



**Massachusetts Bay
Transportation Authority**

GM Remarks

3/27/2017



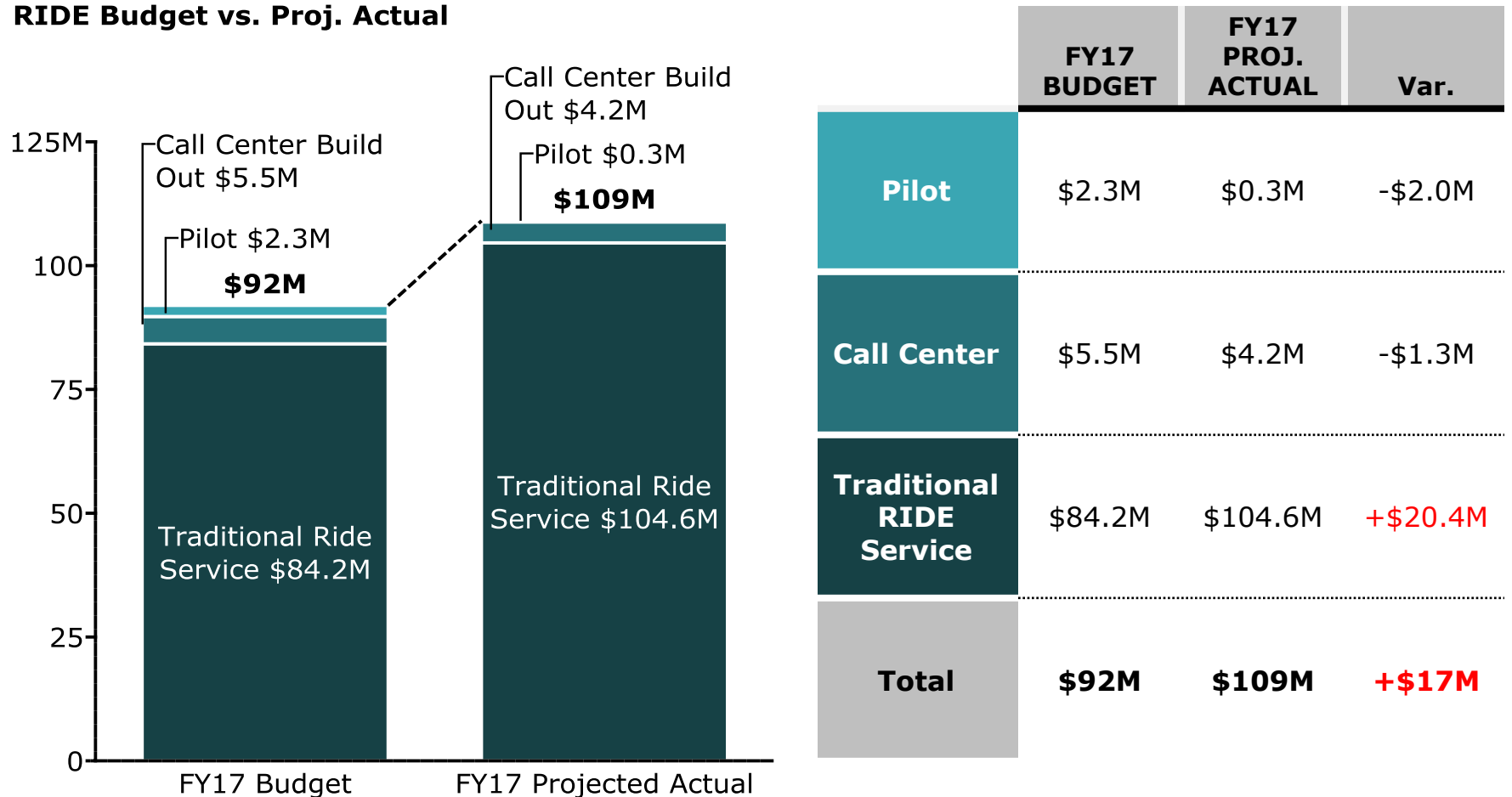
Agenda

- RIDE FY17 Budget Forecast Update
- Winthrop Bus Routes
- Commuter rail performance



The RIDE is expected to end FY17 \$17M over budget

RIDE Budget vs. Proj. Actual





Agenda

- RIDE FY17 Budget Forecast Update

- Winthrop Bus Routes

- Commuter rail performance



MBTA Bus Operations and Maintenance: Expansion Service Model

MBTA contracting with private bus company to run Winthrop routes 712/713

- Winthrop service has been contracted out by MBTA since 1991
- Private contractor (Paul Revere) has traditionally run service using own fleet

New model mirrors national best practices for contracted bus service

- MBTA will provide 6 New Flyer buses to private contractor to operate and maintain
- Service Level Agreements govern performance and maintenance
- Private company employees operate and maintain buses
- Contract runs for 4 years with up to 2 option years
- Fixed price contract caps costs at 2% annual growth over contract period

Consistent with the L589 12/19 agreement, the MBTA can utilize this model for all expansion bus service in the future

- Contract terms provide cost stability
- Assets are owned by MBTA while operated and maintained by private company



