



Massachusetts Bay Transportation Authority

Bus Operations Review

December 11, 2017



Goals of the Presentation

- Provide a broad overview of bus operations at a transit facility- Cabot
- Facts about Cabot Bus Garage
- Overview of Bus Service Delivery
 - Transportation Operations
 - Vehicle Maintenance
- 24 Hours at Cabot Bus Garage
- Core Administrative Functions



196 New Buses



4.1M Miles Driven
Annually

38 Routes



3690 Trips
Daily

468

Operators

30K

Work Orders
Annually

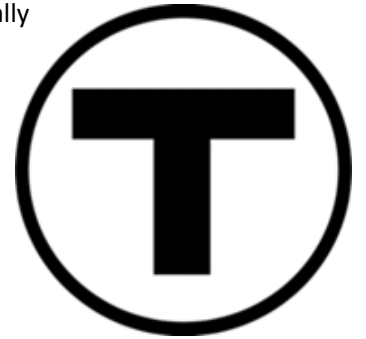
33,557
Mean Miles
Between Failure
Last 6 months

35

Technicians

685

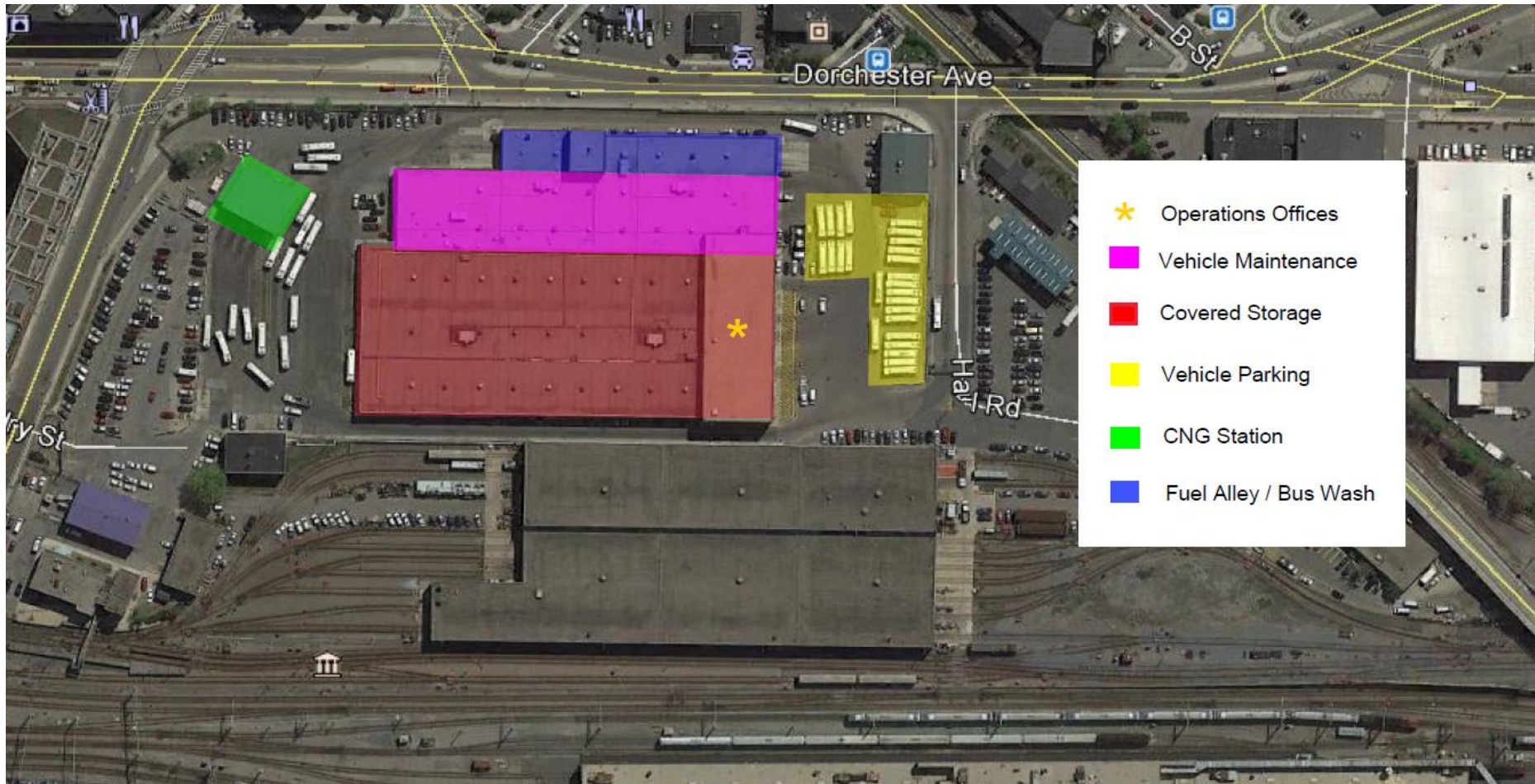
PM Inspections
Annually



Cabot Garage



Cabot Facility Layout



Components of Bus Service

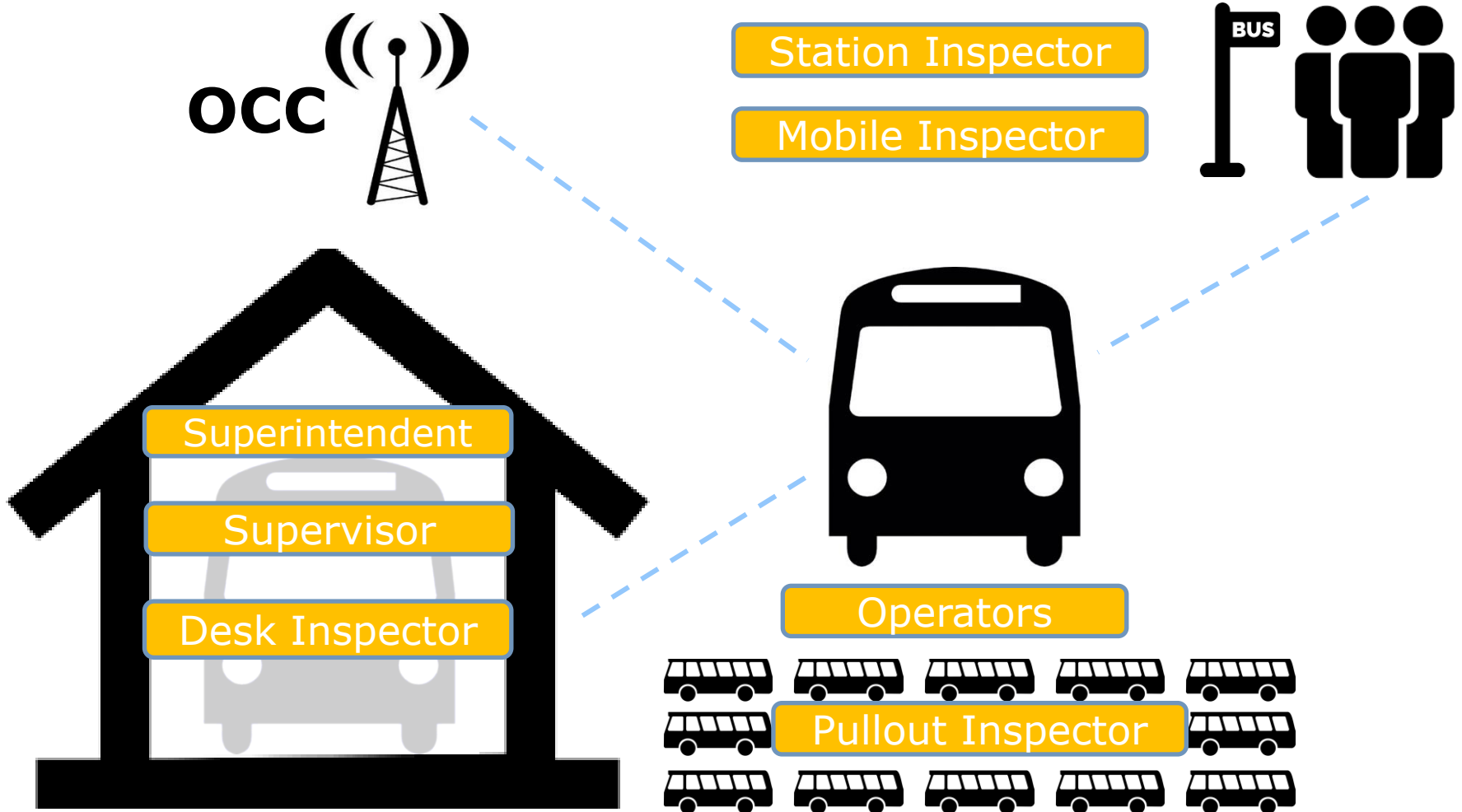


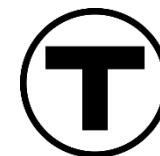
