



Hamilton

Item
8.1

A photograph of a public transit bus stop on a city street. A white bus with a yellow stripe is stopped at the curb. Several people are waiting, including a person in a red hoodie and a person in a pink jacket. A glass bus shelter is visible on the right. In the background, there are buildings, a sign for 'Eastgate FORTINOS', and a street sign with the number '4'.

Transit: Public Works, April 3, 2023

Public Works Department
TRANSIT DIVISION

PRESENTATION OUTLINE



Public Works Committee Reports: April 3, 2023

- The HSR (Re)Envisioned to The HSR (re)Designed (Recommendation)
- On Demand Transit Pilot Summary (Recommendation)
- Fare Programs (Recommendation)
- Accessible Transportation Service Eligibility Audit Update (Inform)
- Vibration Analysis Study (Inform)
- Transit Safety (Inform)

PRESENTATION OUTLINE



- The Role of Transit in Our Community
- The 10 Year Local Transit Strategy
- (Re)Envision the HSR to the HSR (re)Designed
- Transit Growth Strategy
- Reports

THE HSR (RE)DESIGNED



- History/Background
- Problem Identification
- Methodology and Approach
- Inputs
- Desired Outcomes

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

Related Activities:

- ↓ 2006 – Growth Related Integrated Development Strategy (GRIDS)
- ↓ 2007 – Transportation Master Plan: City in Motion (BLAST)
- ↓ 2008 – Regional Transportation Plan: The Big Move
- ↓ **2013 – Expanding Mobility Choices for Hamilton: Rapid Ready (PW131014)**
- ↓ **2015 – Ten Year Local Transit Strategy (PW14015a)**

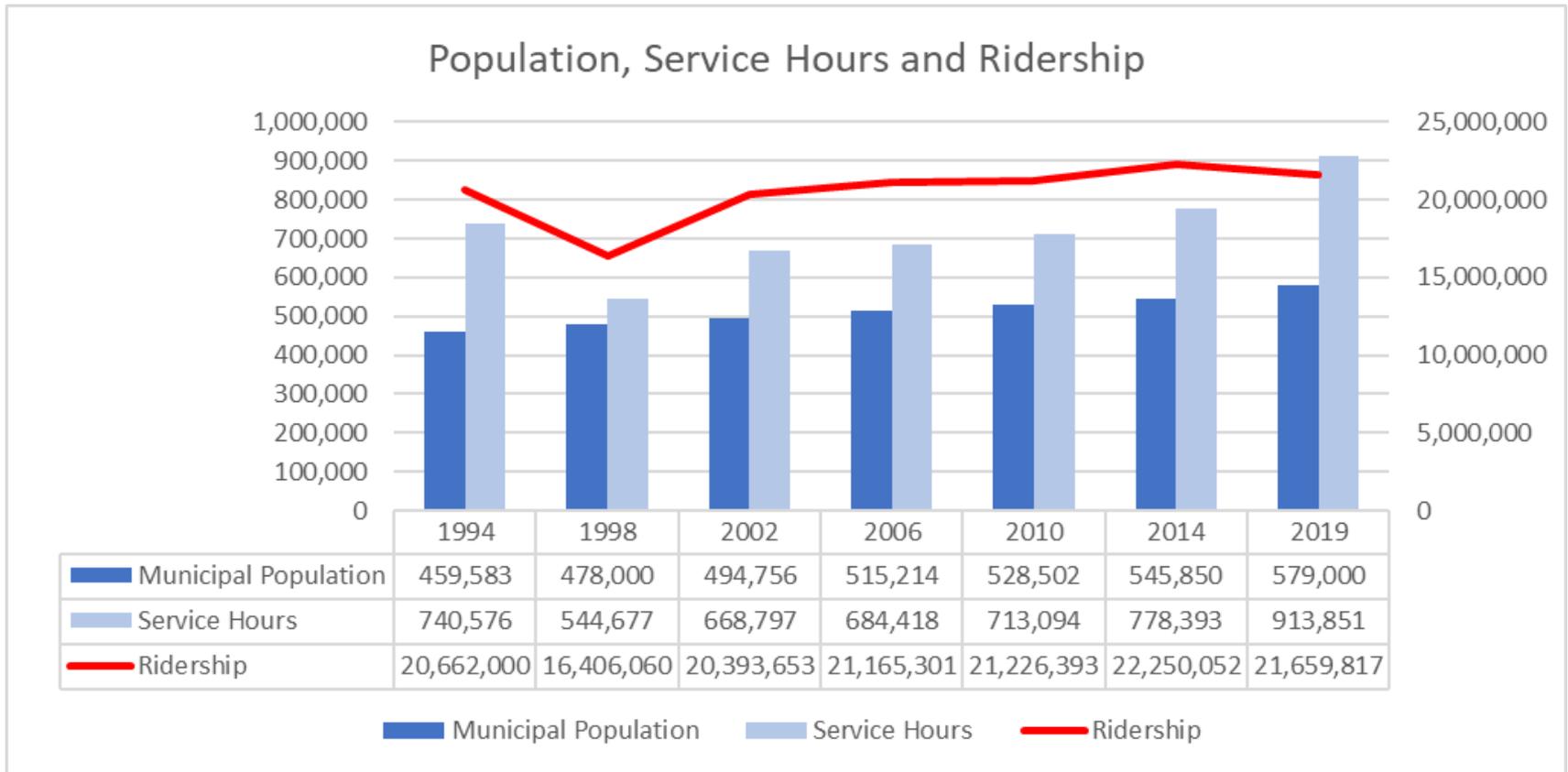
(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