MBTA to provide 6 New Flyer Xcelsior XDE40 FT buses



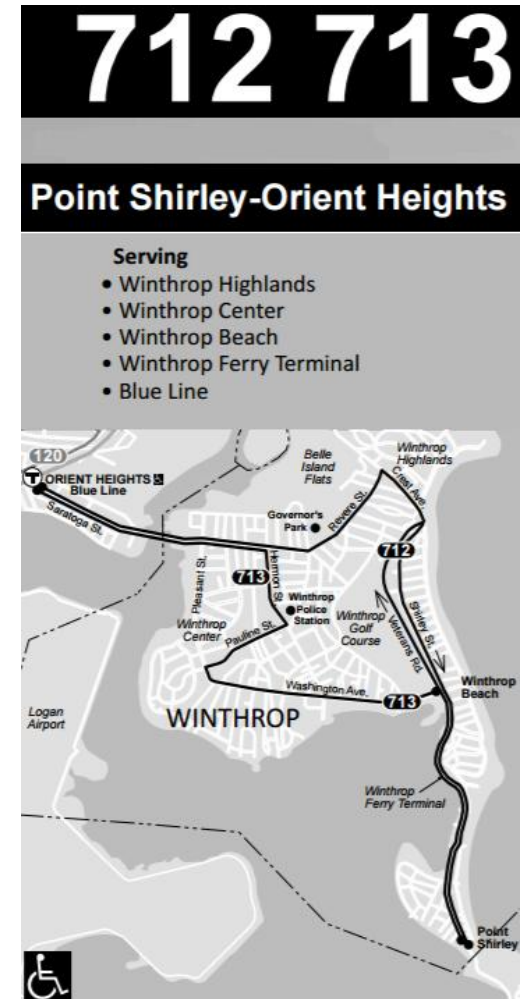
Scope of Work and Service Information

SCOPE OF WORK:

- Contractor will provide full operation and maintenance of MBTA-owned vehicles for Routes 712/713
- For the first time, MBTA will provide six (6) new 40FT hybrid diesel/electric buses to contractor
 - Same New Flyer buses recently put into operation out of MBTA's Cabot garage
- Contract Length: FY2018-FY2021 (4 years) with two (2) one-year option years

SERVICE INFO:

- Number of Buses: 6
- Annual Revenue Hours: 18,115
- Annual Revenue Hour per Bus: 3,019
- Ridership (FY2016): 735,390 passengers





Service Level Agreements and Maintenance Requirements

SERVICE LEVEL AGREEMENTS:

- Penalties will be assessed for “missed trips”, defined as the vehicle never arriving or arriving more than 30 minutes after the scheduled pick-up time
- Amount of penalty will be equal to twice the contractor’s per trip rate (daily rate divided by # of trips that day, times 2)
- Contractor responsible for providing weekly list of missed trips

MAINTENANCE REQUIREMENTS:

- **Facility:** contractor responsible for providing maintenance facility within 10 miles of the route
- **Experience:** lead mechanic applicants hired will have a minimum of 5 years maintaining heavy duty buses (a master technician with ASE certification is required); supporting mechanics will have at least 1 year of experience
- **Other Requirements:** adhere to MBTA-authorized PM schedules, adhere to all OEM standards, and allow for bi-annual audits by MBTA staff



Maintenance Requirements: Stringent Requirements Governing Facilities, Employees and Maintenance Practices

FACILITY



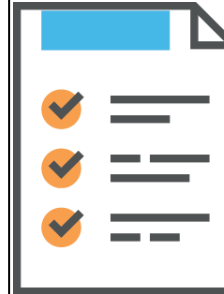
- Maintenance facility must be within 10 miles of routes
- Contractor required to maintain and garage buses at this facility
- MBTA reserves right to inspect buses at this facility at any time

EXPERIENCE AND TRAINING



- Lead mechanic(s) must have minimum 5 years' experience maintaining heavy duty buses
- A master technician with ASE certification is required
- Supporting mechanics must have at least 1 year experience
- Trainer staff required to attend MBTA training modules on BAE hybrid propulsion, Cummins engines, Multiplex, etc.

SAMPLE REQUIREMENTS



- ✓ Daily circle checks
- ✓ MBTA-authorized preventative maintenance (PM) schedules
- ✓ Adherence to all OEM requirements
- ✓ Electronic record-keeping in MIS system
- ✓ Monthly technical and engineering inspections
- ✓ Bi-annual maintenance audits by MBTA staff
- ✓ No body damage greater than 1" in length or that inhibits safe vehicle operation
- ✓ Passenger area free from excessively worn floor or broken seats
- ✓ Functioning heating and A/C
- ✓ Annual emission/opacity inspections
- ✓ Wheelchair ramp maintenance and performance
- ✓ Minimum 2 weeks parts inventory

Failure to comply with standards will result in "hefty fines and sanctions"



Maintenance Requirements: Private Operator Must Adhere To All Specified OEM Standards For New Buses


NEW FLYER

MBTA - BOSTON

SERVICE MANUAL

XCELSIOR® DIESEL-ELECTRIC 40FT. TRANSIT BUS




This service manual is effective for only those coaches with the following Identification Numbers:

- ✓ Preventative Maintenance
- ✓ Front Axle & Suspension
- ✓ Rear Axle & Suspension
- ✓ Steering System
- ✓ Engine System
- ✓ Hybrid Drive System
- ✓ Cooling System
- ✓ Fuel System
- ✓ Air System
- ✓ Electric System
- ✓ HVAC System
- ✓ Structures & Chassis
- ✓ Interior Panels & Applied Parts
- ✓ Exterior Panels & Applied Parts
- ✓ Windows
- ✓ Access Doors & Panels
- ✓ Entrance & Exit Doors
- ✓ Seating & Stanchions
- ✓ Destination Signs
- ✓ Driver's Controls
- ✓ Wheelchair Ramps



Maintenance Requirements: Private Operator To Use Daily/Weekly/Monthly Checklists Specified By OEM


DAILY CHECKLIST



NEW FLYER

Daily Preventive Maintenance

2.6.6. Floor Covering



CAUTION

DO NOT clean the vehicle interior with pressure washing equipment. This type of cleaning causes excessive soaking of the floor covering and can result in separation of the rubber floor covering from the floor substrate, warping or deterioration of the floor substrate, and possible damage to floor mounted equipment such as floor heaters.

