



**Massachusetts Bay
Transportation Authority**

Better Bus Project Update

(Part 1)

Fiscal and Management Control Board

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September, 23 2019

Better Bus Project.

Agenda

Purpose: Update the Board on the status of Better Bus Project implementation, including Near-term Changes roll-out for fall and winter, and the Multi-year Investment Strategy investments in bus transit priority

- Review of **September 1 Near-term Changes** implementation and upcoming winter changes
- Update on status of **bus transit priority program** and implementation of priority infrastructure
- Update on status of **Network Redesign** (*part 2 of presentation*)



September 1 Changes Update

- **29 cost neutral route changes** implemented
- **27 of 45 new bus operators** added to 22 routes (and “cover list”) for **off-peak improvements**
- Limited customer complaints, but will continue to monitor
- Will present **full evaluation of route changes** in September 2020 (with preliminary review starting winter/spring 2020)

Cost Neutral Route Changes

SEPTEMBER 1 CHANGES

CT1	4	5	16	34E
44	59	89	90	92
95	106	111	120	134
411	424	428	435	441
442	448	449	455	459
501	502	503	504	

Net New Off-Peak Operators in Top 40 Routes/Corridors (as of Sept. 1st)

Highest Ridership Routes/Corridors Definition: >3,200 daily weekday riders

Key Bus Routes (14)	1	28	66	111	<ul style="list-style-type: none"> • ### = Route that received net new operator hours in fall 2019 • Not all routes received the same number of hours; Routes 15, 66, 89, 104, 109, and 116 represent ~45% of additional hours • Reminder: Goal is to achieve 90% OTP (Trip start), SDP frequency, SDP span of service for <u>off-peak</u>
	15	32	71	116/117*	
	22	39	73		
	23	57/57A*	77		
Silver Line (5)	SL1	SL3	SL5		
	SL2	SL4			
Local Routes w/ highest ridership (21)	7	31	47	88	<ul style="list-style-type: none"> • ### = Route that received net new operator hours in fall 2019 • Not all routes received the same number of hours; Routes 15, 66, 89, 104, 109, and 116 represent ~45% of additional hours • Reminder: Goal is to achieve 90% OTP (Trip start), SDP frequency, SDP span of service for <u>off-peak</u>
	9	34/34E*	70/70A*	89	
	16	35/36/37*	86	93	
	21	44	87	101	
				104	441/442*
				109	
				110	
				220/221/222*	

Note that this calculation does not include the additional service hours that were redistributed from Route CT1 to Route 1, Route 5 to Route 16, or from Routes 448 and 449 into Routes 441 and 442. * Refers to corridor created by overlapping routes which have very high ridership when taken together; Daily weekday ridership determined via APC counts

Upcoming December 22 Near-term Changes

- **December roll-out** will incorporate lessons learned from fall implementation
- **17 route changes planned**, with 5 additional changes contingent on continued municipal/private party support
- **18 of 45 new bus operators** added to scheduled routes and “cover list” for off-peak improvements

Cost Neutral Route Changes

PLANNED DECEMBER 1 CHANGES

- 35
- 36
- 37
- 44
- 52
- 64
- 70
- 63/70A
- 72
- 74
- 75
- 201
- 202
- 220
- 222
- 225
- 226

RESOLVING CONTINGENCY

- SL2
- 9
- 34
- 60
- 350

Net new bus operators (for Dec. 22)

Additional Operators	Scheduled	Cover	Total
Total	13	5	18

Better Bus Project Multi-Year Investment Schedule

INVESTMENT	FY19	FY20	FY21	FY22+
Bus Lanes	3.5 miles built	Goal of 7 high-priority corridor miles	Goal of 7 high-priority corridor miles	Connect completed key corridors
TSP + Queue Jumps + Bus Bulbs (etc.)	Concurrent with bus lane corridors			Concurrent and beyond bus lane corridors
Bus Stop Infrastructure	Planning for shelter contract & PATI stop improvements	Procure new shelter contract & begin PATI construction	Continue construction of stop improvements & 1,000 PATI stops	
Peoplepower	Invest in additional operators (~70)	Hire off-peak operators	Hire additional operators	Hire additional operators
Buses	-	Procure expansion contract	Support peak service	New maintenance garage(s) & delivery of new buses
Scheduling & Dispatching tools	Workforce Modernization Program, Bus Dispatching Pilot		Additional Optimization	
Pilots & Route Changes	47 Near-Term Proposals	Continuous improvement via piloting and route changes – targeting at least 5-10/year		
Network Redesign	Procure & Begin Design	Design	Implementation (FY21 onwards)	

