoon and wetland treatment facility.

The new facility was commissioned in October of 2012 and is situated between the Highway 104 and an existing dyke within the marsh lands approximately 3.0 kilometres from the Town of Amherst.

The facility has the following components:

- ✓ Two lagoon cells
- ✓ One settling pond
- ✓ A control building with mechanical and electrical equipment
- ✓ A surface flow wetland cell
- ✓ Four subsurface flow wetland cells
- ✓ A series of outfalls from wetland cells connected to a main line
- ✓ An outfall to the LaPlanche River

During the infield review SLI had the opportunity to speak with the plant operator. Generally all systems are working however it was noted that the plant was not meeting the discharge limits for BOD and TSS. There was reference to the low volume of cattails and the ability of the wetlands to uptake nutrient. It was understood that the operator(s) are working to optimize the facility in an effort to meet the effluent discharge criteria.

11 STORMWATER COLLECTION SYSTEM

11.1 System Description

The storm drainage network within the Town of Amherst consists of open ditching, storm sewers, outfall pipes to Dickie Brook and to the Tantramar marsh. Originally the Town was served by a combined sewer system where both storm and sanitary water was collected in a single pipe system. Since the 1960s the Town has been installing storm sewers which have considered corrugated steel pipe, concrete pipe and in some places PVC piping.

11.2 Civil

Similar to the Sanitary database provided by the Town, a Storm sewer pipe rating system has been established which appears to consider pipe, type and age. It is well understood that the older the pipe the potential for a higher degree of problems may exist. It is also known that there are many older systems within Towns and Cities that function normally and have little signs of deterioration.

SLI spoke with staff regarding the storm system, surcharging, back-up and overall problems encountered. Generally it was found that there are little problems except for outfall blockages due to sediment build-up.

Given this information SLI is of the opinion that an investigation of the storm sewers be conducted to establish PACP and MACP ratings for all manholes and piping. This should occur simultaneously with the sanitary system investigation. SLI believes that the corrugated steel pipes be investigated initially as it is known that over time the inverts of CSP pipes deteriorate due to corrosion and rusting out.

The following table identifies the quantity and type of pipe that should be investigated. Similar to the sanitary system, the existing GIS database is a good starting point for reference and identifying the overall connecting of the network and where access can be gained with subsurface investigation technology.

632668-0001-T-30-REP-000-0001 C01	Asset Management Assessment – Final Report
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Table 11-1: Type, Length and Age of Storm Pipe in the Town of Amherst

Age of Pipe - years since installation	Length of Pipe (m)*	Age of Pipe - years since installation	Length of Pipe (m)*	Age of Pipe - years since installation	Length of Pipe (m)*
Concrete Pipe		Corrugated Steel Pipe		PVC Pipe	
35 years or less	1156	25 years or less	618	15 years or less	894
55 +	310	35	9,029	25	8851
		45 +	13,786	35 +	1,763

*Note: These lengths are a summary of the Database information provided by the Town of Amherst to SLI.

The Town of Amherst has identified that full infrastructure replacement will occur on Mill Street between West Pleasant St. and West Victoria St. This will include the replacement of the existing storm sewer and local drainage system.

12 TRANSPORTATION

12.1 Roads

The Town of Amherst consists of a combination of both unpaved gravel and paved asphalt roads, totalling approximately 73.5 km in length.

A full road inventory and rating was performed by the Town in 2014 and provided to the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR). This inventory and PASER rating table is included in Appendix C. The PASER system was used to rank the streets from 1 (failed) to 10 (new). As there were no streets that were ranked 1, SLI visited all streets with a ranking of 2 or 3 during our site visit to inspect the roads and confirm the rating previously applied. Visual inspection indicates that the street conditions vary greatly, with some requiring immediate attention. A summary of SLI's observations and recommendations is as follows.

Street	Observations/Comments	Recommendations	Photo Reference
Anson Ave.	<ul style="list-style-type: none"> Asphalt road in poor to fair condition. The asphalt is heavily patched and uneven, with cracking and potholes present. No crown was noted on the road. PASER Rating 2. Asphalt sidewalk is present, in moderate condition. Some cracking was noted in the sidewalk. 	<ul style="list-style-type: none"> With a PASER rating of 2, road reconstruction is recommended. Once surface is removed, quality of base course material to be assessed and replaced as necessary. 	C-18
Croft St.	<ul style="list-style-type: none"> Asphalt road in poor condition. The asphalt is patched and cracked, with potholes present. PASER Rating 3. Asphalt curbs and sidewalk also present, in poor to fair condition. Curbs and sidewalks show breaks and cracks, sidewalk heavily patched in some areas. 	<ul style="list-style-type: none"> In areas of severe road deterioration, mill asphalt and apply new surface of Type C-HF approximately 50 mm thick. Apply additional patching and repair to major defects prior to new surface overlay. Replace poor asphalt curb and sidewalk with concrete. 	C-19

Dale St.	<ul style="list-style-type: none"> Asphalt road in poor to fair condition. The asphalt is heavily patched with cracking present, however no large potholes were noted. Drainage is poor. PASER Rating 3. Some sidewalk along road between Eddy & Laplanche. Sidewalk in poor condition with breaks and cracks present. 	<ul style="list-style-type: none"> Mill asphalt and patch with 50 mm Type C-HF as required. Separate storm sewer and install additional catch basins to improve drainage. 	C-20
Derby St.	<ul style="list-style-type: none"> Paved portion in very good condition. Gravel portion at end of street in poor condition. Many potholes are present, with poor drainage. Curb located on street does not continue along unpaved portion. 	<ul style="list-style-type: none"> As new development appears to be taking place at the end of Derby St., recommend paving unpaved section of Derby St. and extending services and curb for proper drainage. 	
Durley St.	<ul style="list-style-type: none"> Asphalt road in poor condition. The asphalt is heavily patched and cracked, with potholes present. Drainage is poor. PASER Rating 2. No curb or sidewalk along Durley St. 	<ul style="list-style-type: none"> With a PASER rating of 2, road reconstruction is recommended. Once surface is removed, quality of base course material to be assessed and replaced as necessary. Improved drainage is also required to avoid surface runoff into yards and homes. 	C-21
Freeman St.	<ul style="list-style-type: none"> Asphalt road in poor to fair condition. The asphalt shows signs of patching and cracking. No large potholes noted. Poor drainage. PASER Rating 2. No curb or sidewalk. 	<ul style="list-style-type: none"> With a PASER rating of 2, road reconstruction is recommended. Once surface is removed, quality of base course material to be assessed and replaced as necessary. Upgrade ditching to improve drainage. 	
Foundry St.	<ul style="list-style-type: none"> Asphalt road in poor condition. The asphalt is heavily patched and cracked, with potholes present. Drainage is poor, with shallow ditching along the side of the road. PASER Rating 3. No curb or sidewalk. 	<ul style="list-style-type: none"> Mill asphalt and patch with 50 mm Type C-HF as required. As there is old combined sewer in the area, recommend replacing and separating storm and sanitary sewers during road work. 	C-22

Highfield St.	<ul style="list-style-type: none"> Asphalt road in poor condition. The asphalt is heavily patched and cracked, with large potholes present, some of which have been filled. Drainage is fair, with some ditching and catch basins present. PASER Rating 3. No curb or sidewalk. 	<ul style="list-style-type: none"> Due to the many issues noted along Highfield St., full width milling and reinstatement with 50 mm Type C-HF asphalt is recommended. Apply additional patching and repair to major defects prior to new surface overlay. 	C-23
Lamy St.	<ul style="list-style-type: none"> Asphalt road in poor to fair condition. The asphalt is patched and cracked, however no large potholes were noted. Drainage is fair. PASER Rating 3. Concrete curb in good shape is present down a portion of the street. 	<ul style="list-style-type: none"> Patch cracks as necessary. In areas where many defects are present, mill asphalt and apply new surface of Type C-HF approximately 50 mm thick. Replace deteriorated asphalt curb with concrete. 	
Mill Ave.	<ul style="list-style-type: none"> Asphalt road in poor condition. The asphalt is heavily patched and cracked, with potholes present. Drainage is fair, with drainage ditches on both sides of the road and CSP culverts under driveways. PASER Rating 3. No curb or sidewalk. 	<ul style="list-style-type: none"> Mill asphalt and apply new surface of Type C-HF approximately 50 mm thick. Apply additional patching and repair to major defects prior to new surface overlay. Replace old and deteriorating CSP culverts under driveway entrances. 	C-24
Mill St.	<ul style="list-style-type: none"> Asphalt road in poor to fair condition. The asphalt is heavily patched and uneven, with cracking and potholes present. Drainage is fair, with ditching along N side of road that proceeds to a catch basin. However, blockages in the drainage ditch and culvert noted, as the North side drainage ditch was filled with standing water. Large box culvert runs across Mill St. for passage of Dickey Brook. PASER Rating 4. Asphalt sidewalk is present, in fair condition. Some patching, cracking and breaks were noted in the sidewalk. 	<ul style="list-style-type: none"> The deterioration of the road, as well as drainage issues will require full width asphalt milling and reinstatement. However, the Town has expressed an interest in the redesign of the sanitary sewer along Mill St. and at Dickey Brook. Therefore it is recommended that the road be fully reconstructed with dedicated sanitary, storm sewers and watermain. 	C-25 C-26

Mission St.	<ul style="list-style-type: none"> Asphalt road in poor condition. The asphalt is heavily patched and cracked, with potholes present. Drainage is poor, with some shallow ditches bordering the road. PASER Rating 3. Asphalt sidewalk is present, in fair condition. Sidewalk cracked in places, and at a lower elevation than the road. 	<ul style="list-style-type: none"> In areas of severe road deterioration, mill asphalt and apply new surface of Type C-HF approximately 50 mm thick. Apply additional patching and repair to major defects prior to new surface overlay. Patch or replace asphalt sidewalk where necessary. 	C-27
North Adelaide St.	<ul style="list-style-type: none"> Asphalt road in poor condition. The asphalt is heavily patched and cracked, with potholes present. Drainage is poor. PASER Rating 3. Small section of concrete curb located in one area of the street, in good condition. Both concrete and asphalt sidewalk present. Sidewalk in poor condition with breaking and cracking noted. 	<ul style="list-style-type: none"> In areas of severe road deterioration, mill asphalt and apply new surface of Type C-HF approximately 50 mm thick. Apply additional patching and repair to major defects prior to new surface overlay. Recommend sidewalk repair or replacement where necessary. 	C-28
Pearl Pl.	<ul style="list-style-type: none"> Asphalt road in poor to fair condition. The asphalt is heavily patched and uneven, with cracking and potholes present. Drainage is poor. PASER Rating 2. No curb or sidewalk. 	<ul style="list-style-type: none"> With a PASER rating of 2, road reconstruction is recommended. Once surface is removed, quality of base course material to be assessed and replaced as necessary. Installation of storm sewer recommended for improved drainage. 	
Queen St.	<ul style="list-style-type: none"> Asphalt road in poor to fair condition. The asphalt is heavily patched and cracked, with potholes present. Though catch basins are located at the end of the street, there is poor drainage along the rest of the street. PASER Rating 3. Asphalt sidewalk is present, in fair condition. Some patching, cracking and breaks were noted in the sidewalk. 	<ul style="list-style-type: none"> In areas of severe road deterioration, mill asphalt and apply new surface of Type C-HF approximately 50 mm thick. Apply additional patching and repair to major defects prior to new surface overlay. Extend storm sewer along entire length of Queen St. to improve drainage. Patch sidewalk where necessary. 	C-29

Racetrack Rd.	<ul style="list-style-type: none"> Asphalt road in poor condition. The asphalt is patched and cracked, however no large potholes were noted. Drainage is fair, with a drainage ditch present along the side of the road. PASER Rating 3. No curb or sidewalk. 	<ul style="list-style-type: none"> In areas of severe road deterioration or patching, mill asphalt and apply new surface of Type C-HF approximately 50 mm thick. Apply additional patching and repair to major defects prior to new surface overlay. 	
Rosewood Dr.	<ul style="list-style-type: none"> Asphalt road in poor to fair condition, however many good sections of asphalt remain. The asphalt is heavily patched and uneven, with cracking and potholes present. Most potholes located at entrance to mobile home park. Drainage is good, due to a recently installed French drain system, which drains directly into the storm sewer. PASER Rating 3. Both concrete and asphalt curb located along the road. Concrete curb is in good condition, while the asphalt curb is in poor condition. 	<ul style="list-style-type: none"> In areas of severe road deterioration or patching, mill asphalt and apply new surface of Type C-HF approximately 50 mm thick. Apply additional patching and repair to major defects prior to new surface overlay. Recommend replacing asphalt curb with new concrete curb in all locations to provide continuous concrete curb throughout. 	C-30
Sackville Rd.	<ul style="list-style-type: none"> Asphalt road in poor to fair condition. The asphalt is heavily patched, primarily due to recent water line replacement work. Some cracking was also noted. Drainage is fair, with a drainage ditch located along the road. PASER Rating 3. No curb or sidewalk. 	<ul style="list-style-type: none"> Mill and patch asphalt where necessary. In areas of severe deterioration, mill asphalt and apply new surface of Type C-HF approximately 50 mm thick. 	C-31
Spring St. Extension	<ul style="list-style-type: none"> Asphalt road in fair condition. The asphalt is patched and cracked, with potholes present. Drainage is fair. PASER Rating 4. No curb or sidewalk. 	<ul style="list-style-type: none"> Structural overlay recommended to strengthen surface. 	

12.2 Curb and Sidewalk Review

While streets with rating 2 to 3 have been visually checked onsite, SLI has also performed a random check of different streets with ranking ranging between 4 and 10. The 2014 Amherst street rating excel sheet provided by the Town has been used as a reference in this exercise. In our check we observed:

- ◆ Whether or not the street has curbs or sidewalks;
- ◆ In cases where curb and sidewalk exists, what was their condition?

Of the 462 streets rated between 4 and 10 in the 2014 Amherst data base SLI has randomly checked 53 streets for the above, where we noted that:

- ◆ 34% of the streets checked had no curb or sidewalk, 19% have curb on both sides but no sidewalks, 28% have curb on both sides and either a side walk on one side or sidewalks on both sides (mainly one side walk). Curb and sidewalk were mainly in fair to good condition.
- ◆ Most of the curb observed was rollover mainly in fair condition.
- ◆ Some streets had asphalt sidewalks and some had concrete, and some had a mix of both at different locations on the street.
- ◆ Some streets have non continuous sidewalks, where it discontinues for a distance and then it starts again.
- ◆ Some asphalt sidewalks had no curb and are only marked with road painting.
- ◆ As the street rating increased, curb and sidewalk appeared to be newer and in better condition.
- ◆ Few streets shows cracks and asphalt deterioration while they are rated between 8 and 10, example Melrose street between Belmont and Clifford, Winston Avenue between Albion and Fairview and Wellington street between Gould and Croft.

In addition to the above noted observations, analysis of the Curb and Sidewalk databases provided by the Town was completed and is summarized in the tables below.

Table 12-1: Summary of Curb Database

Material	Type/Length (m)				Total (m)
	Barrier	Mountable	Curb	Curb/Gutter	
Concrete	58,8936	4,333	-	21,839	85,066
Asphalt	-	-	23,758	267	24,025
Granite	978	-	-	-	978

Table 12-2: Summary of Sidewalk Database

Material	Length (m)
Concrete	20,756
Asphalt	13,430
Brick	2,750

Although the specific conditions of sidewalk and curb is not detailed within the Town database, generally from the SLI review they are deemed to be in fair or good condition. Representatives from the Town of Amherst confirmed that replacing both asphalt curb and sidewalk in the near future is a high priority. Capital investment planning and costing for curb and sidewalk replacement is included in Appendix B.

The Town has also indicated that all full depth road reconstruction will include the installation of new mountable concrete curb and gutter. These costs have been incorporated to the road assessment tables in Appendix F and the 20 Year Capital Investment Plan in Appendix B.

13 STREET LIGHTING

The following provides the current status of the street lighting assets in the Town of Amherst. Due to the area and distances involved, along with the quantity of fixtures, a complete and exhaustive assessment of the town's street lighting was not feasible. Instead we have analyzed the town's street lighting infrastructure in aggregate and will present our findings here.

The Town's street lighting consists of approximately 1200-1300 individual fixtures mounted on a variety of poles, and in a variety of styles and lighting technology. In 2011 and 2012, the Town upgraded approximately 1120 fixtures to LED technology. The new fixtures were manufactured locally at LED Roadway Lighting and carry a 10 year manufacturer's warranty (as indicated by town personnel).

Aside from a small group of exceptions, the street lighting is all directly wired to the overhead secondary wiring owned by Nova Scotia Power Inc., and is un-metered. The Town has an agreement with NSPI based on the power draw and quantity of each fixture, and pays a fixed rate for energy. The following fixture types and quantities are currently part of that agreement with NSPI:

Table 13-1: Monthly Energy Cost for Street Lighting Fixtures:

Fixture Type:	Quantity:	Monthly Energy Rate (As of October 2015):	Monthly Rate Per Fixture (As of October 2015):
65W LED Street Light Op Only	684	\$2,366.64	\$3.46
55W LED Street Light Op Only	206	\$582.98	\$2.83
83W LED Street Light Op Only	230	\$1,012.00	\$4.40
53W LED Street Light Op Only	2	\$5.66	\$2.83
60W LED Light	2	\$6.58	\$3.29
110W F96T12H0 Fluorescent Photocell	46	\$311.88	\$6.78
40W F48T12 Fluorescent Photocell	4	\$16.40	\$4.10

Fixture Type:	Quantity:	Monthly Energy Rate (As of October 2015):	Monthly Rate Per Fixture (As of October 2015):
175W Mercury Vapour Light	1	\$18.96	\$18.96
250W High Pressure Sodium	1	\$24.10	\$24.10
400W High Pressure Sodium	1	\$32.07	\$32.07
70W High Pressure Sodium	2	\$26.40	\$13.20
100W High Pressure Sodium	2	\$30.56	\$15.28
150W High Pressure Sodium	7	\$130.20	\$18.60
1000W Metallic Additive Light	1	\$74.54	\$74.54
400W Mercury Vapour – Energy & Maintenance	1	\$29.36	\$29.36
70W HP Sodium – Energy & Maintenance	4	\$40.72	\$10.18
205W Misc Unmetered Photocell	2	\$24.80	\$12.40

13.1 Observations/Comments

All of the fixtures that we observed around Amherst all fall into one of four categories; fixtures serving local roadways, fixtures serving local highway interchanges, floodlighting for signage, and surface parking lot lighting.

13.1.1 Fixtures Serving Local Roadways:

The vast majority of the fixtures serving local roadways have all been upgraded to LED technology approximately 3-4 years ago. These fixtures are still well within their manufacturer's warranty, so any defects that are found in the next 6 years or so can be sent back to LED Roadway Lighting for replacement or refurbishing. These fixtures carry a maximum L70 rating (time until the light output

degrades to 70% of full output) of more than 100,000 hours. With the fixtures running for approximately 4,000 hours per year, that gives a lifespan of more than 25 years.

During our survey of the Town, SLI staff came across two fixtures that seem to have been overlooked during the upgrade to LED. The first one is a high pressure sodium cobra-head style fixture located on Victoria Street East, just past Marshview Drive. This may be just outside the town limits, however it is the last street lighting fixture along Victoria Street and is likely owned and operated by the Town. The second fixture is on Lord Amherst Drive near exit 4. This is on a public road between the Toyota dealership and the Super 8 hotel. Like the first one, it is a high pressure sodium cobra-head style and looks like it was missed during the upgrade. (See photos E-12 and E-13).

There are a number of decorative style fixture and pole units located on Electric Street, King Street and Victoria Street between the train tracks and Herbert Street. These fixtures are fed underground as such SLI could not confirm their source, however a metered pedestal is located at Maple Ave and Electric Street which is assumed to feed the fixtures on Electric Street and King Street and possibly some traffic light systems. SLI could not confirm the exact technology for these decorative fixtures, however they are assumed to be original high pressure sodium or metal halide.

13.1.2 Fixtures Serving Local Highway Interchanges:

The fixtures serving the local interchanges from Highway 104 all seem to have been upgraded to LED. They are all installed on “Davit” style poles and seem to be 110W, 347V fixtures. These fixtures all have underground electrical feeds. It was not possible to determine the exact service point in the field without additional information. It is possible that these fixtures are fed from a metered service (the industrial park street lights are apparently fed from a metered service at LBJ Farm Equipment).

As indicated in 13.1.1 above, these new LED fixtures are 3-4 years into their lifespan of approximately 25 years and are a good asset for the Town of Amherst.

13.1.3 Floodlighting for Signage:

During the field review SLI observed underground supplied floodlights for a “Welcome to Amherst” sign on Highway 104. There were two fixtures at this location, and only one of them was upgraded to LED; the other one seemed to be a high pressure sodium or metal halide fixture (see photo E-14).

13.1.4 Surface Parking Lot Lighting:

The last category is surface parking lot lighting. There were a number of areas where these were observed, including the Amherst Stadium and the Fire Hall. At the Stadium, there are four high

pressure sodium fixtures installed on poles near the street and the main marquee sign. These fixtures and the sign are supplied by NSPI through un-metered connections to the overhead secondary lines and are billed as shown in Table 13-1 above. At the Fire Hall, there is one high pressure sodium fixture on a utility pole that is un-metered from NSPI and would be one of the fixtures in Table 13-1 above. There is also a single, underground fed, light standard near the street. It is unclear where this is supplied from, but it may be supplied directly from the Fire Hall.

13.2 Recommendations

- ✓ Upgrade the two high pressure sodium fixtures indicated in 13.1.1 above (photos E-12 and E-13).
- ✓ Retrofit the decorative style fixtures along Electric, King and Victoria Streets to LED.
 - These fixtures usually allow a direct replacement of the light engine (internal components) without replacing the pole and fixture itself. This could be investigated further if the town wishes to go that route.
- ✓ Upgrade one floodlighting fixture near exit 3 (at the 'Welcome to Amherst' sign) to LED (photo E-14).
- ✓ Upgrade the original high pressure sodium parking lot fixtures to LED.
 - The surface parking lot lighting is the last area where high pressure sodium fixtures are used by the Town.
 - As can be seen in Table 13-1 above, the monthly energy costs per fixture are significantly higher for the non-LED fixtures. Even the modest 70W high pressure sodium fixture is almost 4x the monthly cost compared to a 65W LED fixture. From this, it is evident that NSPI may offer a better rate for new LED fixtures.
- ✓ Perform an inventory on all remaining high pressure sodium, metal halide and fluorescent fixtures, which remain in service under the NSPI un-metered service agreement, and replace them all with LED.
 - General comment: While the majority of the Town's streetlight fixtures are now LED, there are a number of older fixtures that don't seem to be accounted for, but are still on the monthly bill. In particular there are 46 x 110W, 8 foot fluorescent fixtures in the Town that are costing \$311 per month to operate. The location of these fixtures were unknown at the time of the site review.



INFRASTRUCTURE AND BUILDINGS

Asset Management Assessment - Final Report



C-01



C-02



C-03



C-04



C-05



C-06



C-07



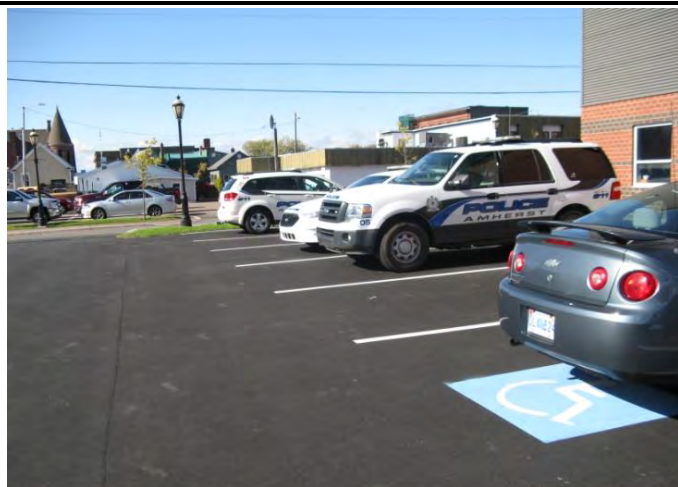
C-08



C-09



C-10



C-11



C-12



C-13



C-14



C-15



C-16



C-17



C-18



C-19



C-20



C-21



C-22



C-23



C-24



C-25



C-26



C-27



C-28



C-29



C-30



C-31



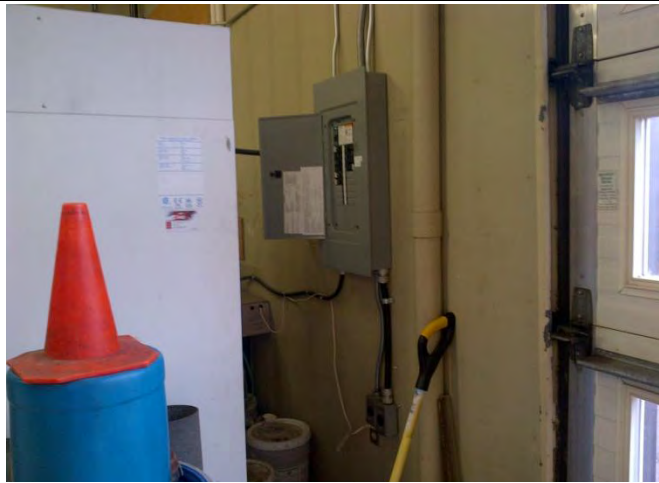
C-32



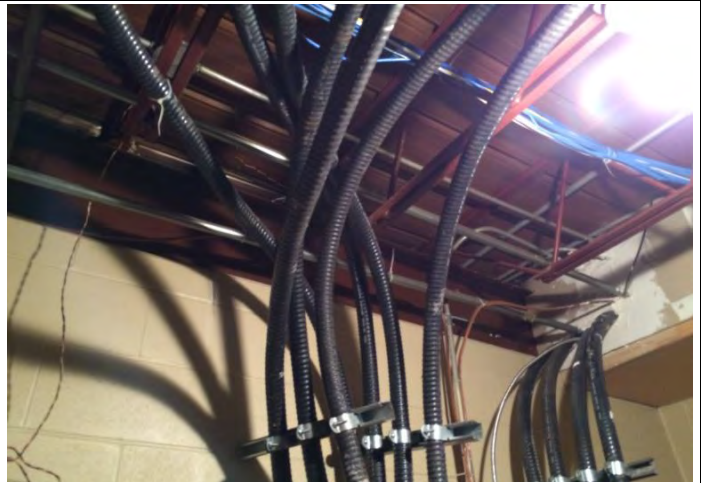
E-01



E-02



E-03



E-04



E-05



E-06



E-07



E-08



E-09



E-10



E-11



E-12



E-13



E-14



M-01



M-02



M-03



M-04



M-05



M-06



M-07



M-08



M-09



M-10



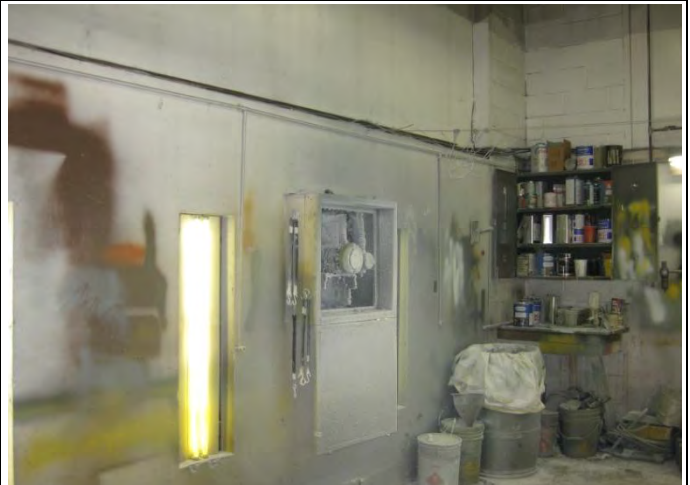
M-11



M-12



M-13



M-14



M-15



M-16



M-17



M-18



M-19



M-20



M-21



M-22



M-23



M-24



M-25



M-26



M-27



M-28



M-29



M-30



M-31



M-32



M-33



M-34



M-35



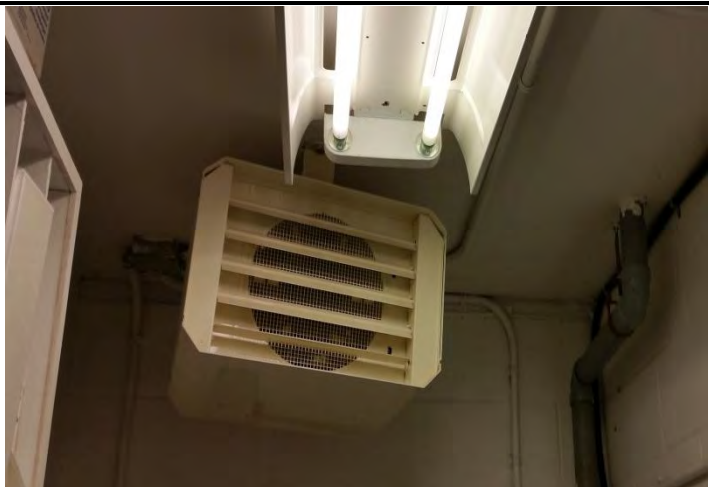
M-36



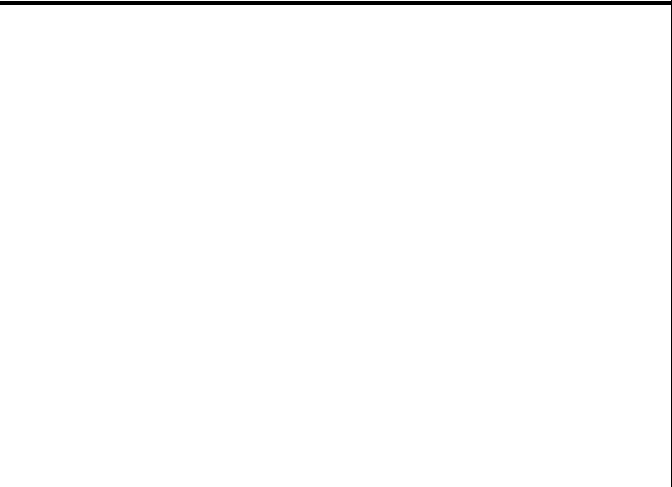
M-37



M-38



M-39





S-01



S-02



S-03



S-04



S-05



S-06



S-07



S-08



S-09



S-10



S-11



S-12



S-13



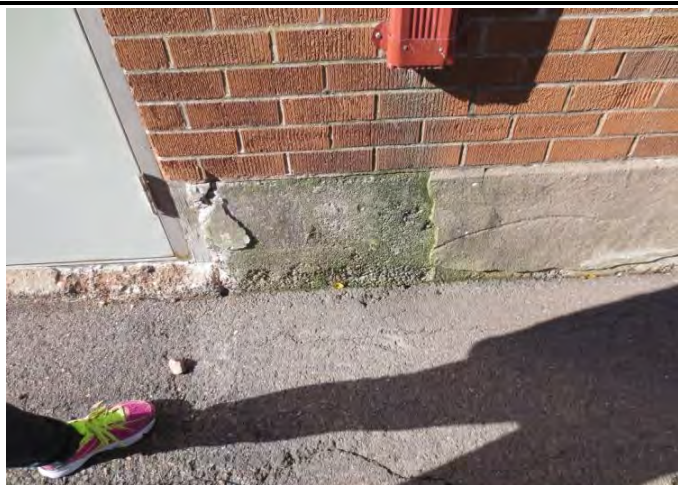
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S-17



