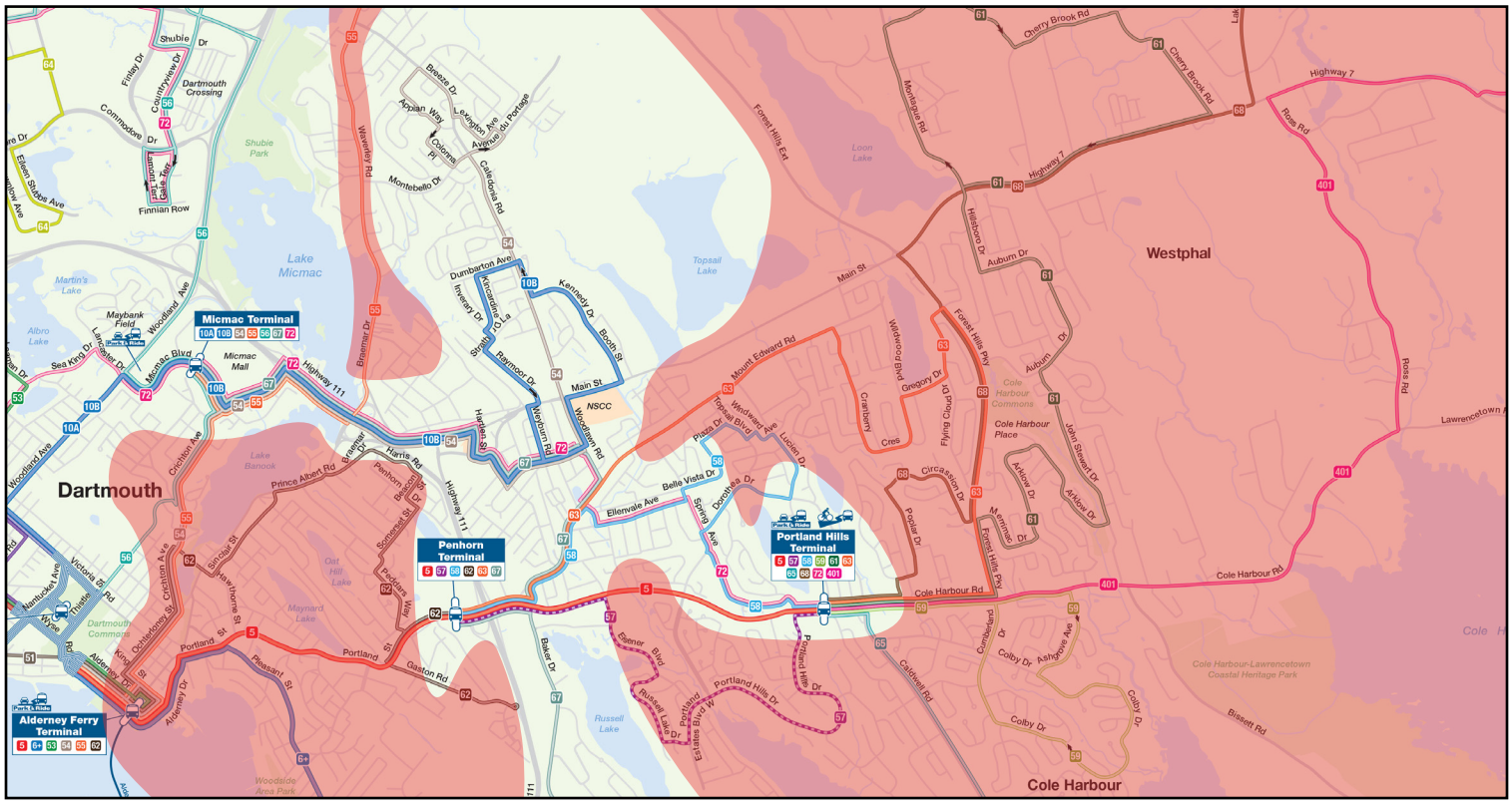
Overview: Halifax Transit's Plan

The Village on Main

The Halifax Transit authority proposed changes and revision in early April 2016, altering various bus routes across the Halifax Regional Municipality. We regard these changes, shown in Figure 1, as insufficient. Downtown Dartmouth, the Village, Dartmouth East, Burnside, Cole Harbour, Westphal, and Preston communities can be better connected by adjusting routes 54, 55, 61, 64, and 68. This will create Dartmouth corridors stretching from Burnside to Cole Harbour and North Preston to Downtown. In addition, we propose changes to the ferry frequency across the Halifax Harbour. It is important to note that the we are not transit engineers; we are simply voicing concerns and providing possible solutions that better serve Dartmouth and the surrounding community.

We regard the Main Street corridor as an important piece to connecting Dartmouth; it is a central collection point. Although the Village boasts a significant commercial base, hosts over 40 health and wellness centres, is close to schools, has a walkscore of 71, and is municipally approved for accelerated growth, it lacks reliable transit links for

Figure 1: Halifax Transit Revised Plan: areas in red require one or more transfers to the Village

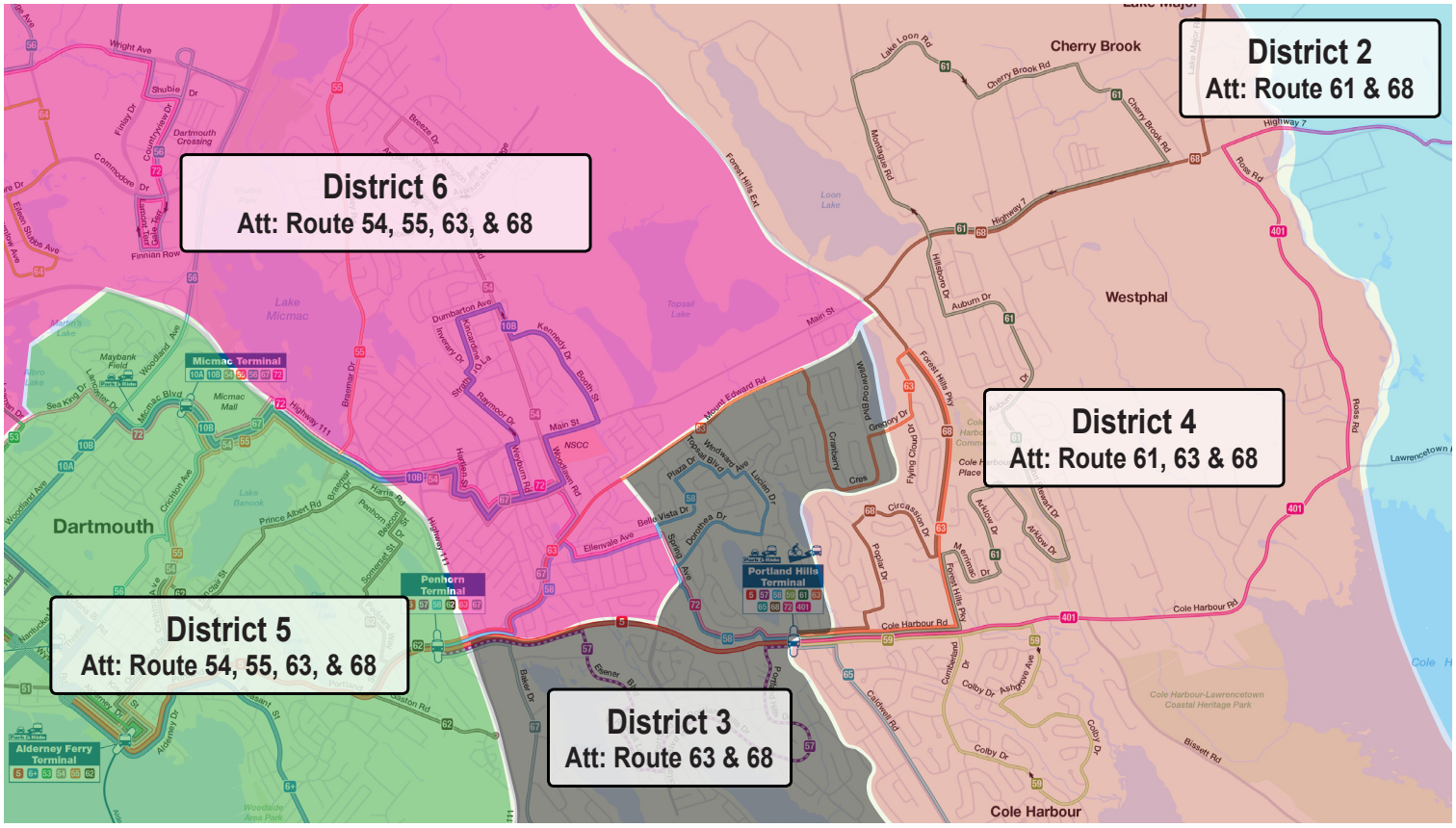


the 90,000 residents within Dartmouth and adjacent communities who access its variety of services.