Related Activities Continued:

- ↓ 2018 – Regional Transportation Plan: 2041 RTP
- ↓ **2018 - (Re)Envision the HSR**
- ↓ 2019 – LRT project cancelled
- ↓ 2020 – COVID Pandemic
- ↓ 2021 – LRT project re-instated
- ↓ 2022 – Main Street 2-way conversion

2023 – The HSR (Re)Designed – Rail Ready

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021



(RE)ENVISION THE HSR

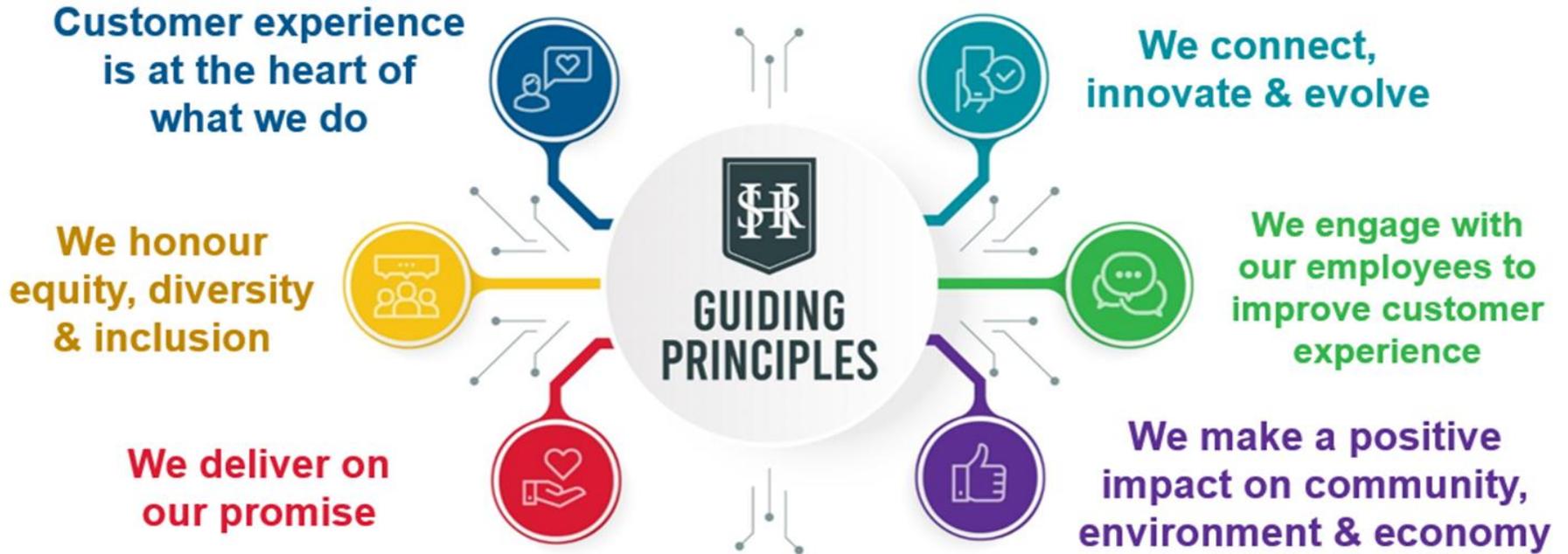
- Council approved the (Re)Envision the HSR project as part of the 2018 budget.
- Transit partnered with McMaster's Department of Civil Engineering to conduct "A Systemic Assessment and Optimization of the Hamilton Street Railway Network"
- (Re)Envision the HSR had two key elements:
 - Explore the voice of customer on perceived and desired quality of service and
 - Conventional bus network re-configuration

(RE)ENVISION THE HSR

The HSR (re)Designed started with Council-led inputs, including:

- Council priorities
- The Official Plan
- Transportation Master Plan
- Economic Action Plan Objectives
- and the voice of the customers as collected through (Re)Envision the HSR.

