

Bus Maintenance

Overview on Current Cost Structure and Benchmarks



DRAFT
November 2, 2015

CONFIDENTIAL AND PROPRIETARY

Overview of current MBTA internal bus maintenance cost structure

Benchmark analysis on MBTA's bus maintenance cost against three external comp sets:

- U.S. public sector transit fleets
- 12 Massachusetts regional transit authorities
- U.S. public sector transit fleets with outsourced maintenance

We have been charged with identifying the Full Potential for bus maintenance efficiency opportunities

Definition of “Full Potential”

Cost savings available to the MBTA if we:

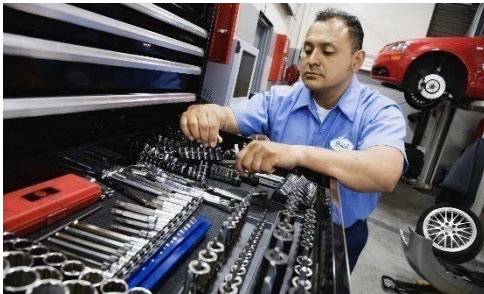
- Aggressively pursue best-in-class efficiency for our maintenance operations
- Look to other systems for best practices
- Are willing to engage with the private sector
- Collaborate with our labor partners to increase productivity and reduce cost
- Pursue best-in-class, modern contracting and procurement strategy for materials and supplies

Today, we are not proposing policy changes.
We are laying out a fact-set for the FMCB and other stakeholders

We perform everything from routine maintenance to advanced repairs on a fleet of 1000+ MBTA buses

Key bus maintenance activities include

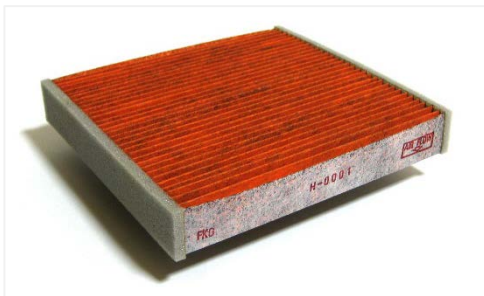
Vehicle and systems inspection



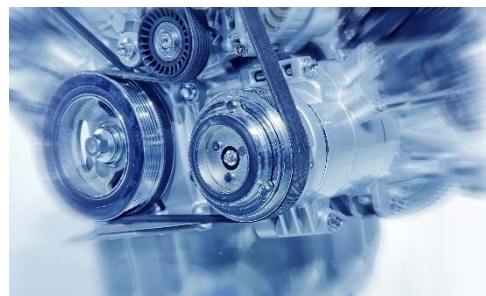
Refueling



Filter, oil, and fluid replacements



Major component repair and replacement



Introduction to our fleet

At the end of FY2015, the MBTA had:

- 1060 buses, including 931 active buses, 28 electric trolley buses, 32 dual motor diesel/electric buses, and 69 buses in our contingency fleet
- Average active fleet age of 9 years
- Average active fleet original purchase price of \$395K/bus¹
- Average total fleet maint. cost of \$98K/bus per year²



¹ Nominal price at time of purchase

² Not including specialty vehicle engineering costs or administrative costs; includes maintenance and operating fuel costs

