CBRM IN MOTION

CBRM - AT PLAN 2022

Presentation to Council

23 Aug 2022

fathom

In Association with:
EXP
Dr. John Gillis

CBRM IN MOTION

CBRM 2022
AT Plan

fathom

CAPE BRETON REGIONAL MUNICIPALITY

ACTIVE TRANSPORTATION PLAN

CBRM IN MOTION

Prepared by
fathom
www.fathomstudio.ca

In Association with
EXP
Dr. John Gillis

Date
July 8, 2022

TABLE OF CONTENTS

EXECUTIVE SUMMARY 2
The 2022 AT Plan Overview 3
AT Suitability Criteria 5
Top 10 AT Priority projects 9

CHAPTER 1
INTRODUCTION 1
1.1 What's Changed Since the 2008 AT Plan? 2
1.2 The Rise of MicroMobility 4
1.3 The Changing Nature of CBRM 6
1.4 The Benefits of Active Transportation 13
1.5 Community Engagement Findings 18
1.6 Online Survey Results 25

CHAPTER 2
INVENTORY & ANALYSIS 35
2.1 Addressing the Health Priorities of CBRM 35
2.2 The 2008 CBRM AT Plan Implementation 41
2.3 Thematic Mapping 41
2.4 Collisions in CBRM 57
2.5 Collisions in Canada 58

CHAPTER 3
AT MASTER PLAN 61
3.1 Establishing Priorities for the New AT Plan 61
3.2 The 2022 AT Plan Overview 62
3.3 AT Suitability Criteria 64
3.4 Community AT Plans 66
3.5 Sidewalk AT Facilities 80
3.6 Rails to Trails 82
3.7 References 87
3.8 Provincial Blue Routes 89

CHAPTER 4
IMPLEMENTATION 91
4.1 Cost Estimates and Phasing Plan 91
4.2 Top 10 AT Priority Projects 95
4.3 Policy Changes 96
4.4 Maintenance Standards 100
4.5 Signage Implementation 102
4.6 Grants 104
4.7 Outreach and Implementation 107

CHAPTER 5
CBRM AT STANDARDS 109
5.1 Guiding Principles 110
5.2 Creating an "AAA" Culture in CBRM 113
5.3 Definitions 116
5.4 Pedestrian Facilities 120
5.5 Pedestrian Space 122
5.6 Separated Sidewalks 123
5.7 Non-Separated Sidewalks 126
5.8 Pedestrian Crossings 127
5.9 Bicycle Facilities 131
5.10 Separated Bikeways - Buffered / Unbuffered 132
5.11 Separated Bikeways - Protected Bike Lanes 135
5.12 Bikeway Crossings 139
5.13 At Transit Stops 140
5.14 Mixed Facilities 143
5.15 Shared Roadways 146
5.16 Rural Roadways 151
5.17 Design Considerations 153
5.18 Nova Scotia Blue Route 155

CHAPTER 6
WAYFINDING STANDARDS 157
6.1 What is Wayfinding 157
6.2 Best Practices 160
6.3 Signs in a Mobile Age 162
6.4 Recommendations 164
6.5 CBRM AT Brand System 166
6.6 CBRM AT Sign Types 167

APPENDIX A
2008 AT Plan Built Projects 173

APPENDIX B
Sydney River Multi Use Trail Schematic Design 185

What is active transportation?

- Active transportation (AT) focuses on **human-powered transportation** such as bicycles, scooters, wheelchairs, skateboarding, in-line skates, cross-country skiing, and kayaking.
- Beyond the use of human-powered transportation, **AT focuses on using the most efficent route possible** to connect a user from residential areas to community features (e.g: school, work)
- AT routes are the most effective when they **connect to other modes of transportation** - such as public transit - to create integrated mobility networks
- AT typically **does not include recreational or scenic trails**, unless these routes connect to key destinations within the community.

fathom

CBRM IN MOTION

fathom

1.1 WHAT'S CHANGED SINCE THE 2008 AT PLAN?

1. the National Active Transportation Plan for Canada (2021-2026)

In 2021, the government of Canada launched the $400m National AT Strategy with funding for capital projects and planning projects.

1. The planning projects have a funding limit of up to $50k for individual planning projects. This program is designed to "help vulnerable communities and address structural inequities, given the demographics and/or current state of active transportation" helping to create 'shovel-ready' projects within 24 months.
2. The capital project funding will provide up to 60% of the value of municipal projects with up to 100% funding for projects in indigenous communities like Membertou.

2. Complete Streets and the re-prioritization of transportation

The more recent 'complete streets' movement looks more broadly at the role of streets in our communities encouraging multi-modal travel including more biking, walking, and transit trips. Multi-modal transportation is more inclusive because it provides affordable options for larger segments of the population: Seniors who don't want to or cannot drive, youth too young to drive, people with disabilities, millennial and others who want to avoid the cost of owning a vehicle, low-income residents, and those who simply choose to include cycling and walking along with other options.

3. Battery technology and electric mobility

In the last decade, new advances in lightweight battery technology have increased e-mobility's accessibility and public prominence. What used to be the exclusively relegated to the domain of electric wheelchairs is now available in the form of e-bikes, e-scooters, e-skateboards. As of 2020, the global electric bicycle market alone is estimated at $24.3 billion, and is expected to nearly triple to $65.8 billion by 2030. Nova Scotia's Electric Vehicle Rebate Program offers a $500 rebate for e-bikes with a minimum retail value of $1,200. The continued growth in electric transportation will significantly increase the demand for active transportation in Canada.

4. The COVID-19 Pandemic

In 2019 pandemic has drastically changed behaviours and well-entrenched norms relating to transportation, offering city planners and engineers the opportunity to pilot projects that would have been considered unnecessary before the pandemic. Many municipalities introduced the 'slow-street' movements - closing down some local streets to local-only traffic and creating new bicycle boulevards. Additionally, rolling lock-downs and remote working afforded people the opportunity to start walking or cycling regularly; these increases are expected to last long after the pandemic.

5. The Housing Crisis and inflation

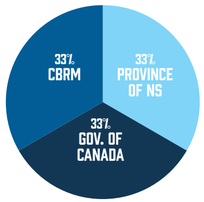
Canada's housing crisis began long before the pandemic, but the cost and availability of housing has been rapidly accelerating due to supply chain issues, material costs, and larger migration trends of people moving from big cities to smaller urban centres like CBRM. At the same time, the recent Ukraine-Russia conflict has caused considerable inflation while substantially increasing gas prices. The additional strain on the cost of driving has forced people to rethink their relationship with their car - and in some cases, their homes. Additionally, more people are turning to apartment living rather than home ownership - often causing increased density in parts of cities where transit and cycling would be considered appealing and cost effective options. Combining increased density with AT and transit is a good practice for cities.

6. AT Momentum

When new AT programs were introduced in the early 2000's, there was significant backlash from drivers and business owners who did not want to share the public roads (or loose parking spaces) with AT infrastructure. As networks start to build-out, more people are using them reducing the 'special interest' stigma that plagued some early AT projects. The cyclist vs. driver mentality is starting to wane in cities that have invested and are seeing higher use of the At infrastructure.

CBRM AT INVESTMENT

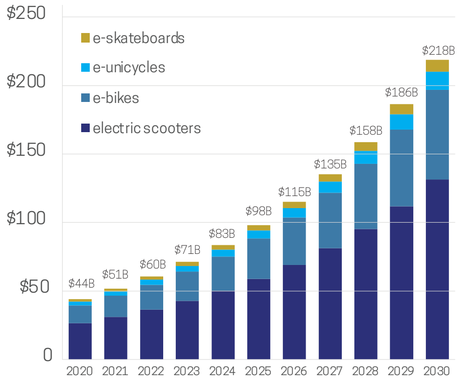
$1M/YR



$14M

2008 - 2022

1.2 THE RISE IN MICROMOBILITY



CBRM IN MOTION

Community Engagement

fathom

CBRM ACTIVE TRANSPORTATION PLAN

ENGAGEMENT WEEK ACTIVITIES

Cape Breton Regional Municipality (CBRM) is creating a new **Active Transportation Plan**. The Plan will outline infrastructure upgrades and new routes required to improve the walkable and wheelable network across the Municipality.