Inspect the interior flooring for cleanliness on a regular basis depending on operating conditions. Exposure to salt, sand, or slush during the winter months may require

2.6.7. Crankcase Breather Tube

Check breather tube for kinks, dents, or other damage. Also check inside of tube for sludge, debris, or ice formation (in freezing conditions). Clean or replace tube as required


2.6.8. Aftertreatment Exhaust Piping

Inspect exhaust aftertreatment system for leaks cracks, and loose connections. Inspect for leaks at V-band connections and tighten clamps as necessary.

2.6.9. Air Intake Piping

Inspect air intake tubes and hoses, for evidence of wear, punctures, or other damage.

WEEKLY CHECKLIST



NEW FLYER

Weekly Preventive Maintenance


2.7. Weekly Preventive Maintenance

2.7.1. Radiator

Test the function of the fan reverse switch and LED indicator on a weekly basis or any time service work is being performed in the engine compartment. Operating the fan reverse switch will not only clear debris from the radiator core, but will also confirm operation of the LED indicator which is used to display diagnostic fault codes. If any active fault codes are indicated, refer to Section 6 of this manual for troubleshooting and vendor information.

- Ensure that the support arm magnet contacts and retains the support arm. Adjust magnet position as required.
- Ensure that the support arm hooks pull out smoothly, stop at the stop screw, slide easily into the stowed position, and self stop on the magnet when released.
- Check the pivot bolt assemblies to ensure they are tight.
- Check pivot bolt bronze oillite bushings for wear or cracks. Replace as necessary.
- Check that all mounting bracket fasteners are tight, including the hardware for the

MONTHLY CHECKLIST



NEW FLYER

Monthly Preventive Maintenance

2.8.2. Air Tanks

It is recommended that all air tanks be drained monthly and a record of the contents collected be recorded. Performing these inspections on a regular basis will establish trend monitoring to assess the performance of the compressor (excessive oil passing) and air dryer (saturated desiccant cartridge).

The following factors can influence that amount of water collected and should be taken into consideration before making an assessment:

- An outside air source was used to charge the system and did not pass through the air dryer.
- Exceptionally high air usage, exceeding 25% compressor duty cycle due to either heavy accessory demand or system leakage
- Daily temperature range exceeds 30°F (17°C) resulting in condensation. Under these conditions the presence of small amounts of moisture is normal and should not be considered as an indication that the air dryer is not functioning properly.

NOTE:
A small amount of oil in the system is not unusual and should not be considered a reason to replace the desiccant cartridge. Oil stained desiccant can function adequately.

5. Evaluate volume collected as follows:

- a. More than one unit of oil in a 30 day period will require the desiccant cartridges to be changed and is considered cause for further inspection of the air compressor. Worn pistons or rings will allow oil bypass and may require repair if amount of oil bypassed is excessive. Also inspect compressor discharge line for excessive carbon buildup.
- b. More than one unit of water or emulsion will be cause to conduct an air system leakage test. Refer to Section 8 of this Service Manual for procedure.
- c. More than five units of water in a 30 day period indicates unsatisfactory air dryer performance. Replace air dryer desiccant cartridges.

2.8.3. Fire Suppression System

- Open access door behind streetside light panel, opposite the exit door, to access gauge. See "Fig. PM-1: Fire Suppression Cylinder Inspection" on page 19.
- Check pressure gauge on agent cylinder to ensure it is in the operating (green) range.
- Check all nameplates and instructional labels for legibility.
- Check physical condition of all components for mechanical damage and security of mounting.




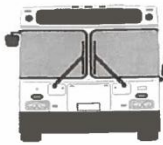
Maintenance Requirements: Private Operator Must Use MBTA-Authorized Inspection Forms

DAILY CIRCLE CHECK FORM

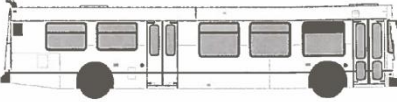
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
VEHICLE CONDITION REPORT
NEW FLYER D40LF SERIES

0043491 AREA: _____
DATE: _____
VEHICLE: _____

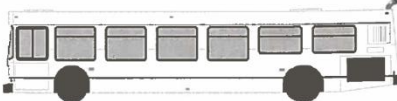
OPERATOR NAME	NUMBER	RUN	TIME
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

REAR END VIEW
FRONT END VIEW



RIGHT SIDE VIEW



LEFT SIDE VIEW

MBTA SN 07911012 - REV 1-34-16

Operators must perform routine safety check before bringing bus into service

MBTA PM INSPECTION FORM

QAF-011 BUS MAINTENANCE MILEAGE INSPECTION AUDIT
PILOT

VEHICLE NO. _____ MILEAGE _____ DATE _____

USE WITH MILEAGE INSPECTION AUDIT PROCEDURE QAF-004

INSTRUCTIONS:
1. Complete each item on sheet.
2. All bus repairs to be completed before audit. Bus to be audited "as-is". Audit Team shall not effect any repairs or adjustments to vehicle.
3. All audit discrepancies shall be reported.
4. All items must pass. A single failure or more constitutes a failed audit.
5. If bus is not in compliance with audit requirements it shall be held until released by Audit Team or Superintendent.
6. Forward audit report to Superintendent upon completion.
7. The completed audit shall be forwarded to the Quality Assurance Dept.
NOTE: FAILURES ARE REPORTED TO THE SAFETY DEPT. ON THE MILEAGE INSPECTION AUDIT NOTICE. REFER TO LAST PAGE OF THIS FORM.