S-18



S-19



S-20



S-21



S-22



S-23



S-24



S-25



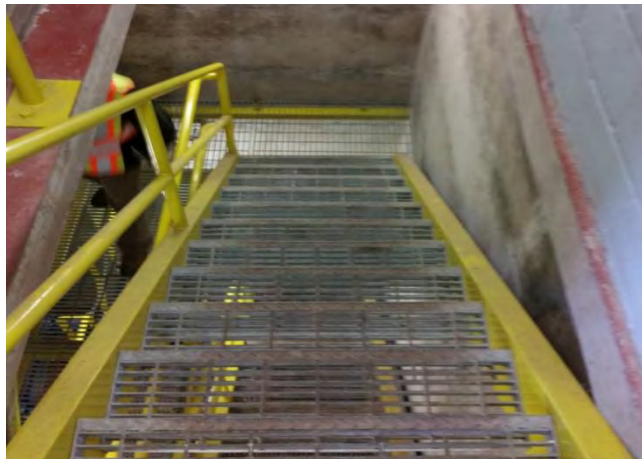
S-26



S-27



S-28



S-29



S-30



S-31



S-32

B : 20 YEAR CAPITAL INVESTMENT : PLAN



INFRASTRUCTURE AND BUILDINGS

Asset Management Assessment - Final Report

Summary of Estimated 20 Year Capital Investment Plan - Town of Amherst				
Asset	Immediate Attention	Upgrades		
	Year 1	Years 2-5	Years 6-10	Years 11-20
Town Hall	\$ 18,000.00	\$ 15,000.00	\$ 81,000.00	\$ 41,000.00
Fire Hall	\$ 81,500.00	\$ 148,000.00	\$ 62,000.00	\$ 69,500.00
Public Works Facility	\$ 334,500.00	\$ 136,500.00	\$ 25,000.00	\$ 280,500.00
Police Station	\$ 12,000.00	\$ 2,000.00	\$ 5,500.00	\$ 30,500.00
Stadium	\$ 44,600.00	\$ 95,000.00	\$ 108,000.00	\$ 82,500.00
Water Infrastructure	\$ 44,150.00	\$ 2,333,038.00	\$ 83,000.00	\$ 209,000.00
Wastewater Infrastructure	\$ 105,750.00	\$ 273,000.00	\$ 7,000.00	\$ 52,500.00
Stormwater Infrastructure	\$ 27,500.00	\$ 50,000.00	\$ -	\$ -
Transportation Infrastructure	\$ 1,755,590.97	\$ 14,203,708.01	\$ 15,690,679.32	\$ 29,452,500.00
Street Lighting	\$ 6,000.00	\$ 140,000.00	\$ -	\$ -
TOTAL	\$ 2,429,590.97	\$ 17,396,246.01	\$ 16,062,179.32	\$ 30,218,000.00

NOTE: All costs in 2015 dollars.

4.0 TOWN HALL											
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	Immediate Attention	Upgrades			
								Year 1	Years 2-5	Years 6-10	
4.2 Structural:	Foundations	Concrete			X						
	Slab-on-Grade	Concrete			X		\$500.00		\$4,000.00		Cut anchors, general slab maintenance
	Exterior Ramp	Reinforced Concrete		X				\$2,000.00			
	Building Structural Components				X						
	Misc. Metals	Exterior Steel Stair		X				\$3,000.00			Clean & paint
Total:							\$500.00	\$5,000.00	\$4,000.00	\$0.00	
4.3 Building Envelope:	Exterior Wall System	Sand Stone & Brick Veneer		X				\$10,000.00		\$15,000.00	Brick joint repair
	Roof	Membrane - Flat			X				\$75,000.00		
	Walls and Ceilings				X						
	Mechanical/Electrical Room	Plaster & Clay Speed Tile	X				\$1,000.00			\$6,000.00	
	Doors and Windows				X		\$4,000.00		\$2,000.00		Clean and caulk west window lintels
Total:							\$5,000.00	\$10,000.00	\$77,000.00	\$21,000.00	
4.4 Mechanical:	Ventilations Systems:	Interior York AHU			X						
		Rooftop York AHU			X						
		Dedicated Exhaust Fans			X						
		Exterior York Condensing Unit serving Interior AHU			X						
		Ducting & Insulation			X						
		Portable AC unit		X			\$5,000.00				Install permanent AC unit in communications rm
	Heating Systems:	80% efficient Weil-McLain Nat Gas Boiler			X						
		Boiler Pumps			X						
		In Duct Electric Coils			X						
		Existing Radiators		X							
		Pumps, Piping and Insulation			X						
	Plumbing Systems:	John Wood electric Hot Water Heater			X						
		Piping and Insulation			X						
	Plumbing Fixtures			X							
Fire Protection:	Non Sprinklered, Fire Extinguishers			X							
Total:							\$5,000.00	\$0.00	\$0.00	\$0.00	
4.5 Electrical:	Supply Service Entrance and Distribution:			X						\$20,000.00	
	Wiring Methods:			X							
	Lighting:				X						
	Emergency and Exit Lighting:				X						
	Security and Alarm Systems:				X						
Total:							\$0.00	\$0.00	\$0.00	\$20,000.00	
4.6 Civil	Parking Lot	Surface		X			\$7,500.00				Asphalt Patching
	Total:							\$7,500.00	\$0.00	\$0.00	\$0.00
Total:							\$18,000.00	\$15,000.00	\$81,000.00	\$41,000.00	

5.0 FIRE HALL											
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	Immediate Attention	Upgrades			
								Year 1	Years 2-5	Years 6-10	
5.2 Structural:	Foundations	Reinforced Concrete			X			\$4,000.00			Water/damp proofing basement stairs
	Slab-on-Grade	Reinforced Concrete			X						
	Truck Bays				X			\$4,000.00	\$2,500.00		Repair - 2 NW bays
	Exterior Ramp		X				\$5,500.00		\$2,000.00	\$2,000.00	
	Building Structural Components	Steel construction			X						
	Misc. Metals	Exterior Steel Stair			X				\$4,000.00	\$2,000.00	General maintenance
Total:							\$5,500.00	\$8,000.00	\$8,500.00	\$4,000.00	
5.3 Building Envelope:	Exterior Wall System	Brick & Block Veneer		X			\$20,000.00				
	Mortar Joints			X					\$20,000.00	\$10,000.00	
	Expansion Joints			X				\$2,000.00		\$2,500.00	
	Roof - Main Bldg.	Membrane - Flat			X			\$95,000.00		\$4,000.00	Roof replacement
	Repairs							\$9,500.00			RTU support curb & add'l roof drains
	Roof - Basement/Sheds	Asphalt Shingles			X			\$9,000.00			\$3,000.00
	Walls and Ceilings	Masonry/Wood			X						
	Floor Finishes	Tile/Linoleum			X			\$4,000.00	\$6,000.00		South entrance repair/general maintenance
Doors and Windows				X			\$2,000.00		\$6,000.00	South entrance repair/general maintenance	
Total:							\$20,000.00	\$121,500.00	\$26,000.00	\$25,500.00	
5.4 Mechanical:	Ventilation Systems:	Dedicated Nederman Vehicle Exhaust			X				\$7,500.00		Replace existing vehicle exhaust fan
		New Purge Fan Exhaust					\$10,000.00				Provide a NOx and CO activated purge exhaust system in the garage per NBC 2010
		New Exhaust Fans					\$4,000.00				Provide exhaust for washroom and oil/lubricant storage rooms adjoining vehicle garage sized to ASHRAE 62.1
		Lennox Rooftop AHU - Hall			X						
		Lennox Rooftop AHU - Chief's Office			X						
		New Ventilation for 2nd level Hall that is unventilated					\$10,000.00				
		New AHUs providing outdoor air					\$20,000.00				As per ASHRAE 62.1 requirements provide supply air ventilation for corridors, offices and basement lounge that are currently only being exhausted.
		Wall Mounted Heat Pumps			X						
		Ducting and Insulation		X							
	Heating Systems:	Viessmann Condensing Nat Gas Boiler			X						
		Insulate Piping					\$5,000.00				Insulate exposed hot water supply and hot water return piping for improved efficiency
		Electric Baseboards and Unit Heaters	X					\$3,000.00			
		Pumps and Piping			X						
	Plumbing Systems:	Plumbing Fixtures		X	X				\$2,000.00		
		Roof Drains			X						Roof Drains were in good condition however pooling was noted on the roof
	Piping and Insulation			X							
Fire Protection:	Sprinklered throughout			X							
Building Specific Utilities:	Diesel Tank for Generator			X			\$1,500.00				
	Generator Room Louver Dampers			X							
	Air Compressors			X							
	New Outside Air ducting to Compressor					\$5,000.00				Duct air intake for breathing air compressor to the outdoors	
Total:							\$54,000.00	\$6,500.00	\$7,500.00	\$0.00	

5.0 FIRE HALL											
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	Immediate Attention	Upgrades			
								Year 1	Years 2-5	Years 6-10	
5.5 Electrical:	Supply Service Entrance and Distribution:			X						\$30,000.00	
	Wiring Methods:			X			\$500.00	\$3,000.00			
	Lighting:			X				\$4,000.00	\$15,000.00		
	Fire Alarm:			X						\$10,000.00	
	Security and Alarm Systems:					X					
						Total:	\$500.00	\$7,000.00	\$15,000.00	\$40,000.00	
5.6 Civil	Parking Lot	Surface		X			\$1,500.00	\$5,000.00	\$5,000.00		General Maintenance (Remove loose asphalt), Asphalt Patching and crack sealing (1,1-5)
							Total:	\$1,500.00	\$5,000.00	\$5,000.00	\$0.00
Total:							\$81,500.00	\$148,000.00	\$62,000.00	\$69,500.00	

6.0 PUBLIC WORKS FACILITY												
TOPIC	SUBJECT	COMPONENT	CONDITION					ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Very Poor	Poor	Fair	Good	New	Immediate Attention Year 1	Upgrades			
									Years 2-5	Years 6-10	Years 11-20	
6.2 Structural:	Maintenance & Office Building											
	Foundations	Concrete				X						
	Slab-on-Grade	Concrete			X				\$4,000.00			
	Building Structural Components	Steel Construction				X			\$15,000.00			Column base repair (assume conc. cut as req'd)
	Mezzanine 1972 & 1978 Areas	Wood Construction			X							
	Investigation							\$10,000.00				
	Repairs							\$13,000.00				
	Salt & Cold Mix Asphalt Storage Sheds	Wood Construction		X								
	Demolish							\$20,000.00				
	Reconstruction							\$175,000.00			\$10,000.00	
	Pole Barn											
	Foundations	Wood				X						
	Slab-on-Grade	Asphalt			X							
	Building Structural Components	Wood Truss				X						
	Mezzanine/Storage	Wood Construction			X			\$1,500.00				Structural investigation
	Angus Building											
	Foundations	Reinforced Concrete Curbs			X				\$8,000.00			
	Slab-on-Grade	Concrete			X				\$6,000.00	\$3,000.00	\$5,000.00	
	Building Structural Components	Pre-manufactured Steel Arch			X				\$5,000.00		\$5,000.00	
	Masonry End Walls	Masonry Blocks		X				\$15,000.00				Remove & replace
	Mezzanine/Storage	Wood Construction			X			\$6,000.00		\$2,000.00		Structural investigation
	Carpenter Shop											
	Foundations	Plywood Skirt			X				\$3,500.00			Prep & paint skirting
	Slab-on-Grade	Concrete				X					\$4,000.00	
	Building Structural Components	Wood Construction				X						
	Sand Storage Shed											
	Investigation			X				\$5,000.00				
	Reinforcement/Repair							\$8,000.00			\$4,000.00	
Total:							\$253,500.00	\$41,500.00	\$5,000.00	\$28,000.00		
6.3 Building Envelope:	Maintenance & Office Building											
	Exterior Wall System	Metal Siding				X		\$10,000.00		\$3,000.00		
		Wood Siding/Soffits			X			\$15,500.00	\$4,000.00	\$4,000.00		
	Roof	Membrane - Flat			X			\$12,000.00		\$100,000.00		Roof replacement
		Asphalt Shingles - Perimeter			X							
	Walls and Ceilings	Masonry/Wood Stud				X						
	Floor Finishes	Tile/Linoleum				X		\$2,000.00		\$2,000.00		Clean, prep, & paint stairs
	Doors and Windows				X			\$3,500.00	\$2,000.00	\$2,000.00		Prep & paint concrete sill
	Pole Barn											
	Exterior Wall System	Metal Siding				X				\$35,000.00		Replacement
	Roof	Metal				X				\$50,000.00		Replacement
	Walls and Ceilings	Plywood/Wood				X						
	Doors and Windows					X		\$3,000.00		\$3,000.00		
	Angus Building											
	Exterior Wall System	Wood/Metal Siding			X			\$4,000.00		\$1,000.00		
	Walls and Ceilings	Plywood/Wood			X			\$1,500.00		\$1,500.00		
	Doors and Windows				X			\$3,500.00				Replace door trim/wood step
	Building Egress			X								General housekeeping
	Carpenter Shop											
	Exterior Wall System	Painted Wood Siding		X				\$8,000.00	\$3,000.00	\$4,000.00		
	Roof	Metal					X			\$2,000.00		
	Walls and Ceilings	Plywood/Wood				X		\$1,000.00	\$1,000.00	\$1,000.00		
	Floor Finishes				X			\$1,000.00		\$1,000.00		Clean, prep, & paint wood stairs
	Doors and Windows					X		\$500.00	\$500.00	\$500.00		Remove and replace exterior door jamb
	Sand Storage Shed											
	Exterior Wall System	Metal Siding/Plywood				X		\$6,000.00		\$8,000.00		Remove & replaced damaged siding/plywood
	Roof	Metal				X						
	Doors and Windows	Vinyl OH Door Frame			X			\$500.00	\$500.00	\$500.00		
Total:							\$6,000.00	\$66,000.00	\$11,000.00	\$218,500.00		

6.0 PUBLIC WORKS FACILITY												
TOPIC	SUBJECT	COMPONENT	CONDITION					ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Very Poor	Poor	Fair	Good	New	Immediate Attention Year 1	Upgrades			
									Years 2-5	Years 6-10	Years 11-20	
6.4 Mechanical:	Maintenance & Office Building											
	Ventilation Systems:	Residential HRV			X							Existing HRV unit appears inadequate for its current purpose.
		Review/Upgrade Office Ventilation						\$10,000.00				New system to replace existing HRV unit currently used.
		Central Office Cooling Unit						\$5,000.00				
		Dedicated Washroom Exhaust				X						
		Purge Fan Exhaust System			X			\$10,000.00			\$10,000.00	Add a purge exhaust system to the vehicle storage Bay, Upgrade the Purge system in the maintenance bay in less than 20 years
		Plymovent Fume Extraction System				X					\$5,000.00	Replace in 10-20 years.
		New AHU for storage/shop						\$5,000.00				Add ventilation to the storage area/shop on the back side of the building
		Window Mounted AC Units		X								To be removed and replaced with central A/C system.
	Heating Systems:	Natural Gas Fired Radiant Tubes			X						\$6,000.00	
	Plumbing Systems:	Electric Hot Water Heater			X						\$2,500.00	
		Piping and insulation		X				\$1,500.00				
		Plumbing Fixtures			X					\$3,000.00		
	Fire Protection:	Sprinklered Throughout		X								Conduct a fire protection requirements analysis to determine if sprinkler coverage is adequate
	Building Specific Utilities	2 Air Compressors				X						
		Air Dryer				X						
		Paint Booth	X					\$15,000.00				Provide new paint booth with dedicated HVAC system and also provide upgrades to drainage.
	Pole Barn											
	General Mechanical	Non heated/ventilated storage	N/A									
	Angus Building											
	Ventilation:	New Washroom Exhaust Fan						\$1,000.00				Provide washroom exhaust per ASHRAE 62.1
	Heating:	Nat. Gas Unit Heaters				X						
	Plumbing:	Washroom Fixtures			X					\$1,000.00		
	Fire Protection:	Unsprinklered										Conduct a fire protection requirements analysis to determine if fire protection systems are required.
	Building Specific Utilities	Air Compressor			X						\$3,000.00	
	Carpenter Shop											
	Ventilation:	New HVAC unit						\$5,000.00				Provide ventilation in accordance with ASHRAE 62.1
		Exhaust Fan			X						\$1,000.00	
		Dust Collector			X						\$5,000.00	
		New Dust Collector Ducting						\$2,500.00				Provide permanent duct collector ducting
		New Paint Booth						\$4,000.00				Install paint booth for spray painting operations
	Heating/Cooling:	Electric heaters			X					\$2,000.00		
	Plumbing:	Plumbing Fixtures		X						\$2,000.00		
		Electric Hot Water Heater			X						\$1,500.00	
		Piping and insulation			X			\$1,000.00				
	Fire Protection:	Unsprinklered, Fire Extinguishers										Conduct a fire protection requirements analysis to determine the legitimacy of the existing fire protection system
	Fueling Station											
	General Mechanical:	Fuelling Pumps				X						
		3 Underground fuel storage tanks				X						
								Total:	\$60,000.00	\$4,000.00	\$4,000.00	\$34,000.00

6.0 PUBLIC WORKS FACILITY													
TOPIC	SUBJECT	COMPONENT	CONDITION					ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS	
			Very Poor	Poor	Fair	Good	New	Immediate Attention Year 1	Upgrades				
									Years 2-5	Years 6-10	Years 11-20		
6.5 Electrical:	Maintenance & Office Building												
	Supply Service Entrance and Distribution:			X				\$1,000.00	\$10,000.00				
	Wiring Methods:				X								
	Lighting:				X								
	Emergency and Exit Lighting:				X								
	Security and Alarm Systems:				X								
	Pole Barn												
	Supply Service Entrance and Distribution:				X								
	Wiring Methods:				X								
	Lighting:				X								
	Emergency and Exit Lighting:				X								
	Security and Alarm Systems:				X								
	Angus Building												
	Supply Service Entrance and Distribution:				X								
	Wiring Methods:				X								
	Lighting:				X								
	Emergency and Exit Lighting:				X								
	Security and Alarm Systems:				X								
	Carpenter Shop												
	Supply Service Entrance and Distribution:				X			\$4,000.00					
Wiring Methods:				X									
Lighting:				X									
Emergency and Exit Lighting:				X									
Security and Alarm Systems:				X									
							Total:	\$5,000.00	\$10,000.00	\$0.00	\$0.00		
6.6 Civil	Parking Lot (Asphalt)	Surface		X				\$10,000.00	\$10,000.00			Asphalt Patching/Replacement (Front/Side Lot)	
	Yard (Gravel)	Surface			X				\$5,000.00	\$5,000.00		Regrading (Storage yards)	
								Total:	\$10,000.00	\$15,000.00	\$5,000.00	\$0.00	
Total:								\$334,500.00	\$136,500.00	\$25,000.00	\$280,500.00		

7.0 AMHERST POLICE STATION											
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	Immediate Attention	Upgrades			
								Year 1	Years 2-5	Years 6-10	
7.2 Structural:	Foundations	Reinforced Concrete				X				\$5,000.00	
	Slab-on-Grade	Reinforced Concrete				X		\$2,000.00		\$5,000.00	Joint filler
	Building Structural Components	Steel Construction				X					
	Total:						\$0.00	\$2,000.00	\$0.00	\$10,000.00	
7.3 Building Envelope:	Exterior Wall System	Brick, Block, & Metal Panel				X				\$15,000.00	
	Roof	Mod-Bit - Flat				X					
	Walls and Ceilings	Steel Stud/Masonry Block				X			\$3,000.00	\$3,000.00	
	Doors and Windows					X					
Total:						\$0.00	\$0.00	\$3,000.00	\$18,000.00		
7.4 Mechanical:	Ventilation Systems:	4 York Rooftop AHUs				X					
		Nu Air Garage HRV				X					
		Purge Fan				X					
		Dedicated room exhaust fans				X	\$1,000.00				Increase ventilation rate for the Locked evidence storage room.
		New return grille and ducting					\$1,500.00				Install an return grille in the main entrance vestibule
		New jail cell exhaust grilles					\$2,000.00				Replace the jail cell grilles with anti-ligature grilles
		LG heat Pumps				X					
		Ducting and Insulation				X					
	Heating Systems:	Buderus Nat. Gas Condensing Boilers				X					
		Pumps, Piping and Insulation				X					
Plumbing Systems:	Electric hot water heater				X						
	Piping, Insulation and Pumps				X						
Fire Protection:	Sprinklered Throughout				X						
Total:						\$4,500.00	\$0.00	\$0.00	\$0.00		
7.5 Electrical:	Supply Service Entrance and Distribution:					X					
	Wiring Methods:					X					
	Lighting:					X					
	Fire Alarm:					X					
	Security and Alarm Systems:					X					
	Emergency and Exit Lighting					X					
Total:						\$0.00	\$0.00	\$0.00	\$0.00		
7.6 Civil	Parking Lot	Cracking repairs				X			\$2,500.00	\$2,500.00	Asphalt crack sealing or patching (as required)
		Edge stabilization				X	\$7,500.00				Stabilize north edge of new parking lot with gravel placement or low rise retaining wall to prevent cracking
	Total:						\$7,500.00	\$0.00	\$2,500.00	\$2,500.00	
Total:						\$12,000.00	\$2,000.00	\$5,500.00	\$30,500.00		

8.0 AMHERST STADIUM											
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	Immediate Attention	Upgrades			
								Year 1	Years 2-5	Years 6-10	
8.2 Structural:	Foundations	Reinforced Concrete w/ Parging			X			\$7,500.00		\$10,000.00	
	Slab-on-Grade	Concrete			X						
	Building Structural Components	Rigid Steel Frames			X				\$5,000.00	\$10,000.00	General maintenance
		Masonry Block			X			\$25,000.00		\$15,000.00	Cut, remove, & replace broken blocks
	Total:						\$0.00	\$32,500.00	\$5,000.00	\$35,000.00	
8.3 Building Envelope:	Exterior Wall System	Brick Veneer		X			\$2,000.00	\$30,000.00	\$15,000.00	\$15,000.00	Brick repair/repointing
		Split Face/Masonry Block		X				\$5,000.00	\$1,500.00	\$1,500.00	Cut, remove, & replace broken blocks
	Joint Filler Repair		X			\$100.00	\$3,000.00	\$1,000.00	\$1,000.00	Ticket booth & brick/block interface	
	Roof	Metal			X					\$10,000.00	
	Walls and Ceilings	Masonry/Wood Stud			X				\$20,000.00		
	Doors and Windows				X		\$15,000.00				Door bumper repairs
Total:						\$17,100.00	\$38,000.00	\$37,500.00	\$27,500.00		
8.4 Mechanical:	Ventilation Systems:	ERVs and HRVs			X						
		Dedicated Exhaust Fans			X						
		Ducting and Insulation			X						
		Split System AC units			X						
	Heating Systems:	3 natural gas Weil McLain boilers		X						\$45,000.00	
		Perimeter Hot Water Baseboard			X						
		Electric Unit Heaters		X						\$3,000.00	
		Heating Controls	X				\$5,000.00				Maintenance personnel is in the process of remediating the controls issues on site. Associated cost will depend on the results of the ongoing investigation.
		Natural gas radiant tube heaters		X						\$5,000.00	
	Plumbing Systems:	Heat Recovery DHW			X						
		DHW tank			X						
		Piping and Insulation			X						
	Fire Protection:	Sprinklered Throughout			X						
	Ice Making Equipment:	Heat Recovery System, surge drum & chiller, expansion tanks, piping, valves and insulation			X						
Overhaul 2 Compressors			X			\$10,500.00	\$10,500.00				
Brine Pump			X				\$9,000.00				
Ice Making Monitoring System			X					\$7,500.00			
Outdoor Condensing Unit			X						\$20,000.00		
Total:						\$15,500.00	\$19,500.00	\$60,500.00	\$20,000.00		
8.5 Electrical:	Supply Service Entrance and Distribution:			X			\$8,000.00				
	Wiring Methods:				X						
	Lighting:			X							
	Fire Alarm:				X		\$4,000.00				
	Emergency and Exit Lighting				X						
Total:						\$12,000.00	\$0.00	\$0.00	\$0.00		
8.6 Civil:	Parking Lot	Asphalt surfaces		X				\$5,000.00	\$5,000.00		Asphalt Patching and crack sealing
	Total:						\$0.00	\$5,000.00	\$5,000.00	\$0.00	
Total:						\$44,600.00	\$95,000.00	\$108,000.00	\$82,500.00		

