



Make Life Easy

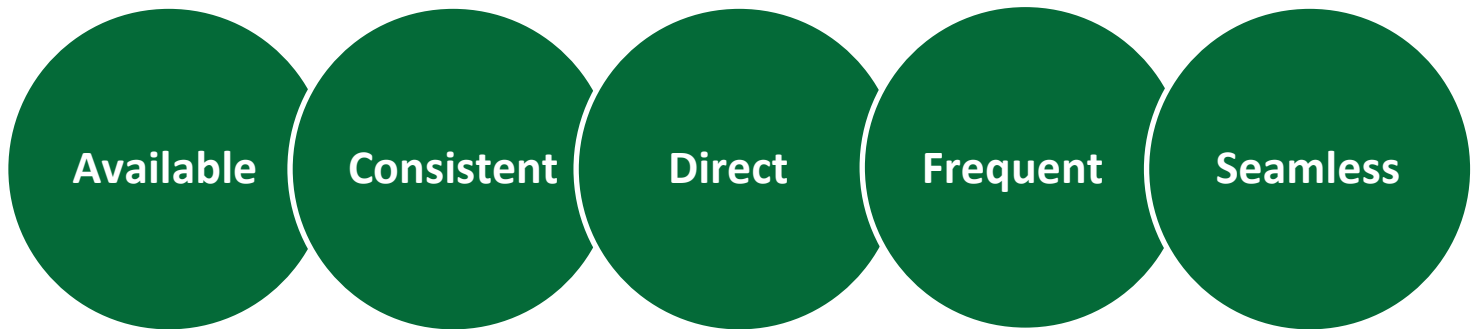
FIVE-YEAR SERVICE STRATEGY



Available • Consistent • Seamless • Direct • Frequent

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FIVE-YEAR SERVICE STRATEGY



Acknowledgements

Durham Region Transit

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Introduction

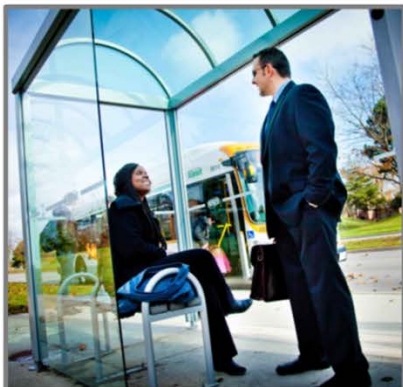
Durham Region Transit's (DRT) Five-Year Service Strategy provides a vision of our transit network in 2020 that reflects the most up-to-date information on development, available arterial and collector road networks, and travel patterns. This vision is predicated upon growing and enhancing transit services throughout Durham Region in support of anticipated land use development and the evolving travel needs of residents and visitors. The Service Strategy will introduce actions to increase the ability of our transit network to provide the levels of service required to increase the travel market share of transit, and position our transit system as the preferred mode of transport for Durham Region residents. Measures outlined in this Strategy will require gradual, incremental improvements to our transit network in step with increasing transit ridership volumes. The implementation of the proposed service enhancements that make up this Service Strategy are to be considered during future annual *Regional Business Planning and Budget* process.

We are grateful to all residents who took part in our Service Strategy Public Information Centres and provided feedback, to Durham Region staff, to other transit systems who shared their knowledge, to each of the eight local area municipalities in Durham Region who shared valuable information and outlook with us, to our own staff who provided feedback based on their front-line observations, and to all other stakeholders who contributed to the development of this Service Strategy.

Objective

To develop and operate a transit system that will be available, consistent, direct, frequent, and seamless, providing Durham Region residents and visitors with an attractive alternative to the personal car.

Create a Viable
Transportation Alternative



Make it Easier for Durham
Residents to Choose Transit



Provide Enhanced Travel
Opportunities



Opportunities for Growth

There are significant opportunities for Durham Region Transit to increase the market share of transit in Durham Region using targeted improvements, thus making our transit system more attractive for existing and potential transit users. Preliminary work undertaken for the Region of Durham’s Transportation Master Plan review indicates potential market share increases in a number of market segments. The figure below illustrates current and forecasted transit mode share and trips.

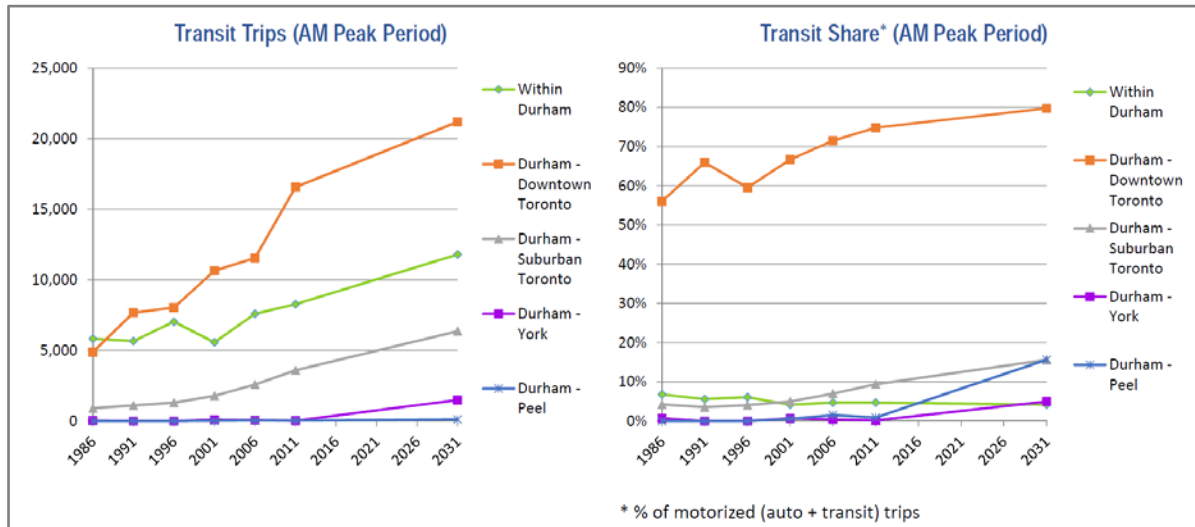


Figure 1. Current and projected transit mode share in Durham Region¹

The Five-Year Service Strategy aims at increasing transit usage for all types of trips, however, there are opportunities to increase use in the following key markets:

Local Trips

While the number of transit trips has grown, the travel market share of transit, as a percentage of all trips made fully within Durham Region, has remained stagnant. Local journeys made fully within Durham Region are often shorter, and are more conducive to transit use. The Strategy aims at addressing the barriers (availability, consistency, directness, frequency, and seamlessness) preventing more residents from utilizing Durham Region Transit for local intra-regional trips.

¹ IBI Durham Transportation Master Plan Stakeholder Advisory Committee #2, 1986 – 2011 TTS, 2031 DRTPM (Draft Results)

GO Stations

The travel market share of transit for trips made between Durham Region and downtown Toronto has increased in recent years. Presently, over 70 per cent of trips from Durham Region to downtown Toronto in the morning are carried by public transit, largely by GO Train.

While Durham Region Transit carries a significant number of GO Train passengers to and from the five GO Train stations in the area, there are opportunities to increase this market segment. The Five-Year Service Strategy aims at ensuring connections and schedules provide a seamless journey to meet the needs of GO Train passengers.

Durham Region To East Toronto

The travel market share of transit for trips between Durham Region and East Toronto has increased in recent years. With the introduction of PULSE on Highway 2 and the connection to Rouge Hill GO Station in Toronto, Durham Region Transit is well positioned to capture an even higher share of cross boundary journeys. The Service Strategy aims at ensuring connections and schedules meet this demand.

Guiding Principles

The Five-Year Service Strategy is supported by five Guiding Principles:

- Available
- Consistent
- Direct
- Frequent
- Seamless

The Guiding Principles reflect both customer feedback, through public engagement and Customer Service feedback channels, and bus operator feedback in addition to industry best practices. These sources provided valuable insight into the fundamental elements required for building a robust and successful transit network, which can result in the diversion of a significant share of trips from personal car to transit by eliminating real or perceived barriers.

Overview

Available

Transit services should be available within a reasonable walking distance, defined as approximately 400 metres (approximately a five minute walk). This will be achieved by encompassing approximately 80 percent of residences and workplaces in the urbanized areas of Durham Region and taking into account development patterns and pedestrian links. Another 10 to 15 per cent of these residences and workplaces will be within 600 to 800 metres of walking distance to transit services, respectively.

To allow trips to be completed by transit, we will aim at providing services from early morning until late evening; ensuring transit is an attractive travel option for residents.

Consistent

We will aim at operating services on most routes over the same service hours and routings throughout the week.

We will strive to set running times that reflect traffic conditions, appropriate for the time of day, ensuring individual bus trips consistently remain on schedule.

Direct

We will operate bus routes on a grid route pattern where possible. Increased directness of routes allows for transit services that are competitive, sustainable and cost effective.

Frequent

We will offer a basic, attractive level of service, to allow customers the flexibility to travel. Selected higher frequency grid routes along higher demand travel corridors will better support spontaneous travel and encourage greater transit use.

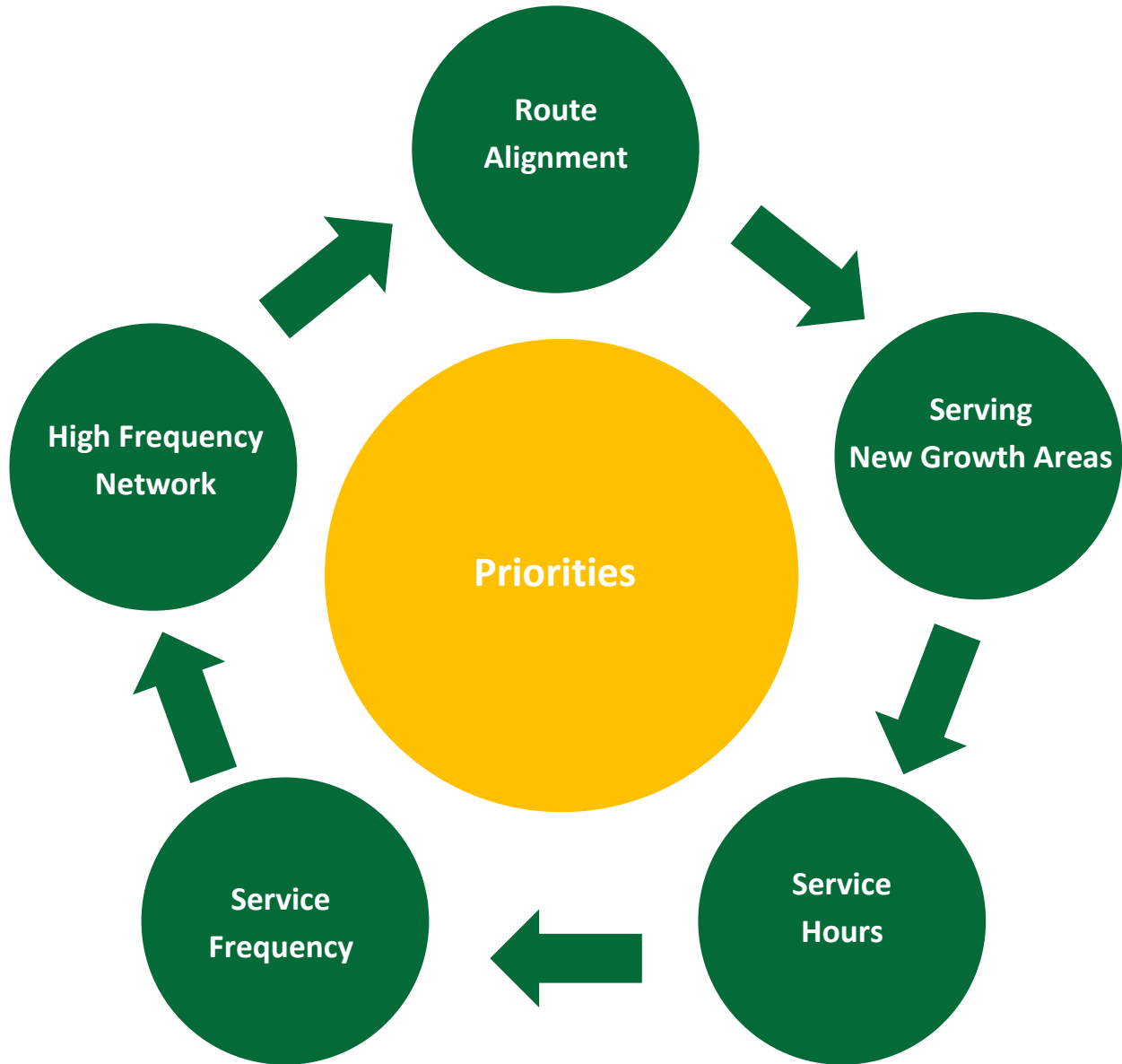
Seamless

Connections should be as easy as possible between Durham Region Transit routes and connecting transit systems, such as GO Transit and the TTC. This will be achieved through:

- Timed transfer connections scheduled at transit stations and terminals on low frequency routes.
- Incorporating connection times into schedules, allowing for worry free connections between routes and systems at connection points.
- Scheduled coordination between Durham Region Transit and connecting transit systems.

Implementation

The implementation of the Five-Year Service Strategy will focus on five key service features. Together these will create the conditions for ridership growth and increase system productivity. Each of these five key features is described below.



Route Alignment

Transit services must be as direct as possible in order to offer travel times that compete with those of the personal car. In areas where the current bus network is not competitive, route alignments will be changed to create a more direct and easier to understand transit network. Changes to alignments will be made to preserve or improve walking-distance access to transit services. The figure below provides an example of how a change of alignment can create a streamlined route.

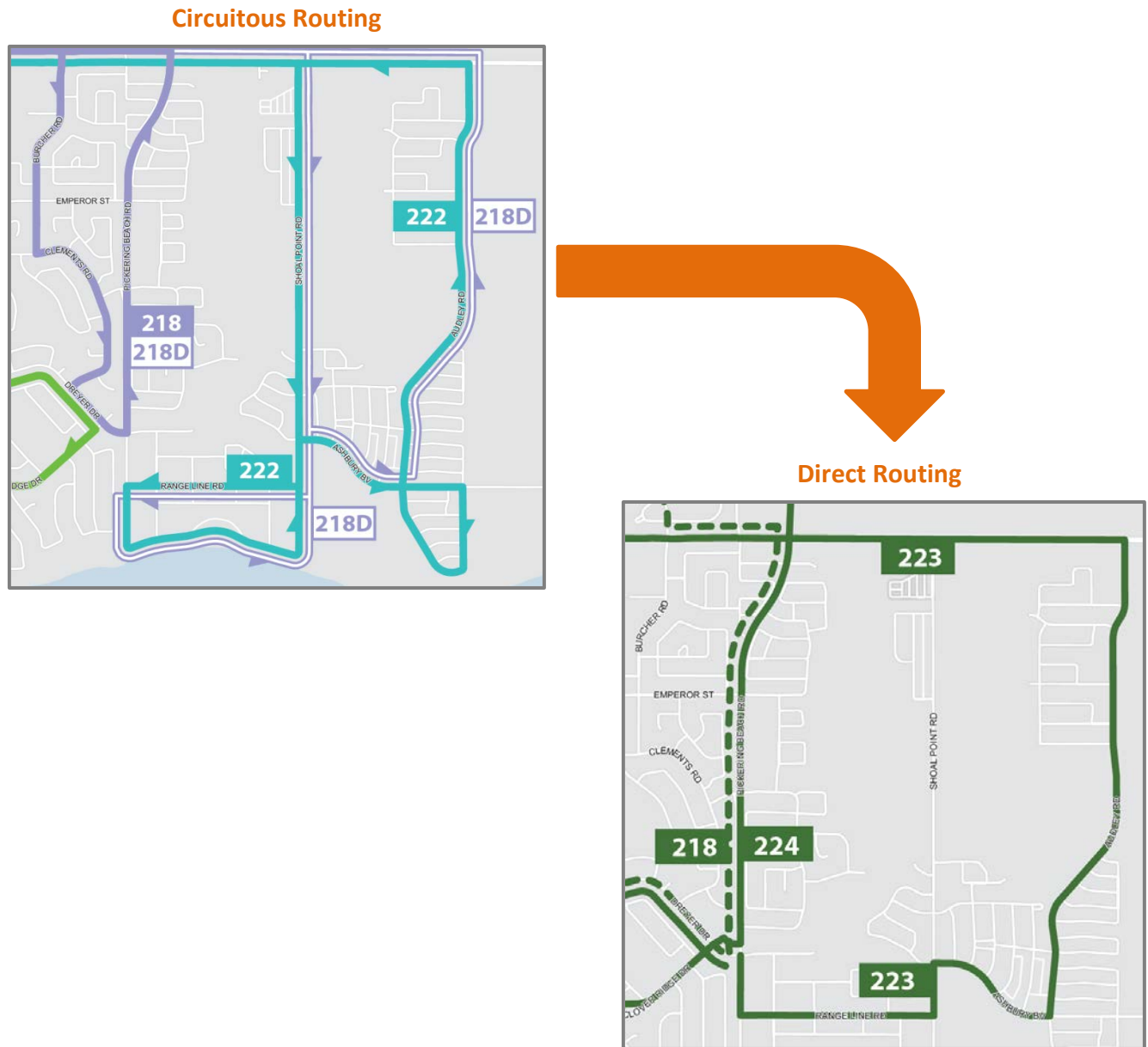


Figure 2. Transit routing change to build a more easier to understand and direct transit network

Serving New Growth Areas

To compete with the use of the personal car, services must be available in all new growth areas as early on as possible. This will provide new residents with a viable transportation alternative, preferably from the moment a resident moves into their new neighbourhood. Extensions and new routes to growth areas would build upon the existing service. The figure below provides an example of growth in Durham and how it is included in the planning of the transit network.

