



**Massachusetts Bay
Transportation Authority**

Commuter Rail Zone Study Update

Fiscal and Management Control Board

December 16, 2019

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Zone Study Process

- Today: Update and discussion of key policy questions
- Jan-Feb 2020: Continue analysis and draft report
- Mar 2020: Present final report and send to legislature



This Update

Background on commuter rail fares and products

Given current fares and future service model, which fare strategies will advance key policy goals on commuter rail?

- Improve equity
- Maintain a clear policy rationale for fares
- Address the fare jump at Zone 1

Discuss off-peak and reverse-peak fares:

- Should the MBTA pilot lower fares to build ridership when/where there is capacity?

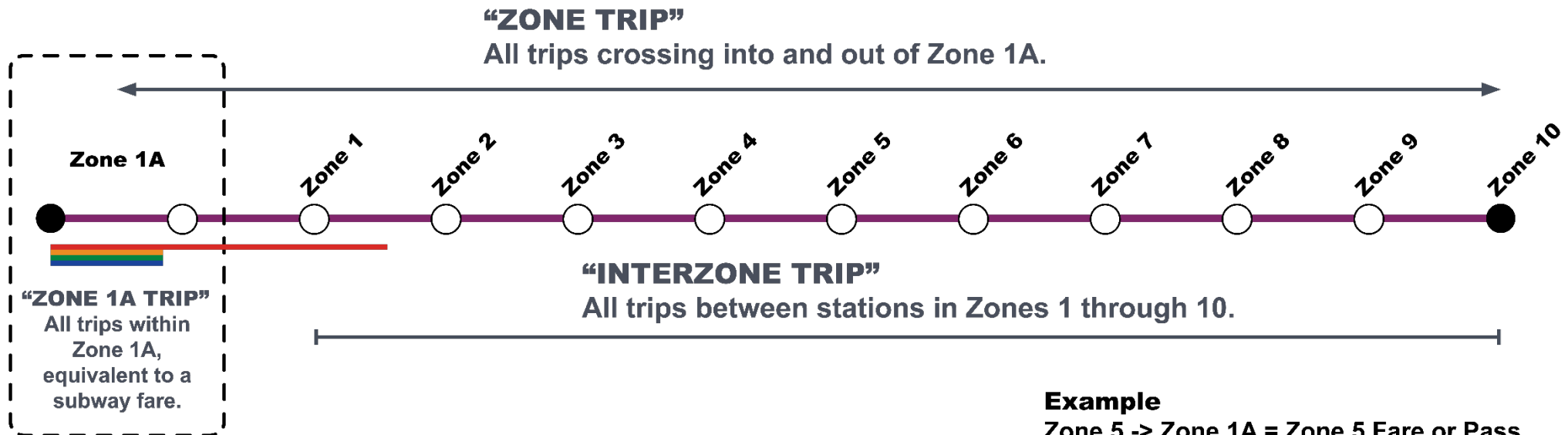


Background



Background: Types of Commuter Rail Trips

- Currently three types of commuter rail trips: Zone 1A, Zone, and Interzone



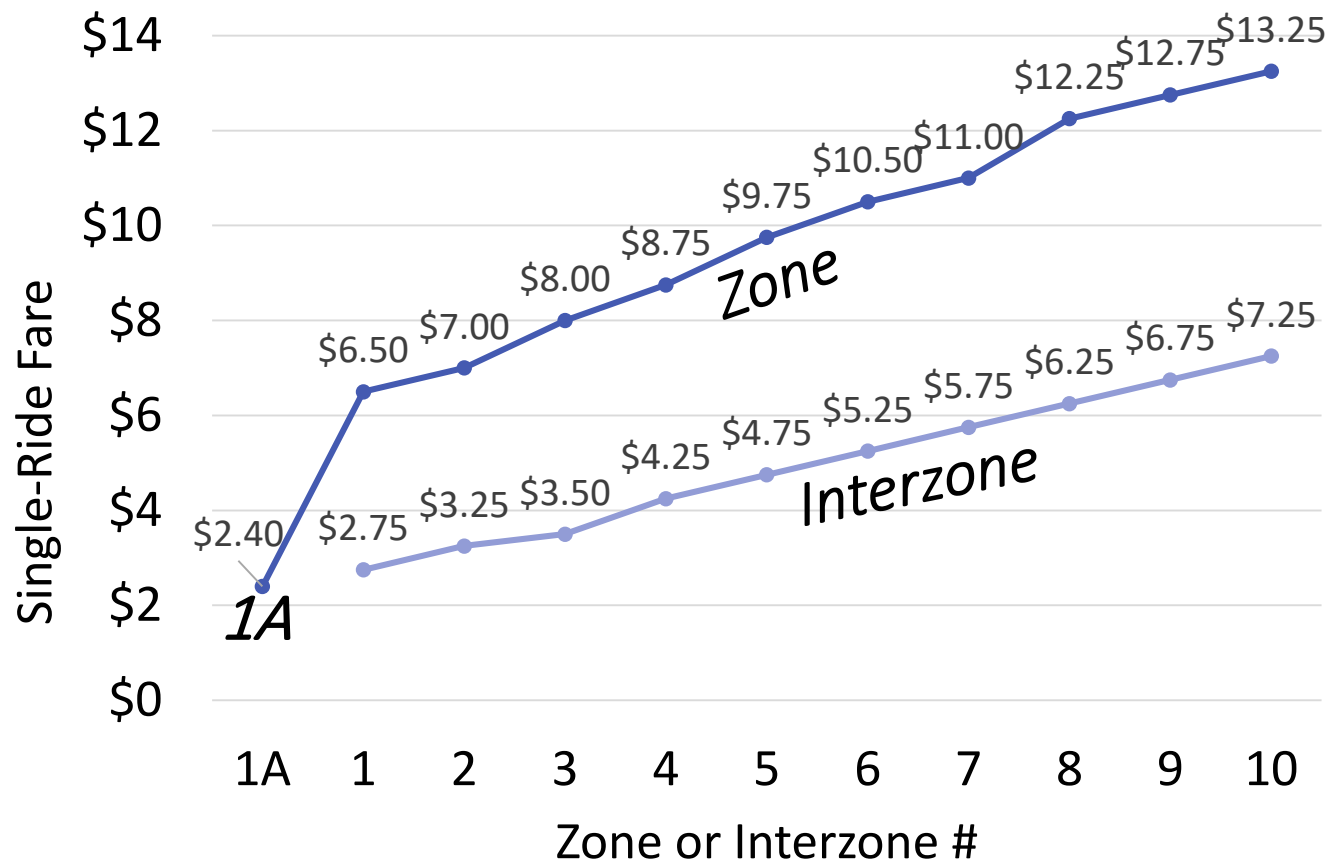
Example

- Zone 5 -> Zone 1A = Zone 5 Fare or Pass
- Zone 5 -> Zone 1 = Interzone 5 Fare or Pass
- Zone 5 -> Zone 2 = Interzone 4 Fare or Pass



Background: Commuter Rail Fares and Products

Single-Ride Fares



Paying for Commuter Rail

Fare product	Validity	Transfers
Zone pass	All zones lower	All lower priced services
Zone single ride ticket	For that zone	None
Interzone Pass	All interzones lower	Local bus transfers
Interzone single ride ticket	For that interzone	None
Extension Fare	To go further on a zone pass, you pay the interzone ticket	