9.0 WATER TREATMENT AND DISTRIBUTION SYSTEM												
TOPIC	SUBJECT	COMPONENT	CONDITION					ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	N/A	Immediate Attention	Upgrades			
									Year 1	Years 2-5	Years 6-10	
9.5 Electrical	Water Reservoir				X							
	Service Entrance and Distribution			X								
	Wiring Methods			X								
	Lighting			X								
	Chlorination Building											
	Service Entrance and Distribution			X								
	Wiring Methods			X								
	Lighting			X								
	McCully Fire Pump Building & Reservoir											
	Service Entrance and Distribution		X					\$5,000.00	\$200,000.00			
	Wiring Methods		X						\$50,000.00			
Lighting			X					\$12,000.00				
Total:							\$5,000.00	\$262,000.00	\$0.00	\$0.00		
9.6 Civil	Water Reservoir				X			\$1,500.00				Onsite maintenance
	Chlorination Building				X				\$5,000.00			Maintenance (Seal cracks with joint filler etc.)
	McCully Fire Pump Building & Reservoir				X				\$2,000.00			Regrade Entrance asphalt
	Booster Station & Associated Piping	Pressure System Upgrade				X			\$1,938,038.00			Option 1 of CBCL Water System Pressure Investigation, January 2014
	Distribution System					X		\$10,000.00	\$15,000.00			It is recommended that the Town undertake further investigations to update information related to flushing, flows, breaks, repairs, replacements etc. before prioritizing a repair and rehabilitation plan into the future.
	* See Appendix F for detailed costing for watermain replacement.											
Total:							\$11,500.00	\$1,955,038.00	\$5,000.00	\$0.00		
Total:							\$44,150.00	\$2,333,038.00	\$83,000.00	\$209,000.00		

10.0 WASTEWATER COLLECTION AND TREATMENT SYSTEM											
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	Immediate Attention	Upgrades			
								Year 1	Years 2-5	Years 6-10	
10.2 Structural:	Treatment Facility										
	Foundations/Pit	Reinforced Concrete			X		\$1,500.00				
	Slab-on-Grade	Reinforced Concrete			X						
	Building Structural Components	Pre-engineered wood trusses			X						
	Misc. Metals	Exterior Steel Stair			X						
	Terrace Street Lift Station										
	Foundations/Pit	Reinforced Concrete			X				\$3,000.00		Recaulk pit cover joint
	Building Structural Components	Masonry Block			X					\$2,000.00	
	Misc. Metals	Interior Steel Stair/Grating			X						
	Laplanche River Lift Station										
	Foundations/Pit	Reinforced Concrete			X			\$1,500.00			
	Building Structural Components	Wood Frame/Masonry Block			X				\$4,000.00		
	Misc. Metals	Interior Steel Stair/Grating			X						
Total:							\$1,500.00	\$1,500.00	\$7,000.00	\$2,000.00	
10.3 Building Envelope	Treatment Facility										
	Exterior Finishes	Split Face Block			X		\$2,000.00			\$15,000.00	Remove & replace expansion joint
	Roof	Steel Slate Roof Shingles			X					\$5,000.00	General maintenance
	Walls & Ceilings				X						
	Doors & Windows				X						
	Terrace Street Lift Station										
	Exterior Finishes	Split Face Block			X			\$3,000.00		\$6,500.00	Moisture damage/general maintenance
	Roof	Concrete, Tar & Gravel			X		\$750.00			\$10,000.00	Gutter repair/roof replacement
	Walls & Ceilings				X						
	Doors & Windows				X						
	Laplanche River Lift Station										
	Exterior Finishes	Metal Siding - Access Bldg			X			\$2,000.00		\$2,000.00	Base Repair
		Brick Veneer - Control Bldg			X					\$5,000.00	General maintenance
	Roof	Metal - Access Bldg			X					\$3,000.00	
		Asphalt Shingles - Control Bldg			X					\$4,000.00	
Walls & Ceilings				X							
Doors & Windows				X							
Total:							\$2,750.00	\$5,000.00	\$0.00	\$50,500.00	

10.0 WASTEWATER COLLECTION AND TREATMENT SYSTEM											
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	Immediate Attention	Upgrades			
								Year 1	Years 2-5	Years 6-10	
10.6 Civil	Wastewater Treatment										
	Lagoons	slopes, liner, vegetation			X						
	Drainage	Direction			X						
	Valves and Pipes - Effluent Structure	Functionality			X		\$5000.00				
	Pump Stations										
	Derby Street Pump Station	Operations			X						
	Racetrack Road Pump Station	Operations		X			\$2,500.00	\$40,000.00			Feasibility study in the first year, followed by recommended upgrades in year 1-5.
	Eddy Street Pump Station	Operations			X						
	Terrace Street Pump Station	Operations		X			\$2,500.00	\$60,000.00			Feasibility study in the first year, followed by recommended upgrades in year 1-5.
	Hospital Lift Station	Operations			X						
	Laplanche River Lift Station	Operations			X		\$12,000.00	\$100,000.00			Annual maintenance in the first year, followed by upgrades to reduce clogging and maintenance issues by year 5.
	Wastewater Collection										
Pipes and manholes	Infrastructure subsurface investigaiton					\$77,000.00	\$66,500.00			Undertake ZOOM/CCTV investigations and NASSCO Ratings.	
* See Appendix F for detailed costing for sanitary sewer replacement.											
						Total:	\$94,000.00	\$266,500.00	\$0.00	\$0.00	
Total:							\$105,750.00	\$273,000.00	\$7,000.00	\$52,500.00	

11.0 STORMWATER COLLECTION SYSTEM											
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	Immediate Attention	Upgrades			
								Year 1	Years 2-5	Years 6-10	
11.1 CIVIL	Pipes, Manholes, Drainage Features	Dickie Brook outfalls		X			\$2,500.00				Clean existing outfall pipes
		Corrugated, concrete and PVC pipes					\$25,000.00	\$50,000.00			Undertake ZOOM/CCTV investigations and NASSCO Ratings.
	* See Appendix F for detailed costing for storm sewer replacement.										
Total:							\$27,500.00	\$50,000.00	\$0.00	\$0.00	
Total:							\$27,500.00	\$50,000.00	\$0.00	\$0.00	

12.0 TRANSPORTATION												
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS	
			Poor	Fair	Good	New	Immediate Attention	Upgrades				
								Year 1	Years 2-5	Years 6-10		Years 11-20
12.1 Roads & Associated Water/ Storm/ Sanitary	Road Reconstruction (with curb)/Milling and Reinstatement/Chip Sealing, With Associated Water/Storm/Sanitary Repair or Replacment						\$1,016,970.17	\$11,239,700.69	\$12,493,179.32	\$24,750,000.00	See Appendix F for additional details and breakdown.	
	Chip Seal roads with PASER rating 5-7			X			\$568,620.80	\$1,964,007.32	\$2,000,000.00	\$4,000,000.00		
	General Road Patching and Maintenance		X	X			\$10,000.00	\$40,000.00	\$50,000.00	\$100,000.00		
	PASER Re-Assessment							\$5,000.00	\$10,000.00	\$15,000.00	Update the road inventory and PASER Assessment once every 3 years.	
	Total:							\$1,595,590.97	\$13,248,708.01	\$14,553,179.32	\$28,865,000.00	
12.2 Sidewalk	Sidewalk	Asphalt					\$140,000.00	\$650,000.00	\$650,000.00		Replace all asphalt sidewalk within 10 years	
	Sidewalk	Concrete							\$250,000.00	\$250,000.00	Replace concrete sidewalk as needed	
	Sidewalk	Brick							\$137,500.00	\$137,500.00	Replace brick sidewalk as needed	
											Sidewalk replacement ~ \$100/m	
	Total:							\$140,000.00	\$650,000.00	\$1,037,500.00	\$387,500.00	
12.3 Curbs	Curb and Gutter	Concrete					\$20,000.00	\$80,000.00	\$100,000.00	\$200,000.00	Replace and Repair Curb as Required - New Mountable Concrete Curb included in Road Reconstruction Costs.	
	Total:							\$20,000.00	\$80,000.00	\$100,000.00	\$200,000.00	
12.4 Culverts	Dickey Brook Culvert	Culvert at Willow Street						\$225,000.00			Replace the culvert for Dickey Brook at Willow Street.	
	Total:							\$0.00	\$225,000.00	\$0.00	\$0.00	
Total:								\$1,755,590.97	\$14,203,708.01	\$15,690,679.32	\$29,452,500.00	

13.0 STREET LIGHTING											
TOPIC	SUBJECT	COMPONENT	CONDITION				ESTIMATED 20 YEAR CAPITAL INVESTMENT PLAN				COMMENTS
			Poor	Fair	Good	New	Immediate Attention	Upgrades			
								Year 1	Years 2-5	Years 6-10	
13.0 STREET LIGHTING	Fixture Replacement	Cobra-head Fixtures		X			\$5,000.00				
		Decorative Fixtures		X				\$90,000.00			Approximately 45 fixtures at \$2,000 per fixture.
		Floodlights		X			\$1,000.00				
	Investigate and Replace Old Technology Fixtures	Surface Parking Lots / Unknown		X				\$50,000.00			Approximately 74 fixtures.
Total:							\$6,000.00	\$140,000.00	\$0.00	\$0.00	
Total:							\$6,000.00	\$140,000.00	\$0.00	\$0.00	

CAMHERST STREET RATING 2014



INFRASTRUCTURE AND BUILDINGS

Asset Management Assessment - Final Report

STREETS DATABASE

ID	STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	"2014"	LAST PAVED	ROAD WIDTH
								Rating		
34	Anson	Avenue	Collector	Liberty	Hickman	237.70	0.48	2.00	1978	6.9
40	Anson	Avenue	Collector	Chandler	Woodlawn	370.60	0.74	2.00	1987	9.2
161	Durley	Street	Local	Lamy	end	268.39	0.54	2.00	1994	7.0
219	Freeman	Street	Local	Victoria	end	96.60	0.19	2.00	1993	5.8
256	Lamy	Street	Local	Summit	end	149.40	0.30	2.00	1998	8.2
310	North Adelaide	Street	Collector	Harding	Victoria	160.42	0.32	2.00	1993	6.1
325	Pearl	Place	Local	Copp	end	78.46	0.16	2.00	1994	5.0
33	Alma	Street	Local	Park	York	105.12	0.21	3.00	1994	6.0
35	Anson	Avenue	Collector	Cordova	Liberty	105.99	0.21	3.00	1978	6.9
140	Croft	Street	Collector	Summer	Wellington	108.00	0.22	3.00	1989	8.5
143	Dale	Street	Local	Herbert	Eddy	168.83	0.34	3.00	1991	6.7
142	Dale	Street	Local	North Adelaide	Herbert	93.61	0.19	3.00	1991	6.7
206	Erncliffe	Street	Local	Sackville	Copp	110.43	0.22	3.00	1994	7.0
215	Foundry	Street	Local	Sackville	Copp	103.60	0.21	3.00	1994	5.0
216	Foundry	Street	Local	Copp	end	67.41	0.13	3.00	1994	5.0
246	Highfield	Street	Local	Park	York	104.07	0.21	3.00	1994	6.0
257	Lamy	Street	Local	Harding	Summit	87.22	0.17	3.00	1998	8.2
258	Lamy	Street	Local	Durley	Harding	32.56	0.07	3.00	1998	8.2
275	Lower LaPlanche	Street	Local	LaPlanche	end	77.35	0.15	3.00	1978	7.0
277	Maple	Avenue	Local	Victoria	Electric	80.96	0.16	3.00	1989	7.6
294	Mill	Avenue	Local	Hickman	Mill	204.62	0.41	3.00	1987	6.1
296	Mission	Street	Local	York	Hill	74.73	0.15	3.00	1994	6.0
297	Mission	Street	Local	Hill	Snowden	77.60	0.16	3.00	1994	6.0
298	Mission	Street	Local	Snowden	Hickman	49.88	0.10	3.00	1994	6.0
307	North Adelaide	Street	Collector	Motor	Summit	123.71	0.25	3.00	1993	6.1
308	North Adelaide	Street	Collector	Summit	Dale	55.38	0.11	3.00	1993	6.1
309	North Adelaide	Street	Collector	Dale	Harding	32.56	0.07	3.00	1993	6.1
347	Queen	Street	Local	Church	Croft	175.72	0.35	3.00	1990	6.1
350	Race Track	Road	Local	Ind Park Drive	Town Boundary	116.00	0.23	3.00	1978	7.0
377	Rosewood	Drive	Local	Anson	Pinehurst	66.00	0.13	3.00	1992	7.9
389	Russell	Street	Local	Meadow	Victoria	153.59	0.31	3.00	1987	6.1
392	Sackville	Road	Local	Erncliffe	Rambler	85.51	0.17	3.00	1971	7.0
391	Sackville	Road	Local	Rambler	Foundry	147.00	0.29	3.00	1971	7.0
437	Summit	Avenue	Local	Lamy	North Adelaide	455.06	0.91	3.00	2002	7.0
438	Tantram	Court	Local	Anson	End	178.86	0.36	3.00	1980	6.9
461	West Pleasant	Street	Collector	Park	Albion	285.76	0.57	3.00	2003	7.9
498	York	Street	Local	Highfield	Park	212.04	0.42	3.00	1994	6.0
43	Anson	Avenue	Collector	Tantram Court	Tantram Crescent	70.70	0.14	4.00	1987	9.2
36	Anson	Avenue	Collector	Cornwall	Cordova	231.59	0.46	4.00	2004	7.3
103	Clifford	Street	Local	Clarence	Rupert	81.69	0.16	4.00	1994	6.0
121	Cornwall	Avenue	Local	Mission	End	328.03	0.66	4.00	1985	7.0
122	Cornwall	Avenue	Local	Cornwall St	Mission	171.64	0.34	4.00	1985	7.0
139	Croft	Street	Collector	Beacon	Summer	101.99	0.20	4.00	1989	8.5
144	Dale	Street	Local	Eddy	LaPlanche	157.39	0.31	4.00	1991	6.7
159	Dundonald	Street	Local	Hickman	End	193.10	0.39	4.00	1989	7.9
167	East Pleasant	Street	Collector	Croft	Gould	156.55	0.31	4.00	1985	7.3
195	Edgewood	Avenue	Local	Albion	end	271.00	0.54	4.00	1994	6.0
205	Erncliffe	Street	Local	Lawrence	Sackville	84.06	0.17	4.00	1994	7.0
208	Fairview	Avenue	Local	Winston	Ottawa	164.27	0.33	4.00	1993	7.0
217	Franklyn	Street	Local	Elmwood	Milford	211.74	0.42	4.00	1995	7.9
226	Harding	Avenue	Local	Lamy	North Adelaide	454.90	0.91	4.00	2004	6.4
240	Hickman	Street	Collector	Pleasant	Dundonald	48.95	0.10	4.00	1995	7.6
241	Hickman	Street	Collector	Dundonald	Minto	78.65	0.16	4.00	1995	7.6
242	Hickman	Street	Collector	Minto	Cornwall	79.51	0.16	4.00	1995	7.6
247	Hill	Street	Local	Mission	West Pleasant	417.95	0.84	4.00	2003	6.1
253	Kimberly	Court	Local	Y	end west	43.07	0.09	4.00	1991	7.6
252	Kimberly	Court	Local	Y	end East	47.20	0.09	4.00	1991	7.6
283	Melrose	Street	Local	Agnew	Robie	149.84	0.30	4.00	1986	7.0
291	Milford	Street	Local	Willow	Allison	105.40	0.21	4.00	1993	6.7
292	Mill	Street	Local	Victoria	Mill	218.66	0.44	4.00	2004	6.3
299	Mission	Street	Local	Hickman	Cornwall	131.48	0.26	4.00	1993	6.1
326	Pender	Street	Local	Cornwall	End	316.06	0.63	4.00	1995	5.4
343	Prince Arthur	Street	Collector	Church	Maple	171.40	0.34	4.00	1994	8.5
372	Rogers	Avenue	Local	Rupert	Charles	97.62	0.20	4.00	1995	7.8
388	Russell	Street	Local	Redland	Meadow	390.53	0.78	4.00	1987	6.1
428	Spring	Street	Collector	Croft	Church	151.79	0.30	4.00	1985	6.1
443	Taplin	Drive	Local	Agnew	end	128.78	0.26	4.00	1985	6.1
458	Wellington	Street	Local	Church	Academy	107.75	0.22	4.00	1986	6.1
497	York	Street	Local	Alma	Highfield	77.25	0.15	4.00	1994	6.0

STREETS DATABASE

ID	STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	"2014"	LAST PAVED	ROAD WIDTH
								Rating		
495	York	Street	Local	West Pleasant	Duke	69.00	0.14	4.00	1994	6.0
496	York	Street	Local	Duke	Alma	79.42	0.16	4.00	1994	6.0
119	Cordova	Street	Local	Cornwall	End	382.00	0.76	4.50	1994	6.0
1	Abbey	Road	Collector	Elmwood	Penny	187.90	0.38	5.00	1995	8.0
5	Abbey	Road	Collector	Victoria	Elmwood	97.10	0.19	5.00	1995	8.0
8	Academy	Street	Local	Queen	Spring	105.00	0.21	5.00	2003	6.1
16	Acadia	Street	Local	Prince Arthur	Agnew	105.12	0.21	5.00	1985	9.1
31	Allison	Avenue	Local	Elmwood	Milford	224.48	0.45	5.00	1985	8.8
41	Anson	Avenue	Collector	McCully	Chandler	61.07	0.12	5.00	1987	9.2
42	Anson	Avenue	Collector	Tantramar Court	McCully	179.63	0.36	5.00	1987	9.2
46	Beacon	Street	Local	Croft	Church	228.54	0.46	5.00	1998	7.3
55	Boylston	Avenue	Local	Elmwood	Milford	222.83	0.45	5.00	1995	7.9
58	Centennial	Court	Local	Townshend	Cul-de-sac	55.90	0.11	5.00	1989	7.3
59	Centennial	Court	Local	cul-de-sac	n/a	60.75	0.12	5.00	1989	7.3
61	Central	Avenue	Local	Myrtle	end	108.34	0.22	5.00	1993	6.1
60	Central	Avenue	Local	Pleasant	Myrtle	244.63	0.49	5.00	1993	6.1
64	Chandler	Road	Collector	Tupper	Anson	409.15	0.82	5.00	1994	9.0
99	Clarence	Street	Local	Robie	Belmont	96.88	0.19	5.00	1989	6.1
106	Clifford	Street	Local	Church	Havelock	185.32	0.37	5.00	1994	6.0
107	Clinton	Street	Local	South Albion	End	328.00	0.66	5.00	1991	6.1
113	Copp	Avenue	Collector	Rambler	Erncliffe	81.00	0.16	5.00	2004	6.1
114	Copp	Avenue	Collector	Erncliffe	Pearl	217.76	0.44	5.00	2004	6.1
115	Copp	Avenue	Collector	Pearl	Copp Lane	27.95	0.06	5.00	2004	6.1
132	Crescent	Avenue	Local	Fullerton	Church	138.24	0.28	5.00	1991	9.1
134	Crescent	Avenue	Local	Douglas	Maple	21.59	0.04	5.00	1994	9.0
138	Croft	Street	Collector	Queen	Beacon	188.18	0.38	5.00	1991	6.7
146	Davison	Street	Local	Queen	Dickey brook	100.02	0.20	5.00	1994	7.0
145	Davison	Street	Local	Spring	Queen	101.99	0.20	5.00	1977	6.7
151	Dickey	Street	Collector	Academy	Church	140.03	0.28	5.00	1986	7.3
166	East Pleasant	Street	Collector	Gould	Church	281.50	0.56	5.00	1989	7.5
162	East Pleasant	Street	Collector	Veno	Willow	239.00	0.48	5.00	2002	7.0
163	East Pleasant	Street	Collector	Charles	Veno	359.90	0.72	5.00	2002	7.0
178	East Victoria	Street	Arterial	Willow	Abbey	654.70	1.31	5.00	1998	10.9
179	East Victoria	Street	Arterial	Lamy	Willow	73.82	0.15	5.00	1998	10.9
174	East Victoria	Street	Arterial	Marshview	Town Boundary	156.48	0.31	5.00	1998	10.9
175	East Victoria	Street	Arterial	Derby	Marshview	12.10	0.02	5.00	1998	10.9
176	East Victoria	Street	Arterial	Freeman	Derby	73.64	0.15	5.00	1998	10.9
182	East Victoria	Street	Arterial	Adelaide	Rupert	143.22	0.29	5.00	1998	10.9
207	Fairview	Avenue	Local	Ottawa	Poplar	237.97	0.48	5.00	1993	7.0
218	Franklyn	Street	Local	Milford	Spring	126.40	0.25	5.00	1995	7.9
237	Hickman	Street	Collector	Victoria	Anson	179.91	0.36	5.00	2001	7.7
239	Hickman	Street	Collector	Mill	Pleasant	59.30	0.12	5.00	2001	7.7
238	Hickman	Street	Collector	Anson	Mill	36.00	0.07	5.00	2001	7.7
244	Hickman	Street	Collector	Mission	Park	247.18	0.49	5.00	1997	8.5
249	Industrial Park	Drive	Collector	South Albion	Race Track Road	492.83	0.99	5.00	1994	9.0
259	Lamy	Street	Local	Victoria	Durley	140.25	0.28	5.00	1998	8.2
264	LaPlanche	Street	Arterial	Victoria	Dale	231.21	0.46	5.00	1999	9.9
261	LaPlanche	Street	Arterial	Lawrence	Lower LaPlanche	19.71	0.04	5.00	1999	9.9
262	LaPlanche	Street	Arterial	Palmer	Lawrence	108.50	0.22	5.00	1999	9.9
263	LaPlanche	Street	Arterial	Dale	Palmer	110.07	0.22	5.00	1999	9.9
265	LaPlanche	Street	Arterial	Lower Laplanche	Town Boundary	150.62	0.30	5.00	1999	9.9
266	Lawrence	Street	Arterial	LaPlanche	Erncliffe	223.18	0.45	5.00	1998	9.5
267	Lawrence	Street	Arterial	Erncliffe	Victoria	271.51	0.54	5.00	1998	9.5
273	Longleah	Court	Local	Church	end	135.62	0.27	5.00	2003	7.5
276	Lusby	Street	Local	Victoria	end	164.26	0.33	5.00	1980	6.7
278	Maple	Avenue	Local	Electric	Prince Arthur	113.63	0.23	5.00	2005	6.7
290	Milford	Street	Local	Boylston	Willow	88.48	0.18	5.00	1993	6.7
301	Myrtle	Street	Local	Central	Fairview	75.62	0.15	5.00	1977	6.1
302	Myrtle	Street	Local	Fairview	Belliveau	74.63	0.15	5.00	1977	6.1
304	Newton	Avenue	Local	Ash	Silver	74.20	0.15	5.00	1993	6.1
313	Palmer	Street	Local	Eddy	LaPlanche	204.14	0.41	5.00	2004	6.1
348	Queen	Street	Local	Croft	Albion	243.86	0.49	5.00	1990	6.1
351	Ralston	Place	Local	Donald	cul-de-sac	61.55	0.12	5.00	1989	7.9
352	Ralston	Place	Local	cul-de-sac	n/a	65.58	0.13	5.00	1989	7.9
364	Robert Angus	Drive	Arterial	Church	South Albion	1571.33	3.14	5.00	2002	12.0
366	Robie	Street	Local	Melrose	Clarence	97.94	0.20	5.00	1989	6.7
382	Rupert	Street	Collector	Clifford	Spring	116.36	0.23	5.00	1996	8.8
383	Rupert	Street	Collector	Spring	Dunlap	114.77	0.23	5.00	1980	8.5
384	Rupert	Street	Collector	Dunlap	Dickey	89.85	0.18	5.00	1980	8.5

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ID	STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	"2014"	LAST PAVED	ROAD WIDTH
								Rating		
393	Senator	Avenue	Local	Church	Academy	84.38	0.17	5.00	1994	6.0
396	Silver	Street	Local	Newton	End	105.29	0.21	5.00	2004	6.1
412	Spring	Street	Collector	Coates	Fletcher	89.50	0.18	5.00	1989	9.1
430	Spring	Street	Collector	Station	Albion	109.08	0.22	5.00	1993	7.3
435	Station	Street	Collector	Abbott	Spring ext	93.92	0.19	5.00	2004	9.7
441	Tantramar	Crescent	Collector	Civic #23	Civic #13	654.00	1.31	5.00	1995	9.2
442	Tantramar	Crescent	Collector	Civic #13	Anson	630.00	1.26	5.00	1995	9.2
444	Terrace	Street	Local	Victoria	Lennox	218.54	0.44	5.00	1988	6.1
450	Townsvlew	Court	Local	Townshend	cul-de-sac	92.98	0.19	5.00	1988	7.9
453	Tupper	Boulevard	Collector	Tantramar	Chandler	841.43	1.68	5.00	1997	9.1
454	Veno	Avenue	Local	Pleasant	end	96.21	0.19	5.00	1984	5.5
472	West Victoria	Street	Arterial	Mill	Smith	158.86	0.32	5.00	1991	11.0
466	West Victoria	Street	Arterial	Copp	Landsdowne	48.60	0.10	5.00	1991	11.0
478	West Victoria	Street	Arterial	Town boundary	Kent	43.62	0.09	5.00	1991	11.0
469	West Victoria	Street	Arterial	Lusby	Arlington	117.65	0.24	5.00	1991	11.0
474	West Victoria	Street	Arterial	Terrace	Haliburton	80.23	0.16	5.00	1991	11.0
475	West Victoria	Street	Arterial	Hickman	Terrace	26.75	0.05	5.00	1991	11.0
476	West Victoria	Street	Arterial	Liberty Lane	Hickman	215.70	0.43	5.00	1991	11.0
467	West Victoria	Street	Arterial	Gerard	Copp	80.43	0.16	5.00	1991	11.0
477	West Victoria	Street	Arterial	Kent	Liberty	535.34	1.07	5.00	1991	11.0
487	Willow	Street	Arterial	Spring	Webster	231.50	0.46	5.00	1990	9.2
12	Academy	Street	Local	Townshend	Senator	156.25	0.31	6.00	1991	8.5
11	Academy	Street	Local	Senator	Wellington	162.55	0.33	6.00	1991	8.5
9	Academy	Street	Local	Dickey	Queen	109.80	0.22	6.00	2003	6.1
10	Academy	Street	Local	Wellington	Dickey	165.00	0.33	6.00	1989	9.0
20	Agnew	Street	Local	Regent	Rupert	141.12	0.28	6.00	1987	6.1
21	Agnew	Street	Local	Rupert	Clarence	80.28	0.16	6.00	1988	7.9
29	Albion	Street	Arterial	Queen	Spring	65.80	0.13	6.00	1990	10.7
32	Allison	Avenue	Local	Milford	Spring	122.20	0.24	6.00	1985	8.8
44	Arlington	Avenue	Local	Victoria	end	94.79	0.19	6.00	1982	5.8
45	Ash	Street	Local	Newton	End	103.96	0.21	6.00	2004	5.4
48	Beacon	Street	Local	Chignecto	Stanley	73.82	0.15	6.00	1986	7.3
49	Beacon	Street	Local	Pleasant	Chignecto	181.93	0.36	6.00	1986	7.3
56	Boylston	Avenue	Local	Milford	Spring	125.83	0.25	6.00	1995	7.9
57	Brownell	Avenue	Local	Eddy	North Adelaide	255.70	0.51	6.00	2007	5.9
63	Chamberlain	Street	Collector	CNR	Newton	104.05	0.21	6.00	2006	7.3
67	Charles	Street	Collector	Dickey	Senior	73.94	0.15	6.00	1993	8.5
68	Charles	Street	Collector	Senior	Rogers	291.94	0.58	6.00	1993	8.5
69	Charles	Street	Collector	Rogers	Townshend	92.70	0.19	6.00	1993	8.5
70	Charles	Street	Collector	Townshend	Townshend	10.63	0.02	6.00	1993	8.5
71	Charles	Street	Collector	Townshend	East Pleasant	150.41	0.30	6.00	1993	8.5
73	Christie	Street	Local	Poplar	Pleasant	272.22	0.54	6.00	1993	6.1
79	Church	Street	Arterial	Albion	Robie	126.77	0.25	6.00	1999	9.6
80	Church	Street	Arterial	Robie	Belmont	87.56	0.18	6.00	1999	9.6
81	Church	Street	Arterial	Belmont	Clifford	89.52	0.18	6.00	1999	9.6
82	Church	Street	Arterial	Clifford	Spring	55.39	0.11	6.00	1999	9.6
83	Church	Street	Arterial	Spring	Queen	102.04	0.20	6.00	1999	9.6
84	Church	Street	Arterial	Queen	Dickey	113.58	0.23	6.00	1999	9.6
85	Church	Street	Arterial	Dickey	Beacon	24.19	0.05	6.00	1999	9.6
88	Church	Street	Arterial	Wellington	Senator	162.16	0.32	6.00	2004	9.9
95	Church	Street	Arterial	Brentwood	Cedar	76.28	0.15	6.00	2004	6.4
100	Clarence	Street	Local	Belmont	Clifford	87.35	0.17	6.00	1989	6.1
104	Clifford	Street	Local	Melrose	Clarence	90.21	0.18	6.00	1994	6.0
105	Clifford	Street	Local	Havelock	Melrose	66.61	0.13	6.00	1994	6.0
109	Coates	Street	Local	Milford	Spring	132.41	0.26	6.00	1986	8.2
112	Copp	Avenue	Collector	Redland	Rambler	48.84	0.10	6.00	2004	6.1
117	Copp	Avenue	Collector	Copp Lane	Victoria	85.35	0.17	6.00	2004	6.1
118	Cordova	Street	Local	Cornwall	Anson	152.46	0.30	6.00	1994	6.0
133	Crescent	Avenue	Local	Maple	Fullerton	56.59	0.11	6.00	1991	9.1
135	Crescent	Avenue	Local	Station	Douglas	70.38	0.14	6.00	1994	9.0
137	Croft	Street	Collector	Spring	Queen	105.41	0.21	6.00	1991	6.7
148	Dickey	Street	Collector	Donald	Rupert	251.81	0.50	6.00	1996	8.5
150	Dickey	Street	Collector	Charles	Academy	120.57	0.24	6.00	1986	7.3
160	Dunlap	Street	Local	Rupert	Charles	105.42	0.21	6.00	1994	6.0
164	East Pleasant	Street	Collector	Academy	Charles	66.68	0.13	6.00	2002	7.0
165	East Pleasant	Street	Collector	Church	Academy	122.09	0.24	6.00	2002	7.0
180	East Victoria	Street	Arterial	Regent	Lamy	167.30	0.33	6.00	1998	10.9
181	East Victoria	Street	Arterial	Rupert	Regent	138.40	0.28	6.00	1998	10.9
177	East Victoria	Street	Arterial	Abbey	Freeman	79.96	0.16	6.00	1998	10.9