(RE)ENVISION GUIDING PRINCIPLES



(RE)ENVISION VOICE OF CUSTOMER



(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

(Re)Envision the HSR Public Consultation: Core Elements from VOC Engagement

- Reduce **trip time & transfers**
- Be **on time**
- Fare **affordability**
- Increase **connectivity** with other modes & GO
- Increase frequency on **weekends & holidays**
- Bus stops as a **public space**

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

The current state of the existing network reflects:

- The core structure is ~100 years old with most routes passing through downtown, and a very flat route structure not aligned to neighborhood makeup
- Has operational vulnerabilities, which present risks in service reliability
- Significant variation in route frequencies and spans, resulting in service inequities throughout the City

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

The current state of the existing network reflects:

- Changes have been incremental and piecemeal after service reductions in the 1990's
- No longer reflective of current/future transit needs Hamiltonians travelling in Hamilton and throughout the GTHA, or keeping up with growth
- Not “rail ready” to feed and sustain LRT success

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

Partnership between McMaster University and HSR

- Dr. Moataz Mohamed, Principal Investigator, Department of Civil Engineering, Faculty of Engineering, McMaster University
- Qualitative and quantitative approach

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Empirical Data Included:

- Network operations assessment, including connectivity and bus stop utilization
- Network robustness and risks assessments
- Accessibility, travel time and coverage
- Desired and perceived quality of service analysis
- Willingness to pay
- Land use assessment, including major employment centres, trip generators and neighborhood density

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

McMaster and Transit staff undertook an assessment of the City of Hamilton's **Urban Official Plan**, considering the following inputs:

Downtown Urban Growth Centre

- a major transit hub for the City with a GO rail station and higher order transit systems extending from the Centre
- designed to accommodate all modes of transportation with a focus on transit and active transportation
- parking requirements shall be considered to encourage a broader range of uses and densities and to support transit

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McMaster and Transit staff undertook an assessment of the City of Hamilton's **Urban Official Plan**, considering the following inputs:

Urban Corridors

- Primary corridors shall serve to link two or more nodes, major activity centers, or employment areas
- Primary corridors shall be served by the higher order of transit service
- Reductions in parking requirements shall be considered in order to encourage a broader range of uses and densities to support existing and planned transit routes

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McMaster and Transit staff undertook an assessment of the City of Hamilton's **Transportation Master Plan**, considering the following inputs:

- Sets an aspirational modal target to shift the current transit mode split of 7% to 12% by 2031
- Continue to advance planning for the implementation of the rapid transit network
- As part of ongoing traffic enhancements, road reconstruction and implementation of the rapid transit network, deliver program of transit priority measures including reserved bus lane, transit priority signals, queue jump lanes and other measures to improve the efficiency of transit with priority given to the BLAST network

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McMaster and Transit staff undertook an assessment of the City of Hamilton's **Economic Action Plan**, considering the following inputs:

- Operate and expand the Hamilton's public transportation system to meet the growing needs of the City
- Pursue infrastructure funding from higher levels of government to add capacity to transportation infrastructure and services to meet forecasted demand resulting from expected population and business growth
- Enhanced frequent transit service network of LRT, BRT, Priority bus corridors and two-way all day GO service connecting to commercial areas and communities will attract future investment and increase access to employment

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(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

The (re)Designed HSR Network is expected to generate the following outcomes:

- Increased transit ridership
- Improved transit infrastructure
- Improved general access to transit, improving accessibility and mobility options for all
- Minimized travel times between key trip generators through more direct trips
- Maximized service reliability by enhancing robustness and minimizing risk in customer trips
- Expanded service spans (operations hours) and coverage (service area) for more equitable service
- Improved access to Rapid Transit service in all areas of the City
- Improved network connectivity to future LRT
- Improved connectivity to regional transit services

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

What's Different in the (re)Designed Transit Network?