Transportation Operations





Transportation Operations





Transportation operations roles & responsibilities

<i>Title</i>	<i>Positions</i>	<i>Union Affiliation</i>	<i>Key Responsibilities</i>
Operator	468	589	<ul style="list-style-type: none"> • Safely operate bus & provide courteous customer service • Report all defects and issues to OCC • Conduct circle check
Pullout Inspector	6	600	<ul style="list-style-type: none"> • Ensure operators are present & fit for duty • Assign buses to operators
Station Inspectors	12	600	<ul style="list-style-type: none"> • Monitor routes for schedule adherence • Customer service interface • Station safety and security awareness
Mobile Inspector	6	600	<ul style="list-style-type: none"> • Responds to incidents, accidents, & disabled buses • Coordinate detours with OCC & municipalities • Adjust bus schedules to improve service



Transportation operations roles & responsibilities

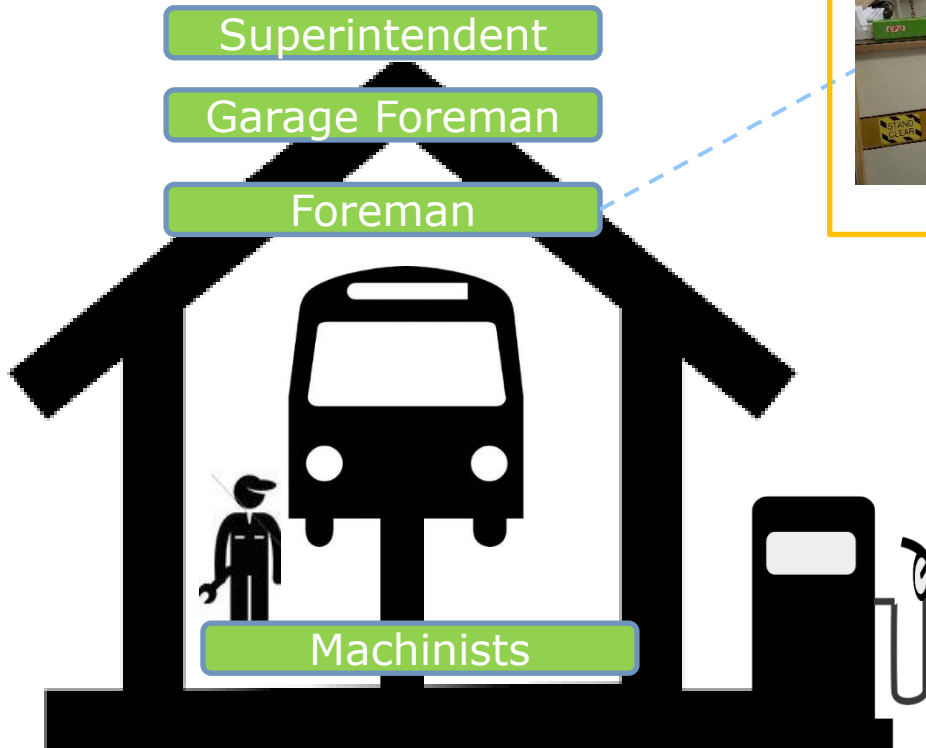
<i>Title</i>	<i>Positions</i>	<i>Union Affiliation</i>	<i>Key Responsibilities</i>
Desk Inspectors	4	600	<ul style="list-style-type: none"> Coordinates with 3rd party administrator Manages staff coverage Time reporting and payroll
Supervisor	5	453	<ul style="list-style-type: none"> Prepare & manage work assignments Assist operators with administrative matters Conduct investigations, interviews, & discipline
Superintendent	1	TEA	<ul style="list-style-type: none"> Manage all aspects of transportation in their district Respond to incidents & accidents as needed Coordinate with bus maintenance Facilitate safety briefings and activities Coordinate with other key MBTA Departments Prepare for special events