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								Rating		
183	East Victoria	Street	Arterial	Herbert	Adelaide	99.57	0.20	6.00	1998	10.9
221	Garden	Court	Local	Abbey	end	131.81	0.26	6.00	2002	7.0
222	Gerard	Avenue	Local	victoria	end	96.57	0.19	6.00	2004	6.1
223	Gladstone	Avenue	Local	Church	end	220.00	0.44	6.00	1978	7.3
225	Haliburton	Street	Local	Victoria	Lennox	218.13	0.44	6.00	2002	7.0
231	Havelock	Street	Collector	Prince Arthur	Agnew	113.85	0.23	6.00	1998	9.1
232	Havelock	Street	Collector	Agnew	Robie	140.03	0.28	6.00	1998	9.1
235	Havelock	Street	Collector	Clifford	Spring	109.29	0.22	6.00	1998	9.1
243	Hickman	Street	Collector	Cornwall	Mission	180.19	0.36	6.00	1997	8.5
251	Kay	Street	Local	Redland	end	38.90	0.08	6.00	2005	6.1
271	Liberty	Lane	Local	Colin Ct	Victoria	213.33	0.43	6.00	2004	7.6
274	Lord Amherst	Drive	Local	Albion	Cul-de-sac	371.00	0.74	6.00	2003	8.0
279	Maple	Avenue	Local	Prince Arthur	Crescent	79.21	0.16	6.00	2005	6.7
280	Marshview	Drive	Local	Victoria	end	324.30	0.65	6.00	2004	8.0
281	McCully	Street	Collector	Anson	Park	510.58	1.02	6.00	1991	9.1
287	Milford	Street	Local	Fletcher	Coates	99.87	0.20	6.00	1987	8.4
288	Milford	Street	Local	Coates	Franklyn	86.42	0.17	6.00	1987	8.4
289	Milford	Street	Local	Franklyn	Boylston	86.27	0.17	6.00	1993	6.7
293	Mill	Street	Local	Mill	PLeasant	137.59	0.28	6.00	2004	6.3
295	Minto	Street	Local	Hickman	End	193.67	0.39	6.00	1987	8.5
303	Newton	Avenue	Local	Silver	South Albion	75.74	0.15	6.00	1993	6.1
305	Newton	Avenue	Local	Chamberlain	Ash	179.15	0.36	6.00	2004	6.1
321	Park	Street	Collector	Hickman	Mission	293.88	0.59	6.00	2006	6.8
327	Penny	Lane	Local	Abbey	Cul-de-sac	118.15	0.24	6.00	1994	8.0
328	Penny	Lane	Local	cul-de-sac	n/a	82.41	0.16	6.00	1994	8.0
337	Prince Arthur	Street	Collector	Rupert	Clarence	74.65	0.15	6.00	1981	7.9
338	Prince Arthur	Street	Collector	Clarence	South Adelaide	75.29	0.15	6.00	1981	7.9
342	Prince Arthur	Street	Collector	Maple	Station	68.38	0.14	6.00	2005	8.5
349	Queen	Street	Local	Albion	end	60.93	0.12	6.00	1982	5.5
357	Regent	Street	Collector	Victoria	Agnew	261.66	0.52	6.00	2004	7.9
365	Robie	Street	Local	Clarence	Rupert	79.56	0.16	6.00	1989	6.7
367	Robie	Street	Local	Melrose	Melrose	17.80	0.04	6.00	1989	6.7
375	Rosewood	Drive	Local	Kimberly	Fernwood	104.20	0.21	6.00	1992	7.9
380	Rupert	Street	Collector	Agnew	Robie	156.35	0.31	6.00	1996	8.8
381	Rupert	Street	Collector	Robie	Clifford	184.91	0.37	6.00	1996	8.8
394	Senior	Street	Local	Charles	Academy	116.56	0.23	6.00	1994	6.0
397	Smith	Street	Local	Victoria	end	202.72	0.41	6.00	2006	5.9
411	Spring	Street	Collector	Fletcher	Abbey	83.50	0.17	6.00	1988	9.1
414	Spring	Street	Collector	Boylston	Franklyn	84.29	0.17	6.00	1989	9.1
432	Station	Street	Collector	Victoria	Prince Arthur	179.06	0.36	6.00	2004	9.7
433	Station	Street	Collector	Prince Arthur	Crescent	80.97	0.16	6.00	2004	9.7
434	Station	Street	Collector	Crescent	Abbott	240.47	0.48	6.00	2004	9.7
439	Tantramar	Crescent	Collector	Tupper	Pure Energy	348.00	0.70	6.00	1995	9.2
440	Tantramar	Crescent	Collector	Pure Energy	Civic #23	592.00	1.18	6.00	1995	9.2
448	Townshend	Avenue	Collector	Academy	Charles	72.35	0.14	6.00	1991	6.7
449	Townshend	Avenue	Collector	Church	Academy	83.87	0.17	6.00	1991	6.7
451	Townshend	Court	Local	cul-de-sac	n/a	60.53	0.12	6.00	1988	7.9
452	Tupper	Boulevard	Collector	Town Boundary	Tantramar	192.96	0.39	6.00	1995	8.2
468	West Victoria	Street	Arterial	Arlington	Gerard	35.65	0.07	6.00	1991	11.0
470	West Victoria	Street	Arterial	Russel	Lusby	27.06	0.05	6.00	1991	11.0
471	West Victoria	Street	Arterial	Smith	Russel	88.24	0.18	6.00	1991	11.0
473	West Victoria	Street	Arterial	Haliburton	Mill	54.17	0.11	6.00	1991	11.0
479	Westminister	Avenue	Local	Spring	Elmwood	333.65	0.67	6.00	1985	8.8
488	Willow	Street	Arterial	Webster	Walter Purdy	335.60	0.67	6.00	1990	9.2
489	Willow	Street	Arterial	Townshend	Walter Purdy	78.93	0.16	6.00	1990	9.2
490	Willow	Street	Arterial	Oceanview	Townshend	37.17	0.07	6.00	1990	9.2
491	Willow	Street	Arterial	Oceanview	Pleasant	398.30	0.80	6.00	1990	9.2
13	Academy	Street	Local	Pleasant	Townshend	109.71	0.22	7.00	1991	8.5
14	Acadia	Street	Local	Victoria	Ratchford	115.48	0.23	7.00	2009	9.1
17	Admore	Avenue	Local	Albion	end	200.77	0.40	7.00	2006	5.5
22	Agnew	Street	Local	Clarence	Melrose	129.36	0.26	7.00	1988	7.9
24	Agnew	Street	Local	Acadia	Havelock	79.61	0.16	7.00	1988	7.9
25	Albion	Street	Arterial	Croft	Church	104.14	0.21	7.00	1990	10.7
26	Albion	Street	Arterial	Fullerton	Croft	78.41	0.16	7.00	1990	10.7
27	Albion	Street	Arterial	Abbott	Fullerton	108.17	0.22	7.00	1990	10.7
28	Albion	Street	Arterial	Spring	Abbott	132.23	0.26	7.00	1990	10.7
30	Albion	Street	Arterial	Pleasant	Queen	194.37	0.39	7.00	1990	10.7
47	Beacon	Street	Local	Stanley	Croft	87.89	0.18	7.00	1986	7.3
52	Belmont	Street	Local	Melrose	Clarence	97.26	0.19	7.00	1991	6.7

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ID	STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	"2014"	LAST PAVED	ROAD WIDTH
								Rating		
53	Belmont	Street	Local	Havelock	Melrose	80.62	0.16	7.00	1991	6.7
54	Belmont	Street	Local	Church	Havelock	186.46	0.37	7.00	1991	6.7
62	Chamberlain	Street	Collector	Newton	South Albion	227.19	0.45	7.00	2006	7.3
91	Church	Street	Arterial	Pleasant	Longleah	345.38	0.69	7.00	2002	8.0
92	Church	Street	Arterial	Longleah	Gladstone	80.02	0.16	7.00	2002	8.0
93	Church	Street	Arterial	Gladstone	Robert Angus	279.58	0.56	7.00	2002	8.0
86	Church	Street	Arterial	Beacon	Summer	91.27	0.18	7.00	2004	9.9
87	Church	Street	Arterial	Summer	Wellington	87.13	0.17	7.00	2004	9.9
89	Church	Street	Arterial	Senator	Townshend	144.92	0.29	7.00	2004	9.9
90	Church	Street	Arterial	Townshend	Pleasant	32.20	0.06	7.00	2004	9.9
94	Church	Street	Arterial	Robert Angus	Brentwood	475.09	0.95	7.00	2004	6.4
96	Church	Street	Arterial	Cedar	Town Boundary	135.77	0.27	7.00	2004	6.4
101	Clarence	Street	Local	Clifford	Spring	118.11	0.24	7.00	1989	6.1
111	Copp	Avenue	Collector	Foundry	Redland	93.90	0.19	7.00	2004	6.1
136	Croft	Street	Collector	Albion	Spring	263.81	0.53	7.00	2006	8.2
149	Dickey	Street	Collector	Rupert	Charles	102.65	0.21	7.00	1985	6.7
198	Elmwood	Drive	Collector	Fletcher	Franklyn	210.83	0.42	7.00	2004	7.9
199	Elmwood	Drive	Collector	Franklyn	Norman	44.60	0.09	7.00	2004	7.9
200	Elmwood	Drive	Collector	Norman	Boylston	40.50	0.08	7.00	2004	7.9
201	Elmwood	Drive	Collector	Boylston	Willow	89.11	0.18	7.00	2004	7.9
214	Forest Glen	Court	Local	Abbey	end	132.02	0.26	7.00	2004	7.0
234	Havelock	Street	Collector	Belmont	Clifford	83.79	0.17	7.00	1998	9.1
248	Industrial Park	Drive	Collector	Rosewood	Tantramar Crescent	343.22	0.69	7.00	2009	9.0
250	Industrial Park	Drive	Collector	Race Track Road	Rosewood	118.93	0.24	7.00	2009	9.0
268	Lennox	Avenue	Local	Westland	end	8.72	0.02	7.00	2004	6.1
269	Lennox	Avenue	Local	Haliburton	Westland	62.45	0.12	7.00	2004	6.1
270	Lennox	Avenue	Local	Terrace	Haliburton	76.42	0.15	7.00	2004	6.1
272	Liberty	Lane	Local	Anson	Colin Ct	125.06	0.25	7.00	2004	7.6
306	Norman	Street	Local	Willow	Elmwood	287.27	0.57	7.00	2004	7.3
311	Oceanview	Drive	Local	Willow	End	320.97	0.64	7.00	1989	9.1
312	Ottawa	Avenue	Local	Belliveau	Albion	392.81	0.79	7.00	2006	5.5
319	Park	Street	Collector	Patterson	Highfield	137.04	0.27	7.00	2011	6.4
320	Park	Street	Collector	Mission	Patterson	105.72	0.21	7.00	2011	6.4
322	Park	Street	Collector	Cornwall	Hickman	98.98	0.20	7.00	2010	6.7
324	Patterson	Street	Local	Park	Park	465.68	0.93	7.00	1993	6.1
339	Prince Arthur	Street	Collector	South Adelaide	Acadia	126.82	0.25	7.00	1981	7.9
340	Prince Arthur	Street	Collector	Acadia	Havelock	96.68	0.19	7.00	2005	8.5
341	Prince Arthur	Street	Collector	Havelock	Church	157.54	0.32	7.00	2005	8.5
345	Queen	Street	Local	Academy	Davison	74.41	0.15	7.00	2002	7.0
346	Queen	Street	Local	Davison	Church	81.62	0.16	7.00	2002	7.0
358	Regent	Street	Collector	Agnew	Elmwood	149.95	0.30	7.00	2004	7.9
359	Regent	Street	Collector	Elmwood	Clifford	199.76	0.40	7.00	2004	7.9
360	Regent	Street	Collector	Clifford	Spring	116.69	0.23	7.00	2004	7.9
368	Robie	Street	Local	Havelock	Melrose	88.95	0.18	7.00	1989	6.7
373	Rosewood	Drive	Local	Fernwood	Pinehurst	80.00	0.16	7.00	1992	7.9
374	Rosewood	Drive	Local	Pinehurst	Fernwood	196.00	0.39	7.00	1992	7.9
378	Rupert	Street	Collector	Victoria	Prince Arthur	180.38	0.36	7.00	1996	8.8
379	Rupert	Street	Collector	Prince Arthur	Agnew	118.44	0.24	7.00	1996	8.8
398	Snowden	Avenue	Local	Cul-de-Sac	n/a	84.22	0.17	7.00	2003	6.4
399	Snowden	Avenue	Local	Mission	End	169.79	0.34	7.00	2003	6.4
413	Spring	Street	Collector	Franklyn	Coates	87.09	0.17	7.00	1989	9.1
415	Spring	Street	Collector	Willow	Boylston	89.50	0.18	7.00	1998	8.0
416	Spring	Street	Collector	Allison	Willow	120.22	0.24	7.00	2004	7.8
417	Spring	Street	Collector	Westminster	Allison	77.08	0.15	7.00	2004	7.8
418	Spring	Street	Collector	Donald	Westminster	111.46	0.22	7.00	2004	7.8
419	Spring	Street	Collector	Regent	Donald	94.48	0.19	7.00	2004	7.8
420	Spring	Street	Collector	Rupert	Regent	156.35	0.31	7.00	2004	7.8
421	Spring	Street	Collector	Clarence	Rupert	80.61	0.16	7.00	2004	7.8
422	Spring	Street	Collector	Charles	Clarence	24.76	0.05	7.00	2004	7.8
423	Spring	Street	Collector	Melrose	Charles	58.80	0.12	7.00	2004	7.8
424	Spring	Street	Collector	Havelock	Melrose	50.93	0.10	7.00	2004	7.8
425	Spring	Street	Collector	Academy	Havelock	13.79	0.03	7.00	2004	7.8
445	Townshend	Avenue	Collector	Centennial	Willow	104.89	0.21	7.00	1993	8.5
446	Townshend	Avenue	Collector	Donald	Centennial	141.08	0.28	7.00	1993	8.5
465	West Victoria	Street	Arterial	Landsdowne	Station	30.65	0.06	7.00	1991	11.0
480	Willow	Street	Arterial	Willow Court	Victoria	72.46	0.14	7.00	2003	8.4
481	Willow	Street	Arterial	Norman	Willow Court	88.19	0.18	7.00	2003	8.4
482	Willow	Street	Arterial	Agnew	Norman	10.40	0.02	7.00	2003	8.4
483	Willow	Street	Arterial	Elmwood	Agnew	159.27	0.32	7.00	2003	8.4

STREETS DATABASE

ID	STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	"2014"	LAST PAVED	ROAD WIDTH
								Rating		
484	Willow	Street	Arterial	Milford	Elmwood	227.29	0.45	7.00	1993	7.9
485	Willow	Street	Arterial	Spring	Milford	132.84	0.27	7.00	1993	7.9
486	Willow	Street	Arterial	Spring Intersection	n/a	9.22	0.02	7.00	1990	7.9
3	Abbey	Road	Collector	Spring	Forest Glenn	104.00	0.21	8.00	2004	8.0
15	Acadia	Street	Local	Ratchford	Prince Arthur	137.54	0.28	8.00	2009	9.1
499	Brown	Street	Local	Walter Purdy	Mosher		0.00	8.00	2007	8.0
72	Chignecto	Street	Local	Pleasant	Beacon	118.95	0.24	8.00	2009	7.3
97	Clarence	Street	Local	Prince Arthur	Agnew	109.04	0.22	8.00	2008	6.1
98	Clarence	Street	Local	Agnew	Robie	157.04	0.31	8.00	2008	6.1
168	East Pleasant	Street	Collector	Stanley	Croft	111.50	0.22	8.00	2010	7.3
197	Elmwood	Drive	Collector	Abbey	Fletcher	184.25	0.37	8.00	2004	7.9
202	Elmwood	Drive	Collector	Willow	Allison	82.72	0.17	8.00	2004	7.9
203	Elmwood	Drive	Collector	Allison	Westminister	75.21	0.15	8.00	2004	7.9
204	Elmwood	Drive	Collector	Westminister	Regent	156.07	0.31	8.00	2004	7.9
210	Fernwood	Drive	Local	Rosewood	Rosewood	261.19	0.52	8.00	2009	8.5
254	Kimberly	Court	Local	Fernwood	Y	69.99	0.14	8.00	2005	7.6
282	Meadow	Street	Local	Russell	end	90.74	0.18	8.00	2006	6.1
500	Mosher	Street	Local	Walter Purdy	Brown		0.00	8.00	2007	8.0
300	Motor	Avenue	Local	North Adelaide	end	128.64	0.26	8.00	2004	5.3
316	Park	Street	Collector	Duke	West Pleasant	55.57	0.11	8.00	2011	6.4
317	Park	Street	Collector	Alma	Duke	78.43	0.16	8.00	2011	6.4
318	Park	Street	Collector	Highfield	Alma	84.73	0.17	8.00	2011	6.4
323	Park	Street	Collector	McCully	Cornwall	128.78	0.26	8.00	2010	6.7
353	Rambler	Street	Local	Sackville	Copp	108.80	0.22	8.00	1991	6.7
354	Ratchford	Street	Local	Havelock	Acadia	155.48	0.31	8.00	2006	8.7
355	Redland	Avenue	Local	Copp	Kay	140.16	0.28	8.00	2006	5.8
356	Redland	Avenue	Local	Kay	Russell	84.08	0.17	8.00	2006	5.8
362	Ridgewood	Court	Local	Abbey	end	119.23	0.24	8.00	2006	8.0
363	Robert Angus	Drive	Arterial	Church	Willow	482.19	0.96	8.00	2004	8.0
371	Rogers	Avenue	Local	Rupert	Rupert	435.29	0.87	8.00	2007	7.9
376	Rosewood	Drive	Local	Pinehurst	Kimberly	106.59	0.21	8.00	1992	7.9
395	Sherwood	Court	Local	Pinehurst	End	94.80	0.19	8.00	2004	9.0
426	Spring	Street	Collector	Davison	Academy	76.03	0.15	8.00	2004	7.8
427	Spring	Street	Collector	Church	Davison	95.92	0.19	8.00	2004	7.8
431	Stanley	Street	Local	Pleasant	Beacon	158.21	0.32	8.00	2009	7.3
456	Walter Purdy	Avenue	Local	Willow	Donald	270.84	0.54	8.00	2004	7.8
459	Wellington	Street	Local	Church	Gould	156.02	0.31	8.00	2004	7.9
460	Wellington	Street	Local	Gould	Croft	146.00	0.29	8.00	2004	7.9
492	Willow	Court	Local	Willow	Cul-de-sac	81.09	0.16	8.00	2004	6.9
493	Willow	Court	Local	Cul-de-sac		62.17	0.12	8.00	2004	6.9
23	Agnew	Street	Local	Melrose	Acadia	47.43	0.09	9.00	1988	7.9
37	Anson	Avenue	Collector	Parkwood	Cornwall	202.49	0.40	9.00	2012	9.2
38	Anson	Avenue	Collector	Woodlawn	Parkwood	60.48	0.12	9.00	2012	9.2
39	Anson	Avenue	Collector	Woodlawn Island	n/a	39.29	0.08	9.00	2012	9.2
502	Casper	Court	Local	Webster	end	190.00	0.38	9.00	2006	8.0
66	Charles	Street	Collector	Dunlap	Dickey	91.35	0.18	9.00	2012	7.3
65	Charles	Street	Collector	Spring	Dunlap	119.00	0.24	9.00	2012	7.3
78	Church	Street	Arterial	Prince Arthur	Albion	134.11	0.27	9.00	2012	9.6
116	Copp	Lane	Local	Copp	end	44.84	0.09	9.00	2012	5.5
123	Cornwall	Street	Collector	Hickman	Cornwall Ave	133.20	0.27	9.00	2010	6.1
124	Cornwall	Street	Collector	Cornwall	Victor	90.16	0.18	9.00	2010	6.1
125	Cornwall	Street	Collector	Victor	Cordova	87.50	0.18	9.00	2010	6.1
126	Cornwall	Street	Collector	Cordova	Pender	73.01	0.15	9.00	2010	6.1
127	Cornwall	Street	Collector	Pender	Anson	85.51	0.17	9.00	2010	6.1
128	Cornwall	Street	Collector	Anson	Parkwood	83.60	0.17	9.00	2010	6.1
129	Cornwall	Street	Collector	Parkwood	Bayview	102.71	0.21	9.00	2010	6.1
130	Cornwall	Street	Collector	Bayview	Kent	79.63	0.16	9.00	2010	6.1
131	Cornwall	Street	Collector	Kent	Town Boundary	40.48	0.08	9.00	2010	6.1
506	Cumberland Ridge	Drive	Local	West Victoria	end	305.00	0.61	9.00	2011	8.0
154	Donald	Avenue	Collector	Ralston	Rhodes	89.27	0.18	9.00	2012	7.9
155	Donald	Avenue	Collector	Rhodes	Walter Purdy	205.18	0.41	9.00	2012	7.9
169	East Pleasant	Street	Collector	Chignecto	Stanley	90.50	0.18	9.00	2010	7.3
170	East Pleasant	Street	Collector	Albion	Beacon	32.00	0.06	9.00	2010	7.3
171	East Pleasant	Street	Collector	Fillmore	Chignecto	93.05	0.19	9.00	2010	7.3
172	East Pleasant	Street	Collector	Christie	Fillmore	112.01	0.22	9.00	2010	7.3
173	East Pleasant	Street	Collector	Beacon	Christie	23.09	0.05	9.00	2010	7.3
184	East Victoria	Street	Arterial	Acadia	Herbert	24.10	0.05	9.00	2011	10.9
185	East Victoria	Street	Arterial	Eddy	Acadia	155.39	0.31	9.00	2011	10.7
186	East Victoria	Street	Arterial	Havelock	Eddy	50.29	0.10	9.00	2011	10.7

STREETS DATABASE

ID	STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	"2014"	LAST PAVED	ROAD WIDTH
								Rating		
187	East Victoria	Street	Arterial	Church	Havelock	127.58	0.26	9.00	2011	10.7
188	East Victoria	Street	Arterial	Lawrence	Church	83.38	0.17	9.00	2011	10.7
189	East Victoria	Street	Arterial	Maple	Lawrence	48.47	0.10	9.00	2011	10.7
190	East Victoria	Street	Arterial	Station	Maple	46.15	0.09	9.00	2011	10.7
196	Electric	Street	Local	Maple	Church	149.80	0.30	9.00	2011	7.3
501	Fleming	Street	Local	Webster	Paradise	230.00	0.46	9.00	2007	8.0
233	Havelock	Street	Collector	Robie	Belmont	93.15	0.19	9.00	1998	9.1
227	Havelock	Street	Collector	Victoria	Ratchford	93.62	0.19	9.00	2010	9.3
228	Havelock	Street	Collector	Ratchford	King	13.00	0.03	9.00	2010	9.3
229	Havelock	Street	Collector	King	Princess	54.80	0.11	9.00	2010	9.3
230	Havelock	Street	Collector	Princess	Prince Arthur	74.70	0.15	9.00	2010	9.3
245	Hickman	Street	Collector	Park	Chamberlain	157.50	0.32	9.00	2011	7.6
255	King	Street	Local	Church	Havelock	141.59	0.28	9.00	2011	8.5
314	Paradise	Avenue	Local	Sandstone	Fleming	116.44	0.23	9.00	2006	8.5
315	Paradise	Avenue	Local	Webster	Sandstone	187.04	0.37	9.00	2006	8.5
329	Pinehurst	Street	Local	Rosewood	end	58.33	0.12	9.00	1994	8.0
330	Pinehurst	Avenue	Local	Rosewood	Sherwood	82.20	0.16	9.00	2012	8.0
331	Pinehurst	Avenue	Local	Sherwood	End	65.20	0.13	9.00	2012	8.0
332	Poplar	Street	Collector	Fairview	Central	75.17	0.15	9.00	2010	6.9
333	Poplar	Street	Collector	Belliveau	Fairview	78.23	0.16	9.00	2010	6.9
334	Poplar	Street	Collector	Fillmore	Belliveau	108.64	0.22	9.00	2010	6.9
335	Poplar	Street	Collector	Christie	Fillmore	66.48	0.13	9.00	2010	6.9
336	Poplar	Street	Collector	Albion	Christie	161.71	0.32	9.00	2010	6.9
344	Princess	Street	Local	Church	Havelock	148.22	0.30	9.00	2012	6.3
369	Robie	Street	Local	Blois	Havelock	97.95	0.20	9.00	2011	6.7
370	Robie	Street	Local	Church	Blois	86.27	0.17	9.00	2011	6.7
385	Rupert	Street	Collector	Dickey	Rhodes	185.67	0.37	9.00	2011	9.1
386	Rupert	Street	Collector	Rhodes	Rogers	87.36	0.17	9.00	2011	9.1
387	Rupert	Street	Collector	Rogers	Rogers	94.79	0.19	9.00	2011	9.1
447	Townshend	Avenue	Collector	Donald	Charles	365.32	0.73	9.00	2010	8.4
457	Webster	Street	Local	Willow	Paradise	87.43	0.17	9.00	2006	8.0
4	Abbey	Road	Collector	Forest Glenn	Ridgewood	115.21	0.23	10.00	2006	8.5
2	Abbey	Road	Collector	Penny	Spring	177.00	0.35	10.00	2012	8.0
6	Abbott	Street	Local	Douglas	Albion	45.07	0.09	10.00	2013	6.6
7	Abbott	Street	Local	Station	Douglas	112.57	0.23	10.00	2013	6.6
18	Agnew	Street	Local	Willow	Taplin	185.65	0.37	10.00	2013	6.1
19	Agnew	Street	Local	Taplin	Regent	92.28	0.18	10.00	2013	6.1
50	Belliveau	Avenue	Local	Poplar	Ottawa	224.84	0.45	10.00	2013	6.7
51	Belliveau	Avenue	Local	Ottawa	Winston	127.59	0.26	10.00	2013	5.5
74	Church	Street	Arterial	Victoria	King	92.44	0.18	10.00	2012	9.6
75	Church	Street	Arterial	King	Electric	5.83	0.01	10.00	2012	9.6
76	Church	Street	Arterial	Electric	Princess	50.35	0.10	10.00	2012	9.6
77	Church	Street	Arterial	Princess	Prince Arthur	64.77	0.13	10.00	2012	9.6
102	Clifford	Street	Local	Rupert	Regent	151.04	0.30	10.00	2013	6.0
110	Colin	Court	Local	Liberty	end	205.71	0.41	10.00	2012	6.7
147	Derby	Street	Local	Victoria	end	195.82	0.39	10.00	2013	8.0
152	Donald	Avenue	Collector	Spring	Dickey	200.74	0.40	10.00	2012	6.7
153	Donald	Avenue	Collector	Dickey	Ralston	82.13	0.16	10.00	2012	7.9
156	Donald	Avenue	Collector	Walter Purdy	Townshend	76.57	0.15	10.00	2012	7.9
157	Douglas	Avenue	Local	Crescent	Abbott	238.57	0.48	10.00	2012	6.1
158	Duke	Street	Local	Park	York	108.18	0.22	10.00	2013	6.1
191	Eddy	Street	Collector	Brownell	Palmer	101.00	0.20	10.00	2014	7.3
192	Eddy	Street	Collector	Palmer	Dale	91.00	0.18	10.00	2014	7.3
193	Eddy	Street	Collector	Dale	Victoria	221.89	0.44	10.00	2014	7.3
194	Eddy	Street	Collector	Brownell	End of asphalt	67.66	0.14	10.00	2014	7.3
211	Fillmore	Street	Local	Poplar	Pleasant	203.44	0.41	10.00	2013	8.0
213	Fletcher	Drive	Local	Milford	Spring	133.14	0.27	10.00	2013	7.7
212	Fletcher	Drive	Local	Elmwood	Milford	191.52	0.38	10.00	2013	7.7
220	Fullerton	Street	Local	Crescent	Albion	168.60	0.34	10.00	2012	7.0
236	Herbert	Street	Local	Victoria	Dale	180.54	0.36	10.00	2014	6.7
505	Heron	Lane	Local	Derby	Mallard	122.00	0.24	10.00	2012	6.0
504	Mallard	Drive	Local	Heron	End	214.00	0.43	10.00	2012	6.0
284	Melrose	Street	Local	Robie	Belmont	95.46	0.19	10.00	2013	7.0
285	Melrose	Street	Local	Belmont	Clifford	86.78	0.17	10.00	2013	7.0
286	Melrose	Street	Local	Clifford	Spring	117.12	0.23	10.00	2013	7.0
361	Rhodes	Avenue	Local	Donald	Rupert	257.24	0.51	10.00	2012	7.9
503	Sandstone	Crescent	Local	Paradise	Paradise	245.00	0.49	10.00	2011	8.0
400	South Adelaide	Street	Local	Victoria	Prince Arthur	218.18	0.44	10.00	2014	8.5
401	South Albion	Street	Arterial	Poplar	Pleasant	343.68	1.03	10.00	1996	11.6