- ✓ Migrating to a hub-based network
- ✓ Hierarchical route structure
- ✓ Expanded rapid transit coverage
- ✓ Improved connectivity to interregional transit
- ✓ Improved connectivity to employment areas
- ✓ Improved reliability
- ✓ Reduced transfers and travel times between key trip destinations
- ✓ Improved transit infrastructure on street, at hubs and gateways
- ✓ More connections to the LRT

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Hubs (Terminals and Gateways)

- Transit hubs strategically located throughout the city at major trip generators based on employment, land-use & interregional connections
 - Terminals: multi-platform transit hub
 - Gateways: urban periphery
- Infrastructure required for hubs, end of lines, terminals, gateways and loops

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Route Hierarchy

- Rapid Routes (10 mins peak)
- Core Routes (15 mins peak)
- Feeder Routes (15 mins peak)
- Local Routes (20 mins peak)
- On-Demand (request-based)

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Service Standards (minimum not maximum)

- Standardizing span is important for equitable service across the community.
- Weekdays and Saturdays 5:00 AM – 2:00AM
- Sundays 6:00 AM – 2:00 AM

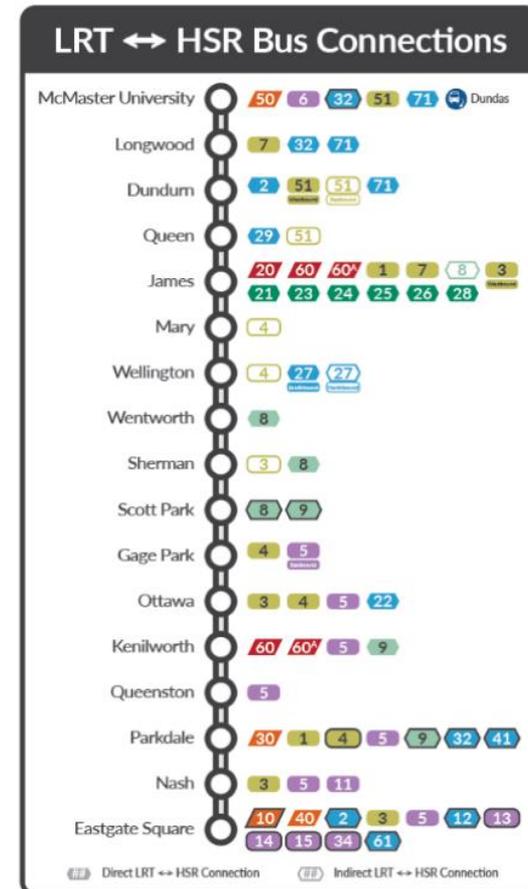
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Shifts to current configurations:

- Enabling two-way conversions on Queen Street North and Victoria Avenue South
- Claremont Access
- James Street Corridor
- West Harbour Go

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- LRT Connections
- " Rail Ready"

