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Item No. 11.1.22
Halifax Regional Council
September 1, 2020

TO: Mayor Savage and Members of Halifax Regional Council

SUBMITTED BY: Original Signed by
Jacques Dubé, Chief Administrative Officer

DATE: August 18, 2020

SUBJECT: ICIP Climate Change Mitigation Sub-Stream Funding Applications

ORIGIN

On July 21, 2020 the Nova Scotia Department of Energy and Mines issued a call for submissions for infrastructure projects under the Investing in Canada Infrastructure Program's Climate Change Mitigation sub-stream of the integrated bilateral agreement.

LEGISLATIVE AUTHORITY

Subsection 74(1) of the *Halifax Regional Municipality Charter* provides that "The Municipality may agree with one or more municipalities, villages, service commissions, the Government of the Province or of Canada or a department or agency of either of them or a band council pursuant to the Indian Act (Canada) to provide or administer municipal or village services."

RECOMMENDATION

It is recommended that Halifax Regional Council:

1. Endorse the capital projects outlined in the Discussion section of this report, and

2. Direct the Chief Administrative Officer to submit the new projects identified in Attachment A and those previously approved as listed in Attachment C for funding consideration under the Investing in Canada Infrastructure Program Climate Change Mitigation sub-stream.

BACKGROUND

Through the Investing in Canada Infrastructure Program (ICIP), the Government of Canada plans to invest more than $180 billion over 12 years in 5 main infrastructure priority areas:

- Public Transit Infrastructure;
- Green Infrastructure;
- Social Infrastructure;
- Trade and Transportation; and
- Rural and Northern Communities.

In phase 1 of ICIP funding in 2016, HRM received $40 million in federal and provincial funding through the Clean Water and Wastewater Fund and $31 million in federal funding under the Public Transit Infrastructure Fund. Phase 2 of ICIP funding was announced in 2018 and will see an additional $81 billion flow over 10 years in the same priority areas.

The Green Infrastructure stream of ICIP is further subdivided into three sub-streams, which includes the Climate Change Mitigation sub-stream. The outcomes sought under the Climate Change Mitigation sub-stream are:

- Increased capacity to manage more renewable energy;
- Increased access to clean energy transportation;
- Increased energy efficiency of buildings; and
- Increased generation of clean energy.

On July 21, 2020, the Nova Scotia Department of Energy and Mines issued a call for submissions under the Climate Change Mitigation sub-stream. In the call, it was indicated that they are seeking projects, or a group of projects, totaling $1 million or more in total eligible costs that will reduce greenhouse gas (GHG) emissions in the following categories.

Buildings: Projects focused on net-zero (or equivalent) buildings, deep energy retrofits, and district heating and cooling systems.

Electricity: Projects focused on electric and water heating, First Nations and/or community shared solar, and grid technologies and advanced storage.

Transportation: Projects focused on clean energy transportation and active transportation networks.

Projects can be multiyear with completion by October 2027 and can be ready to start in 2020 or later. Approved municipal projects under the Climate Change Mitigation sub-steam will receive cost sharing via the Federal and Provincial governments in the amount of 40 and 33.33% respectively. The Municipality will be responsible for the remaining 26.67%. The program is claims based, meaning that successful applicants must incur and pay project costs prior to submitting claims for reimbursement for eligible expenditures.

In addition to the Climate Change Mitigation sub-stream outcomes sought under the bilateral agreement, the call for submissions includes additional objectives sought by the province in selecting projects. These include:

- Reducing greenhouse gas emissions;
- Generating green jobs and grow an inclusive economy;
- Elevating Nova Scotian leadership;
- Enhancing social equity and reducing poverty; and
- Building connected, resilient, and safe communities and supporting healthy populations.

The deadline to submit projects under the call for submissions is September 9, 2020.

ICIP COVID-19 Resilience Stream

On May 12, 2020, Infrastructure Canada announced its intention to introduce a new funding stream under the ICIP integrated bilateral agreements to help address the health and economic impacts of COVID-19. On August 5, 2020, following discussions with the provinces, Infrastructure Canada announced the details of the COVID-19 Resilience stream. In anticipation of this funding stream, Halifax Regional Council approved a list of shovel ready projects for this new stream on June 9th, 2020.[1] The eligibility requirements for projects under this resilience stream differ from the Climate Change Mitigation sub-stream. At the time of writing this report, it is uncertain which of the projects already approved by Halifax Regional Council under the COVID-19 Resilience Stream may also qualify under the Climate Mitigation Sub-stream. Therefore, it would be prudent to also include all previously identified Energy Efficiency Initiatives for consideration under the Climate Mitigation Sub-stream. These initiatives are outlined in Attachment C.

DISCUSSION

Successfully securing funding through ICIP would support both the Integrated Mobility Plan (IMP) and HalifACT 2050: Acting on Climate Together, two priority plans of the Municipality. The IMP was approved by Halifax Regional Council in 2017 and creates a vision for moving around the Halifax region and helps direct future investment in transportation demand management, transit, active transportation, and the roadway network it seeks to improve the links between residents and their communities. HalifACT was approved by Halifax Regional Council in June 2020 and is the Municipality's long-term climate action plan to urgently reduce emissions and help communities adapt to a changing climate.

Energy & Environment Projects

With the approval of HalifACT, Halifax Regional Council committed to a target of net-zero municipal operations by the year 2030. The proposed projects to be submitted to the ICIP Climate Mitigation sub-stream, if implemented, represent significant emission reduction benefits through energy efficiency and the addition of renewables. The proposed district energy and heat recovery projects align with the HalifACT target of decarbonizing and expanding district energy networks. While district energy development was not identified as one of the seven core areas of immediate action approved by Halifax Regional Council, recent work completed by the Municipality's Onsite Energy Manager has identified this as a significant opportunity to reduce emissions and align with the current funding call. Therefore, it is recommended that they be included in this funding submission.

Ragged Lake Energy Efficiency Retrofit

The Ragged Lake Bus Depot is one of the Municipality's largest energy consumers. In 2019, an energy audit was performed which identified several efficiency and energy upgrades that would optimize and reduce energy consumption at the facility. These measures include demand-controlled ventilation, electrification with heat pumps, the addition of solar PV, battery storage, building recommissioning, and general energy efficiency modifications like air curtains and destratification fans, among others. These upgrades would build on the work completed last year which included interior and exterior LED lighting retrofit, enhanced metering, and demand-controlled ventilation on the first of 16 air-handling units.

The proposed retrofit project would yield significant benefits including an annual emission reduction potential of 1,500 tonnes of eCO_2 and increase resiliency via solar and storage. This project would also be eligible for a rebate through Efficiency Nova Scotia, estimated at $350,000.

[1] Submission of Shovel Ready Projects for Potential Stimulus Funding https://www.halifax.ca/sites/default/files/documents/city-hall/regional-council/200522bc3i.pdf

Municipal District Energy Projects

In 2019, staff commissioned studies to explore waste heat recovery and district energy system opportunities within the municipality. Four key projects were identified and are proposed for submission to the Climate Change Mitigation sub-stream.

BMO Centre Waste Heat Recovery

The BMO 4-Pad Arena is a significant source of waste heat and as such, it is proposed that a district energy system be developed to provide this energy to the adjacent Northwood Long-term Care Facility. This project would include the installation of heat exchangers, pumps, piping and supplemental heat pumps. Not only would this reduce emissions by offsetting the existing propane heat, it would also be an innovative solution to supporting affordable housing through low cost waste energy.

Scotiabank Centre Waste Heat Recovery

The Scotiabank Centre is one of the Municipality's largest energy consumers which also produces a significant amount of waste heat via the ice plant and air conditioning system. Last year, an energy audit was completed that identified an opportunity to significantly lower energy usage in the facility and use the waste heat to offset heating loads. This project would include replacement of the aging refrigeration plant and the addition of a heat exchanger for optimal thermal integration. Also included in this project is a thermal buffer system with ice-batteries to replace the existing chilled water and enhanced building controls to optimize the facility's energy performance.

Alderney Gate District Energy

Alderney Gate is comprised of four buildings on the Dartmouth Waterfront and utilizes a natural gas district heating system along with an innovative seawater/geothermal storage cooling system. In 2018, the Municipality commissioned a study to optimize the system, reduce maintenance costs associated with the use of seawater, and recommend future enhancements to the system. This project would leverage the existing borehole field and piping infrastructure in addition to distributed heat pumps to replace the natural gas heating at the facility.

Young Street District Energy System

The Young Street Lands is an extensive urban block bordered by Young, Robie, Almon and Windsor Streets and is identified as a future growth node through Centre Plan Package B. With the expected growth and high density, this area has been identified as an optimal location for a district energy system. A preliminary concept design was recently completed which identified the Halifax Forum Redevelopment, along with three other private facilities, as significant sources of waste heat. A detailed feasibility assessment and business case is currently nearing completion. However, the proposed project would consist of a low-temperature energy loop that provides both heating and cooling to the expected 5,000,000 ft^2 of new and existing commercial and multi-use residential floorspace. This project is large-scale, similar to the Cogswell District Energy Project, and regulatory details and required HRM Charter authorities will be determined as the project progresses.

The proposed projects above would yield an annual emission reduction potential of 30,000 tonnes of eCO_2 and eligible for a rebate through Efficiency Nova Scotia, estimated at $2,000,000.

Active Transportation Network Projects

The walking and bicycling facility projects proposed below are identified as priorities in the *Integrated Mobility Plan* and *Active Transportation (AT) Priorities Plan*.

With Regional Council adoption of the *Integrated Mobility Plan* (IMP), HRM's approach to transportation infrastructure planning and design has been transformed. It has been recognized that to meet the region's non-auto mode share targets and improve the sustainability of the transportation system, increased priority for transit, walking, and cycling will be required. The proposed AT projects help attain this target.

For *"existing road corridors that are key to regional traffic flow, transit, goods movement and active transportation"* such as Herring Cove Road and the Bedford Highway, IMP Action 121 recommends the development of 'Strategic Corridor' plans that guide their development over time. Strategic corridor planning undertaken as recommended by the IMP should explicitly consider the Plan's overarching objectives, which support investment in infrastructure and programs aimed at improving transportation sustainability and creating complete communities. As such, strategic corridor plans should include a focus on assessing the feasibility of reconfiguring the corridor to include improved transit and active transportation facilities, as well as considering the potential for enhancement from a 'Complete Streets' perspective.

Three of the proposed AT projects are components of these broader complete street plans. Other proposed AT projects fill gaps or provide new community connections in other parts of the AT network. These have been identified in either the IMP or the AT Plan (or both) as important gaps in or extensions to the AT network.

Active Transportation projects are identified as a GHG mitigation measure in the Transportation Association of Canada (TAC) study "Moving Smarter: Exploring energy and greenhouse gas emission reduction solutions for Canadian cities". Many of the projects proposed in this report will result in GHG reduction as they feature a wide range of bikeable and walkable origins and destinations, supportive land use with increased area population growth, and connections to the transit network for longer trips.

