
Triplinx - An Integrated View of Regional Transit

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ITS Canada
February 13, 2017



METROLINX

An agency of the Government of Ontario

Triplinx Overview

- Background
- Features
- Strategy
- Partnerships
- Challenges and Lessons Learned
- Future Growth and Innovation

Metrolinx

Metrolinx, an agency of the Government of Ontario under the Metrolinx Act, 2006, was created to improve the coordination and integration of all modes of transportation in the Greater Toronto and Hamilton Area. The organization's mission is to champion, develop and implement an integrated transportation system for our region that enhances prosperity, sustainability and quality of life.

The Metrolinx Vision:

Working together to transform the way the region moves

The Metrolinx Mission:

To champion and deliver mobility solutions for the Greater Toronto and Hamilton Area

The Need for Triplinx

Metrolinx is responsible for planning and coordination of transportation in the Greater Toronto and Hamilton Area

Context of the Triplinx initiative:

- 11 public transit systems including regional transit (GO Transit) and the UP Express airport service
- Each has its own customer information system- of varying maturity

Background:

- Low public awareness of the amount and quality of transit service
- Regional growth is increasing the amount of regional travel involving more than one transit system

There was a critical need for:

- A one-stop source of transit information
- Presentation of all available services as one integrated network

The Need for Triplinx

- Utilized for the PanAm and Para PanAm games in 2015
 - Sporting venues, supplementary services to assist ticket purchasers
- A key strategic tool for customer service transit ridership development
 - Flexible management of multi-agency transit service data
 - One-stop customer information serving entire travel experience
- North American systems, generally:
 - Blend in-house and third party products.
 - Are complemented by independent third party products using open data such as Transit App, One Bus Away, CityMapper, etc.
- European urban regions, generally:
 - Deliver integrated multi-agency, multi-modal scheduled and real time information in multiple forms
- Metrolinx
 - Need for multi-agency transit information to convey richness of integrated GTHA network
 - Multi-agency information is moving beyond internet and apps to IVR, kiosks, and other channels

Triplinx, a Key to Mobility

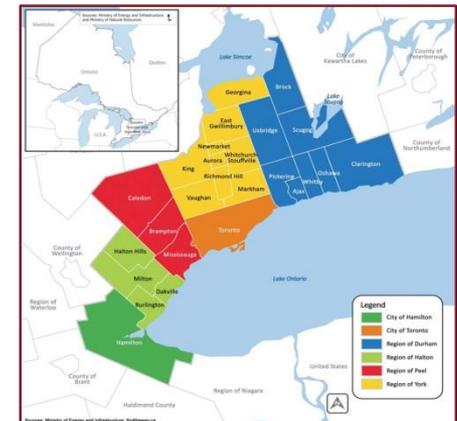
Triplinx is a key element of the Metrolinx strategy for improving mobility in the GTHA

One-stop information resource:

- Intermodal trip planning tool for travel throughout the GTHA
- Information on all GTHA transit and paratransit providers
- Information on schedules, fares
- Desktop and mobile website, apps for iOS/Android

Foundation for future development

- Real-time information and alerts
- Integration of additional modes
- Additional information distribution channels



Triplinx Features

- Map centric system
 - stops, addresses, places and routes interconnected with all functionalities, allowing to find information quickly
- Trip planner and Schedules with real time information on trip times and vehicles
- Favourites and personalized information in real time
- Fares, Transit and Paratransit providers information across the GTHA
- Accessibility is fully integrated in Triplinx
 - WCAG 2.0AA compliant on all platforms
 - Information on accessible travel including itineraries, stop accessibility, Streetview
 - Includes information/contacts on specialized transit service
- Attention to integrated information
 - Harmonization of modal icons
 - Advanced iFrame available for agency websites
 - Agency contact centres use Triplinx to offer multi-agency info

Cityway

Cityway is an Information Technology company created in 2001 and specialized in multimodal passenger information and more widely in all types of people mobility. Our solutions combine all the different modes of transport available on a specific territory, seamlessly, without boundaries including: personal car, public transport, personal bike, bike-sharing, car-sharing, carpool, ridesharing, plane, ferry... Constant development keeps us at the leading edge of technology and allows us to innovate on a day to day basis.