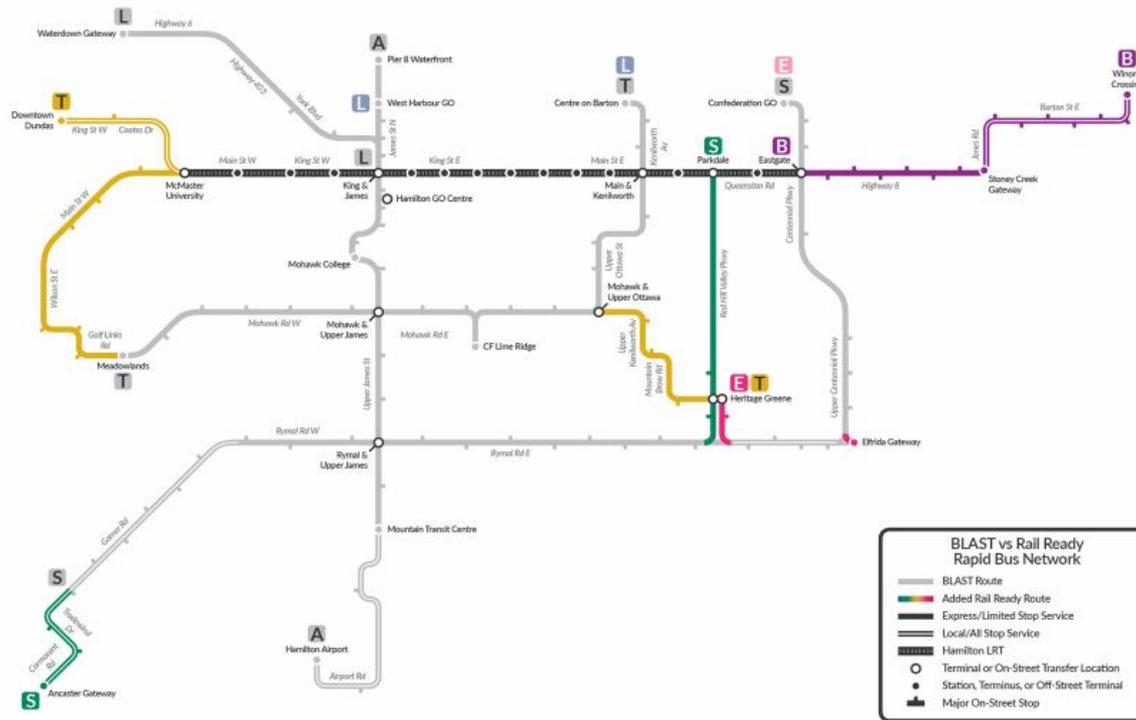


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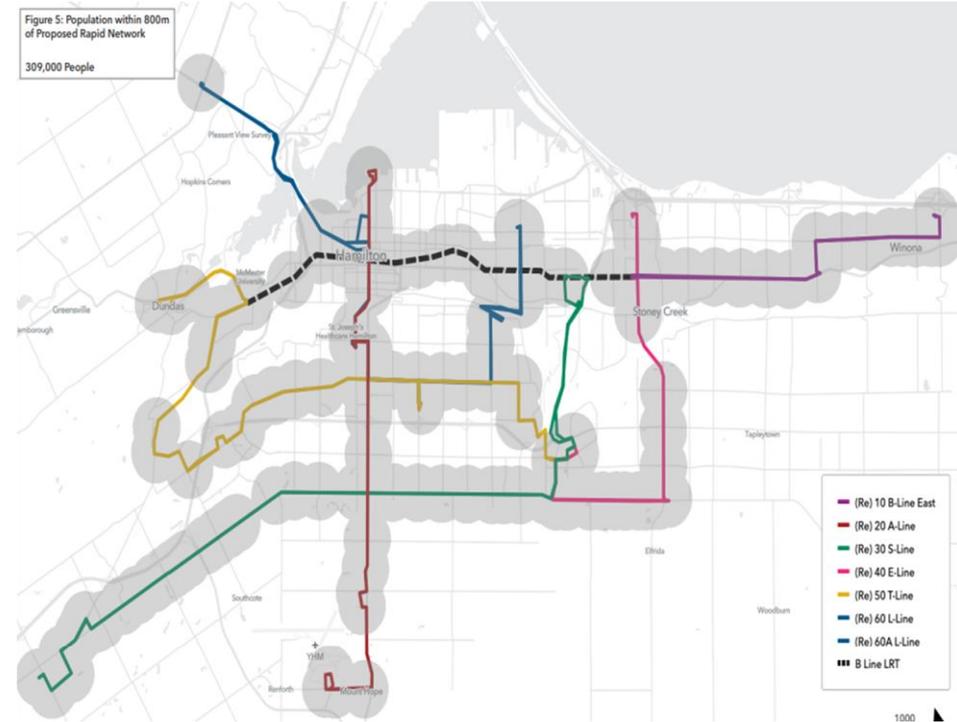
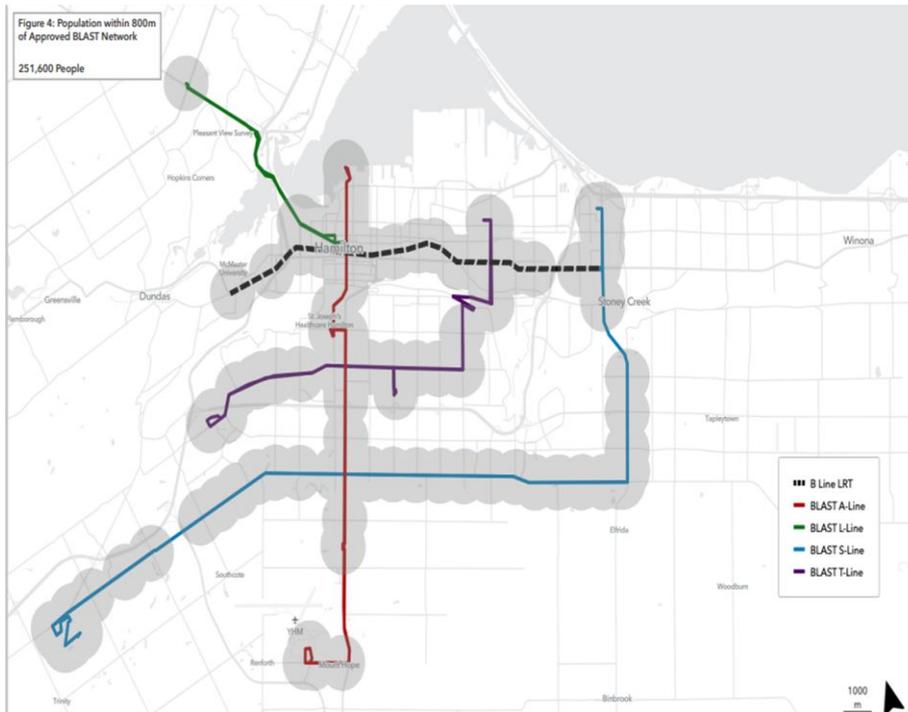