Weekend Pass	All zones	None

Which fare strategies will
advance equity?

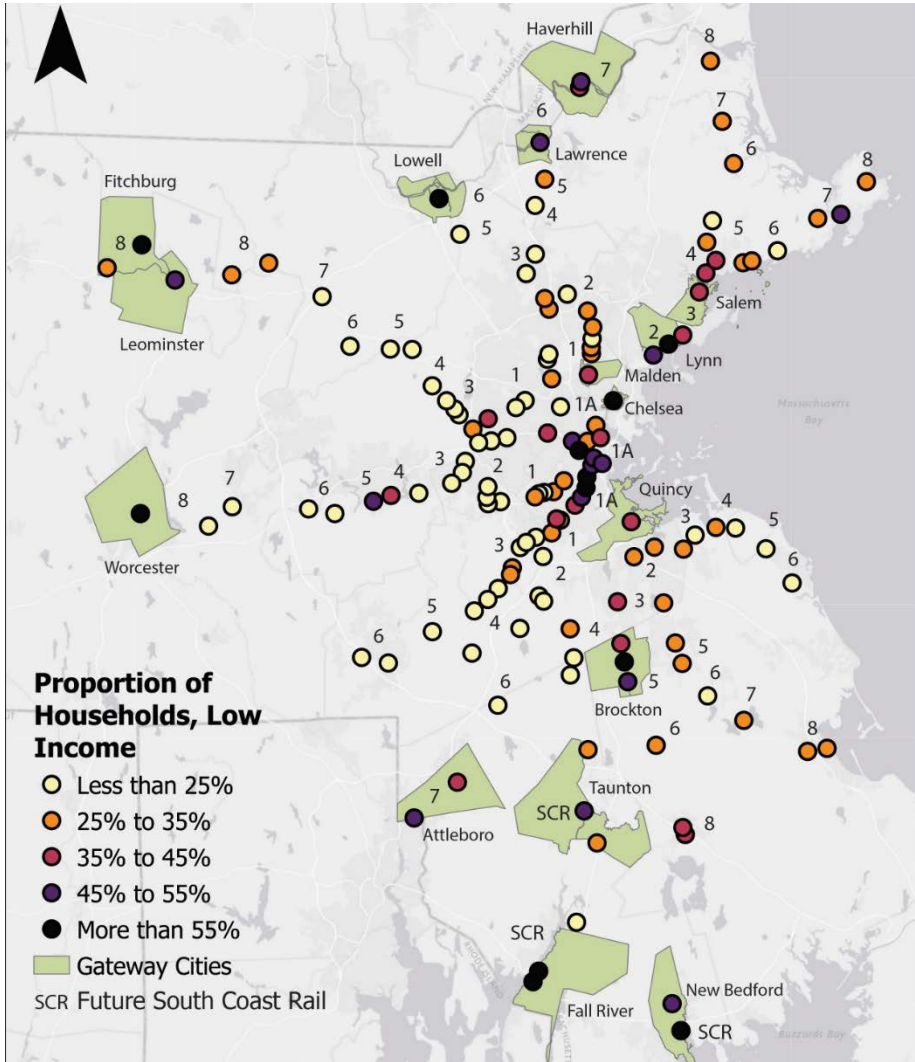


Advancing Equity: Overview

- One objective of MBTA fare policy is improving social equity
 - Fare *levels* that account for the needs of different populations
 - Fare *changes* that do not disproportionately benefit upper-income and or have a disparate positive impact on non-minority riders
- **Place-based policies** like moving stations to Zone 1A can make equity **worse**, suggesting the need for offsetting benefits under Title VI
 - There are low-income riders throughout the region, not only at specific stations
 - All Zone 1-10 stations have lower minority and/or low-income ridership shares than the MBTA system overall
 - Lowering fares or moving stations to lower zones disproportionately benefits upper-income and/or non-minority riders, suggesting the need for some offsetting benefit under Title VI
- **People-based policies** like means-testing are more targeted for achieving equity goals



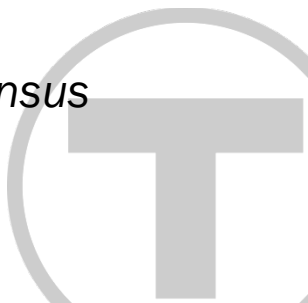
Advancing Equity: Equity Populations are Everywhere



- There are low-income riders throughout the commuter rail service area – not only at certain stops, in certain zones, or in Gateway Cities
- Place-based policies like redrawing zone lines do not address equity *everywhere*

Map:

- Stations are labeled with zone and colored by % low-income within $\frac{1}{2}$ mile
- “Low-income” = \$50,000 or less. Based on Census tracts touching $\frac{1}{2}$ -mile radius of each station.