Halifax Transit's plan presents only four bus routes passing through this corridor (between Braemar Drive and Hartlen Street): the 10, 54, 67, and 72. The first two serve roughly the same geographic area, with the latter extending further north. The 67 connects the Micmac and Penhorn Terminals, serving residential areas in between. Finally, the 72 connects Burnside to Portland Hills Terminal but it requires additional connections to be made to reach most Dartmouth communities. In addition, there are only few transfer points that residents can use to access the Main Street corridor. For example, residents of Cole Harbour along Route 59 (light green) require transferring to Route 72 and Portland Hills Terminal. Although it gives access to businesses at Westphal Plaza, it requires a minivmum walk of 750 metres to reach the school and recreational facilities near Caledonia and Woodlawn Road, or minimum 10 minute walk along a car traffic heavy corridor.

Summary: District 5

Figure 2: Districts affected by our proposed bus route adjustments



Route 54

We recommend to discontinue the line from Micmac Terminal to Downtown Dartmouth; it is a duplicate of the path Route 55 takes from Alderney Ferry to Micmac. This frees up resources for other lines.

Route 55

We recommend to divert the line from Braemar Drive towards Hartlen Street, looping back via Tacoma Drive, up towards Lakecrest and finally Waverley Road. This provides service for residents who currently have limited access to a transit stop.

Route 61

Residents of North Preston are accustomed to the 61 and a change, therefore, is unnecessary. In addition, the residential responsibilities of Route 68 (Poplar to Circassian Drive) can be taken by Route 61.

Route 63

Rather than transporting people from Portland Hills to Penhorn Terminal, the route can be directed towards Micmac Terminal via Main Street, and then to Dartmouth Crossing. This creates an informal transit corridor between Cole Harbour and Burnside.

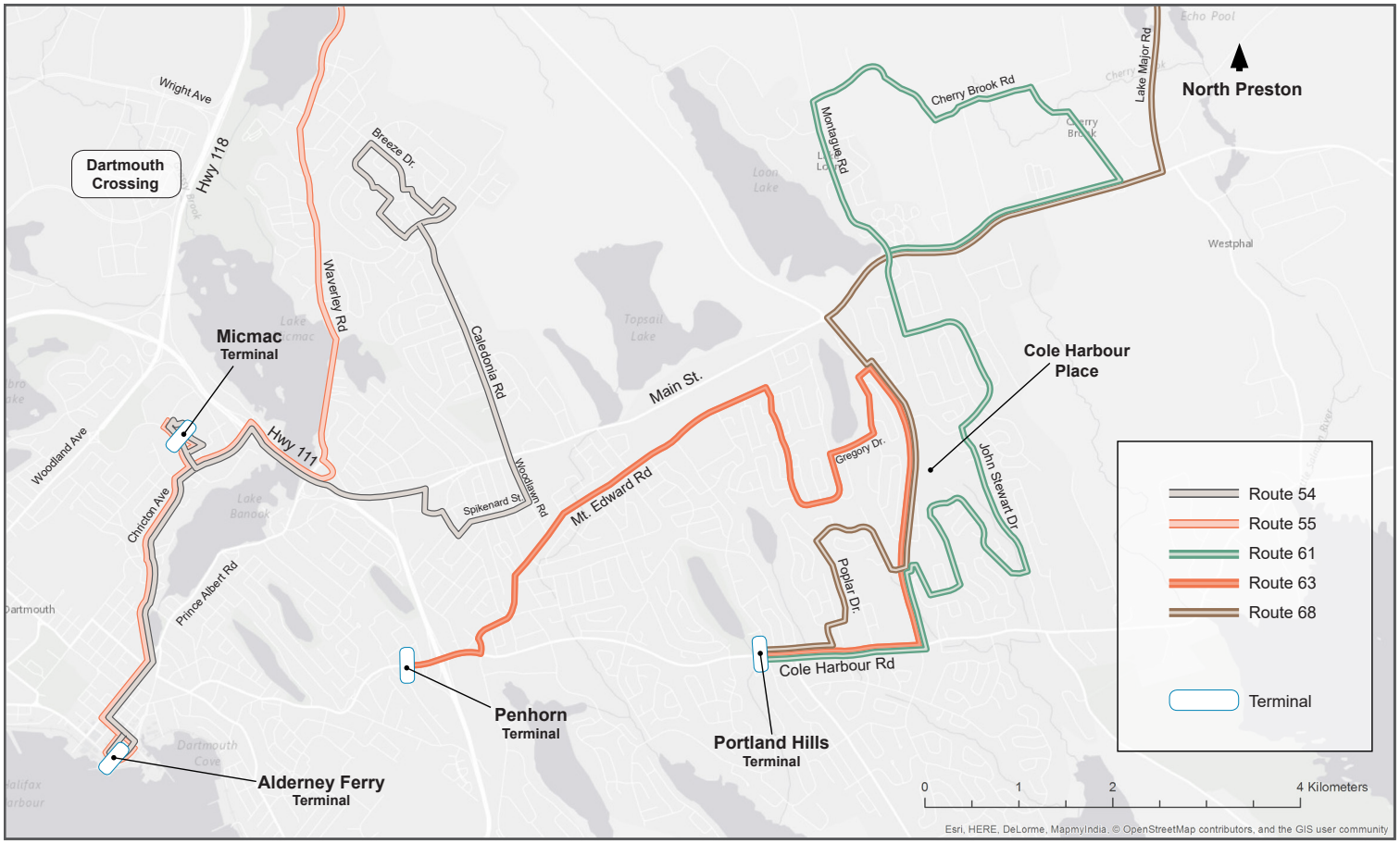
Route 68

Re-directing this line away from Portland Hills (there are transfer opportunities; 61 and 63) creates a direct connection to Downtown Dartmouth via Main Street and Prince Albert Road. It connects the Downtown to Lake Banook, Sullivan Pond, Graham's Grove, and other non-programmed areas, as well as the Superstore.

How we've simplified...

We recommend adjustments to the following bus routes: the 54, 55, 61, 63, and 68. Figure 3 shows the five routes proposed by Halifax Transit affected by our recommendations. Of the five, only one uses the Main Street corridor within Halifax Transit's plan: the 54. The line services north of Main Street along Caledonia Road, connecting to Micmac Mall and Alderney Ferry. However, like most lines, the route does not use Main Street beyond east of Hartlen Street. Furthermore, of 61 studied business improvement districts (BIDs), Main Street is the only one below 50 percent bus coverage, a measure of how much of a major BID street is covered by a bus line (see Appendix A).

Figure 3: Halifax Transit's Routes (54, 55, 61, 63, and 68) before our recommendations



What we've proposed (see Figure 4)...

Route 54 (grey)

We recommend considering to discontinue the line from Micmac Terminal to Downtown Dartmouth; it is a duplicate of the path Route 55 takes from Alderney Ferry to Micmac. This frees up resources for other lines.

According to ridership estimates, fewer passengers board the 54 at Alderney Ferry than the 55 while more board at Micmac. This indicates that a large portion of 54 users are transfers at Micmac terminal, therefore justifying the truncating of the 54 instead of the 55.

We also recommend to extend it along Breeze Drive to Waverley Road, connecting with Route 55 on Waverley Road, looping back via Lethbridge Avenue.

Route 55 (light orange)

We recommend to divert the line from Braemar Drive towards Hartlen Street, then loop back via Tacoma Drive to Gordon and Major Street, then through the residential area North of Lakecrest/Main Street. It will continue the

present routing after running the bus through Raymond Street and Maple Drive back onto Waverly Road,. This will provide service for residents who currently have limited access to a transit stop. In addition, it will provide access for Waverley Road users to Main Street, the community college, and connections southward from Tacoma Drive.