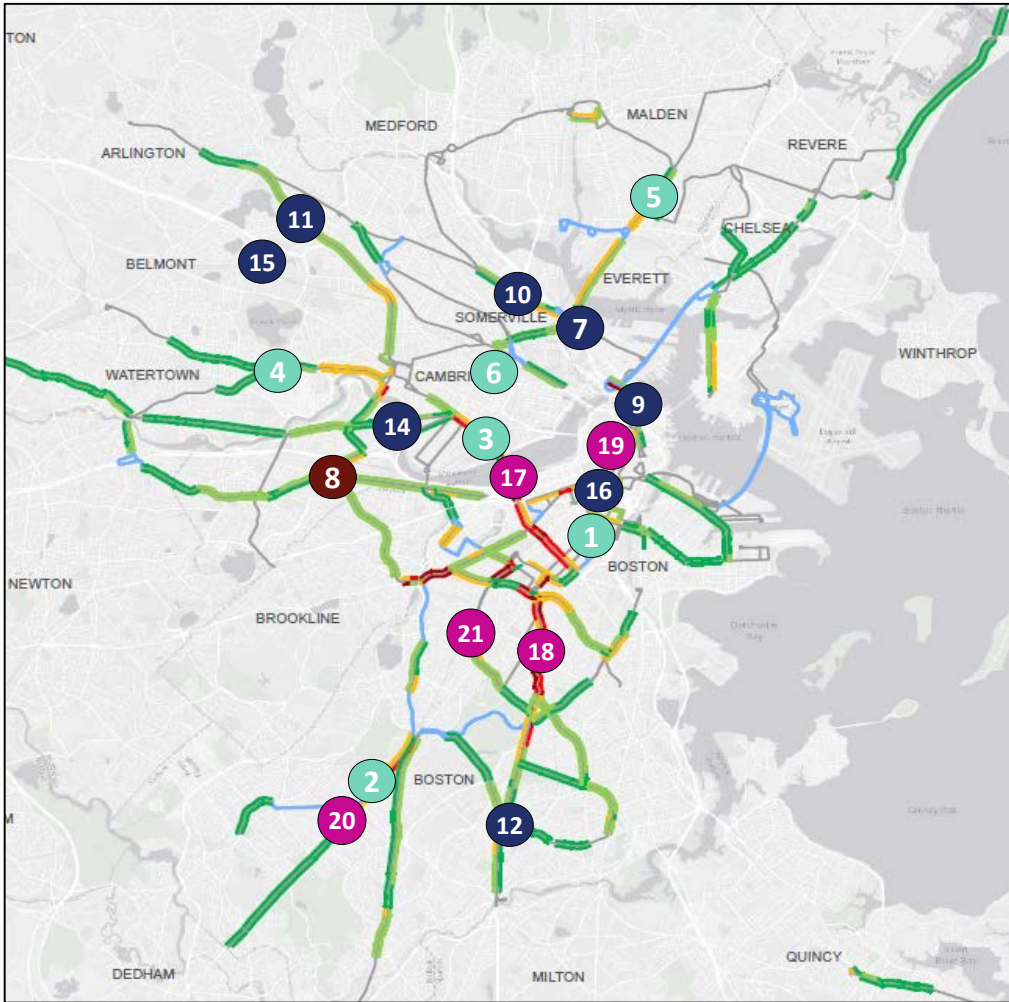
On Street Infrastructure

Resources

Operational Changes



Bus Lane Project Investments



Complete	<p>Pre-2019 Bus Lane Investments:</p> <ul style="list-style-type: none"> 1 Boston: Essex/Washington St. 2 Boston: Washington St. (Roslindale) 3 Cambridge: South Mass Ave. 4 Cambridge: Mt. Auburn St. 5 Everett: Broadway 6 Somerville: Prospect St. 	<p>Completed in 2019:</p> <ul style="list-style-type: none"> 7 Boston/MBTA: Sullivan Sq. 8 Boston: Brighton Ave. 9 Boston: N. Washington St. 10 Somerville: Broadway
	<p>Planned in 2019:</p> <ul style="list-style-type: none"> 11 Arlington: Mass Ave. 12 Boston/MassDOT: Morton St. 14 Boston/MassDOT/DCR: Soldiers Field Rd. 15 Cambridge/MassDOT: Alewife access ramp 16 Boston: Washington St. 	<p>In Planning for Early 2020:</p> <ul style="list-style-type: none"> 17 Boston/Cambridge/MassDOT/DCR: Mass Ave. Bridge 18 Boston: Warren St. 19 Boston: Essex St. 20 Boston: Roslindale 21 Boston: Columbus Ave.
Total	<p>Pre-2019: 6.78 miles</p> <p>2019: 3.74 miles</p> <p>Early 2020: 4.19 miles</p>	



Bus Priority Investments – Completed Pre-2019

Project	Completion	Direction	Length (miles)	Time	Right-of-Way Source	Notes
Essex St./Washington St. Boston – Chinatown	Fall 2009	Inbound Outbound	1.45 1.33	All Hours	Parking; General lane	Implemented with Silver Line
Washington St. Boston – Roslindale	Summer 2018	Inbound	1.21	5 AM to 9 AM Weekdays	Parking; Shared (time of day)	Outbound direction in planning stages