Vehicle Maintenance

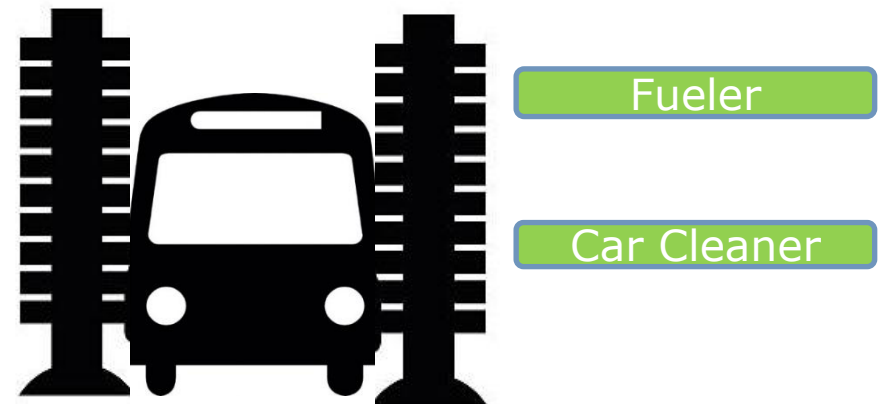


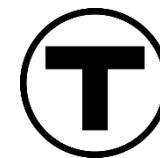


Vehicle Maintenance



Operations





Vehicle Maintenance Roles and Responsibilities

<i>Title</i>	<i>Positions</i>	<i>Union Affiliation</i>	<i>Key Responsibilities</i>
Machinist	35	264	<ul style="list-style-type: none"> • Perform Scheduled & Corrective maintenance • Diagnostics and Troubleshooting • Warranty, recalls, Service bulletins
Fueler	11	264	<ul style="list-style-type: none"> • Fuel Buses • Steam Clean & Wash Buses • Service & Stage buses
Car Cleaners	1	589	<ul style="list-style-type: none"> • Clean bus interiors • Shop Hazwaste & Environmental Duties • General shop support
Foreman	5	Alliance	<ul style="list-style-type: none"> • Shop workflow management • Quality assurance • Machinist technical assistance
Garage Foreman	1	Alliance	<ul style="list-style-type: none"> • Scheduling shop work • Coordinate activities with operations • Coordinate activities between shifts
Superintendent	1	TEA	<ul style="list-style-type: none"> • Manage shop budget • Manage Fleet & Shop performance • Personnel Management