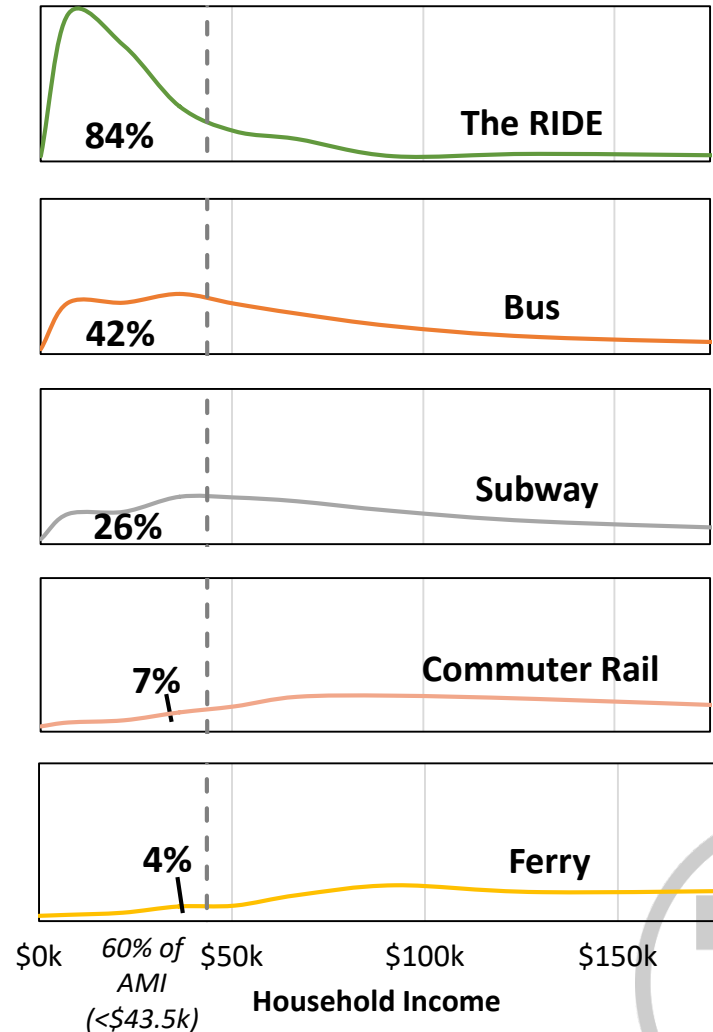


Advancing Equity: Lowering Commuter Rail Fares Benefits Upper-Income and Non-Minority Riders

- Relative to other MBTA services, commuter rail has a very low share of equity populations
- Place-based strategies that lower commuter rail fares makes equity worse by disproportionately benefiting upper-income and/or non-minority riders

Service	Percent Low Income	Percent Minority
The RIDE	84%	23%
Bus	42%	48%
Rapid Transit	26%	31%
Commuter Rail	7%	15%
Ferry	4%	2%

Sources: MBTA Systemwide Survey, 2015-17; RIDE customer satisfaction survey, 2018



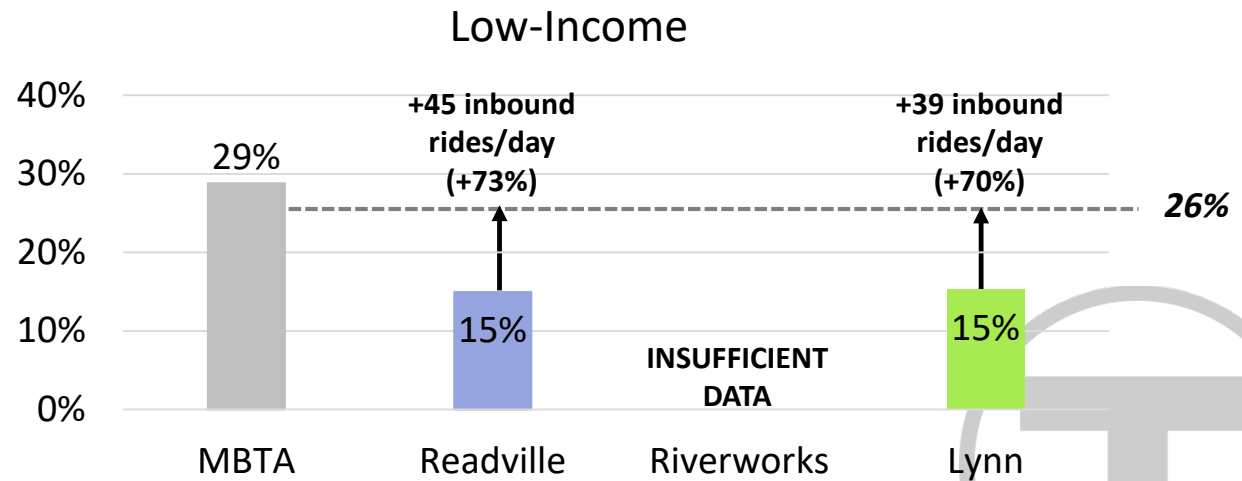
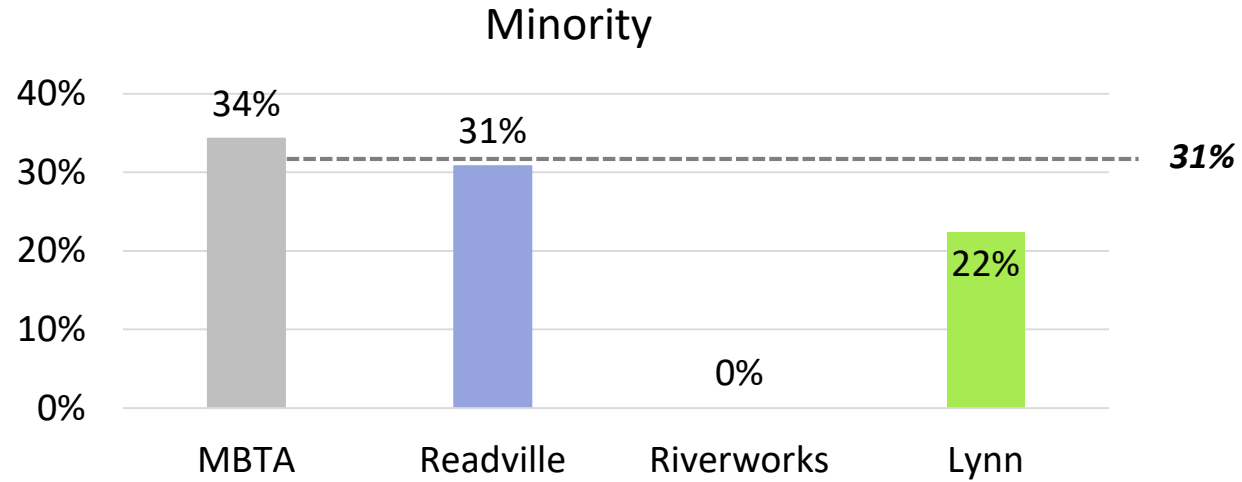
Advancing Equity: Title VI DI/DB