The incline of Maple Drive and a bus's consequent ability to use it is a possible obstacle and requires investigation. However, Halifax's Duke Street, a road with a significant incline, is serviced by multiple buses.

Route 61 (green)

There is significant confusion over this route's numbering; routes 61 and 68 have been switched (northeast of Forest Hills Parkway) within the Halifax Transit's plan. Their revisions show Route 61 running through Cherry Brook, down Forest Hills Parkway, and then to Portland Hills Terminal.

The residential responsibilities of Route 68 (brown), Poplar to Circassian Drive, can be taken by Route 61, which is already a predominantly residential service.

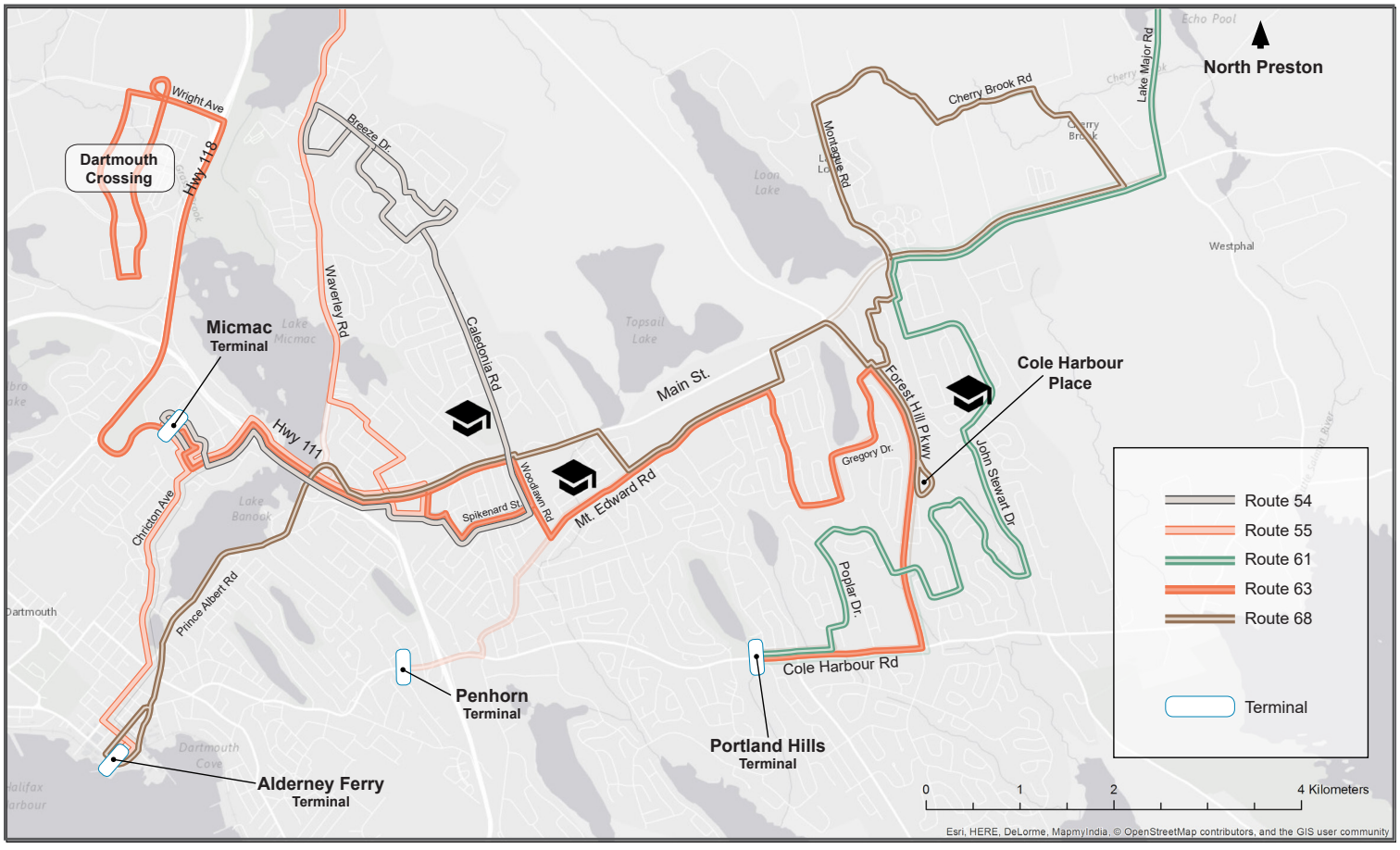
Users are accustomed to the 61's service of Cherry Brook and a change, therefore, is unnecessary. Those who require access to Main Street and Downtown will be able to transfer onto the 68, according to our recommendations, at Cole Harbour Place rather than Portland Hills Terminal. This decreases travel time by at least 37 percent.

Route 63 (orange)

Route 63 duplicates three other routes: the 5, 57, and 58 (see Figure 1). Rather than transporting people from Portland Hills to Penhorn Terminal, the route can be directed towards Micmac Terminal via Main Street, and then to Dartmouth Crossing. This will create an informal transit corridor between Cole Harbour and Burnside, increasing accessibility to school, recreational, shopping, and bus transfer facilities.

The Dartmouth Crossing loop illustrated in Figure 4 is an example of how Burnside can be connected. It is

Figure 4: Our recommendations for the 54, 55, 61, 63, & 68 bus routes (with Halifax Transit lines faded behind)



used to demonstrate how a northwest to southeast corridor could be. For example, the end point could also be Wright Avenue and Burnside Drive or the Burnside Terminal.

Route 68 (brown)

There is significant confusion over the numbering of this route; routes 61 and 68 have been switched east of Forest Hills Parkway within Halifax Transit's plan. They show Route 68 running from North Preston through Forest Hills Parkway and southwest of Forest Hills Parkway to the Portland Hills terminal.

Re-directing this line away from Portland Hills (there are connection opportunities; 61 and 63) will create a direct connection to Downtown Dartmouth through two high interest destinations: Main Street and Prince Albert Road. Running this line along Forest Hills Parkway between Main Street and Cole Harbour Place will connect Preston, Westphal, Cole Harbour, Dartmouth East, and Downtown Dartmouth residents to each other. The corridor will provide access to major school, recreational, employment, and shopping facilities; most notably reconnecting communities to Lake Banook, Sullivan Pond, Graham's Grove, and other non-programmed areas, as well as the Superstore.

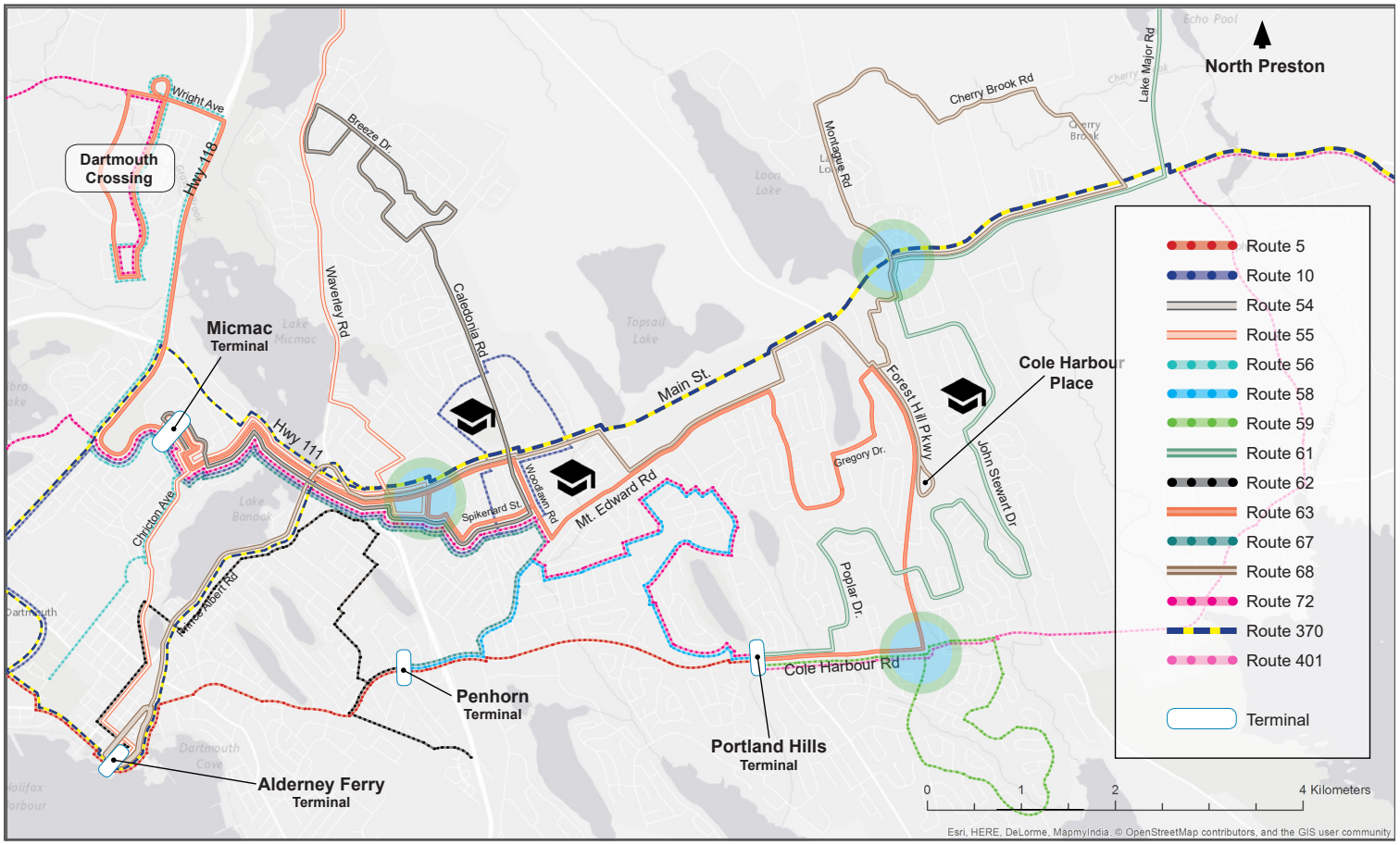
In addition, it allows lower-income neighbourhoods along the Main Street corridor to gain access to food stores such as Dave's or Gateway east of Caledonia/Woodlawn Road.