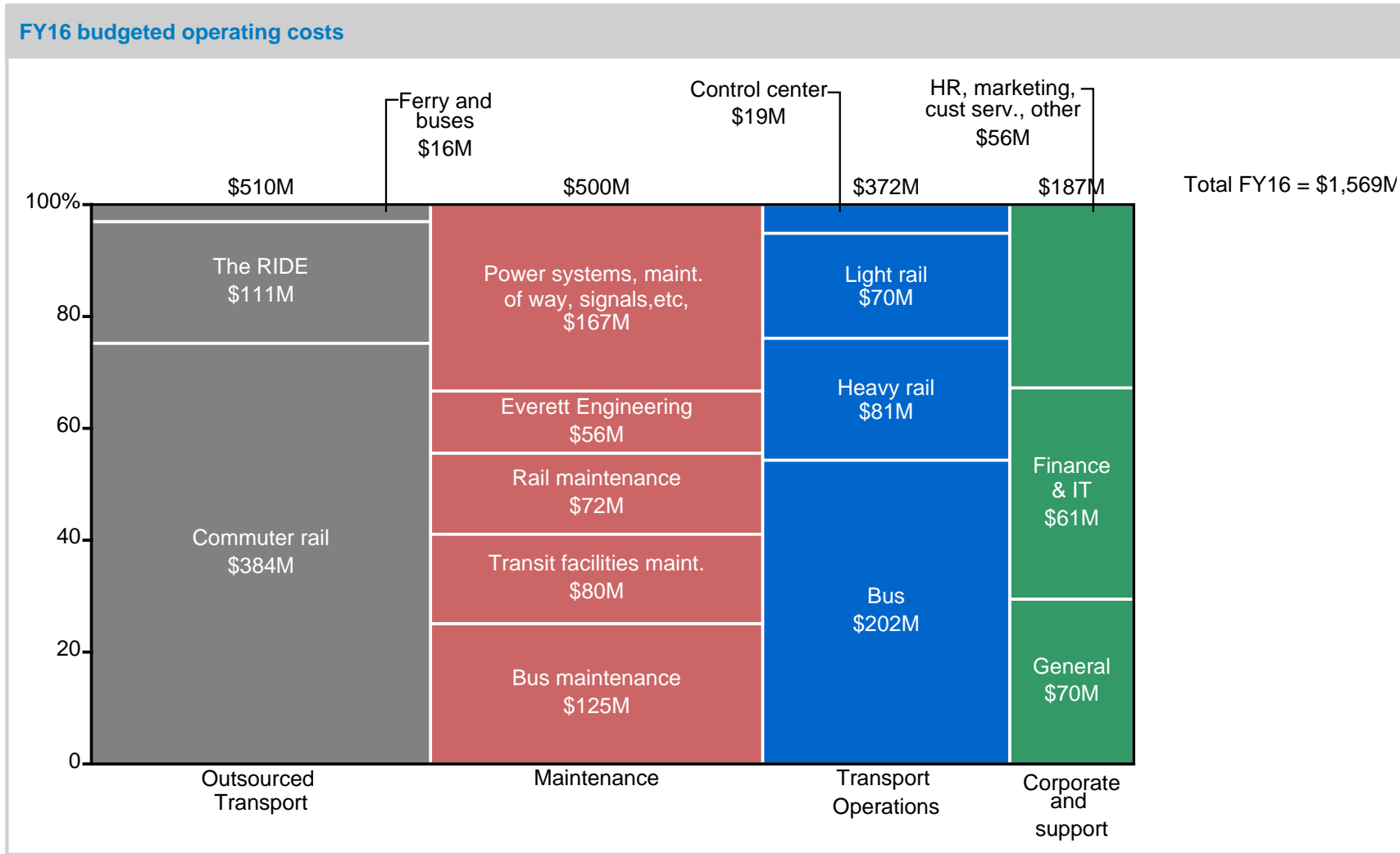
Source: MBTA bus maintenance department

Overview of key facts on the current active MBTA bus fleet

Fleet	Number of buses	Manufacture year	Purchase Price
2003 Neoplan 60' CNG	44	2003	\$614 K
40' NABI CNG	124	2004	\$321 K
40' NABI CNG	175	2005	\$312 K
40' NeoPlan ECD	84	2005	\$342 K
40' NeoPlan ECD	109	2005	\$330 K
40' ECD (New Flyer)	22	2007	\$322 K
40' ECD (New Flyer)	133	2007	\$320 K
40' ECD (New Flyer Option)	155	2009	\$369 K
NFI 60' Diesel-Hybrid Buses	25	2010	\$1,042 K
ConnDOT 40ft Hybrids	60	2015	\$819 K
Contingency fleet	69	1994-1995	varies
Dual motor	32	2001	\$1,666 K
Electric trolley bus	28	2000	\$1,080 K

