



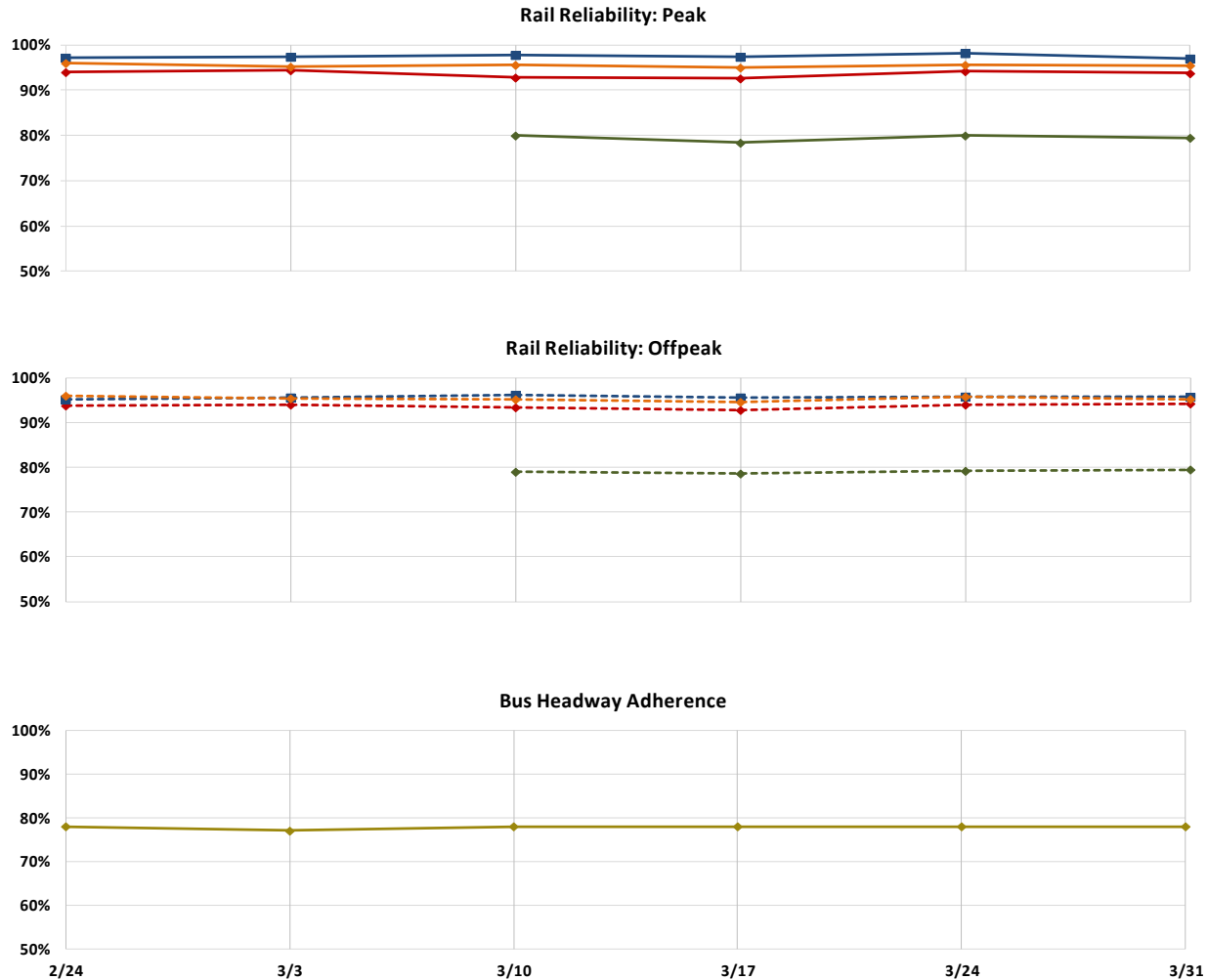
**Massachusetts Bay
Transportation Authority**

COO Remarks

April 3, 2017



Weekly Reliability





HSP46 MPI Locomotive

Background:

- 40 locomotives
- Placed In Service between May 2014 and December 2015
- MotivePower Incorporated (MPI) – Boise, Idaho
- General Electric Transportation Systems (GETS) – Erie, Pennsylvania
 - Propulsion, Main Engine, Auxiliary power
- 8 Locomotives have Completed the Base 2-year Warranty