To Conclude

Our recommendations, see Figure 5, service a wider residential community; they create informal nodes (shown by the blue overlay) along Main Street west of Forest Hills Parkway, at Cole Harbour Road and Forest Hills Parkway, and along Main Street within the Village.

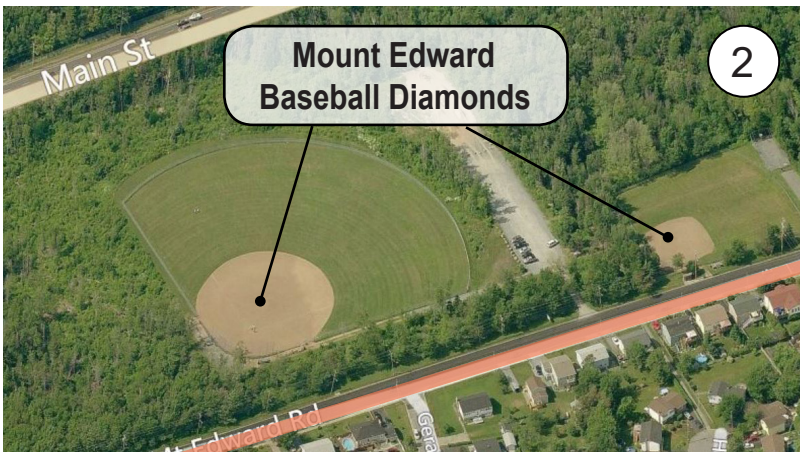
Our recommendations also address the expressed need for better connection to services (May 10 council discussion). We suggest additional transit nodes to connect people to amenities such as Gateway Market's discount groceries and the Village's health services.

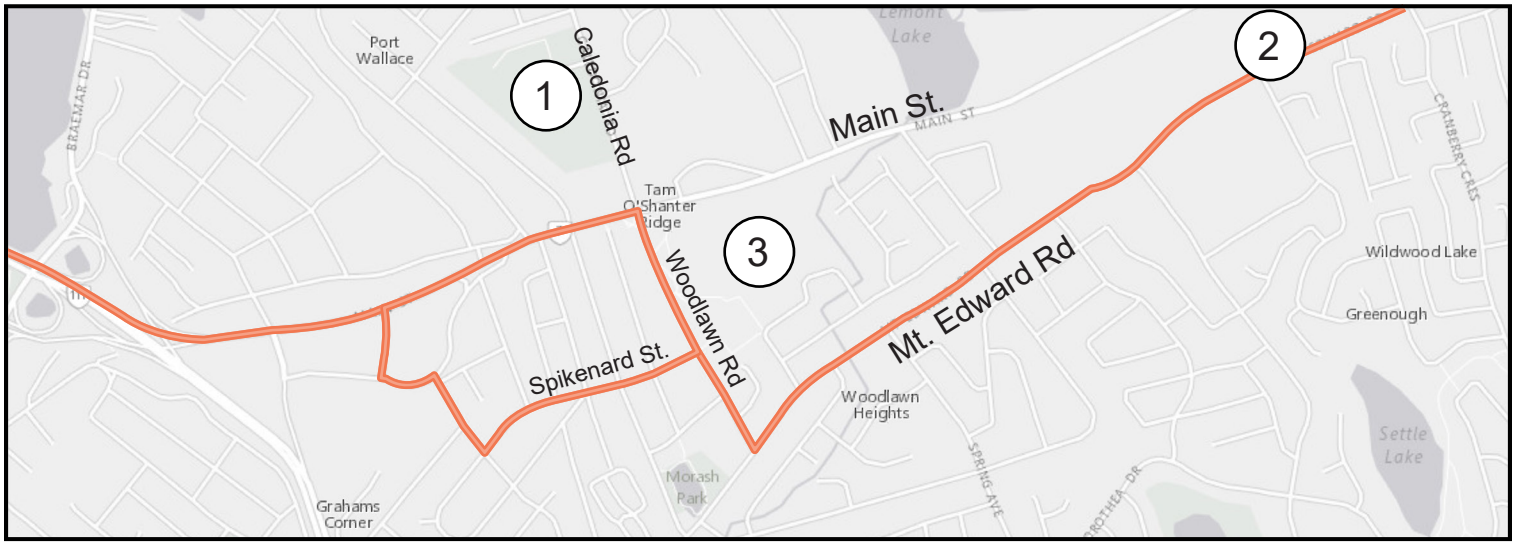
Figure 5: How our 54, 55, 61, 63, & 68 recommendations fit within Halifax Transit's Plan and the nodes they create

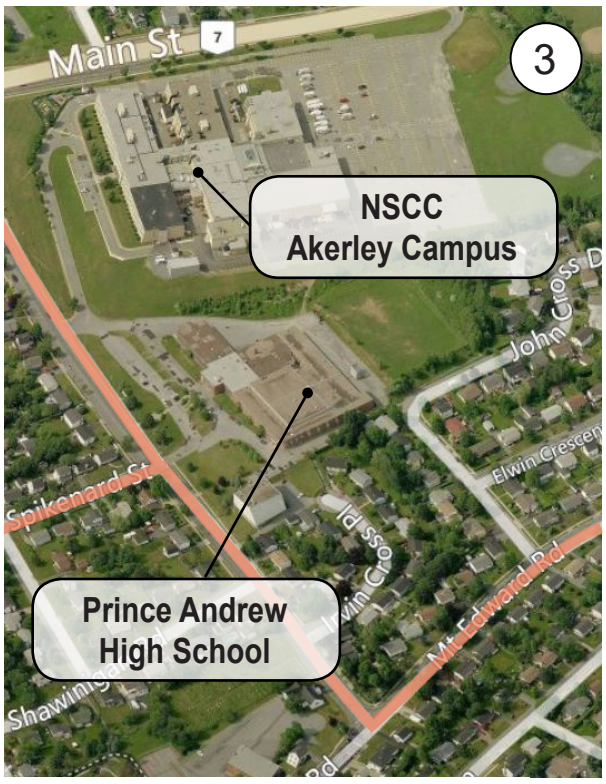


Our Route 63 recommendations

Figure 6: Connections that can be made by Route 63







Re-directing Route 63 to Micmac & Dartmouth Crossing via Main Street results in:

• an increase in accessibility to schools and recreational facilities such as the NSCC, Prince Andrew High School, Caledonia Junior High School, Beazley Fields, & Mt. Edward Baseball Diamonds;