- FTA Title VI Circular directs transit providers to study all fare changes for
 - Disparate Impact on minority riders/communities
 - Disproportionate Burden on low-income riders/communities
- Fare decreases are studied for disparate/disproportionate **benefits**
- The MBTA's threshold for determining when fare changes may result in disparate impacts or disproportionate burdens is 10%
- Upon finding a potential disparate impact on minority populations from a proposed fare change, the MBTA will analyze alternatives/revisions to the proposed change that meet the same goals of the original proposal



Advancing Equity: Title VI Example

- Example: Would lowering fares at Readville, Riverworks, and Lynn improve equity?
 - Combined, these stations are 15% low-income and 27% minority
 - Overall, MBTA ridership is 29% low-income and 34% minority
 - Lowering fares at these stations creates a **disparate benefit for non-low-income riders**
 - The increase in low-income ridership needed to avoid this problem is beyond reasonable response to fares



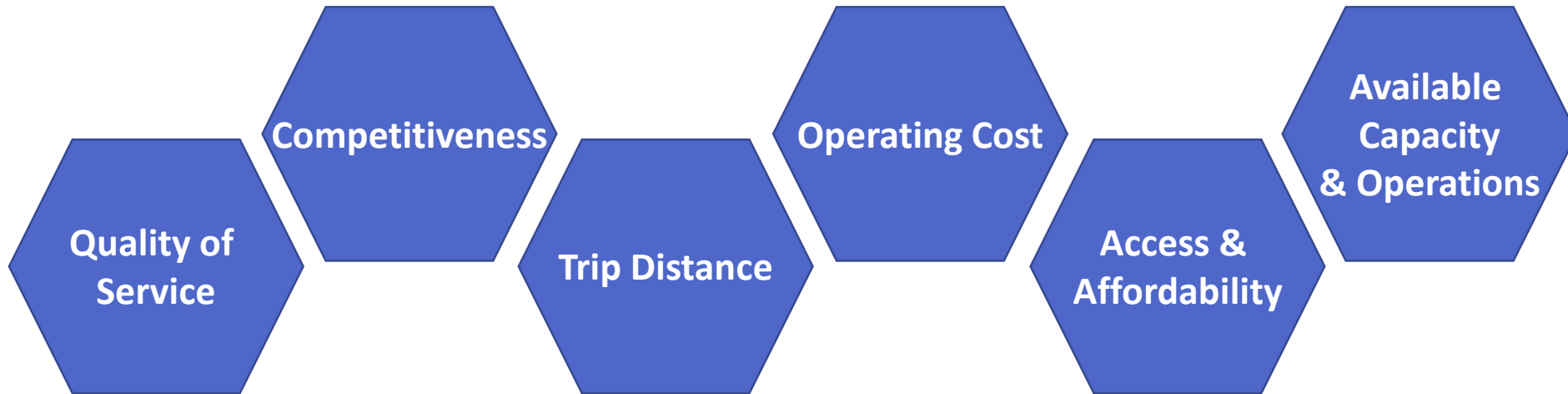
Sources: MBTA Systemwide Survey, 2015-17; CTPS Commuter Rail Counts, 2018

Which fare strategies will
maintain a clear policy rationale
for fares?



Policy Rationales: Question for Discussion

- Which policy rationales or frameworks should be used to determine *differences* between fares, both now and in the future?