STREETS DATABASE

ID	STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	"2014"	LAST PAVED	ROAD WIDTH
								Rating		
402	South Albion	Street	Arterial	Ottawa	Poplar	183.21	0.55	10.00	2007	11.6
403	South Albion	Street	Arterial	Newton	Ottawa	68.68	0.21	10.00	2007	11.6
404	South Albion	Street	Arterial	Chamberlain	Newton	81.18	0.24	10.00	2007	11.6
405	South Albion	Street	Arterial	Winston	Chamberlain	74.64	0.22	10.00	2007	11.6
406	South Albion	Street	Arterial	Clinton	Winston	31.18	0.09	10.00	2007	11.6
407	South Albion	Street	Arterial	Costin	Clinton	138.56	0.42	10.00	2007	11.6
408	South Albion	Street	Arterial	Robert Angus	Costin	592.42	1.78	10.00	2007	11.6
409	South Albion	Street	Arterial	Lord Amherst	Robert Angus	306.00	0.92	10.00	2007	11.6
410	South Albion	Street	Arterial	Lord Amherst	HWY On Ramps	280.00	0.84	10.00	2007	11.6
429	Spring	Street	Collector	Albion	Croft	196.86	0.39	10.00	2012	6.1
436	Summer	Street	Local	Church	Croft	260.74	0.52	10.00	2013	6.0
462	West Pleasant	Street	Collector	Mill	Park	122.37	0.24	10.00	2013	8.2
463	West Pleasant	Street	Collector	Hill	Mill	69.20	0.14	10.00	2013	8.2
464	West Pleasant	Street	Collector	Hickman	Hill	131.63	0.26	10.00	2013	9.0
494	Winston	Avenue	Local	Albion	Fairview	536.27	1.07	10.00	2012	7.9
455	Victor	Avenue	Local	Cornwall	End	327.35	0.65		2004	5.5

73551.25



INFRASTRUCTURE AND BUILDINGS

Asset Management Assessment - Final Report

Client Name: Town of Amherst

Street Name: Anson Ave

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			patching, no crown, uneven
		Drainage				x		drainage ditching on both sides
		Potholes present?	y		x			
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	asphalt			x		
		Drainage						
		Breaks present?						
		Cracking present?	y					
	Utilities	Water Supply	y					no water at end of anson
		Sanitary Sewer	y					no san at end of anson
		Storm Sewer						
		Other Site Civil Utilities						

Client Name: Town of Amherst

Street Name: Croft St

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt	x				cracking and patching
		Drainage			x			catch basins and storm sewer
		Potholes present?	y		x			
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	asphalt		x			cracking
		Drainage						
		Breaks present?	y					
		Cracking present?	y					
	Sidewalks	Sidewalk Structure	asphalt	x				cracking and patching
		Drainage						
		Breaks present?	y					
		Cracking present?	y					
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer	y					issues with storm sewer, poor alignment causing issues
Other Site Civil Utilities		natural gas					out of road on other side of curb	

Client Name: Town of Amherst

Street Name: Dale St.

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			lots of patching
		Drainage		x				no drainage
		Potholes present?	n					
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	not for most					bad sidewalk between eddy & laplache
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					4", undersized
		Sanitary Sewer	y					combined sewer, old san line running between covic 22 & 24
		Storm Sewer	n					cb from herbert st drain to san on dale
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Derby St

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	gravel	x				
		Drainage						
		Potholes present?	y					
		Cracking present?						
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	n/A					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	N/A					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply						
		Sanitary Sewer						
		Storm Sewer						
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Durley St

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt	x				lots of patching
		Drainage		x				
		Potholes present?	y	x				
		Cracking present?	y	x				
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer		x				shallow ditching, 1cb
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Foundry St

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt	x				cracked and patched
		Drainage		x				shallow ditches
		Potholes present?	y		x			
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer	na					
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Freeman St.

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			approx 4-5m, no san, water line present
		Drainage			x			
		Potholes present?	na			x		
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer						
		Storm Sewer						
		Other Site Civil Utilities						

Client Name: Town of Amherst

Street Name: Highfield St

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt	x				badly cracked and patched
		Drainage			xx			ditching and catch basins
		Potholes present?	y		x			
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer	y					
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Lamy St.

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			
		Drainage			x			
		Potholes present?	n					
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	concrete			x		only halfway down street
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure						
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer	y					sanitary trunk sewer at bottom of slope
		Storm Sewer	y					
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Mill Ave

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt	x				cracking & patching
		Drainage			x			drainage ditches to both sides, csp culverts under driveways
		Potholes present?	y					
		Cracking present?	y					
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer						
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Mill St

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			patched and cracked
		Drainage			x			ditching that runs to cb, ditch blocked and full of water, large box culvert runs across mill st
		Potholes present?	y					
		Cracking present?	y	x				
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	asphalt		x			cracking & patching
		Drainage						
		Breaks present?	y		x			
		Cracking present?	y		x			
	Utilities	Water Supply	y					
		Sanitary Sewer	n					sewer runs behind mill st, large trunk sewer runs across mill st
		Storm Sewer						
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Mission St

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt	x				badly cracked and patched
		Drainage		x				shallow ditches, poor drainage
		Potholes present?	y		x			
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	asphalt		x			cracked, lower than road
		Drainage						
		Breaks present?						
		Cracking present?	y			x		
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer	na					
Other Site Civil Utilities								

Client Name: Town of Amherst
 Street Name: North Adelaide St.
 Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt	x				csp storm sewer approx 1972,
		Drainage		x				
		Potholes present?	y	x				
		Cracking present?	y	x				
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	concrete			x		one small section only
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	concrete, asphalt	x				
		Drainage						
		Breaks present?	y	x				
		Cracking present?	y	x				
	Utilities	Water Supply						
		Sanitary Sewer						
		Storm Sewer				x		
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Pearl Pl.

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			
		Drainage		x				
		Potholes present?	y		x			
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer	y					
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Queen St.

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			
		Drainage		x				catch basins at street ends, poor drainage throughout
		Potholes present?	y		x			
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	asphalt					
		Drainage						
		Breaks present?						
		Cracking present?	y					
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer	y					new dedicated storm
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Racetrack Rd

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt	x				cracked and patched
		Drainage			x			drainage ditch
		Potholes present?	na					
		Cracking present?	y	x				
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer						
		Other Site Civil Utilities						

Client Name: Town of Amherst

Street Name: Rosewood Dr.

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			cracked and patched, still good in many places
		Drainage				x		french drain recently installed, drains into storm sewer
		Potholes present?	y					mainly at entrance to mobile home park
		Cracking present?	yx		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	concrete and asphalt		x	x		asphalt in poor condition, concrete in good condition
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure						
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer	y			x		recent french drain system added
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Sackville Rd.

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			new patchinh from water replacement
		Drainage						draiage ditch
		Potholes present?						
		Cracking present?						
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y				x	new
		Sanitary Sewer	y				x	new
		Storm Sewer						drainage ditch
Other Site Civil Utilities								

Client Name: Town of Amherst

Street Name: Spring Street Extension

Date: 14-Oct-2015

TOPIC	GROUP ELEMENTS	COMPONENTS	MATERIAL	CONDITION				COMMENTS
				Poor	Fair	Good	New	
Roads/Curbs/Sidewalk	Roads	Pavement	asphalt		x			cracking and patching
		Drainage			x			
		Potholes present?	y		x			
		Cracking present?	y		x			
		Other Features (shoulders, paint, etc)						
	Curbs	Curb Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Sidewalks	Sidewalk Structure	na					
		Drainage						
		Breaks present?						
		Cracking present?						
	Utilities	Water Supply	y					
		Sanitary Sewer	y					
		Storm Sewer	n					
Other Site Civil Utilities								

E : TOWN OF AMHERST STREETS - : PASER RATINGS 2&3

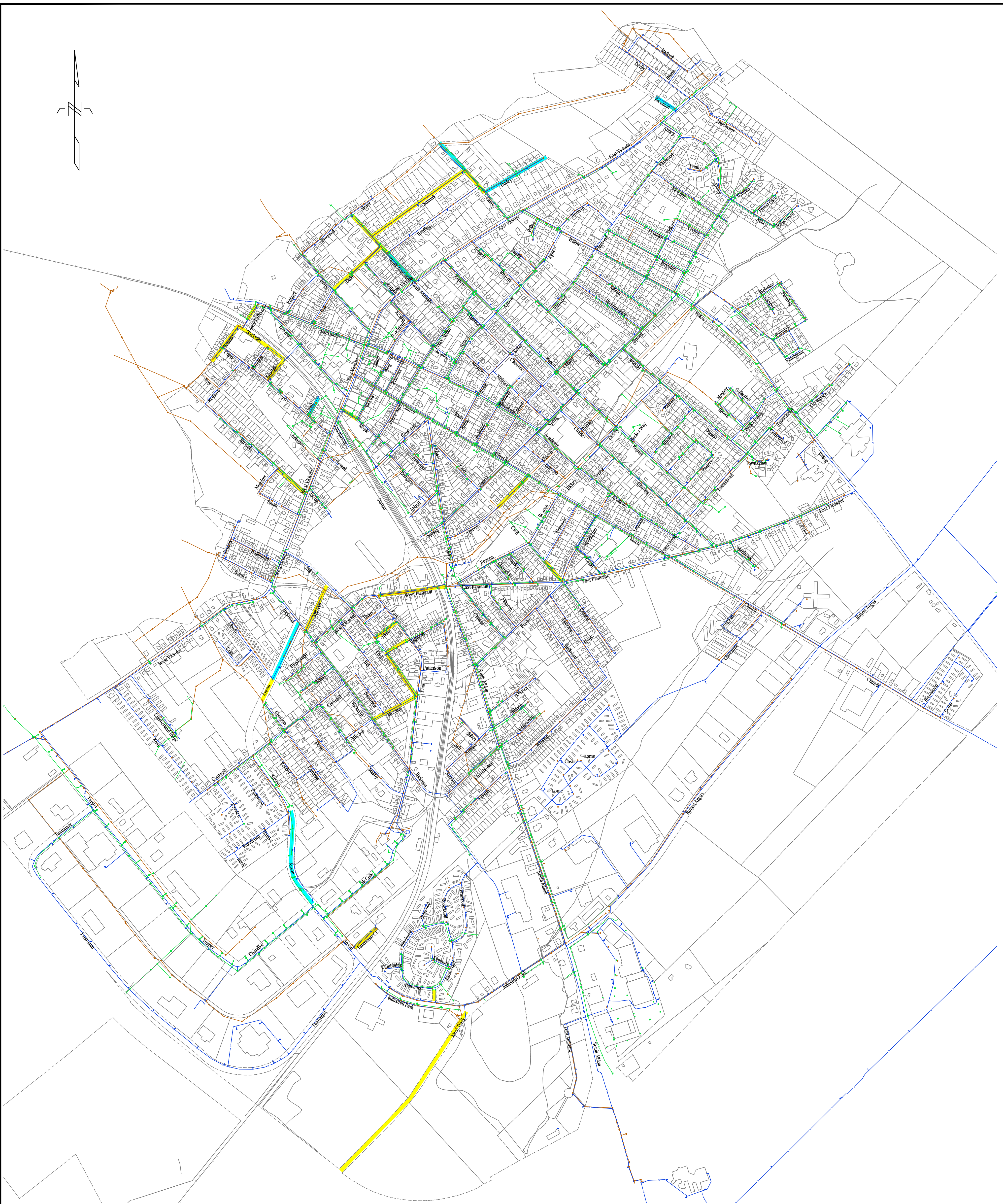
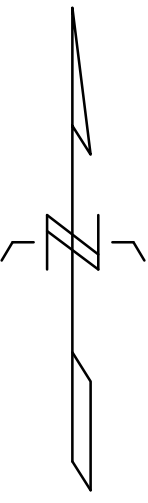


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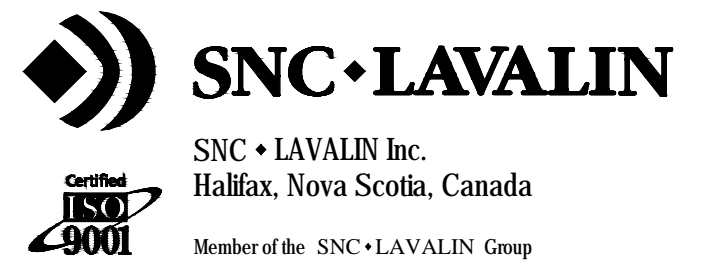
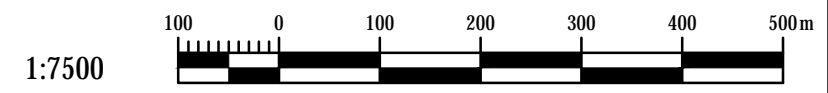
INFRASTRUCTURE AND BUILDINGS

Asset Management Assessment - Final Report



LEGEND
 RATING 2 —
 RATING 3 —

ID	STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	"2014" RATING	LAST PAVED	ROAD WIDTH
34	Anson	Avenue	Collector	Liberty	Hickman	237.70	0.48	2.00	1978	6.9
40	Anson	Avenue	Collector	Chandler	Woodlawn	370.60	0.74	2.00	1987	9.2
161	Durley	Street	Local	Lamy	end	268.39	0.54	2.00	1994	7.0
219	Freeman	Street	Local	Victoria	end	96.60	0.19	2.00	1993	5.8
256	Lamy	Street	Local	Summit	end	149.40	0.30	2.00	1998	8.2
310	North Adelaide	Street	Collector	Harding	Victoria	160.42	0.32	2.00	1993	6.1
325	Pearl	Place	Local	Copp	end	78.46	0.16	2.00	1994	5.0
33	Alma	Street	Local	Park	York	105.12	0.21	3.00	1994	6.0
35	Anson	Avenue	Collector	Cordova	Liberty	105.99	0.21	3.00	1978	6.9
140	Croft	Street	Collector	Summer	Wellington	108.00	0.22	3.00	1989	8.5
143	Dale	Street	Local	Herbert	Eddy	168.83	0.34	3.00	1991	6.7
142	Dale	Street	Local	North Adelaide	Herbert	93.61	0.19	3.00	1991	6.7
206	Emcliffe	Street	Local	Sackville	Copp	110.43	0.22	3.00	1994	7.0
215	Foundry	Street	Local	Sackville	Copp	103.60	0.21	3.00	1994	5.0
216	Foundry	Street	Local	Copp	end	67.41	0.13	3.00	1994	5.0
246	Highfield	Street	Local	Park	York	104.07	0.21	3.00	1994	6.0
257	Lamy	Street	Local	Harding	Summit	87.22	0.17	3.00	1998	8.2
258	Lamy	Street	Local	Durley	Harding	32.56	0.07	3.00	1998	8.2
275	Lower LaPlanche	Street	Local	LaPlanche	end	77.35	0.15	3.00	1978	7.0
277	Maple	Avenue	Local	Victoria	Electric	80.86	0.16	3.00	1989	7.6
294	Mill	Avenue	Local	Hickman	Liberty	204.62	0.41	3.00	1987	6.1
296	Mission	Street	Local	York	Hill	74.73	0.15	3.00	1994	6.0
297	Mission	Street	Local	Hill	Snowden	77.60	0.16	3.00	1994	6.0
298	Mission	Street	Local	Snowden	Hickman	49.88	0.10	3.00	1994	6.0
307	North Adelaide	Street	Collector	Motor	Summit	123.71	0.25	3.00	1993	6.1
308	North Adelaide	Street	Collector	Summit	Dale	55.38	0.11	3.00	1993	6.1
309	North Adelaide	Street	Collector	Dale	Harding	32.56	0.07	3.00	1993	6.1
347	Queen	Street	Local	Church	Croft	175.72	0.35	3.00	1990	6.1
350	Race Track	Road	Local	Ind Park Drive	Town Boundary	116.00	0.23	3.00	1978	7.0
377	Rosewood	Drive	Local	Anson	Pinehurst	66.00	0.13	3.00	1992	7.9
389	Russell	Street	Local	Meadow	Victoria	153.59	0.31	3.00	1987	6.1
392	Sackville	Road	Local	Emcliffe	Rambler	85.51	0.17	3.00	1971	7.0
391	Sackville	Road	Local	Rambler	Foundry	147.00	0.29	3.00	1971	7.0
437	Summit	Avenue	Local	Lamy	North Adelaide	455.06	0.91	3.00	2002	7.0
438	Tantramar	Court	Local	Anson	End	178.86	0.36	3.00	1980	6.9
461	West Pleasant	Street	Collector	Park	Albion	285.76	0.57	3.00	2003	7.9
498	York	Street	Local	Highfield	Park	212.04	0.42	3.00	1994	6.0



DRAWING TITLE: DATE: 2015/11/02

STREET RATING INFORMATION
 AMHERST, NS

DRAWING NUMBER: **STREET RATINGS**

F : Street and Linear Infrastructure : Summary



INFRASTRUCTURE AND BUILDINGS

Asset Management Assessment - Final Report

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-	Breaks/ Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	Projected Year for Intervention
						Size	Type	Year Installed	Age (Years)	Material						
Anson	Avenue	Collector	Chandler	Woodlawn	370.60	0.74	2	1987	9.2	-		REPLACE	\$ 118,590.71	\$ 48,177.48		
Storm			Chandler	Woodlawn	60.90	300	Main	1970	45	Concrete		STAY	\$ -		\$ 166,768.19	1
Storm			Woodlawn	Chandler	97.01	300	Main	1970	45	Concrete		STAY	\$ -			
Watermain			Woodlawn	Chandler	259.00	200	Main	1985	30	Ductile Iron		STAY	\$ -			
Watermain			Chandler	Woodlawn	92.00	150	Main	1995	20	PVC		STAY	\$ -			
Sanitary			Chandler	Woodlawn	103.86	200	Main	1980	35	PVC		STAY	\$ -			
Durley	Street	Local	Lamy	End	268.39	0.54	2	1994	7.0	-		REPLACE	\$ 85,884.95	\$ 34,890.76		
Watermain			Lamy	End	181.00	150	Main	1949	66	Cast Iron	2	REPLACE	\$ 72,400.00		\$ 397,394.00	1
Watermain			Lamy	End	97.00	150	Main	1966	49	Ductile Ir		REPLACE	\$ 38,800.00			
Sanitary			Lamy	End	90.13	200	Main	1950	65	Clay		REPLACE	\$ 54,078.27			
Sanitary			Lamy	End	87.57	200	Main	1950	65	Clay		REPLACE	\$ 52,542.50			
Sanitary			Lamy	End	98.00	200	Main	1960	55	Clay		REPLACE	\$ 58,797.52			
Freeman	Street	Local	Victoria	End	96.60	0.19	2	1993	5.8	-		REPLACE	\$ 30,911.89	\$ 12,557.95		
-															\$ 43,469.84	1
Lamy	Street	Local	Summit	End	149.40	0.30	2	1998	8.2	-		REPLACE	\$ 47,808.00	\$ 19,422.00		
Storm			Summit	End	91.08	750	Main	1970	45	Concrete		STAY	\$ -		\$ 106,548.00	1
Watermain			Summit	End	133.00	150	Main	2003	12	PVC		STAY	\$ -			
Sanitary			Summit	End	65.53	300	Main	1950	65	Clay		REPLACE	\$ 39,318.00			
Sanitary			Summit	End	65.53	300	Main	1950	65	Clay		REPLACE	\$ 39,318.00			
North Adelaide	Street	Collector	Harding	Victoria	160.42	0.32	2	1993	6.1	-		REPLACE	\$ 51,335.92	\$ 20,855.22		
Storm			Harding	Victoria	6.05	450	Main	1970	45	Corrugated		REPLACE	\$ 1,815.82		\$ 171,858.51	1
Storm			Harding	Victoria	10.25	450	Main	1970	45	Corrugated		REPLACE	\$ 3,073.62			
Storm			Harding	Victoria	31.15	450	Main	1970	45	Corrugated		REPLACE	\$ 9,343.61			
Watermain			Victoria	Harding	158.00	150	Main	1949	66	Cast Iron	2	REPLACE	\$ 63,200.00			
Sanitary			Harding	Victoria	37.06	200	Main	1950	65	Clay		REPLACE	\$ 22,234.31			
Pearl	Place	Local	Copp	End	78.46	0.16	2	1994	5.0	-		REPLACE	\$ 25,107.77	\$ 10,200.03		
Storm			Copp	End	6.91	450	Main	1980	35	Corrugated		REPLACE	\$ 2,074.18		\$ 130,931.63	1
Storm			Copp	End	27.18	450	Main	1980	35	Corrugated		REPLACE	\$ 8,155.23			
Storm			Copp	End	48.21	450	Main	1980	35	Corrugated		REPLACE	\$ 14,462.41			
Watermain			Copp	End	87.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 34,800.00			
Sanitary			Copp	End	60.22	225	Main	1910	105	Clay		REPLACE	\$ 36,132.00			
Alma	Street	Local	Park	York	105.12	0.21	3	1994	6.0	-		REPLACE	\$ 33,638.45	\$ 13,665.62		
Storm			Park	York	11.83	300	Main	1970	45	Corrugated		REPLACE	\$ 3,549.75		\$ 163,558.52	2
Storm			Park	York	34.96	300	Main	1970	45	Corrugated		REPLACE	\$ 10,488.29			
Storm			Park	York	48.32	300	Main	1970	45	Corrugated		REPLACE	\$ 14,496.41			
Watermain			Park	York	108	100	Main	1906	109	Cast Iron		REPLACE	\$ 43,200.00			
Sanitary			Park	York	74.20	250	Main	1940	75	Clay		REPLACE	\$ 44,520.00			
Anson	Avenue	Collector	Cordova	Liberty	105.99	0.21	3	1978	6.9	-		MILL	\$ 9,539.23	\$ -		
-															\$ 9,539.23	2
Croft	Street	Collector	Summer	Wellington	108.00	0.22	3	1989	8.5	-		REPLACE	\$ 34,560.74	\$ 14,040.30		
Storm			Summer	Wellington	42.50	300	Main	1970	45	Corrugated		REPLACE	\$ 12,750.00		\$ 114,479.21	2
Storm			Summer	Wellington	74.43	300	Main	1970	45	Corrugated		REPLACE	\$ 22,328.17			
Watermain			Summer	Wellington	77.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 30,800.00			
Watermain			Summer	Wellington	30.00	150	Main	1980	35	PVC		STAY	\$ -			
Dale	Street	Local	Herbert	Eddy	168.83	0.34	3	1991	6.7	-		REPLACE	\$ 54,024.61	\$ 21,947.50		
Watermain			Eddy	Herbert	165.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 66,000.00		\$ 210,803.21	2
Sanitary			Herbert	Eddy	71.31	375	Main	1950	65	Concrete		REPLACE	\$ 42,787.98			
Sanitary			Herbert	Eddy	43.41	200	Main	1950	65	Concrete		REPLACE	\$ 26,043.12			
Dale	Street	Local	North Adelaide	Herbert	93.61	0.19	3	1991	6.7	-		REPLACE	\$ 29,956.23	\$ 12,169.72		
Watermain			Herbert	North Adelaide	93.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 37,200.00		\$ 131,869.75	2
Sanitary			North Adelaide	Herbert	87.57	375	Main	1950	65	Clay		REPLACE	\$ 52,543.80			
Erncliffe	Street	Local	Sackville	Copp	110.43	0.22	3	1994	7.0	-		REPLACE	\$ 35,338.27	\$ 14,356.17		
Watermain			Copp	Sackville Rd	111.00	100	Main	1906	109	Cast Iron	1	REPLACE	\$ 44,400.00		\$ 145,807.61	2
Sanitary					86.19	300	Main	1910	105	Clay		REPLACE	\$ 51,713.16			
Foundry	Street	Local	Sackville	Copp	103.60	0.21	3	1994	5.0	-		REPLACE	\$ 33,152.06	\$ 13,468.03		
Watermain			Copp	Sackville Rd	109.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 43,600.00		\$ 152,506.09	2
Sanitary			Sackville	Copp	103.81	600	Main	1900	115	Clay		REPLACE	\$ 62,286.00			
Foundry	Street	Local	Copp	End	67.41	0.13	3	1994	5.0	-		REPLACE	\$ 21,572.13	\$ 8,763.68		
Watermain			Copp	End	60.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 24,000.00		\$ 170,206.00	2
Sanitary			Copp	End	193.12	600	Main	1900	115	Clay		REPLACE	\$ 115,870.19			
Highfield	Street	Local	Park	York	104.07	0.21	3	1994	6.0	-		REPLACE	\$ 33,303.45	\$ 13,529.53		
Storm			Park	York	32.71	300	Main	1970	45	Corrugated		REPLACE	\$ 9,812.99		\$ 166,128.86	2
Watermain			Park	York	114.00	100	Main	1906	109	Cast Iron	2	REPLACE	\$ 45,600.00			
Sanitary			Park	York	55.95	250	Main	1910	105	Clay		REPLACE	\$ 33,569.26			
Sanitary			Park	York	50.52	250	Main	1910	105	Clay		REPLACE	\$ 30,313.62			