• a passage through Main Street that connects Cole Harbour, Westphal, Burnside, and Dartmouth East residents to businesses and services;

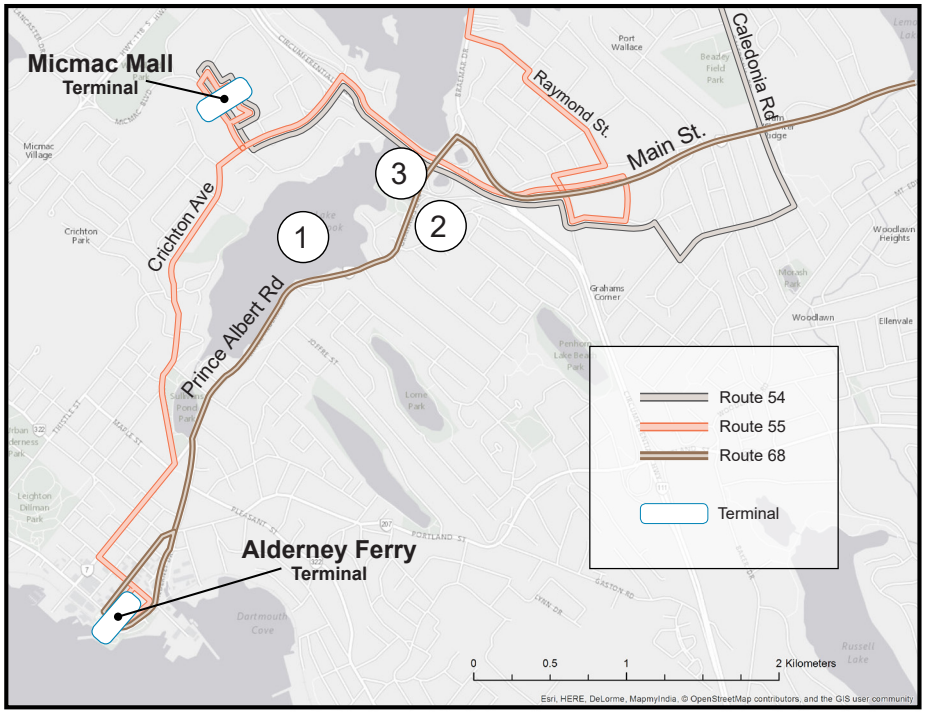
• direct access to Micmac Mall from Portland Hills Terminal for workers, consumers, and transfers;

• direct access to Dartmouth Crossing for workers, consumers, and transfers from Cole Harbour, Westphal, and Dartmouth East (note: Ikea will be opening up along Wright Avenue, adding demand for jobs and Ikea's goods); and

• the creation of a corridor connecting Dartmouth Crossing (Burnside) to Portland Hills (Cole Harbour) through Micmac Mall and Main Street.

Our Recommedations for the 54, 55, and 68

Figure 7: Connections that can be made by adjusting Routes 54, 55, & 68



Re-directing Route 68 to Alderney Ferry Terminal via Main Street and Prince Albert Road:

• will create a corridor from North Preston, through Westphal and Dartmouth East, to Downtown, connecting Downtown to the Superstore and low-income properties to Gateway (Forest Hills & Main);

• establishes access to Lake Banook and Graham's Grove for residents of Downtown, the Main Street corridor, Westphal, and North Preston; and

• replaces the need of two lines running on Crichton Avenue; now a line on each side of Lake Banook.

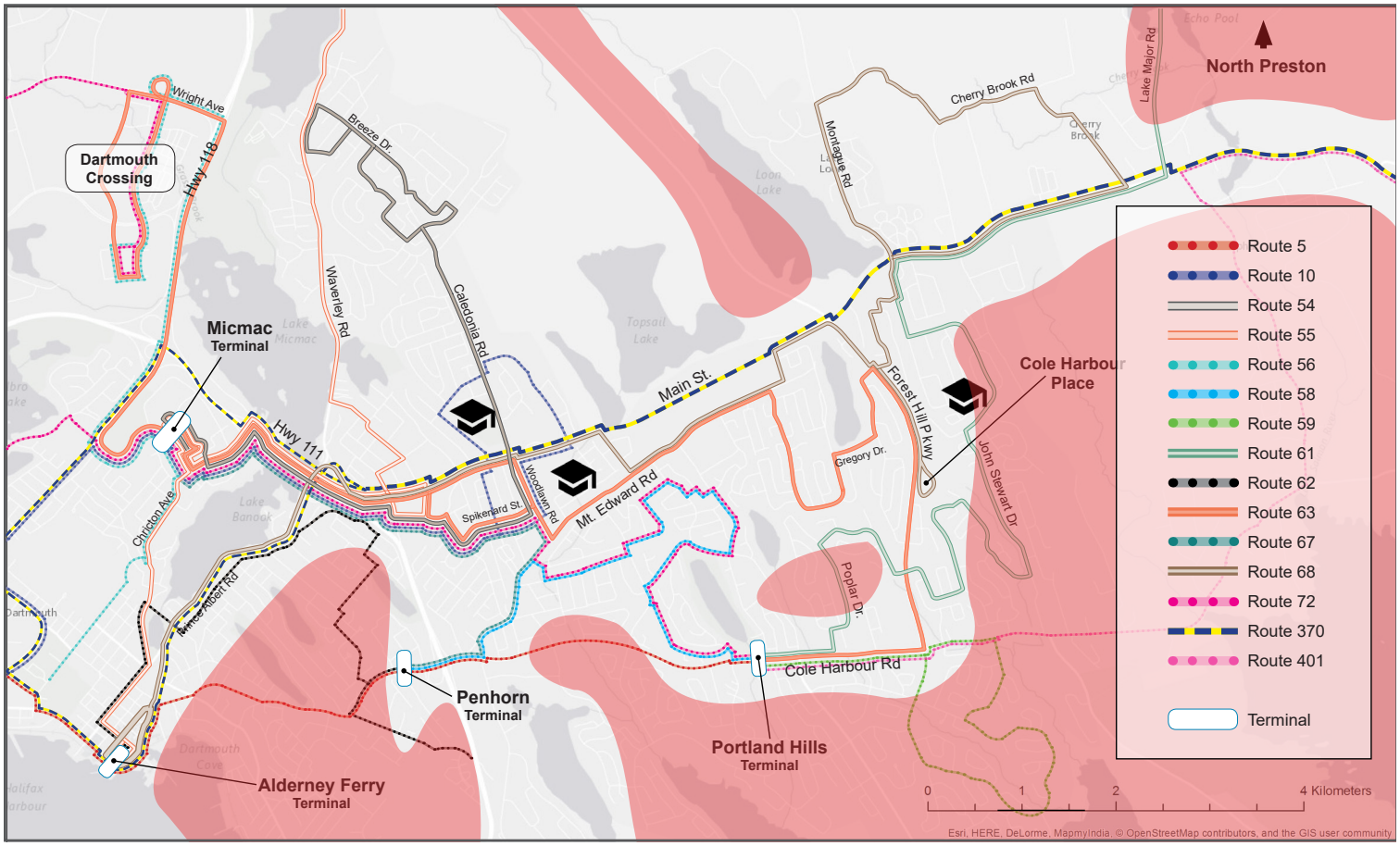
Truncating Route 54 & Re-direct Route 55 through Raymond Street:

• eliminates the duplication with Route 55, freeing up capital/resources for other lines and priorities (ie. Route 63 connection to Burnside or a more frequent Route 401 through Cole Harbour) and

• provides service for residents north of Main Street who were otherwise without transit stops in close proximity, increasing their access to amenities and transfer possibilities (in the Village, at Micmac Mall, or Alderney Ferry)

How coverage looks with proposed adjustments...