Cityway's goal is to provide efficient information solutions as: multimodal information websites and mobile apps, smart ticketing services, simple or complex real-time and predictive multimodal trip planner, fleet monitoring and supervising systems, management of multimodal transit interchange terminals.

Cityway Products



Information and Data

Transport On demand

E Ticketing

Operations

optyweb
Website and CMS for public transport

optycall
Transport services reservation and call center

payweb
Remote and online sales

geoevents
Efficient disruption information management

optybase
Multimodal reference database

fleetme
Le covoiturage Temps réel

payphone
Tickets and validation on mobile phones

geo3D
Real-time fleet tracking

optygo
Multimodal/intermodal trip planner

Chronopro

mticketing

geomonitor
Multi-partner fleet monitoring

optymob
Mobile transport services and applications

geohub
Multimodal interchange terminal management

optyprint
Schedules/Timetables edition

Cityway Projects



Information
and Data



Transport
On demand



E Ticketing



Operations



Saint-Etienne, on the way to Mobility as a Service.
The overall objective is simple: ensure a real Mobility as a Service, from information to service access (sale of travel ticket, opening of parking barriers, unblocking of self-service bicycles...)



The Optymod'Lyon project - Predictive and real time multimodal information within the Lyon Metropole Area including Public Transportation and Freight



The PACA Mobilité website allows all potential users, citizens of the region or travelers (either for tourism or for business) to find the best intermodal trip solutions to move around the Provence Alpes Cotes d'Azur Region.



Created in 2010 from the collaboration between the French Alsace Region and Cityway, Vialsace is the Multimodal Information System of the region.



Itinisere+: Mobility as a Service in the Isere French County. Itinisere+ is a 12 years project launched by the Conseil General de l'Isère (Isere County public transport authority) in April 2014, to provide real-time multimodal and intermodal information to people moving in the Isere area

Trip planner with real time

Triplinx Beta Plan your route in the Greater Toronto and Hamilton Area

GETTING AROUND | TRANSIT SERVICES | Settings | Français | Members area

Trip Planner

Trip Summary

Start: Harbourfront Centre, TORONTO
End: KING ST WEST AT SPADINA AVE, TORONTO

Tuesday, January 31, 2017 - depart at 3:10 pm
Fastest trip, public transit

MODIFY | RETURN TRIP | NEW TRIP

Trip Results

Depart	Arrive	Time
3:10 pm	3:29 pm	19 min
3:11 pm	3:29 pm	18 min
3:19 pm	3:42 pm	23 min

Trip Details

3:10 pm **A** Leave from Harbourfront Centre, TORONTO

Walk 333m
6 min

3:17 pm **B** Board at QUEENS QUAY W AT HARBOURFRONT CENTRE stop TORONTO

510 SPADINA operated by TTC
Towards NORTH - 510 SPADINA TOWARDS SPADINA STATION
10 min

Accessible

3:27 pm **A** Exit at SPADINA AVE AT KING ST WEST NORTH SIDE stop TORONTO

Walk 81m
2 min

Map data ©2017 Google

Schedules with real time

Triplinx Beta
Plan your route in the Greater Toronto and Hamilton Area

GETTING AROUND | TRANSIT SERVICES | Settings | Français | Members area

Schedules By Route

510 SPADINA

Towards QUEENS QUAY LOOP AT LOWER SPADINA AVE / SPADINA AVE AT KING ST WEST / UNION STATION

Date: Tuesday, 1/31/2017

NEW SEARCH | CHANGE DIRECTION

SHOW ON THE MAP

Today

3 | 20 | PM | OK

ACCESSIBILITY ⓘ
This route is accessible.
Accessible stops are shown on the schedules sheet.

