

# AFC2: The next generation of MBTA fare collection

**MBTA Customer Technology**

Summer 2016

# Fare collection: vision

- **Improve Customer Experience:** easy, fast, flexible, expandable and proven
- **Easy To Use:** payment standardized across Bus, Subway, Commuter Rail, Ferries, the RIDE, and private carriers; reload anywhere
- **Account-based Open Payments** enable policy options and reduce dependence on fare media, readers accept credit cards and mobile phones
- **Faster service** through boarding at all doors of buses and the Green Line
- **Flexible System** allows everyone to work together, and lowers future costs to the MBTA



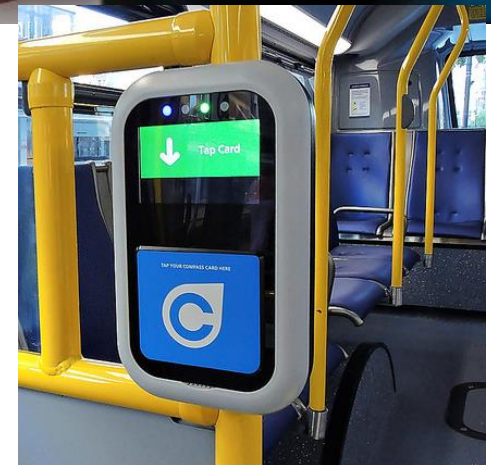
# AFC 1 v 2



AFC 1	v.	AFC 2
<p><b>Card-based</b> interaction model limits fare policy, customer experience, and interoperability</p>	v.	<p><b>Account-based</b> model allows flexible fare policy, payment with multiple media, integration with other services</p>
<p><b>Capital intensive</b> on vehicles and at stations</p>	v.	<p><b>Commodity off the shelf</b> hardware reduces costs</p>
<p>Hardware and software <b>locked in</b></p>	v.	<p>Hardware and software <b>separable</b>, for future procurements</p>
<p>Mid life overhaul AND <b>significant staff time</b> needed to keep system functioning as is over next few years</p>	v.	<p>Replaces mid life overhaul, allows <b>service level guarantees</b> and simplifies system architecture</p>

# AFC2: Big picture

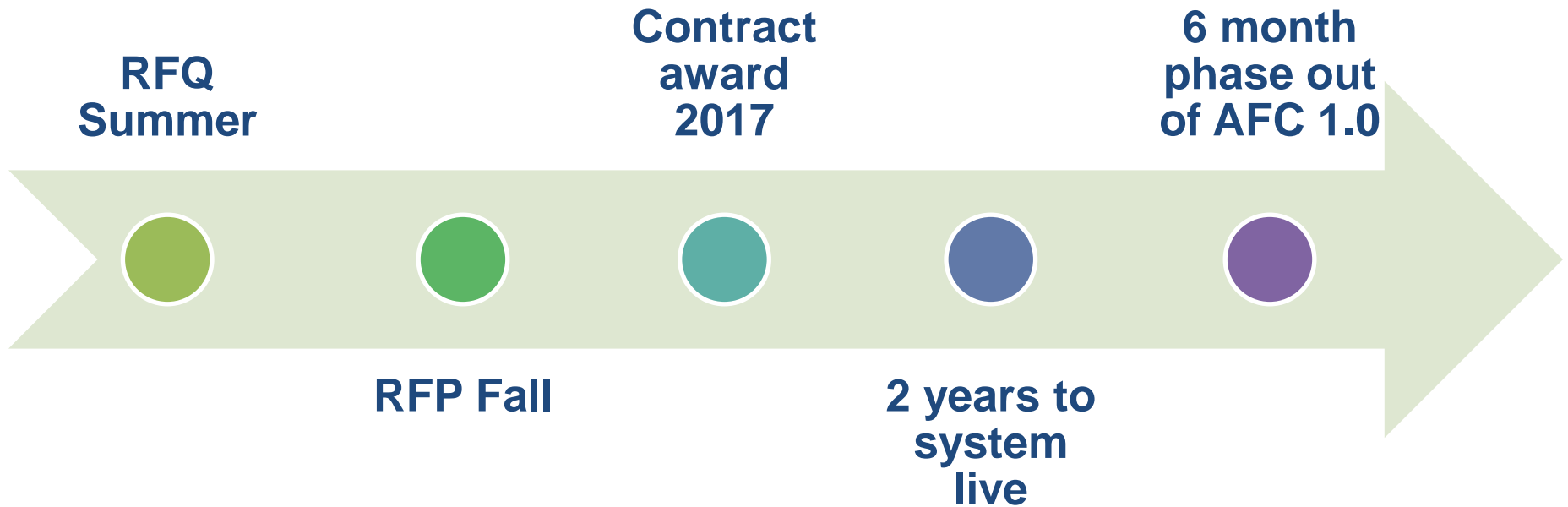
- Pay with phone, contactless credit card, new MBTA-issued card
- No cash on-board vehicle
  - Expand retail sales network
  - Vending machines at key stations
- Multiple readers at all doors on Bus and Green Line
- Readers on the platform for commuter rail, Mattapan Line
- New or refurbished subway gates with readers on both sides