The weighted average purchase price of the active bus fleet in 2015 was \$395 K

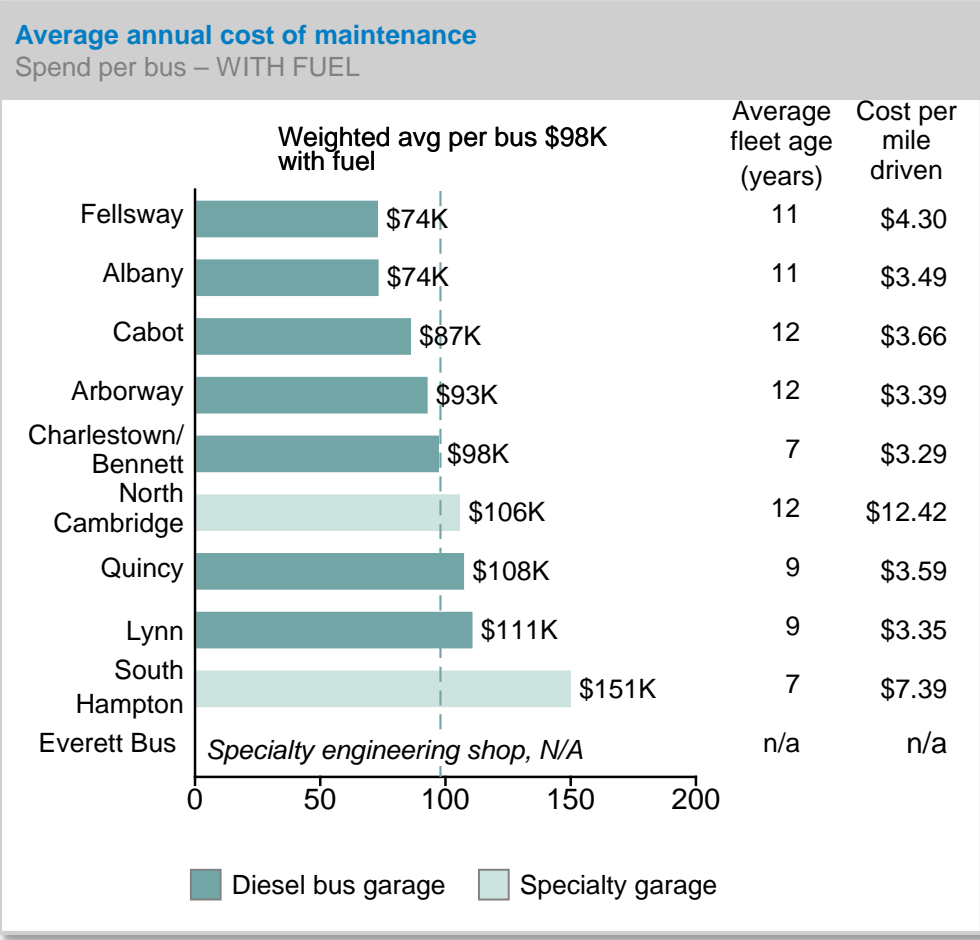
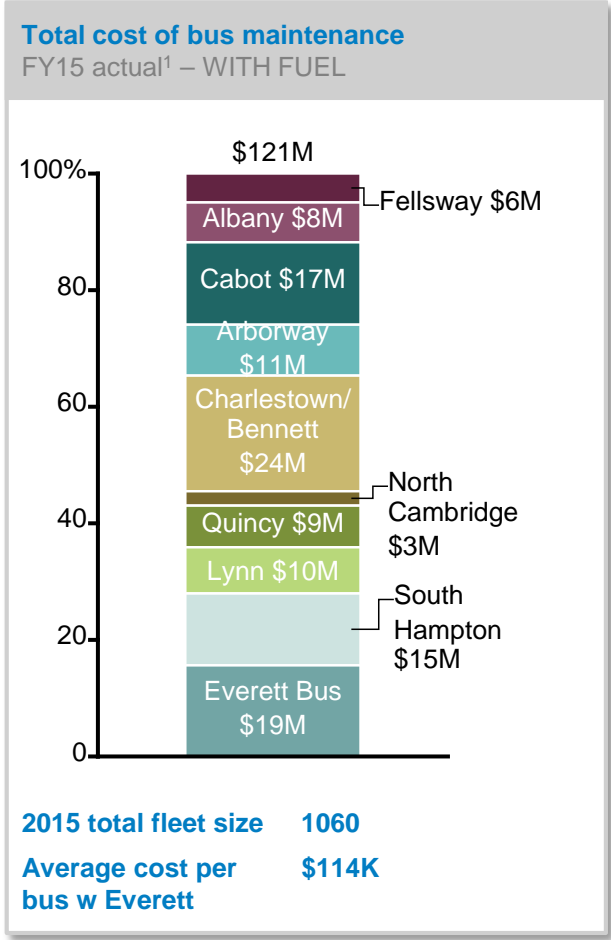
Total MBTA maintenance costs are forecast at \$500M for FY16, including \$125M to maintain the bus fleet



NOTE: Some bus and rail maintenance costs (e.g. Vehicle engineering at Everett) are not contained under the bus and rail maintenance depts.