NO.	ITEM	CRITERIA	PASS / FAIL
BODY INTERIOR			
1	Bus Identification	Registration, permits and inspection stickers present and valid	
2	Brake Pedal / Accelerator Pedal	Rollers spin freely, no lateral play, pad present and secure	
3	Wheelchair Lift	Operation, interlocks, passenger tie downs	
BODY EXTERIOR			
4	Front Tires / Blinds	4/32" tread, even wear, no gouges or rot / No cracks, welds or dents in rims	
5	Rear Tires / Blinds	2/32" tread, even wear, no gouges or rot / No cracks, welds or dents in rims	
6	Body Panels / Windows	All secure	
ENGINE COMPARTMENT			
7	Engine / Transmission	Mounts and supports, fluid leaks, belts, cleanliness, secure hoses and fittings	
8	Battery, Starter, Alternator	Cables secure and operational / No chaffing or corrosion	
CHASSIS			
9	Steering	Gearbox, pump, hoses, leaks, pitman arm, draglink, tie rod ends, king-pins Application valves, release valves, cams, chambers, hoses, tires	
10	Air Brake System	Foundation brakes	
11	Front Axle	Springs, shackles, U-bolts, shock absorbers, air suspension, radius rods	
12	Axle 1 Brake Type DEK WEDGE S-CAM	Pushed Throws (S-CAM) RIGHT _____	
13		Pushed Throws (S-CAM) LEFT _____	
14		Brake Liner Pad RIGHT _____	
15		Brake Liner Pad LEFT _____	
16	Mid Axle	Differential defects, leaks, springs, shackles, U-bolts, shock absorbers, seals, air suspension, radius rods and bushings	
17	Axle 2 Brake Type DEK WEDGE S-CAM	Pushed Throws (S-CAM) RIGHT _____	
18		Pushed Throws (S-CAM) LEFT _____	
19		Brake Liner Pad RIGHT _____	
20		Brake Liner Pad LEFT _____	
21	Rear Axle	Differential defects, leaks, springs, shackles, U-bolts, shock absorbers, seals, air suspension, radius rods and bushings	
22	Axle 3 Brake Type DEK WEDGE S-CAM	Pushed Throws (S-CAM) RIGHT _____	
23		Pushed Throws (S-CAM) LEFT _____	
24		Brake Liner Pad RIGHT _____	
25		Brake Liner Pad LEFT _____	

VEHICLE OUT OF SERVICE YES / NO _____

Audited by _____ Date _____
Foreperson _____ Date _____
Foreperson _____ Date _____
Maint. Supervisor _____ Date _____

COMPLETE THIS SECTION FOR FAILED AUDIT
Enter item number(s) and reason for failure. Attach copy of all CAAs with any supporting information to audit report.

No.	Reason For Failure	CA# Number and Date	Corrected / Approved by

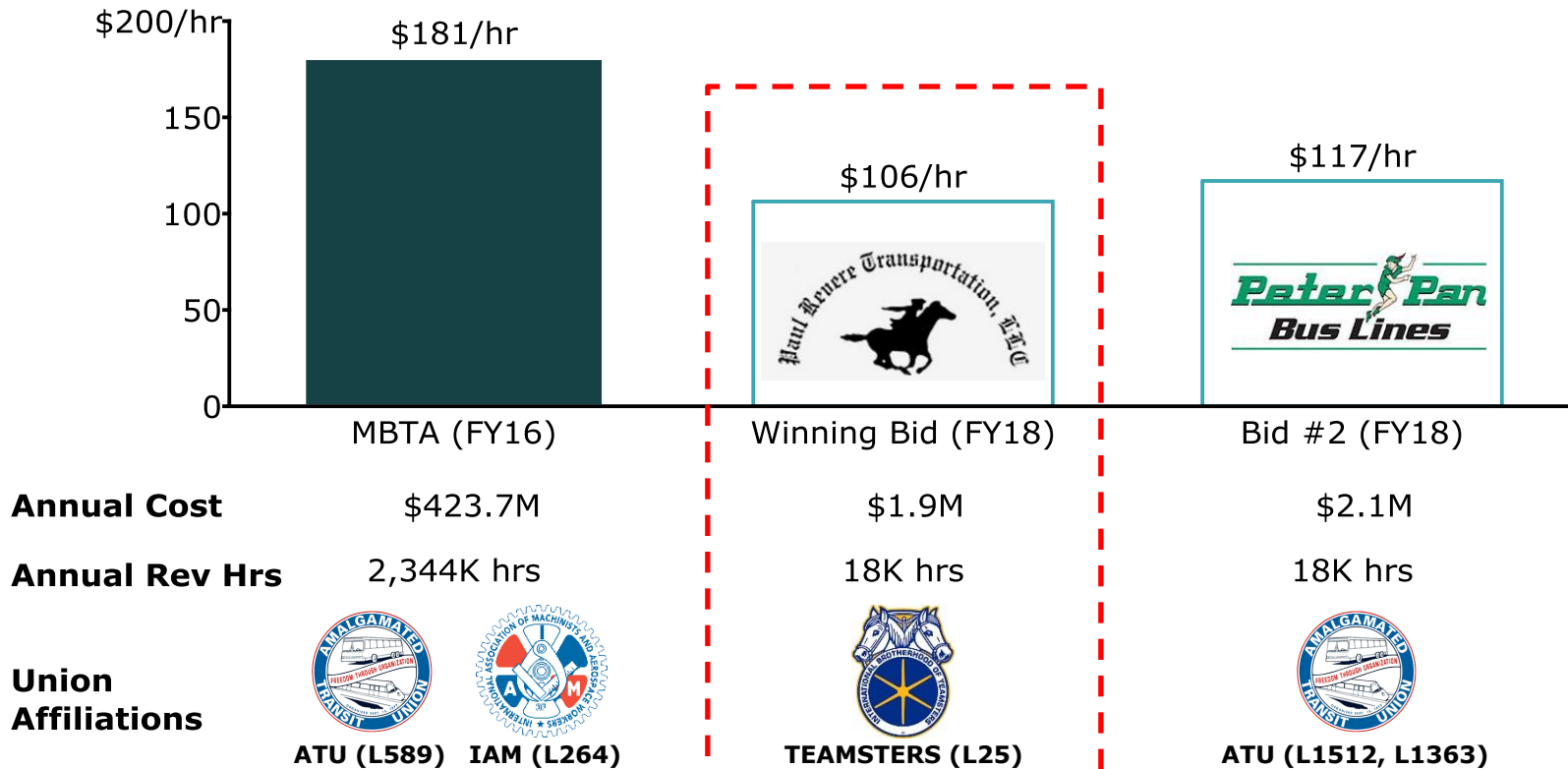
ADDITIONAL CORRECTIVE ACTION REQUIRED YES NO R/F: _____