# Timeline And Key Milestones

Beginning Community Engagement Process **Now**

---



# AFC2: new capabilities

- **Fare structure innovation:** zonal, time of day, best value, multiple carrier transfers
- **All door boarding:** tap-in & tap-out; enhanced planning data
- **Outside integration + partnerships:** private shuttles, TMAs, TNCs, bike share
- **Internal integration:** The RIDE, parking
- **Revenue accounting:** improved MBTA accountability
- **Future tech:** automatic senior eligibility, real time on-board data
- **Improved performance:** more bus and Green Line service

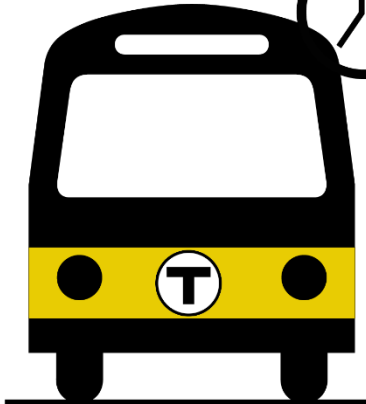
# AFC2 is about improving bus speeds

## ANATOMY OF A BUS JOURNEY



TIME WAITING FOR BUS

+



TIME BOARDING BUS (DWELL TIME)  
# PASSENGERS \* BOARDING TIME/PASSENGER

**FASTER BOARDING**

**= LESS TIME AT STOPS = FASTER BUS TRIPS = MORE TRIPS PER BUS =  
LESS WAITING**

## 10% + QUICKER BUSES

### Why?

- Dwell time approximately 20% of journey
- Passengers paying with cash take 5-20x as long to board
- Everyone tapping reduces boarding time by 17%
- All door boarding doubles or triples boarding rate
- New York Select Bus reports 10-15% speed reductions with off-board collection. However, they installed expensive roadside equipment to accept cash.