South Massachusetts Ave. Cambridge	Fall 2018	Inbound	0.55	All Hours	General lane	Reevaluating for improvement
Belmont St., Mt Auburn St. Cambridge and Watertown	Fall 2018	Inbound	0.96	All Hours	General lane	Shared with bikes
Broadway Everett	Winter 2016	Inbound	1.14	4 AM to 9 AM Weekdays	Parking; Shared (time of day)	Shared with bikes
Prospect St. Somerville	Fall 2017	Outbound	0.04	All Hours	Parking	Queue jump



Bus Priority Investments – Completed/Planned 2019

Project	Completion	Direction	Length (miles)	Time	Right-of-Way Source	Notes
Sullivan Square Station Boston – Charlestown	Spring 2019	Inbound	0.12 (comb.)	All Hours	Separated	Dedicated lanes into station busway
Brighton Ave. Boston – Allston	Fall 2019	Inbound	0.64	All Hours	General lane	Outbound direction in planning stages
North Washington St. Boston – Downtown	Fall 2019	Inbound	0.16	All Hours	General lane	Benefits Route 111 (and others)
Broadway Somerville	Fall 2019	Inbound Outbound	0.53 0.57	All Hours	General lane	Completed last week
Massachusetts Ave. Arlington	Planned	Inbound	0.57	6 AM to 9 AM Weekdays	Parking	Retained TSP from pilot project
Morton St. Boston/MassDOT	Planned	Eastbound	0.04	All Hours	Parking; General lane	Queue jump
Soldiers Field Rd. Boston/MassDOT/DCR	Planned	Inbound	0.05	All Hours	Adjusted lane widths	New pre-emption signal
Alewife Access Ramp Cambridge/MassDOT	Planned	Inbound	0.25	All Hours	Adjusted lane widths	Reviewing bridge structure
Washington St. Boston – Chinatown	Planned	Inbound	0.81	All Hours	Parking; General lane	Creating continuous SL bus lane