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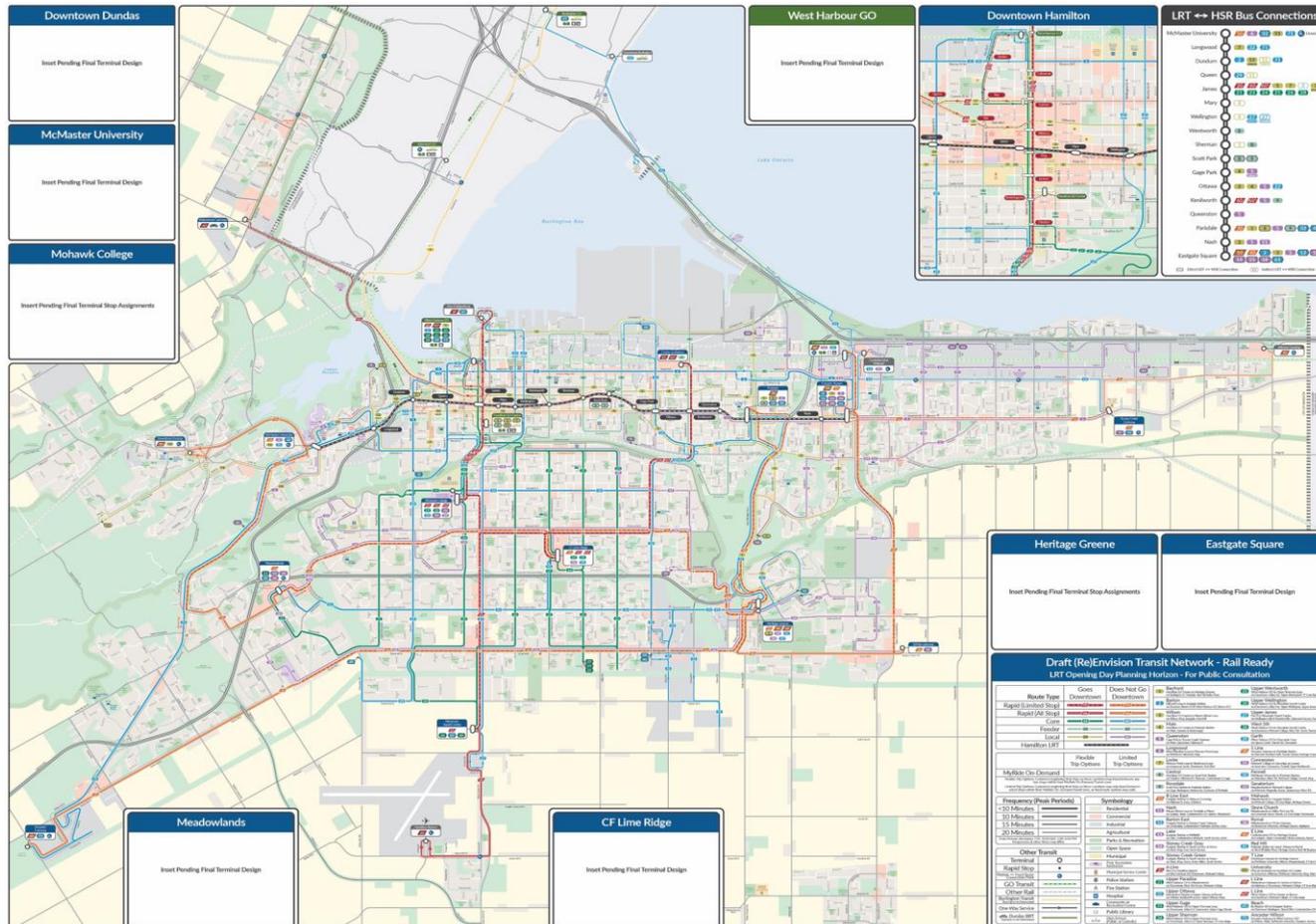
IMPROVED ACCESS TO RAPID TRANSIT



(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021



(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021



(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

	Existing HSR Network	(Re)designed Network	Change
Routes			
Regular	31	44	13
Seasonal	4	0	-4
Total Routes	35	44	9
Route Operation			
7 Day Week (365)	24	44	20
Rapid Routes	2	6	4
Bus Stops	2,359	2,471	112

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

	Existing HSR Network	(Re)designed Network	Change
Hours of Service			
Revenue	950,425	1,522,780	572,355
Non-revenue	51,948	83,964	32,016
Total Hours	1,002,373	1,606,744	604,371
Kilometers Travelled			
Revenue	16,529,146	28,462,556	11,933,410
Non-revenue	1,946,289	3,361,456	1,415,167
Total Kilometers	18,475,435	31,824,012	13,348,577
Fleet			
Small Buses	11	30	19
Standard Bus (40")	234	236	2
Articulated Bus (60")	49	92	43
Total Buses	294	358	64