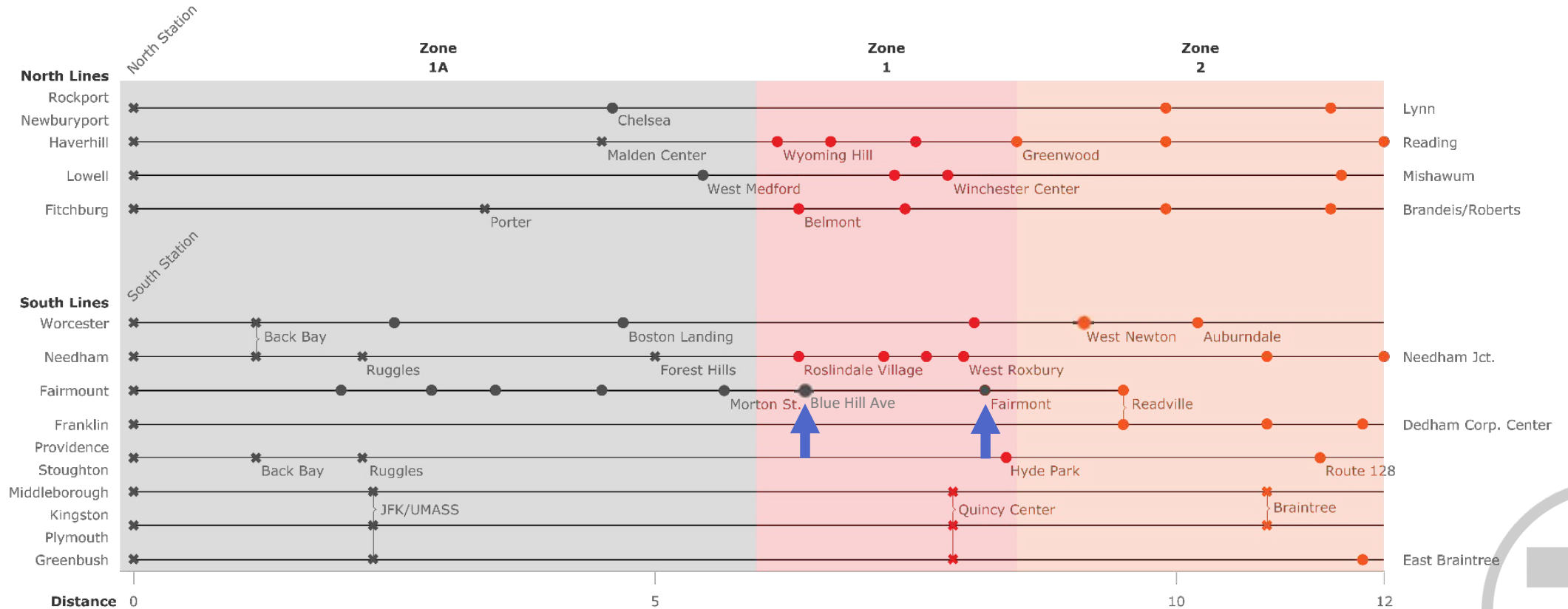
Policy Rationales: Overview

- Currently, a primary rationale for differences between commuter rail fares is trip distance (using zone assignments)
- However, the jump between Zone 1A and Zone 1 fares is increasingly disproportionate to other zone increments
- How to address the Zone 1 fare jump while maintaining a clear policy rationale, now and in the future?
 - Changing zone assignments to avoid the fare jump introduces inconsistency and unintended consequences without addressing the fare jump
 - Smoothing the fare jump maintains distance rationale and eases transition to potential future fare structures
 - Different rationales and more dramatic restructuring of fares can be considered for future service model



Policy Rationales: Zones Currently Reflect Distance

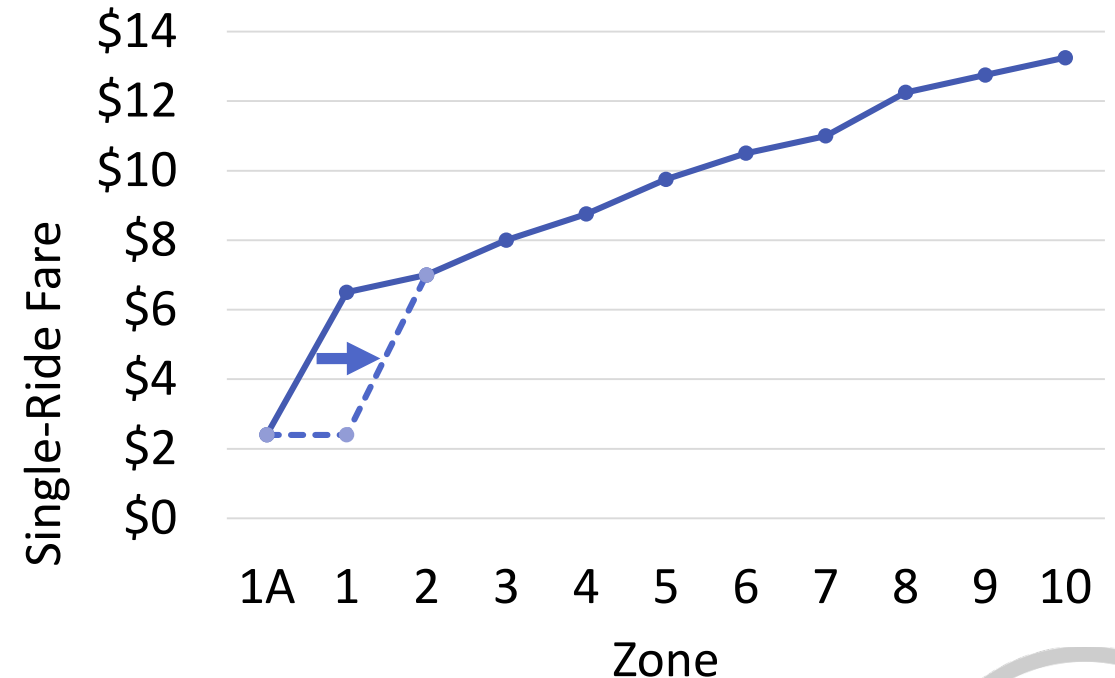
- Zone 1 and 2 assignments are currently consistent with distance
- Only exceptions are Blue Hill Ave and Fairmont (served only by Fairmount Line)



Zone 1 Fare Jump:

Changing Zone Assignments Only Shifts the Fare Jump

- Fare changes have widened the gap between Zone 1A and Zone 1 fares from +\$2.55 in 2007 to +\$4.10 today
- However, moving stations to Zone 1A to avoid the fare jump merely shifts the fare jump to the next station
- If Zone 1 all moved to Zone 1A, fare jump would be even larger



Zone 1 Fare Jump:

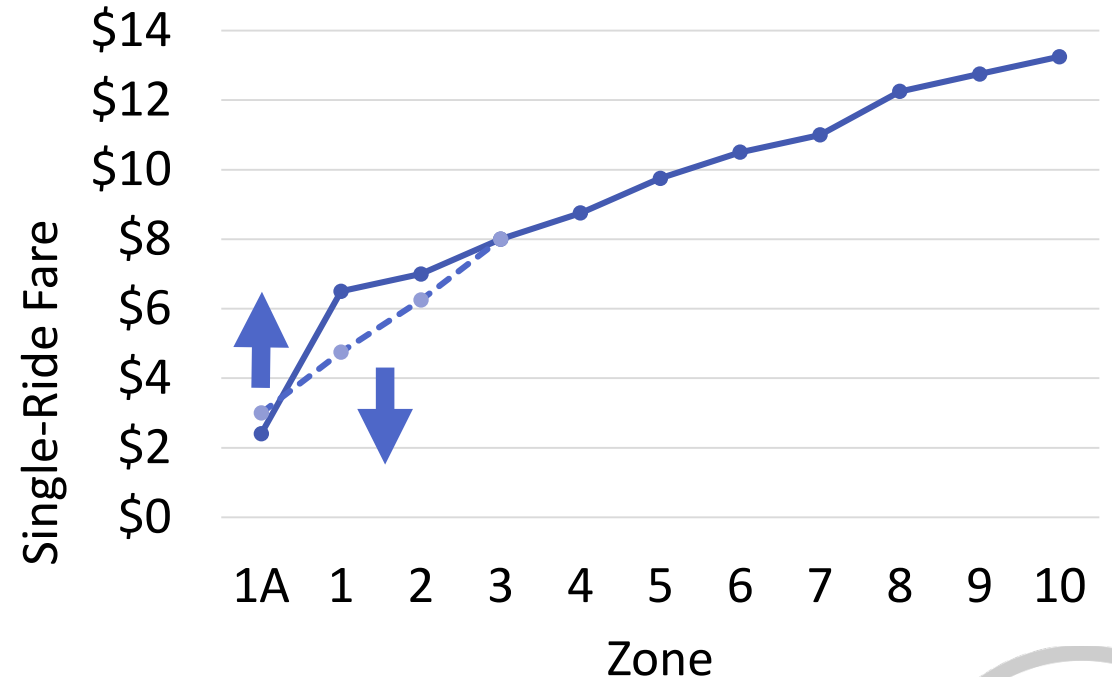
Changing Zone Assignments Creates Unintended Consequences

- If stations are moved to Zone 1A to avoid the Zone 1 fare jump, then zones are being used for something *other than distance*
- By contradicting the distance structure, this creates unintended consequences
 - **It may be impossible to move a single station in isolation** – stations inbound from the re-assigned station may also move to Zone 1A
 - **Interzone fares to/from re-zoned stations become Zone fares** – a 90+% fare increase for current Interzone travelers
 - **Park-and-ride behavior is distorted**, with Zone 2+ commuters driving to new Zone 1A stations (outside the core with inexpensive parking) to avoid higher Zone fares
 - **Locks MBTA into low fares inside the Urban/Regional Rail area**, requiring either later fare *increases* or large revenue losses under future service model



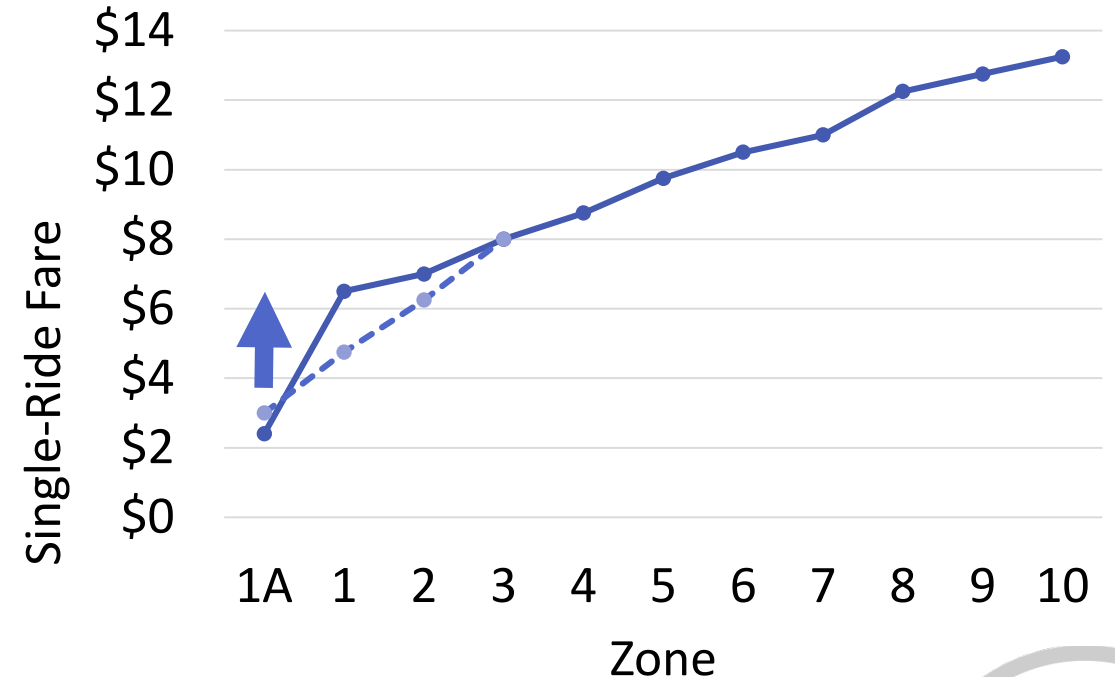
Zone 1 Fare Jump: Smoothing the Fare Jump