The projects also consider the social equity benefits of providing AT infrastructure to residents who benefit from lower cost transportation options to access employment and other destinations. The infrastructure will be accessible and usable by people with a wide range of mobility needs. All the facilities would permit current recommended physical distancing related to COVID-19.

The planning and design process has started for all of the proposed AT Network projects and they are considered near-term (within the next five years) for construction. All of the projects have been part of public and stakeholder engagement processes. Some of the proposed AT projects would require coordination with and/or permission from the Province for work in their right-of-way.

Descriptions of Proposed AT Projects

Maps illustrating the location of these proposed facilities are compiled in Attachment B.

Burnside Drive Multi-Use Pathway (Commodore Ave. to Wright Ave.)

The Burnside Drive Multi-Use Pathway provides a safer separated AT facility along busy Burnside Drive. The extension of the facility to Wright Avenue will provide a direct connection to employment destinations in City of Lakes Business Park as well as Spectacle Lake Park and its adjacent office buildings.

This provides an AT connection to one of HRM's top employment destinations and connections to park and recreation destinations. While Burnside Business Park has a predominance of infrastructure for vehicles, it is a "bikeable" distance from many parts of the Regional Centre. This pathway would be the only place for people to walk or bicycle on this segment of Burnside Drive.

Forest Hills Trail Connectors

The Forest Hills trail is a 1.3 km multi-use pathway that connects schools, a community centre, playing fields, a library and other destinations with residential areas. This project aims to build two small segments of multi-use pathway, one at either end of the trail, to make connections to the broader AT network. These are:

1) Cole Harbour Commons Pathway. This approximately 250m facility will connect the Trail to the Forest Hills Parkway Multi-use pathway.
2) Amaranth/Arklow/Perron Pathway. This approximately 250m facility will connect the Trail to the Bissett Greenway (which then connects to the Cole Harbour Heritage trail system, the Salt Marsh trail, and beyond).

Cobequid Road Multi-Use Pathway (Glendale to Sackville Drive)

Cobequid Road is a major street with shopping, a major health centre, the Cobequid transit terminal and a range of businesses and services that lack any pedestrian facility on one side. This project would add a multi-use pathway to address this gap.

The pathway would connect with the proposed upgrade to the Sackville-Bedford-Dartmouth AT corridor and future segments of the Sackville Greenway and improve safety for residents.

Dutch Village Road Protected Bicycle Lanes and Complete Streets

This project would realize the construction of approximately 700m of protected bicycle lanes, a new west side sidewalk, and associated changes to the roadway and pedestrian realm. It will make a direct connection between a mixed-use growth centre and a popular link in the regional multi-use path network (Chain of Lakes Trail). It will bring the community of Fairview closer to a planned connection between the Chain of Lake Trail and the Halifax Peninsula's AAA Regional Centre Bicycle Network.

Fairview is an older inner suburb which includes many families of recent immigrants and people living on low incomes. The median household income in the census tracts bounding Dutch Village Road is between $25,000/ year and $60,000/ year (2016 Census). Dutch Village Road is the community's "main street" -- a major collector road with daily traffic volumes exceeding 16,000 vehicles per day and a mix of commercial buildings, vacant lots, and apartments.

The lack of any bicycle facilities at all, and no sidewalk on the west side between Sunnybrae Avenue and Alma Crescent, has been cited as a safety issue and functional deficiency for years. The absence of a west curb allows uncontrolled vehicular access to property, enabling commercial parking perpendicular to the street with motorists backing into traffic creating conflicts with vehicles, cyclists and pedestrians. Between January 2015 and December 2017, fifty-six collisions were documented in the corridor.

Recently approved Municipal Planning Strategy (MPS) and Land Use By-law (LUB) amendments promote area growth and allow higher densities of mixed-use development with commercial uses at grade, residential units above, and parking to side, rear, or underground. Over 20 construction permits have been issued in the previous five years, representing over $40.5 million of private investment.

Growth here is expected to significantly increase potential for active transportation given its proximity to major employment hubs on the Halifax peninsula (+/-5km from downtown Halifax, hospitals, universities, waterfront industrial, and Department of National Defence facilities). Without supporting infrastructure to make active transportation more comfortable and convenient, this growth risks exacerbating area traffic congestion and associated safety, climate, and quality of life issues.

Bedford Highway Multi-Use Pathway and bike lanes

The Bedford Highway, an arterial road running approximately 11.5km between Windsor Street and Highway 102, is among the most important transportation corridors in the municipality. It serves as a key north-south connection for both local and regional travel, providing a direct link between the Regional Centre and the inner suburbs along the west and north sides of the Bedford Basin. It accommodates between 16,000 and 35,000 vehicles per day and is served by several Halifax Transit routes. A key commuter route, it is subject to heavy volumes and congestion during weekday morning and afternoon peak periods. The Council approved direction for this corridor includes a continuous Active Transportation (AT) facility and targeted transit priority improvements while minimizing impacts to existing traffic capacity.

The continuous AT facility would include a multi-use path along the Bedford Basin side of the corridor between the Windsor Street Exchange and Convoy Run, and on-street bicycle lanes between Convoy Run and Dartmouth Road. Sidewalks would be extended to provide connectivity within developed areas and improved access to transit stops.

There is significant opportunity to improve the corridor's ability to better accommodate all users. Natural advantages of the Bedford Highway corridor, such as coastal scenery, flat terrain, and direct connectivity between key origins and destinations, make it a potentially attractive place for active transportation for both utilitarian and recreational purposes. The multi-use pathway will have significant potential, particularly considering that the upcoming reconfiguration of the Windsor Street Exchange and implementation of the Regional Centre All Ages and Abilities (AAA) Bikeways Network are expected to drastically improve AT connectivity. With these connections in place, the considerable population located along the Bedford Highway corridor would have a viable alternative option for walking and cycling along the Bedford Highway for local trips, connections to transit, and travel into the Regional Centre. The potential city-building value of such a facility warrants consideration. Examples from abroad including Chicago's Lakefront Trail and Toronto's Martin Goodman Trail highlight the potential that strong higher order AT connections can have in linking communities, particularly where they exist along naturally beautiful corridors that are attractive to a variety of uses. Put in context, it is not difficult to envision comparable potential for such a facility running the approximately 10km along the Bedford Highway between Africville and Mill Cove and then further connections to the Regional Centre AAA network to connect to Point Pleasant Park.

The municipality received funding contributions for the Bedford Highway Functional Study from the Federation of Canadian Municipalities (Climate Innovation Program (MCIP)) and the Nova Scotia Department of Energy and Mines (Connect 2 Program).

Herring Cove Road Multi-Use Pathway and Protected Bike Lanes

Herring Cove Road is a key arterial roadway that links the Spryfield and Purcells Cove areas (and points beyond) to the Regional Centre via the Armdale Roundabout. It currently accommodates more than 15,000 vehicles per day and is served by three Halifax Transit routes. A key commuter route, Herring Cove Road is subject to heavy volumes and congestion during weekday morning and afternoon peak periods. It also functions as Spryfield's 'main street', with a concentration of mixed-use development that includes residential, commercial, institutional, and recreational.

Although Herring Cove Road is a common cycling route for both local and regional commuting, as well as recreationally, there is no cycling infrastructure within the study area. There are sections south of the study area with paved shoulders and painted bicycle lanes. The entire length of Herring Cove Road is designated as a "Desired Bikeway" in HRM's Active Transportation Priorities Plan. There have been serious injury and fatal collisions with cyclists in the area over the past few years, which reinforces the need to for safe cycling infrastructure.

Despite its significance in the regional transportation network and importance to the local community, the road has an inconsistent cross-section that ranges from two to four lanes, and disconnected pedestrian and bicycle facilities that limit the potential for active transportation uses and connection to transit.

The municipality received funding contributions for the Herring Cove Road Functional Study from the Nova Scotia Department of Energy and Mines (Connect 2 Program).

Pleasant Street Multi-Use Pathway (Woodside-Shearwater Connector)

This potential 3 km AT facility would fill a critical gap in the regional AT Network and the TransCanada Trail between the terminus of the Dartmouth Harbourfront Trail (at the Woodside Ferry Terminal) and the Shearwater Flyer Trail (at Corsair Dr.). The facility will connect employment, residential, commercial, tourism and transit centres.

Communities such as South Woodside, Shearwater and Eastern Passage will have safer and more direct walking and bicycling facilities. Filling this gap would provide a direct connection between rural parts of the municipality and the Regional Centre as well as a separated facility for urban residents and tourists to bicycle to Cole Harbour Heritage Park, Lawrencetown Beach, Porters Lake and many other Cole Harbour and Eastern Shore destinations.

Sackville Greenway (Sackville Drive to Sackville Transit Terminal)

The Sackville Greenway is an envisioned 8km multi-use pathway that parallels the Little Sackville River and is a central AT artery through Middle and Lower Sackville. The first 1.2km segment between Glendale Dr. and Sackville Dr. was completed in 2019 and has become a much-used AT and recreation asset.

The proposed segment, between Sackville Dr. to Sackville Transit Terminal, represents about 800m of multi-use pathway. This segment would link the existing AT facility to the Downsview Mall, new residential developments and the Sackville transit Terminal. It would also improve access to Acadia Hall and Park as well as the Library.

This project has been initiated and supported by the Sackville Rivers Association with broad community support.

Sackville-Bedford-Dartmouth AT Corridor

This project would see the development of an 8km multi-use pathway that connect these three HRM communities. The project would include:

- A safer AT connection into Lower Sackville over Highway 101 in the area of Sackville Dr. and Cobequid Road;
- Enhancements to the existing 3km multi-use pathway between lower Sackville and Bedford to make it more accessible and bring it up to AT standards.
- New multi-use pathway between Bedford and Akerley Dr. in Dartmouth on Dartmouth Road and Magazine Hill.

The project would include a direct connection to the Cobequid Transit Terminal, shopping, employment and services in Lower Sackville and Bedford, as well as employment in Dartmouth's Burnside Business Park.

North Preston Greenway Extension

North Preston is an African Nova Scotia Community just east of Dartmouth. There is an existing 1.4 km multi-use pathway on Lake Major Road and North Preston Road. However, the pathway ends just before the community. A planning and design process is underway to determine how to bring the existing AT facility into the community and to connect it with key destinations.

The proposed facility would be approximately 1km and extend from where the existing facility ends at 345 North Preston Road to the centre of the community at the Nelson Wynder Elementary School.

The project is being developed in cooperation with community groups.

Mainland North Trail Extension (Parkland Drive to Larry Uteck Boulevard)

This would be a 3km extension of the existing 5km Mainland North Trail. This extension north would make linkages to Kearney Lake Road commercial area and the new residential and commercial developments associated with the Bedford South development. These connections to higher density residential, other AT facilities, and significant commercial and service areas will encourage more walking and bicycling trips in this growing part of the municipality.