24 Hours at Cabot Bus Garage





Daily Service Overview

Transportation Operations

Prep for AM peak service

AM Peak Service

PM Peak Service

24 hour day

Prep for service

Scheduled & Corrective Maintenance

Cleaning & Fueling Prep for AM service

Vehicle Maintenance

36 buses return from PM service



Early morning select pullouts - 2 buses



4 Fuelers fueling, cleaning & parking 153 buses



5 Machinists repair defects, prep buses for AM service

Foreperson preparing AM bus count & hold buses for maintenance

12 Midnight

3 AM

Desk Inspector coordinating driver activities cover driver absences

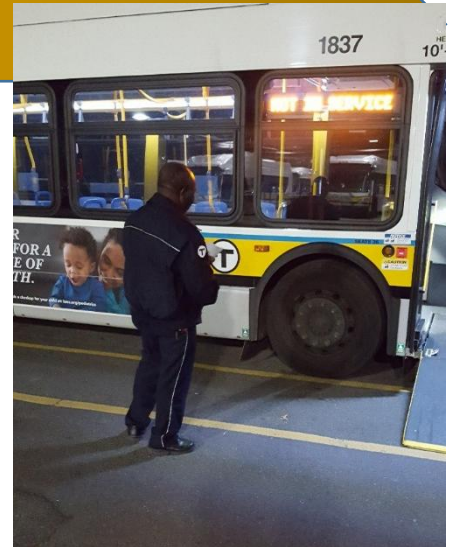


Circle check & 65 bus AM pullouts

Supervisor coordinating with dispatch & station officials regarding service coverage

60-70 Drivers arriving, fitness for duty, bus assignments

Pullout Inspector coordinating with maintenance Foreperson



Foreperson finalizing bus count & coordinating with transportation

Foreperson establish maintenance needs for the day and schedule work



3 AM

6 AM

153 bus leave during AM peak pullouts



82 buses return in AM pullbacks



2 Machinists supporting AM bus pullouts

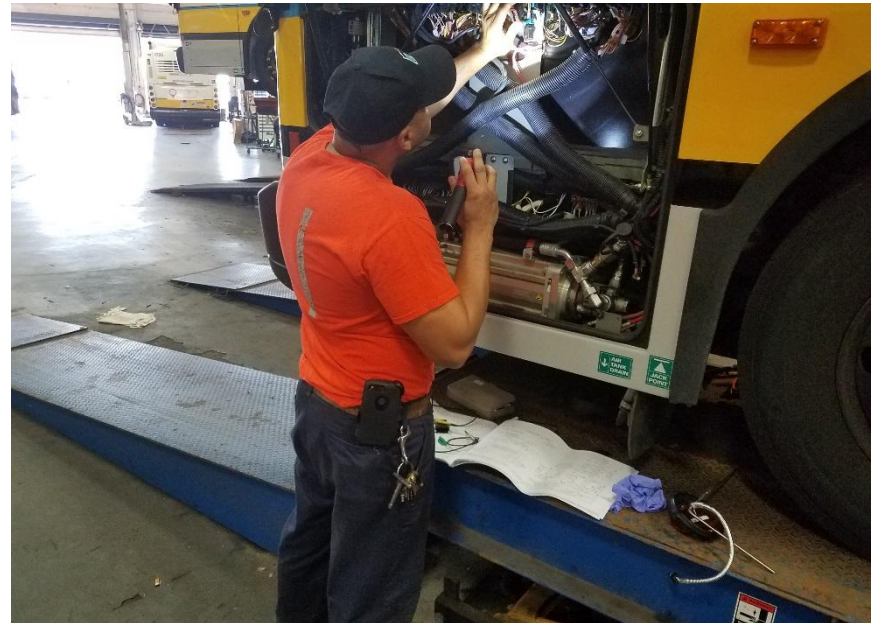
First shift change & 5 Machinist receive work assignments