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-	Breaks/ Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	Projected Year for Intervention
						Size	Type	Year Installed	Age (Years)	Material						
Lamy	Street	Local	Harding	Summit	87.22	0.17	3	1998	8.2	-		REPLACE	\$ 27,910.93	\$ 11,338.81		
Storm			Summit	Harding	82.78	750	Main	1970	45	Corrugated		REPLACE	\$ 24,834.93			
Watermain			Harding	Summit	95.00	150	Main	1949	66	Cast Iron	4	REPLACE	\$ 38,000.00		\$ 152,064.68	2
Sanitary			Harding	Summit	83.30	300	Main	1950	65	Clay		REPLACE	\$ 49,980.00			
Lamy	Street	Local	Durley	Harding	32.56	0.07	3	1998	8.2	-		REPLACE	\$ 10,418.45	\$ 4,232.49		
Storm			Harding	Durley	42.55	600	Main	1970	45	Corrugated		REPLACE	\$ 12,765.63			
Storm			Durley	Harding	11.87	450	Main	1970	45	Corrugated		REPLACE	\$ 3,562.06		\$ 63,778.63	2
Watermain			Durley	Harding	34.00	150	Main	1949	66	Cast Iron	2	REPLACE	\$ 13,600.00			
Sanitary			Durley	Harding	32.00	300	Main	1950	65	Clay		REPLACE	\$ 19,200.00			
Lower LaPlanche	Street	Local	LaPlanche	End	77.35	0.15	3	1978	7.0	-		REPLACE	\$ 24,750.92	\$ 10,055.06		
Storm			LaPlanche	End	72.73	900	Main	1970	45	Corrugated		REPLACE	\$ 21,817.78		\$ 117,823.76	2
Watermain			Lower LaPlanche	End	153.00	150	Main	1906	109	Cast Iron	1	REPLACE	\$ 61,200.00			
Maple	Avenue	Local	Victoria	Electric	80.96	0.16	3	1989	7.6	-		REPLACE	\$ 25,908.64	\$ 10,525.38		
Storm			Victoria	Electric	65.71	300	Main	1980	35	Corrugated		REPLACE	\$ 19,711.86			
Watermain			Victoria	Electric	74.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 29,600.00		\$ 134,567.88	2
Sanitary			Victoria	Electric	81.37	300	Main	1900	115	Clay		REPLACE	\$ 48,822.00			
Mill	Avenue	Local	Hickman	Mill	204.62	0.41	3	1987	6.1	-		MILL	\$ 18,415.73	\$ -		
-	-	-	-	-	-	-	-	-	-	-					\$ 18,415.73	2
Mission	Street	Local	York	Hill	74.73	0.15	3	1994	6.0	-		MILL	\$ 6,725.96	\$ -		
-	-	-	-	-	-	-	-	-	-	-					\$ 6,725.96	2
Mission	Street	Local	Hill	Snowden	77.60	0.16	3	1994	6.0	-		REPLACE	\$ 24,833.01	\$ 10,088.41		
Watermain			Snowden	Hill	76.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 30,400.00		\$ 110,946.97	2
Sanitary			Hill	Snowden	76.04	200	Main	1950	65	Clay		REPLACE	\$ 45,625.55			
Mission	Street	Local	Snowden	Hickman	49.88	0.10	3	1994	6.0	-		REPLACE	\$ 15,962.36	\$ 6,484.71		
Watermain			Hickman	Snowden	55.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 22,000.00		\$ 58,847.06	2
Sanitary			Snowden	Hickman	24.00	200	Main	1950	65	Clay		REPLACE	\$ 14,400.00			
North Adelaide	Street	Collector	Motor	Summit	123.71	0.25	3	1993	6.1	-		REPLACE	\$ 39,585.83	\$ 16,081.74		
Watermain			Summit	Motor	124.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 49,600.00		\$ 143,571.57	2
Sanitary			Motor	Summit	63.84	150	Main	1950	65	Clay		REPLACE	\$ 38,304.00			
North Adelaide	Street	Collector	Summit	Dale	55.38	0.11	3	1993	6.1	-		REPLACE	\$ 17,720.45	\$ 7,198.93		
Watermain			Dale	Summit	54.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 21,532.00		\$ 46,451.38	2
Sanitary			Summit	Dale	53.83	200	Main	1950	65	Clay		REPLACE	\$ 15,532.00			
North Adelaide	Street	Collector	Dale	Harding	32.56	0.07	3	1993	6.1	-		REPLACE	\$ 10,418.45	\$ 4,232.49		
Storm			Dale	Harding	14.26	450	Main	1970	45	Corrugated		REPLACE	\$ 4,278.75		\$ 66,866.80	2
Storm			Dale	Harding	36.34	450	Main	1970	45	Corrugated		REPLACE	\$ 10,901.11			
Watermain			Dale	Harding	37.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 14,800.00			
Sanitary			Dale	Harding	37.06	200	Main	1950	65	Clay		REPLACE	\$ 22,236.00			
Queen	Street	Local	Church	Croft	175.72	0.35	3	1990	6.1	-		REPLACE	\$ 56,229.25	\$ 22,843.13		
Sanitary					92.70	250	Main	1910	105	Clay		REPLACE	\$ 55,618.41		\$ 189,050.78	2
Sanitary					90.60	300	Main	1910	105	Clay		REPLACE	\$ 54,360.00			
Rosewood	Drive	Local	Anson	Pinehurst	66.00	0.13	3	1992	7.9	-		MILL	\$ 5,940.17	\$ -		
Watermain			Anson	Pinehurst	59.00	150	Main	1992	23	PVC		STAY	\$ -		\$ 5,940.17	2
Russell	Street	Local	Meadow	Victoria	153.59	0.31	3	1987	6.1	-		REPLACE	\$ 49,149.69	\$ 19,967.06		
Storm			Meadow	Victoria	116.31	900	Main	1970	45	Concrete		STAY	\$ -		\$ 224,516.75	2
Storm			Meadow	Victoria	7.97	450	Main	1970	45	Concrete		STAY	\$ -			
Storm			Meadow	Victoria	47.75	450	Main	1970	45	Concrete		STAY	\$ -			
Watermain			Meadow	Victoria	159.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 63,600.00			
Sanitary			Meadow	Victoria	127.60	500	Main	1900	115	Clay		REPLACE	\$ 76,560.00			
Sanitary			Meadow	Victoria	25.40	500	Main	1900	115	Clay		REPLACE	\$ 15,240.00			
Sackville	Road	Local	Erncliffe	Rambler	85.51	0.17	3	1971	7.0	-		MILL	\$ 7,695.53	\$ -		
Sanitary			Erncliffe	Rambler	47.00	150	Main	2000	15	PVC		STAY	\$ -		\$ 7,695.53	2
Sackville	Road	Local	Rambler	Foundry	147.00	0.29	3	1971	7.0	-		REPLACE	\$ 47,040.16	\$ 19,110.06		
Sanitary			Rambler	Foundry	17.72	450	Main	1900	115	Clay		REPLACE	\$ 10,632.00		\$ 76,782.22	2
Summit	Avenue	Local	Lamy	North Adelaide	455.06	0.91	3	2002	7.0	-		REPLACE	\$ 145,620.35	\$ 59,158.27		
Watermain			North Adelaide	Lamy	457.00	150	Main	1968	47	Cast Iron	6	REPLACE	\$ 182,800.00		\$ 662,578.36	2
Sanitary			Lamy	North Adelaide	260.55	200	Main	1960	55	Concrete	1 (blockage)	REPLACE	\$ 156,332.92			
Sanitary			Lamy	North Adelaide	105.76	200	Main	1960	55	Concrete		REPLACE	\$ 63,455.78			
Sanitary			Lamy	North Adelaide	92.02	200	Main	1960	55	Concrete		REPLACE	\$ 55,211.04			
Tantramar	Court	Local	Anson	End	178.86	0.36	3	1980	6.9	-		MILL	\$ 16,097.79	\$ -		
Watermain			Anson	End	136.00	150	Main	1980	35	PVC		STAY	\$ -		\$ 16,097.79	2
Sanitary					75.68	200	Main	1970	45.0	Concrete		STAY	\$ -			
Sanitary					42.00	200	Main	1970	45.0	Concrete		STAY	\$ -			

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-	Breaks/ Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	Projected Year for Intervention
						Size	Type	Year Installed	Age (Years)	Material						
West Pleasant	Street	Collector	Park	Albion	285.76	0.57	3	2003	7.9	-		MILL	\$ 25,718.41	\$ -		
Watermain			Park	Albion	295.00	150	Main	1906	109	Cast Iron	1	REPLACE	\$ 118,000.00			
Sanitary			Park	Albion	183.35	200	Main	2000	15	PVC	1 (blockage)	STAY	\$ -		\$ 143,718.41	2
Sanitary			Park	Albion	53.09	200	Main	2000	15	PVC		STAY	\$ -			
Sanitary			Park	Albion	40.64	200	Main	2000	15	PVC		STAY	\$ -			
York	Street	Local	Highfield	Park	212.04	0.42	3	1994	6.0	-		REPLACE	\$ 67,853.99	\$ 27,565.68		
Storm			Highfield	Park	10.84	300	Main	1970	45	Corrugated		REPLACE	\$ 3,251.23			
Storm			Highfield	Park	13.25	300	Main	1970	45	Corrugated		REPLACE	\$ 3,976.20			
Storm			Highfield	Park	68.60	300	Main	1970	45	Corrugated		REPLACE	\$ 20,581.21		\$ 286,217.95	2
Storm			Highfield	Park	124.22	300	Main	1970	45	Corrugated		REPLACE	\$ 37,264.97			
Sanitary			Highfield	Park	209.54	250	Main	1910	105	Clay		REPLACE	\$ 125,724.67			
Anson	Avenue	Collector	Tantramar Court	Tantramar Crescent	70.70	0.14	4	1987	9.2	-		CHIP SEAL	\$ 4,242.00	\$ -		
Watermain			Tantramar Court	Tantramar Crescent	61.00	150	Main	1975	40	Ductile Ir		STAY	\$ -		\$ 4,242.00	3
Sanitary Forcemain			Tantramar Court	Tantramar Crescent	120.00	200	Forcemain	1990	25	Ductile Ir		STAY	\$ -			
Anson	Avenue	Collector	Cornwall	Cordova	231.59	0.46	4	2004	7.3	-		CHIP SEAL	\$ 13,895.64	\$ -		
-	-	-	-	-	-	-	-	-	-	-					\$ 13,895.64	3
Clifford	Street	Local	Clarence	Rupert	81.69	0.16	4	1994	6.0	-		MILL	\$ 7,352.10	\$ -		
Watermain			Clarence	Rupert	80.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 32,000.00		\$ 39,352.10	3
Cornwall	Avenue	Local	Mission	End	328.03	0.66	4	1985	7.0	-		CHIP SEAL	\$ 19,682.06	\$ -		
-	-	-	-	-	-	-	-	-	-	-					\$ 19,682.06	3
Cornwall	Avenue	Local	Cornwall St	Mission	171.64	0.34	4	1985	7.0	-		REPLACE	\$ 54,924.76	\$ 22,313.19		
Storm			Cornwall	Mission	9.76	450	Main	1980	35	Corrugated		REPLACE	\$ 2,928.19			
Storm			Cornwall	Mission	54.49	450	Main	1980	35	Corrugated		REPLACE	\$ 16,346.06			
Storm			Cornwall	Mission	47.74	375	Main	1980	35	Corrugated		REPLACE	\$ 14,323.05			
Storm			Cornwall	Mission	61.31	375	Main	1980	35	Corrugated		REPLACE	\$ 18,392.72		\$ 279,748.37	3
Watermain			Cornwall	Mission	177.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 70,800.00			
Sanitary			Cornwall	Mission	83.31	250	Main	1940	75	Clay		REPLACE	\$ 49,983.50			
Sanitary			Cornwall	Mission	49.56	250	Main	1940	75	Clay		REPLACE	\$ 29,736.91			
Croft	Street	Collector	Beacon	Summer	101.99	0.20	4	1989	8.5	-		REPLACE	\$ 32,635.69	\$ 13,258.25		
Storm			Beacon	Summer	65.31	300	Main	1970	45	Corrugated		REPLACE	\$ 19,593.44			
Watermain			Beacon	Summer	94.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 37,600.00		\$ 194,168.05	3
Sanitary			Beacon	Summer	151.80	250	Main	1940	75	Clay		REPLACE	\$ 91,080.67			
Dale	Street	Local	Eddy	LaPlanche	157.39	0.31	4	1991	6.7	-		REPLACE	\$ 50,363.90	\$ 20,460.33		
Watermain			Eddy	LaPlanche	158.00	100	Main	1949	66	Cast Iron	3	REPLACE	\$ -		\$ 168,858.36	3
Sanitary			Eddy	LaPlanche	163.39	300	Main	1900	115	Clay		REPLACE	\$ 98,034.13			
Dundonald	Street	Local	Hickman	End	193.10	0.39	4	1989	7.9	-		REPLACE	\$ 61,792.53	\$ 25,103.22		
Storm			Hickman	End	30.90	250	Main	1980	35	Corrugated		REPLACE	\$ 9,270.29			
Storm			Hickman	End	50.86	250	Main	1980	35	Corrugated		REPLACE	\$ 15,259.12			
Watermain			Hickman	End	179.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 71,600.00			
Sanitary			Hickman	End	56.89	200	Main	1930	85	Clay		REPLACE	\$ 34,131.62		\$ 263,782.46	3
Sanitary			Hickman	End	26.82	200	Main	1930	85	Clay		REPLACE	\$ 16,091.02			
Sanitary			Hickman	End	26.57	200	Main	1930	85	Clay		REPLACE	\$ 15,944.74			
Sanitary			Hickman	End	24.32	200	Main	1930	85	Clay		REPLACE	\$ 14,589.93			
East Pleasant	Street	Collector	Croft	Gould	156.55	0.31	4	1985	7.3	-		REPLACE	\$ 50,094.73	\$ 20,350.98		
Watermain			Croft	Gould	159.00	200	Main	1906	109	Cast Iron		REPLACE	\$ 63,600.00		\$ 230,447.78	3
Sanitary			Croft	Gould	160.67	250	Main	1940	75	Clay		REPLACE	\$ 96,402.07			
Edgewood	Avenue	Local	Albion	End	271.00	0.54	4	1994	6.0	-		CHIP SEAL	\$ 16,260.00	\$ -		
Watermain			Albion	End	88.00	150	Main	1949	66	Cast Iron		STAY	\$ -			
Watermain			Albion	End	115.00	150	Main	1990	25	PVC		STAY	\$ -			
Sanitary			Albion	End	78.47	300	Main	1980	35	PVC		STAY	\$ -		\$ 16,260.00	3
Sanitary			Albion	End	42.40	150	Main	1980	35	PVC		STAY	\$ -			
Sanitary			Albion	End	42.00	150	Main	1980	35	PVC		STAY	\$ -			
Sanitary			Albion	End	38.22	150	Main	1980	35	PVC		STAY	\$ -			
Sanitary			Albion	End	19.50	300	Main	1980	35	PVC		STAY	\$ -			
Erncliffe	Street	Local	Lawrence	Sackville	84.06	0.17	4	1994	7.0	-		MILL	\$ 7,565.33	\$ -		
Watermain			Sackville Rd	Lawrence	85.00	100	Main	1906	109	Cast Iron	1	REPLACE	\$ 34,000.00		\$ 41,565.33	3
Fairview	Avenue	Local	Winston	Ottawa	164.27	0.33	4	1993	7.0	-		REPLACE	\$ 52,565.30	\$ 21,354.65		
Watermain			Ottawa	Winston	123.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 49,200.00			
Watermain			Ottawa	Winston	44.00	150	Main	1972	43	Cast Iron	1	REPLACE	\$ 17,600.00		\$ 202,260.44	3
Sanitary			Winston	Ottawa	102.57	200	Main	1940	75	Clay		REPLACE	\$ 61,540.49			

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET						LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-						Projected Year for Intervention
Service	TYPE	CLASS	FROM	TO	LENGTH (m)	Size	Type	Year Installed	Age (Years)	Material	Breaks/Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	
Franklyn	Street	Local	Elmwood	Milford	211.74	0.42	4	1995	7.9	-		REPLACE	\$ 67,756.93	\$ 27,526.25		
Storm			Elmwood	Milford	88.56	300	Main	1970	45	Concrete		STAY	\$ -			
Storm			Elmwood	Milford	84.34	250	Main	1970	45	Concrete		STAY	\$ -			
Watermain			Elmwood	Milford	212.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 84,800.00		\$ 223,680.16	3
Sanitary			Elmwood	Milford	72.66	150	Main	1950	65	Concrete		REPLACE	\$ 43,596.97			
Harding	Avenue	Local	Lamy	North Adelaide	454.90	0.91	4	2004	6.4	-		MILL	\$ 40,940.95	\$ -		
Watermain			#21	Lamy	240.00	150	Main	1950	65	Cast Iron	5	REPLACE	\$ 96,000.00			
Watermain			North Adelaide	#7	111.00	150	Main	1950	65	Cast Iron		REPLACE	\$ 44,400.00			
Watermain			#9	#21	106.00	150	Main	1985	30	PVC		STAY	\$ -			
Sanitary			Lamy	North Adelaide	256.51	200	Main	1950	65	Clay		STAY	\$ -		\$ 181,340.95	3
Sanitary			Lamy	North Adelaide	101.31	200	Main	1950	65	Clay		STAY	\$ -			
Sanitary			Lamy	North Adelaide	97.72	200	Main	1950	65	Clay		STAY	\$ -			
Hickman	Street	Collector	Pleasant	Dundonald	48.95	0.10	4	1995	7.6	-		REPLACE	\$ 15,665.30	\$ 6,364.03		
Storm			Pleasant	Dundonald	46.75	450	Main	1980	35	Corrugated		REPLACE	\$ 14,026.25			
Watermain			Pleasant	Dundonald	50.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 20,000.00		\$ 83,980.22	3
Sanitary			Pleasant	Dundonald	46.54	300	Main	1910	105	Clay		REPLACE	\$ 27,924.64			
Hickman	Street	Collector	Dundonald	Minto	78.65	0.16	4	1995	7.6	-		REPLACE	\$ 25,166.84	\$ 10,224.03		
Storm			Dundonald	Minto	79.47	450	Main	1980	35	Corrugated		REPLACE	\$ 23,841.40			
Watermain			Dundonald	Minto	77.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 30,800.00		\$ 136,945.31	3
Sanitary			Dundonald	Minto	78.19	300	Main	1910	105	Clay		REPLACE	\$ 46,913.04			
Hickman	Street	Collector	Minto	Cornwall	79.51	0.16	4	1995	7.6	-		REPLACE	\$ 25,442.01	\$ 10,335.82		
Storm			Minto	Cornwall	62.38	375	Main	1980	35	Corrugated		REPLACE	\$ 18,713.82			
Storm			Minto	Cornwall	22.71	250	Main	1980	35	Corrugated		REPLACE	\$ 6,812.99			
Watermain			Minto	Cornwall	80.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 32,000.00		\$ 140,118.19	3
Sanitary			Minto	Cornwall	78.02	300	Main	1910	105	Clay		REPLACE	\$ 46,813.55			
Hill	Street	Local	Mission	West Pleasant	417.95	0.84	4	2003	6.1	-		REPLACE	\$ 133,742.63	\$ 54,332.94		
Storm			Mission	West Pleasant	90.97	525	Main	1970	45	Corrugated		REPLACE	\$ 27,291.16			
Storm			Mission	West Pleasant	19.55	450	Main	1970	45	Corrugated		REPLACE	\$ 5,863.55			
Storm			Mission	West Pleasant	27.11	450	Main	1970	45	Corrugated		REPLACE	\$ 8,131.64			
Watermain			Mission	Pleasant	420.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 168,000.00		\$ 648,150.86	4
Sanitary			Mission	West Pleasant	196.86	250	Main	1910	105	Clay		REPLACE	\$ 118,117.92			
Sanitary			Mission	West Pleasant	120.34	300	Main	1910	105	Clay		REPLACE	\$ 72,206.05			
Sanitary			Mission	West Pleasant	100.77	250	Main	1910	105	Clay		REPLACE	\$ 60,464.95			
Kimberly	Court	Local	Y	End West	43.07	0.09	4	1991	7.6	-		CHIP SEAL	\$ 2,583.92	\$ -		
Watermain			Y	End West	45.00	150	Main	1992	23	PVC		STAY	\$ -			
Sanitary			Y	End West	45.07	150	Main	1980	35	PVC		STAY	\$ -		\$ 2,583.92	3
Kimberly	Court	Local	Y	End East	47.20	0.09	4	1991	7.6	-		CHIP SEAL	\$ 2,831.84	\$ -		
Watermain			Y	End East	53.00	150	Main	1992	23	PVC		STAY	\$ -			
Sanitary			Y	End Easy	52.47	150	Main	1980	35	PVC		STAY	\$ -		\$ 2,831.84	3
Melrose	Street	Local	Agnew	Robie	149.84	0.30	4	1986	7.0	-		REPLACE	\$ 47,948.90	\$ 19,479.24		
Watermain			Agnew	Robie	141.00	150	Main	1949	66	Cast Iron	2	REPLACE	\$ 56,400.00			
Sanitary			Agnew	Robie	132.44	200	Main	1900	115	Clay		REPLACE	\$ 79,463.00		\$ 203,291.14	3
Milford	Street	Local	Willow	Allison	105.40	0.21	4	1993	6.7	-		REPLACE	\$ 33,728.14	\$ 13,702.06		
Watermain			Allison	Willow	105.00	150	Main	1949	66	Cast iron		REPLACE	\$ 42,000.00			
Sanitary			Willow	Allison	75.28	200	Main	1940	75	Clay		REPLACE	\$ 45,167.15		\$ 134,597.34	3
Mill	Street	Local	Victoria	Mill	218.66	0.44	4	2004	6.3	-		MILL	\$ 19,679.75	\$ -		
Watermain			Victoria	Mill	216.00	200	Main	1949	66	Cast Iron	3	REPLACE	\$ 86,400.00		\$ 106,079.75	4
Mission	Street	Local	Hickman	Cornwall	131.48	0.26	4	1993	6.1	-		MILL	\$ 11,833.34	\$ -		
Watermain			Hickman	Cornwall	133.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 53,200.00			
Sanitary			Hickman	Cornwall	52.40	250	Main	1950	65	Clay		STAY	\$ -		\$ 65,033.34	3
Pender	Street	Local	Cornwall	End	316.06	0.63	4	1995	5.4	-		REPLACE	\$ 101,140.15	\$ 41,088.19		
Watermain			Cornwall	End	343.00	150	Main	1965	50	Cast Iron		REPLACE	\$ 137,200.00			
Sanitary			Cornwall	End	126.55	250	Main	1940	75	Clay		REPLACE	\$ 75,932.93			
Sanitary			Cornwall	End	95.56	250	Main	1940	75	Clay		REPLACE	\$ 57,333.79			
Sanitary			Cornwall	End	82.43	250	Main	1940	75	Clay		REPLACE	\$ 49,456.43			
Sanitary			Cornwall	End	50.44	250	Main	1940	75	Clay		REPLACE	\$ 30,265.13			
Sanitary			Cornwall	End	26.05	150	Lateral	1940	75	Clay		REPLACE	\$ 15,630.11			
Prince Arthur	Street	Collector	Church	Maple	171.40	0.34	4	1994	8.5	-		REPLACE	\$ 54,848.00	\$ 22,282.00		
Watermain			Church	Maple	172.00	150	Main	1949	66	Cast iron	5	REPLACE	\$ 68,800.00			
Sanitary			Church	Maple	91.64	350	Main	1900	115	Clay		REPLACE	\$ 54,986.77		\$ 247,309.02	4
Sanitary			Church	Maple	77.32	300	Main	1900	115	Clay		REPLACE	\$ 46,392.25			
Rogers	Avenue	Local	Rupert	Charles	97.62	0.20	4	1995	7.8	-		REPLACE	\$ 31,238.95	\$ 12,690.82		
Watermain			Charles	Rupert	99.00	150	Main	1967	48	Cast Iron	4	REPLACE	\$ 39,600.00			
Sanitary			Rupert	Charles	73.11	200	Main	1960	55	Concrete		REPLACE	\$ 43,867.37		\$ 127,397.15	4

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET						LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-						Projected Year for Intervention
Service	TYPE	CLASS	FROM	TO	LENGTH (m)	Size	Type	Year Installed	Age (Years)	Material	Breaks/Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	
Russell	Street	Local	Redland	Meadow	390.53	0.78	4	1987	6.1	-		REPLACE	\$ 124,970.92	\$ 50,769.44		
Storm			Redland	Meadow	11.43	450	Main	1970	45	Concrete		STAY	\$ -		\$ 623,735.23	4
Storm			Redland	Meadow	57.97	450	Main	1970	45	Concrete		STAY	\$ -			
Storm			Redland	Meadow	58.05	450	Main	1970	45	Concrete		STAY	\$ -			
Storm			Redland	Meadow	75.43	450	Main	1970	45	Concrete		STAY	\$ -			
Storm			Redland	Meadow	88.29	450	Main	1970	45	Concrete		STAY	\$ -			
Watermain			Redland	Meadow	389.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 155,600.00			
Sanitary			Redland	Meadow	238.51	500	Main	1900	115	Clay		REPLACE	\$ 143,104.84			
Sanitary			Redland	Meadow	164.49	500	Main	1900	115	Clay		REPLACE	\$ 98,691.77			
Sanitary			Redland	Meadow	84.33	500	Main	1900	115	Clay		REPLACE	\$ 50,598.27			
Spring	Street	Collector	Croft	Church	151.79	0.30	4	1985	6.1	-		REPLACE	\$ 48,573.90	\$ 19,733.15		
Storm			Croft	Church	67.74	250	Main	1970	45	Corrugated		REPLACE	\$ 20,322.18		\$ 243,190.10	4
Watermain			Croft	Church	157.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 62,800.00			
Sanitary			Croft	Church	76.47	225	Main	1900	115	Clay		REPLACE	\$ 45,883.14			
Sanitary			Croft	Church	76.46	225	Main	1900	115	Clay		REPLACE	\$ 45,877.73			
Taplin	Drive	Local	Agnew	End	128.78	0.26	4	1985	6.1	-		REPLACE	\$ 41,208.70	\$ 16,741.03		
Watermain			Agnew	End	112.00	100	Main	1965	50	Cast Iron		REPLACE	\$ 44,800.00		\$ 174,464.15	5
Sanitary			Agnew	End	119.52	200	Main	1960	55	Concrete		REPLACE	\$ 71,714.41			
Wellington	Street	Local	Church	Academy	107.75	0.22	4	1986	6.1	-		MILL	\$ 9,697.13	\$ -		
Sanitary			Church	Academy	83.71	200	Main	1910	105	Clay		REPLACE	\$ 50,226.80		\$ 59,923.93	5
York	Street	Local	Alma	Highfield	77.25	0.15	4	1994	6.0	-		REPLACE	\$ 24,721.42	\$ 10,043.08		
Storm			Alma	Highfield	8.63	300	Main	1970	45	Corrugated		REPLACE	\$ 2,587.60		\$ 102,729.68	5
Storm			Alma	Highfield	12.90	300	Main	1970	45	Corrugated		REPLACE	\$ 3,869.97			
Storm			Alma	Highfield	14.31	300	Main	1970	45	Corrugated		REPLACE	\$ 4,291.67			
Storm			Alma	Highfield	18.31	300	Main	1970	45	Corrugated		REPLACE	\$ 5,492.99			
Storm			Alma	Highfield	30.76	300	Main	1970	45	Corrugated		REPLACE	\$ 9,228.18			
Storm			Alma	Highfield	33.65	300	Main	1970	45	Corrugated		REPLACE	\$ 10,094.77			
Watermain			Alma	Highfield	81.00	150	Main	1906	109	Cast Iron	1	REPLACE	\$ 32,400.00			
York	Street	Local	West Pleasant	Duke	69.00	0.14	4	1994	6.0	-		REPLACE	\$ 22,080.58	\$ 8,970.24		
Watermain			Pleasant	Duke	76.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 30,400.00		\$ 104,800.10	5
Sanitary			West Pleasant	Duke	72.25	250	Main	1910	105	Clay		REPLACE	\$ 43,349.29			
York	Street	Local	Duke	Alma	79.42	0.16	4	1994	6.0	-		REPLACE	\$ 25,414.08	\$ 10,324.47		
Watermain			Duke	Alma	73.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 29,200.00		\$ 110,273.43	5
Sanitary			Duke	Alma	75.56	250	Main	1910	105	Clay		REPLACE	\$ 45,334.88			
Cordova	Street	Local	Cornwall	End	382.00	0.76	4.5	1994	6.0	-		REPLACE	\$ 122,240.00	\$ 49,660.00		
Watermain			Cornwall	End	417.00	150	Main	1965	50	Cast Iron	4	REPLACE	\$ 166,800.00		\$ 555,884.60	5
Sanitary			Cornwall	End	169.73	250	Main	1940	75	Clay		REPLACE	\$ 101,839.69			
Sanitary			Cornwall	End	102.40	250	Main	1940	75	Clay		REPLACE	\$ 61,437.21			
Sanitary			Cornwall	End	89.85	250	Main	1940	75	Clay		REPLACE	\$ 53,907.69			
Abbey	Road	Collector	Elmwood	Penny	187.90	0.38	5	1995	8.0	-		CHIP SEAL	\$ 11,274.26	\$ -		
Storm			Elmwood	Penny	13.40	300	Main	1980	35	PVC		STAY	\$ -		\$ 11,274.26	5
Storm			Elmwood	Penny	80.41	300	Main	1980	35	PVC		STAY	\$ -			
Storm			Elmwood	Penny	84.63	300	Main	1980	35	Concrete		STAY	\$ -			
Watermain			Elmwood	Penny	188.00	150	Main	1988	27	PVC		STAY	\$ -			
Sanitary			Elmwood	Penny	79.86	200	Main	1980	35	PVC		STAY	\$ -			
Sanitary			Elmwood	Penny	54.44	200	Main	1980	35	PVC		STAY	\$ -			
Abbey	Road	Collector	Victoria	Elmwood	97.10	0.19	5	1995	8.0	-		REPLACE	\$ 31,070.58	\$ 12,622.42		
Watermain			Victoria	Elmwood	101.00	150	Main	1968	47	Cast Iron		REPLACE	\$ 40,400.00		\$ 145,088.40	5
Sanitary			Victoria	Elmwood	101.66	200	Main	1960	55	Concrete		REPLACE	\$ 60,995.40			
Academy	Street	Local	Queen	Spring	105.00	0.21	5	2003	6.1	-		REPLACE	\$ 33,598.48	\$ 13,649.38		
Storm			Spring	Queen	96.81	750	Main	1970	45	Corrugated		REPLACE	\$ 29,044.09		\$ 163,214.92	5
Watermain			Queen	Spring	106.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 42,400.00			
Sanitary			Queen	Spring	74.20	250	Main	1950	65	Concrete		REPLACE	\$ 44,522.98			
Acadia	Street	Local	Prince Arthur	Agnew	105.12	0.21	5	1985	9.1	-		MILL	\$ 9,460.71	\$ -		
Watermain			Prince Arthur	Agnew	106.00	150	Main	1949	66	Cast Iron	2	REPLACE	\$ -		\$ 9,460.71	5
Allison	Avenue	Local	Elmwood	Milford	224.48	0.45	5	1985	8.8	-		REPLACE	\$ 71,832.01	\$ 29,181.75		
Storm			Elmwood	Milford	92.35	250	Main	1970	45	Corrugated		REPLACE	\$ 27,703.51		\$ 358,598.08	5
Watermain			Elmwood	Milford	229.00	150	Main	1955	60	Cast Iron	2	REPLACE	\$ 91,600.00			
Sanitary			Elmwood	Milford	97.66	250	Main	1940	75	Clay		REPLACE	\$ 58,598.32			
Sanitary			Elmwood	Milford	70.76	250	Main	1940	75	Clay		REPLACE	\$ 42,454.12			
Sanitary			Elmwood	Milford	62.05	300	Main	1940	75	Clay		REPLACE	\$ 37,228.36			