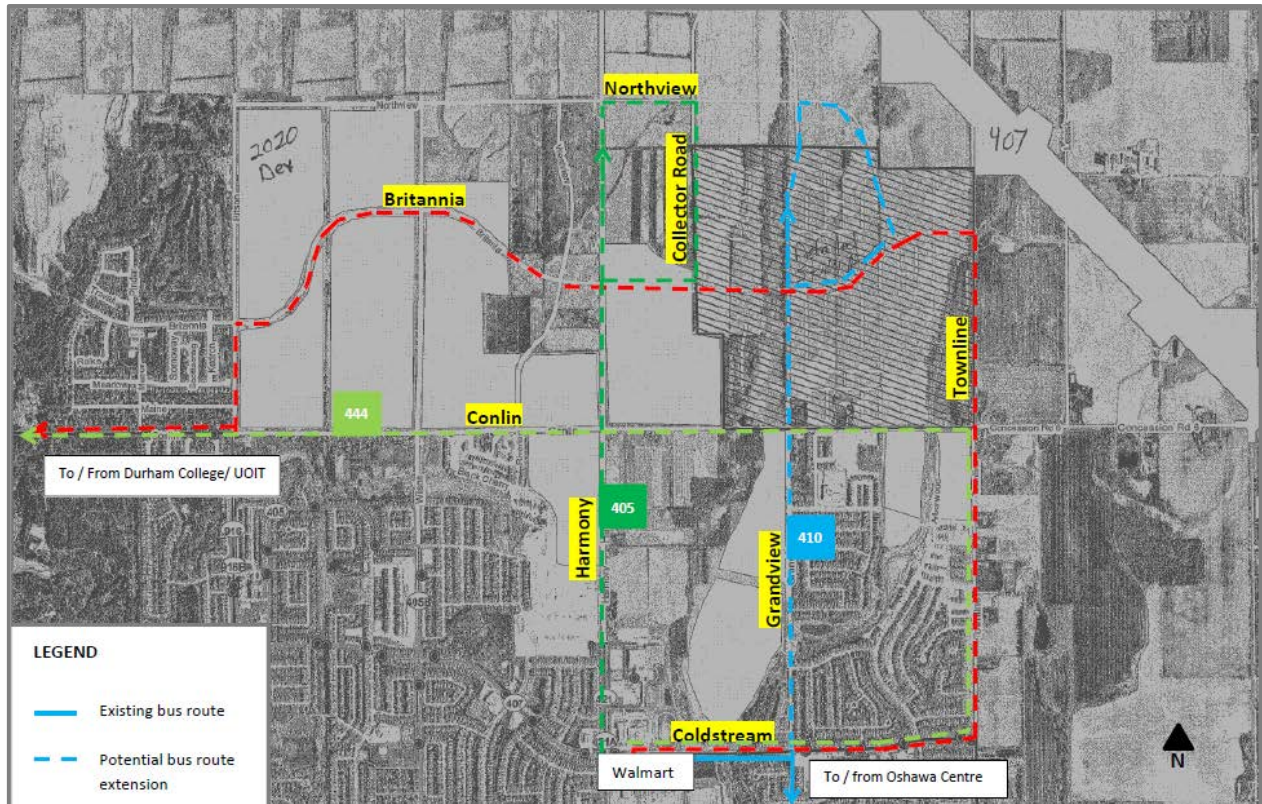


Figure 3. Planning transit service expansion in anticipation of new development.

Service Hours

Improving and increasing service hours, through additional early morning and late night services, will provide a greater window within which customers can travel. This availability of transit will help it compete with the personal car. Improvements to service span will be pursued in line with boarding standards (see Appendix B), so that ridership justifies the service investment. Where the base network would support an investment to a 30 minute frequency, this would mean an additional 113,539 annual revenue hours at a cost of approximately \$11.1 million. For the High Frequency Network this would equate to an investment of an additional 45,515 revenue hours resulting in an additional \$4.2 million in operating costs. These improvements would not require additional transit buses to operate since current peak period service is operated at or better frequency. The figure below illustrates the cycle associated with investing in service span hours.

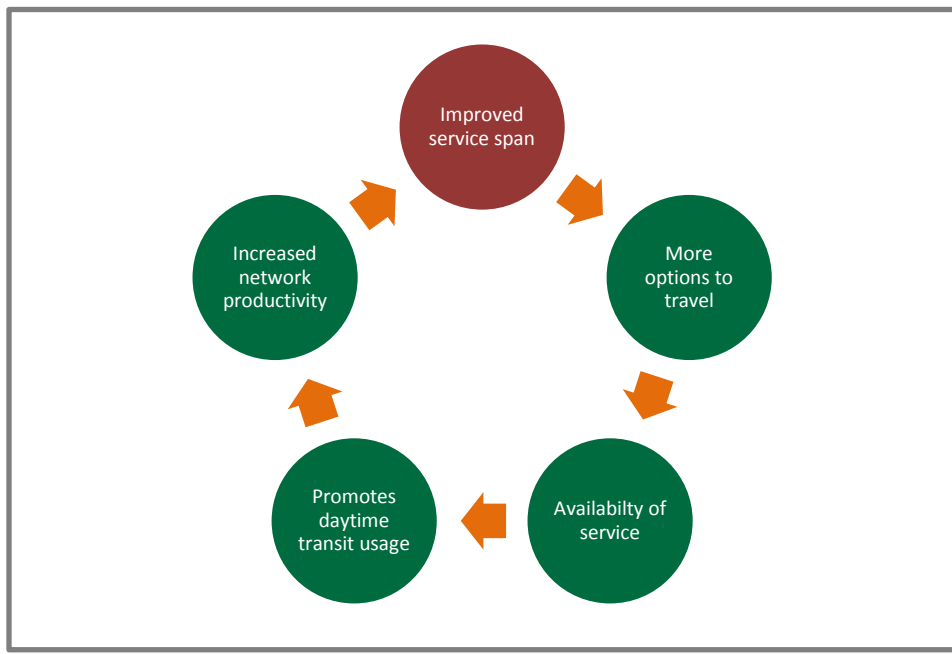


Figure 4. Benefits of improved service span

The following table, adapted from the Transportation Research Board Transit Capacity and Quality of Service Manual, provides a high level understanding of travel flexibility resulting from the availability of transit services.

Service Span Window	Resulting Travel Flexibility
Early morning to late night (e.g. 4:00 AM and Last GO Train Arrival)	<ul style="list-style-type: none"> • Service is available most of the time. • Workers and students who do not work or study during the traditional daytime hours are assured they will not be stranded. • Transit becomes a viable option for almost all trips.
Into late evening (e.g. until 22:00)	<ul style="list-style-type: none"> • Service operates into the evening. • Allows for a range of trips to be made, other than just traditional commuter trips. • Workers and students who work or study late do not have a transit option available, particularly if they are transferring from a GO Train arriving from Toronto. • Service ends before the last GO Train arrivals from Toronto.
Into early evening (e.g. until 19:00 - 20:00)	<ul style="list-style-type: none"> • Service operates into the early evening. • Allows workers and students who usually work or study during traditional daytime hours a transit option in case they stay late at work or school. • Transit is not an option for trips which require travel into the late evening. • Service is not available to allow transit to become a viable travel alternative for certain trips.
Peak Hour Only Service	<ul style="list-style-type: none"> • Service is available for peak commuter trips, with limited or no midday and evening service. • Workers and students who work or study during traditional daytime hours, but who may need to stay at work or school late or may need to travel home during the midday hours do not have a transit option available. • Service is not available to allow transit to become a viable travel alternative for certain trips.

Table 1. Service Span Comparison²

² Adapted from the Transportation Research Board Transit Capacity and Quality of Service Manual.

Service Frequency

We will improve service frequency network-wide, by implementing a minimum 30 minute service on all routes in the urbanized area, with 20 minute service on selected grid routes, as the base service goal. These improvements to route frequency align with existing maximum headways (see Appendix B). Implementation will be targeted to ensure that standards for boardings per hour can be attained and subject to available financial resources. The figure below illustrates the cycle associated with investing in service frequency.

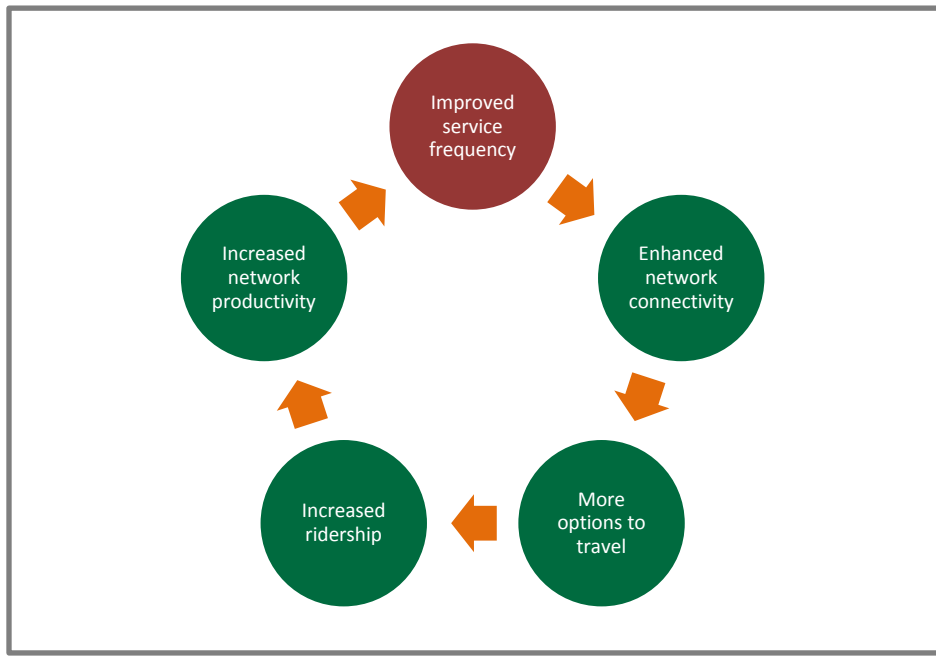


Figure 5. Benefits of improved service frequency.

The following table, adapted from the Transportation Research Board Transit Capacity and Quality of Service Manual, provides a high level understanding of travel flexibility resulting from service frequency.

Approximate Service Frequency (time between trips)	Resulting Travel Flexibility
12 minutes or less	<ul style="list-style-type: none"> • Customers do not need to consult a schedule • Allows the most travel options and flexibility • Transfer penalties are low.
13 -15 minutes	<ul style="list-style-type: none"> • Service is frequent, but some riders may need to consult a schedule. • Maximum desirable time customers wish to wait, if a bus is missed. • Allows for many travel options and flexibility • Waiting time for connections reduced. • Transfer penalties are low to high, and some connections may need to be coordinated.
20 minutes	<ul style="list-style-type: none"> • Service is relatively frequent. • Riders will need to consult a schedule. • Transfer penalties can be medium to high, and connections will need to be coordinated, where possible.
30 minutes	<ul style="list-style-type: none"> • The minimum service frequency most customers find acceptable. • Allows for some travel options and flexibility. • Transfer penalties can be high, and connections will need to be coordinated, where possible. • Service starts to become unattractive to choice riders.
60 minutes	<ul style="list-style-type: none"> • Service is available. • Trip options and flexibility are limited. • Transfer penalties can be high, and connections will need to be coordinated, where possible. • Service is unattractive to choice riders.

Table 2. Service Frequency Comparison³

³ Adapted from the Transportation Research Board Transit Capacity and Quality of Service Manual.

High Frequency Network

A number of grid routes have been identified for increased frequency of service. They will form a High Frequency Network and become the backbone of transit services in Durham Region, along the Region's main travel corridors. Approximately 52 per cent of residences in the urbanized areas of Pickering and Ajax and 65 per cent of dwellings in Whitby, Oshawa, Courtice, and Bowmanville will be within a ten minute walk of a bus stop offering this type of frequent service. These improvements to route frequency align with existing maximum headways (see Appendix B). Implementation will be targeted to ensure that standards for boardings per hour can be attained and subject to annual business planning and budget approvals.

A key factor in the success of PULSE has been the increase in the frequency of service along the Highway 2 corridor. It is expected that the routes comprising the High Frequency Network would also see increases in ridership with increases in frequency.

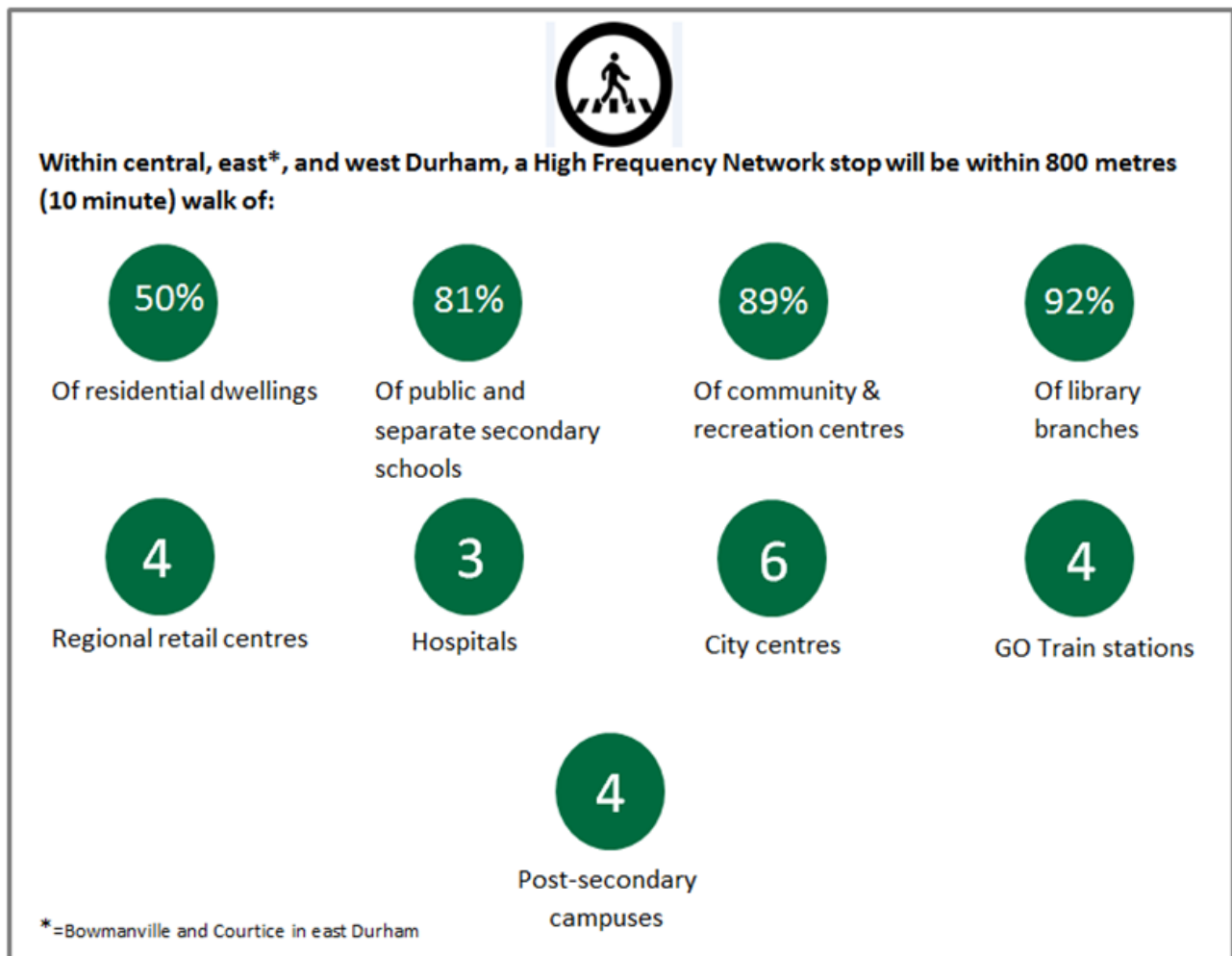


Figure 6. High Frequency Network Statistics⁴

⁴ Proximity maps of service area coverage of High Frequency Grid Routes in Appendix A.