Updated: 3:21 pm

Stop	Trips									
Transport modes	[Bus Icon]									
City : TORONTO										
SPADINA STATION	[+]	[+]	[+]	[+]	[+]	[+]	[+]	[+]	[+]	[+]
map	3:20 pm	3:25 pm	3:29 pm	3:34 pm	3:38 pm	3:43 pm	3:47 pm	3:52 pm	3:56 pm	4:01 pm
SPADINA AVE AT SUSSEX AVE SOUTH SIDE	3:22 pm ▲ 3:21 pm	3:27 pm ▲ 3:26 pm	3:31 pm ▲ 3:30 pm	3:36 pm ▲ 3:35 pm	3:40 pm ▲ 3:39 pm	3:45 pm ▲ 3:44 pm	3:49 pm ▲ 3:48 pm	3:54 pm	3:58 pm	4:03 pm
map										
SPADINA AVE AT HARBORD ST SOUTH SIDE	3:23 pm ▲ 3:22 pm	3:28 pm ▲ 3:27 pm	3:32 pm ▲ 3:31 pm	3:37 pm ▲ 3:36 pm	3:41 pm ▲ 3:40 pm	3:46 pm ▲ 3:45 pm	3:50 pm	3:55 pm	3:59 pm	4:04 pm
map										
SPADINA AVE AT WILLCOCKS ST	3:23 pm ▲ 3:23 pm	3:29 pm ▲ 3:28 pm	3:32 pm ▲ 3:32 pm	3:38 pm ▲ 3:37 pm	3:41 pm ▲ 3:41 pm	3:47 pm ▲ 3:46 pm	3:50 pm	3:56 pm	3:59 pm	4:05 pm
map										
SPADINA AVE AT COLLEGE ST SOUTH SIDE	3:27 pm ▲ 3:26 pm	3:32 pm ▲ 3:31 pm	3:36 pm ▲ 3:35 pm	3:41 pm ▲ 3:40 pm	3:45 pm ▲ 3:44 pm	3:50 pm ▲ 3:49 pm	3:54 pm	3:59 pm	4:03 pm	4:08 pm
map										
SPADINA AVE AT NASSAU ST SOUTH SIDE	3:28 pm ▲ 3:27 pm	3:33 pm ▲ 3:32 pm	3:37 pm ▲ 3:36 pm	3:42 pm ▲ 3:41 pm	3:46 pm ▲ 3:45 pm	3:51 pm	3:55 pm	4:00 pm	4:04 pm	4:09 pm
map										
SPADINA AVE AT DUNDAS ST WEST SOUTH SIDE	3:31 pm ▲ 3:29 pm	3:36 pm ▲ 3:34 pm	3:40 pm ▲ 3:38 pm	3:45 pm ▲ 3:43 pm	3:49 pm ▲ 3:47 pm	3:54 pm	3:58 pm	4:03 pm	4:07 pm	4:12 pm

Site map | Help and web accessibility | About Triplinx | Legal notice | Contact us

Vehicle positions (schedules)

The screenshot displays the Triplinx website interface. The top navigation bar includes 'GETTING AROUND', 'TRANSIT SERVICES', 'Settings', 'Français', and 'Members area'. The main content area is titled 'Schedules By Route' and features a sidebar on the left with various filters: Trip Planner, Stop Finder, Schedules (selected), Paratransit Info, Fares, Service Updates, and Ride-match. The sidebar also contains a search bar for 'Route number or name' with '05 DELAWARE' entered, and a list of route options for the Hamilton Street Railway (HSR). The main map area shows a blue route line with bus icons across Hamilton, Ontario, with labels for 'Hamilton', 'EAST HAMILTON', 'MEADOWLANDS', and 'ANCASTER'. The bottom of the page has a footer with 'Share', 'Search', and links for 'Site map', 'Help and web accessibility', 'About Triplinx', 'Legal notice', and 'Contact us'.

Triplinx Beta Plan your route in the Greater Toronto and Hamilton Area

GETTING AROUND TRANSIT SERVICES Settings Français Members area

Schedules By Route

Transit provider: — Choose a transit provider —

Filter by mode:

- Bus
- Streetcar
- Ferry
- Subway
- Train

Route number or name: 05 DELAWARE

Please select route and direction from the list below.