We welcome everyone to participate in AT week activities throughout **September 13-17**, at **the** locations, dates, and times below. The design consultants for this project, Fathom Studio, will lead the sessions to gather feedback from the community.

fathom

MONDAY SEP 13

1-3PM MEETINGS WITH CBRM STAFF AT CITY HALL

3:30-6PM CONSULTANTS TOUR OF COMMUNITY

6-8:30PM PUBLIC WORKSHOP IN LOUISBOURG

LOUISBOURG

SEPTEMBER 13, 6 PM
LOUISBOURG FIRE HALL
7485 MAIN ST, LOUISBOURG

TUESDAY SEP 14

9-12AM GROUND TRUTHING IN LOUISBOURG

1:30-3PM CBU/NSCC WORKSHOP

6-8:30PM PUBLIC WORKSHOP IN SYDNEY

SYDNEY & SURROUNDING AREA

SEPTEMBER 14, 6 PM
ROYAL CAPE BRETON ROOM,
JOAN HARRISS CRUISE PAVILION
74 ESPLANADE, SYDNEY

WEDNESDAY SEP 15

9-12AM GROUND TRUTHING IN SYDNEY & SURROUNDING AREA

1:30-3PM CBVRCE SCHOOL BOARD MEETINGS

6-8:30PM PUBLIC WORKSHOP IN GLACE BAY

GLACE BAY, DOMINION & NEW WATERFORD

SEPTEMBER 15, 6 PM
GLACE BAY MINERS FORUM
151 LOWER N ST, GLACE BAY

THURSDAY SEP 16

9-12AM GROUND TRUTHING IN GLACE BAY, DOMINION & NEW WATERFORD

1:30-3PM CBRM COUNCIL WORKSHOP

6-8:30PM PUBLIC WORKSHOP IN NORTH SYDNEY

NORTH SYDNEY & SYDNEY MINES

SEPTEMBER 16, 6 PM
JOHN J. NUGENT FIREMEN'S CLUB
1 ELLIOT STREET, SYDNEY MINES

FRIDAY SEP 17

8-11AM GROUND TRUTHING IN NORTH SYDNEY & SYDNEY MINES

11-12:30 PM WRAP UP WITH STAFF

ALL PARTICIPANTS ARE ENCOURAGED TO BRING A MASK TO THE EVENTS TO WEAR AT YOUR DISCRETION.

CBRM IN MOTION

Community Engagement

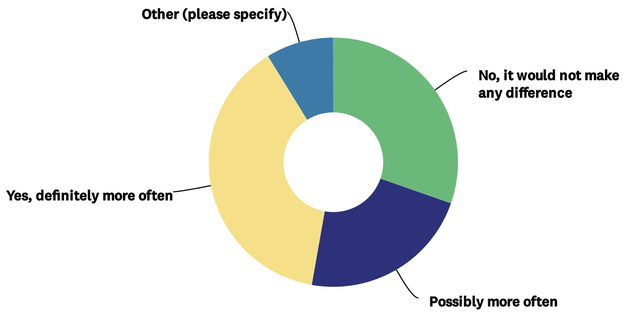
fathom

CBRM IN MOTION

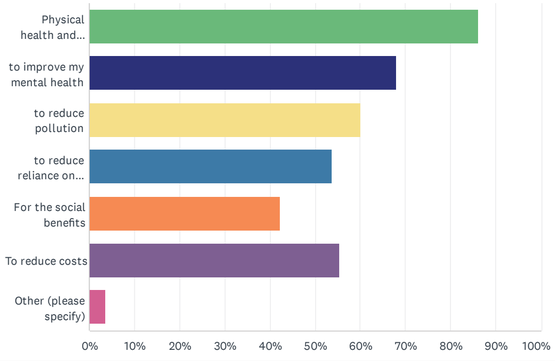
Survey Results

fathom

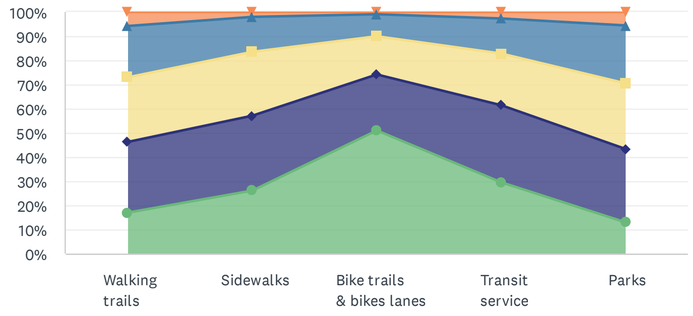
Q14) If the walking/biking/transit infrastructure was improved in your community, would you use it more frequently to get to work/school?



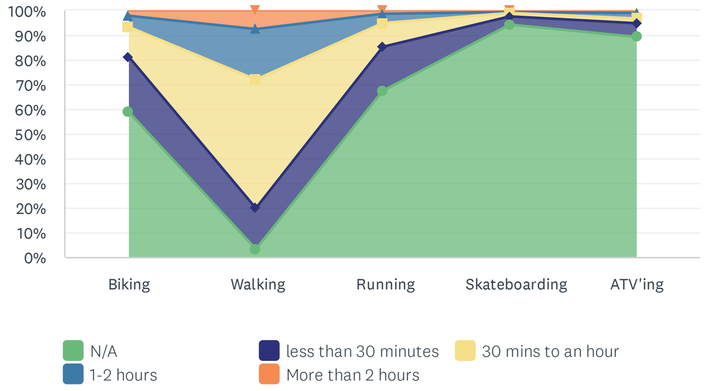
Q16) If yes, why? (Please check all that apply)



Q7) How would you rate the following in CBRM?



Q8) On average, how much time per day do you spend on the following activities

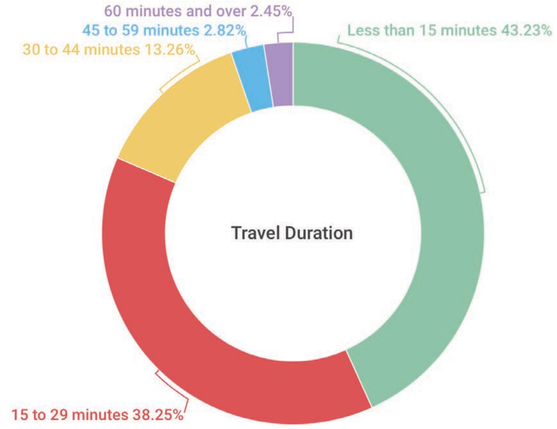


CBRM IN MOTION

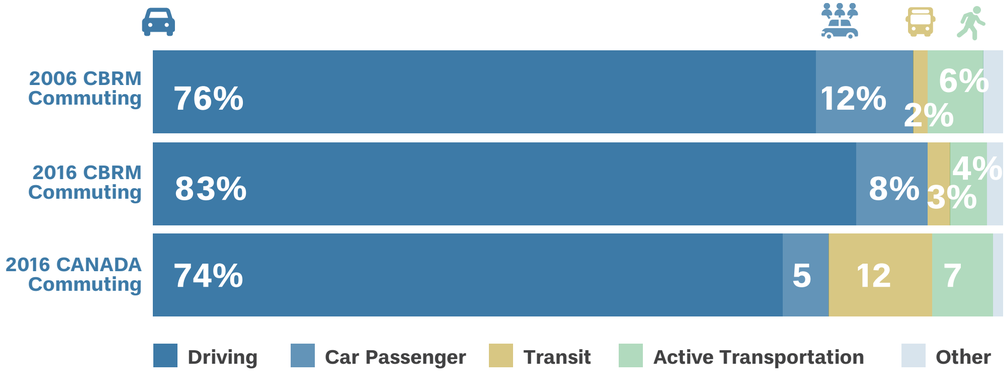
Commuting in CBRM

CBRM Average Commuting Duration

Commuting Duration in CBRM						
Mode of Commuting	**< 15 mins**	**15 - 29 mins**	**30 - 44 mins**	**45 - 59 mins**	**> 60 mins**	**Avg mins**
Car, truck or van	**43%**	**39%**	**13%**	**3%**	**2%**	**17.6**
Driver, alone	43%	40%	13%	2%	2%	17.5
Ride-share to work	47%	34%	13%	3%	3%	18.2
Sustainable transportation	**45%**	**26%**	**18%**	**6%**	**5%**	**20.1**
Public transit	14%	26%	37%	12%	11%	31.6
Active transport	64%	26%	7%	1%	2%	12.8
Other method	**36%**	**24%**	**18%**	**6%**	**15%**	**34.7**



CBRM - 2006 and 2016 Commuting Methods



- 43% of CBRM's residents travel less than 15 minutes to work, equating approximately 10-15km distance in urban areas
- 10-15 represents the ideal distance for a commuter using AT to travel, suggesting almost half of CBRM's commuter population lives within a suitable distance for favourable commuting.
- CBRM should promote intensifying through densifcation rather than sprawl to save the municpality money and protect the region's natural assets.
- Denser urban centres enable shorter travel times, thereby incentivizing residents to use AT methods to access amenities and workplaces throughout their communities.

fathom

CBRM IN MOTION

2042 ACTIVE TRANSPORTATION AND INTEGRATED MOBILITY TARGETS

	MINIMUM TARGETS				MAX. TARGETS
	WALKING/ RUNNING	CYCLING OR ASSISTED AT	TRANSIT	RIDESHARE AS PASSENGER	PRIVATE VEHICLE
2016	4.1%	0.3%	2.7%	8.4%	82%
2022	4.5%	0.5%	3%	9%	<82%
2032	6%	4%	5%	10%	<75%
2042	8%	6%	7%	12%	<70%

Each 1% change represents 340 people in CBRM shifting their behaviour from one mode of transportation to another

This plan lays out the next 20 years of AT investment within the municipality, focusing on locations able to:

- Increase AT participation and reduce residents' reliance on cars
- Create greater social equity and improve peoples lives in measurable ways
- Leverage the economic benefits and reduce municipal costs of traditional transportation network expansion and maintenance
- Improve safety for vulnerable populations like youth and seniors.