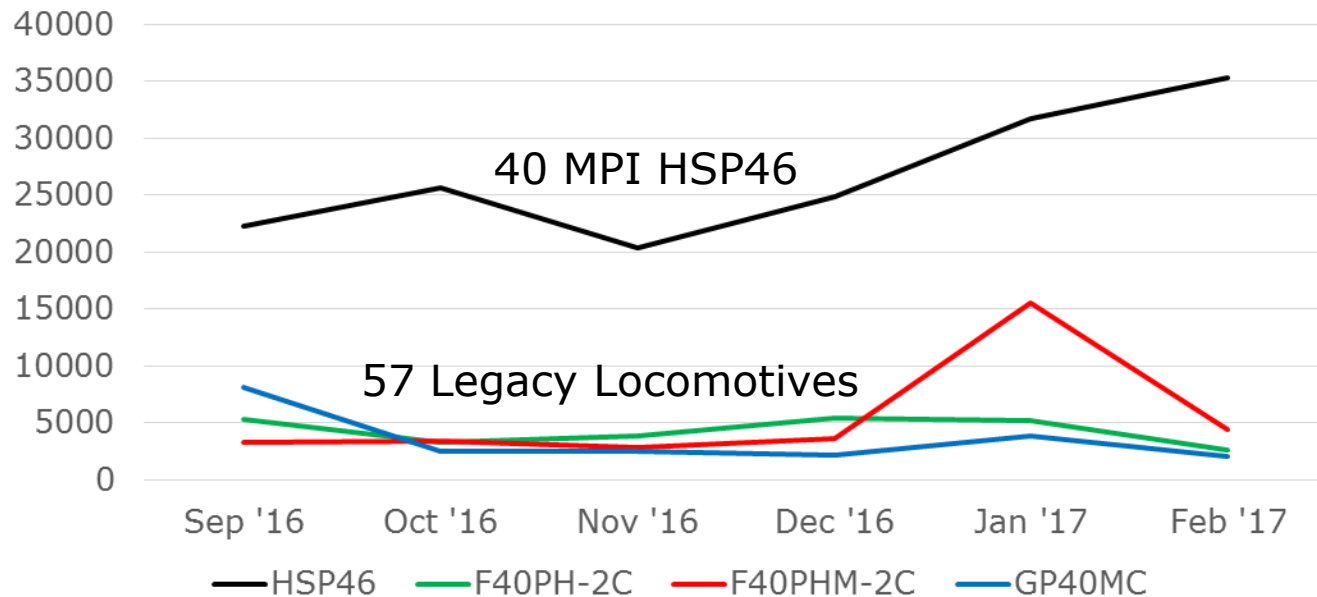




HSP46 MPI Locomotive

Performance:

Mean Miles Between Failures (MMBF)



- **14 MPIs > MMBF goal (40,000 MMBF)**
- **HSP46 Locomotives are 6 times more reliable than the legacy locomotive fleet**



HSP46 MPI Locomotive

Current Status of 40 Locomotives (as of March 31, 2017):

- 27 Locomotives – In Service
- 7 Locomotives – Scheduled Preventative Maintenance
- 4 Locomotives – Maintenance/Repairs
- 2 Locomotives – Fleetwide Retrofit Program





HSP46 MPI Locomotive

Fleet wide Warranty Retrofit Program:

- Modifications being performed in Wareham, MA by MPI
- Modifications of systems:
 - Replacement of Muffler Mounting Hardware for Engine Exhaust System
 - Replacement of Engine Freeze Protection Valve for Cooling System
 - GE Engine Software Revisions to improve Engine Performance and Compatibility with Legacy Coach Fleet
 - Battery Charger Replacement to Extend Battery Life
- Turbocharger replacement and other modifications still under review will be added to the retrofit program