The project was developed in a planning process with the Halifax Northwest trails Association.

Lucasville Greenway, (Segment One, Waterstone Run to Bryerson Road)

This multi-use pathway is a 1.7km segment of the proposed Lucasville Greenway. This segment (one of four extending over the 7km length of Lucasville Road) is in the core of the community, providing connection to the Church, Community Centre and to adjacent local roads.

Lucasville is an historic African Nova Scotian Community and Lucasville Road is undergoing changes as new developments in the area result in more traffic. A separated AT facility would provide significantly increased safety, support accessible walking and bicycling trips within the community, as well as increase opportunities for outdoor exercise and recreation.

The project originated with planning work by the volunteer community group the Lucasville Greenway Society and they remain a close partner on the project.

Halifax Regional Water Commission

In addition to the projects identified in this report, Halifax Water will be making separate applications for the following projects:

- Cogswell Area District Energy System;
- Aerotech Wastewater Biosolids Anerobic Digestion and Energy Extraction; and,
- Multi-Facility Building Solar Installation.

FINANCIAL IMPLICATIONS

As with all capital projects, staff will evaluate each of these projects against all recommendations for the capital plan to determine the relative prioritization implications. This may require displacing projects that were scheduled for completion sooner. The Active Transportation (AT) projects are currently included in the long-term capital plan, with estimated lifecycle operating cost impacts identified. If ICIP funding is approved for these planned activities, the municipal costs to be funded by the provincial and federal governments can be reallocated to other corporate priorities. The current transition to a longer-term capital plan has provided the benefit for staff to be more responsive and flexible to opportunities such as this one.

When HalifACT was adopted, it was noted that the cost of implementing the Plan has not been fully developed, but that the cost of the various actions is substantial and will impact the long-term capital plan, future operating budgets, and likely both debt and tax levels. If these projects are approved through ICIP, the detailed business cases will be presented to Council, including recommended funding alternatives for the municipal portion of the upfront capital cost, as well as the long-term impact of asset operational and maintenance costs and revenue-generating opportunities.

The total value of all the projects submitted for funding is $75.45M, based on high level (Class D) estimates and may change through the design process. If approved, the cost to HRM would be $20.1M with potential for some energy efficiency rebates of $2.35M - a net cost to HRM of $17.8M. If all of the projects are selected for funding, this would leverage approximately $30.2M of Federal funds and $25.1M of Provincial funds. The cost of each project is included in the table below. HRM has planned for most of the below projects in the long-term capital plan. However, some of these projects are planned for future years or are new projects, as indicated with N/A in the table. Should projects in future years be approved for funding, there may need to be a reprioritization of current years projects to accommodate HRM's portion of the funding. Staff will return to Council with a funding plan, as well as a feasible delivery plan, for the projects that are selected for this program. Depending on the number of projects that receive approval and funding, additional resources may be required to deliver all projects identified in this report.

Project	Total Cost	Federal Portion 40%	Provincial Portion 33.33%	HRM Portion 26.67%	Potential Energy Rebates	Net Cost to HRM	Budget Year
BMO - District Energy	1,000,000	400,000	333,300	266,700	50,000	216,700	N/A
Scotiabank Centre - District Energy	2,200,000	880,000	733,260	586,740	110,000	476,740	2021/22
Alderney Gate - District Energy	1,800,000	720,000	599,940	480,060	90,000	390,060	N/A
Halifax Forum - District Energy	25,000,000	10,000,000	8,332,500	6,667,500	1,750,000	4,917,500	N/A
Ragged Lake Energy Retrofit	3,000,000	1,200,000	999,900	800,100	350,000	450,100	2021/22
Burnside Drive Multi-Use Pathway	1,000,000	400,000	333,300	266,700		266,700	2021/22
Forest Hills Trail Connectors	500,000	200,000	166,650	133,350		133,350	2021/22
Cobequid Road Multi-Use Pathway	1,800,000	720,000	599,940	480,060		480,060	2022/23
Dutch Village Road Protected Bike Lanes and Complete Street Enhancements	2,250,000	900,000	749,925	600,075		600,075	2022/23
Bedford Highway Multi-Use Pathway	10,000,000	4,000,000	3,333,000	2,667,000		2,667,000	2022-2030
Herring Cove Road Multi-Use Pathway and Protected bike lanes	7,000,000	2,800,000	2,333,100	1,866,900		1,866,900	2023-2026
Pleasant Street Multi-Use Pathway	3,000,000	1,200,000	999,900	800,100		800,100	2023/24
Sackville Greenway Multi-Use Pathway	800,000	320,000	266,640	213,360		213,360	2023/24
Sackville -Bedford-Dartmouth AT Corridor	10,000,000	4,000,000	3,333,000	2,667,000		2,667,000	2024/25
North Preston Greenway Extension	1,500,000	600,000	499,950	400,050		400,050	2024/25
Mainland North Trail Extension	2,000,000	800,000	666,600	533,400		533,400	2024/25
Lucasville Greenway Multi-Use Pathway	2,600,000	1,040,000	866,580	693,420		693,420	2025/26
Totals	**75,450,000**	**30,180,000**	**25,147,485**	**20,122,515**	**2,350,000**	**17,772,515**	

As with most new capital projects, there will be impact to HRM's operating budget and capacity to deliver as a result of new assets being built. The building energy projects will result in an operational cost savings through selling excess energy to other parties. Typically, district energy systems offer consumers energy at lower costs when compared to existing options like electricity, natural gas and fuel oil. These systems also offer resiliency to residents being served during major climate impacts and offer protection against future volatile fuel costs. Active Transportation projects, while providing a broad range of social benefits, will likely cost more in operating dollars to maintain and snow clear. The estimated annual OCC (Operating Cost of Capital) associated with these projects is $216K.

RISK CONSIDERATION

All AT projects identified in this report are included in the 5-year Transportation Capital Plan. Approval of any of these projects may result in accelerating or delaying other projects to make way for projects selected for funding. Although the net cost will be lower, there is a finite capacity within the organization to deliver projects, and community expectations will need to be managed. Some projects have a higher risk for implementation due to property acquisition and integration with other organizations that requires their participation and coordination. This risk will be mitigated through our regular project integration, planning and management processes

The District Energy projects are not currently included in the long-term capital plan for the Municipality. This risk is mitigated by the fact that the project expenditures for the district energy projects are not expected to be substantial for the first several years of the project as the Young Street District Energy System would be delayed until the Halifax Forum redevelopment is complete in 2023/2024. In addition, the business model and regulatory framework need to be determined for the Young Street District Energy System, which may require legislative amendments to facilitate mandatory connection.

COMMUNITY ENGAGEMENT

There has been no community engagement completed to inform this report. However, significant community engagement was completed during the development of both the Integrated Mobility Plan and HalifACT.

Initial stakeholder engagement has begun for the district energy projects and further stakeholder and community engagement will be completed if funding is secured.

The Active Transportation projects have incorporated stakeholder and public consultation processes to develop an understanding of the key issues on each project and solicit feedback on the presented concept designs. The typical process for stakeholder and public consultation is as follows:

Stakeholder Consultation: Sessions are typically held with groups including the Halifax Cycling Coalition, It's More Than Buses, Nova Scotia, Walk & Roll, Bicycle Nova Scotia, Business Improvement Associations, and the Ecology Action Centre. Other key stakeholders are area landowners, interests specific to a community, and other orders of government. The information obtained from these groups is considered during the development of the design options and incorporated into the options evaluation process.

Public Consultation: HRM hosts in-person and on-line (via Shape Your City) opportunities for the public to learn about and provide input on projects. Projects typically engage 100-500 residents.

All projects that have been endorsed by Regional Council outline the stakeholder and community engagement strategies that were undertaken in the Regional Council approved reports.

ENVIRONMENTAL IMPLICATIONS

Potential environmental benefits of the proposed projects are outlined in both the Discussion section of this report and Attachment A.

ALTERNATIVES

1. Halifax Regional Council could amend this list of projects. This is not recommended as the projects outlined in this report represent capital initiatives that best meet the eligibility requirements of the Climate Change Mitigation sub-steam.

2. Halifax Regional Council may decide to not submit the proposed projects to the Climate Change Mitigation sub-steam. This is not recommended as successful implementation of the proposed project is supportive of both the Integrated Mobility Plan and HalifACT, two priority plans of the Municipality.

ATTACHMENTS

Attachment A – ICIP Climate Mitigation Sub-stream Summary Table

Attachment B – Active Transportation Project Maps

Attachment C – Shovel Ready Energy Efficiency Initiatives

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: David Perusse, Intergovernmental Affairs Advisor, GREA, 902.490.7420

Description	Category	Target Construction	Cost (Class D Estimates)	Location/Buildings	GHG Reduction Estimates
District Energy – Alderney, Forum, BMO, Scotiabank Four key district energy opportunities have been identified for development aligning with the goals of HalifACT 2050 and the Center Plan. This application includes the following projects: Halifax Forum District Energy, BMO Centre Waste Heat Recovery, Scotiabank Centre Waste Heat Recovery, and Alderney Gate District Energy	Buildings – Community Energy Systems	2021 - 2027	$30 Million	Alderney Gate, Scotiabank Centre, BMO Centre/Northwood, Halifax Forum and surrounding Neighborhood	30,000 tons
Ragged Lake The Ragged Lake Bus Depot is one of HRMs largest energy consumers. It is set to undergo a 50,000 sq. ft expansion in the next 2 years. This project proposes a deep energy retrofit to the Ragged Lake Bus Depot. This would include Demand Controlled Ventilation, Heat Pumps, Rooftop Solar and Storage, Optimized Bus Wash, Air Curtains, Destratification fans, energy efficient enhancements to the addition, etc.	Buildings – Deep Energy Retrofit	2021	$3 Million	80-110 Grassy Lake, Halifax	1,500 tons/year

Burnside Drive Multi-Use Pathway Phase one would extend the existing pathway from Commodore Drive to Wright Avenue. This provides an Active Transportation (AT) connection to one of HRM's top employment destinations and also connections to a park and recreation destinations. • Part of Municipal AT Priorities Plan	Active Transportation Networks	2021	$1 million	Burnside Dr. from Commodore to Wright.	Anticipated
Forest Hills Trail Connectors The Forest Hills trail is a 1.3km multi-use pathway that connects schools, a community centre and other destinations with residential areas. This project aims to build two small segments of multi-use pathway, one at either end of the trail, to make connections to the broader AT network. These are: 1) Cole Harbour Commons Pathway. This approximately 250m facility will connect the Trail to the Forest Hills Parkway Multi-use pathway. **2)** Amaranth/Arklow/Perron Pathway. This approximately 250m facility will connect the Trail to the Bissett Greenway (which then connects to the Cole Harbour Heritage trail system, the Salt Marsh trail and beyond). • Part of Municipal AT Priorities Plan	Active Transportation Networks	2021	$500,000	Two locations: 1) Cole Harbour Common 2) 250m on Amaranth, Arklow and Perron.	Anticipated