Work Commuting Targets for the AT Plan

- The commuting targets of this 20-year plan aim to change the modal split in CBRM by:
- Doubling the walking commuting from 4.1% in CBRM to 8%
- Increasing cycling or assisted mobility commuting from 0.2% to 6%
- Increasing transit commuting from 2.7% to 7%
- Increasing the % ride share from 8.4% to 12% of all private vehicle trips.
- Decreasing private vehicle trips from 82% to no more than 70%

fathom

THE ENVIRONMENTAL BENEFITS OF ACTIVE TRANSPORTATION

CBRM'S 15 MINUTE DRIVING COMMUTER POPULATION (42% OF ALL COMMUTES) RESULTS IN:

98 MILLION KM DRIVEN EVERY YEAR

11.5 MILLION LITRES OF FUEL CONSUMED

CREATES 33,600 TONS CO^2

EVERY 1% INCREASE IN AT COMMUTING IN CBRM (352 PEOPLE) RESULTS IN :

1.18 MILLION KM REDUCTION IN DRIVING

139K LITRE REDUCTION OF FUEL

410 TON REDUCTION IN CO^2

$195,000 TOTAL SAVINGS FROM FUEL OR $550 SAVINGS PER PERSON PER YR

REDUCTION IN 926 BARRELS OF OIL

EQUIVALENT OF 274 HOMES ELECTRICITY USE FOR 1 YR

CBRM IN MOTION

Route Siting Criteria

fathom

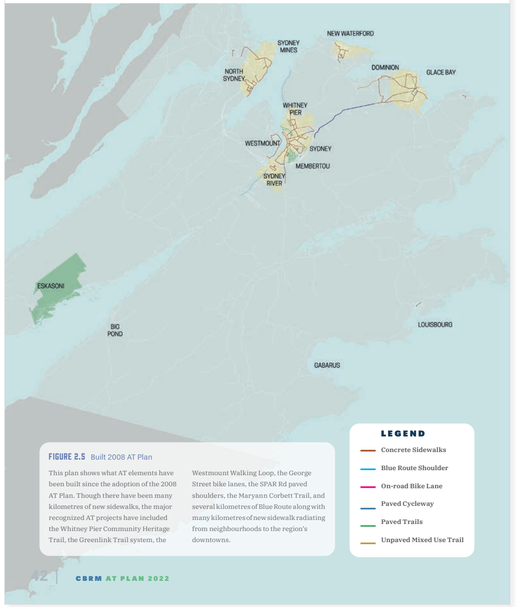


FIGURE 2.5 Built 2008 AT Plan

This plan shows what AT elements have been built since the adoption of the 2008 AT Plan. Though there have been many kilometres of new sidewalks, the major recognized AT projects have included the Whitney Pier Community Heritage Trail, the Greenlink Trail system, the Westmount Walking Loop, the George Street bike lanes, the SPAR Rd paved shoulders, the Maryann Corbett Trail, and several kilometres of Blue Route along with many kilometres of new sidewalk radiating from neighbourhoods to the region's downtowns.

CBRM IN MOTION

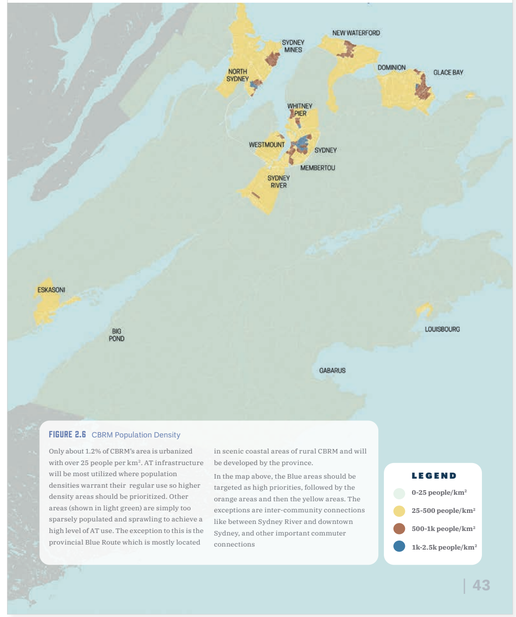


FIGURE 2.6 CBRM Population Density

Only about 1.2% of CBRM's area is urbanized with over 25 people per km², AT infrastructure will be most utilized where population densities warrant their regular use so higher density areas should be prioritized. Other areas (shown in light green) are simply too sparsely populated and sprawling to achieve a high level of AT use. The exception to this is the provincial Blue Route which is mostly located in scenic coastal areas of rural CBRM and will be developed by the province.

In the map above, the Blue areas should be targeted as high priorities, followed by the orange areas and then the yellow areas. The exceptions are inter-community connections like between Sydney River and downtown Sydney, and other important commuter connections

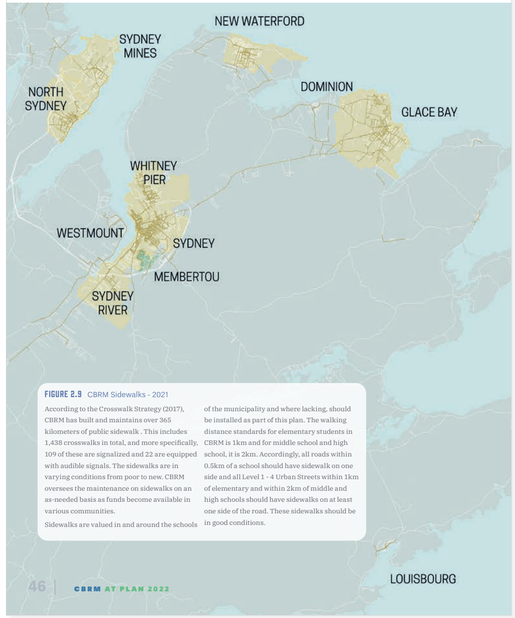


FIGURE 2.9 CBRM Sidewalks - 2021

According to the Crosswalk Strategy (2017), CBRM has built and maintains over 365 kilometers of public sidewalk . This includes 1,438 crosswalks in total, and more specifically, 109 of these are signalized and 22 are equipped with audible signals. The sidewalks are in varying conditions from poor to new. CBRM oversees the maintenance on sidewalks on an as-needed basis as funds become available in various communities.

Sidewalks are valued in and around the schools of the municipality and where lacking, should be installed as part of this plan. The walking distance standards for elementary students in CBRM is 1km and for middle school and high school, it is 2km. Accordingly, all roads within 0.5km of a school should have sidewalk on one side and all Level 1 - 4 Urban Streets within 1km of elementary and within 2km of middle and high schools should have sidewalks on at least one side of the road. These sidewalks should be in good conditions.

CBRM IN MOTION

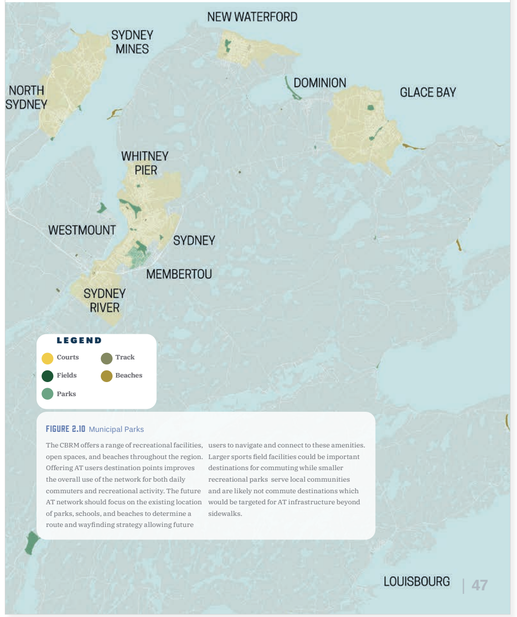


FIGURE 2.10 Municipal Parks

The CBRM offers a range of recreational facilities, open spaces, and beaches throughout the region. Offering AT users destination points improves the overall use of the network for both daily commuters and recreational activity. The future AT network should focus on the existing location of parks, schools, and beaches to determine a route and wayfinding strategy allowing future users to navigate and connect to these amenities. Larger sports field facilities could be important destinations for commuting while smaller recreational parks serve local communities and are likely not commute destinations which would be targeted for AT infrastructure beyond sidewalks.