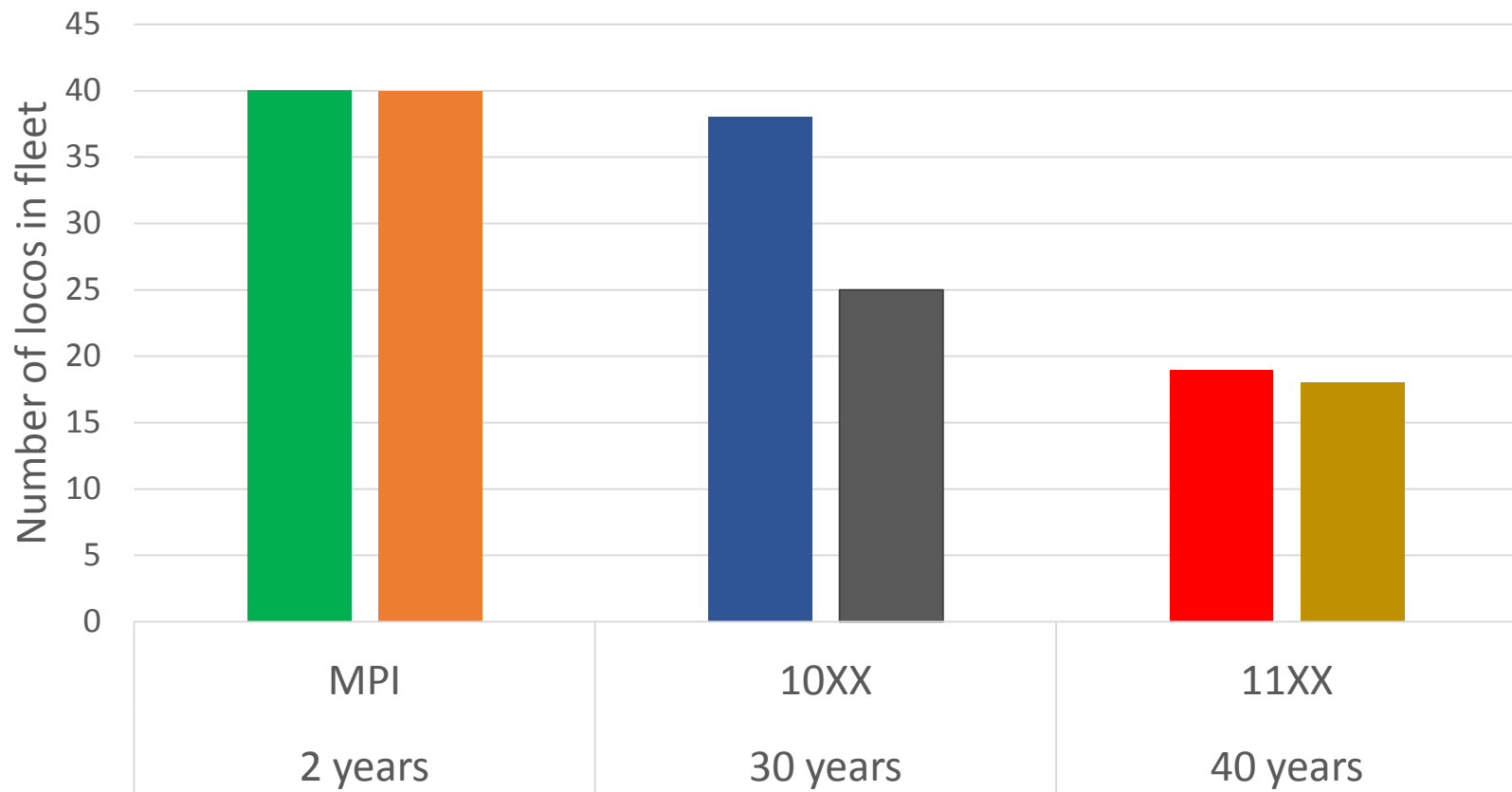


Locomotive Fleet, age profile, number currently operable



Potential 97 locomotives in fleet, 16 inoperable due to major capital component failures – UTEX program implemented to address this issue