Bus Priority Investments – Planning for Early 2020

Project	Completion	Direction	Length (miles)	Time	Right-of-Way Source	Notes
Massachusetts Ave. Bridge Boston/Cambridge/ MassDOT/DCR	In Planning	Inbound	0.42	All Hours	General lane	Cross-agency coordination
Warren St. Boston – Dorchester	In Planning	Outbound	0.79	All Hours	Parking; Median; General Lane	Includes multiple treatments
Essex St. (Restoration) Boston – Chinatown	In Planning	Inbound	0.17	All Hours	Existing bus lane	Restoring existing bus lane
Washington St. Boston – Roslindale	In Planning	Outbound	1.21	4 PM to 7 PM Weekdays (TBD)	Parking	Paired with existing inbound bus lane
Columbus Ave. Boston – JP / Roxbury	In Planning	Inbound Outbound	0.80 0.80	All Hours	General Lane	Multiple design concepts



Bus Priority Implementation Needs and Tools

Need	Why it matters	Our “tools”
<i>Planning</i>	<ul style="list-style-type: none"> • Prioritize corridors by greatest impact (delay x passengers and/or low reliability) • Coordinate across other projects (PATI, municipal projects) 	<ul style="list-style-type: none"> • MassDOT Planning Study of High Passenger Delay Bus Corridors • Identification of 14 miles of high-priority corridor
<i>Funding</i>	<ul style="list-style-type: none"> • Support range of low cost (quick construction) to high cost (major curb work and mast/signal upgrades) 	<ul style="list-style-type: none"> • \$36m of immediate capital funding • >\$50m of additional sources
<i>Design & Construction</i>	<ul style="list-style-type: none"> • Engineered solutions to incorporate transit priority • Construction (roadway paint, signage, curb work, signal replacement and re-phasing) 	<ul style="list-style-type: none"> • GECs with contract value of \$6M
<i>Capacity</i>	<ul style="list-style-type: none"> • Resources to design, execute, and manage the plan, funding, design & construction, and public engagement 	<ul style="list-style-type: none"> • Implementing Transit Priority Team at MBTA
<i>Partnership</i>	<ul style="list-style-type: none"> • Gain support from community, municipalities, and politicians to implement project • Project champion is needed within the municipality to drive engagement and municipal design/review process 	<ul style="list-style-type: none"> • Municipal participation and support • MBTA staff support to participate in engagement and project development

Latest 2019 Bus Lane Projects Complete

✓ **Brighton Ave., Boston**
Routes 57, 57A*, 66**



June 2019
24/7 inbound
0.6 miles
Remove traffic lane

✓ **N. Washington St., Boston**
Routes 92, 93, 111*, 426, 428*



August 2019
24/7 inbound
0.16 miles
Removed parking

✓ **Broadway, Somerville**
Routes 89, 101**



September 2019
24/7 inbound & outbound
1.1 miles (combined)
Remove traffic lane

* = Top 40 bus route (based on ridership)



Other Bus Transit Priority Efforts Underway



Transit Signal Priority

44 intersections currently active

- Refining Green Line B and E branches—expecting NTP for C branch this fall

Addressing barriers to implementation:

- Updated TSP server for City of Boston (August 2019)
- Re-writing TSP software for increased functionality (expected completion in October 2019)
- Exploring Samsara integration for real-time TSP decision making and flexibility (in discussion)
- Results in faster requests, more completed requests, and unlimited capacity

Technical assistance available from US DOT



Silver Line Access Ramp

Operational test completed in late August

- Identified minor operational issues to resolve
- Positive Bus Operator feedback

Time Savings:

- 3 to 8 minutes saved at median
- Up to 17 minutes saved at 90th percentile

Next steps:

- Contract in place for permanent ramp signaling system installation
- Design, implementation, and testing of permanent system to take place in **late fall 2019**



Next Steps

- **Complete hiring of Transit Priority team** to focus specifically on design and municipal engagement for on-street infrastructure (including bus lanes)
- **Continue to identify, design, and implement bus priority** infrastructure in partnership with municipalities
- **Actively encourage municipalities to propose additional corridors for bus priority**, meeting MBTA guidelines for applicability
- **Implement 17+ near-term route changes** and additional bus operators this winter
- **Complete implementation of TSP on the Green Line** by the end of 2019