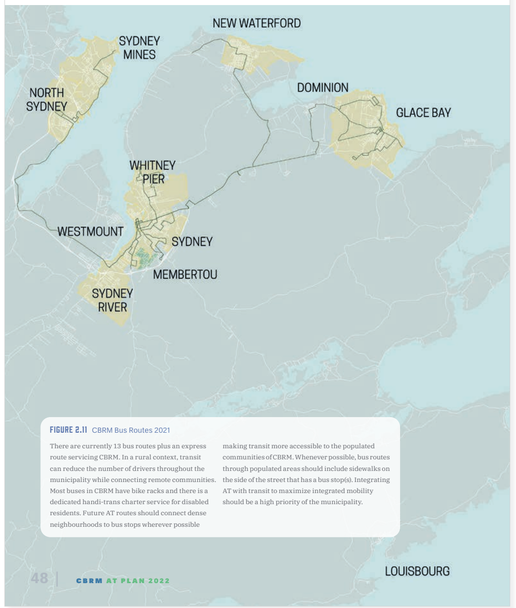


FIGURE 2.11 CBRM Bus Routes 2021

There are currently 13 bus routes plus an express route servicing CBRM. In a rural context, transit can reduce the number of drivers throughout the municipality while connecting remote communities. Most buses in CBRM have bike racks and there is a dedicated handi-trans charter service for disabled residents. Future AT routes should connect dense neighbourhoods to bus stops wherever possible making transit more accessible to the populated communities of CBRM. Whenever possible, bus routes through populated areas should include sidewalks on the side of the street that has a bus stop(s). Integrating AT with transit to maximize integrated mobility should be a high priority of the municipality.

CBRM IN MOTION

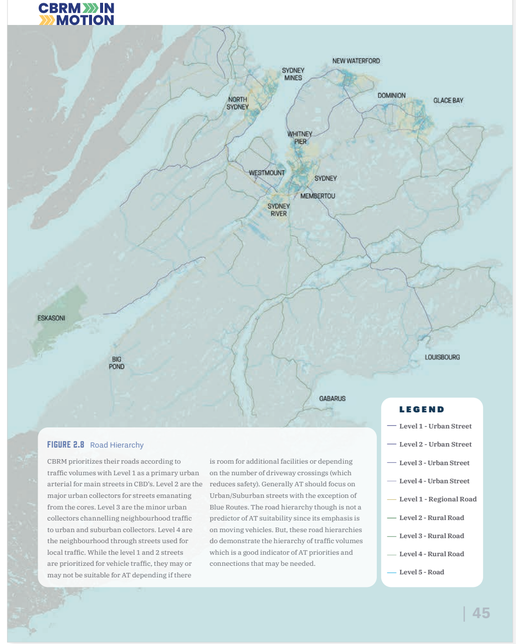


FIGURE 2.8 Road Hierarchy

CBRM prioritizes their roads according to traffic volumes with Level 1 as a primary urban arterial for main streets in CBD's. Level 2 are the major urban collectors for streets emanating from the cores. Level 3 are the minor urban collectors channelling neighbourhood traffic to urban and suburban collectors. Level 4 are the neighbourhood through streets used for local traffic. While the level 1 and 2 streets are prioritized for vehicle traffic, they may or may not be suitable for AT depending if there is room for additional facilities or depending on the number of driveway crossings (which reduces safety). Generally AT should focus on Urban/Suburban streets with the exception of Blue Routes. The road hierarchy though is not a predictor of AT suitability since its emphasis is on moving vehicles. But, these road hierarchies do demonstrate the hierarchy of traffic volumes which is a good indicator of AT priorities and connections that may be needed.

FIGURE 2.15 Schools

There are seventeen elementary schools and seven junior high schools servicing the AT plan's area of interest. The standard walking distance for elementary school students is 1km, and 2km for junior and high school students.To promote active transportation among CBRM's younger generation and their caretakers, future networks should prioritize connections from residential areas to schools. Since these routes will primarily serve younger populations, they should focus on safety while maximizing effiency. Lastly, future AT priorities should prioritize the route's proximity to exisiting schools.

CBRM IN MOTION

FIGURE 2.16 Services and Institutions

Within each of CBRM's communities, there are several public institutions serving the communities. To ensure the AT network will be well-used and responsive to community needs, future plans should consider the locations of these services within the inter- and intra-community context. Specific attention should be paid towards connecting AT networks to colleges/university, libraries and hospitals.

CBRM IN MOTION

AT Scoring

Proposed AT Project Name :

Criteria	Criteria Score	Sub-Criteria Score	Sub-Total
Projects should be able to assure a high degree of use by the local community (e.g. hundreds of user per day vs dozens of users per day) by linking dense population centres to high desire destinations (work, school, parks, etc.).	**10**		
> 1000 people/km2		1	10
500-1000 people/km2		0.9	
25-500 people/km2		0.8	
<25 people/km		0.5	
Projects that can be coordinated with future public works capital investments to create new complete streets should be prioritized.	**9**		
Combine with other Capital Works project		1	9
Land owned by CBRM		1	9
Funding Stream availability		0.5	4.5
Each project should be able to measurably reduce people's reliance on motor vehicle transportation in CBRM. The intent is to reduce vehicle commuting and increasing AT use or transit use for commuting to work, school, or to complete day-to-day activities that might otherwise require travel by car. Projects should decrease traffic congestion and promote a modal shift to transit and active transportation in CBRM.	**8**		
Directly Connects to or within a downtown		1	
Within 2km of a downtown		0.5	4
Within 1km of an elementary school		0.7	5.6
Within 2km of an junior or high school		0.4	
Within 0.5km of a park that has courts or sportsfields serving 20 or more sports participants		0.4	
Projects should promote social equity amongst CBRM's vulnerable populations (youth, seniors, those in poverty, those with disabilities) reducing the requirement for car ownership to participate in society, education or the local economy.	**7**		
Avg Residential Property Assessment within 1km of the project < $150,000		1	7
Project is within 1km of a school		0.5	3.5
Project is within 0.5km of a seniors home with more than 20 seniors		0.5	
Project is within 2km of a CBU or NSCC		0.5	3.5
Project directly connects to a bus routes		0.25	1.75
Projects that extend or improve upon the existing AT network to increase the connectivity of the network should be a priority.	**6**		
Project Connects to an existing AT Network		1	6
Project is within 0.5km of an existing AT Network		0.5	
Projects should ensure travel by active transportation is easier, safer, more convenient and more enjoyable than travelling by car.	**5**		
Project is on an inactive rail line		1	5
Project is on a road that has less than 4 driveways per 100m avg.		0.5	
Project has scenic views of the ocean		0.3	1.5
Projects should focus on the needs of local residents first, but if the goals compliment tourism, that would be considered an added bonus.	**3**		
Project serves the local residents but would also help drive touristm		0.5	1.5
Projects should improve the design of complete communities in CBRM	**2**		
Projects are integrated into new subdivisions or urban developments with over 100 units		1	2
Projects within 0.5km of a new development (<5 years old) with over 100 units		0.5	
Total			73.85

AT Scoring Matrix

- To prioritize the placement of AT networks, a scoring matrix was created
- The matrix ranks different community assets and their distance to community amenities and important characteristics, such as:
  - proximity to education centers
  - land ownership, if the route is located on a rail line
  - population density
  - distance to downtown
- The higher the ranking, the greater priority the project receives

Steps

1. Multiply the criteria score by the sub-criteria score
2. If multiple sub-criteria apply, perform step 1 for each sub-criteria
3. Add up the subtotal scores

AT Priorities Based on Score

- High priority: > 75 points
- Medium priority: 50-75 points
- Low priority: 20-50 points
- <20 should not be built without a logical rationale