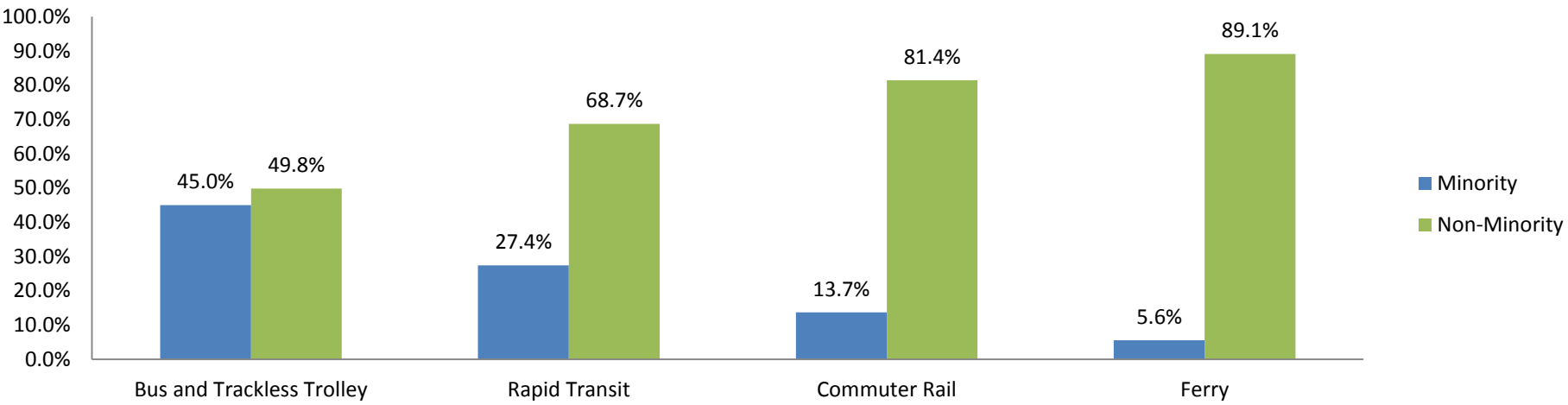


# So, how to serve cash customers?

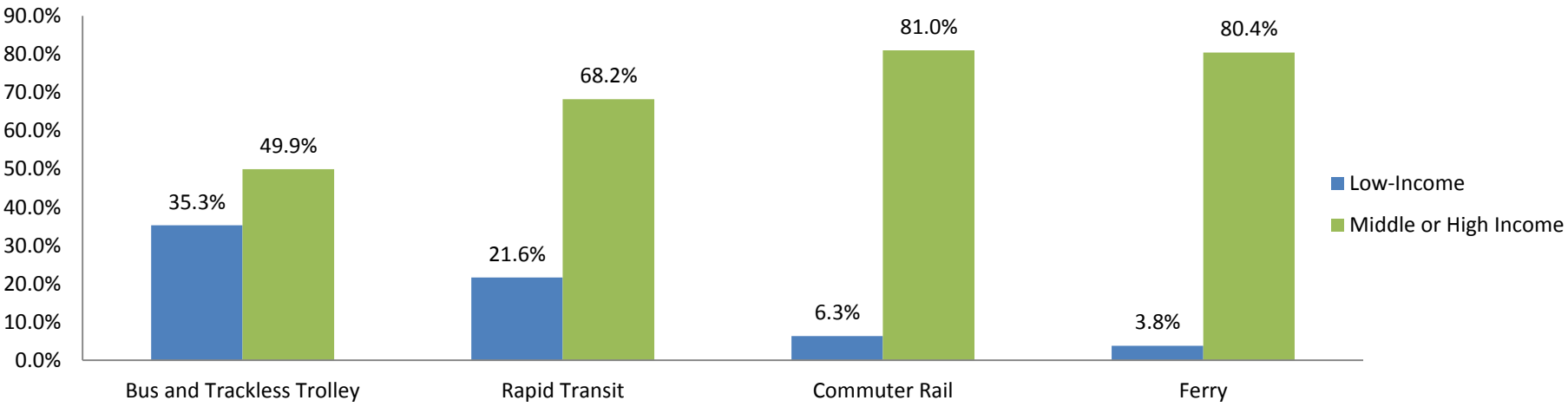
<b>CURRENT CASH USAGE IS LOW</b>	
3.8%	Cash payment on board
3.3%	Charlie reload on board
<b>ACCESS IS ALREADY HIGH, AND RELOAD NETWORK CAN BE IMPROVED</b>	
91%	Riders encountering a fare vending machine each day (95% within in ¼ mile)
93%	Riders encountering a fare vending machine each week (96%)
150	Retail locations today
<b>ACCESS TO NON-CASH PAYMENT METHODS</b>	
6.6%	Of the population in the greater Boston area are “unbanked”
34%	Of the unbanked in the US have a smartphone