Cobequid Road Multi-Use Pathway Cobequid Road is major street that lacks any pedestrian facility on one side. This project would add a multi-use pathway to address this gap. The project connects a transit terminal, major health centre, shopping and services. • Part of Municipal AT Priorities Plan	Active Transportation Networks	2022	$1.8 million	Cobequid Road from Glendale Ave. to Sackville Dr.	Anticipated
Dutch Village Road Protected Bike Lanes and Complete Streets Enhancements These are to be built as part of a compete street makeover in this higher density and rapidly growing community ($40.5 Million in new permits over the previous five years). It will be a key link in the regional AT network, connecting Fairview residents with the Chain of Lakes Trail and the peninsula AAA Bicycle Network. Serves communities with lower incomes and new immigrants. • Part of Municipal AT Priorities Plan • Based on Dutch Village Road Complete Streets Plan (approved by Regional Council - June 9, 2020)	Active Transportation Networks	2021 or 2022	$2.25 million	Fairview community, HRM Alma Street to Joseph Howe Dr.	Anticipated

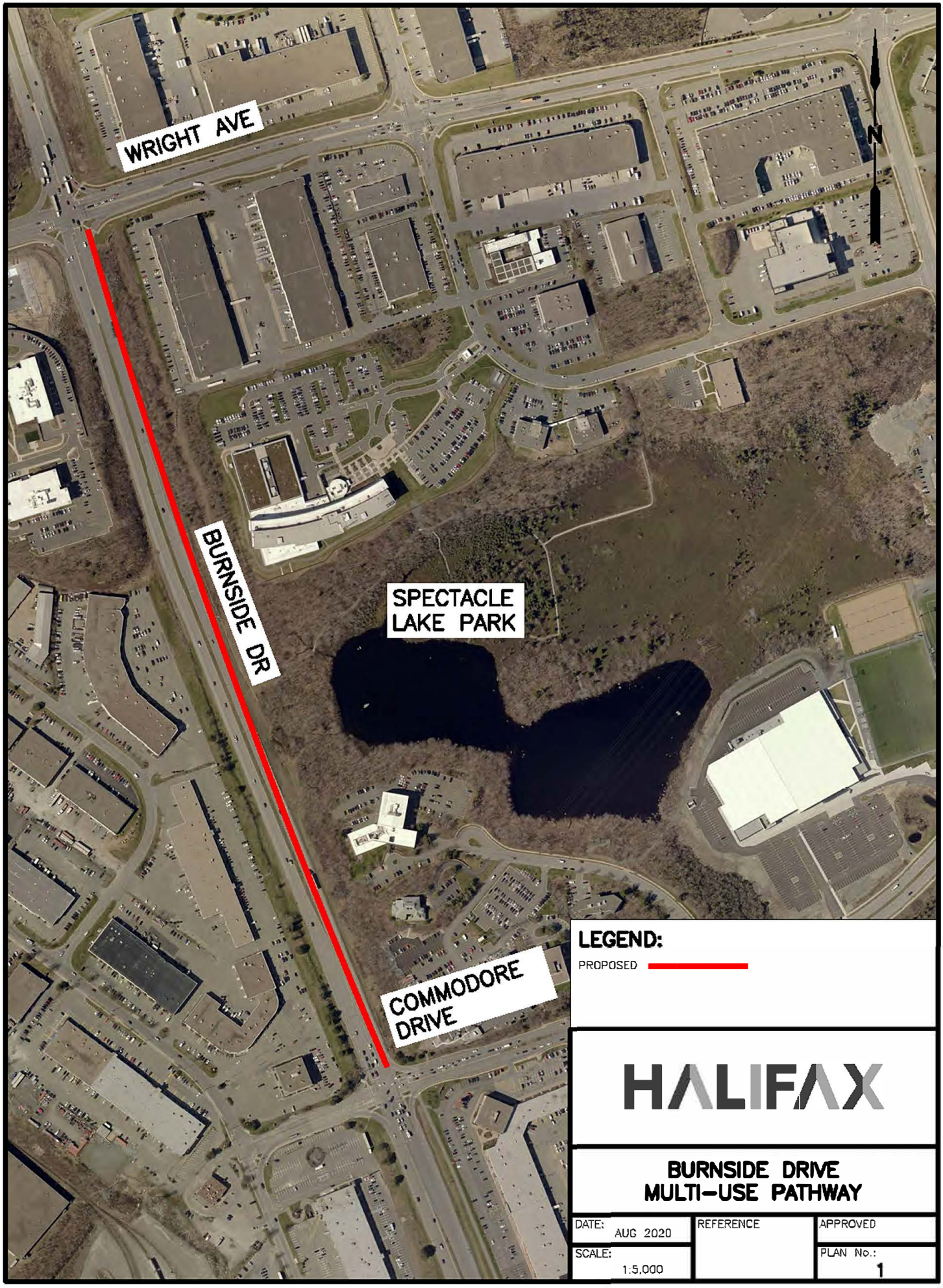
Bedford Highway Multi-Use Pathway A functional plan for a complete streets rehabilitation of this key regional transportation corridor was completed in 2019 and approved by Regional Council in 2020. The Plan prioritized transportation planning objectives for increased sustainable modes and factored in the significant increase in residential and commercial activity in the area. • Part of Municipal AT Priorities Plan • Based on Bedford Highway Functional Study (approved by Regional Council - May 26, 2020)	Active Transportation Networks	Constructed in segments between 2022 and 2030	$10M	Windsor Street Exchange to Oakmount Dr.	Anticipated
Herring Cove Road Multi-Use Pathway and Protected bike lanes A functional plan for a complete streets rehabilitation of this key regional transportation corridor was completed in 2020. The Plan prioritizes transportation planning objectives for increased sustainable modes and factored in the significant increase in residential and commercial activity in the area. There are low income communities along the corridor. • Part of Municipal AT Priorities Plan • Functional Planning in 2018 - 2020	Active Transportation Networks	Constructed in segments between 2023 and 2026	$7 million	Armdale Roundabout to Lynette St.	Anticipated

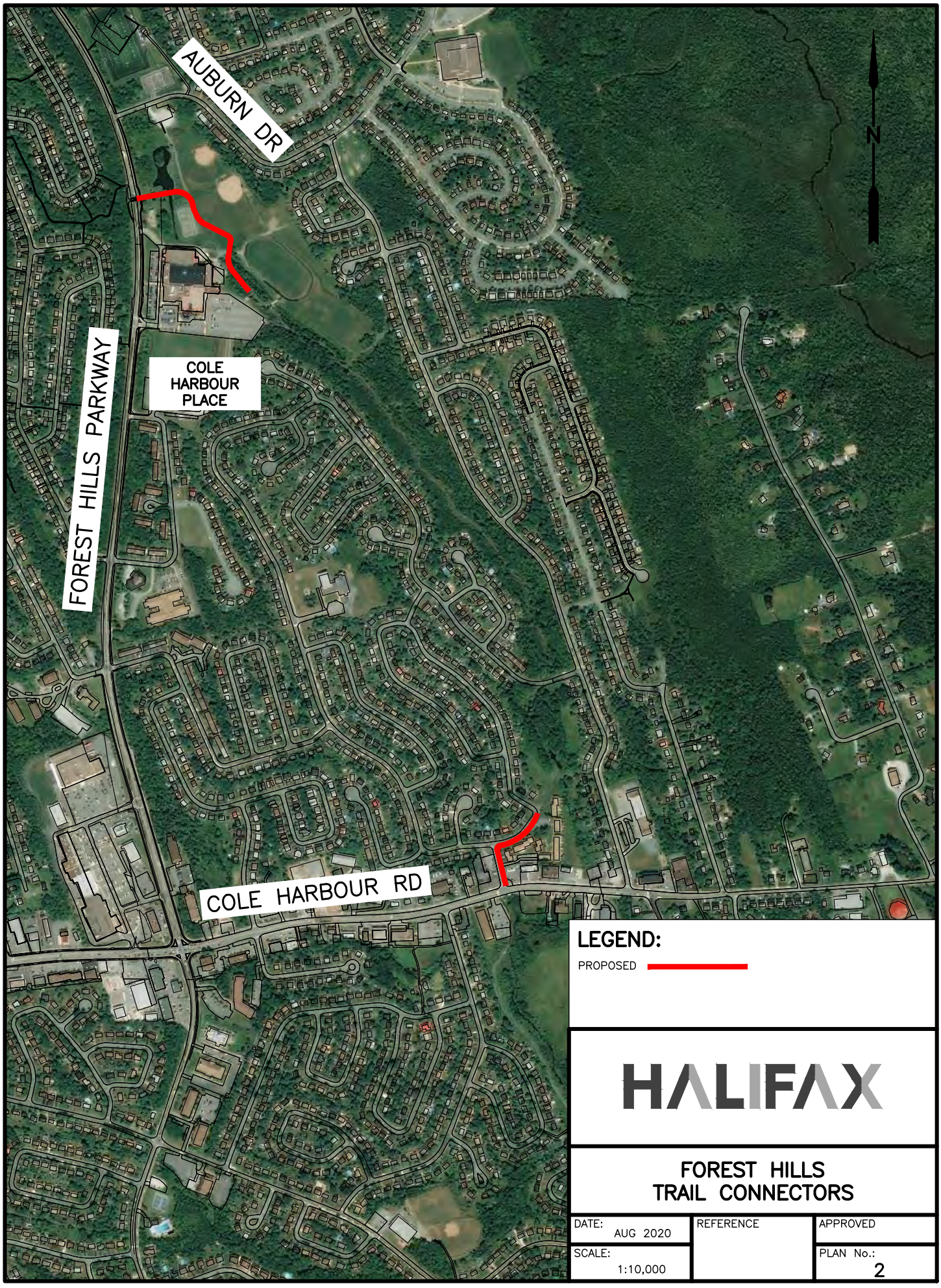
Pleasant Street Multi-Use Pathway (Woodside-Shearwater Connector) This is a three km gap in the regional AT system between the terminus of the Dartmouth Harbourfront Trail (Woodside Ferry Terminal) and the Shearwater Flyer trail. A functional plan is currently underway to determine the optimal alignment for this facility which will connect to lower income communities and major regional employment destinations. It would serve as a significant recreational and tourism facility that connects Dartmouth and Halifax directly to the Eastern Shore rails to trails AT corridor. • Part of Municipal AT Priorities Plan • Woodside-Shearwater Transportation Functional Plan underway	Active Transportation Networks	2023.	$3 million	Woodside Ferry Terminal (Atlantic Street) to Corsair Dr.	Anticipated
Sackville Greenway Multi-Use Pathway This is an extension of the existing AT facility that will connect it to a major transit hub, the main community shopping destination, recreation, more residential areas and other AT facilities. Planned in conjunction with the Sackville Rivers Association. • Part of Municipal AT Priorities Plan	Active Transportation Networks	2023	$800,000	Sackville Dr. to Sackville Transit Terminal	Anticipated

Sackville-Bedford-Dartmouth AT Corridor This project would see the development of an 8km Multi-use pathway that connects these three HRM communities. The project would include: • A safer AT connection into Lower Sackville over Highway 101 in the area of Sackville Dr. and Cobequid Road; • Enhancements to the existing 3km multi-use pathway between Lower Sackville and Bedford to make it more accessible and bring it up to AT standards; and, • New multi-use pathway between Bedford and Akerley Dr. in Dartmouth on Dartmouth Road and Magazine Hill. The project would connect to the Cobequid Transit Terminal, shopping, employment and services in Lower Sackville and Bedford, as well as employment in Dartmouth's Burnside Business Park. • Part of Municipal AT Priorities Plan • 2019 Functional Study of options and Regional Council direction on Burnside to Lower Sackville AT corridor. • 2020 Functional Plan of Bedford-Sackville greenway segment almost complete	Active Transportation Networks	Phased construction starting 2024	$10 Million	Intersection of Cobequid Road/Sackvillle Drive to intersection of Akerley Blvd. and Windmill Rd.	