LIVE NETWORK SIMULATION (M-F)



Civil Engineering

Frequency Analysis

Weekdays Operation

Current HSR Network Vs. Proposed HSR Network

Dr. Moataz Mohamed

March 2023

LIVE NETWORK SIMULATION (SATURDAY)



Civil Engineering

Frequency Analysis Saturday Operation

Current HSR Network Vs. Proposed HSR Network

Dr. Moataz Mohamed

March 2023

LIVE NETWORK SIMULATION - SUNDAY



Civil Engineering

Frequency Analysis

Sunday Operation

Current HSR Network Vs. Proposed HSR Network

Dr. Moataz Mohamed

March 2023

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

Next Steps:

- Consultation
- In person and on-line public sessions, pop-up events, Ward events
- Engage Hamilton, public survey
- Modifications to network, costing and timeline to generate the Transit Growth Plan in time for 2024 Budget Cycle

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

Recommendation Report:

- That the General Manager, Public Works or designate, be directed to seek stakeholder feedback on the concept network through formal public consultation completed by September 30, 2023;
- That the General Manager, Public Works or designate, be directed to review the Council-approved Service Standards considering equity;
- That the General Manager, Public Works or designate, be directed to review the Council-approved Urban Transit Area (UTA) boundary; and

(RE)ENVISION THE HSR – THE (RE)DESIGNED HSR NETWORK - PW23021

Recommendation Report:

- That the General Manager, Public Works or designate, be directed to report back to Council in Q1 2024 with a new Transit growth plan to include;
 - phasing and implementation strategy of the concept network.
 - financial strategy (capital and operating) for the phasing and implementation of the concept network.
 - communications strategy for the phasing and implementation of the concept network.
 - ridership and revenue forecast for the concept network at full implementation.
 - recommendations on any changes or updates to the Service Standards to align with Council’s priority for equity, diversity and inclusion and multi-modal accessible transportation.
 - recommendations on any changes to the UTA to support transit growth within the current and expanding Urban Boundary to align with Council’s priority for integrated growth and development.

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MY RIDE ON DEMAND TRANSIT



MYRIDE WATERDOWN ON-DEMAND PILOT REVIEW - PW23023

Recommendation Report:

- That myRide Waterdown on-demand pilot that commenced on September 7, 2021, be considered complete.
- That the hybrid transit service, introduced on November 7, 2022 and currently operating as a combination of fixed route service and myRide on-demand service, continue to operate as the recommended transit solution for Waterdown.
- That the General Manager, Public Works or designate, be directed to incorporate any future changes to service in Waterdown or any future introductions of on-demand service into the Transit growth plan recommendations.

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MYRIDE WATERDOWN ON-DEMAND PILOT REVIEW - PW23023

Key Highlights:

- One-year pilot of fully dynamic on-demand service ran from September 2021 to August 2022.
- A post period continuation of pilot ran from September 2022 to November 2022.
- A hybrid of fixed route and on-demand transit has been running from November 2022 and is the recommended transit solution for Waterdown.
- On-demand service has potential use cases in suburban areas where transit use has been or is anticipated to be low.

MYRIDE WATERDOWN ON-DEMAND PILOT REVIEW - PW23023

Key Highlights:

- On-demand service has potential to be a cost-effective way to introduce service without fully committing to the level of investment required for fixed route service.
- As a standalone service, on-demand service is largely susceptible to fluctuating cost and performance resulting from changes in demand.
- On-demand service is best suited for smaller geographic areas or zones where it can be connected to fixed route service.
- Potential future use areas: Stoney Creek, Dundas, and Ancaster as set out in the HSR (re)Design.

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HSR "FARE ASSIST"



HSR FARE POLICIES - PW23024

Recommendation Report:

- That the General Manager, Public Works or designate, be directed to implement free fare as a permanent fare concession program for children ages 6-12 who use a PRESTO card, effective May 1, 2023.
- That the General Manager, Public Works or designate, be directed to seek stakeholder feedback on the Fare Assist Program through public consultation to be completed by May 31, 2023, with a recommendation back to the Public Works Committee.

HSR FARE POLICIES - PW23024

Key Highlights:

- Transit affordability is a historical issue for transit users.
- Fare structures do not factor in ability to pay.
- Monthly bus pass programs require lump sum monetary commitment at the start of the month.