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-	Breaks/ Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	Projected Year for Intervention
						Size	Type	Year Installed	Age (Years)	Material						
Anson	Avenue	Collector	McCully	Chandler	61.07	0.12	5	1987	9.2	-		MILL	\$ 5,496.64	\$ -		
Storm			Chandler	McCully	21.87	900	Main	1970	45	Concrete		STAY	\$ -		\$ 29,496.64	5
Storm			Chandler	McCully	57.46	900	Main	1970	45	Concrete		STAY	\$ -			
Watermain			Chandler	McCully	60.00	300	Main	1968	47	Cast Iron		REPLACE	\$ 24,000.00			
Anson	Avenue	Collector	Tantramar Court	McCully	179.63	0.36	5	1987	9.2	-		CHIP SEAL	\$ 10,777.86	\$ -		
Storm			Tantramar Court	McCully	7.40	250	Main	1970	45	Concrete		STAY	\$ -		\$ 10,777.86	5
Storm			Tantramar Court	McCully	29.00	250	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Court	McCully	68.00	250	Main	1970	45	Concrete		STAY	\$ -			
Watermain			McCully	Tantramar Court	175.00	300	Main	1975	40	Ductile Ir		STAY	\$ -			
Sanitary			Tantramar Court	McCully	49.69	200	Main	1970	45	Concrete		STAY	\$ -			
Sanitary			Tantramar Court	McCully	116.39	200	Main	1980	35	Concrete		STAY	\$ -			
Beacon	Street	Local	Croft	Church	228.54	0.46	5	1998	7.3	-		REPLACE	\$ 73,133.69	\$ 29,710.56		
Storm			Croft	Church	30.86	450	Main	1980	35	Corrugated		REPLACE	\$ 9,257.13		\$ 440,083.43	5
Storm			Croft	Church	18.41	300	Main	1980	35	Corrugated		REPLACE	\$ 5,523.41			
Storm			Croft	Church	26.11	300	Main	1980	35	Corrugated		REPLACE	\$ 7,834.03			
Storm			Croft	Church	32.65	300	Main	1980	35	Corrugated		REPLACE	\$ 9,795.17			
Storm			Croft	Church	40.35	300	Main	1980	35	Corrugated		REPLACE	\$ 12,104.16			
Watermain			Croft	Church	231.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 92,400.00			
Sanitary			Croft	Church	126.24	250	Main	1920	95	Clay		REPLACE	\$ 75,741.42			
Sanitary			Croft	Church	100.00	250	Main	1920	95	Clay		REPLACE	\$ 60,000.00			
Sanitary	Beacon Park		Church	Croft	80.67	450	Trunk	1970	45	Concrete		STAY	\$ -			
Sanitary	Beacon Park		Church	Croft	73.69	450	Trunk	1970	45	Concrete		STAY	\$ -			
Sanitary	Beacon Park Easement		Church	Croft	38.55	450	Main	1910	105	Clay		REPLACE	\$ 23,130.00			
Sanitary	Beacon Park Easement		Church	Croft	36.60	300	Main	1910	105	Clay		REPLACE	\$ 21,960.00			
Sanitary	Beacon Park Easement		Church	Croft	32.49	450	Trunk	1910	105	Clay		REPLACE	\$ 19,493.87			
Boylston	Avenue	Local	Elmwood	Milford	222.83	0.45	5	1995	7.9	-		REPLACE	\$ 71,305.09	\$ 28,967.69		
Storm			Elmwood	Milford	98.54	300	Main	1970	45	Concrete		STAY	\$ -		\$ 321,139.50	6
Storm			Elmwood	Milford	112.31	300	Main	1970	45	Concrete		STAY	\$ -			
Watermain			Milford	Elmwood	224.00	150	Main	1949	66	Cast Iron	4	REPLACE	\$ 89,600.00			
Sanitary			Elmwood	Milford	132.94	250	Main	1950	65	Concrete		REPLACE	\$ 79,763.63			
Sanitary			Elmwood	Milford	85.84	150	Main	1950	65	Concrete		REPLACE	\$ 51,503.09			
Centennial	Court	Local	Townshend	Cul-de-sac	55.90	0.11	5	1989	7.3	-		CHIP SEAL	\$ 3,354.10	\$ -		
Watermain			Townshend	End	70.00	200	Main	1989	26	PVC		STAY	\$ -		\$ 3,354.10	5
Sanitary			Townshend	Cul-de-sac	35.04	150	Main	1980	35	PVC		STAY	\$ -			
Sanitary			Townshend	Cul-de-sac	34.85	150	Main	1980	35	PVC		STAY	\$ -			
Centennial	Court	Local	cul-de-sac	n/a	60.75	0.12	5	1989	7.3	-		CHIP SEAL	\$ 3,645.06	\$ -		
															\$ 3,645.06	5
Central	Avenue	Local	Myrtle	End	108.34	0.22	5	1993	6.1	-		CHIP SEAL	\$ 6,500.66	\$ -		
Watermain			Myrtle	End	112.00	150	Main	1977	38	Ductile Ir		STAY	\$ -		\$ 6,500.66	5
Sanitary			Myrtle	End	42.70	200	Main	1940	75	Clay		STAY	\$ -			
Central	Avenue	Local	Pleasant	Myrtle	244.63	0.49	5	1993	6.1	-		REPLACE	\$ 78,282.55	\$ 31,802.29		
Storm			Pleasant	Myrtle	102.40	300	Main	1970	45	Concrete		STAY	\$ -		\$ 238,684.83	6
Watermain			Pleasant	Myrtle	248.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 99,200.00			
Sanitary			Pleasant	Myrtle	49.00	200	Main	1940	75	Clay		REPLACE	\$ 29,400.00			
Chandler	Road	Collector	Tupper	Anson	409.15	0.82	5	1994	9.0	-		MILL	\$ 36,823.51	\$ -		
Storm			Tupper	Anson	62.01	1200	Main	1970	45	Concrete		STAY	\$ -		\$ 85,623.51	6
Storm			Tupper	Anson	135.14	1200	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tupper	Anson	141.98	1200	Main	1970	45	Concrete		STAY	\$ -			
Watermain			Tupper	Anson	288.00	300	Main	1968	47	Cast and D		STAY	\$ -			
Watermain			Tupper	Anson	122.00	300	Main	1973	42	Ductile Ir	1	REPLACE	\$ 48,800.00			
Sanitary			Tupper	Anson	162.43	200	Main	1970	45	Concrete		STAY	\$ -			
Clarence	Street	Local	Robie	Belmont	96.88	0.19	5	1989	6.1	-		REPLACE	\$ 31,002.86	\$ 12,594.91		
Watermain			Robie	Belmont	97.00	150	Main	1906	109	Cast Iron	1	REPLACE	\$ 38,800.00		\$ 124,473.53	6
Sanitary			Robie	Belmont	70.13	250	Main	1900	115	Clay		REPLACE	\$ 42,075.75			
Clifford	Street	Local	Church	Havelock	185.32	0.37	5	1994	6.0	-		REPLACE	\$ 59,301.32	\$ 24,091.16		
Watermain			Church	Havelock	182.00	100	Main	1906	109	Cast Iron	1	REPLACE	\$ 72,800.00		\$ 263,974.59	6
Sanitary			Havelock	Church	90.84	300	Main	1900	115	Clay		REPLACE	\$ 54,504.87			
Sanitary			Havelock	Church	88.80	200	Main	1900	115	Clay		REPLACE	\$ 53,277.24			

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET						LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-						Projected Year for Intervention
Service	TYPE	CLASS	FROM	TO	LENGTH (m)	Size	Type	Year Installed	Age (Years)	Material	Breaks/ Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	
Clinton	Street	Local	South Albion	End	328.00	0.66	5	1991	6.1	-		MILL	\$ 29,520.00	\$ -		
Storm			South Albion	End	44.95	300	Main	1980	35	Corrugated		STAY	\$ -		\$ 157,520.00	6
Storm			South Albion	End	47.60	300	Main	1980	35	Corrugated		STAY	\$ -			
Storm			South Albion	End	124.60	300	Main	1980	35	Corrugated		STAY	\$ -			
Watermain			South Albion	End	320.00	250	Main	1949	66	Cast Iron		REPLACE	\$ 128,000.00			
Sanitary			South Albion	End	86.38	200	Main	1950	65	Clay		STAY	\$ -			
Sanitary			South Albion	End	86.32	150	Main	1950	65	Clay		STAY	\$ -			
Sanitary			South Albion	End	75.41	200	Main	1950	65	Clay		STAY	\$ -			
Copp	Avenue	Collector	Rambler	Erncliffe	81.00	0.16	5	2004	6.1	-		REPLACE	\$ 25,920.49	\$ 10,530.20		
Watermain			Rambler	Erncliffe	85.00	150	Main	1906	109	Cast Iron	2	REPLACE	\$ 34,000.00		\$ 118,334.09	6
Sanitary			Rambler	Erncliffe	48.68	250	Main	1910	105	Clay		REPLACE	\$ 29,209.24			
Sanitary			Rambler	Erncliffe	31.12	250	Main	1910	105	Clay		REPLACE	\$ 18,674.16			
Copp	Avenue	Collector	Erncliffe	Pearl	217.76	0.44	5	2004	6.1	-		REPLACE	\$ 69,683.97	\$ 28,309.11		
Storm			Erncliffe	Pearl	58.98	300	Main	1980	35	Corrugated		REPLACE	\$ 17,695.48		\$ 331,526.03	6
Watermain			Erncliffe	Pearl	214.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 85,600.00			
Sanitary			Erncliffe	Pearl	78.00	375	Main	1910	105	Clay		REPLACE	\$ 46,800.58			
Sanitary			Erncliffe	Pearl	76.36	250	Main	1910	105	Clay		REPLACE	\$ 45,813.82			
Sanitary			Erncliffe	Pearl	62.71	225	Main	1910	105	Clay		REPLACE	\$ 37,623.08			
Copp	Avenue	Collector	Pearl	Copp Lane	27.95	0.06	5	2004	6.1	-		REPLACE	\$ 8,944.27	\$ 3,633.61		
Storm			Pearl	Copp Lane	21.84	450	Main	1980	35	Corrugated		REPLACE	\$ 6,551.34		\$ 53,409.23	6
Watermain			Pearl	Copp Lane	32.00	150	Main	1906	109	Cast Iron	1	REPLACE	\$ 12,800.00			
Sanitary			Pearl	Copp Lane	35.80	250	Main	1910	105	Clay		REPLACE	\$ 21,480.00			
Crescent	Avenue	Local	Fullerton	Church	138.24	0.28	5	1991	9.1	-		MILL	\$ 12,441.76	\$ -		
Sanitary			Fullerton	Church	140.00	500	Main	1900	115	Clay	1 (blockages)	REPLACE	\$ 84,002.26		\$ 96,444.02	6
Crescent	Avenue	Local	Douglas	Maple	21.59	0.04	5	1994	9.0	-		REPLACE	\$ 6,909.70	\$ 2,807.07		
Watermain			Maple	Douglas	20.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 8,000.00		\$ 31,522.27	6
Sanitary			Douglas	Maple	23.01	500	Main	1900	115	Clay		REPLACE	\$ 13,805.50			
Croft	Street	Collector	Queen	Beacon	188.18	0.38	5	1991	6.7	-		MILL	\$ 16,935.80	\$ -		
Storm			Queen	Beacon	99.46	375	Main	1970	45	Corrugated		REPLACE	\$ 29,837.40		\$ 53,498.49	6
Storm			Queen	Beacon	22.42	300	Main	1970	45	Corrugated		REPLACE	\$ 6,725.29			
Davison	Street	Local	Spring	Queen	101.99	0.20	5	1977	6.7	-		REPLACE	\$ 32,635.69	\$ 13,258.25		
Watermain			Spring	Queen	103.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 41,200.00		\$ 147,028.38	6
Sanitary			Spring	Queen	99.89	200	Main	1910	105	Clay		REPLACE	\$ 59,934.45			
Davison	Street	Local	Queen	Dickey Brook	100.02	0.20	5	1994	7.0	-		MILL	\$ 9,001.66	\$ -		
Watermain			Queen	End	49.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 19,600.00		\$ 28,601.66	6
Sanitary			Queen	Dickey Brook	32.00	150	Main	1980	35	Concrete		STAY	\$ -			
Sanitary			Queen	Dickey Brook	30.19	150	Main	1980	35	Concrete		STAY	\$ -			
Dickey	Street	Collector	Academy	Church	140.03	0.28	5	1986	7.3	-		CHIP SEAL	\$ 8,401.77	\$ -		
Storm			Academy	Church	17.32	300	Main	1970	45	Corrugated		STAY	\$ -		\$ 8,401.77	6
Sanitary			Academy	Church	68.95	450	Main	1980	35	Concrete		STAY	\$ -			
Sanitary			Academy	Church	61.83	450	Main	1980	35	Concrete		STAY	\$ -			
Sanitary			Academy	Church	44.45	450	Main	1980	35	Concrete		STAY	\$ -			
Sanitary			Academy	Church	3.35	450	Main	1980	35	Concrete		STAY	\$ -			
East Pleasant	Street	Collector	Gould	Church	281.50	0.56	5	1989	7.5	-		REPLACE	\$ 90,079.48	\$ 36,594.79		
Storm			Church	Gould	118.80	450	Main	1970	45	Corrugated		REPLACE	\$ 35,640.00		\$ 390,770.22	6
Watermain			Gould	Church	286.00	200	Main	1906	109	Cast Iron		REPLACE	\$ 114,400.00			
Sanitary			Gould	Church	121.55	250	Main	1940	75	Clay		REPLACE	\$ 72,931.65			
Sanitary			Gould	Church	68.54	250	Main	1940	75	Clay		REPLACE	\$ 41,124.30			
East Pleasant	Street	Collector	Veno	Willow	239.00	0.48	5	2002	7.0	-		REPLACE	\$ 76,480.00	\$ 31,070.00		
Storm			Willow	Veno	112.47	250	Main	1980	35	Corrugated		REPLACE	\$ 33,742.32		\$ 287,897.48	7
Watermain			Veno	Willow	250.00	300	Main	1949	66	Cast Iron		REPLACE	\$ 100,000.00			
Sanitary			Willow	Veno	77.68	250	Main	1960	55	Concrete		REPLACE	\$ 46,605.15			
East Pleasant	Street	Collector	Charles	Veno	359.90	0.72	5	2002	7.0	-		REPLACE	\$ 115,169.52	\$ 46,787.62		
Storm			Charles	Veno	59.62	375	Main	1980	35	Corrugated		REPLACE	\$ 17,884.76		\$ 632,142.36	7
Storm			Charles	Veno	45.81	250	Main	1980	35	Corrugated		REPLACE	\$ 13,741.72			
Storm			Veno	Charles	66.96	250	Main	1980	35	Corrugated		REPLACE	\$ 20,087.56			
Storm			Charles	Veno	83.25	250	Main	1980	35	Corrugated		REPLACE	\$ 24,976.16			
Storm			Charles	Veno	101.60	250	Main	1980	35	Corrugated		REPLACE	\$ 30,480.14			
Watermain			Veno	Charles	361.00	300	Main	1949	66	Cast Iron		REPLACE	\$ 144,400.00			
Sanitary			Charles	Veno	156.88	250	Main	1960	55	Concrete		REPLACE	\$ 94,130.93			
Sanitary			Charles	Veno	152.61	250	Main	1960	55	Concrete		REPLACE	\$ 91,563.93			
Sanitary			Charles	Veno	54.87	250	Main	1960	55	Concrete		REPLACE	\$ 32,920.02			

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-	Breaks/ Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	Projected Year for Intervention
						Size	Type	Year Installed	Age (Years)	Material						
East Victoria	Street	Arterial	Willow	Abbey	654.70	1.31	5	1998	10.9	-		REPLACE	\$ 209,504.00	\$ 85,111.00		
Watermain			Abbey	Willow	360.00	150	Main	1906	109	Cast Iron	1	REPLACE	\$ 144,000.00		\$ 902,647.73	7
Watermain			Abbey	Willow	174.00	100	Main	1906	109	Cast Iron		REPLACE	\$ 69,600.00			
Watermain			Abbey	Willow	118.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 47,200.00			
Watermain			Abbey	Willow	176.00	150	Main	1997	18	Ductile Ir		STAY	\$ -			
Sanitary			Willow	Abbey	121.60	300	Main	1900	115	Clay		REPLACE	\$ 72,961.40			
Sanitary			Willow	Abbey	121.62	300	Main	1940	75	Clay		REPLACE	\$ 72,969.29			
Sanitary			Willow	Abbey	92.65	250	Main	1940	75	Clay		REPLACE	\$ 55,587.10			
Sanitary			Willow	Abbey	91.48	250	Main	1940	75	Clay		REPLACE	\$ 54,889.83			
Sanitary			Willow	Abbey	121.14	200	Main	1960	55	Concrete		REPLACE	\$ 72,682.95			
Sanitary			Willow	Abbey	30.24	200	Main	1960	55	Concrete		REPLACE	\$ 18,142.17			
East Victoria	Street	Arterial	Lamy	Willow	73.82	0.15	5	1998	10.9	-		REPLACE	\$ 23,623.72	\$ 9,597.13		
Storm			Willow	Lamy	54.10	450	Main	1970	45	Corrugated		REPLACE	\$ 16,229.96		\$ 129,232.77	7
Storm			Willow	Lamy	12.94	300	Main	1970	45	Corrugated		REPLACE	\$ 3,880.95			
Watermain			Willow	Lamy	78.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 31,200.00			
Sanitary			Lamy	Willow	74.50	300	Main	1900	115	Clay		REPLACE	\$ 44,701.01			
East Victoria	Street	Arterial	Marshview	Town Boundary	156.48	0.31	5	1998	10.9	-		REPLACE	\$ 50,074.76	\$ 20,342.87		
Storm			Marshview	Town Boundary	46.03	300	Main	1970	45	Corrugated		REPLACE	\$ 13,809.11		\$ 202,949.73	7
Watermain			Town Boundary	Marshview	154.00	150	Main	1968	47	Cast Iron		REPLACE	\$ 61,600.00			
Sanitary			Marshview	Town Boundary	89.85	200	Main	1960	55	Concrete		REPLACE	\$ 35,941.84			
Sanitary			Marshview	Town Boundary	35.30	200	Main	1960	55	Concrete		REPLACE	\$ 21,181.15			
East Victoria	Street	Arterial	Derby	Marshview	12.10	0.02	5	1998	10.9	-		REPLACE	\$ 3,873.19	\$ 1,573.48		
Watermain			Marshview	Derby	19.00	150	Main	1968	47	Cast Iron		REPLACE	\$ 7,600.00		\$ 21,647.57	7
Sanitary			Derby	Marshview	14.33	200	Main	1960	55	Concrete		REPLACE	\$ 8,600.90			
East Victoria	Street	Arterial	Freeman	Derby	73.64	0.15	5	1998	10.9	-		REPLACE	\$ 23,563.50	\$ 9,572.67		
Watermain			Derby	Freeman	72.00	150	Main	1968	47	Cast Iron	3	REPLACE	\$ 28,800.00		\$ 106,513.04	7
Sanitary			Freeman	Derby	74.29	200	Main	1960	55	Concrete		REPLACE	\$ 44,576.88			
East Victoria	Street	Arterial	Adelaide	Rupert	143.22	0.29	5	1998	10.9	-		REPLACE	\$ 45,830.44	\$ 18,618.61		
Storm			Rupert	Adelaide	10.69	300	Main	1970	45	Corrugated		REPLACE	\$ 3,208.09		\$ 213,520.49	7
Watermain			Rupert	Adelaide	150.00	150	Main	1906	109	Cast Iron	1	REPLACE	\$ 60,000.00			
Sanitary			Adelaide	Rupert	143.11	375	Main	1900	115	Clay		REPLACE	\$ 85,863.35			
Fairview	Avenue	Local	Ottawa	Poplar	237.97	0.48	5	1993	7.0	-		REPLACE	\$ 76,150.12	\$ 30,935.99		
Watermain			Poplar	Ottawa	238.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 95,200.00		\$ 349,191.96	8
Sanitary			Ottawa	Poplar	122.76	250	Main	1940	75	Clay	1 (blockage)	REPLACE	\$ 73,656.57			
Sanitary			Ottawa	Poplar	122.08	200	Main	1940	75	Clay		REPLACE	\$ 73,249.29			
Franklyn	Street	Local	Milford	Spring	126.40	0.25	5	1995	7.9	-		REPLACE	\$ 40,448.05	\$ 16,432.02		
Watermain			Milford	Spring	128.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 51,200.00		\$ 267,035.69	8
Sanitary			Milford	Spring	135.69	250	Main	1950	65	Concrete	1 (blockage)	REPLACE	\$ 81,411.82			
Sanitary			Milford	Spring	129.24	250	Main	1950	65	Concrete		REPLACE	\$ 77,543.80			
Hickman	Street	Collector	Mission	Park	247.18	0.49	5	1997	8.5	-		REPLACE	\$ 79,096.56	\$ 32,132.98		
Storm			Mission	Park	66.55	375	Main	1980	35	Corrugated		REPLACE	\$ 19,964.18		\$ 396,611.03	8
Storm			Mission	Park	65.76	300	Main	1980	35	Corrugated		REPLACE	\$ 19,728.25			
Watermain			Mission	Park	250.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 100,000.00			
Sanitary			Mission	Park	137.01	250	Main	1940	75	Clay		REPLACE	\$ 82,204.76			
Sanitary			Mission	Park	105.81	250	Main	1940	75	Clay		REPLACE	\$ 63,484.31			
Hickman	Street	Collector	Victoria	Anson	179.91	0.36	5	2001	7.7	-		REPLACE	\$ 57,572.44	\$ 23,388.80		
Storm			Victoria	Anson	10.97	300	Main	1970	45	Corrugated		REPLACE	\$ 3,290.58		\$ 237,041.07	8
Storm			Victoria	Anson	17.70	300	main	1970	45	Corrugated		REPLACE	\$ 5,310.00			
Storm			Victoria	Anson	50.00	300	Main	1970	45	Corrugated		REPLACE	\$ 15,001.37			
Watermain			Victoria	Anson	184.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 73,600.00			
Sanitary			Victoria	Anson	98.13	200	Main	1930	85	Clay		REPLACE	\$ 58,877.88			
Hickman	Street	Collector	Mill	Pleasant	59.30	0.12	5	2001	7.7	-		REPLACE	\$ 18,976.03	\$ 7,709.01		
Storm			Mill	Pleasant	11.94	300	Main	1970	45	Corrugated		REPLACE	\$ 3,582.13		\$ 65,152.48	8
Storm			Mill	Pleasant	16.90	300	Main	1970	45	Corrugated		REPLACE	\$ 5,069.81			
Storm			Mill	Pleasant	27.38	300	Main	1970	45	Corrugated		REPLACE	\$ 8,215.50			
Watermain			Mill	Pleasant	54.00	150	Main	1949	66	Cast Iron		REPLACE	\$ 21,600.00			
Hickman	Street	Collector	Anson	Mill	36.00	0.07	5	2001	7.7	-		MILL	\$ 3,240.31	\$ -		
Sanitary					36.00	200	Main	1910	105	Clay	2 (blockages)	REPLACE	\$ 21,600.00		\$ 24,840.31	8