Figure 8: Our recommendations: areas in red require one or more transfers to the Village



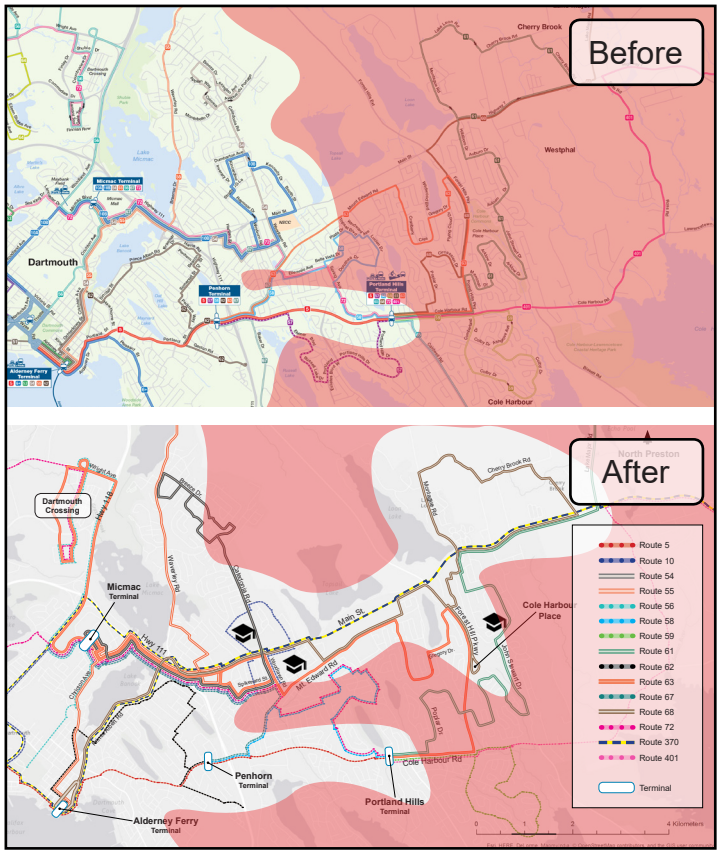
Our recommendations provide corridors from Burnside to Cole Harbour and North Preston to Downtown Dartmouth for Downtown Dartmouth, the Village, Dartmouth East, Westphal, and Preston communities. This adds increased mobility and access to health, education, recreation, and shopping facilities using the Main Street corridor as a central collection point. The Regional Municipal Planning Strategy of 2014 pushes towards increasing transit ridership while reducing single-occupant vehicle trips. Centralizing routes to an area with significant educational, recreational, and commercial facilities, like the Village, can increase ridership among those who currently use a vehicle because these amenities are unaccessible.

Unfortunately, not all areas are able to be connected directly to Main Street or better serviced in general. Cole Harbour is particularly difficult. In Halifax Transit's plan, to reach the Nova Scotia Community College (NSCC) from Cole Harbour, most residents are required to make two bus transfers or one transfer with a long walk. Our recommendations allow residents to access the NSCC directly through one transfer, adding benefit in the short-run which can transition to more direct connections in the future. Informal transfer nodes at Forest Hills Parkway & Main Street, Forest Hills Parkway & Cole Harbour Road, and Hartlen Street make circulation within Dartmouth faster and easier. In addition, a formal transit node can be considered at the corner of Caledonia Road and Main Street.

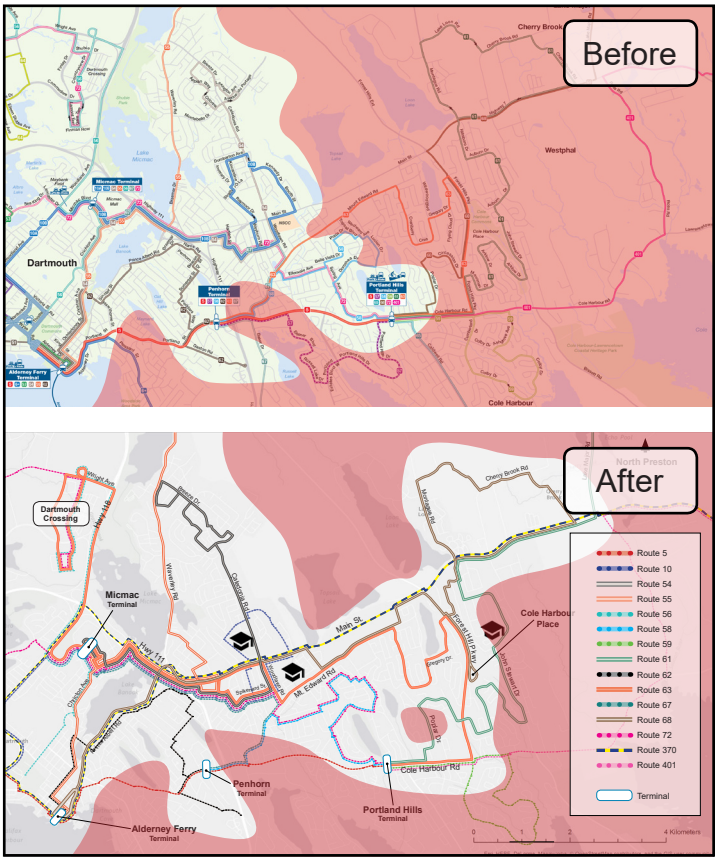
In addition, no immediate alterations can be made between Prince Albert Road and Penhorn Terminal (see Figure 8's bottom left red highlight); the area's topography does not justify changes. To see how accessible specific areas can become after our recommended transit changes, refer to Figure 9 on the next page.

Figure 9: Halifax Transit and our recommendations: areas in red require one or more transfers to specific locations

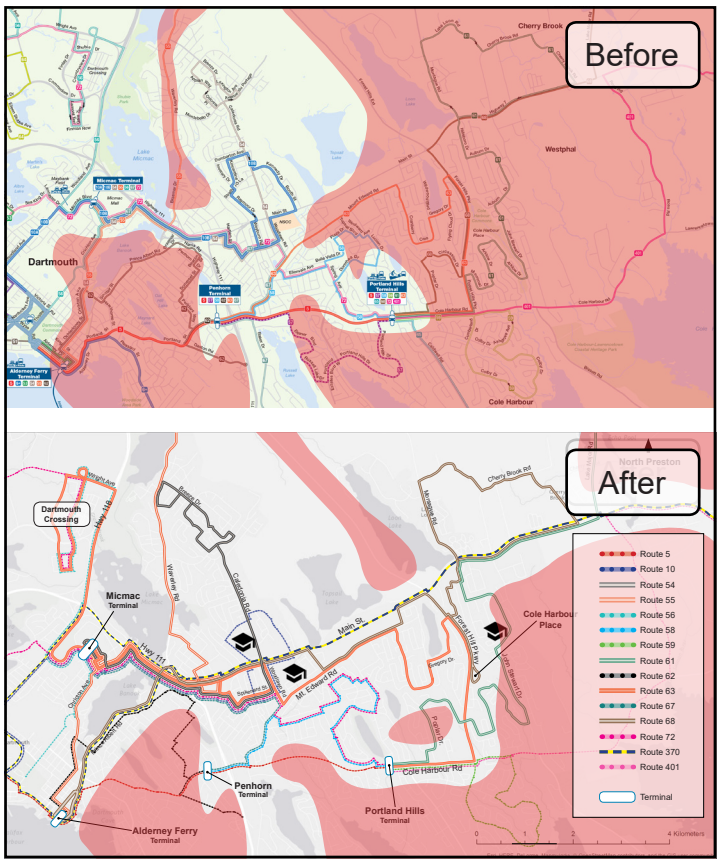
Downtown Dartmouth



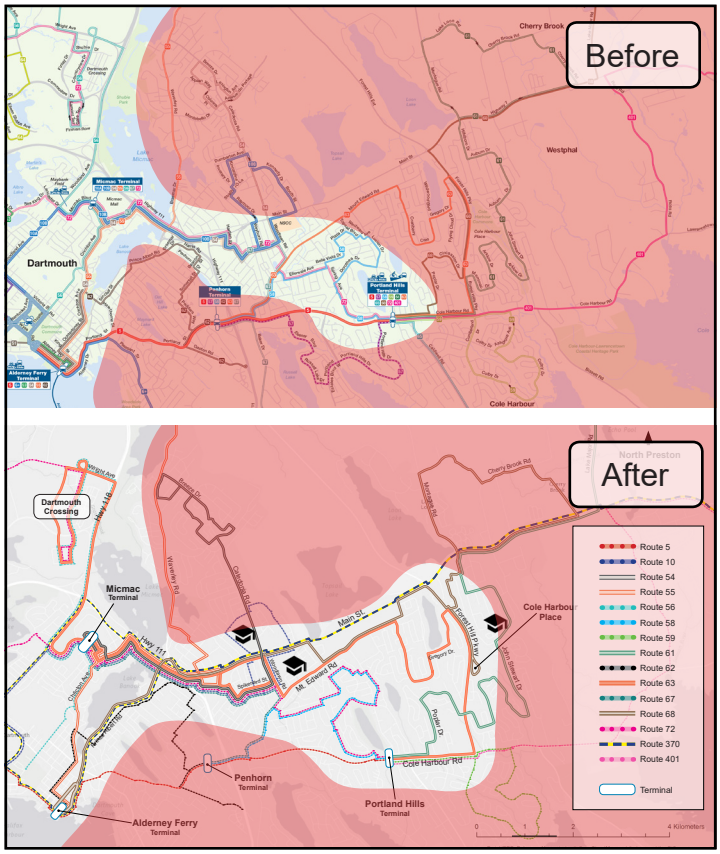
Cole Harbour



Main Street



Burnside



Ferry scheduling...