- Smoothing the fare jump would maintain consistency across fares and avoid unintended consequences
- The fare jump could be smoothed by a combination of:
 1. Lowering Zone 1 and 2 fares
 2. Raising Zone 1A fare (split from subway)



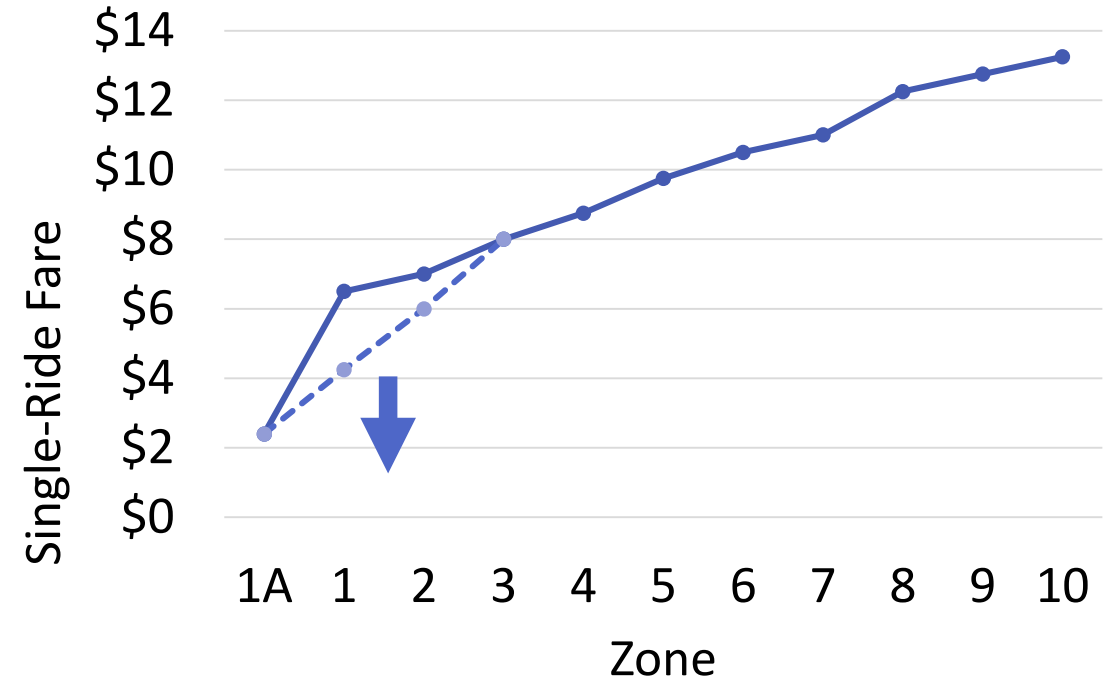
Zone 1 Fare Jump: Raising Zone 1A Fares

- Commuter rail is playing two roles inside Zone 1A:
 - rapid transit (in areas not served by subway)
 - a premium alternative to subway (in areas also served by subway)
- Options:
 - Raise Zone 1A fare only at stations adjacent to subway (for premium alternative)
 - Raise Zone 1A fare at all Zone 1A stations (with line-specific exception for Fairmount?)
 - Keep Zone 1A fares as is



Zone 1 Fare Jump: Lowering Zone 1 and 2 Fares

- Lowering Zone 1 and 2 fares
 - Avoids unintended consequences of expanding Zone 1A
 - Moves toward flatter fares (but higher than subway) within future Rail Vision
- Preliminary impact estimates
 - Assuming Zone 1 to \$4.25 and Zone 2 to \$6.00 (no change to Zone 1A)
 - Estimated revenue loss of ~\$9 million/year, commuter rail ridership increase of ~200k/year (not including bus/subway rides)
 - May require changes to “extension fare” policies
 - Like any commuter rail fare decrease, would not pass a Title VI equity analysis without other equity-enhancing policy changes

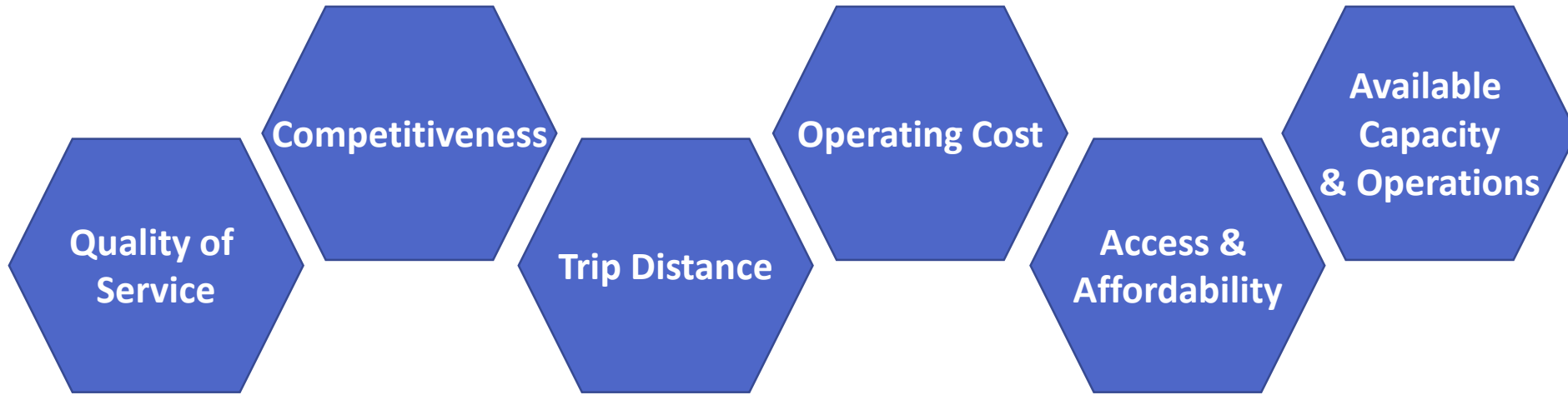


	Ridership (thousands)		Revenue (\$millions)	
	Change	% Change	Change	% Change
Zone 1	+107	+5%	-\$4.7	-32%
Zone 2	+99	+2%	-\$4.4	-13%
Total Commuter Rail	+206	+0.6%	-\$9.1	-3.3%

Sources: Preliminary MBTA modeling based on annualized CTPS Commuter Rail Counts (2018), MBTA sales data, mTicket

Policy Rationales: Questions for Discussion

- Which policy rationales or frameworks should be used to determine *differences* between fares?