The total bus maintenance FY15 was \$121M (including fuel); maintenance costs per bus vary across garages

INCLUDES FUEL COSTS



1 Includes wages, overtime, benefits, plus all services and materials. Does not include admin costs

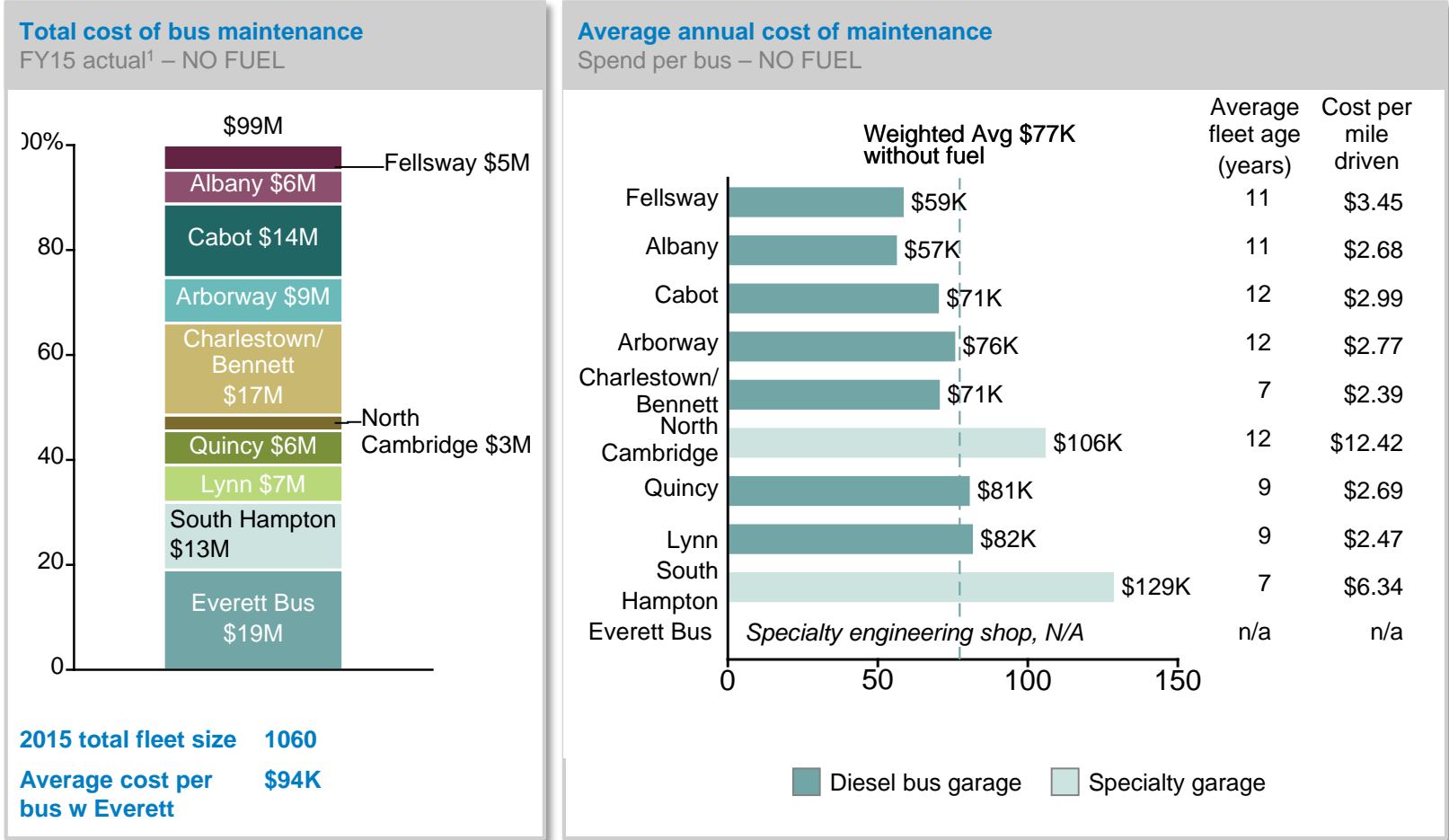
2 Includes 40ft & 60ft fleets, diesel & CNG buses, hybrid buses, and electric trolleys. North Cambridge services electric trolley buses, South Hampton services DMAs, and Everett is a specialized vehicle engineering shop