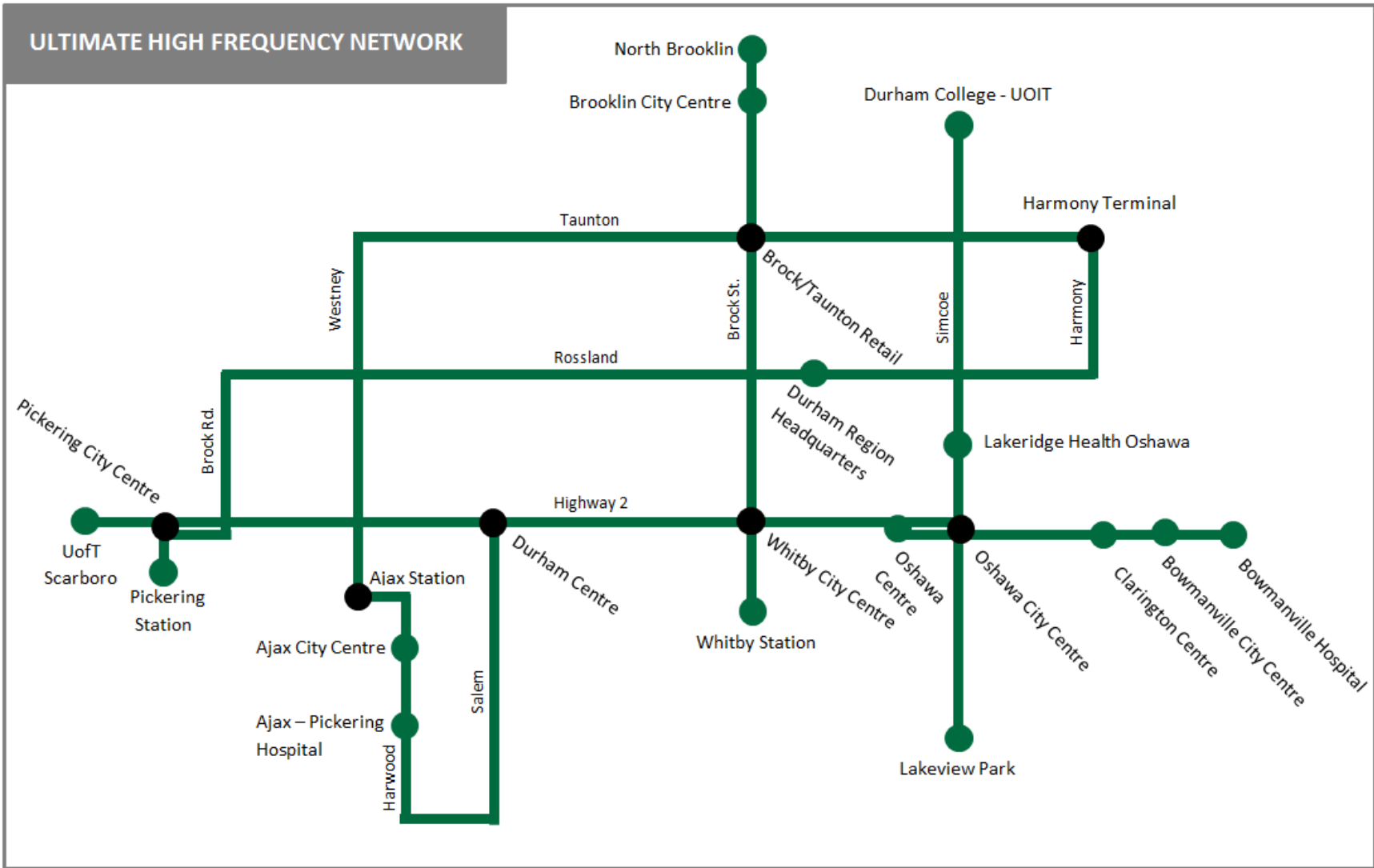


Figure 7. Higher Frequency Grid Routes

Engagement

Durham Region Transit (DRT) initiated engagement with internal and external stakeholders, and customers, to share information in shaping the orientation of this document.

Stakeholder Engagement

Both internal and external stakeholders were consulted.

Durham Region Transit (DRT)

Operators and Supervisors were given opportunities to provide feedback for the Five-Year Service Strategy. A total of four sessions at each of our Raleigh and Westney Divisions were held for bus operators to interact with Planning staff.

Region of Durham

Staff met with Transportation Planning and Works departments to coordinate the Five-Year Service Strategy with trends and initial conclusions from the Transportation Master Plan review. This will permit an integration and flow between both projects.

Local Area Municipalities

Each of the eight local area municipalities was contacted to meet and discuss their future growth plans, infill and greenfill.

Transit Systems

DRT Planning staff met with colleagues at GO Transit and York Region Transit to coordinate plans for transit where services meet and complement each other to plan for future seamless services.

Customer Engagement

Durham Region Transit (DRT) engages customers on a regular basis through surveys, Customer Service and comments made to transit operators. However, to ensure the Five Year Service Strategy aligns with the current transit concerns, a number of customer engagement initiatives were undertaken, including a public survey, and Public Information Centres (PICs). The objectives of both the survey and PICs were:

- To gauge public perception of the Five Year Service Strategy's guidelines, service initiatives, and proposed routing modifications;
- To prioritize service initiatives, so that available resources can be directed where they are most required;
- To identify barriers preventing the public from utilizing Durham Region Transit services more frequently; and,
- To directly discuss public transit with members of the public.

Survey

The survey was administered by providing the questions in both electronic and hard copy format. At the time when the survey closed, over 220 surveys were completed.

Public Information Centres

PICs were held in all eight Durham Region municipalities, between October 5 and November 5, 2015. A combined total of 114 visitors participated in the PIC events.

Location	Date/Time	Address	Attendance
Newcastle and District Recreation Complex	Monday, Oct. 5 / 18:00 – 20:00	1780 Rudell Rd., Newcastle	12
Garnet B. Rickard Recreation Complex	Tuesday, Oct. 6 / 18:00 – 20:00	2440 Highway 2, Bowmanville	7
Latcham Centre	Wednesday, Oct. 7 / 18:00 – 20:00	121 Queen St., Port Perry	0
Uxbridge Public Library	Thursday, Oct. 8 / 18:00 – 20:00	9 Toronto St. S., Uxbridge	4
Oshawa Public Library	Tuesday, Oct. 13 / 18:00 – 20:00	65 Bagot St., Oshawa	21
Whitby Public Library	Wednesday, Oct. 14 / 18:00 – 20:00	405 Dundas St. W., Whitby	23
Pickering Recreation Complex	Thursday, Oct. 15 / 18:00 – 20:00	1867 Valley Farm Rd., Pickering	10
Ajax Public Library	Friday, Oct. 16 / 17:00 – 19:00	55 Harwood Ave. S., Ajax	10
Cannington Community Centre	Wednesday, Oct. 28 / 18:00 – 20:00	91 Elliot St., Cannington	4
Uxbridge Arena	Thursday, Oct. 29 / 18:00 – 20:00	291 Brock St. W., Uxbridge	7
Scugog Arena	Friday, Oct. 30 / 18:00 – 20:00	1655 Reach St., Port Perry	1
Newcastle and District Recreation Complex	Thursday, Nov. 5 / 18:00 – 20:00	1780 Rudell Rd., Newcastle	15
		Total	114

Table 3. Public Information Centre Details and Attendance

Engagement Results

The methods of customer engagement yielded the following results:

Transit Must Be Ubiquitous

Current and potential transit customers indicated that a network supporting spontaneous trips is ideal.

Transit Is More Than Just About Getting To Work

Over 50 per cent of survey respondents indicated that they use transit for shopping, medical, personal, and social/recreational trips in addition to their daily work commute. This was reflected in responses from those attending the PICs.

The wide variety of trips being made by transit is an opportunity for Durham Region Transit to further increase ridership. In addition, this underlines the importance of off-peak service enhancements to encourage more transit use and retain existing customers.

Connections Are Important

Customers identified connections between routes as an important area for enhancement. Of particular note is the need for better schedule coordination between PULSE and local routes, which underlines the importance of local service levels and optimized connections on low frequency routes.

Service Span

A desire for increased daily service span was also indicated. Many noted the Sunday service span as an example, indicating it ends too early, precluding evening travel.

Service Frequency

Customers would like to see:

- Improved service frequency overall;
- Improved service frequency on Sundays, and during time periods offering 60 minute service, specifically noting that 60 minute service was unattractive;
- The prioritization of service frequency enhancements along major travel corridors such as Rossland, Taunton, and Simcoe.

Approval of Direct Routing

Streamlined routings along major arterial roads to provide more direct routes between destinations was met with favourable response. 71 per cent of survey respondents agreed, saying their trip would be more direct or would not change.

Cross Regional Routes

Customers indicated a desire to see more cross regional bus routes, particularly along Bayly between Ajax and Whitby.

People Want More Reasons to Use Transit More Often

Many PIC visitors expressed the desire to use transit more often, indicating it would be an appropriate choice for them if service frequency and service span were enhanced.

2020 Transit Network

The Five Year Service Strategy provides a vision of our transit network in 2020 that reflects the most up-to-date information on development, available arterial and collector road networks, and travel patterns.

West Durham

Growth is occurring in a number of areas in the western part of Durham. To keep pace with this growth, services will have to be extended and enhanced to provide a competitive alternative to the use of the personal car. The following list and figure outline the proposed ultimate network in West Durham.

- Revised route network in Ajax
 - Route 215 Salem
 - Peak period service to the Ajax Station from Salem. Route 225 services available at all other times.
 - Route 216 Harwood
 - Regular route providing service between Taunton and Ajax Station via Harwood and downtown Ajax. Replaces current Route 916 service on Harwood.
 - Route 217 Industrial
 - Links Ajax Station to industrial areas on Monarch and residential in proximity to Westney.
 - Route 218 Pickering Beach
 - Peak period service to the Ajax Station from Pickering Beach. Route 224 services available at all other times.
 - Route 219 Ravenscroft
 - Route extended on Ravenscroft to Taunton.
 - Route aligned onto Rotherglen, replacing current Route 221.
 - Service on Seggar within proximity.
 - Route 223 Bayly Audley South
 - Links Pickering Parkway Terminal to South Audley via Ajax Station.
 - Replaces current Route 222 South Audley service.
 - Replaces current Route 923 service between Ajax Station and Pickering Parkway Terminal.
 - Route 224 Harwood Salem South
 - Links Harwood and Salem South to Ajax Station via Downtown Ajax.
 - Replaces Route 218 service on Pickering Beach.

- Route 225 Audley North
 - Links North Audley to Ajax Station via Audley and Kerrison.
 - Replaces Route 221 service on Ritchie and Coles.
- Route 226 Lake Driveway
 - Provides two-way service on Westney and Lake Driveway.
- Route 232 Church
 - Route extended to service Strickland. Service on Rossland provided by revised Route 916.
 - Route extended to Taunton/Brock.
- Route 101 Bay Ridges / Industrial
 - Extension to Ajax Station to provide greater access to the employment area.
- Route 107 South Rosebank
 - Extension to Rouge Hill Station to provide greater access to regional travel.
- Route 916 Rossland
 - Extension to Pickering Parkway Terminal via Brock Road. Service on Hardwood replaced by new Route 216.
- Seaton Future Growth Areas
 - A number of routes are planned to serve the Seaton area as it is developed and matures following the development of the Service Strategy.

ROUTE ALIGNMENT
<ul style="list-style-type: none"> • Extension of Route 101 Bay Ridges / Industrial to Ajax Station • Extension of Route 107 South Rosebank to Rouge Hill Station • Extension of route 916 to Pickering Parkway Terminal via Brock Road • Revised route network in Ajax
NEW GROWTH AREA
<ul style="list-style-type: none"> • Introduction of service to Seaton • Future extension of Route 232 on Church to Seaton. • New connection between Ajax, Whitby, and Oshawa along Bayly.
SERVICE HOURS
<ul style="list-style-type: none"> • Enhanced service hours, 7 days a week
SERVICE FREQUENCY
<ul style="list-style-type: none"> • Enhanced service frequency
HIGHER FREQUENCY GRID ROUTES
<ul style="list-style-type: none"> • PULSE • 224 Harwood - Salem • 915 Taunton • 916 Rossland