Figure 10: Ferry Schedule

Alderney Ferry

To Halifax		To Dartmouth	
Alderney Ferry Terminal	Halifax Ferry Terminal	Halifax Ferry Terminal	Alderney Ferry Terminal
Monday to Friday		**Monday to Friday**	
630a	642a	645a	657a
700a	712a	715a	727a
715a	727a	730a	742a
730a	742a	745a	757a
745a	757a	800a	812a
800a	812a	815a	827a
815a	827a	830a	842a
830a	842a	845a	857a
845a	857a	900a	912a
900a	912a	915a	927a
930a	942a	945a	957a
every 30 minutes		***every 30 minutes***	
115p	127p	130p	142p
130p	142p	145p	157p
145p	157p	200p	212p
200p	212p	215p	227p
every 15 minutes		***every 15 minutes***	
515p	527p	530p	542p
530p	542p	545p	557p
545p	557p	600p	612p
600p	612p	615p	627p
every 15 minutes		***every 15 minutes***	
1130p	1142p	1145p	1157p
Saturday and Sunday		**Saturday and Sunday**	
630a	642a	645a	657a
700a	712a	715a	727a
730a	742a	745a	757a
800a	812a	815a	827a
every 30 minutes		***every 30 minutes***	
1130p	1142p	1145p	1157p
Holidays		**Holidays**	
730a	742a	745a	757a
every 30 minutes		***every 30 minutes***	
1000p	1012p	1015p	1027p
1030p	1042p	1045p	1057p
1100p	1112p	1115p	1127p
1130p	1142p	1145p	1157p

No service Christmas Day, New Year's Day, Good Friday or Easter Sunday.

Bus connections at Alderney Ferry Terminal: Routes 54, 58, 59, 60, 61, 62, 63, 68 and 159.

Bus connections at Halifax Ferry Terminal: Routes 2, 4, 5, 6, 82 and 90.

On March 2nd, 2015, Halifax Transit released the new Alderney Ferry schedule, increasing service in light of the redecking project for the Macdonald Bridge. Consequently, according to Halifax Transit's 2016-17 Annual Service Plan, bus ridership has decreased. Ferry ridership, due in part to the increased service, rose by approximately 26 percent in 2015-16 from the previous year.

Providing greater frequency allows for more timely connections for passengers and shorter commutes, thereby decreasing car dependence to cross the Harbour. We, therefore, propose continuing this schedule not as a contingency for the redecking project but as a permanent service. Doing so complements our transit route recommendations, specifically Route 68, and provides an additional reliable transit connection for Dartmouth transit users.

In addition, we propose that Halifax Transit consider extending the "every 15 minute" frequency to the entire day. This means that the period between 930am and 115pm (see Figure 10) will be serviced as frequently as the the peak hours. More frequent crossings will provide opportunities to both sides for more intermittent travel, potentially increasing service/retail activity of Dartmouth and Halifax.

Lastly, we propose that the transit authority consider later ferry crossings to accommodate late night workers and customers (ie. bars and restaurants), most notably between Thursday and Saturday. Many residents are left stranded on either side and require the use of a taxi to return home. This is a significant expense for lower income individuals such as students.

How communities benefit...

Figure 11: Median Household Income ($) (Statscan 2011)

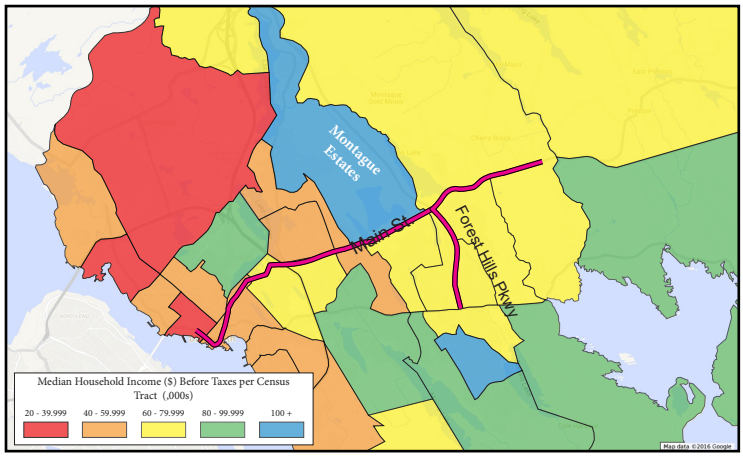


Figure 13: Percentage of younger residents (Statscan 2011)

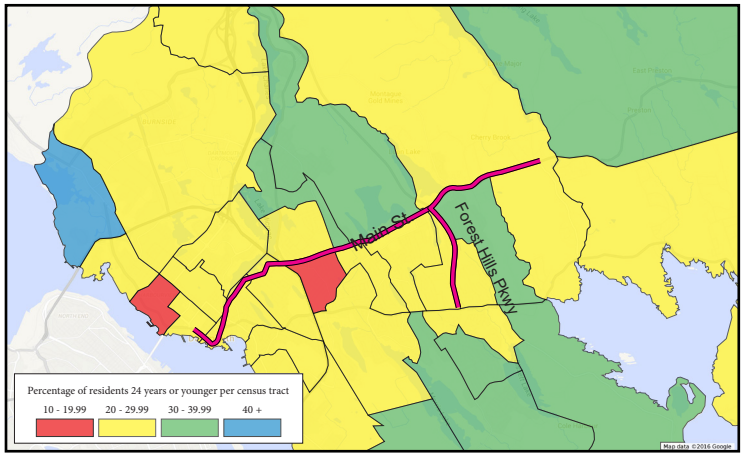


Figure 14: Percentage of older residents (Statscan 2011)

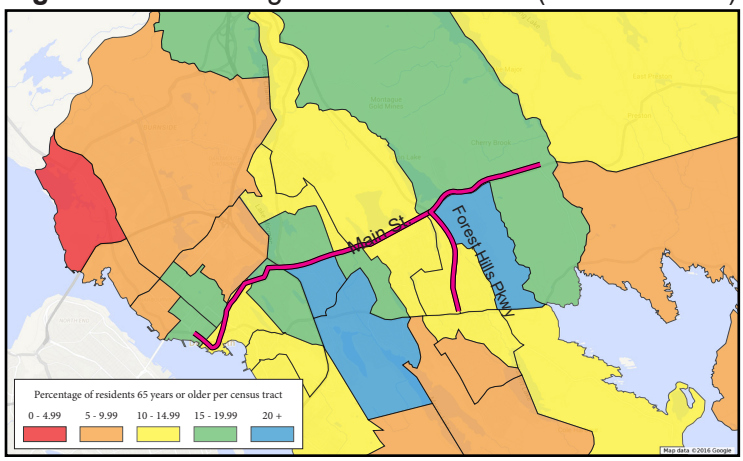
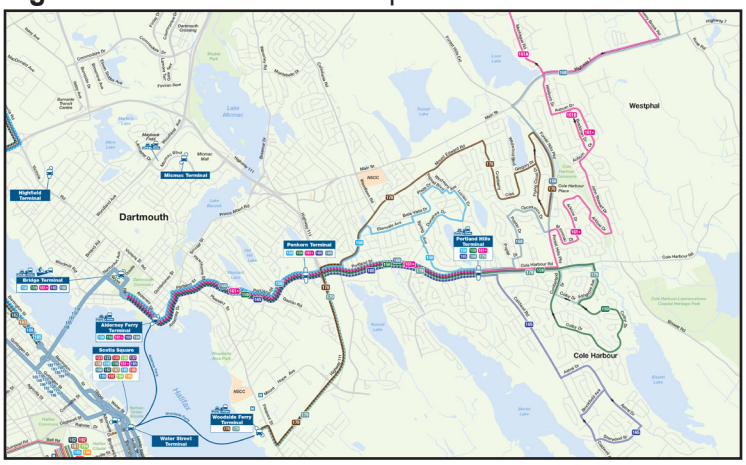


Figure 12: Halifax Transit's Express Routes



Not all residents benefit from Halifax Transit's bus route revisions. According to Dargay (2000), as income rises car ownership increases; it makes purchasing a car easier. Dargay (2000) also states that cars become a necessity after purchase and are difficult to abandon. It is therefore inferred that higher incomes (middle class or above) are more likely to use a personal vehicle. Although it is important to increase the ridership of these income cohorts, residents in need of transit should not be overlooked. The express routes of Figure 12 highlight this problem. Households with incomes greater than $60,000 (shown in Figure 11 in yellow, green, and blue) are those served by these routes, indicating a lack of connection westward of Caledonia Road. To balance the services given to particular income groups, local corridors (like our recommended routes 63 and 68) can be provided. This will give transit requiring residents, most notably those surrounding the Main Street corridor, access to amenities, employment, and additional transfer points.