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET						LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-						Projected Year for Intervention
Service	TYPE	CLASS	FROM	TO	LENGTH (m)	Size	Type	Year Installed	Age (Years)	Material	Breaks/Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	
Industrial Park	Drive	Collector	South Albion	Race Track Road	492.83	0.99	5	1994	9.0	-		MILL	\$ 44,354.98	\$ -		
Watermain			Race Track Road	#4	270.00	300	Main	1975	40	Ductile Ir	1	REPLACE	\$ 108,000.00		\$ 235,154.98	8
Watermain			#4	South Albion	207.00	250	Main	1975	40	Ductile Ir	1	REPLACE	\$ 82,800.00			
Sanitary			South Albion	Race Track Road	91.54	250	Main	1970	45	PVC		STAY	\$ -			
Sanitary			South Albion	Race Track Road	79.02	250	Main	1970	45	PVC		STAY	\$ -			
Sanitary			South Albion	Race Track Road	67.50	300	Main	1970	45	PVC		STAY	\$ -			
Sanitary			South Albion	Race Track Road	65.04	300	Main	1970	45	PVC		STAY	\$ -			
Sanitary			South Albion	Race Track Road	64.84	300	Main	1970	45	PVC		STAY	\$ -			
Sanitary			South Albion	Race Track Road	60.67	250	Main	1970	45	PVC		STAY	\$ -			
Sanitary			South Albion	Race Track Road	39.71	250	Main	1970	45	PVC		STAY	\$ -			
Sanitary			South Albion	Race Track Road	29.51	250	Main	1970	45	PVC		STAY	\$ -			
Sanitary			South Albion	Race Track Road	24.00	200	Lateral	1970	45	PVC		STAY	\$ -			
Sanitary			South Albion	Race Track Road	10.38	300	Main	1970	45	Concrete		STAY	\$ -			
Lamy	Street	Local	Victoria	Durley	140.25	0.28	5	1998	8.2	-		REPLACE	\$ 44,878.79	\$ 18,232.01		
Storm			Victoria	Durley	18.52	450	Main	1970	45	Corrugated		REPLACE	\$ 5,557.18		\$ 245,143.02	8
Storm			Victoria	Durley	112.49	450	Main	1970	45	Corrugated		REPLACE	\$ 33,746.46			
Watermain			Victoria	Durley	142.00	150	Main	1949	66	Cast Iron	7	REPLACE	\$ 56,800.00			
Sanitary			Victoria	Durley	143.21	300	Main	1950	65	Clay		REPLACE	\$ 85,928.57			
LaPlanche	Street	Arterial	Victoria	Dale	231.21	0.46	5	1999	9.9	-		REPLACE	\$ 73,986.72	\$ 30,057.11		
Storm			Victoria	Dale	56.80	600	Main	1970	45	Corrugated		REPLACE	\$ 17,040.00		\$ 396,991.17	8
Storm			Victoria	Dale	95.53	600	Main	1970	45	Corrugated		REPLACE	\$ 28,660.38			
Storm			Victoria	Dale	60.90	300	Main	1970	45	Corrugated		REPLACE	\$ 18,270.00			
Watermain			Dale	Victoria	234.00	150	Main	1906	109	Cast Iron	1	REPLACE	\$ 93,600.00			
Sanitary			Victoria	Dale	119.41	375	Main	1900	115	Clay		REPLACE	\$ 71,646.32			
Sanitary			Victoria	Dale	106.22	375	Main	1900	115	Clay		REPLACE	\$ 63,730.64			
Sanitary			Victoria	Dale	106.22	375	Main	1900	115	Clay		REPLACE	\$ 63,730.64			
LaPlanche	Street	Arterial	Lawrence	Lower LaPlanche	19.71	0.04	5	1999	9.9	-		REPLACE	\$ 6,307.53	\$ 2,562.43		
Storm			Lawrence	Lower LaPlanche	41.94	750	Main	1970	45	Corrugated		REPLACE	\$ 12,581.19		\$ 72,902.59	8
Watermain			Lawrence	Lower LaPlanche	50.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 20,000.00			
Sanitary			Lawrence	Lower LaPlanche	52.42	450	Main	1900	115	Clay		REPLACE	\$ 31,451.43			
LaPlanche	Street	Arterial	Palmer	Lawrence	108.50	0.22	5	1999	9.9	-		REPLACE	\$ 34,721.11	\$ 14,105.45		
Storm			Palmer	Lawrence	77.91	600	Main	1970	45	Corrugated		REPLACE	\$ 23,372.70		\$ 147,156.25	8
Watermain			Lawrence	Palmer	81.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 32,400.00			
Sanitary			Palmer	Lawrence	70.93	375	Main	1900	115	Clay		REPLACE	\$ 42,556.98			
Sanitary			Palmer	Lawrence	70.93	375	Main	1900	115	Clay		REPLACE	\$ 42,556.98			
LaPlanche	Street	Arterial	Dale	Palmer	110.07	0.22	5	1999	9.9	-		REPLACE	\$ 35,223.27	\$ 14,309.45		
Storm			Dale	Palmer	110.21	600	Main	1970	45	Corrugated		REPLACE	\$ 33,064.16		\$ 205,426.87	9
Watermain			Palmer	Dale	111.00	150	Main	1906	109	Cast iron	1	REPLACE	\$ 44,400.00			
Sanitary			Dale	Palmer	130.72	375	Main	1900	115	Clay		REPLACE	\$ 78,430.00			
Sanitary			Dale	Palmer	130.72	375	Main	1900	115	Clay		REPLACE	\$ 78,430.00			
LaPlanche	Street	Arterial	Lower LaPlanche	Town Boundary	150.62	0.30	5	1999	9.9	-		MILL	\$ 13,556.00	\$ -		
Sanitary			Lower LaPlanche	End	153.00	150	Main	1906	109	Cast Iron	1	REPLACE	\$ 91,800.00		\$ 105,356.00	9
Lawrence	Street	Arterial	LaPlanche	Erncliffe	223.18	0.45	5	1998	9.5	-		REPLACE	\$ 71,418.36	\$ 29,013.71		
Storm			LaPlanche	Erncliffe	9.39	600	Main	1970	45	Corrugated		REPLACE	\$ 2,816.29		\$ 341,472.74	9
Storm			LaPlanche	Erncliffe	15.01	600	Main	1970	45	Corrugated		REPLACE	\$ 4,503.16			
Storm			LaPlanche	Erncliffe	68.73	600	Main	1970	45	Corrugated		REPLACE	\$ 20,618.28			
Storm			LaPlanche	Erncliffe	79.62	600	Main	1970	45	Corrugated		REPLACE	\$ 23,887.28			
Watermain			Erncliffe	LaPlanche	197.00	150	Main	1906	109	Cast Iron	3	REPLACE	\$ 78,800.00			
Sanitary			LaPlanche	Erncliffe	124.63	300	Main	1900	115	Clay		REPLACE	\$ 74,775.66			
Sanitary			LaPlanche	Erncliffe	59.40	300	Main	1900	115	Clay		REPLACE	\$ 35,640.00			
Sanitary			LaPlanche	Erncliffe	59.40	300	Main	1900	115	Clay		REPLACE	\$ 35,640.00			
Lawrence	Street	Arterial	Erncliffe	Victoria	271.51	0.54	5	1998	9.5	-		REPLACE	\$ 86,881.72	\$ 35,295.70		
Storm			Erncliffe	Victoria	17.10	450	Main	1970	45	Corrugated		REPLACE	\$ 5,130.00		\$ 487,567.52	9
Storm			Erncliffe	Victoria	109.88	450	Main	1970	45	Corrugated		REPLACE	\$ 32,962.76			
Storm			Erncliffe	Victoria	21.09	300	Main	1970	45	Corrugated		REPLACE	\$ 6,326.92			
Storm			Erncliffe	Victoria	24.44	300	Main	1970	45	Corrugated		REPLACE	\$ 7,333.43			
Storm			Erncliffe	Victoria	31.20	300	Main	1970	45	Corrugated		REPLACE	\$ 9,360.00			
Storm			Erncliffe	Victoria	78.60	300	Main	1970	45	Corrugated		REPLACE	\$ 23,580.00			
Watermain			Victoria	Erncliffe	286.00	150	Main	1906	109	Cast Iron	3	REPLACE	\$ 114,400.00			
Sanitary			Erncliffe	Victoria	144.96	225	Main	1900	115	Clay		REPLACE	\$ 86,977.00			
Sanitary			Erncliffe	Victoria	132.20	225	Main	1900	115	Clay		REPLACE	\$ 79,320.00			
Sanitary			Erncliffe	Victoria	132.20	225	Main	1900	115	Clay		REPLACE	\$ 79,320.00			
Longleah	Court	Local	Church	End	135.62	0.27	5	2003	7.5	-		CHIP SEAL	\$ 8,137.47	\$ -		
Sanitary			Church	End	62.33	150	Main	2000	15	PVC		STAY	\$ -		\$ 8,137.47	9
Sanitary Forcemain			Church	End	86.20	50	Forcemain	2000	15	PVC		STAY	\$ -			
Lusby	Street	Local	Victoria	End	164.26	0.33	5	1980	6.7	-		REPLACE	\$ 52,564.25	\$ 21,354.23		
Storm			West Victoria	End	93.23	900	Main	1970	45	Concrete		STAY	\$ -		\$ 194,726.81	9
Watermain			West Victoria	End	147.00	150	Main	1906	109	Cast Iron	3	REPLACE	\$ 58,800.00			
Sanitary			West Victoria	End	103.35	500	Lusby	1900	115	Clay		REPLACE	\$ 62,008.33			

APPENDIX F
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STREET	TYPE	CLASS	FROM	TO	LENGTH (m)	LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-	Breaks/ Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	Projected Year for Intervention
						Size	Type	Year Installed	Age (Years)	Material						
Maple	Avenue	Local	Electric	Prince Arthur	113.63	0.23	5	2005	6.7	-		MILL	\$ 10,226.93	\$ -		
Storm			Electric	Prince Arthur	12.08	300	Main	1980	35	Corrugated		STAY	\$ -		\$ 75,935.42	9
Storm			Electric	Prince Arthur	19.14	300	Main	1980	35	Corrugated		STAY	\$ -			
Storm			Electric	Prince Arthur	38.09	300	Main	1980	35	Corrugated		STAY	\$ -			
Watermain			Electric	Prince Arthur	108.00	150	Main	2004	11	PVC		STAY	\$ -			
Sanitary			Electric	Prince Arthur	109.51	200	Main	1900	115	Clay		REPLACE	\$ 65,708.49			
Milford	Street	Local	Boylston	Willow	88.48	0.18	5	1993	6.7	-		CHIP SEAL	\$ 5,308.64	\$ -		
Watermain			Willow	Boylston	85.00	150	Main	1949	66	Cast Iron		STAY	\$ -		\$ 5,308.64	9
Sanitary			Boylston	Willow	86.31	250	Main	1950	65	Concrete		STAY	\$ -			
Myrtle	Street	Local	Central	Fairview	75.62	0.15	5	1977	6.1	-		CHIP SEAL	\$ 4,537.15	\$ -		
-	-	-	-	-	-	-	-	-	-	-					\$ 4,537.15	9
Myrtle	Street	Local	Fairview	Belliveau	74.63	0.15	5	1977	6.1	-		CHIP SEAL	\$ 4,477.54	\$ -		
-	-	-	-	-	-	-	-	-	-	-					\$ 4,477.54	9
Newton	Avenue	Local	Ash	Silver	74.20	0.15	5	1993	6.1	-		CHIP SEAL	\$ 4,452.27	\$ -		
Watermain			Silver	Ash	79.00	150	Main	1949	66	Cast Iron		STAY	\$ -		\$ 4,452.27	9
Sanitary			Ash	Silver	77.08	250	Main	1950	65	Clay		STAY	\$ -			
Palmer	Street	Local	Eddy	LaPlanche	204.14	0.41	5	2004	6.1	-		REPLACE	\$ 65,325.47	\$ 26,538.47		
Watermain			Eddy	LaPlanche	205.00	150	Main	1906	109	Cast Iron	2	REPLACE	\$ 82,000.00		\$ 260,203.54	9
Sanitary			Eddy	LaPlanche	117.46	200	Main	1900	115	Clay		REPLACE	\$ 70,475.33			
Sanitary			Eddy	LaPlanche	26.44	200	Main	1900	115	Clay		REPLACE	\$ 15,864.26			
Queen	Street	Local	Croft	Albion	243.86	0.49	5	1990	6.1	-		REPLACE	\$ 78,034.81	\$ 31,701.64		
Watermain			Albion	Croft	241.00	150	Main	1906	109	Cast Iron	2	REPLACE	\$ 96,400.00		\$ 300,336.45	9
Sanitary			Croft	Albion	123.90	250	Main	1910	105	Clay		REPLACE	\$ 74,340.00			
Sanitary			Croft	Albion	33.10	250	Main	1910	105	Clay		REPLACE	\$ 19,860.00			
Ralston	Place	Local	Donald	Cul-de-sac	61.55	0.12	5	1989	7.9	-		REPLACE	\$ 19,697.55	\$ 8,002.13		
Watermain			Donald	End	71.00	150	Main	1967	48	Cast Iron	1	REPLACE	\$ 28,400.00		\$ 104,527.71	9
Sanitary			Donald	Cul-de-sac	80.71	200	Main	1960	55	Concrete		REPLACE	\$ 48,428.02			
Ralston	Place	Local	Cul-de-sac	n/a	65.58	0.13	5	1989	7.9	-		CHIP SEAL	\$ 3,934.94	\$ -		
-	-	-	-	-	-	-	-	-	-	-					\$ 3,934.94	9
Robert Angus	Drive	Arterial	Church	South Albion	1571.33	3.14	5	2002	12.0	-		CHIP SEAL	\$ 94,280.06	\$ -		
Storm			Church	South Albion	88.78	900	Main	1980	35	Corrugated		STAY	\$ -		\$ 94,280.06	9
Storm			Church	South Albion	98.00	750	Main	1980	35	Corrugated		STAY	\$ -			
Sanitary			Church	South Albion	834.70	250	Main	1990	25	PVC		STAY	\$ -			
Sanitary			Church	South Albion	35.82	250	Main	1990	25	PVC		STAY	\$ -			
Sanitary			Church	South Albion	121.90	250	Main	2000	15	PVC		STAY	\$ -			
Sanitary			Church	South Albion	120.00	250	Main	2000	15	PVC		STAY	\$ -			
Sanitary			Church	South Albion	119.02	250	Main	2000	15	PVC		STAY	\$ -			
Sanitary			Church	South Albion	96.00	250	Main	2000	15	PVC		STAY	\$ -			
Sanitary			Church	South Albion	82.00	250	Main	2000	15	PVC		STAY	\$ -			
Sanitary			Church	South Albion	82.00	250	Main	2000	15	PVC		STAY	\$ -			
Robie	Street	Local	Melrose	Clarence	97.94	0.20	5	1989	6.7	-		REPLACE	\$ 31,340.81	\$ 12,732.20		
Watermain			Melrose	Clarence	97.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 38,800.00		\$ 141,673.01	9
Sanitary			Clarence	Melrose	98.00	250	Main	1900	115	Clay		REPLACE	\$ 58,800.00			
Rupert	Street	Collector	Spring	Dunlap	114.77	0.23	5	1980	8.5	-		MILL	\$ 10,329.24	\$ -		
Storm			Spring	Dunlap	99.20	750	Main	1980	35	Corrugated		STAY	\$ -		\$ 56,729.24	9
Watermain			Spring	Dunlap	116.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 46,400.00			
Sanitary			Spring	Dunlap	74.74	300	Main	1950	65	Clay		STAY	\$ -			
Rupert	Street	Collector	Dunlap	Dickey	89.85	0.18	5	1980	8.5	-		MILL	\$ 8,086.83	\$ -		
Storm			Dunlap	Dickey	47.03	900	Main	1980	35	Corrugated		STAY	\$ -		\$ 44,886.83	9
Storm			Dunlap	Dickey	6.51	750	Main	1980	35	Corrugated		STAY	\$ -			
Storm			Dunlap	Dickey	36.02	750	Main	1980	35	Corrugated		STAY	\$ -			
Watermain			Dunlap	Dickey	92.00	150	Main	1965	50	Cast Iron	1	REPLACE	\$ 36,800.00			
Sanitary			Dunlap	Dickey	89.42	300	Main	1950	65	Clay		STAY	\$ -			
Rupert	Street	Collector	Clifford	Spring	116.36	0.23	5	1996	8.8	-		REPLACE	\$ 37,236.03	\$ 15,127.14		
Storm			Clifford	Spring	15.20	750	Main	1980	35	Corrugated		REPLACE	\$ 4,559.65		\$ 200,169.30	10
Storm			Clifford	Spring	89.16	750	Main	1980	35	Corrugated		REPLACE	\$ 26,747.14			
Watermain			Clifford	Spring	116.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 46,400.00			
Sanitary			Clifford	Spring	60.94	300	Main	1900	115	Clay		REPLACE	\$ 36,566.89			
Sanitary			Clifford	Spring	55.89	300	Main	1900	115	Clay		REPLACE	\$ 33,532.45			
Senator	Avenue	Local	Church	Academy	84.38	0.17	5	1994	6.0	-		MILL	\$ 7,594.21	\$ -		
Sanitary			Church	Academy	37.80	200	Main	1940	75	Clay		REPLACE	\$ 22,680.00		\$ 30,274.21	9
Silver	Street	Local	Newton	End	105.29	0.21	5	2004	6.1	-		CHIP SEAL	\$ 6,317.58	\$ -		
Sanitary			Newton	End	118.88	250	Main	1950	65	Clay		STAY	\$ -		\$ 6,317.58	9

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET						LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-					Projected Year for Intervention	
Service	TYPE	CLASS	FROM	TO	LENGTH (m)	Size	Type	Year Installed	Age (Years)	Material	Breaks/Blockages	Recommendations	Item Cost	New Curb	TOTAL COST	
Spring	Street	Collector	Coates	Fletcher	89.50	0.18	5	1989	9.1	-		CHIP SEAL	\$ 5,370.00	\$ -		
Storm			Coates	Fletcher	11.40	375	Main	1980	35	PVC		STAY	\$ -		\$ 5,370.00	
Storm			Coates	Fletcher	39.43	375	Main	1980	35	PVC		STAY	\$ -			
Storm			Coates	Fletcher	35.80	300	Main	1980	35	PVC		STAY	\$ -			
Watermain			Coates	Fletcher	92.00	150	Main	1985	30	PVC		STAY	\$ -			
Sanitary			Coates	Fletcher	90.22	300	Main	1980	35	PVC		STAY	\$ -			
Spring	Street	Collector	Station	Albion	109.08	0.22	5	1993	7.3	-		REPLACE	\$ 34,904.95	\$ 14,180.13		
Storm			Station	Albion	4.06	250	Main	1970	45	Corrugated		REPLACE	\$ 1,218.69		\$ 105,238.08	
Sanitary			Station	Albion	49.04	225	Main	1900	115	Clay		REPLACE	\$ 29,422.14			
Sanitary			Station	Albion	42.52	225	Main	1900	115	Clay		REPLACE	\$ 25,512.18			
Station	Street	Collector	Abbott	Spring Ext	93.92	0.19	5	2004	9.7	-		CHIP SEAL	\$ 5,635.29	\$ -		
															\$ 5,635.29	9
Tantramar	Crescent	Collector	Civic #23	Civic #13	654.00	1.31	5	1995	9.2	-		CHIP SEAL	\$ 39,240.00	\$ -		
Storm			Civic #23	Civic #13	20.92	1200	Main	1970	45	Concrete		STAY	\$ -		\$ 39,240.00	
Watermain			Civic #23	Civic #13	628.00	300	Main	1974	41	Ductile Ir		STAY	\$ -			
Tantramar	Crescent	Collector	Civic #13	Anson	630.00	1.26	5	1995	9.2	-		CHIP SEAL	\$ 37,800.00	\$ -		
Watermain			Anson	Civic #13	626.00	300	Main	1974	41	Ductile Ir		STAY	\$ -		\$ 37,800.00	10
Terrace	Street	Local	Victoria	Lennox	218.54	0.44	5	1988	6.1	-		MILL	\$ 19,668.76	\$ -		
Watermain			Victoria	Lennox	225.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 90,000.00		\$ 146,135.03	
Sanitary			Victoria	Lennox	60.78	600	Main	1910	105	Clay		REPLACE	\$ 36,466.27			
Sanitary			Victoria	Lennox	124.30	600	Main	1980	35	Concrete		STAY	\$ -			
Sanitary			Victoria	Lennox	44.51	600	Main	1980	35	Concrete		STAY	\$ -			
Townshend	Court	Local	Townshend	Cul-de-sac	92.98	0.19	5	1988	7.9	-		CHIP SEAL	\$ 5,579.00	\$ -		
Storm			Townshend	Cul-de-sac	11.16	375	Main	1980	35	PVC		STAY	\$ -		\$ 5,579.00	
Storm			Townshend	Cul-de-sac	23.75	375	Main	1980	35	PVC		STAY	\$ -			
Storm			Townshend	Cul-de-sac	53.04	250	Main	1980	35	PVC		STAY	\$ -			
Watermain			Townshend	End	100.00	200	Main	1980	35	PVC		STAY	\$ -			
Sanitary			Townshend	Cul-de-sac	97.89	150	Main	1980	35	PVC		STAY	\$ -			
Tupper	Boulevard	Collector	Tantramar	Chandler	841.43	1.68	5	1997	9.1	-		CHIP SEAL	\$ 50,486.03	\$ -		
Storm			Tantramar Cres	Chandler	7.70	1200	Main	1970	45	Concrete		STAY	\$ -		\$ 50,486.03	
Storm			Tantramar Cres	Chandler	114.40	1200	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Cres	Chandler	122.22	1200	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Cres	Chandler	22.30	750	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Cres	Chandler	105.40	600	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Cres	Chandler	123.56	600	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Cres	Chandler	140.87	600	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Cres	Chandler	13.81	450	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Cres	Chandler	57.48	450	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Cres	Chandler	76.93	450	Main	1970	45	Concrete		STAY	\$ -			
Storm			Tantramar Cres	Chandler	130.64	450	Main	1970	45	Concrete		STAY	\$ -			
Watermain			Tantramar	10 Chandler	845.00	300	Main	1973	42	Ductile Ir		STAY	\$ -			
Sanitary			Tantramar	Chandler	136.90	200	Main	1970	45	Concrete		STAY	\$ -			
Sanitary			Tantramar	Chandler	121.53	200	Main	1970	45	Concrete		STAY	\$ -			
Sanitary			Tantramar	Chandler	100.25	200	Main	1970	45	Concrete		STAY	\$ -			
Sanitary			Tantramar	Chandler	99.35	200	Main	1970	45	Concrete		STAY	\$ -			
Sanitary			Tantramar	Chandler	89.66	250	Main	1970	45	Concrete		STAY	\$ -			
Sanitary			Tantramar	Chandler	86.16	250	Main	1970	45	Concrete		STAY	\$ -			
Sanitary			Tantramar	Chandler	81.94	200	Main	1970	45	Concrete		STAY	\$ -			
Sanitary			Tantramar	Chandler	76.89	200	Main	1970	45	Concrete		STAY	\$ -			
Veno	Avenue	Local	Pleasant	End	96.21	0.19	5	1984	5.5	-		CHIP SEAL	\$ 5,772.62	\$ -		
Sanitary					77.67	200	Main	1960	55	Concrete		STAY	\$ -		\$ 5,772.62	10
West Victoria	Street	Arterial	Mill	Smith	158.86	0.32	5	1991	11.0	-		REPLACE	\$ 50,836.09	\$ 20,652.16		
Watermain			Smith	Mill	157.00	150	Main	1906	109	Cast iron		REPLACE	\$ 62,800.00		\$ 226,326.15	
Sanitary			Mill	Smith	153.40	300	Main	1910	105	Clay		REPLACE	\$ 92,037.89			
West Victoria	Street	Arterial	Copp	Lansdowne	48.60	0.10	5	1991	11.0	-		MILL	\$ 4,374.38	\$ -		
Watermain			Lansdowne	Copp	48.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 19,200.00		\$ 23,574.38	10
West Victoria	Street	Arterial	Town Boundary	Kent	43.62	0.09	5	1991	11.0	-		CHIP SEAL	\$ 2,617.31	\$ -		
Sanitary			Town Boundary	Kent Drive	83.80	450	Main	1970	45	Concrete		STAY	\$ -		\$ 2,617.31	10
West Victoria	Street	Arterial	Lusby	Arlington	117.65	0.24	5	1991	11.0	-		REPLACE	\$ 37,649.33	\$ 15,295.04		
Watermain			Lusby	Arlington	114.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 45,600.00		\$ 188,124.37	
Sanitary			Arlington	Lusby	149.30	250	Main	1910	105	Clay		REPLACE	\$ 89,580.00			

APPENDIX F
Street and Linear Infrastructure Summary
Conditions, Recommendations and Costing

STREET						LANE Km's	PASER Rating	LAST PAVED	ROAD WIDTH (m)	-					Projected Year for Intervention
Service	TYPE	CLASS	FROM	TO	LENGTH (m)	Size	Type	Year Installed	Age (Years)	Material	Breaks/Blockages	Recommendations	Item Cost	New Curb	TOTAL COST
West Victoria	Street	Arterial	Terrace	Haliburton	80.23	0.16	5	1991	11.0	-		REPLACE	\$ 25,673.89	\$ 10,430.02	
Storm			Haliburton	Terrace	84.45	375	Main	1970	45	Corrugated		REPLACE	\$ 25,335.85		\$ 166,546.63
Watermain			Haliburton	Terrace	85.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 34,000.00		
Sanitary			Terrace	Haliburton	12.01	600	Main	1910	105	Clay		REPLACE	\$ 7,206.86		
Sanitary			Terrace	Haliburton	56.50	375	Main	1910	105	Clay		REPLACE	\$ 33,900.00		
Sanitary			Terrace	Haliburton	50.00	200	Main	1950	65	Clay		REPLACE	\$ 30,000.00		
West Victoria	Street	Arterial	Hickman	Terrace	26.75	0.05	5	1991	11.0	-		CHIP SEAL	\$ 1,604.77	\$ -	
Storm			Terrace	Hickman	21.50	450	Main	1970	45	Corrugated		STAY	\$ -		\$ 1,604.77
Watermain			Terrace	Hickman	24.00	150	Main	1949	66	Cast Iron		STAY	\$ -		
West Victoria	Street	Arterial	Liberty Lane	Hickman	215.70	0.43	5	1991	11.0	-		REPLACE	\$ 69,024.45	\$ 28,041.18	
Storm			Hickman	Liberty	1.21	300	Main	1970	45	Corrugated		REPLACE	\$ 363.39		\$ 305,780.79
Storm			Hickman	Liberty	33.80	300	Main	1970	45	Corrugated		REPLACE	\$ 10,139.98		
Storm			Liberty	Hickman	36.48	300	Main	1970	45	Corrugated		REPLACE	\$ 10,943.50		
Storm			Hickman	Liberty	51.24	300	Main	1970	45	Corrugated		REPLACE	\$ 15,372.69		
Watermain			Hickman	Liberty	217.00	150	Main	1949	66	Cast Iron	1	REPLACE	\$ 86,800.00		
Sanitary			Liberty Lane	Hickman	30.10	300	Main	1940	75	Clay		REPLACE	\$ 18,060.00		
Sanitary			Liberty Lane	Hickman	111.73	300	Main	1940	75	Clay		REPLACE	\$ 67,035.60		
West Victoria	Street	Arterial	Gerard	Copp	80.43	0.16	5	1991	11.0	-		REPLACE	\$ 25,736.14	\$ 10,455.31	
Storm			Gerard	Copp	78.84	375	Main	1970	45	Concrete		STAY	\$ -		\$ 110,811.44
Watermain			Copp	Gerard	79.00	150	Main	1906	109	Cast Iron		REPLACE	\$ 31,600.00		
Sanitary					71.70	450	main	1900	115	Clay		REPLACE	\$ 43,020.00		
West Victoria	Street	Arterial	Kent	Liberty	535.34	1.07	5	1991	11.0	-		REPLACE	\$ 171,309.83	\$ 69,594.62	
Storm			Kent	Liberty	17.28	450	Main	1970	45	Corrugated		REPLACE	\$ 5,184.94		\$ 729,419.45
Storm			Kent	Liberty	91.95	450	Main	1970	45	Corrugated		REPLACE	\$ 27,585.35		
Watermain			Liberty	Kent	533.00	150	Main	1949	66	Cast Iron	3	REPLACE	\$ 213,200.00		
Sanitary			Kent Drive	Liberty Lane	144.00	300	Main	1940	75	Clay		REPLACE	\$ 86,399.92		
Sanitary			Kent Drive	Liberty Lane	95.70	300	Main	1940	75	Clay		REPLACE	\$ 57,420.00		
Sanitary			Kent Drive	Liberty Lane	93.16	300	Main	1940	75	Clay		REPLACE	\$ 55,895.14		
Sanitary			Kent Drive	Liberty Lane	39.11	300	Main	1940	75	Clay		REPLACE	\$ 23,463.99		
Sanitary			Kent Drive	Liberty Lane	18.20	300	Main	1940	75	Clay		REPLACE	\$ 10,920.30		
Sanitary			Kent Drive	Liberty Lane	14.08	300	Main	1940	75	Clay		REPLACE	\$ 8,445.37		
Sanitary			Kent Drive	Liberty Lane	108.03	450	Main	1970	45	Concrete		STAY	\$ -		
Sanitary			Kent Drive	Liberty Lane	37.20	450	Main	1970	45	Concrete		STAY	\$ -		
Sanitary			Kent Drive	Liberty Lane	26.96	450	Main	1990	25	PVC		STAY	\$ -		
Willow	Street	Arterial	Spring	Webster	231.50	0.46	5	1990	9.2	-		REPLACE	\$ 74,080.00	\$ 30,095.00	
Storm			Spring	Webster	14.37	600	Main	1970	45	Corrugated		REPLACE	\$ 4,312.33		\$ 271,662.83
Storm			Spring	Webster	66.68	600	Main	1970	45	Corrugated		REPLACE	\$ 20,005.23		
Storm			Spring	Webster	12.09	450	Main	1970	45	Corrugated		REPLACE	\$ 3,627.06		
Storm			Spring	Webster	121.05	450	Main	1970	45	Corrugated		REPLACE	\$ 36,313.96		
Watermain			Webster Tee	Spring	98.00	250	Main	1949	66	Cast Iron		REPLACE	\$ 39,200.00		
Sanitary			Spring	Webster	106.72	300	Main	1960	55	Concrete		REPLACE	\$ 64,029.26		



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