Table 4. West Durham Summary

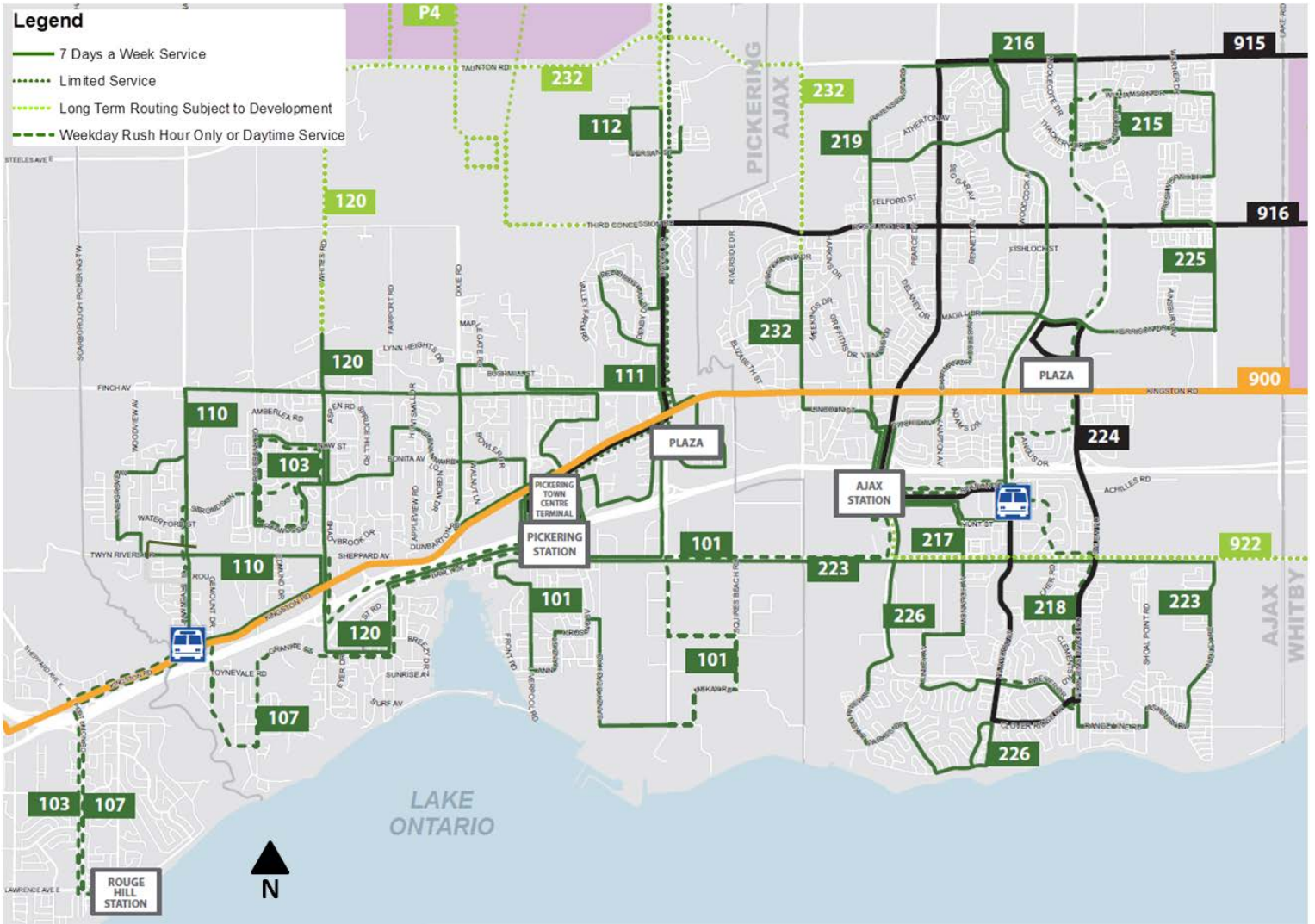


Figure 8. Ultimate Network – West Durham

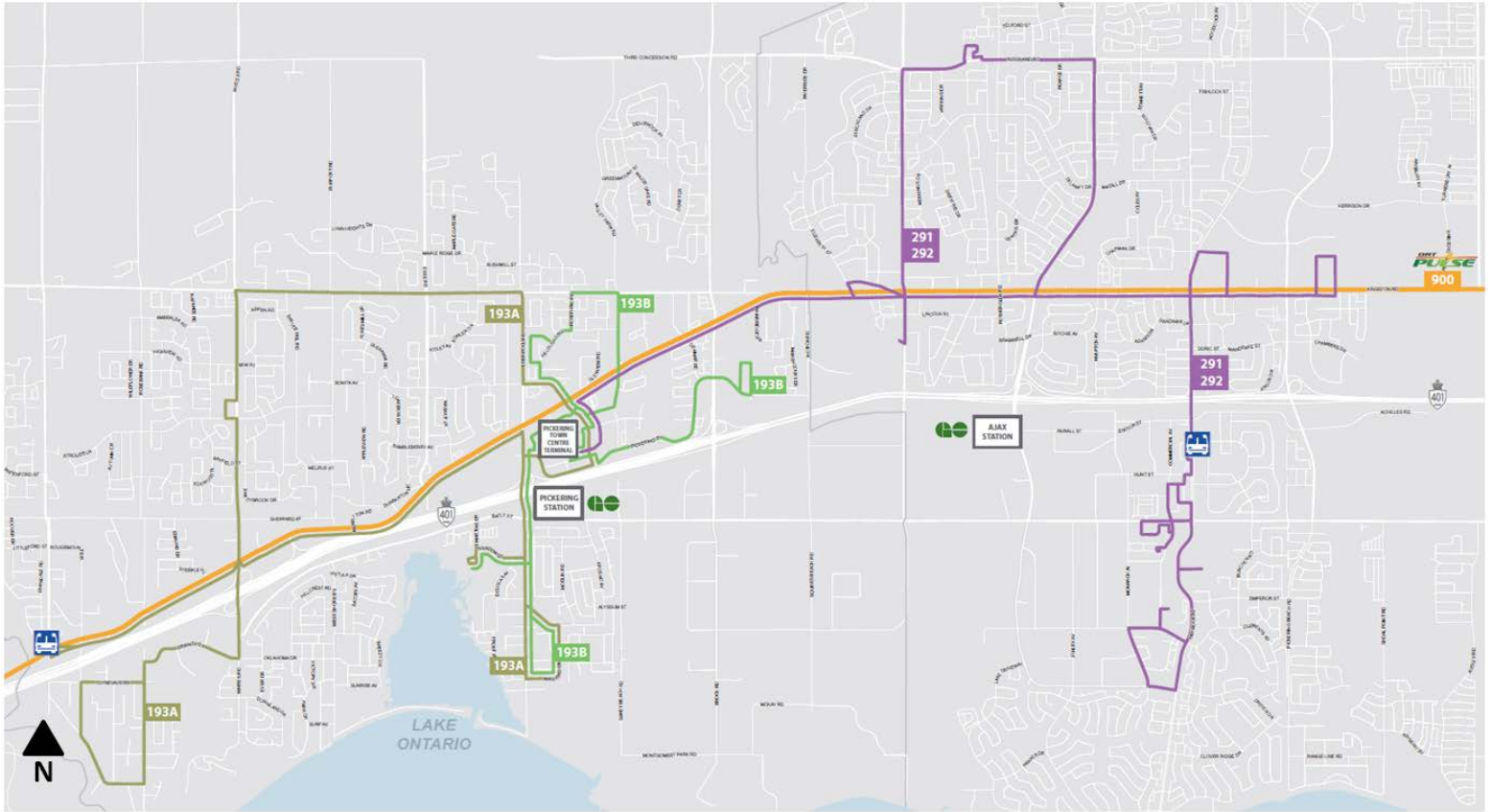


Figure 9. Ultimate Community Bus Network - West Durham

Central Durham

Growth is occurring in a number of areas in the Central part of Durham. The northern areas of the Town Whitby and City of Oshawa, as well as the southern part of Courtice in the Municipality of Clarington will see growth in residential and commercial development. To keep pace with this growth, services will have to be extended and enhanced to provide a competitive alternative to the use of the personal car. The following list and figure outline the proposed ultimate network in Central Durham.

- Revised route network in Whitby
 - Route 301 Country Lane
 - Route extended to Taunton/Brock.
 - Route 302 Brock Baldwin
 - Route realigned in Brooklin to service Baldwin to Columbus Rd.
 - Route 303 Garden
 - Route extended to Taunton/Brock.
 - Route 304 Anderson
 - Route extended to Taunton/Brock.
 - Route 305 Thickson
 - Two-way service on Thickson
 - Weekday peak extension to Brooklin.
 - New terminal at Oshawa Station.
 - Route 308 Whitby Shores
 - Route realigned within Whitby Shores to provide two-way service.
 - Route 310 Brooklin-North Oshawa
 - Links Baldwin/407 Carpool to Simcoe Terminal
 - Revised routing within Brooklin to improve service proximity.
 - Route 314 Garrard
 - New route to replace partial coverage from existing Route 305 and 409.
 - Links Taunton/Brock to Oshawa Centre Terminal.
 - Weekday peak period extension to Oshawa Station.
- Route 401 Simcoe
 - Service on First Ave and Ritson. Simcoe Street between First Ave and Ritson within proximity.
- Route 405 Wilson
 - Extend service on Wilson south from Beatrice to King/Bond to provide faster customer travel. Removed service on Beatrice, Attersley, Camelot, Hillcroft, and Central Park within proximity.

- Service extended on Wilson to Winchester.
- Route 407 Ritson Colonel Sam
 - Extend service on Ritson south from Adelaide to King/Bond.
 - Operate two-way service from First Ave/Ritson to Colonel Sam/401. Service on Ritson south of First Ave provided by Route 401.
 - Remove service on Beatrice and Nonquon to provide faster travel, as these areas are within proximity of transit service.
- Route 409 Stevenson Thornton
 - Two-way service on Stevenson and Thornton.
 - Future extension to Simcoe Terminal via Thornton.
- Route 410 Olive Harmony Grandview
 - Service Gibb Street from Olive. Service on John provided by Route 411.
 - Future extension on Grandview and Winchester to new Simcoe Terminal.
- Route 411 Grandview South Courtice
 - Service Albert and John to Oshawa Centre. Service on King/Bond provided by routes 402 and 405.
- Route 915 Taunton
 - Extend to Harmony Terminal via Taunton.
- New North Oshawa Routes
 - Route 418 will link Harmony Terminal to UOIT/DC Terminal via Colin Road.
 - Route 419 will link Harmony Terminal to Simcoe Terminal via Ritson Road.
 - Route 420 will link Harmony Terminal to Simcoe Terminal via Harmony and Britannia Road.
- Community Bus
 - The revised services replace current routes 312 and 414 by linking a greater number of residential, commercial and health related destinations.
 - 394 Whitby
 - 495 Oshawa North
 - 496 Oshawa South

ROUTE ALIGNMENT
<ul style="list-style-type: none"> • Revised route network in Whitby • Route 401 alignment • Route 405 alignment • Route 407 alignment • Route 410 alignment • Route 411 alignment • Route 915 alignment
NEW GROWTH AREAS
<ul style="list-style-type: none"> • Future route in West Whitby • Introduction of service in North Oshawa • New connection between Ajax, Whitby, and Oshawa along Bayly
SERVICE HOURS
<ul style="list-style-type: none"> • Enhanced service hours, 7 days a week
SERVICE FREQUENCY
<ul style="list-style-type: none"> • Enhanced service frequency
HIGHER FREQUENCY GRID ROUTES
<ul style="list-style-type: none"> • PULSE • 302 Brock • 401 Simcoe • 402 King • 915 Taunton • 916 Rossland

Table 5. Central Durham Summary

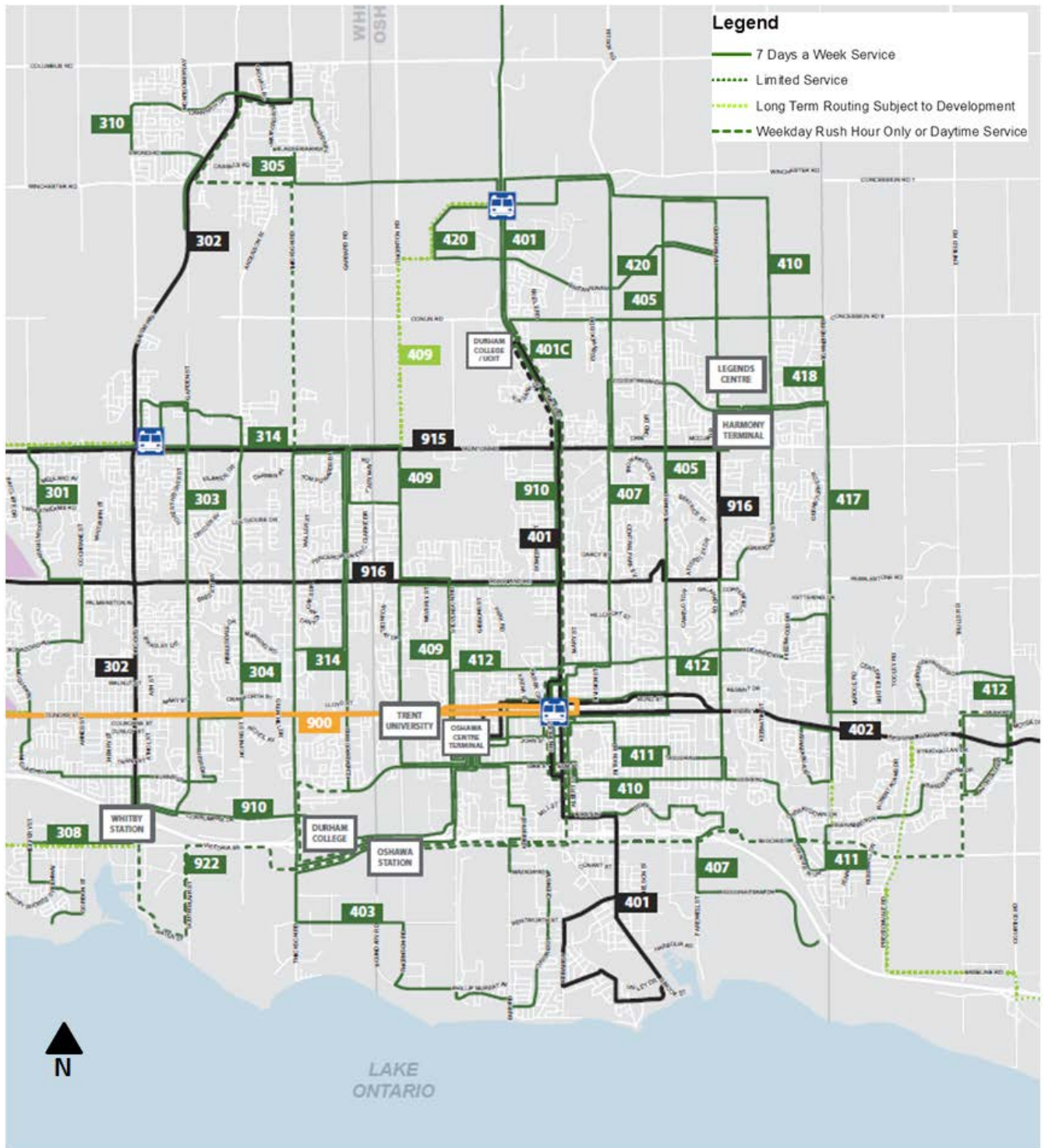


Figure 10. Ultimate Network – Central Durham

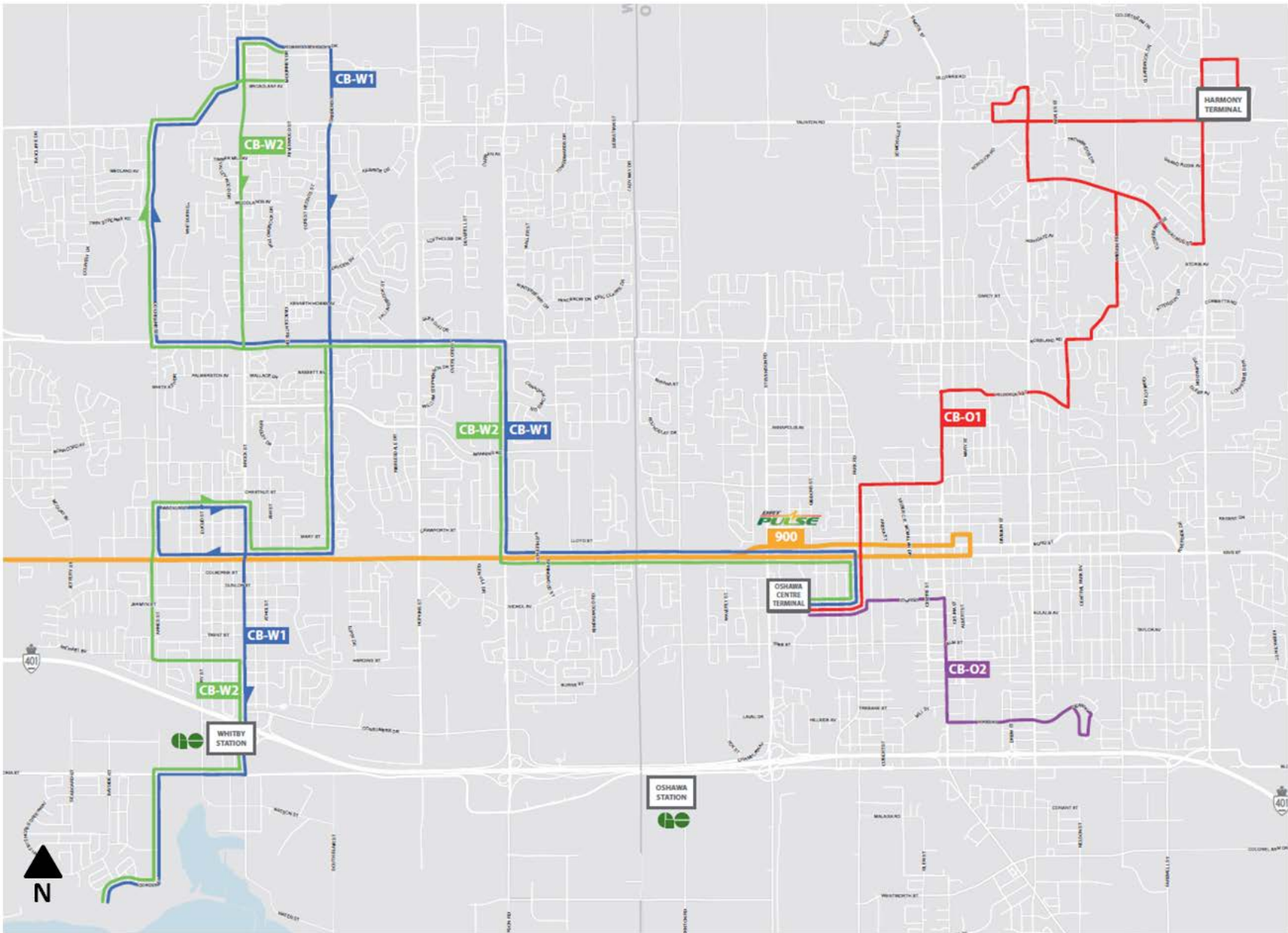


Figure 11. Ultimate Community Bus Network - Central Durham

East Durham

Growth is occurring in a number of areas in the eastern part of Durham, composed entirely of the Municipality of Clarington. To keep pace with this growth, services will have to be extended or enhanced to provide a competitive alternative to the use of the personal car, and to provide convenient connections to connecting services. The following list and figure outline the proposed ultimate network in East Durham.

- Revised route network in Bowmanville
 - Route 501 Bowmanville South
 - Links the Bowmanville Hospital to the Bowmanville Carpool lot via downtown Bowmanville and Baseline.
 - Revised routing to offer faster travel times.
 - Route 502 Bowmanville North
 - Links the Bowmanville Hospital to the Bowmanville Carpool lot via Liberty and Scugog.
 - Revised routing to offer faster travel times.
 - New Route 505 connecting Bowmanville Carpool lot to Newcastle, Port of Newcastle and Orono via Highway 2.
- Route 506 Wilmot Creek
 - Current route to end at Newcastle 35/115 Carpool lot. New Route 505 to service Newcastle, Post of Newcastle and Orono.
 - Service realigned to service Port Darlington Area.
- New Route 507 Industrial – Energy Park
 - New route linking Courtice to Bowmanville Carpool lot via Baseline.