Private contractor's staff must perform MBTA-specified preventative maintenance



Best Value Bid Was Paul Revere at \$106 Per Revenue Hour

Total Cost per Revenue Hour

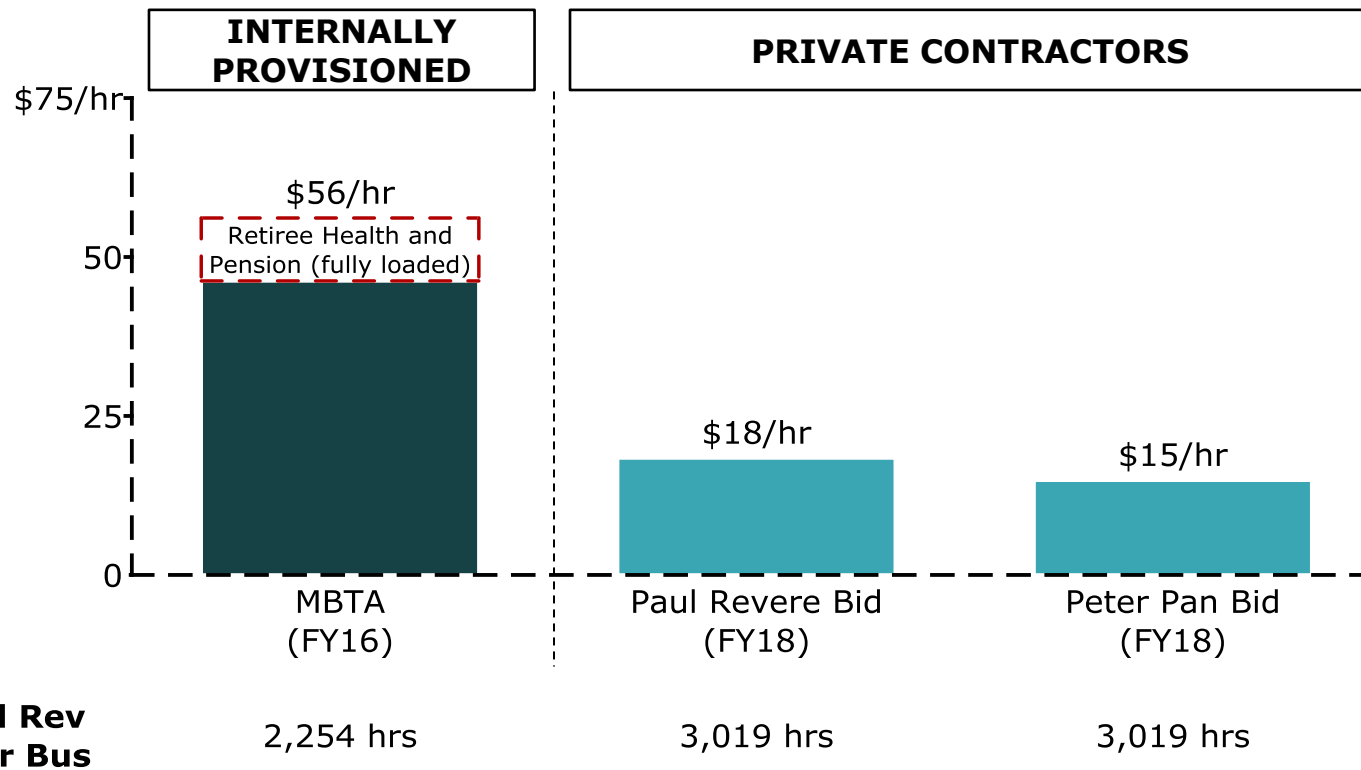


Note: MBTA FY16 costs include present value of fully funded pension and retiree health costs, include Everett Bus Shop, and exclude Non-Revenue Shops; MBTA internal costs only includes a portion of total bus G&A expense and reflect pure cost only (no profit margin)
Source: MBTA Internal Data