North Preston Greenway Extension North Preston is an African Nova Scotian Community just east of Dartmouth. There is a multi-use pathway on the main road that partially connects the community to other parts of the municpality . A planning and design process is underway in the community to determine how to bring the existing AT facility right into the community and to connect it with adjacent communities. • Part of Municipal AT Priorities Plan • North Preston AT Plan currently underway (August 2020)	Active Transportation Networks	2024	$1.5 million	345 North Preston Road to 979 North Preston Road (Nelson Whynder Elementary School	Anticipated
Mainland North Trail Extension (Parkland Drive to Larry Uteck Boulevard) This would extend the existing five km AT facility to Kearney Lake Road then to the new residential and commercial developments associated with the Bedford South development. Provides connections to higher density residential, other AT facilities and significant commercial and service areas. • Part of Municipal AT Priorities Plan • Recommended corridor extension in the Functional Plan for the Mainland North trail (2016)	Active Transportation Networks	2024	$2 million	787 Parkland Drive to Larry Uteck Boulevard	Anticipated

Lucasville Greenway (Multi-Use Pathway) Lucasville is an historic African Nova Scotian community that is experiencing significant change as "estate lot" residential development occurs around them. This is resulting is a growth in traffic on Lucasville Road and desire for a safer facility for walking and bicycling as well as improved community amenities. HRM has been working with the community to plan this facility. • Part of Municipal AT Priorities Plan • Functional Plan complete in 2018. • Additional functional planning and design on priority segment in 2020.	Active Transportation Networks	2025	$2.6 million	Lucasville Road, Waterstone Run to Bryerson Road	Anticipated

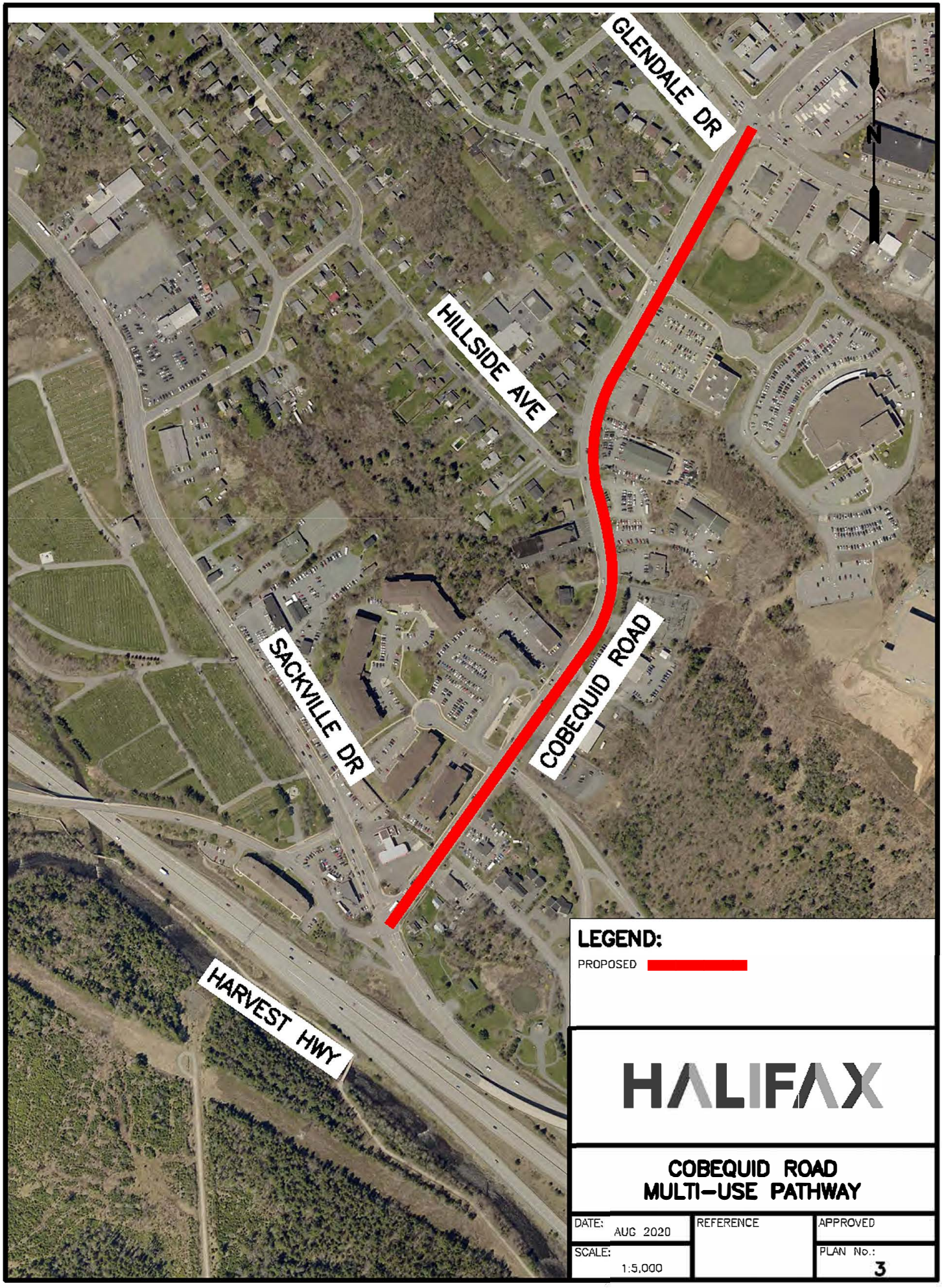

WRIGHT AVE
BURNSIDE DR
SPECTACLE LAKE PARK
COMMODORE DRIVE
N
LEGEND:
PROPOSED
HALIFAX
BURNSIDE DRIVE
MULTI-USE PATHWAY
DATE: AUG 2020
REFERENCE
APPROVED
SCALE: 1:5,000
PLAN No.: 1