fathom

CBRM IN MOTION

Wayfinding and Signage

CBRM IN MOTION

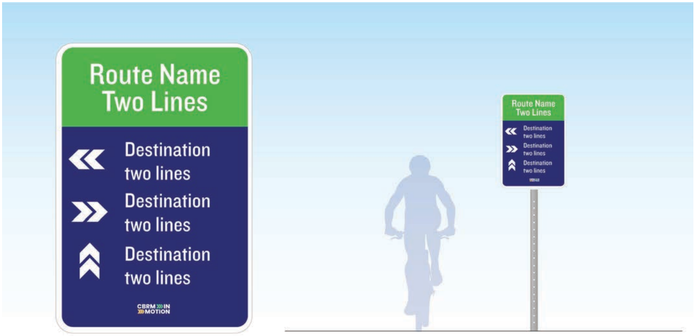
RGB 26 31 86
HEX 1A1F57

RGB 106 184 121
HEX 2E9592

RGB 252 204 92
HEX FCCC5C

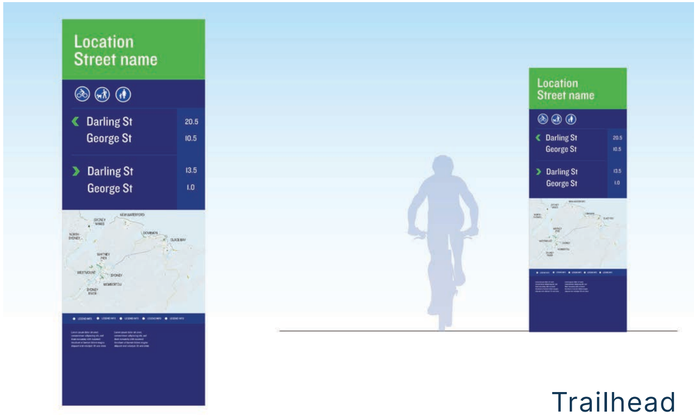
Waymarking

Turn Fingerboards

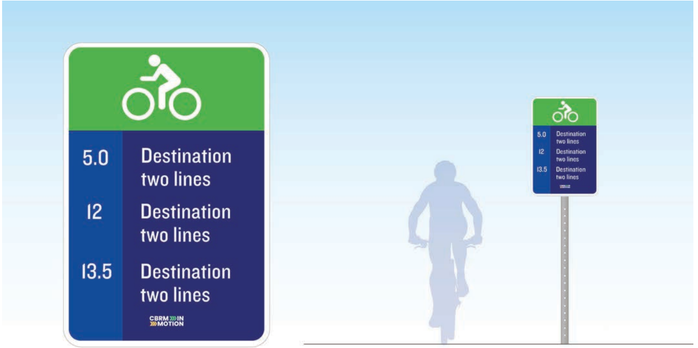


Decision

Multi-use Trail



Trailhead



Confirmation

Park System

Reserved Bicycle Lane

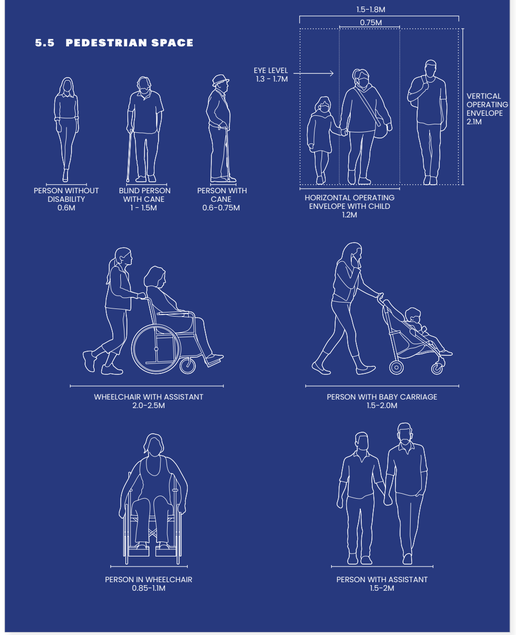
fathom

CBRM IN MOTION

AT Typologies

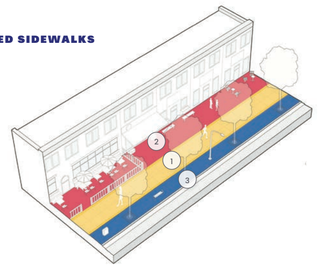
fathom

5.5 PEDESTRIAN SPACE



CBRM IN MOTION

5.6 SEPARATED SIDEWALKS



Separated sidewalks represent the vast majority of dedicated pedestrian infrastructure within the urban environment. Separated sidewalks are typically located within, and parallel to the right-of-way of the adjacent roadway. Sidewalks are usually mandated by local roadway design standards and cross-section requirements and are recommended on all urban roadway types from local to arterial roadways. On higher volume roadways, sidewalks are required on both sides of the roadway, unless there is a distinct lack of pedestrian demand. Additionally - in urban areas where vehicle volumes are reduced and speeds are sufficiently slow - sidewalks may be provided on only one side of the roadway.

In commercial or high volume pedestrian environments, the pedestrian zone can be defined as an Enhanced Pedestrian Zone. In this specific circumstance, widths commonly fall within the upper limits of the range. These higher volume situations may include areas such as busy commercial areas, cruise passenger accommodation and school zones where widths should be determined based on crowd capacity and required room to manoeuvrer.

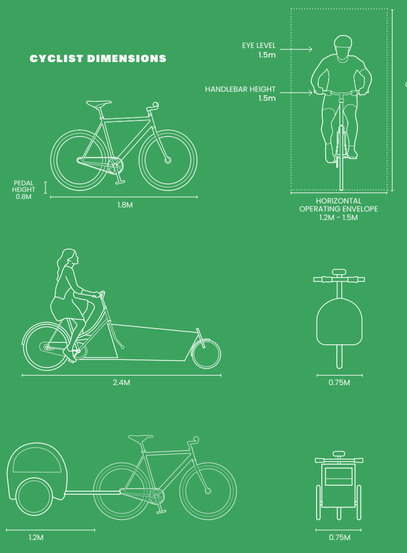
PEDESTRIAN ZONE

The pedestrian zone is the space that must be clear for pedestrian use, and therefore cannot include any permanent or temporary obstructions. Zone widths are dictated by the ability of the pedestrian traffic to navigate past other users of the sidewalks. Therefore in lower volume environments with basic roadway cross sections, widths tend to fall within the lower limit ranges of the table presented in the tables below.

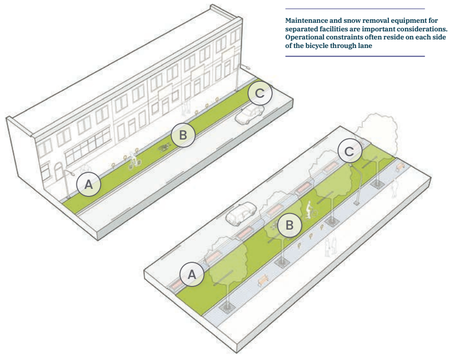
TABLE 5-11 Pedestrian Zone

1 PEDESTRIAN ZONE	Practical Lower Limit	RECOMMENDED Lower Limit	RECOMMENDED Upper Limit	Practical Upper Limit
Width (m) <400 ped/15mins	1.5	1.8	2.0	Roadside Width
Width (m) >400 ped/15mins	2.0	2.25	3.0+	Roadside Width

CYCLIST DIMENSIONS



CBRM IN MOTION



Maintenance and snow removal equipment for separated facilities are important considerations. Operational constraints often reside on each side of the bicycle through lane

5.11 SEPARATED BIKEWAYS - PROTECTED BIKE LANES

Protected bike lanes are facilities dedicated to bicycle traffic - and in some cases - alternative travel modes such as scooters, in line skates, skateboards, etc. Generally, protected bike lanes are located within a road right-of-way. The defining characteristic of this typology is the physical separation of the bicycle zone from the vehicular traffic. These facilities share may similarities to buffered bike lanes and are best suited for roadways with higher vehicle speeds and/or volumes, and roadways with multiple lanes in each direction.

Protected bike lanes are defined by the:

- (A) **Furnishing Zone** - provides separation between the pedestrian and bicycle through zones.
- (B) **Bicycle Through Zone** - the clear operational space for cyclists
- (C) **Street Buffer Zone** - physical separation between the bicycle through zone and roadway operations.

Different design choices can be made for each of these zones and may require decisions on trade offs between each zone. The following general principles should be considered:

- **Vertical and horizontal changes should be minimized**
- **Width selection depends on bicycle volumes and speeds**
- **Street buffer should provide adequate horizontal separation from vehicles, including loading activities**
- **Furnishing zone should discourage pedestrians from walking in the bicycle zone.**

CBRM IN MOTION

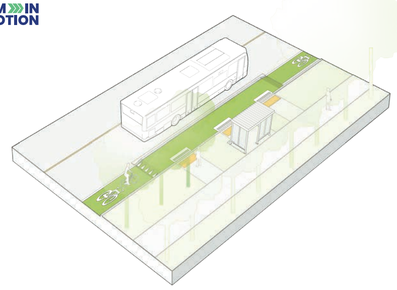


FIGURE 5.24 Raised Bike Lane at Transit Stop

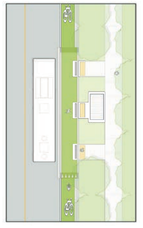


FIGURE 5.25 Raised Bike Lane at Transit Stop

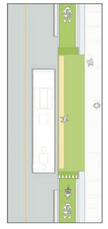


FIGURE 5.26 Raised Bike Lane at Transit Stop

CBRM IN MOTION

5.14 MIXED FACILITIES

Multi-use facilities are designed for use by more than one group of active transportation users. The previous sections discussed facilities that were specifically design for pedestrians, and then for cyclists.

MULTI-USE PATHS

The most common application of mixed use pathways are those located off-street. **Figure 5.27** demonstrates fully separated pathways; **Figure 5.28** demonstrates a multi-use pathway parallel to a roadway corridor.

Multi-use pathways are typically designed to accommodate a wide variety of users,such as pedestrians and bicycles. Additional alternate uses - such as skateboarding, in-line skating, kick scooters, and other similar mode - can be accommodated on multi-use pathways. More recently, multi-use pathways have become increasingly used by electronic modes of travel, such as: electric scooters, hover boards, electric and gas powered bicycles. Looking further, various municipalities permit the use of Off-Highway Vehicles (OHVs) / All-Terrain Vehicles (ATVs) on multi-use trails.