Hamilton Street Railway (HSR)

- 05 DELAWARE
 - towards 52 HEAD STREET / 52 PIRIE at GOVERNORS / 5C MEADOWLANDS / 5C WEST HAMILTON LOOP / DOWNTOWN / HEAD STREET LOOP / KING at JAMES / MEADOWLANDS TERMINAL PLATFORM 1 / PIRIE at GOVERNORS / WEST HAMILTON LOOP
 - towards 5A GREENHILL at COCHRANE / 5E QUIGLEY at GREENHILL / DOWNTOWN / GREENHILL at COCHRANE / JONES at KING / MAIN

LEGEND

Site map Help and web accessibility About Triplinx Legal notice Contact us

Vehicle positions (locate)

The screenshot displays the Triplinx Beta web application interface. The main content area shows a map of Highway 7 with a blue line representing a transit route. A popup window titled "1 HIGHWAY 7" is centered on the map, providing details for a vehicle heading towards Richmond Hill Centre Terminal - WB YRT/Viva. The popup lists the following next stops and their estimated arrival times:

Next stops	Updated: 3:56 pm
HIGHWAY 7 / EAST BEAVER CREEK RICHMOND HILL	2 min
HIGHWAY 7 / LESLIE ST RICHMOND HILL	3 min
HIGHWAY 7 / WEST BEAVER CREEK RD RICHMOND HILL	4 min

On the right side of the map, a vertical list of stops is shown, each with a red clock icon and an estimated arrival time:

- HIGHWAY 7 / WOODBINE AV
- HIGHWAY 7 / FRONTENAC DR
- HIGHWAY 7 / ALLSTATE PKWY
- HIGHWAY 7 / EAST BEAVER CREEK (2 min)
- HIGHWAY 7 / LESLIE ST (3 min)
- HIGHWAY 7 / WEST BEAVER CREEK RD (4 min)
- HIGHWAY 7 / VALLEYMEDE DR (5 min)
- HIGHWAY 7 / SADDLE CREEK DR (6 min)
- HIGHWAY 7 / CHALMERS RD (6 min)
- HWY 7 / BAYVIEW (8 min)
- HIGH TECH RD / CAYMUS ST (11 min)
- HIGH TECH RD / FAR NIENTE ST (11 min)
- HIGH TECH RD / SILVER LINDEN DR (12 min)
- HIGH TECH RD / FERRIS ST (13 min)

The left sidebar contains the "Trip Planner" section with fields for "Start" and "End" (Address, stop, or place), an "Accessible trip" checkbox, a "Depart at" time selector (4:00 PM), and a "PLAN TRIP" button. Other sidebar options include Stop Finder, Schedules, Paratransit Info, Fares, Service Updates, and Ride-match. The top navigation bar includes "GETTING AROUND", "TRANSIT SERVICES", "Settings", "Français", and "Members area". The bottom footer contains "Share", "Search", and links for "Site map", "Help and web accessibility", "About Triplinx", "Legal notice", and "Contact us".

Favourites with real time

Personal dashboard:

- Favourite trips followed in real time
- Next departures in real time
- Real time information for bike stations

The screenshot displays a mobile application interface titled "MY PERSONAL REAL TIME INFO" with a close button (X) in the top right corner. The data is updated at 3:06 PM. The interface is divided into two main sections: "MY NEXT DEPARTURES" and "MY BIKE STATIONS".