ROUTE ALIGNMENT
<ul style="list-style-type: none"> • Revised route network in Bowmanville and Newcastle • Route 402 extension to Bowmanville
NEW GROWTH AREA
<ul style="list-style-type: none"> • Future industrial route between Courtice and Bowmanville
SERVICE HOURS
<ul style="list-style-type: none"> • Enhanced service hours, 7 days a week
SERVICE FREQUENCY
<ul style="list-style-type: none"> • Enhanced service frequency
HIGHER FREQUENCY GRID ROUTES
<ul style="list-style-type: none"> • 402 King

Table 6. East Durham Summary

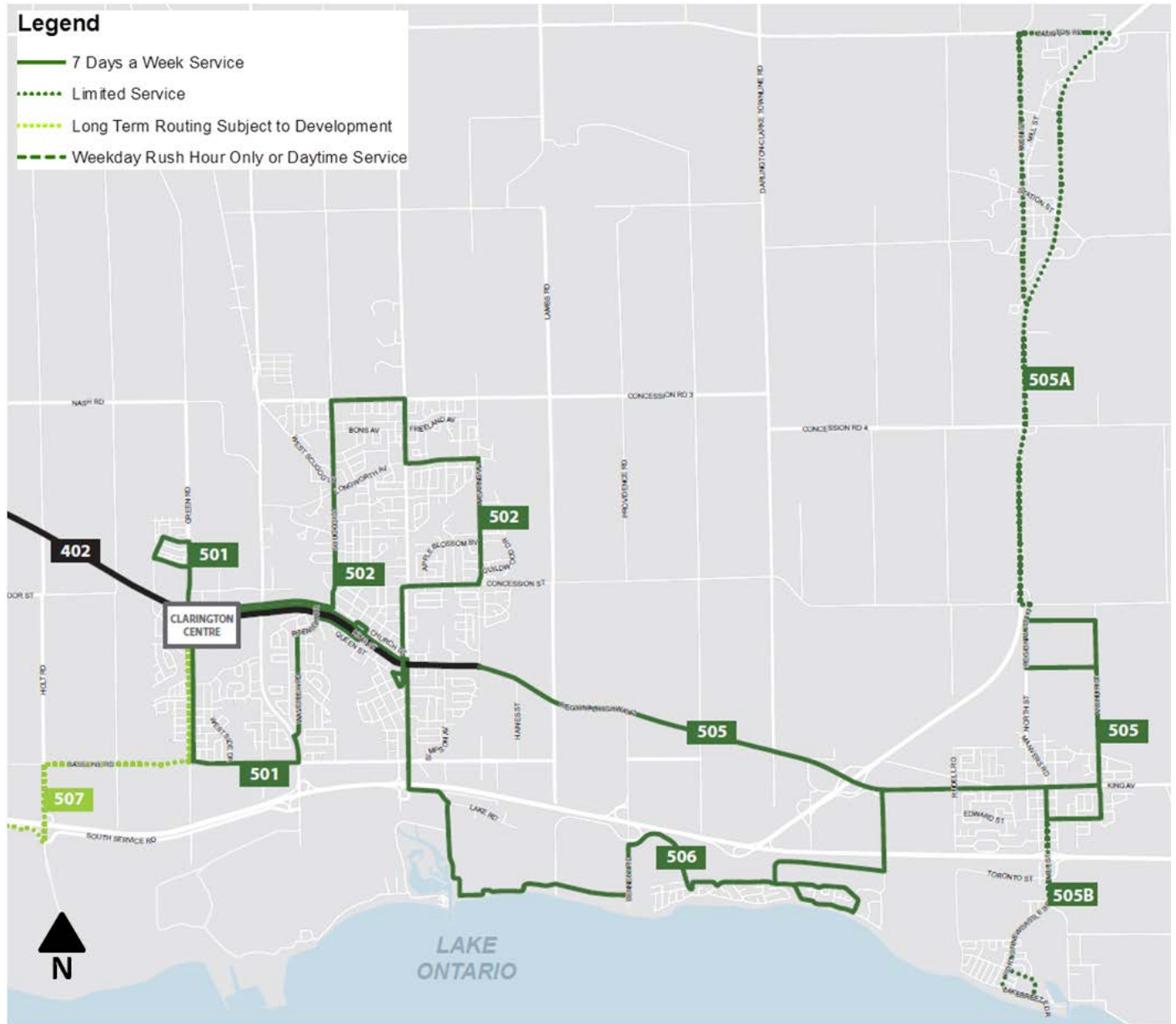


Figure 12. Ultimate Network – East Durham

Supporting Infrastructure

Terminals and Stations

Stations and terminals are a key component of providing an attractive and effective passenger experience, especially when services are not frequent. A number of locations have been identified to support the proposed network and enhanced passenger experience.

Where agreements are required, Durham Region Transit (DRT) enters into property access agreements with property owners.

Current Terminals and Stations

University of Toronto – Scarborough Campus

Located at the University of Toronto – Scarborough Campus, at Military Trail and Ellesmere in Toronto, this location is the current terminus of PULSE. It provides convenient connections to TTC routes 38 Highland Creek, 95 York Mills and 198 University of Toronto Scarborough Rocket.

Rouge Hill Station

Located at Lawrence Avenue East and East Avenue in Toronto, this location is the western terminus of Route 103 and future terminus of Route 107. It provides convenient connections to GO Train Lakeshore East service, and to TTC Routes 38 Highland Creek, 54 Lawrence East and 85 Sheppard East.

Pickering Station / Pickering Parkway Terminal

These combined locations act as an exchange between routes operating in the City of Pickering. The Pickering Station is located within the GO Rail Station and the Pickering Parkway Terminal is an on-road location at the foot of the pedestrian overpass. It provides convenient connections to GO Train Lakeshore East service.

Ajax Station

The Ajax Station is located within the GO Rail Station; it provides convenient connections to GO Train Lakeshore East service, and acts as an exchange between routes operating in Ajax.

Whitby Station

The Whitby Station is located within the GO Rail Station. It provides convenient connections to GO Train Lakeshore East service, and acts as an exchange between routes operating in Whitby.

Oshawa Station

The Oshawa Station is located within the GO Rail Station. It provides convenient connections to GO Train Lakeshore East service. Several routes connect at this location which acts as an exchange between them.

Oshawa Centre Terminal

This terminal is located on the Oshawa Centre property in the southeast quadrant. It provides an exchange between routes operating in Oshawa and connecting regional routes.

Harmony Terminal

This terminal is located on the commercial property located at the northeast corner of Harmony and Taunton in Oshawa. It provides an exchange between routes operating in Oshawa, connecting regional routes and future routes serving development in Northeast Oshawa.

North Oshawa Campus Terminal

Located on the North Oshawa Campus of Durham College and the University of Ontario Institute of Technology, this terminal provides an exchange between routes and those whose destination is the North Oshawa Campus.

Bowmanville Carpool Lot

Located at Pethick and Prince William Boulevard in Bowmanville, this location would be used to anchor proposed routes in the Bowmanville area. The location provides connections with GO Transit's current Highway 2 service (Routes 90 & 91) linking Oshawa and Clarington.

Newcastle Carpool Lot

Located at Highways 2 and 115, this location would be used to anchor proposed routes 505 Newcastle and 506 Wilmot Creek. The location provides connections with GO Transit's current Highway 2 services (Routes 90 & 91) and Highway 115 services (Route 88) linking Oshawa, Clarington and Peterborough.

Future Terminals and Stations

Pickering West

This new proposed exchange would be located in west Pickering in the Kingston and Altona area. This terminal would play an important role in coordinating existing transit services in northwest and southwest Pickering with the important Highway 2 corridor. Final location, platforms and design are required.

Taunton and Brock Street

Taunton and Brock Street is the focal point of many north-south services operated in Whitby. Its location is a key element in providing connections between routes and connecting residential, commercial and educational areas. Final location, platforms and design are required.

Baldwin– 407 Station

The opening of Highway 407 brings with it the opening of a number of new GO Transit stations and park and rides, including one located at Baldwin and Highway 407. This station would be used to anchor proposed routes 302 Brock and 310 Brooklin – North Oshawa. It also provides connections with GO Transit’s Highway 407 East service (Route 52) linking Oshawa, Pickering (Seaton), York Region (Markham, Richmond Hill) and York University. As well as the Highway 12 service (Route 81) linking Scugog and Brock.

Winchester and Simcoe

This new proposed terminal would be located in the Simcoe and Winchester area surrounded by new residential and commercial development. This terminal would play an important role in coordinating future transit services in North Oshawa, the important Simcoe corridor and a connections to GO Transit’s 407 East service (Route 52). Final location, platforms and design are required.

GO Transit Lakeshore East Train Alignment

An approved environmental assessment calls for the realignment of the GO Transit Lakeshore East rail line from the current location south of Highway 401 to north of it. This new alignment extended to Bowmanville in Clarington would provide five new rail stations: Thornton, Oshawa (new), Bloor, Courtice and Bowmanville. A concept network is found in Appendix D illustrating how the DRT bus routes would be aligned to connect with the rail extension.

Infrastructure Amenities

Transit Stops

Transit stop design standards will be required to provide a common look and feel throughout the Region. In addition, a warrant system would be required to select and retain locations for amenity upgrades. Rural bus stops should consider the following as basic amenities:

- Bus stop sign
- Schedule and route information at major stops, transfer points
- Shelter, if required.
- AODA compliant concrete pad.

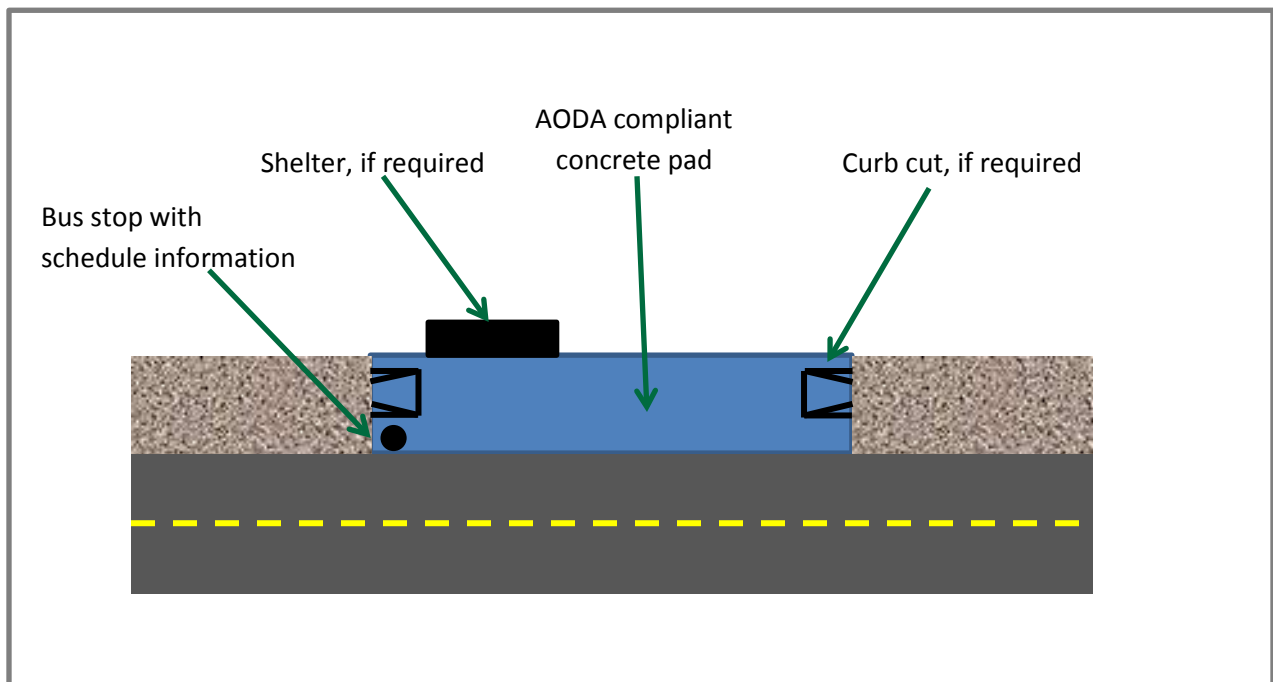


Figure 13. Transit Stop Concept

Terminals

Terminal design standards will be required to provide a common look and feel throughout the Region. In addition, a warrant system would be required to select and retain locations for amenity upgrades. Terminals should consider the following as basic amenities:

- Bus stop sign
- Schedule and route information.
- Shelter
- AODA compliant concrete pad, if required.
- Lighting
- Telephone / Emergency Call Box, if feasible.

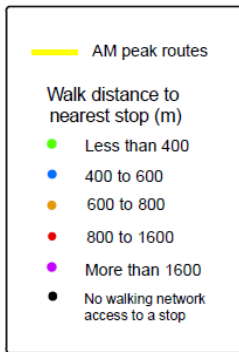


Figure 14. Terminal and Stop Concept. Source: Cincinnati Metro.

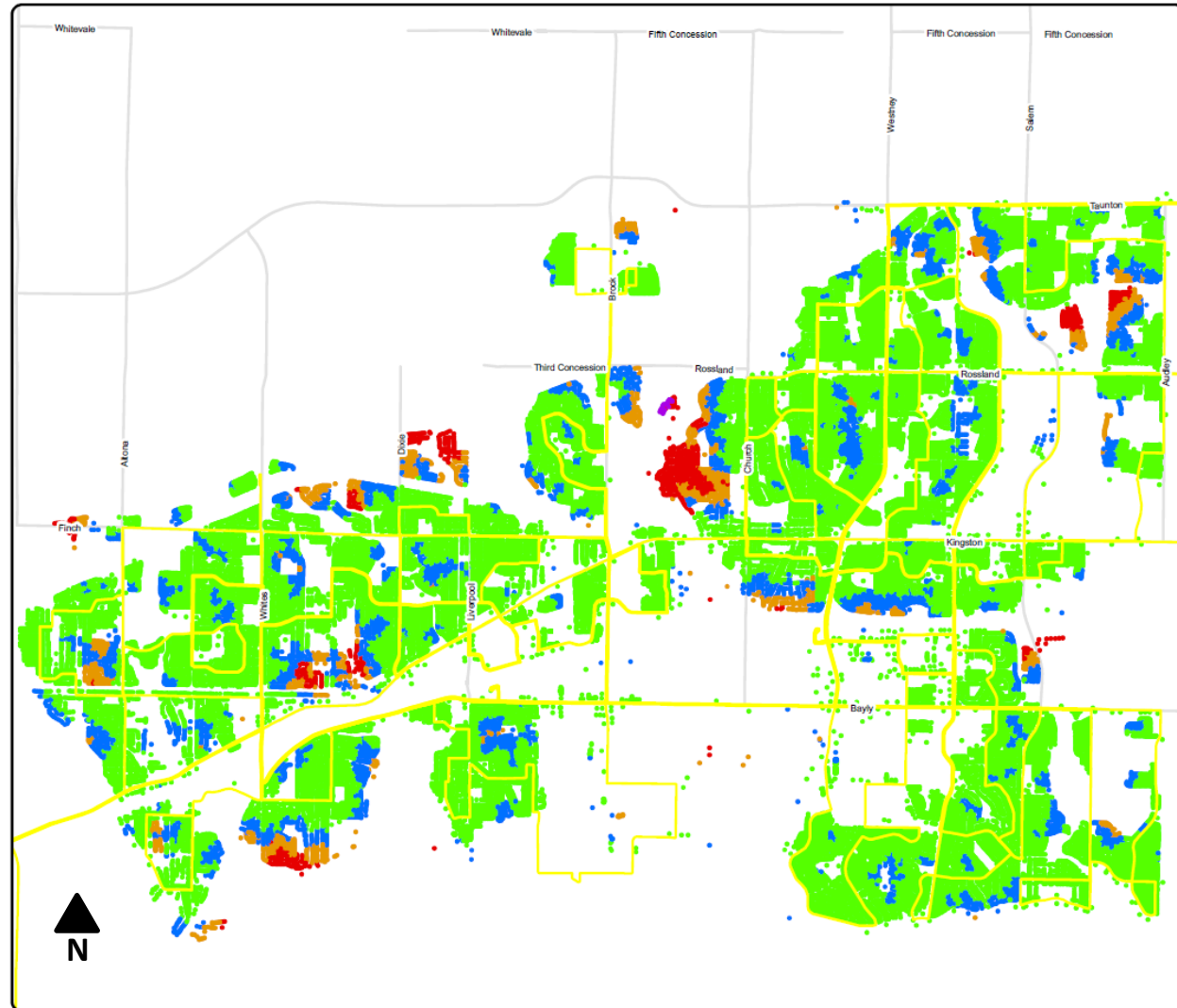
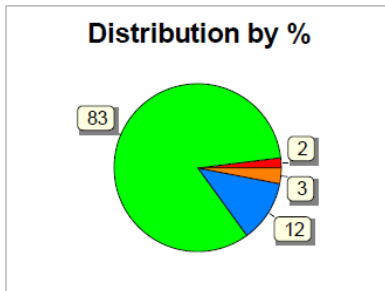
Appendix A.1