The most common locations for multi-use pathways are along corridors that have limited interaction with vehicles at intersections or driveways and may include:

- **Parallel to roads and highways**
- **Parallel to or within railway corridors, including rails-to-trails initiatives**
- **Within utility corridors**
- **Within greenway corridors**
- **Other situations, such as: through parks, adjacent to water features, or cross country connections to multiple adjacent AT facilities.**

Bike Paths	Practical Lower Limit	RECOMMENDED Lower Limit	RECOMMENDED Upper Limit	Practical Upper Limit
Width (m) Uni-directional	1.5	1.8	2.5	3.0
Width (m) Bi-directional	2.4	3.0	3.6	4.0

Multi-use Path	Practical Lower Limit	RECOMMENDED Lower Limit	RECOMMENDED Upper Limit	Practical Upper Limit
Width (m)	2.7	3.0	6.0	6.0

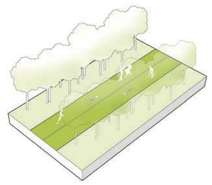


FIGURE 5.27 Rural Multi-Use Pathway

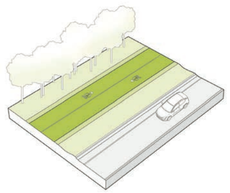


FIGURE 5.28 Multi-Use Pathway Next to Roadway

In built-up land use and higher density development areas, separating pedestrians from cyclists becomes more important. Where development is located on both sides of the road, consideration should be given to uni-directional bikeways (protected bike lanes)

SEPARATING BIKES AND PEDESTRIANS

Multi-use paths can mix pedestrians and cyclists, or separate pedestrians and cyclists. The TAC Geometric Design Guide provides the following guidance for when to separate transportation modes:

- **> 20% pedestrians and total user volumes > 33 persons per hour per meter of path width (i.e. 1.8 meter width requires total volume of 60 pph)**
- **< 20% pedestrians and total user volumes > 50 persons/hr/meter width.**

LIGHTING

As with all AT facilities, adequate lighting is critical for the safe and comfortable use of multi-use facilities. Lighting should, at a minimum, be provided at intersections (typically 25 meters in advance) and crossing points or other areas where potential conflicts or user confusion may be likely (hills, corners, high volume driveways, bridge crossings, etc.).

Many multi-use trails can be of significant length and may be well separated from an adjacent roadway. In these situations, street light may help in illuminating the pathway. It may be cost prohibitive to provide lighting along its entire length. Practical lighting level is a critical planning item and depends on the location of the facility, expected time of use, need for AAA conformity, alternate lighting sources, and more.

AT DRIVEWAYS

As previously noted, multi-use pathways are best used when there is limited side road interference from driveways and intersections. Where crossings are required, appropriate signage and pavement marking s are critical for guidance. Wherever possible, the multi-use trail should be given the priority; driveways or low-volume minor roads should be required to stop or yield to bicycle and pedestrian traffic. **Figure 5.33 to 36** demonstrate how guidance can be offered to both pedestrians and cyclists in this situation.

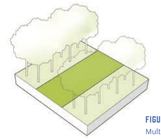


FIGURE 5.29 Basic Shared Multi-Use Pathway

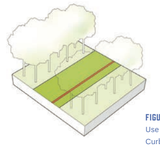


FIGURE 5.30 Separated Multi-Use Pathway - Paint Line or Curb Separation

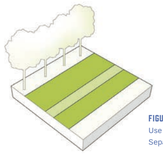


FIGURE 5.31 Separated Multi-Use Pathway - Boulevard Separation

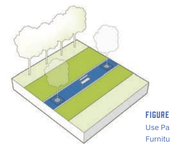


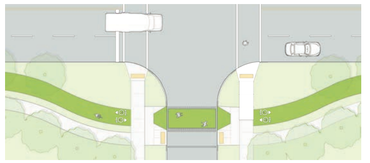
FIGURE 5.32 Separated Multi-Use Pathway - Median and Furniture Separation

CBRM IN MOTION

FIGURE 5.33 Multi-use Path Crossing - Setback from Pedestrian

FIGURE 5.34 Separated Multi-Use Path Crossing

FIGURE 5.35 Multi-use Path Crossing - Shared Space

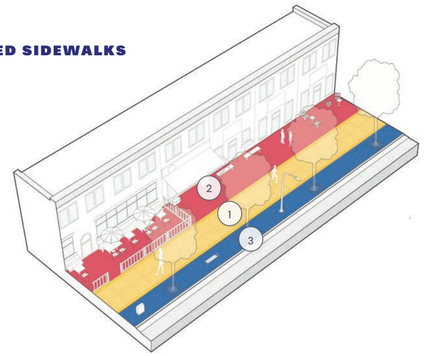


CBRM IN MOTION

AT Typologies

fathom

5.6 SEPARATED SIDEWALKS



Separated sidewalks represent the vast majority of dedicated pedestrian infrastructure within the urban environment. Separated sidewalks are typically located within, and parallel to the right-of-way of the adjacent roadway. Sidewalks are usually mandated by local roadway design standards and cross-section requirements and are recommended on all urban roadway types from local to arterial roadways. On higher volume roadways, sidewalks are required on both sides of the roadway, unless there is a distinct lack of pedestrian demand. Additionally - in urban areas where vehicle volumes are reduced and speeds are sufficiently slow - sidewalks may be provided on only one side of the roadway.

In commercial or high volume pedestrian environments, the pedestrian zone can be defined as an Enhanced Pedestrian Zone. In this specific circumstance, widths commonly fall within the upper limits of the range. These higher volume situations may include areas such as busy commercial areas, cruise passenger accommodation and school zones where widths should be determined based on crowd capacity and required room to manoeuvrer.

PEDESTRIAN ZONE

The pedestrian zone is the space that must be clear for pedestrian use, and therefore cannot include any permanent or temporary obstructions. Zone widths are dictated by the ability of the pedestrian traffic to navigate past other users of the sidewalks. Therefore in lower volume environments with basic roadway cross sections, widths tend to fall within the lower limit ranges of the table presented in the tables below.

TABLE 5-11 Pedestrian Zone

1 PEDESTRIAN ZONE	Practical Lower Limit	RECOMMENDED Lower Limit	RECOMMENDED Upper Limit	Practical Upper Limit
Width (m) <400 ped/15mins	1.5	1.8	2.0	Roadside Width
Width (m) >400 ped/15mins	2.0	2.25	3.0+	Roadside Width

Sidewalk Typologies

CBRM IN MOTION

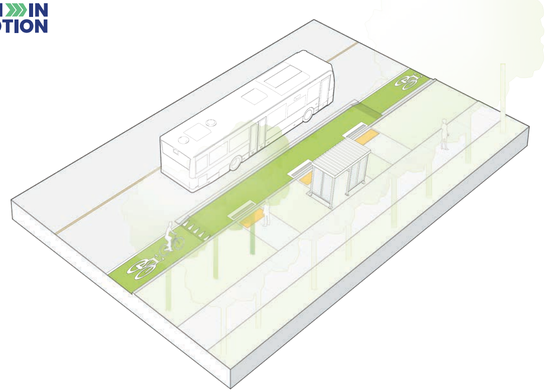


FIGURE 5.24 Raised Bike Lane at Transit Stop

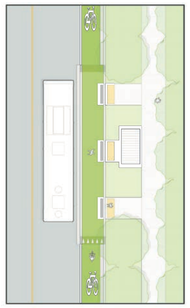


FIGURE 5.25 Raised Bike Lane at Transit Stop

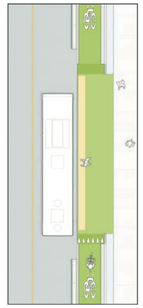


FIGURE 5.26 Raised Bike Lane at Transit Stop

Bike Lane Treatments

SEPARATING BIKES AND PEDESTRIANS

Multi-use paths can mix pedestrians and cyclists, or separate pedestrians and cyclists. The TAC Geometric Design Guide provides the following guidance for when to separate transportation modes:

- **> 20% pedestrians and total user volumes > 33 persons per hour per meter of path width (i.e. 1.8 meter width requires total volume of 60 pph)**
- **< 20% pedestrians and total user volumes > 50 persons/hr/meter width.**

LIGHTING

As with all AT facilities, adequate lighting is critical for the safe and comfortable use of multi-use facilities. Lighting should, at a minimum, be provided at intersections (typically 25 meters in advance) and crossing points or other areas where potential conflicts or user confusion may be likely (hills, corners, high volume driveways, bridge crossings, etc.).

Many multi-use trails can be of significant length and may be well separated from an adjacent roadway. In these situations, street light may help in illuminating the pathway. It may be cost prohibitive to provide lighting along its entire length. Practical lighting level is a critical planning item and depends on the location of the facility, expected time of use, need for AAA conformity, alternate lighting sources, and more.

AT DRIVEWAYS

As previously noted, multi-use pathways are best used when there is limited side road interference from driveways and intersections. Where crossings are required, appropriate signage and pavement marking s are critical for guidance. Wherever possible, the multi-use trail should be given the priority; driveways or low-volume minor roads should be required to stop or yield to bicycle and pedestrian traffic. **Figure 5.33 to 36** demonstrate how guidance can be offered to both pedestrians and cyclists in this situation.