Appendix



APPENDIX: Funding Opportunities

Phase 1

MBTA Transit Priority Partnership Funding: \$10 million

Funding from the FY20 budget to support 14 corridor miles of bus priority infrastructure, and additional lockbox funding to partially support other additional bus priority improvements

Eligible for municipalities to apply for or propose uses of

MBTA Bus Enhancements Funding: \$26 million

Funding from the FY20 budget to support a variety of bus enhancements including accessibility, customer amenities, and bus priority improvements

Phase 2

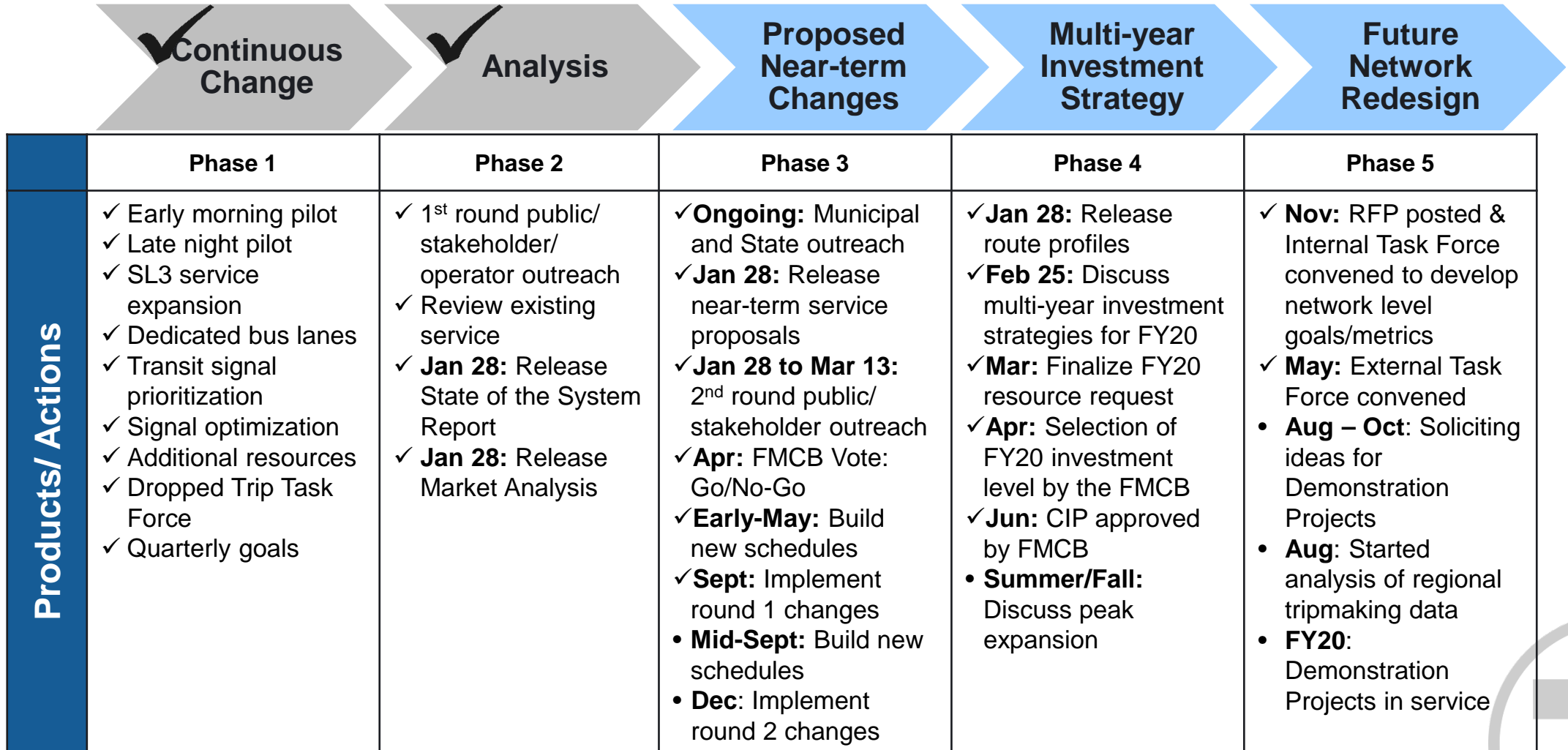
MA State Bond bill: \$50 million

Program for transit-supportive infrastructure (including dedicated bus lanes, signal prioritization, shelters, etc.) to support efficient delivery of transit operations, encourage municipal investment and support of transit facilities, benefit passenger experience, and to enhance transit rider and pedestrian service and safety