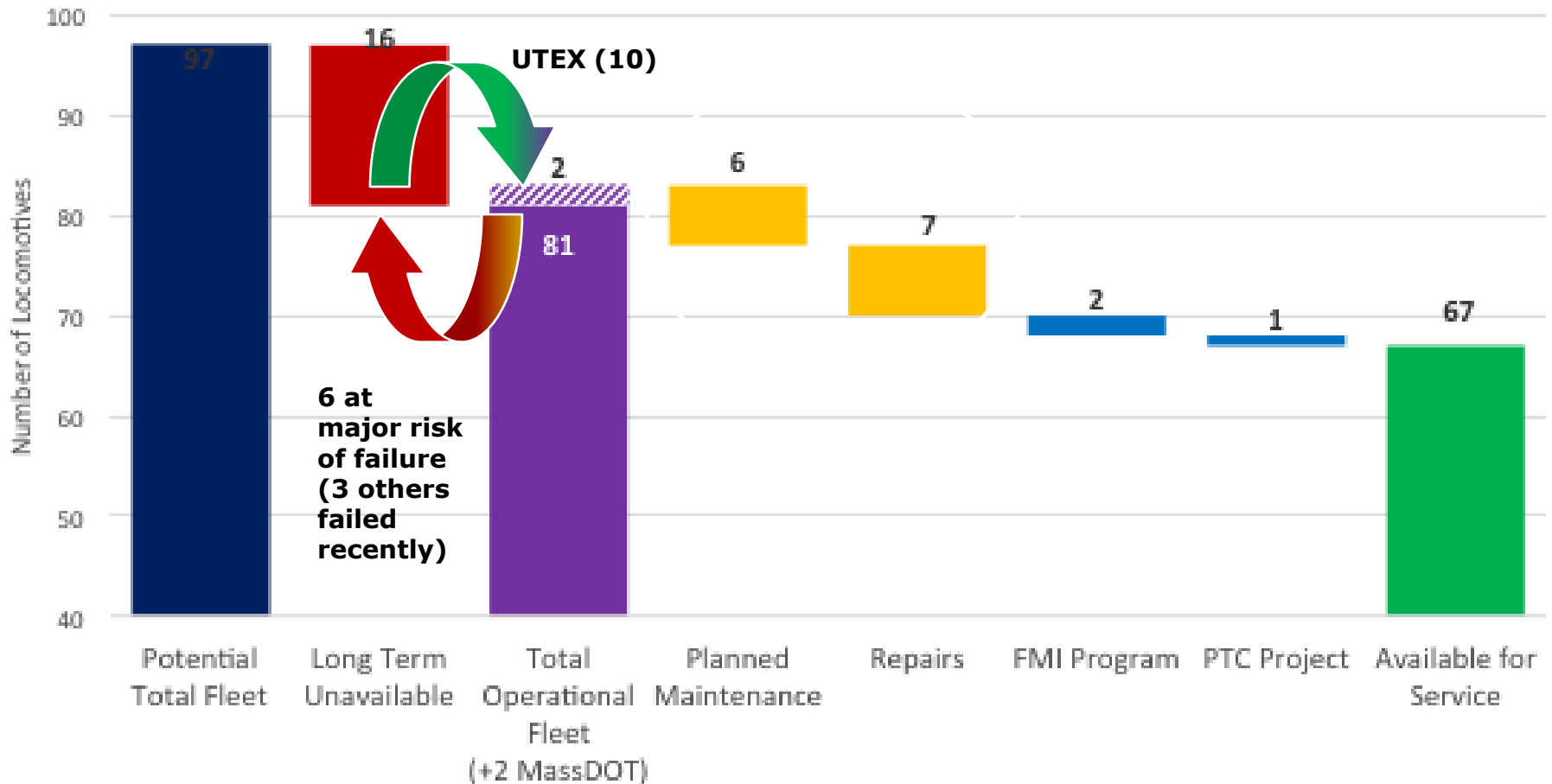
Commuter Rail Locomotive Fleet by age & number 'useable'



Locomotive availability analysis



Typical daily availability: target is to have 90 Operational locos, 67 available for service (which would provide 2 spare locos each day)





- **Key components in the legacy fleet are aging & deteriorating; the UTEX program is intended to address those locomotives that are most in need of major component replacement**
 - **First locomotive out of UTEX will go into revenue service imminently, ahead of schedule**
 - **There is a risk with the ‘wear-out’ rate of the locos that are currently operating (3 locos failed with worn out engines this calendar year so far)**
 - **Necessary modifications for PTC and to improve reliability on MPIs place also need to be catered for within the operative fleet**
 - **Work is underway to accelerate UTEX to get ‘tired’ locos back into service more rapidly and to do selected component changes on other locomotives that are currently un-useable**
 - **Important that we grow the size of the operative fleet and further revise the plans relating to that – work ongoing**
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