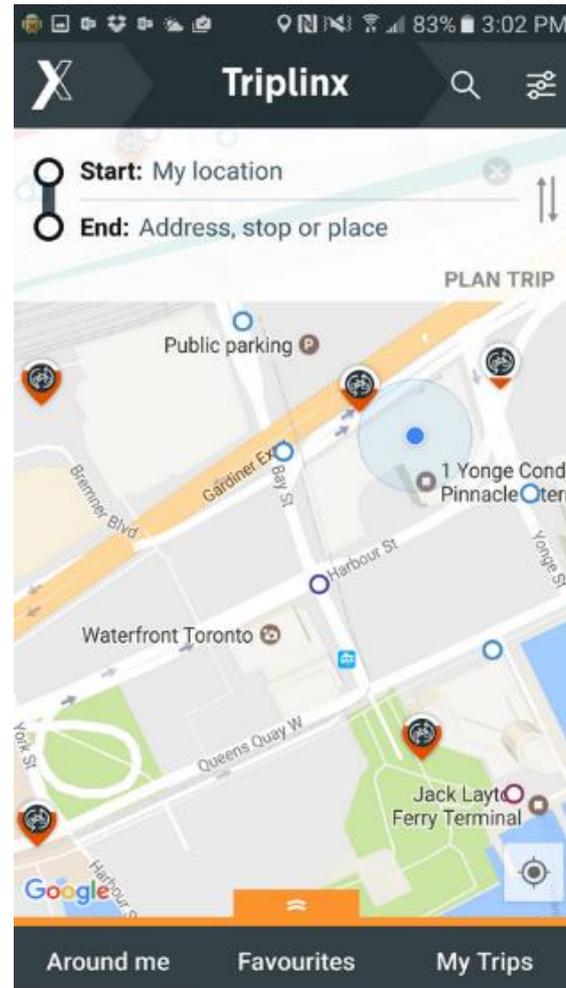
MY NEXT DEPARTURES

- GARNER at HAMILTON, HAMILTON**
[Locate on the map](#) [Add routes](#)
- 44** towards At 1290 CORMORANT / GLANCASTER
LOOP / RYMAL at UPPER JAMES Hamilton Street Railway (HSR)
 - towards ANCASTER BUSINESS PARK 2 min
 - towards ANCASTER BUSINESS PARK 3:33 pm
 - towards ANCASTER BUSINESS PARK 3:59 pm
- Union Station Bus Terminal, TORONTO**
[Locate on the map](#) [Add routes](#)
- 6** towards DAVENPORT RD AT DUPONT ST / DAVENPORT RD AT YONGE ST / DUPONT ST AT BEDFORD RD TTC
 - towards NORTH - 6A BAY TOWARDS DUPONT < 1 min
 - towards NORTH - 6A BAY TOWARDS DUPONT 9 min
 - towards NORTH - 6B BAY TOWARDS BLOOR AND DAVENPORT/YONGE 3:26 pm

MY BIKE STATIONS

- 25 York St (ACC/Union Station South), TORONTO**
P 4 B 7
- Union Station, TORONTO**
P 20 B 6

Map centric IOS and Android apps



Trip planner with real time

Triplinx

A COLLEGE ST AT BAY ST, TORONTO
B KING ST WEST AT SPADINA AVE, TO...

Leave now Accessible

Fastest trip Fewest transfers Less walking

03:07 PM - 03:27 PM 19 min <1 min

TTC

03:10 PM - 03:29 PM 19 min 2 min

TTC

03:11 PM - 03:35 PM 23 min 4 min

TTC

Toronto

CHINATOWN

OLD TORONTO

FOLLOW THIS TRIP

Trip details <1 min 19 min

03:10 PM **A BAY ST AT COLLEGE ST, TORONTO**

SOUTH - 6 BAY TOWARDS QUEENS QUAY AND SHERBOURNE

6 7 stops 7 min

03:17 PM **B BAY ST AT KING ST WEST, TORONTO**

Favourites Save trip Share

ARRIVAL TIME: 03:24PM STOP

University of Toronto - St. George Campus

CHINATOWN

OLD TORONTO

STEP 1 10 min

Alarm when it's time to get out

5 min **A BAY ST AT COLLEGE ST, TORONTO**

NORTH - 6A BAY TOWARDS DUPONT

6 7 stops

BAY ST AT GROSVENOR ST
 BAY ST AT WELLESLEY ST
 BAY ST AT ST JOSEPH ST
 BAY ST AT CHARLES ST
 BAY ST AT CUMBERLAND ST
 BAY ST AT DAVENPORT RD