- What should be the relationship between Commuter Rail Zone 1A fares and rapid transit fares, both now and under Rail Vision?
- What changes now will ease transition to potential Rail Vision fare structures?



Should MBTA pilot off-peak and reverse-peak discounts?



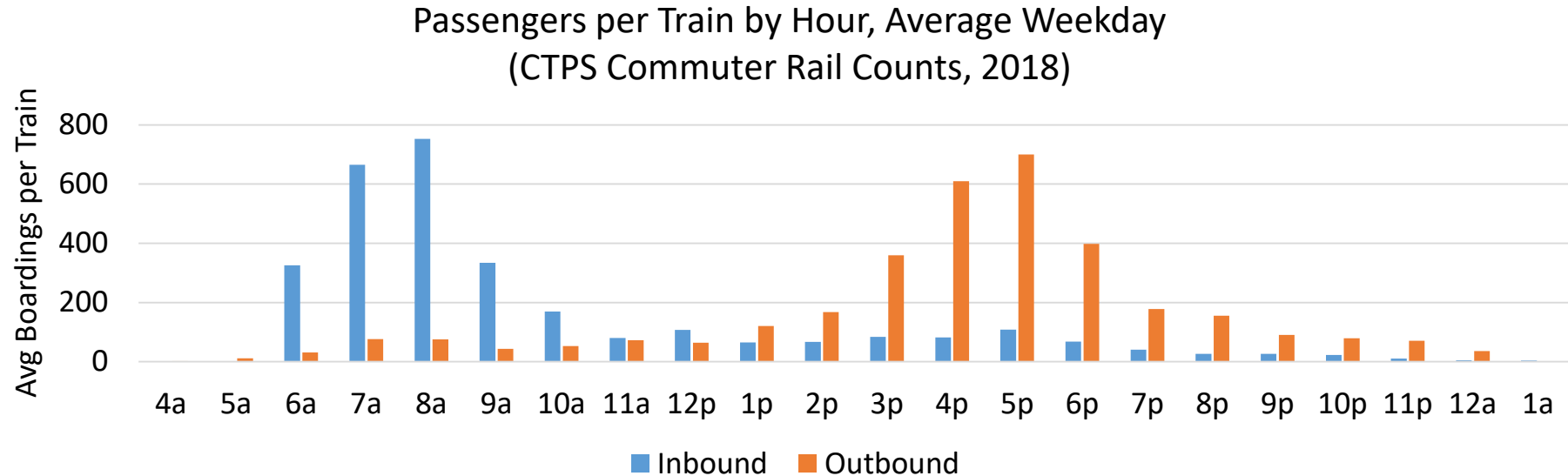
Off-Peak and Reverse-Peak: Questions for Discussion

- Should the MBTA recommend a pilot of time/direction-based commuter rail fares in the Zone Study report?
- If so, should it include lower fares for off-peak, reverse-peak, or both?



Off-Peak and Reverse-Peak: The Problem

- Capacity currently constrained at peak times, but available on off-peak and reverse-peak trains
- Discounts would improve competitiveness of commuter rail fares at times and places with excess capacity
- Immediate opportunity to grow ridership before future capacity expansions



Off-Peak and Reverse-Peak: Pricing and Scale

- Potential benefits
 - **New ridership** on both off-peak and reverse-peak trains
 - **Shift some peak trips** to later/earlier off-peak trains
- Affected trips
 - Trips to or from Zone 1A on off-peak and reverse-peak trains would pay Interzone fares
 - Roughly 20% of current rides are weekday off-peak and reverse-peak

	Estimated Current Ridership	
	Rides, FY2019 (millions)	Share of Rides
Weekday Peak	24.6	75%
Weekday Off-Peak	4.9	15%
Weekday Reverse-Peak	1.7	5%
Weekend	1.6	5%
Total	32.9	100%

Source: CTPS Commuter Rail Counts (2018) annualized and expanded using mTicket usage patterns



Off-Peak and Reverse-Peak: Impacts

- Equity impacts are unknown – MBTA rider demographic data for commuter rail not currently available by time period and direction of travel
- Preliminary, conservative estimate of short-run ridership and revenue impact: +1 million rides, -\$18 million per year

	Ridership (millions)		Revenue (\$millions)	
	Change	% Change	Change	% Change
Weekday Peak	0	0%	\$0	0%
Weekday Off-Peak	+0.8	+16%	-\$14	-35%
Weekday Reverse-Peak	+0.2	+14%	-\$4	-35%
Weekend	0	0%	\$0	0%
Total Commuter Rail	+1.0	+3%	-\$18	-7%

Sources: Preliminary MBTA modeling based on CTPS Counts (2018), mTicket, MBTA sales, MBTA Systemwide Survey (2015-17)

- Estimates based on annualized CTPS ridership counts and conservative assumptions
 - Short-run ridership response factor based on academic studies and prior MBTA modeling
 - Assume some current Zone Pass holders that travel off-peak and reverse-peak will change their pass to receive the discount
 - No adjustment for *long-run* ridership response (potentially 2-3x short-run)
 - No adjustment for *additional peak* rides and revenue



Off-Peak and Reverse-Peak: Questions for Discussion

- Should the MBTA recommend a full-scale pilot of time/direction-based commuter rail fares in the Zone Study report?
- If so, should it include lower fares for off-peak, reverse-peak, or both?