Market Pricing: Lifecycle maintenance Costs New Flyer Xcelsior Diesel-Electric 40 Ft. Transit Bus

Maintenance Cost per Revenue Hour



**Annual Rev
Hrs per Bus**

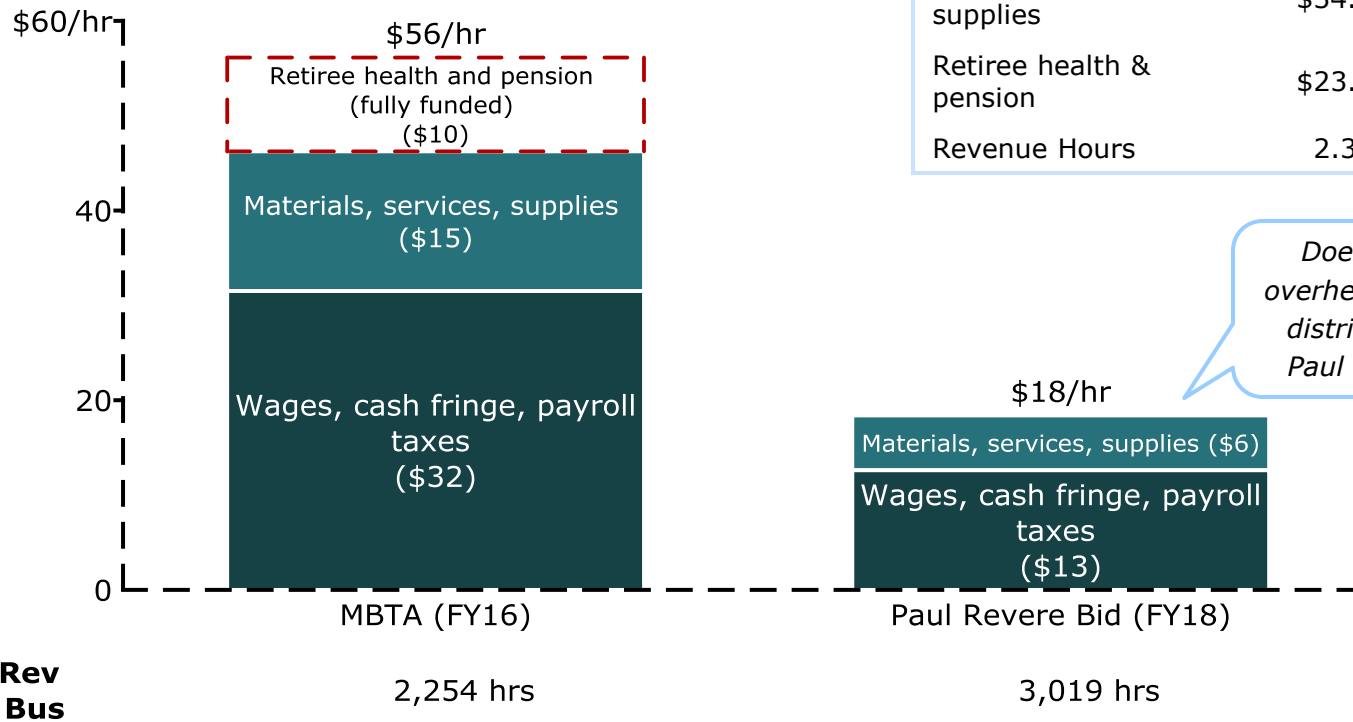
Note: MBTA FY16 costs include present value of fully funded pension and retiree health costs, include Everett Bus Shop, and exclude Non-Revenue Shops and fuel; MBTA internal costs only includes a portion of total bus G&A expense and reflect pure cost only (no profit margin)
Source: MBTA Internal Data

Draft for Discussion & Policy Purposes Only



Market Pricing: Lifecycle Maintenance Costs New Flyer Xcelsior Diesel-Electric 40 Ft. Transit Bus

Bus Maintenance Cost per Revenue Hour



	<u>MBTA</u>	<u>P. Revere</u>
Wages, fringe, taxes	\$74.4M	\$229K
Materials, services, supplies	\$34.5M	\$104K
Retiree health & pension	\$23.2M	-
Revenue Hours	2.34M	18.1K

Does not include all overhead expenses likely distributed over other Paul Revere contracts

Note: MBTA FY16 costs include present value of fully funded pension and retiree health costs, include Everett Bus Shop, and exclude Non-Revenue Shops and fuel; MBTA internal costs only includes a portion of total bus G&A expense and reflect pure cost only (no profit margin)
Source: MBTA Internal Data