According to 2011 Statistics Canada, as seen on Figure 13, large portions of the census populations are below the age of 24 (CMHC, 2016). Often, youth gravitate towards lower paying jobs within a reasonable commute of their homes. Creating corridors with the 63 and 68 allows youth (20 percent or more of Cole Harbour residents are below 25) to find employment in large commercial centres such as the Village, Downtown Dartmouth, Micmac Mall, and Dartmouth Crossing by increasing direct access and transfer possibilities. The opposite reigns true, as Dartmouth residents may wish to access employment in Cole Harbour. In all, it provides larger pools of qualified candidates for employers.

Older residents (shown in Figure 14) will also benefit from our transit recommendations. According to Statistics Canada, as residents grow older, they increasingly rely on private vehicles for transportation (Turcotte, 2012). However, higher aged communities (along Main Street and Forest Hills Parkway) will be better connected to the over 40 health and wellness organizations in the Village, potentially increasing ridership among the senior population.

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Appendix A - Bus Service Ratio

The following table is a collection of 61 Business Improvement Districts, or equivalent, across Canada within cities of 100 thousand to 1 million residents. Each district's boundaries and primary streets (those of highest priority such as a boulevard) were identified. These streets were then observed regarding what distance a bus traveled along it. Dividing the bus route length by the street length (in kilometres) provided what we consider the "Bus Coverage Ratio." It was found that the Main Street Dartmouth BID has the lowest bus coverage ratio at 40 percent.

Figure 15: Bus Coverage Ratio for BIDs within Canada (100 thousand to 1 million city residents)

City	Business Improvement Districts	Primary Commercial Road	Primary Street Length (km)	Transit Coverage (km)	Coverage Ratio	Notes
Quebec City	SDC Montcalm	Boul. Rene-Levesque O	1.36	1.36	1.00	
	SDC Centre-ville de Quebec	Boul. Charest Est	1.15	1.15	1.00	
	SDC du Vieux-Quebec	Rue Saint-Jean & de la Fabrique	0.705	0.59	0.84	
	SDC Saint-Sauveur	Rue Saint Vallier Ouest	1.8	1.8	1.00	
	SDC du Faubourg Saint-Jean	Rue Saint-Jean & Rue D'Aiguillon	1.1	1.1	1.00	
Winnipeg*	Academy Road BIZ	Academy Road	2.9	2.3	0.79	
	Downtown Winnipeg BIZ	Main Street	0.45	0.45	1.00	
	North End BIZ	Main Street	1.7	1.7	1.00	
	Old St. Vital BIZ	St. Mary's Road	2.55	2.55	1.00	
	Osborne Village BIZ	Osborne Street	0.65	0.65	1.00	
	Selkirk Avenue BIZ	Selkirk Avenue	2.95	2.95	1.00	
	St. Norbert BIZ	Pembina Highway	1.05	0.725	0.69	
	West Broadway BIZ	Broadway/Trans Canada	0.615	0.435	0.71	
Hamilton*	Ancaster	Wilson Street E	1.9	1.8	0.95	
	Concession Street	Concession Street	2.5	2.5	1.00	
	Downtown Hamilton	King St E & Main St E	0.34	0.34	1.00	
	King Street West	King St W & Main St W	0.33	0.33	1.00	
	Main Street Esplanade	King St W & Main St W	0.8	0.8	1.00	
	Stoney Creek	King St E	0.4	0.4	1.00	
	Westdale Village	King St W	0.57	0.45	0.79	
Kitchener	Downtown Kitchener BIA	King St E	1.35	1	0.74	Adding Transit
Waterloo	Uptown Waterloo BIA	King St W	1.55	1	0.65	Adding Transit
Cambridge	Downtown Cambridge BIA	Main Street	0.51	0.51	1.00	
	Hespeler Village BIA	Queen Street	0.355	0.355	1.00	
	Preston Towne Centre BIA	King St E	0.72	0.72	1.00	
St-Catharines	Downtown St Catharines BIA	King Street	0.94	0.65	0.69	
Niagara	Clifton Hill BIA	Clifton Hill	0.3	0.3	1.00	
	Downtown BIA	Queen Street	0.8	0.63	0.79	
	Fallsview BIA	Fallsview Boulevard	0.98	0.665	0.68	Buses on Parallel Street (100m)
	Lundy's Lane BIA	Lundy's Lane	5.3	5	0.94	
	Victoria Centre BIA	Victoria Avenue	1.4	1.4	1.00	
	Main & Ferry	Main Street	0.635	0.635	1.00	
London	London Downtown BIA	Richmond Street	1.7	1.7	1.00	
	Argyle BIA	Dundas Street	3.05	3.05	1.00	
	Old East Village BIA	Dundas Street	1.2	1.2	1.00	
Halifax	Downtown Halifax Business Commission	Barrington Street	1.76	1.76	1.00	
	Spring Garden Road Business Association	Spring Garden Road	0.42	0.42	1.00	
	Quinpool Road Main Street DA	Quinpool Road	1.1	1.1	1.00	
	Agricola-Gottingen-Hydrstone BID	Gottingen Street	0.82	0.82	1.00	
	Dartmouth Business Commission	Alderney Drive (to Eaton Ave)	1.7	1.28	0.75	
	Main Street Dartmouth BID	Main Street	1.14	0.455	0.40	
	Spryfield BID	Herring Cove Road	3	3	1.00	
	Sackville Drive Business District	Sackville Drive	5.05	5.05	1.00	
Oshawa	Downtown Oshawa BIA	Bond St W & King St W	0.575	0.575	1.00	
Victoria	Downtown Victoria BIA	Douglas Street	1.3	1.3	1.00	
Windsor	Downtown Windsor BIA	Ouellette Avenue	1.8	1.7	0.94	
	Ford City BIA	Drouillard Road	1.75	0.95	0.54	
	Walkerville BIA	Wyandotte St E	0.55	0.55	1.00	
	Olde Riverside BIA	Wyandotte St E	0.52	0.52	1.00	
	Olde Sandwich BIA	Sandwich Street	0.685	0.685	1.00	
	Ottawa Street BIA	Ottawa Street	1	0.825	0.83	
	Pilette Village	Wyandotte St E	0.39	0.39	1.00	
	Erie Street	Erie Street	1.4	1.4	1.00	
	Wyandotte Street	Wyandotte St E	1.45	1.45	1.00	
Saskatoon	33rd Street BID	33rd St W	0.8	0.8	1.00	
	Sutherland BID	Central Avenue	0.85	0.85	1.00	
	Broadway BID	Broadway Avenue	0.64	0.64	1.00	
	Riverside BID	20 St W	1.6	1.6	1.00	
	The Downtown Partnership	3rd Ave S	1.1	1.1	1.00	
Regina	Regina Warehouse BID	Dewdney Avenue	0.83	0.83	1.00	
	Regina Downtown BID	11th Avenue	0.825	0.825	1.00	
Sherbrooke	SDC Centre-Ville	Rue King O	0.87	0.87	1.00	Disbanded

* These cities had several BIDs to look at it. Due to time constraints, every second BID (in alphabetical order) was chosen before becoming familiarized with the geography)