Schedules with real time

2.1 km

COLLEGE ST AT BAY ST

College St At Bay St

506	7 min	8 min	03:28pm
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COLLEGE ST AT LANSDOWNE AVE / GERRARD ST EAST AT COXWELL AVE / MAIN STREET STATION

Bay St At College St

6	2 min	14 min	03:37pm
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DAVENPORT RD AT DUPONT ST / DAVENPORT RD AT YONGE ST / DUPONT ST AT BEDFORD RD

College St At Bay St

Favourites Start End Nearby transit

BAY

6

DOCKSIDE DR AT QUEENS QUAY EAST

WEST (BAY STATION)		
BAY ST AT CHARLES ST WEST SOUTH SIDE	6 min	
BAY ST AT ST JOSEPH ST	7 min	
BAY ST AT WELLESLEY ST WEST SOUTH SIDE	8 min	
BAY ST AT GROSVENOR ST SOUTH SIDE	8 min	
BAY ST AT COLLEGE ST	9 min	
BAY ST AT GERRARD ST WEST	11 min	
BAY ST AT ELM ST	11 min	
BAY ST AT DUNDAS ST WEST (TORONTO COACH)	12 min	

Previous trip Favourites Direct Schedules Now Next trip

BAY ST AT COLLEGE ST

BAY ST AT COLLEGE ST

DOCKSIDE DR AT QUEENS QUAY EAST

1 min	8 min	14 min
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Schedules at stop

Developing a Strategy

Customer-driven approach

- A market research survey and mapping of information needs throughout a variety of transit trips strengthened the case for the system and kept focus on customer needs

Regional Transit Traveller Information Strategy for the GTHA, providing a vision and guidance for the project, was completed in 2012

- Scope of “Foundation Project”
- High level architecture
- Inventory of transit agency readiness
- Guidance on project approach and governance

Stakeholder Involvement

- All GTHA transit services worked together to develop a strategy for a consolidated source of transit information for the region

Strategic Themes

Role for Public Sector

- Private sector was not delivering complete, regionally-responsive, quality transit information systems required by customers
- Traveller Information is a strategic tool for urban mobility
- Public sector must provide core functions and data consolidation