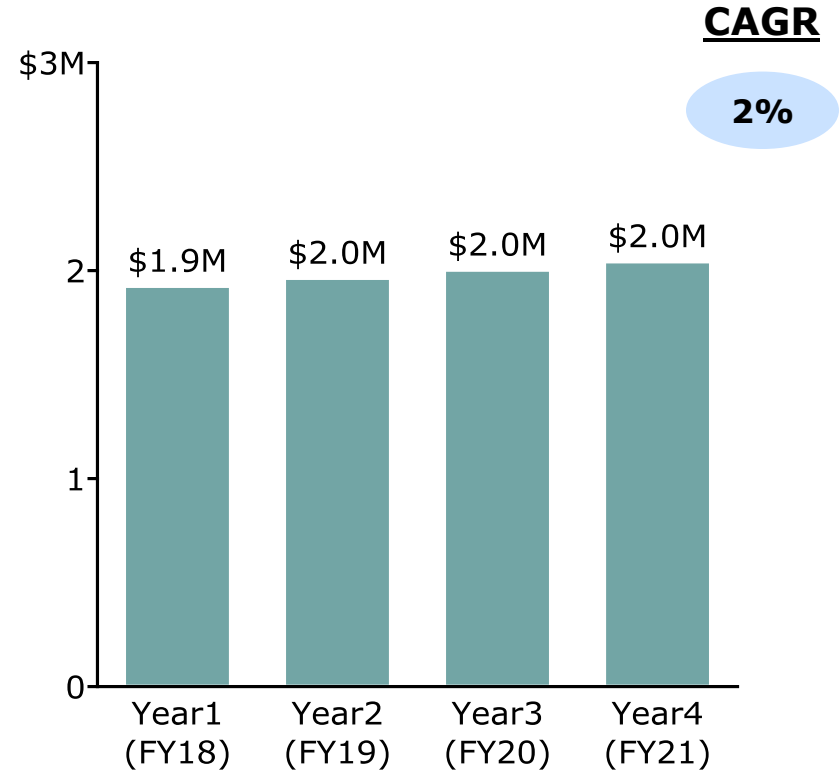


Contracted operations-maintenance model: Budget Certainty and Fixed Pricing

Benefits of Contracted Service:

- Bus service costs will grow at 2% annually (vs. historical 4-5% MBTA bus cost growth)
- Provides budget certainty and predictability
- “Not to exceed” provision means contractor bears financial risk
- Aligns costs with MBTA’s own long-term cost targets (below 2% annual growth) and closer to historical revenue growth