3 Latest available NTD-reported data for US systems operating more than 100 buses, trolley buses, or commuter buses

Source: MBTA operations department

The total bus maintenance FY15 was \$99M (excluding fuel); maintenance costs per bus vary across garages

DOES NOT INCLUDE FUEL COSTS



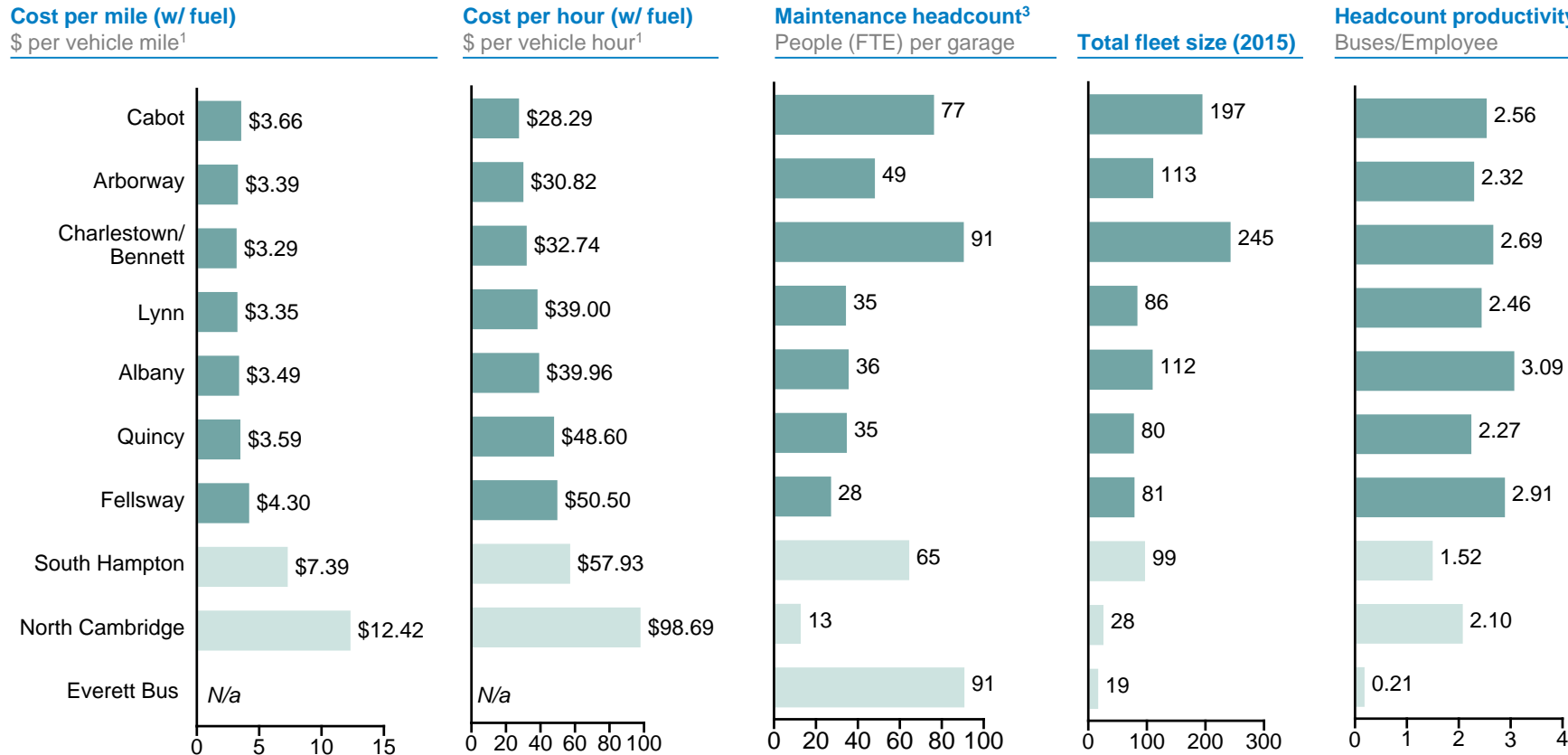
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Source: MBTA operations department