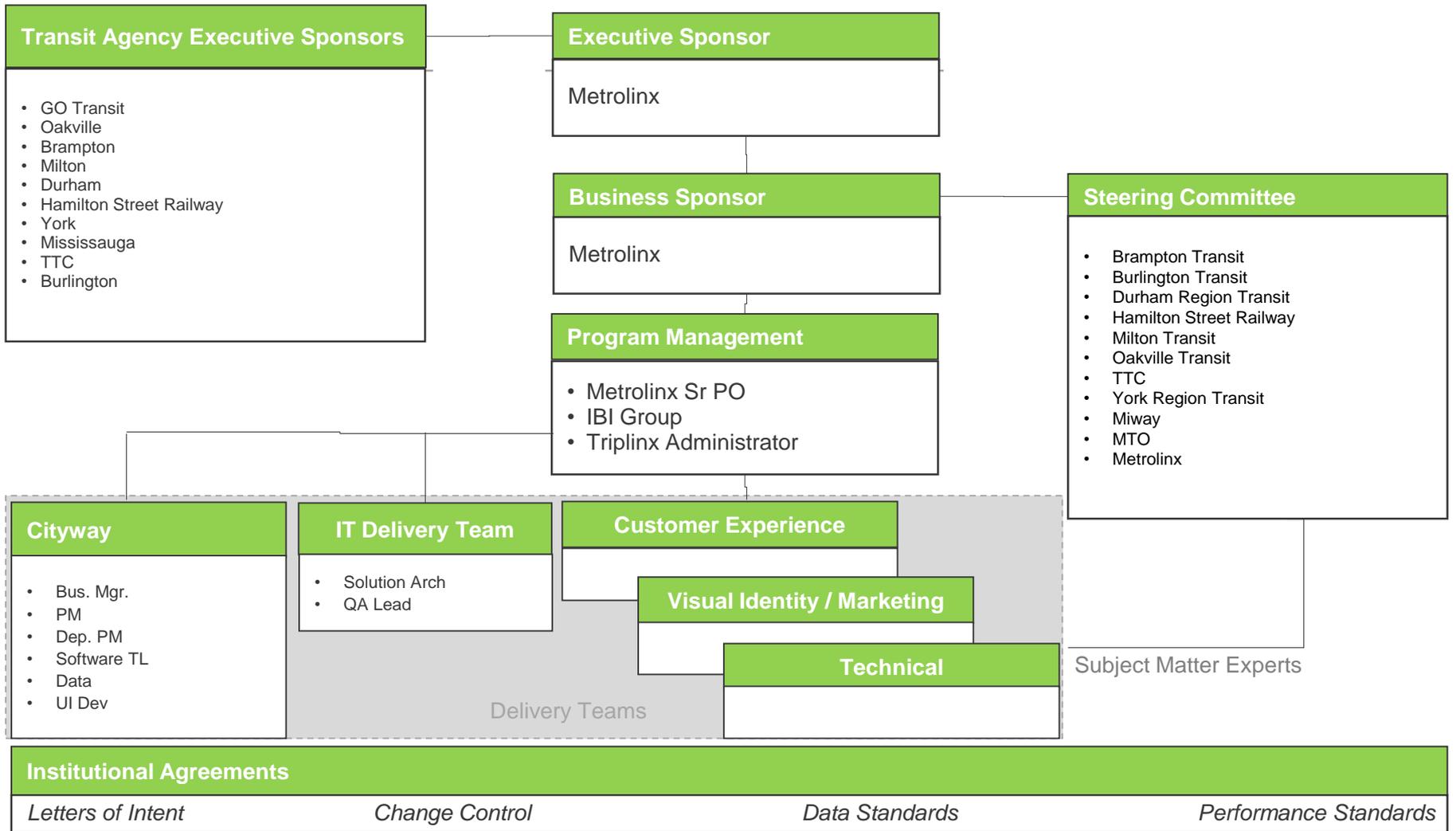
Collaboration with transit agency partners

- Shared commitment to customers
- Build on agency systems and data
- Engage expertise

An incremental implementation strategy

- Start with trip planning and scheduled/static information
- Grow in manageable increments - manage risk
- Establish working relationships and confidence
- Create the foundation for future projects

Project Governance



Distributed Teamwork

- Project management
- Business analysis, requirements definition
- Quality Assurance
- Procurement and related legal and technical support
- Visual design, alignment with regional wayfinding
- Accessibility
- User Experience
- Communications

Partnership for Integration

Delivered as a partnership:

- Each agency is responsible for providing timely accurate data
 - Internal processes
 - GTFS file testing/preparation
 - Supplementary data such as stop accessibility, POIs, fares
- Application acquired and operated by Metrolinx:
 - Procurement, project management, acceptance
 - Monitoring and administration

Governance actively engages agencies:

- Customer Experience and Technology
- Steering Committee
- Working Groups



Challenges

- Maturity and quality of data - Real-time departure data not yet available from all agencies
- Agility to deliver enhancements to ensure Triplinx is regarded as “one-stop” source of information portraying one integrated regional transit network
- Consensus re: future roadmap

Lessons Learned

- Establish a strong shared vision
- Maintain a Customer-centric focus
- Provide active collaborative governance
- Promote Client / Vendor / Agency teamwork
- Continuous review of usability

Future Growth and Innovation

Next phases are currently under development for 2017:

- Integration of real-time information
 - Phase 2 → Real-time next departure – additional agencies
 - Phase 3 → Service bulletins/alerts and personal subscriptions

Future phases may include:

- New agencies and services (additional connecting transit agencies outside GTHA, Intercity rail/coach)
 - Ie: Niagara, Grand River, Guelph, Barrie, Peterborough
- Additional channels (kiosks)
- First Mile / Last Mile
- Integration with extended road / flight information

Thank you