Additional funding potentially available for projects through MPO Transit Modernization Program and dedicated funding for bus lanes



APPENDIX: Better Bus Project Process Map



APPENDIX: Other MBTA High-Priority Corridors

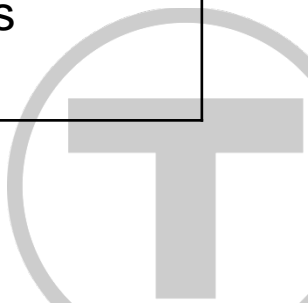
Other High-Impact Transit Priority Corridors Identified by the MBTA

- Chelsea: Broadway
- Everett: Broadway (cont'd)
- Boston: N. Washington Bridge
- Boston: Tremont St.
- Boston: Huntington Ave.
- Boston: Mass Ave.
- Boston: Blue Hill Ave.



APPENDIX: Peoplepower Investments for FY20

Additional operators	~30 FTEs <i>(off-peak only)</i>	~45 FTEs <i>(off-peak only)</i>	~60 FTEs <i>(off-peak only)</i>
Deployed to which routes	50% of top 40 routes/ corridors (based on greatest need)	All Top 40 routes/ corridors	All top 40 routes and create 3-5 new Key Bus Routes (off-peak)
Predicted impact (off-peak only)	90% OTP (trip start) SDP frequency SDP span of service (for ~20 routes)	90% OTP (trip start) SDP frequency SDP span of service	90% OTP (trip start) SDP frequency SDP span of service + higher service level on 3-5 routes



APPENDIX: Service Delivery Policy Standards

Service Delivery Policy

Adopted in January 2017

Comfort	Passengers should have a reasonable amount of personal space during their trips
Reliability	Passengers should be able to expect service to arrive when scheduled
Frequency	Passengers should be able to access transit within a reasonable waiting time
Span	Passengers should have confidence that service will operate during expected hours
Coverage	The geographic area where service is provided



APPENDIX: 40 Highest Ridership Routes/Corridors

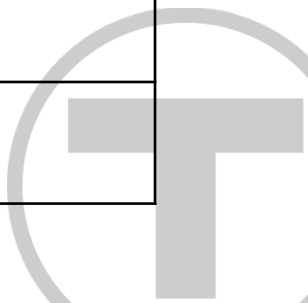
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	16	35/36/37*	86	93	110	
	21	44	87	101	220/221/222*	



APPENDIX: Key Elements of Service Delivery Policy

	Key Bus Route (incl. Silver Line)	Local Bus Route
# of Routes	15 (+5 SL)	117
Span (Weekday)	6am – 12am	7am – 7pm
Span (Weekend)	SAT: 6am – 12am SUN: 7am – 12am	SAT: 8am – 6:30pm SUN: 10am – 6:30pm <i>Standard only applies to high-density areas</i>
Frequency	<u>AM Peak (7am – 9am):</u> Every 10 min	<u>AM Peak (7am – 9am):</u> Every 30 min
	<u>PM Peak (4pm – 6:30pm):</u> Every 10 min	<u>PM Peak (4pm – 6:30pm):</u> Every 30 min
	<u>All Other:</u> Every 15/20 min	<u>All Other:</u> Every 60 min
Reliability (On-time performance)	75% (Minimum) 80% (Target)	70% (Minimum) 75% (Target)
Comfort	Percent of passenger minutes in comfortable conditions 92% (Minimum), 96% (Target)	



APPENDIX: Median bus run times 17% longer during Peak periods over past 12 years