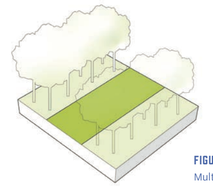


FIGURE 5.29 Basic Shared Multi-Use Pathway

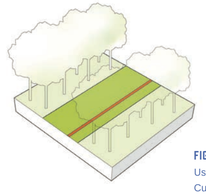


FIGURE 5.30 Separated Multi-Use Pathway - Paint Line or Curb Separation

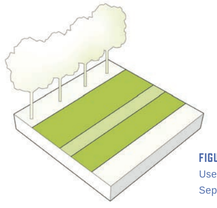


FIGURE 5.31 Separated Multi-Use Pathway - Boulevard Separation

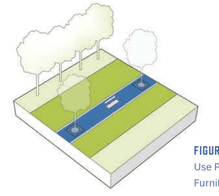


FIGURE 5.32 Separated Multi-Use Pathway - Median and Furniture Separation

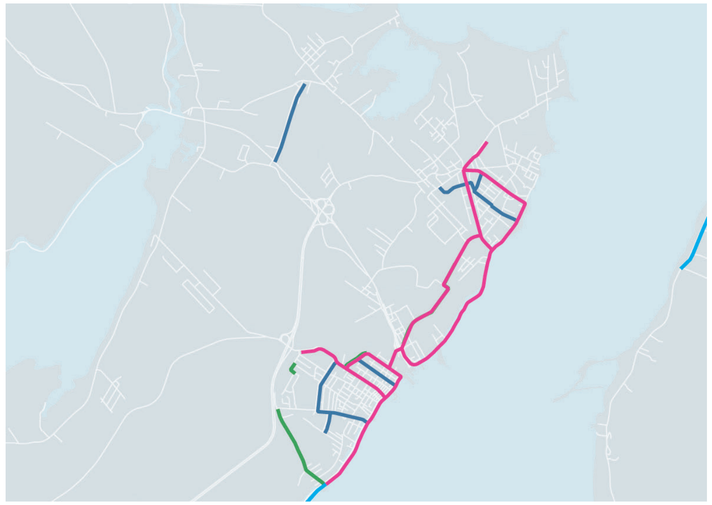
Multi-use Pathways

CBRM IN MOTION

AT Plan Cost Estimates

- Bicycle Lanes
- Multi-use Trail
- Bicycle Boulevard
- Blue Route
- Sidewalks

fathom



Sydney Mines

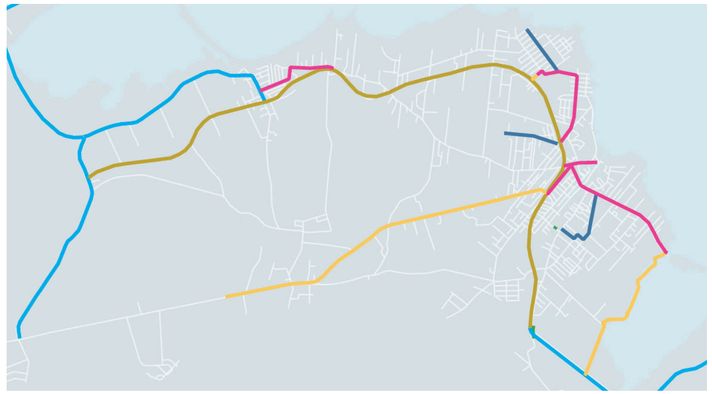
- Bicycle Boulevard, Bike Lane
- Cost total: $498,160.00

North Sydney

- Bicycle Lanes, Sidewalk, Multi-use Trails, and Bicycle Boulevards
- Cost total: $1,777,638.00

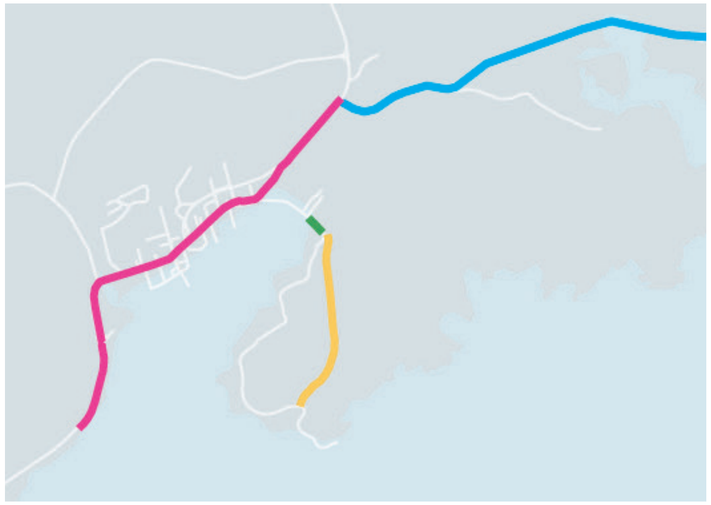
New Waterford

- Bicycle Lanes, Bicycle Boulevards
- Cost total: $685,750.00



Glace Bay and Dominion

- Multi-use Trail, Bicycle Lane, Bicycle Boulevard, Sidewalk
- Cost total: $3,813,360.00



Louisbourg

- Bicycle Lanes, Multi-use Trails, Bicycle Boulevards
- Cost total: $912,470.00

Sydney

- Bicycle Lanes, Bicycle Boulevards, Multi-use Trails. Sidewalks
- Cost total: $9,257,690.00

Whitney Pier

- Bicycle Lanes, Multi-use Trails, and Sidewalks
- Cost total: $948,480.00

Westmount

- Bicycle Lanes, Multi-use Trails, Bicycle Boulevards
- Cost total: $3,403,660.00

Sydney River

- Bicycle Lanes, Multi-use Trails, Bicycle Boulevard, Trails
- Cost total: $1,904,110.00

WESTMOUNT, COXHEATH, SYDNEY RIVER, SYDNEY & WHITNEY PIER

Assuming the G&W rail line is maintained to NovaPorte, and that the remaining rail line east of the Sydport Access Road can be leased, the following AT network is imagined for the life of this plan

WESTMOUNT / COXHEATH

	PRIORITY	LENGTH	LOCATION	TYPE	DESCRIPTION
1	Med	8.9 km	Westmount Rd /Sydport Access Rd /	Bike Lane	The Westmount bike lanes will complement the recently built sidewalks on the Westmount Road providing linkages to the Coast Guard College, NovaPorte, Mackenzie College, the Sydport Industrial Park, and the community of Westmount by linking to downtown Sydney. The average slope of this route is very flat at 2.2% with a few hundred metres of 6-8% road extending from the waterfront to the Sobeys plaza. The existing road width is about 10.5m and will be easy to retrofit.
2	Low	1.3 km	Sydport Access	Bike Lane	This short stretch of bike lane will connect the Westmount bike loop to the Sydport Industrial Park. Should the NovaPorte come online, this would increase the priority to medium priority.
3	Med	4.5 km	G&W Rail -Sydport Rd. to Lewis Dr.	Multi-Use Trail	If the G&W rail line east of the Sydport Access Road to Lewis Dr. can be leased, this multi-use trail should be developed as a 3.2m wide crusher dust pathway on the existing rail line.
4	Low	7.7 km	Coxheath Rd.	Bike Lane	The Coxheath Road bike lane would create a loop from Keltic Drive, through Coxheath to the Blacketts Lake Road and on to the King Street Blue Route providing a 13km loop. The populations in Coxheath along this road are generally low, making this a low priority project.
5	High	0.3 km	Mt. Florence St	Bike Blvd	The Mt. Florence Street Bike Boulevard connects Westmount to the Coxheath Elementary School
6	High	0.7km	Sunnydale Drive.	Bike Blvd	The Sunnydale Drive Bike Boulevard connects Westmount to Robin Foote Elementary School

SYDNEY RIVER

	PRIORITY	LENGTH	LOCATION	TYPE	DESCRIPTION
7	High	1.2 km	G&W Rail Lease along Kings Rd	Multi-use trail	The Sydney River cycleway is an important multi-use trail linkage between the Fatima Dr. and the rail crossing at Keltic Dr. This is a much needed trail connection and will require some elevated cycleway connections under the bridge abutment for the Highway. This cycleway will require work around the new roundabout and a crossing on an exit lane of Highway 125 into Sydney. This work will need to be coordinated or performed by the NSTIR.
8	High	3.1 km	Fatima / Carmichael / Riverview	Bike Blvd	This looped bike boulevard around Fatima, Carmichael, and Riverview Drive will connect much of Sydney River to the new Cycleway and the Sydney River Elementary School.
9	High	0.3 km	Highway 4	Bike Lane	There is a short stretch of the Blue Route that needs to be extended on CBRM roads to link up to the new Sydney River Cycleway.
10	Low	3.2 km	Powerline ROW	Multi-use trail	This crusher dust multi-use trail will link the Sydney River with the 327 and the 7th Exchange. The trail already exists but it should be cleaned up, regraded and surfaced with 2.5m wide crusher dust for cyclists and walkers (working with Nova Scotia Power).