# Buses are in low income and minority communities

## DEMOGRAPHICS BY MODE: MINORITY STATUS



## DEMOGRAPHICS BY MODE: LOW-INCOME STATUS



# Options will ensure equal access

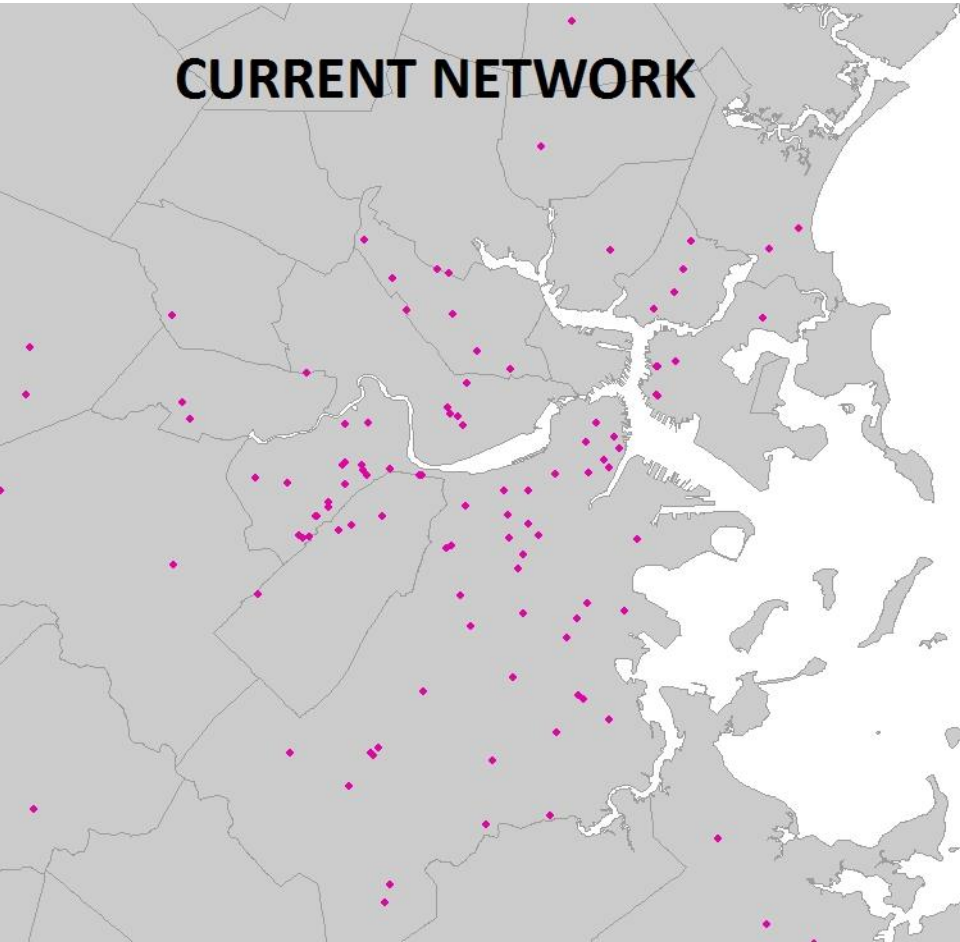
- Greatly expand ways to pay
  - T Card, Credit Card, Mobile Phones
- Expand physical payment network
  - Retail sales partner
  - Minimal fare vending machines
- Online and auto-reload options
- **“One more trip” overdraft** where needed to allow users with insufficient value seamless access to service
- Passengers will benefit from these new options and improvements