5 Machinists begin performing 3 to 4 scheduled PM inspections and corrective maintenance

6 AM

9 AM

82 buses return in AM pullbacks



2 Fuelers fueling, cleaning, & parking buses

5 Machinists perform 3 to 4 scheduled PM inspections and corrective maintenance

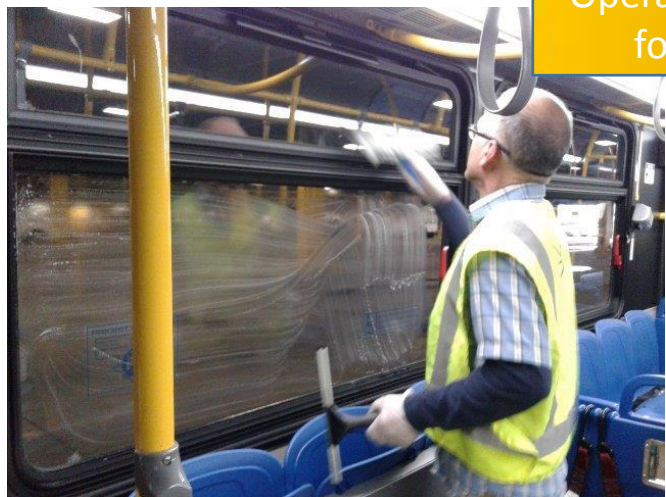
9 AM

12 PM

Inspectors performing drivers fitness for duty & bus assignments

Operators circle check & 23 buses for supplemental pullouts

81 buses begin peak PM pullouts



2 Fuelers fueling, cleaning, & parking buses

Foreperson prep PM bus count & Coordinating with transportation

5 Machinists perform 3 to 4 scheduled PM inspections and corrective maintenance

12 PM

3 PM

35 additional buses for peak PM pullouts



Second shift change & 5 Machinists receive work assignments

5 Machinists preform 3 to 4 scheduled PM inspections and corrective maintenance

3 PM

6 PM

6 PM



39 buses return from Peak PM service



2 Fuelers fueling, cleaning, & parking buses



2 to 5 Machinists repair defects and prep for AM service

2 to 5 Machinists perform scheduled PM Inspections & corrective maintenance

9 PM

70 Buses returning from PM service



Third shift change & 5 machinist receive work assignments

4 Fuelers fueling, cleaning, & parking buses

5 Machinists repair defects and prep for AM Service

9 PM

12 AM



Daily Administrative Functions

Transportation Operations

- Respond to **65 to 70** incidents and accidents daily
- Respond to **75 to 100** complaints
- Coordinate with maintenance **3-4** times daily
- Support **1-2** special events daily

Vehicle Maintenance

- Schedule **3-4** Preventive maintenance inspections daily
- Respond to **1-2** Road call & emergency responses daily
- Manage contract cleaning of **153-196** buses daily
- Monitor **5-7** shop KPI's daily

Core Administrative Functions

- Coordinate with OCC
- Manage staff coverage
- Address disciplinary actions
- Time reporting & payroll
- Facilitate safety briefings & activities



Challenges

- Key administrative duties still paper based including;
 - Operator pre-trip bus condition inspections
 - Transportation bus assignments
 - Operator route assignments and shift coverage
 - Incident and accident reporting
 - Preventive maintenance inspection checklists
 - Maintenance parts requests

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
VEHICLE CONDITION REPORT
NEW FLYER D40LF SERIES

0657058 AREA 123 DATE 12/17/17 VEHICLE 1861 RUN 1072 TIME 6:19A

OPERATOR NAME: [Signature] NUMBER: 0657058

MARK DEFECTIVE EQUIPMENT WITH AN "X".

ENTERING	DEFECTS	REAR:	DEFECTS
Fire Extinguisher	_____	Marker Lights	_____
Check Brakes (2)	_____	Washer Lights	_____
Emergency Reflectors	_____	Engine Compartment Door	_____
Mirrors	_____	Lights Tail, Brake	_____
Operator's Seat	_____	Turn Signals	_____
Seat Belt	_____	License Plate	_____
Operating Permits (2)	_____	Fuel Leaks	_____
Stairwell Hazards	_____	Destination Sign	_____