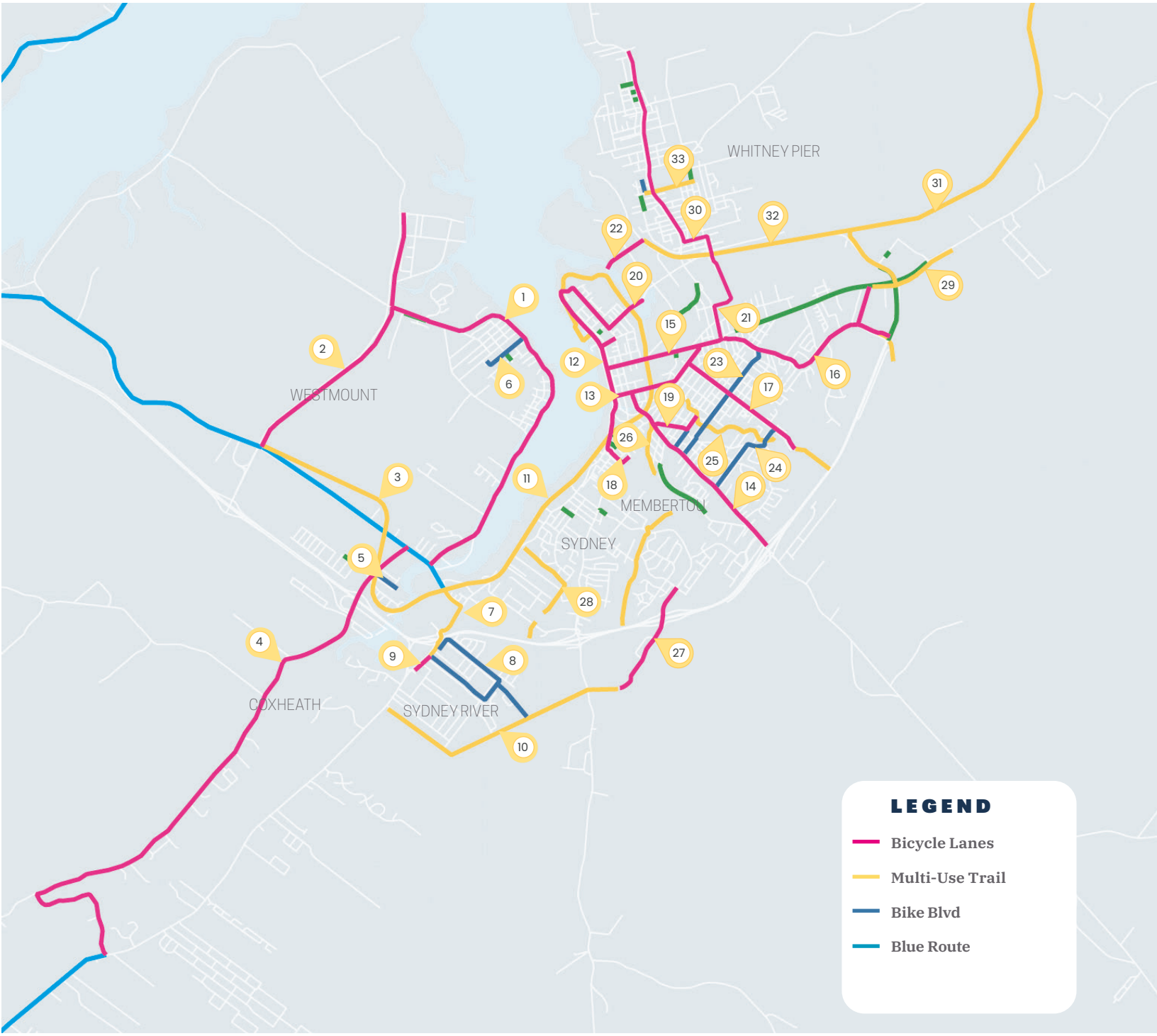
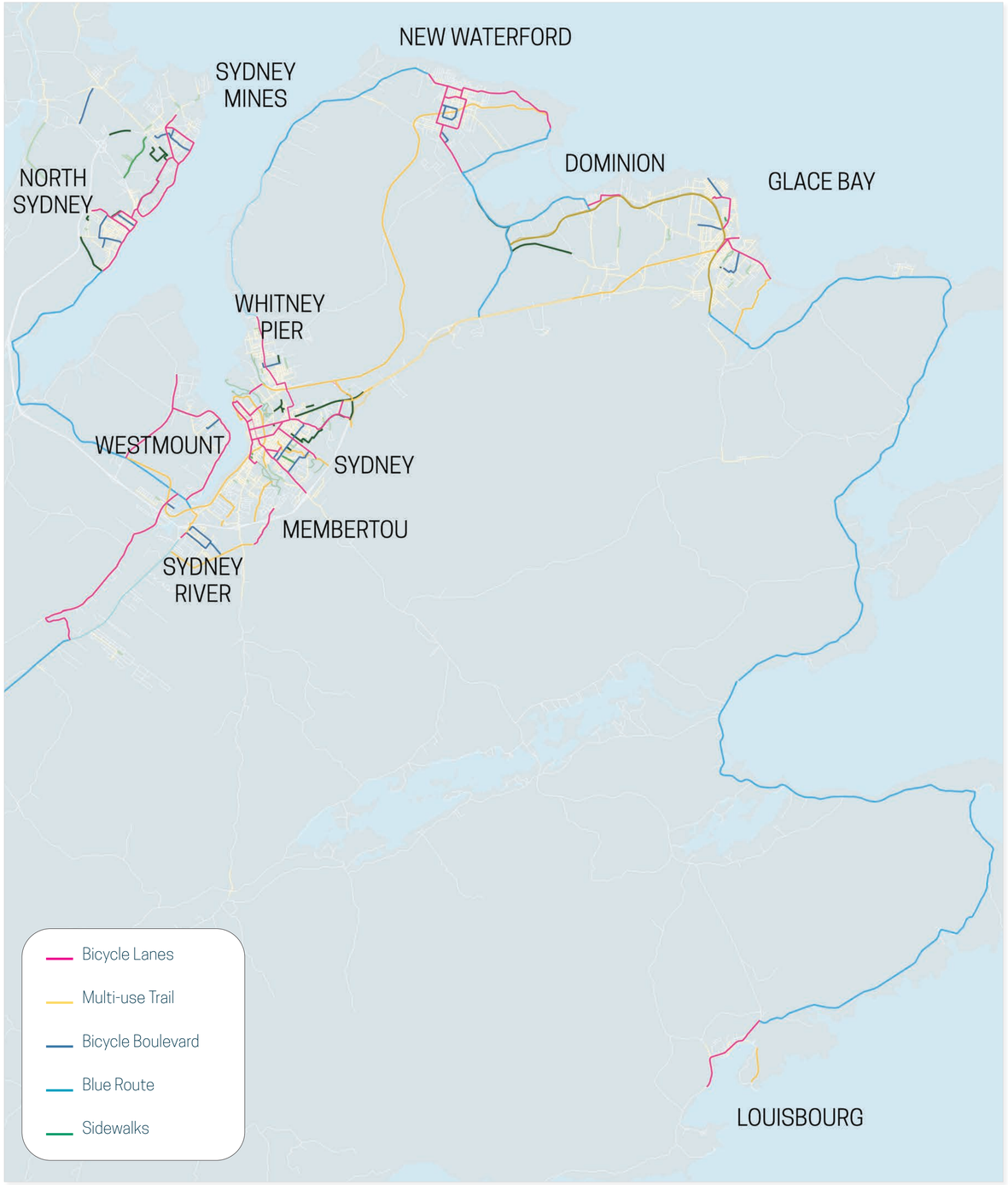


FIGURE 3.4 2022 AT Master Plan: Sydney, Sydney River, Whitney Pier, Westmount, Coxheath

CBRM IN MOTION

2042 Composite Plan



2008-2042 AT Composite Plan

- This plan shows the anticipated build-out of the network in 2042. The 2008 "as-built" lines are thinner and transparent to illustrate the old plan and new plan combined.

Priority Projects

1. The Sydney River Multi-Use Chapter
2. The Prince and Upper Prince Bike Lanes
3. The King Street Bike Lanes
4. The Grand Lake Road Sidewalk
5. Lingan/Hankard/Victoria Bike Lane in Whitney Pier
6. The Kings Road Multi-use Trail
7. The Maryann Corbett Trail
8. The Ellsworth/Heelan/Emerald/Union Bike Lanes
9. Esplanade/King/George Bike Lanes
10. The Washbrook Greenway

Phase Estimates (No Tax)

- High Priority: $14,127,258.20
- Medium Priority: $5,200,780.00
- Low Priority: $3,868,280.00

Total Estimate (No Tax): **$23,206,318.20**

Cost per Year (20 years): **$1,160,315.91**

fathom

Thank you

CBRM IN MOTION

fathom