Area Coverage Map – West Durham – Current Network

**West Durham
Any Stop Access
with Current (Fall 2015)
Transit Network**



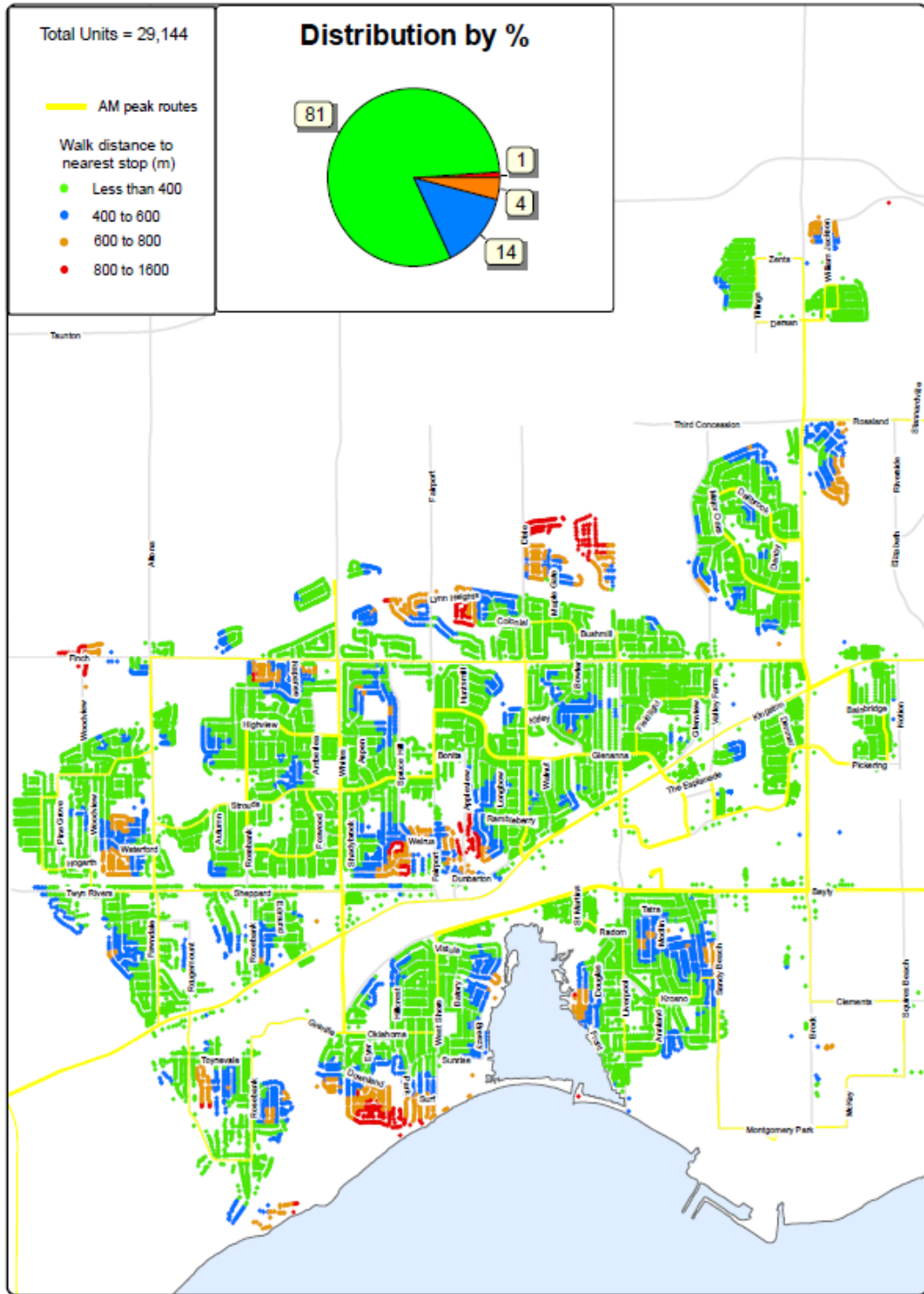
Total Units = 64,849



Appendix A.2

Area Coverage – West Durham – Pickering - Long Term Network

West Durham - Pickering Any Stop Access with Proposed Revised Transit Network

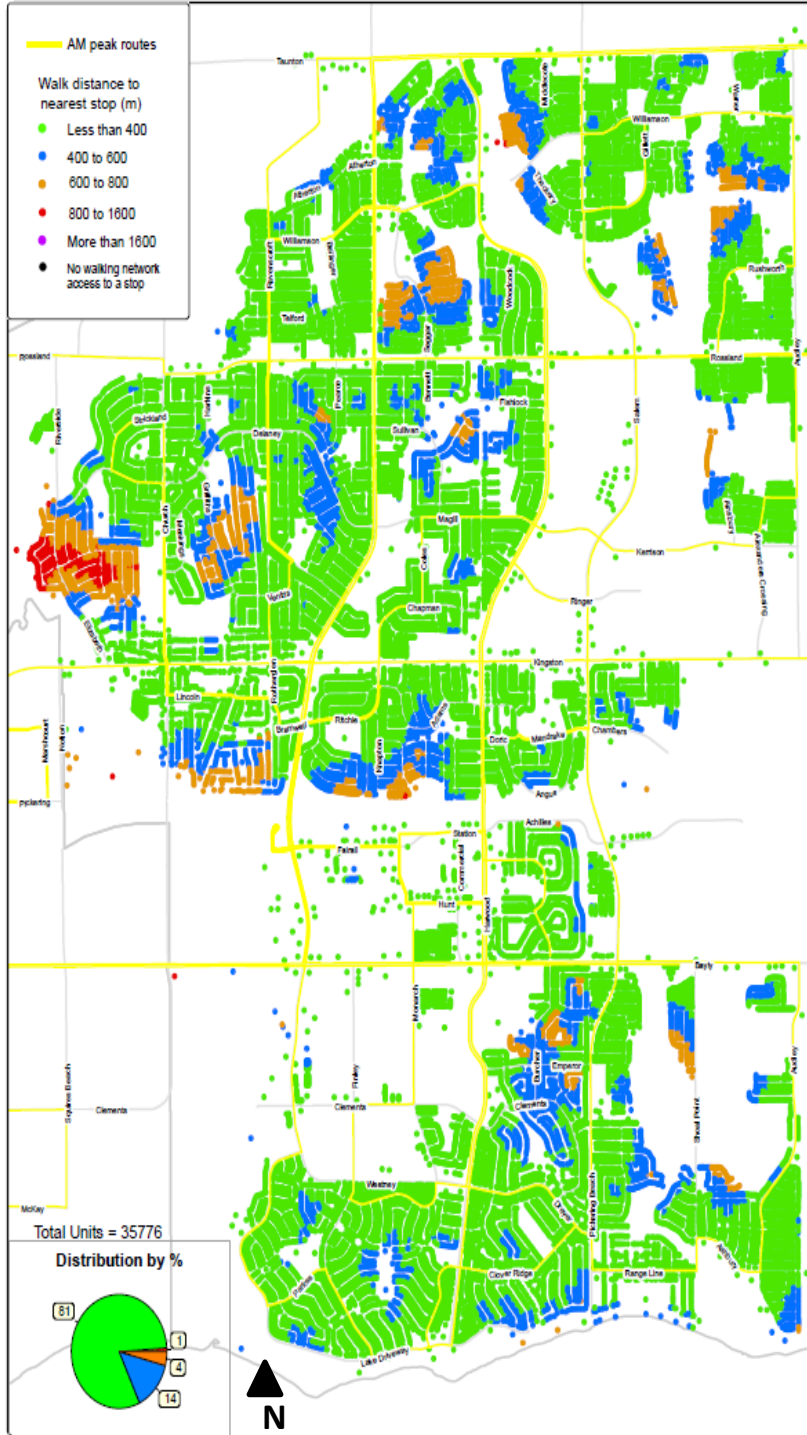


November 23, 2015

Appendix A.3

Area Coverage Map – West Durham – Ajax - Long Term Network

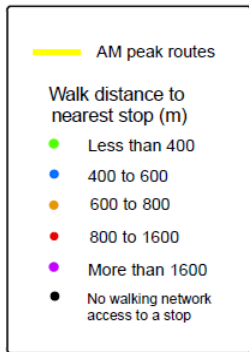
West Durham - Ajax Any Stop Access
with Proposed Revised Transit Network



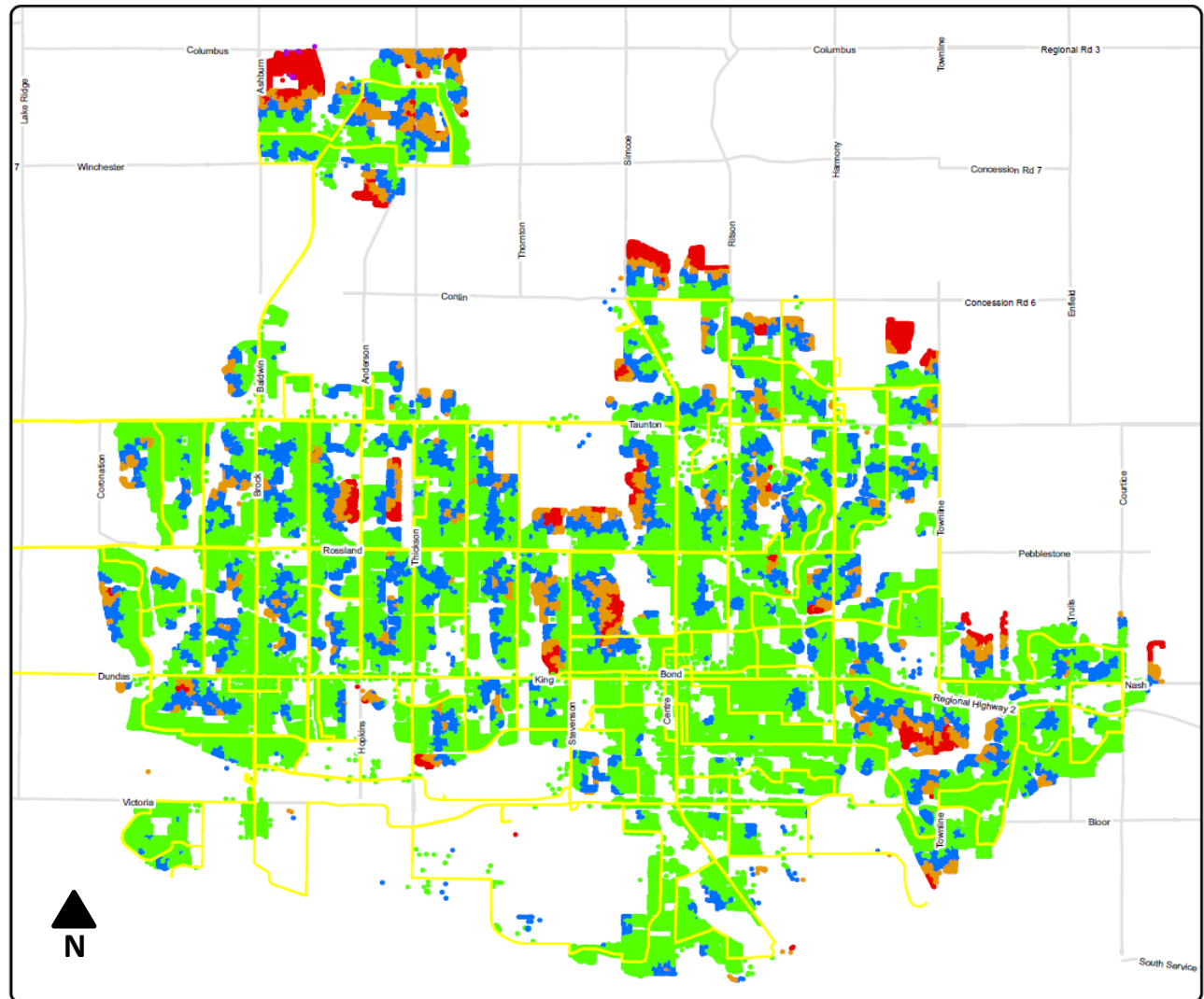
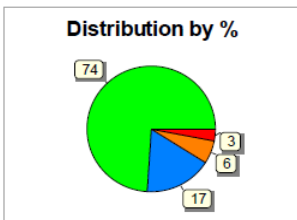
Appendix A.4

Area Coverage Map – Central Durham – Current Network

Central Durham Any Stop Access with Current (Fall 2015) Transit Network



Total Units = 106881



Appendix A.5

Area Coverage Map – Central Durham - Whitby – Long Term Network

Central Durham-
Whitby

Any Stop
Access with
Proposed
Revised Transit
Network

Total Units = 41581

AM peak routes

Walk distance to
nearest stop (m)

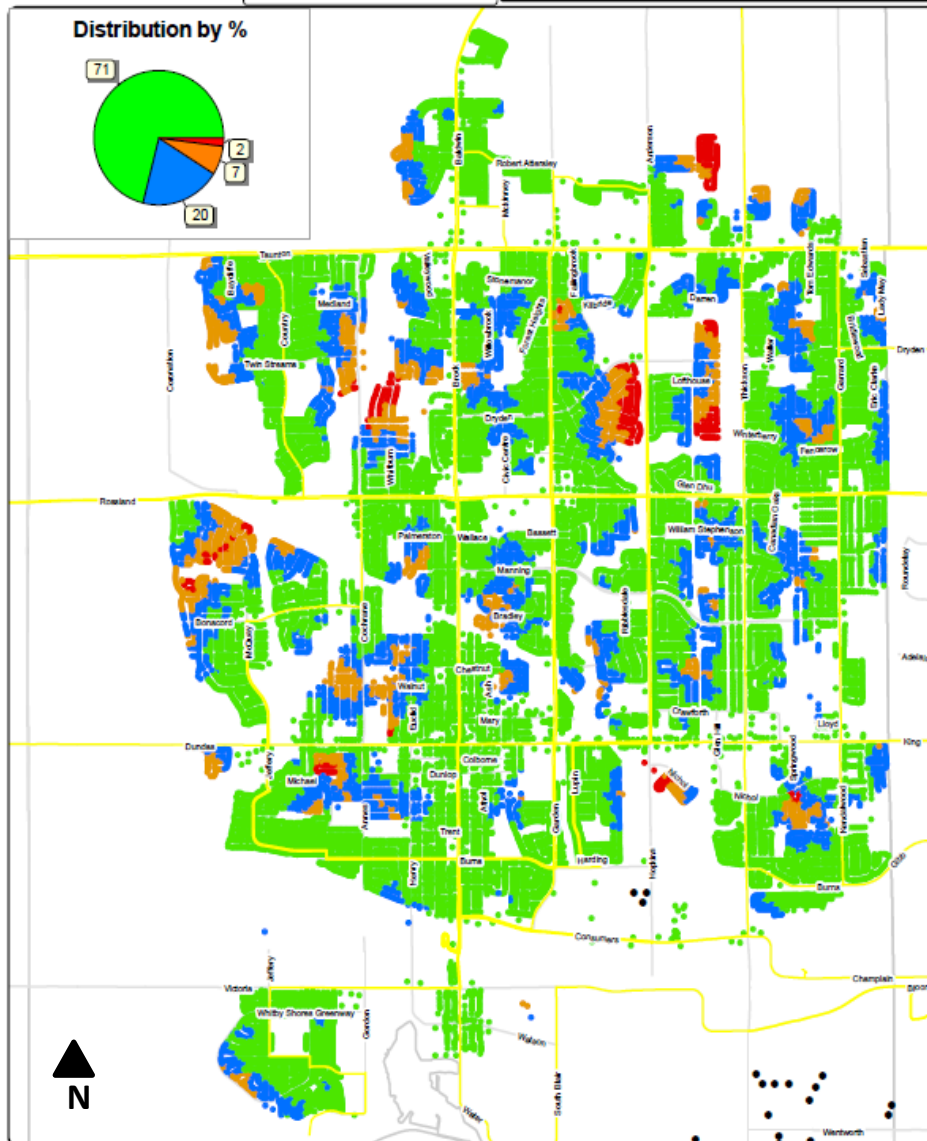
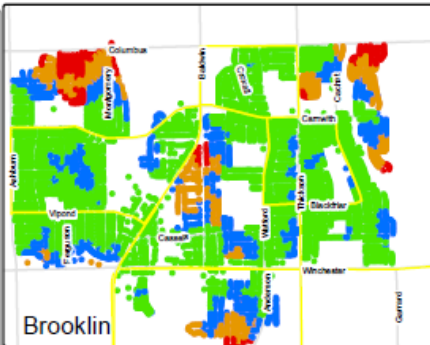
Less than 400