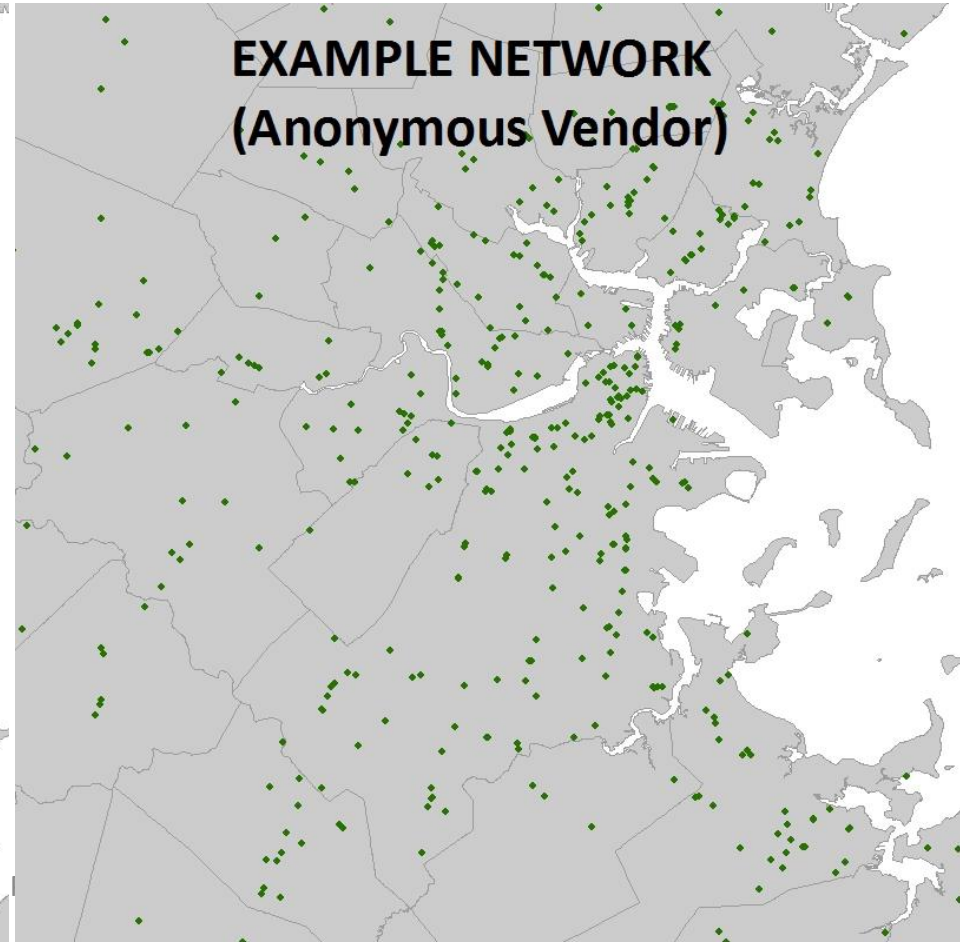
# Retail network will be expanded

- **Removing cash is possible if well thought out:** London removed cash in 2014 when cash use was 1%, by increasing the retail network. We will follow same approach.
- Major gift card networks have 1,000+ locations, off the shelf
- Up to 12 months to get cards into network

**CURRENT NETWORK**



**EXAMPLE NETWORK  
(Anonymous Vendor)**



# All doors requires enforcement

**San Francisco** inspects ~2% of riders and issues citations to 2.6% of those inspected.

In **New York** fare evasion went down from 6.7% to 4.2% after the implementation of off board fare collection.

TODAY	FUTURE
<p><b>Cannot enforce</b> on vehicle because users can pay in cash (and no proof of payment is issued)</p>	<p>v.</p> <p>Standard enforcement because <b>everyone</b> has electronic proof of payment</p>
<p><b>Testing out smaller</b> &amp; cheaper validation device on GL; not efficient for large scale rollout</p>	<p>v.</p> <p>Inspection everywhere <b>uses commodity mobile devices</b></p>
<p>All door boarding requires off board fare collection, which <b>requires expensive machinery</b> and maintenance</p>	<p>v.</p> <p><b>Readers installed at all doors</b> of all vehicles, and targeted enforcement and appropriate fines (and collection abilities) so that evading fares is a bad financial decision</p>



# Fixing inefficient delivery of cards

- **17.78 million CharlieCards** issued to date
  - At a cost of more than **\$12 million**
- 21 of the 25 largest US transit properties that use smartcards **charge for a card**
- Having a **card charge** in line with industry standard
  - Free cards in areas of need working with partner agency
  - Enables **“one more ride”** overdraft
- Working with **local arts partners** to brand and design new card

## CHICAGO



**\$5 Card Fee**

## PHILADELPHIA



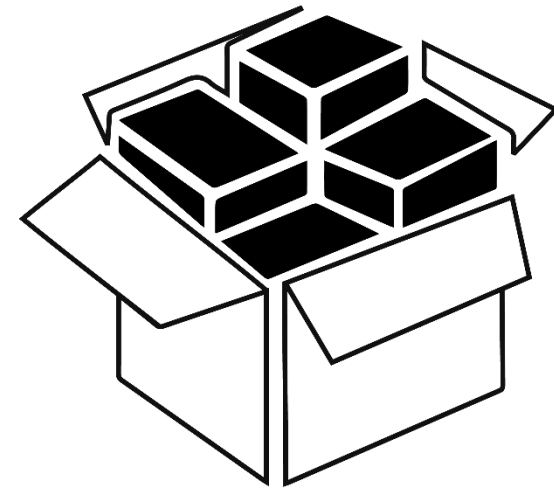
**\$4.95 Card Fee**



# The total package

- Removing cash on board **required** to enable all-door boarding everywhere without jeopardizing fare revenue
- **New points of sale** and contractually enforceable payment access standard meet needs of small percentage of users who must use cash

**IT'S A PACKAGE  
DEAL!**



# How to be involved

- Help us with meet and connect with users and community groups
- Start the transition process soon – reduce cash on board, ready for new media
- Follow our progress to award contract in 2017