FIRST SEAT CHECK DEFECTS

DEFECTS	RIGHT SIDE:	DEFECTS
Parking Brake	Turn Signals	_____
Foot Brake	Compartments	_____
Spring Brake	Rear Tire, Wheel, Lug Nuts	X
Air Leaks	Side Windows	_____
Low Air Buzzer	Front Tire, Wheel, Lug Nuts	_____
Horn	Marker Lights	_____
Reverse Gear	Fuel Door & Cap	_____
Front & Rear Door	Destination Sign	_____
Fare Box	Camera (1)	_____
Windshield Wipers & Washer	INTERIOR	DEFECTS
Camera Light Status	Trapping Hazards	_____
Door Interlock	Rear Stairwell	_____
Radio Operation	Emergency Exits	_____
Transit Master	Buzzer/Chimes	_____
EXTERIOR CHECK	Grab Bars	_____
Front Marker Lights	Seats	_____
Vandal Lights	Interior Lights	_____
Destination Sign	Rear Headlights	_____
Windshields	Heater Body	_____
Wiper Arm & Blades	Heater Operator	_____
Turn Signals	Defects	_____
Head Lights	Camera (2)	_____
License Plate	ACCESSIBILITY EQUIPMENT CHECK	DEFECTS
Damage	Obstacle Wrester	_____
Advertisement Signs	Obstacle Ramp or LA	_____

LEFT SIDE DEFECTS

DEFECTS	DEFECTS	
Marker Lights	Check for Ramp Stop/Fuel	_____
Side Windows	Check Pin-Up Securement Seams	_____
Left Front Side Mirror	Check Priority Seating Stop Request	_____
Front Tire, Wheel, Lug Nuts	Check Destination Signs (Front/Side/Rear)	_____
Compartment Door	Check for Bus Number Above Windshield	_____
Rear Tire, Wheel, Lug Nuts	Check for Bus Number/Brake Plate	_____
Camera (1)	Lug-in to Transmitter	_____
Camera (2)	Check Internal Arrangements	_____
Camera (3)	Check Securement Straps-Low Floor (R)	_____
Camera (4)	Check Securement Straps-High Floor (L/R)	_____
Camera (5)	Check Wheelchair Latch/Shoulder Belts (2)	_____
Camera (6)	Check O-Strap Wristing Locks (2)	_____

Notes:
Camera Status Light:
Green/Yellow = OK Red = DEFECT
Camera: Knowings must not be damaged or covered in any way that would obscure the image.

Low Floor Buses have 8 built-in straps.
High Floor buses have 4 Built-in and 4 Portable Straps. All Belts/Straps & O-Strap Locks must be stored properly, clean & operational.

REAR END VIEW FRONT END VIEW RIGHT SIDE VIEW LEFT SIDE VIEW

Explain Defects: *Scratches on left and right side of bus*

Inspector's Name & Badge: *J. Tucker 6160*
Date: *12/17/17*

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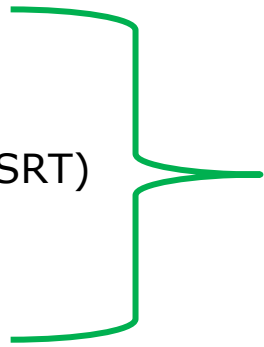


Process Improvement Initiatives

- Workforce Modernization Project
 - Process transformation for daily transportation management
 - Technology based solution to replace paper process
 - FMCB presentation planned 2018

- Bus Maintenance Re-engineering project

- Optimized workforce
- Standardized Repair Times (SRT)
- Machinist data entry



Cost per Revenue Hour

\$36.60₁	\$25.23₁
January 2017	October 2017

31% Reduction

1- Cost figures tabulated from Peoplesoft. Cost include Everett and Administrative Allocation



Key Takeaways

- Large, complex 24/7/365 operation
- Highly synchronized
- Dedicated staff working together to provide excellent service
- Improvement Initiatives
 - Cabot re-engineering and lean process – December 18th
 - Workforce modernization – January 2018