400 to 600

600 to 800

800 to 1600

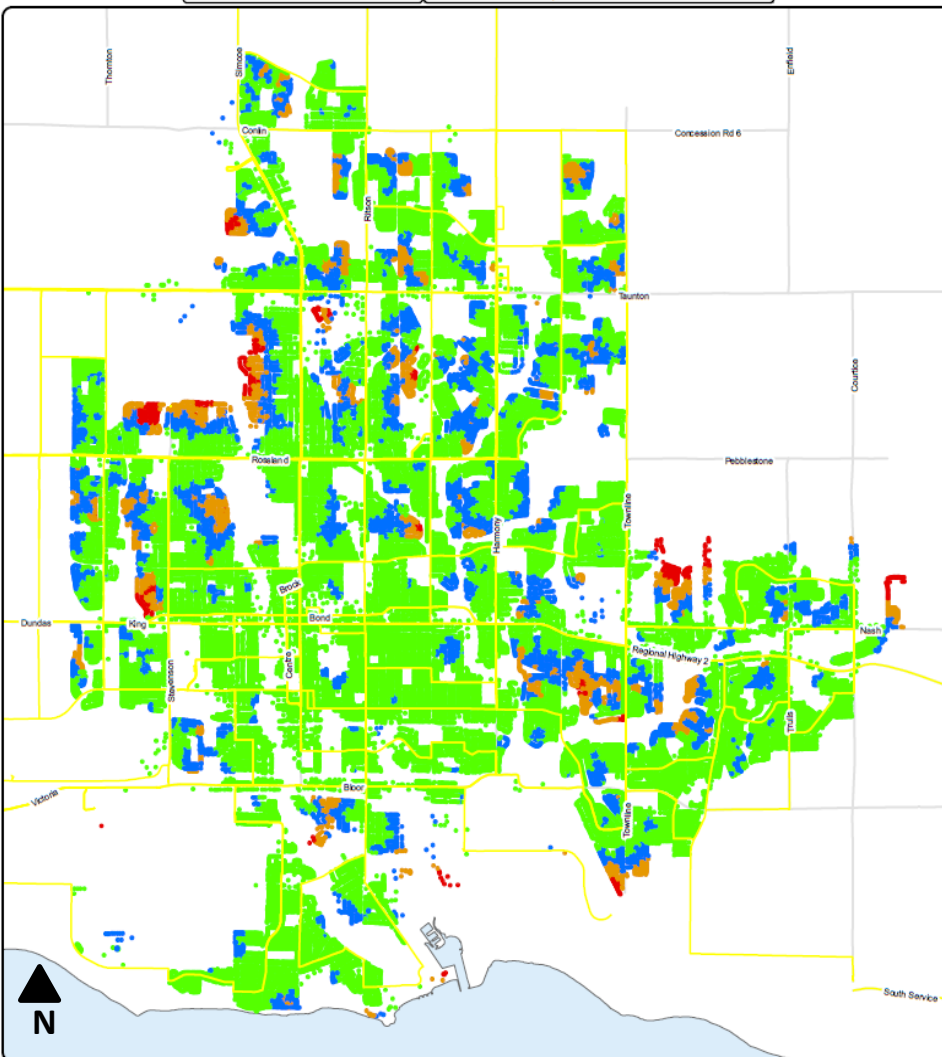
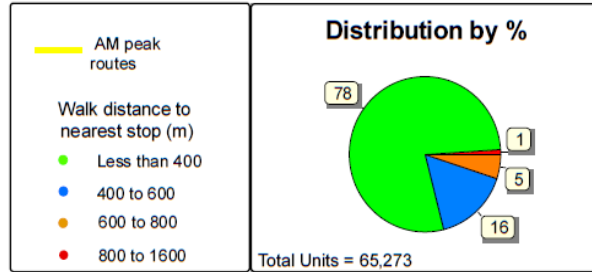
No walking network
access to a stop



Appendix A.6

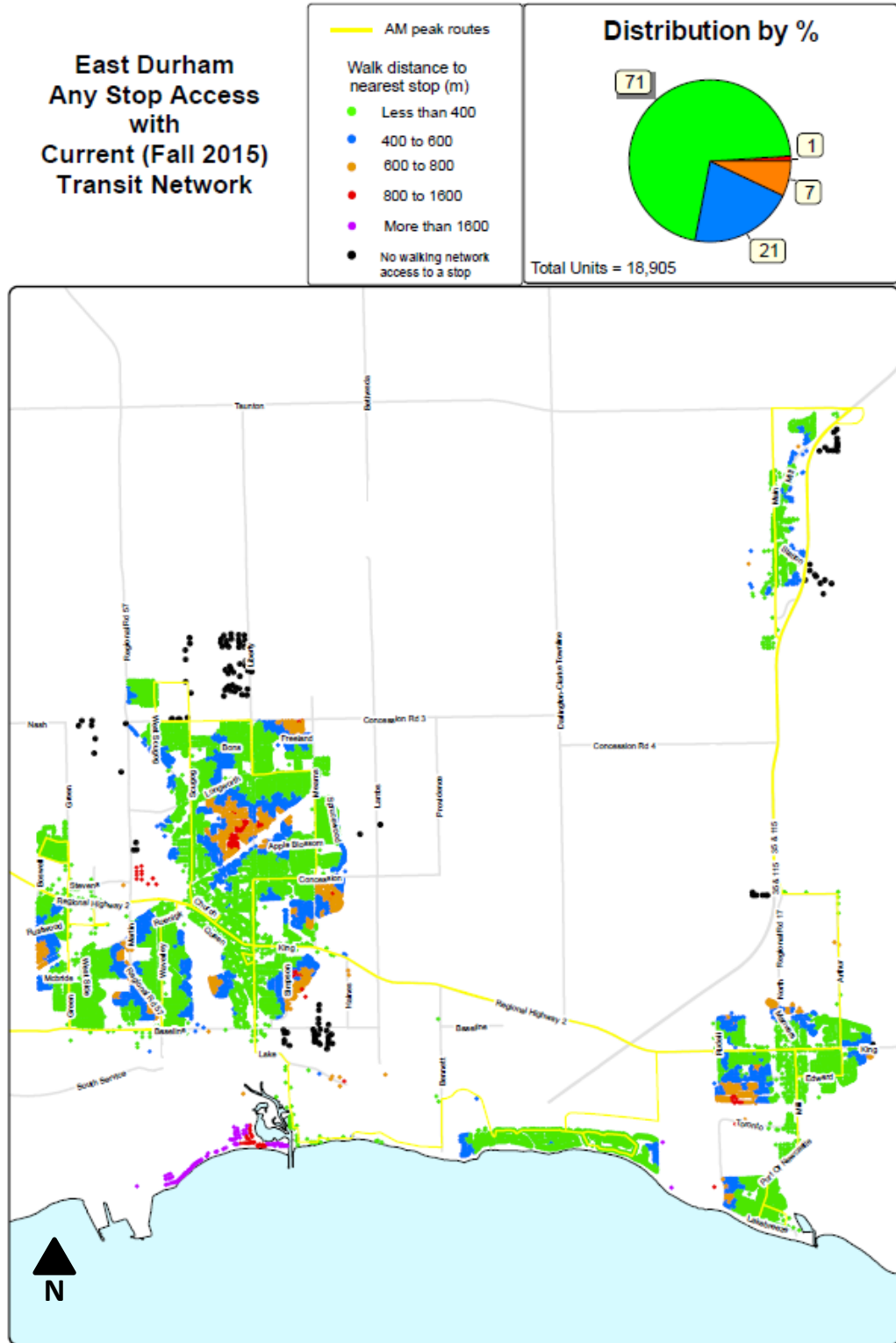
Area Coverage Map – Central Durham – Oshawa – Long Term Network

Central Durham - Oshawa-Courtice
Any Stop Access
with Proposed Revised Transit Network