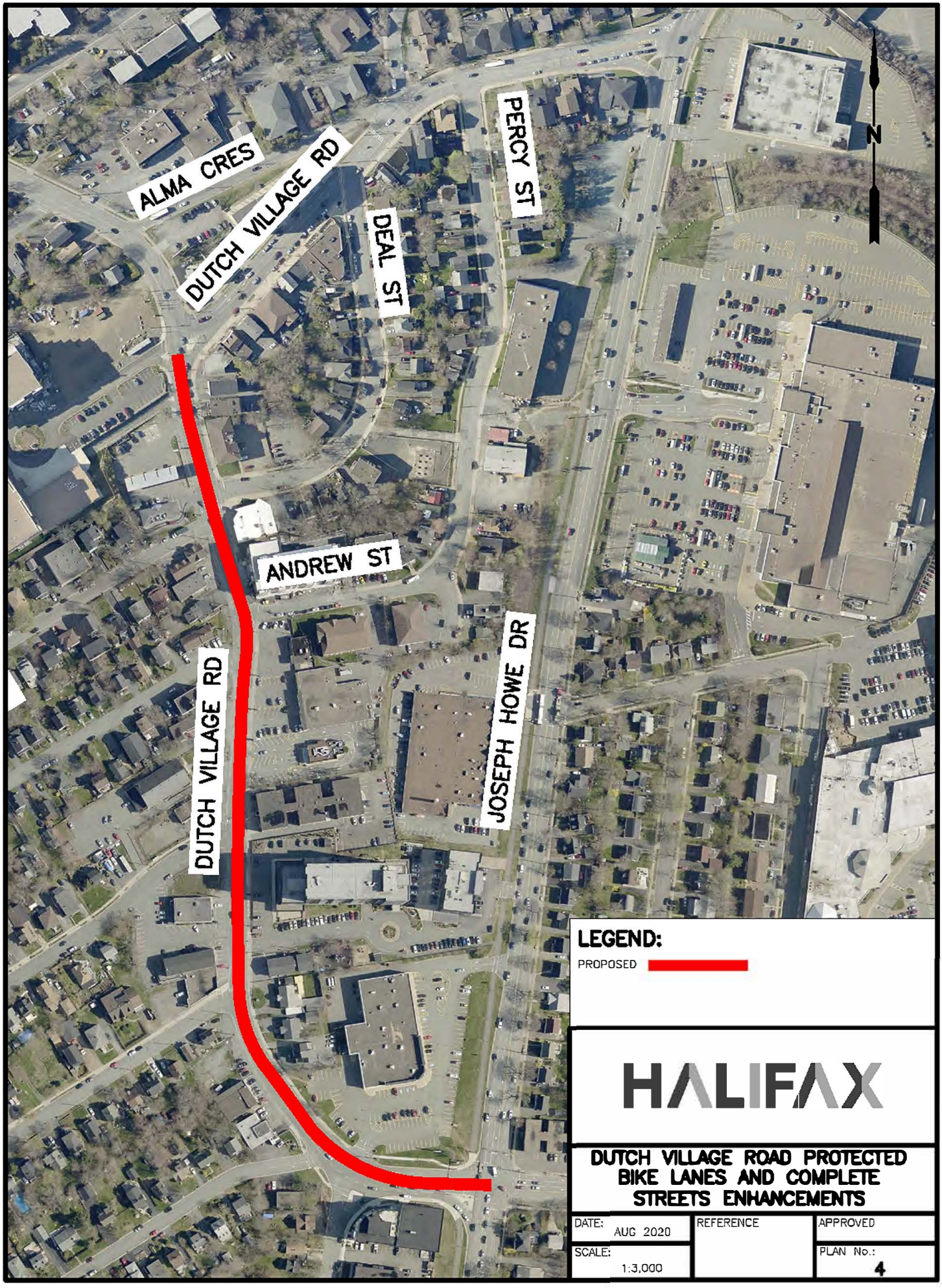


HALIFAX

FOREST HILLS TRAIL CONNECTORS

DATE: AUG 2020	REFERENCE	APPROVED
SCALE: 1:10,000		PLAN No.: 2

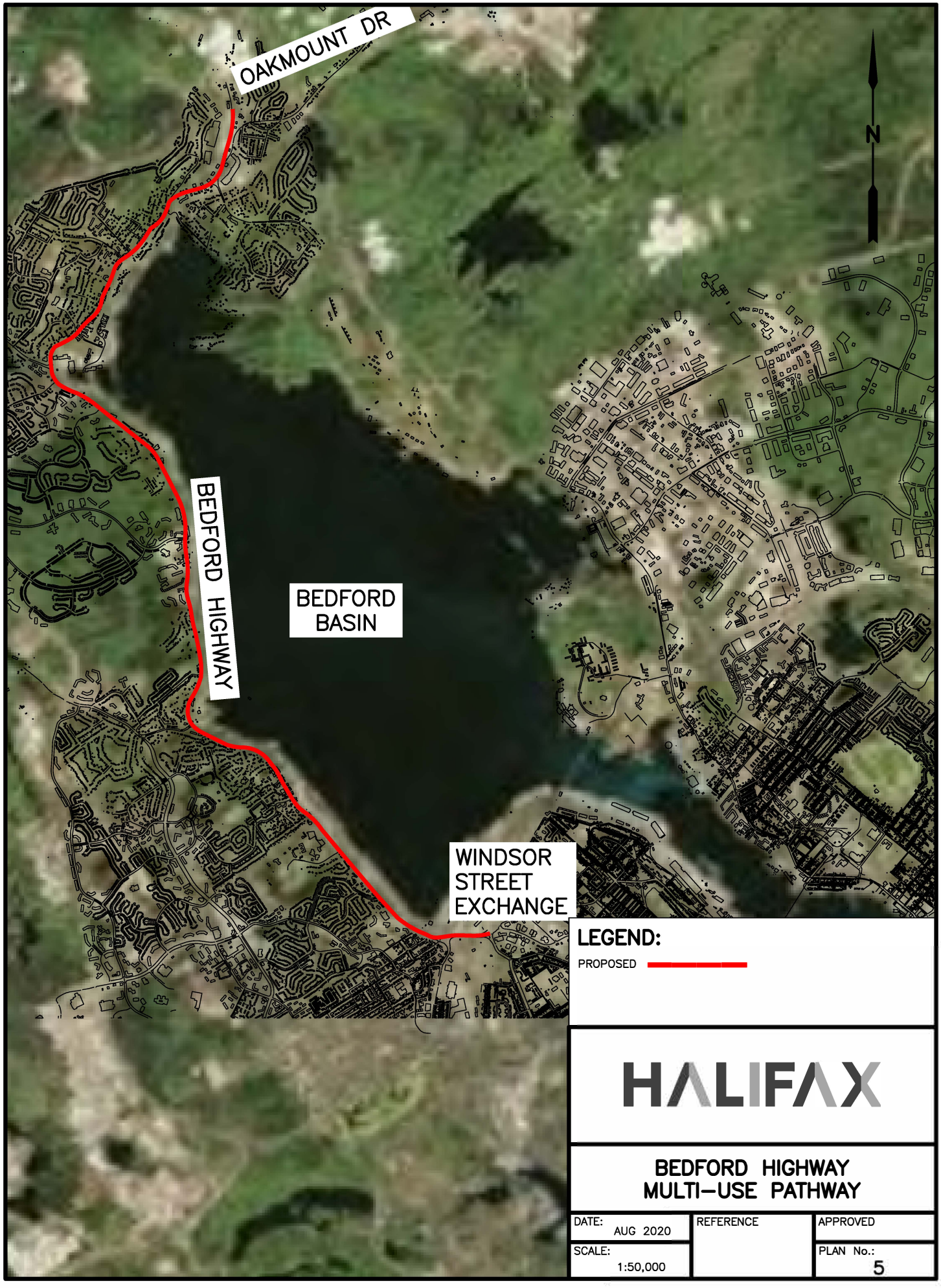

GLENDALE DR
HILLSIDE AVE
SACKVILLE DR
COBEQUID ROAD
HARVEST HWY
N
LEGEND:
PROPOSED
HALIFAX
COBEQUID ROAD
MULTI-USE PATHWAY
DATE: AUG 2020
REFERENCE
APPROVED
SCALE: 1:5,000
PLAN No.: 3

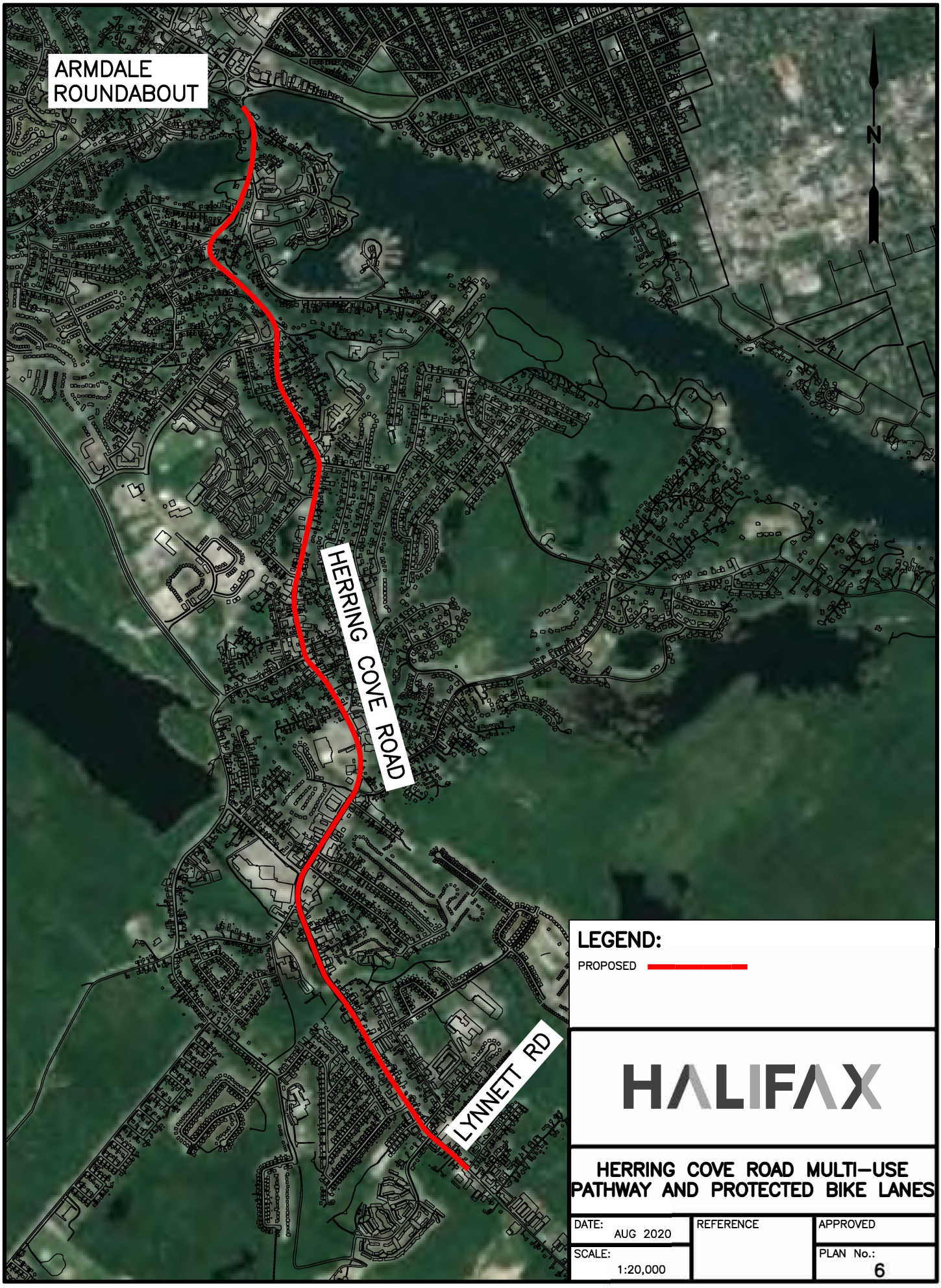


HALIFAX

DUTCH VILLAGE ROAD PROTECTED BIKE LANES AND COMPLETE STREETS ENHANCEMENTS

DATE: AUG 2020	REFERENCE	APPROVED
SCALE: 1:3,000		PLAN No.: 4


OAKMOUNT DR
N
BEDFORD HIGHWAY
BEDFORD BASIN
WINDSOR STREET EXCHANGE
LEGEND:
PROPOSED
HALIFAX
BEDFORD HIGHWAY MULTI-USE PATHWAY
DATE: AUG 2020
REFERENCE
APPROVED
SCALE: 1:50,000
PLAN No.: 5



LEGEND:

PROPOSED

HALIFAX

HERRING COVE ROAD MULTI-USE PATHWAY AND PROTECTED BIKE LANES

DATE: AUG 2020	REFERENCE	APPROVED
SCALE: 1:20,000		PLAN No.: 6

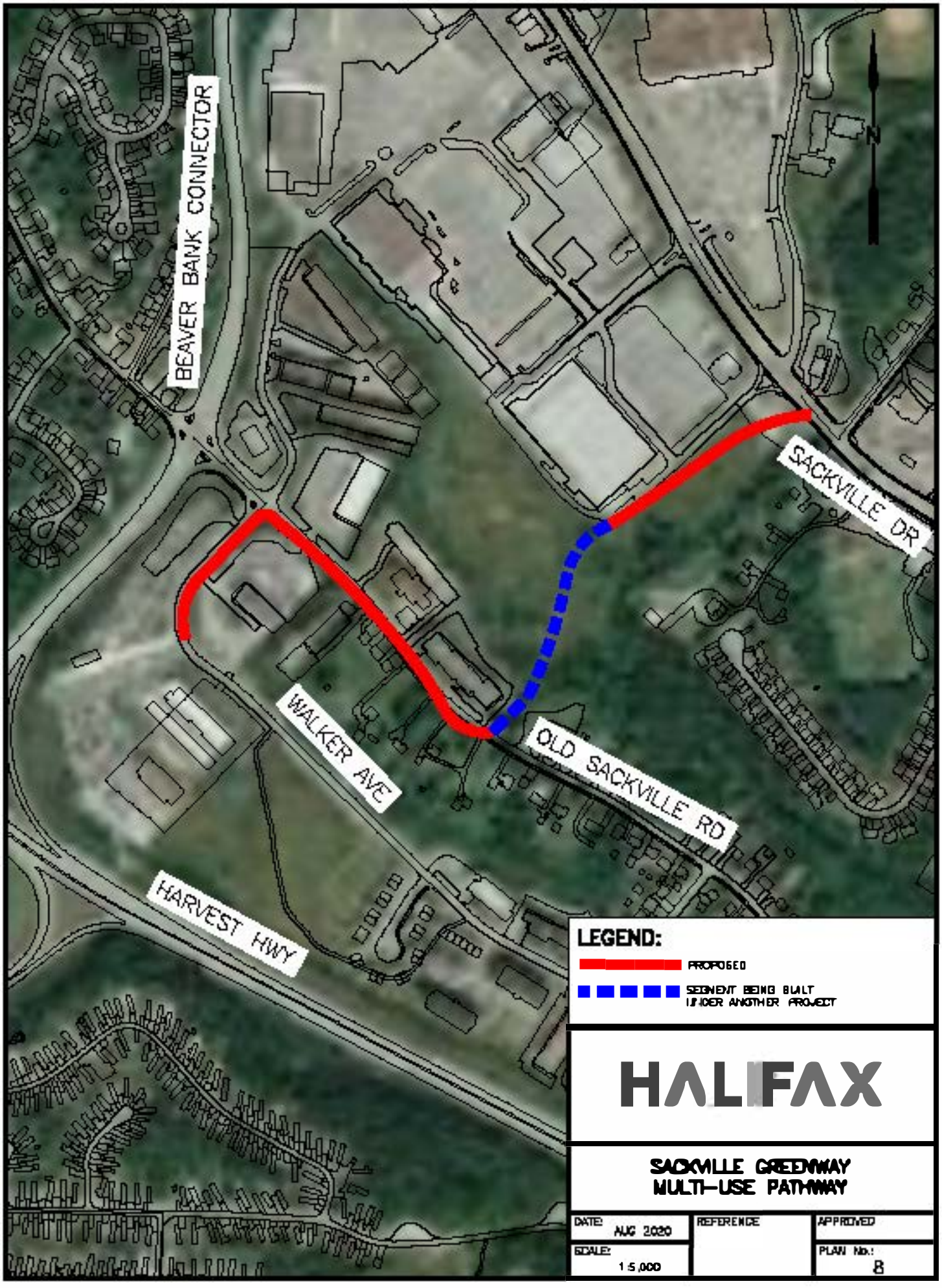
LEGEND:

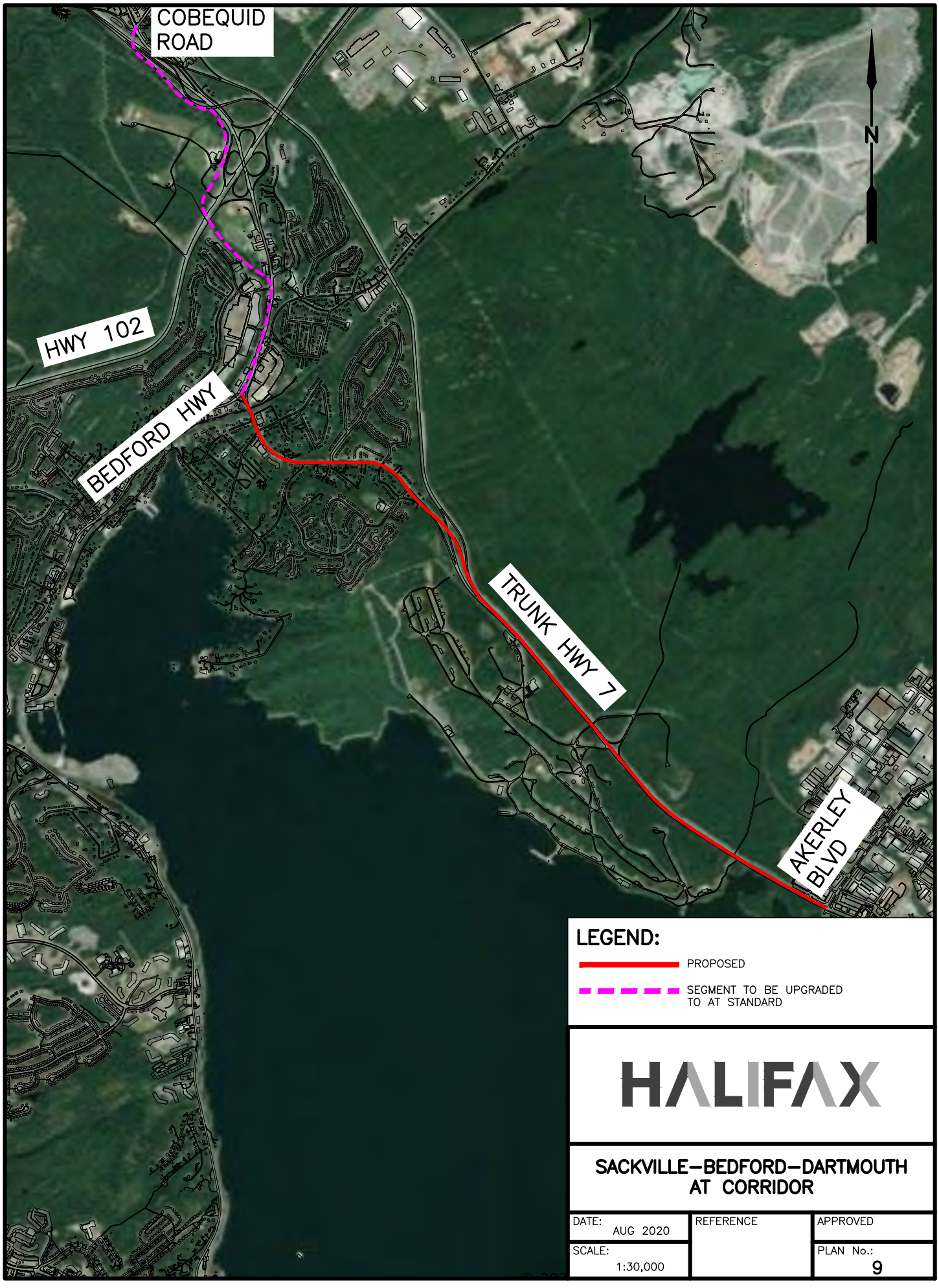
PROPOSED

HALIFAX

PLEASANT STREET MULTI-USE PATHWAY

DATE: AUG 2020	REFERENCE	APPROVED
SCALE: 1:15,000		PLAN No.: 7


BEAVER BANK CONNECTOR
SACKVILLE DR
WALKER AVE
OLD SACKVILLE RD
HARVEST HWY
N
LEGEND:
PROPOSED
SEGMENT BEING BUILT UNDER ANOTHER PROJECT
HALIFAX
SACKVILLE GREENWAY MULTI-USE PATHWAY
DATE: AUG 2020
REFERENCE:
APPROVED
SCALE: 1:5,000
PLAN No.: 8



LEGEND:

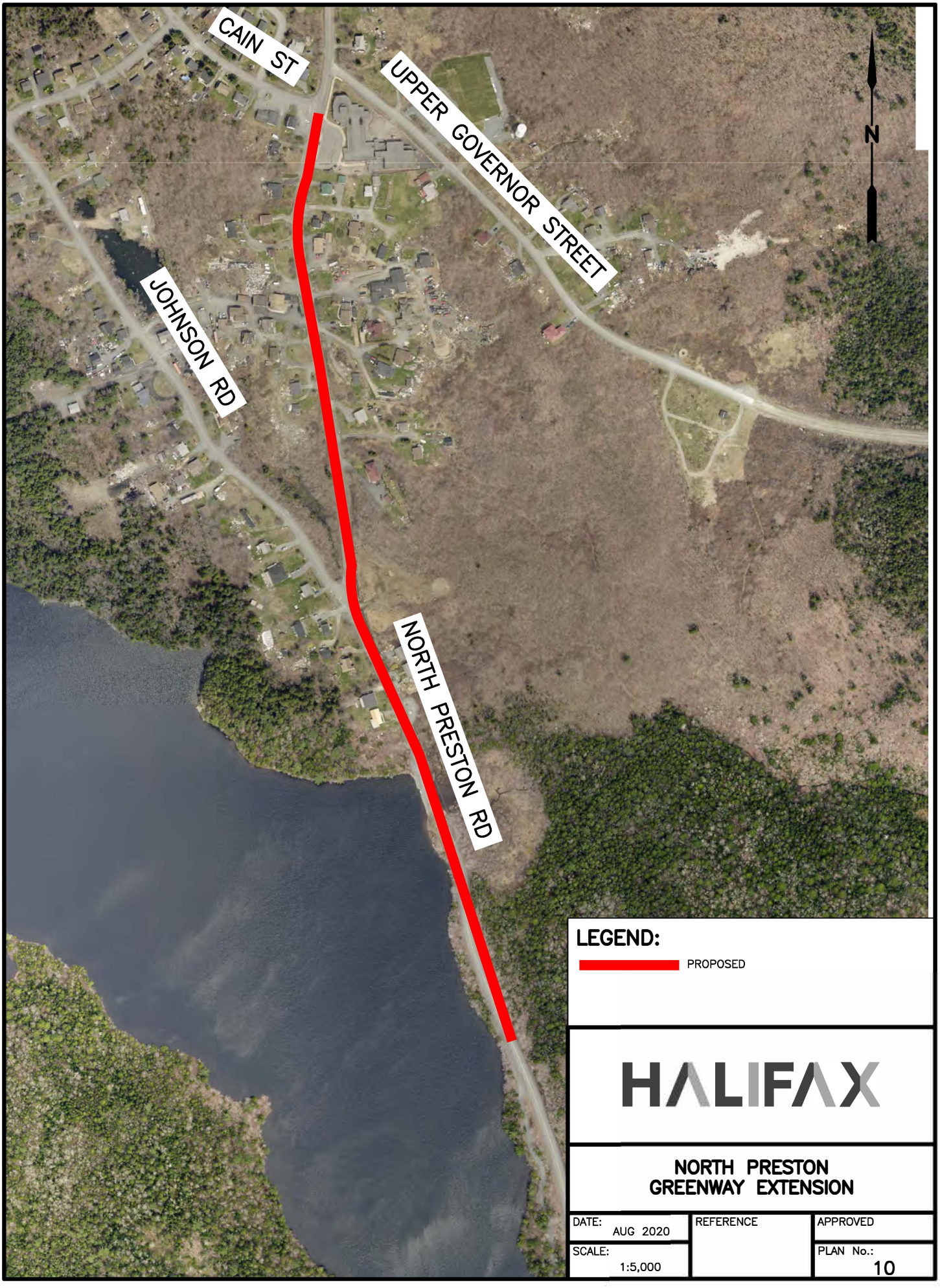
PROPOSED

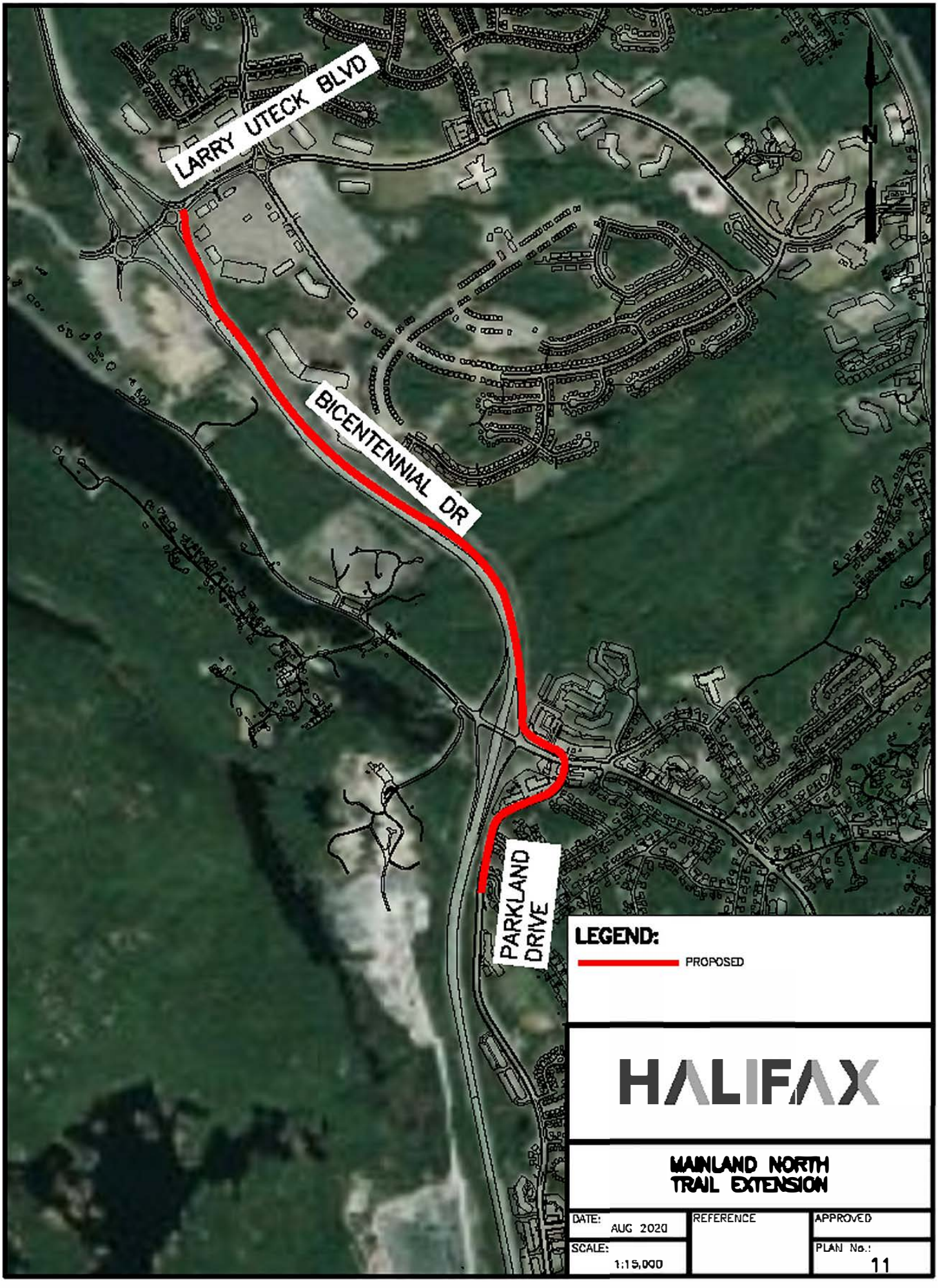
SEGMENT TO BE UPGRADED TO AT STANDARD

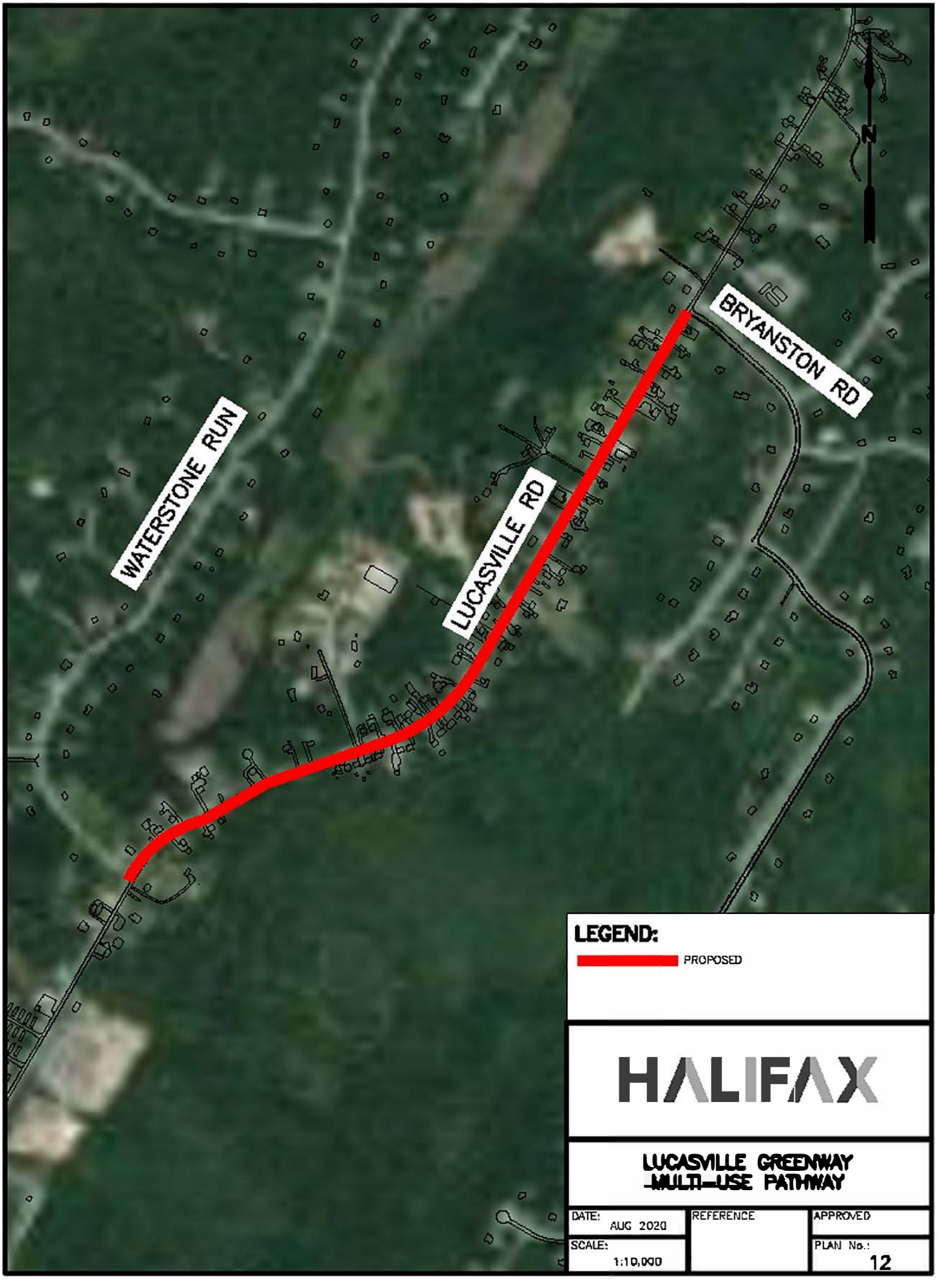
HALIFAX

SACKVILLE–BEDFORD–DARTMOUTH AT CORRIDOR

DATE: AUG 2020	REFERENCE	APPROVED
SCALE: 1:30,000		PLAN No.: 9


CAIN ST
UPPER GOVERNOR STREET
JOHNSON RD
NORTH PRESTON RD
N
LEGEND:
PROPOSED
HALIFAX
NORTH PRESTON
GREENWAY EXTENSION
DATE: AUG 2020
REFERENCE
APPROVED
SCALE: 1:5,000
PLAN No.: 10


LARRY UTECK BLVD
BICENTENNIAL DR
PARKLAND DRIVE
N
LEGEND:
PROPOSED
HALIFAX
MAINLAND NORTH
TRAIL EXTENSION
DATE: AUG 2020
REFERENCE
APPROVED
SCALE: 1:15,000
PLAN No.: 11


N
BRYANSTON RD
LUCASVILLE RD
WATERSTONE RUN
LEGEND:
PROPOSED
HALIFAX
LUCASVILLE GREENWAY
MULTI-USE PATHWAY
DATE:
AUG 2020
REFERENCE
APPROVED
SCALE:
1:10,000
PLAN No.:
12

Shovel Ready Energy Efficiency Initiatives

Attachment C

Asset Category	Estimated Amount	Included in 2020/21 Budget & Carry Forward	Other Funding Source	Project #	Description
Buildings/Facilities	1,500,000	N	Not Budgeted	CB190008	Central Library Emergency Generator
Buildings/Facilities	25,000	N	Not Budgeted	CB190008	Alderney Cooling Tower VFD
Buildings/Facilities	35,000	N	Not Budgeted	CB190008	Demand Controlled Ventilation Gordon Snow
Buildings/Facilities	35,000	N	Not Budgeted	CB190008	Demand Controlled Ventilation Captain Spry
Buildings/Facilities	300,000	N	Not Budgeted	CB190008	Additional Recommissioning Measures at Alderney (Beyond what's budgeted)
Buildings/Facilities	75,000	N	Not Budgeted	CB190008	Pulse meters at all our Natural Gas Sites
Buildings/Facilities	200,000	N	Not Budgeted	CB190008	Blower Door Testing and Air Sealing of many Community Centres
Buildings/Facilities	100,000	N	Not Budgeted	CB190008	Air Curtains at Depots and Fire Stations
Buildings/Facilities	100,000	N	Not Budgeted	CB190008	New Energy Efficient Fridge/Freezers for multiple facilities and food banks
Buildings/Facilities	550,000	N	Not Budgeted	CB190008	Sackville Sports Stadium Pool Heat Recovery
Buildings/Facilities	425,000	N	Not Budgeted	CB190008	Keshen Library Rooftop Unit Replacement
Buildings/Facilities	100,000	N	Not Budgeted	CB190008	Rebuild Alderney Rooftop Units and Add VFD's