REPORT PW23024 CONTINUED

FARE ASSIST PROGRAM

Key Highlights:

- Consulting on a new "Fare Assist" program, which will offer a 30% discount on PRESTO fares to qualifying individuals and members of their household, including partner and children ages 0-17 years.
- Pay as you go format will allow cardholders to load an amount of their choosing onto their card based on their travel needs.
- During a Fare Assist pilot, the Temporary Transit Fare Special Program and the Affordable Transit Pass programs will be suspended.
- The Fare Assist program provides greater opportunity for access than the suspended programs and is a more equitable product offering.

ATS ELIGIBILITY AUDIT MANAGEMENT RESPONSE



ATS ELIGIBILITY AUDIT MANAGEMENT RESPONSE – PW21055(B)

Information Report

There is no recommendation accompanying this report.

ATS ELIGIBILITY AUDIT MANAGEMENT RESPONSE – PW21055(B)

Key Highlights:

- Work on the recommendations arising from the ATS Eligibility Audit (AUD 20009) is on-going.
- Progress has been made on:
 - Revised application process in place
 - Contractor for assessments in place

ATS ELIGIBILITY AUDIT MANAGEMENT RESPONSE – PW21055(B)

Progress to Date:

- Revised application process with better confidentiality and privacy controls in place
- Contractor (Bayshore Health) engaged for assessment purposes when required
- Travel Training reevaluated
- Integrated Transit – application for specialized vehicles and an accessible supervisor vehicle through Investing in Canada Infrastructure Program (ICIP)
- Trip No-Shows and Late Cancellations software enhancements for tracking

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HSR VIBRATION STUDY



HSR VIBRATION STUDY - PW23022

Information Report

There is no recommendation accompanying this report.

HSR VIBRATION STUDY - PW23022

Key Highlights:

- Engaged Abilitech to test for whole body vibration (WBV) and hand arm vibration (HAV)
- The goal of the assessment was to complete a statistical examination of vibration data for each series of bus

HSR VIBRATION STUDY - PW23022

Key Highlights:

- Some of the routes in testing for WBV & HAV resulted in levels of vibration above the upper limits according to ISO
- Under good road conditions, none of the bus models in the fleet would expose an Operator to any elevated risks associated with WBV
- Overall, the vibration analysis indicates that road conditions had the most impact on both WBV and HAV for the Operator
- HAV results indicated that under optimal road conditions, none of the bus models in the fleet would expose an Operator to any elevated risks associated with HAV.
- However, under less optimal road conditions there were several statistically significant differences between the bus models for HAV

HSR VIBRATION STUDY - PW23022

Key Highlights:

- Exposure limits become problematic at 8 hours of continuous drive time without breaks.
- Operator work assignments are scheduled with designated recovery time, typically 80% drive time to 20% recovery time over an average shift.
- Operators on split shifts would have less exposure and Operators electing overtime may increase their exposure.

HSR VIBRATION STUDY - PW23022

Study Results:

Generally, both the Nova standard bus and New Flyer Articulated Bus model buses were most impacted by less optimal road conditions for HAV, with the Nova models being the most affected and the Vicinity buses being least affected. Under less optimal road conditions, an Operator is exposed to elevated risks associated with HAV.

The report indicates that there were no statistically significant differences in terms of WBV exposure by make and model of bus in the standard bus and articulated bus size; however, the smaller Vicinity buses performed better than all others in terms of WBV and appeared to mitigate poor road conditions better than the other vehicles tested.

HSR VIBRATION STUDY - PW23022

Progress to Date:

- Distribution of the following wellness materials to operators;
 - Operator wellness and stretching guide
 - Seat adjustment instructions
 - HAV & WBV information posted
 - Encouragement for wellness activities outside work hours
- Cross department collaboration
 - HSR training team has introduced above materials into new operator and operator refresher programs
 - Development of a rough roads reporting procedure
 - Creation of committee including HSR JHSC members and TOM to identify and address rough roads
 - Dialogue with Engineering Services about prioritization for projects

HSR PUBLIC SAFETY UPDATE



HSR PUBLIC SAFETY UPDATE - PW23025

Information Report

There is no recommendation accompanying this report.

HSR PUBLIC SAFETY UPDATE - PW23025

Key Highlights:

- Transit safety is a key priority for HSR, and extends to Operator, customer and community safety.
- Transit's approach to safety is multi-faceted, encompassing technology, education, information and training.
- Introduction of "Speak Up, Speak Out"

HSR PUBLIC SAFETY UPDATE - PW23025

Speak up,
Speak out.

Your safety is our top priority at HSR.

If you experience or witness any type of harassment or hate, **report it to Hamilton Police.**

For emergencies or a crime in progress:

 Call 911



For all non-emergencies:

 Call 905-546-4925



 Report online
hamiltonpolice.on.ca