Total Contract Cost



Source: MBTA Internal Data

Draft for Discussion & Policy Purposes Only

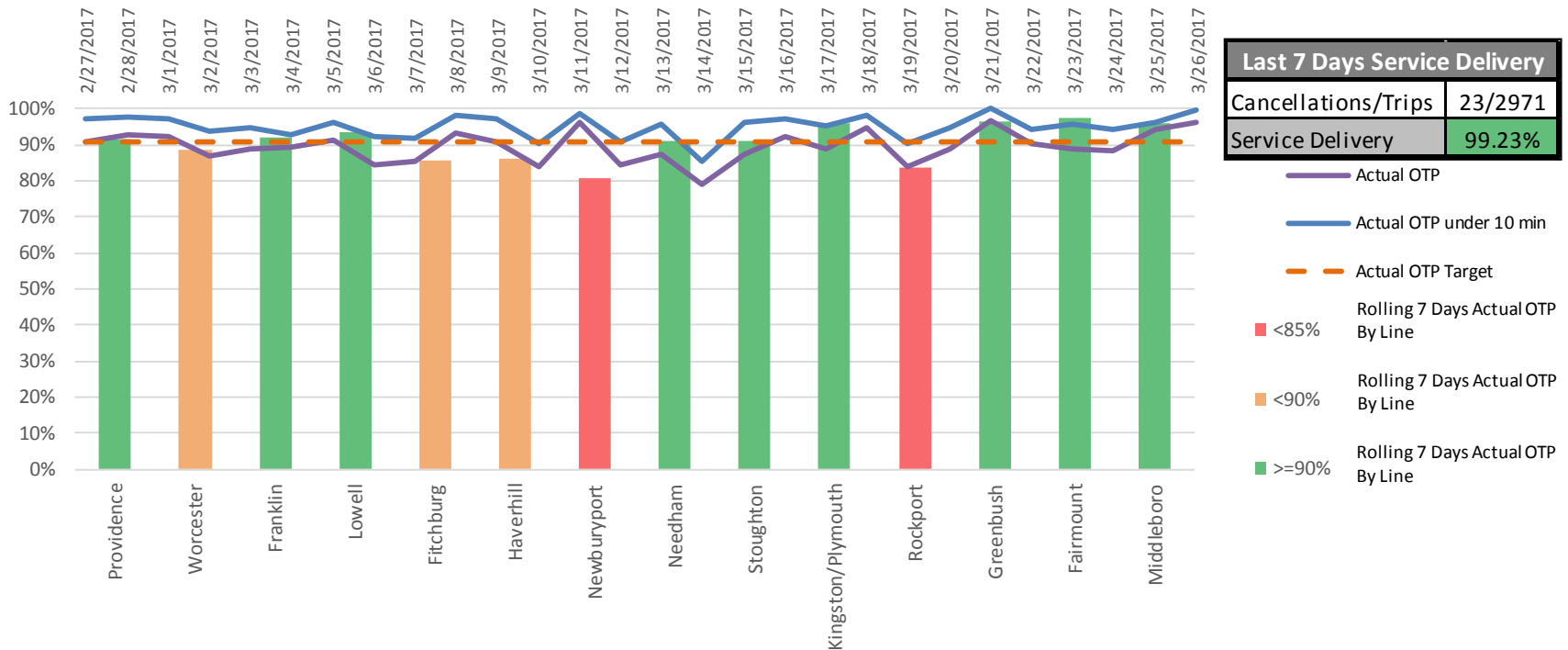


Agenda

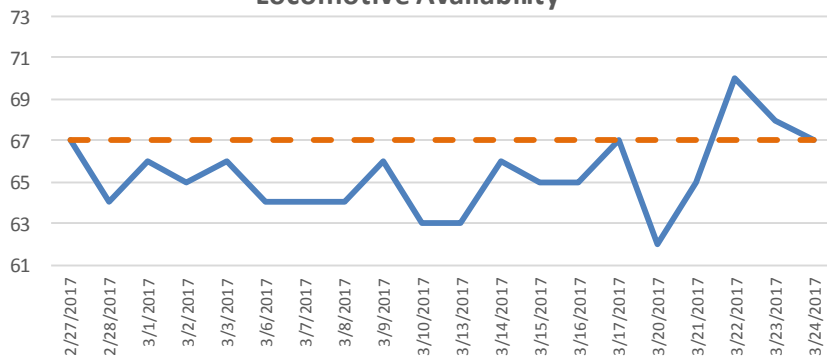
- RIDE FY17 Budget Forecast Update
- Winthrop Bus Routes
- Commuter rail performance

Commuter Rail On-Time Performance Summary By Line & Equipment Availability

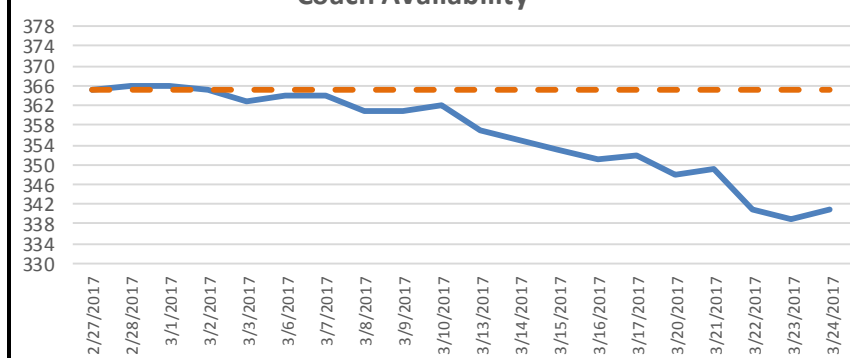
Commuter Rail Weekly Operational Report



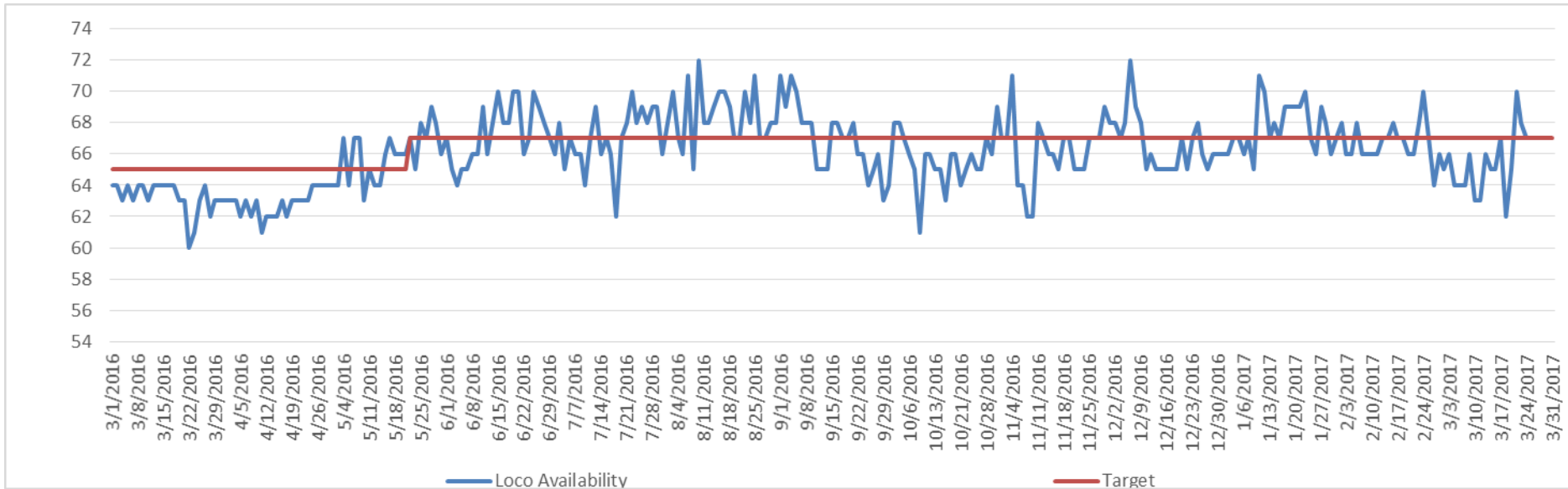
Locomotive Availability



Coach Availability



Locomotive availability



- Turbocharger failures on MPIs, legacy locomotive main engine failures and PTC program putting pressure on availability
- 1st UTEX locomotive progressing well, expected in revenue service ahead of schedule (mid April), 2nd & 3rd locomotives on plan

Coach availability



- Sudden decline in coach availability due to large number of coaches with damaged wheelsets coinciding with reduced wheel true facilities (capital replacement of wheel true machine at BET)
- Arranging wheel truing with Amtrak and increased production on remaining machine at Readville to return to strong position rapidly

OTP

Commuter Rail OTP