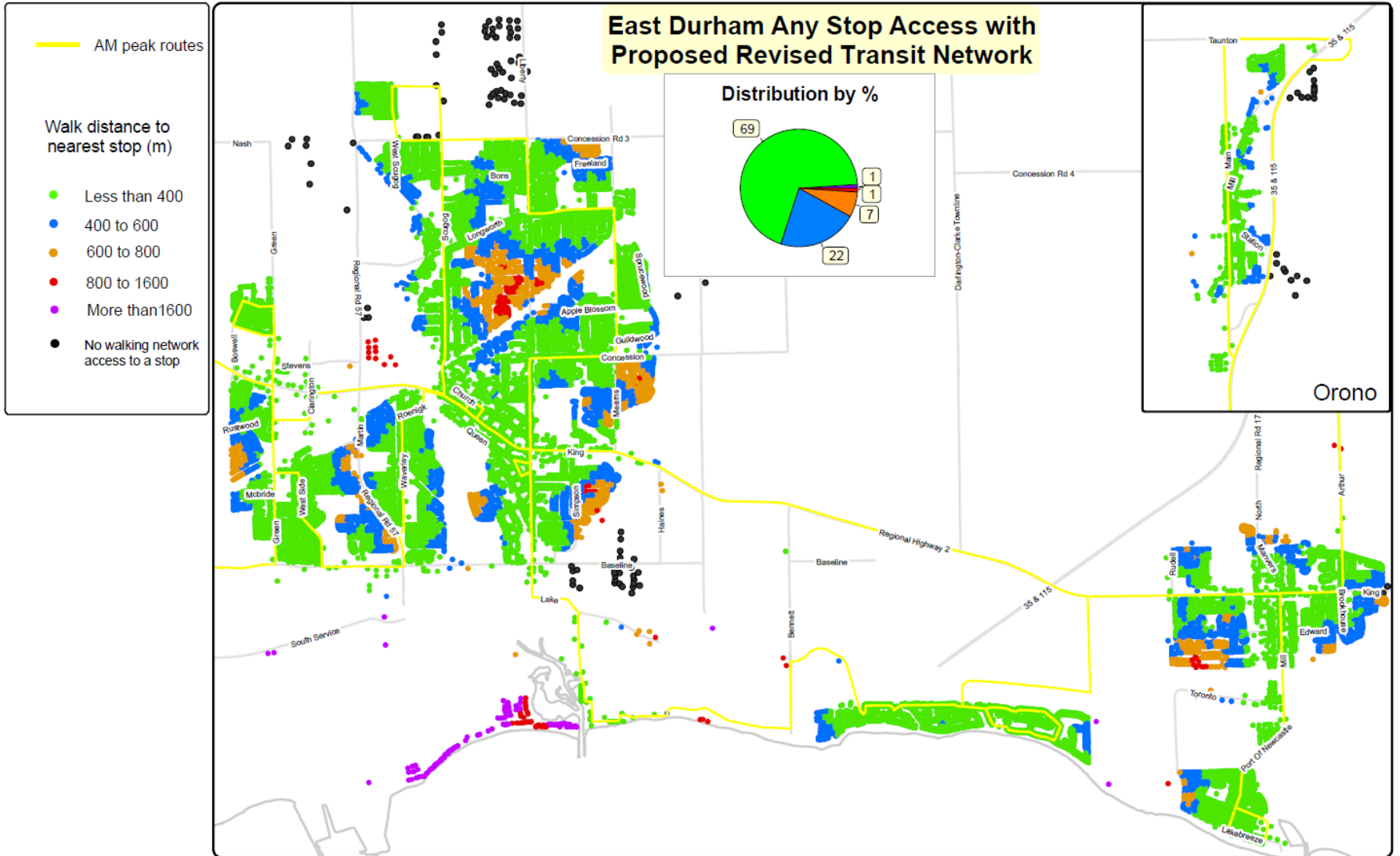
Appendix A.7

Area Coverage Map – East Durham – Current Network



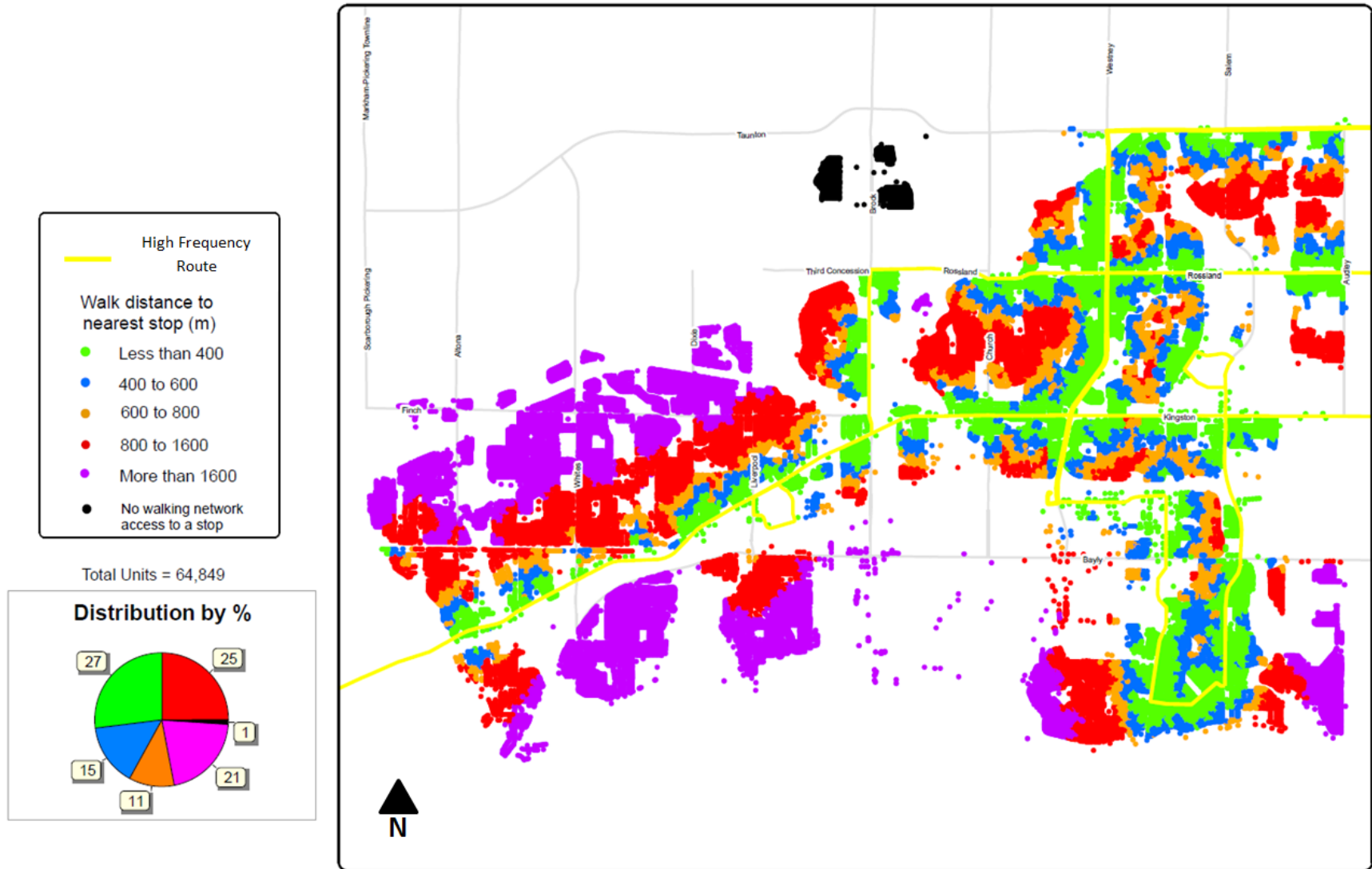
Appendix A.8

Area Coverage Map – East Durham – Long Term Network



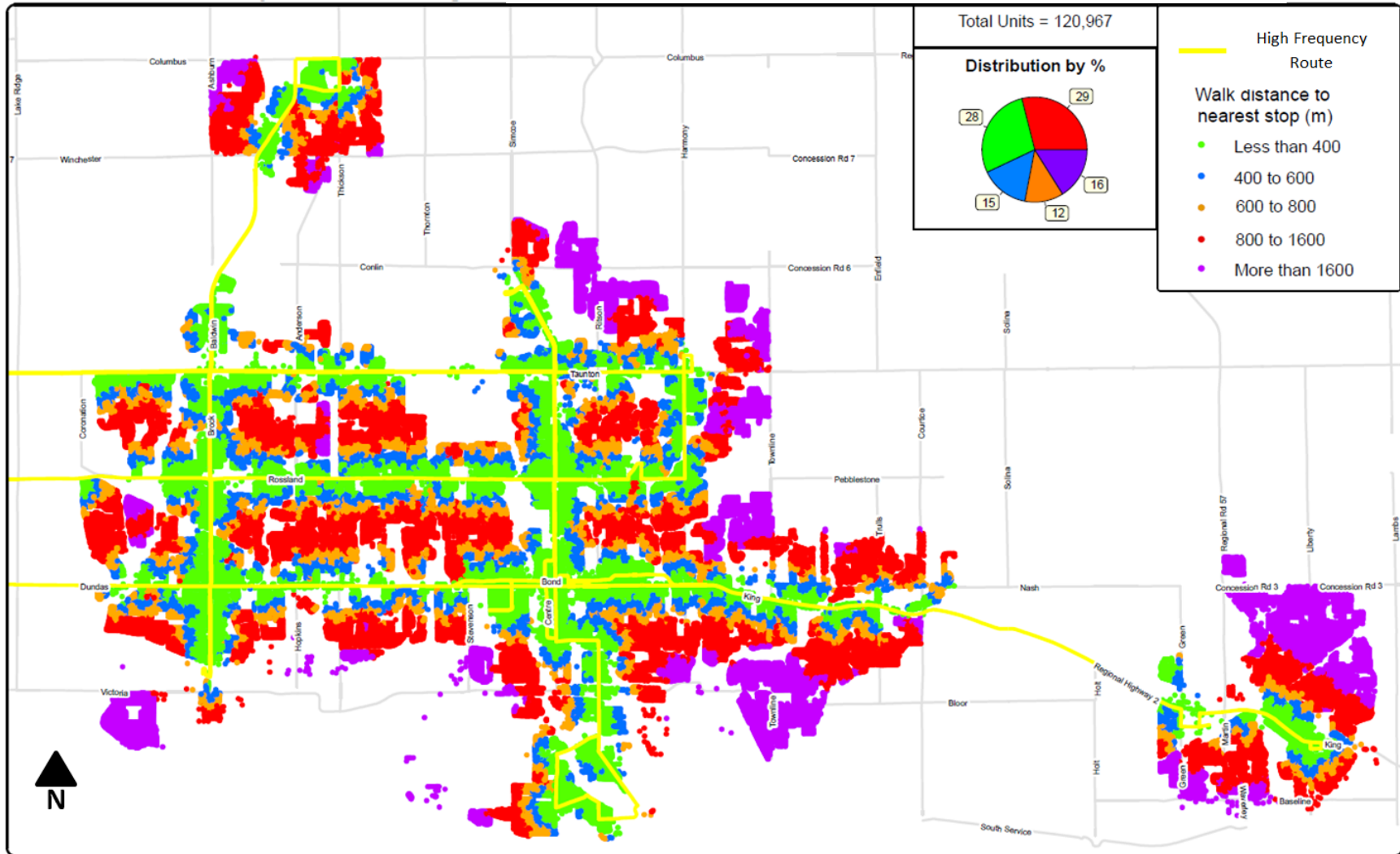
Appendix A.9

Area Coverage Map – High Frequency Grid Routes – West



Appendix A.10

Area Coverage Map – High Frequency Grid Routes – Central and East



Appendix B.1

Service Design Guidelines – Service Span⁵

Route Type	Time	Current Guideline	Recommended Guideline
Bus Rapid Transit	Weekday	6 am to 1 am	6 am to 1 am
	Saturday	6 am to 1 am	6 am to 1 am
	Sunday	8 am to 11 pm	8 am to 11 pm
Base Grid	Weekday	6 am to 1 am	6 am to 1 am
	Saturday	7 am to 11 pm	7 am to 11 pm
	Sunday	8 am to 10 pm	8 am to 10 pm
Regular / Local Service	Weekday Daytime	6 am to 7 pm	6 am to 7 pm
	Weekday Evening	As warranted by demand	As warranted by demand
	Weekends	As warranted by demand	As warranted by demand

⁵ DRT Five Year Service Plan, 2013

Appendix B.2

Service Design Guidelines – Service Frequency⁶

Route Type	Time	Current Guideline	Recommended Guideline
Bus Rapid Transit	Weekday Peak	7.5 minutes	7.5 minutes
	Weekday Midday	15 minutes	15 minutes
	Weekday Evenings	30 minutes	30 minutes
	Saturday Daytime	15 minutes	15 minutes
	Saturday Evenings	60 minutes	60 minutes
	Sunday Daytime	30 minutes	30 minutes
	Sunday Evenings	60 minutes	60 minutes
Grid	Weekday	30 minutes	30 minutes
	Saturday / Sunday	60 minutes	60 minutes
Local	Peaks	30 minutes	30 minutes
	Midday	60 minutes	60 minutes
	Evenings / Weekends	60 minutes	60 minutes
Rural / Community	All Periods	120 minutes	120 minutes

⁶ DRT Five Year Service Plan, 2013

Appendix B.3

Service Design Guidelines – Boardings Per Hour⁷

Route Type	Period	Current Guideline		Recommended Guideline	
		Minimum	Target Average	Minimum	Target Average
BRT	Peak	40	60	40	60
	Off-Peak	30	45	30	45
	Saturday	15	25	15	25
	Sunday	15	25	15	25
Grid	Peak	30	50	30	50
	Off-Peak	25	40	25	40
	Saturday	15	25	15	25
	Sunday	15	25	15	25
Local	Peak	25	30	25	30
	Off-Peak	20	20	20	20
	Evening	15	15	15	15
	Saturday	8	10	8	10
	Sunday	8	10	8	10
Community Bus	All	8	10	8	10

⁷ DRT Five Year Service Plan, 2013

Appendix B.4

Service Design Guidelines – Area Coverage⁸

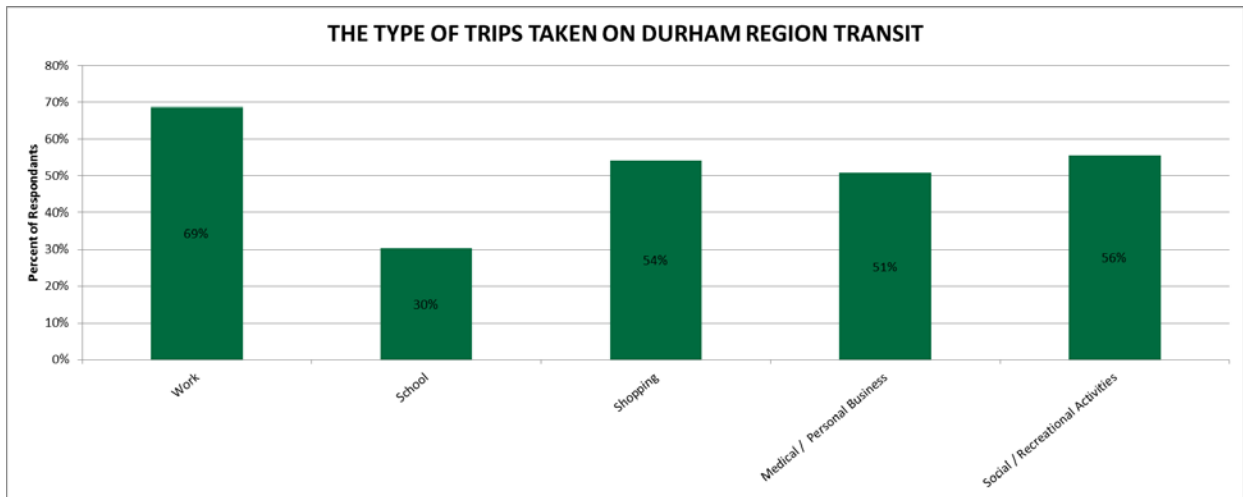
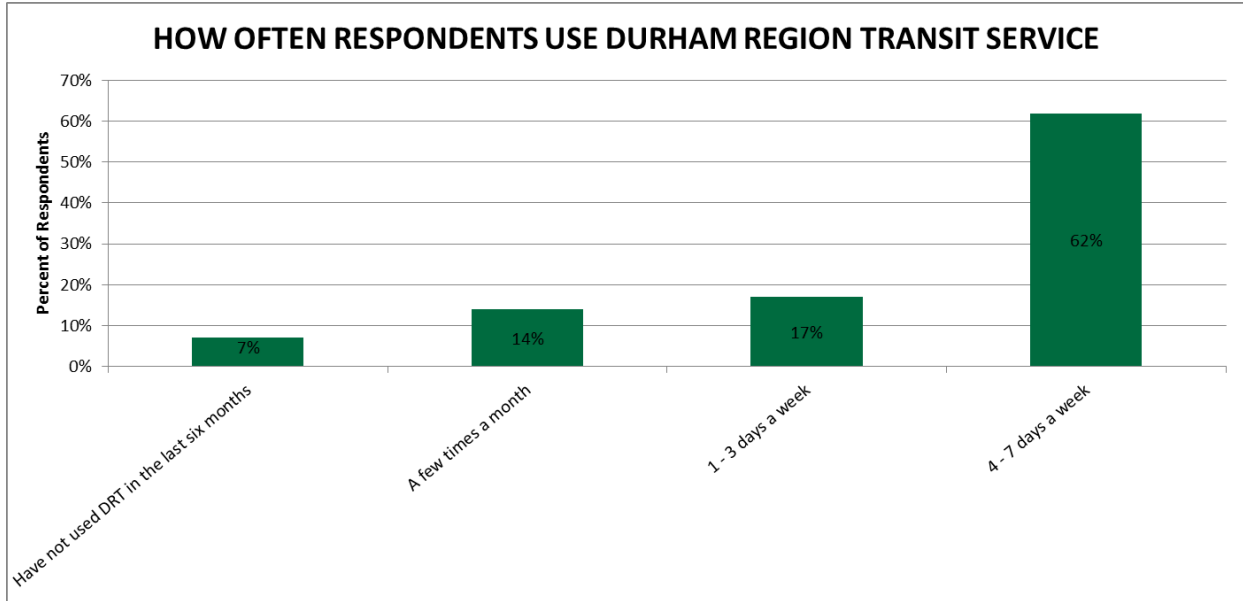
Area coverage is measured using a 400-metre distance from peak transit stops. 400 metres represents a five minute walk at an average walking speed. In addition to area coverage, the following characteristics of the built up area will influence transit service design:

- Demographic considerations-- the demographic makeup of the subject area may or may not generate a notable increase in ridership.
- Impact on existing riders - the routing change to expand service coverage may have positive or negative impacts to existing riders—both new and existing riders need to be considered.
- Road network characteristics – the nature of the road network (e.g. suburban curvilinear streets versus permeable street grid) will affect how direct transit routes could operate.
- Residential and employment density – the residential and employment density of a given community has a profound impact on the degree of ridership a route would generate.
- Socio-economic characteristics – the general socio-economic conditions of a community (e.g. household income, household car ownership) have an impact on the degree of ridership a route would generate.
- Pedestrian accessibility – a community with a permeable and well maintained sidewalk provides the ability for passengers to easily access transit stops.
- Financial feasibility – the proposed expansion of service coverage needs to consider its financial cost implications.

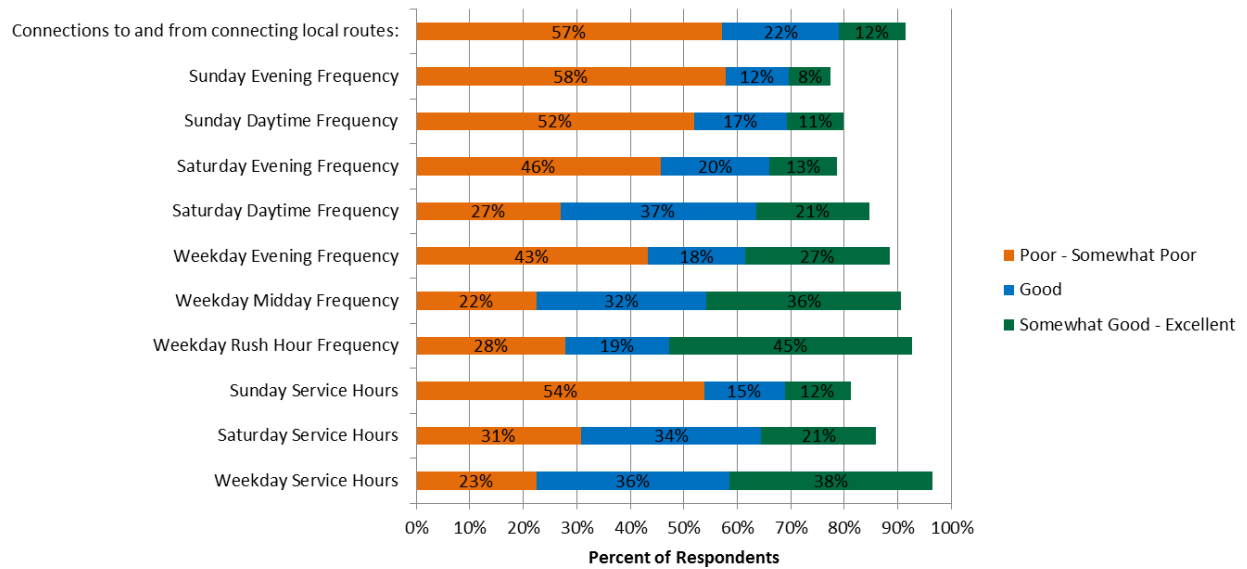
⁸ DRT Five Year Service Plan, 2013

Appendix C

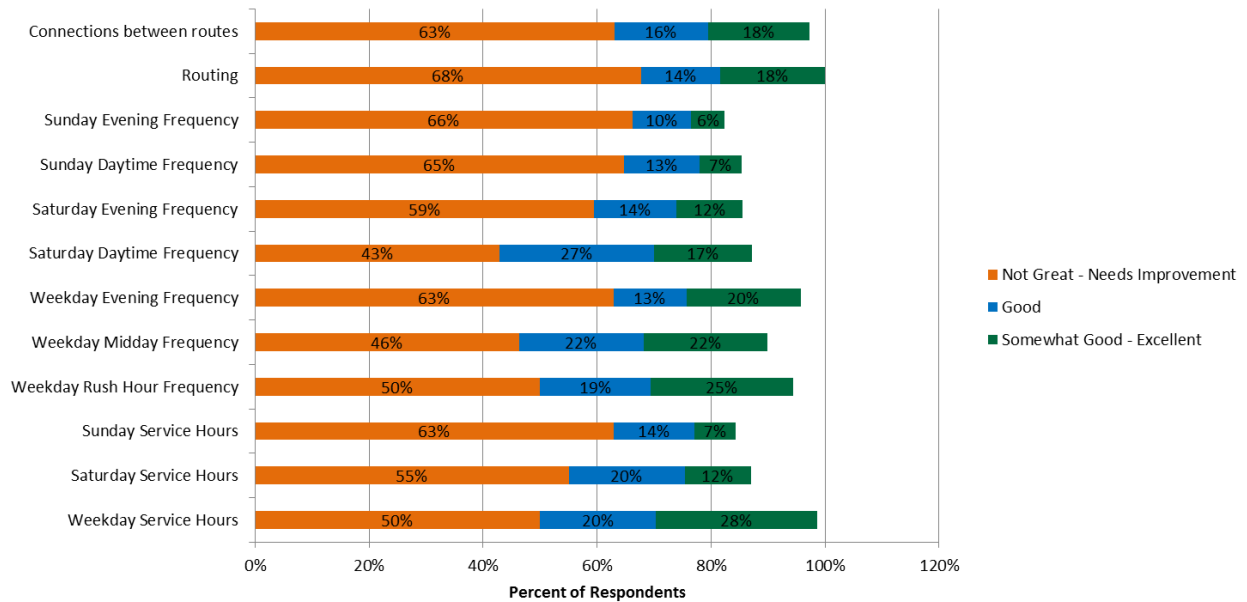
Survey Results



RESPONDENTS RATING OF PULSE SERVICE



RESPONDENTS RATING OF CONVENTIONAL BUS SERVICE



RESPONDENTS PERCEPTIONS ABOUT THE 5 YEAR STRATEGY NETWORK