Our largest garages are our most efficient (based on maintenance cost per vehicle hour)

Diesel bus garage
Specialty garage²



Total Bus Maintenance wages / overtime / benefits: \$66.4M; Total FTE: 525; Total cost per FTE: \$127K

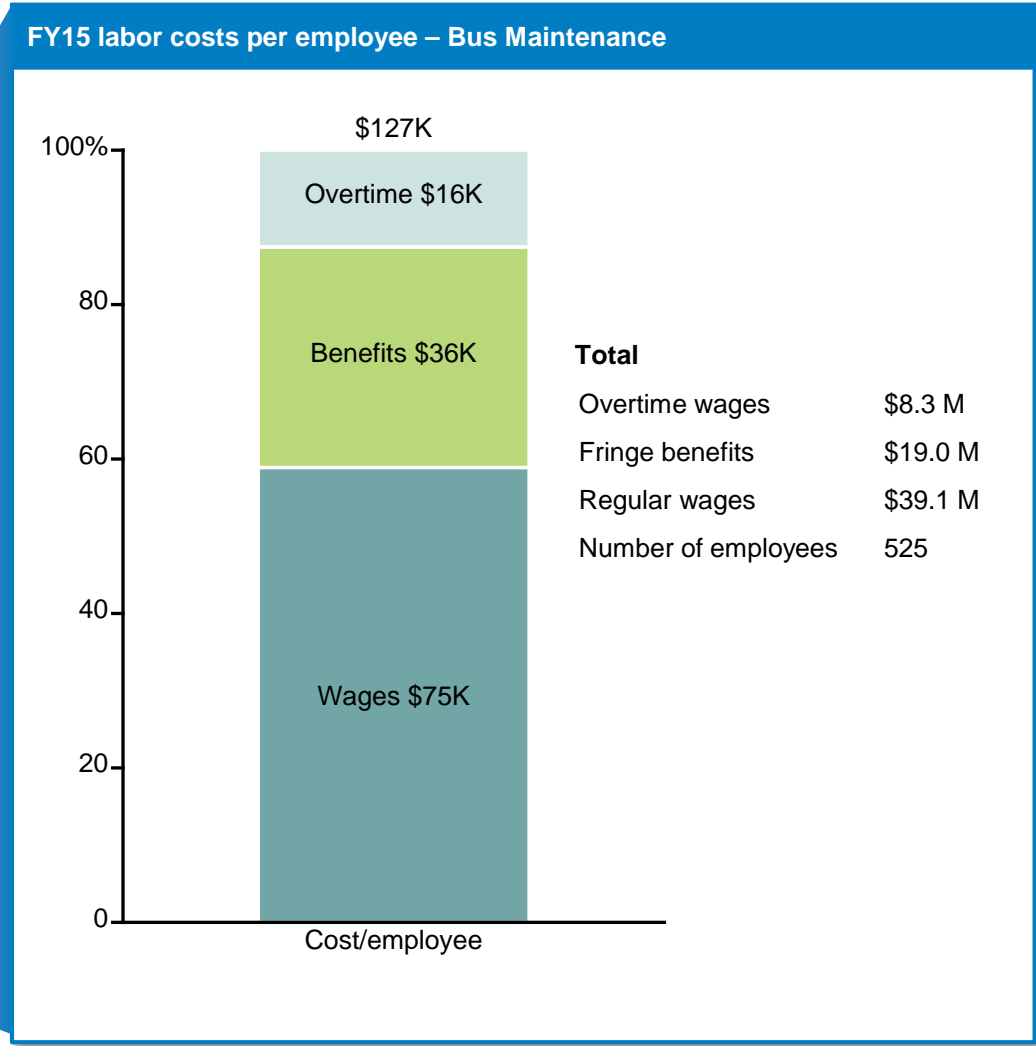
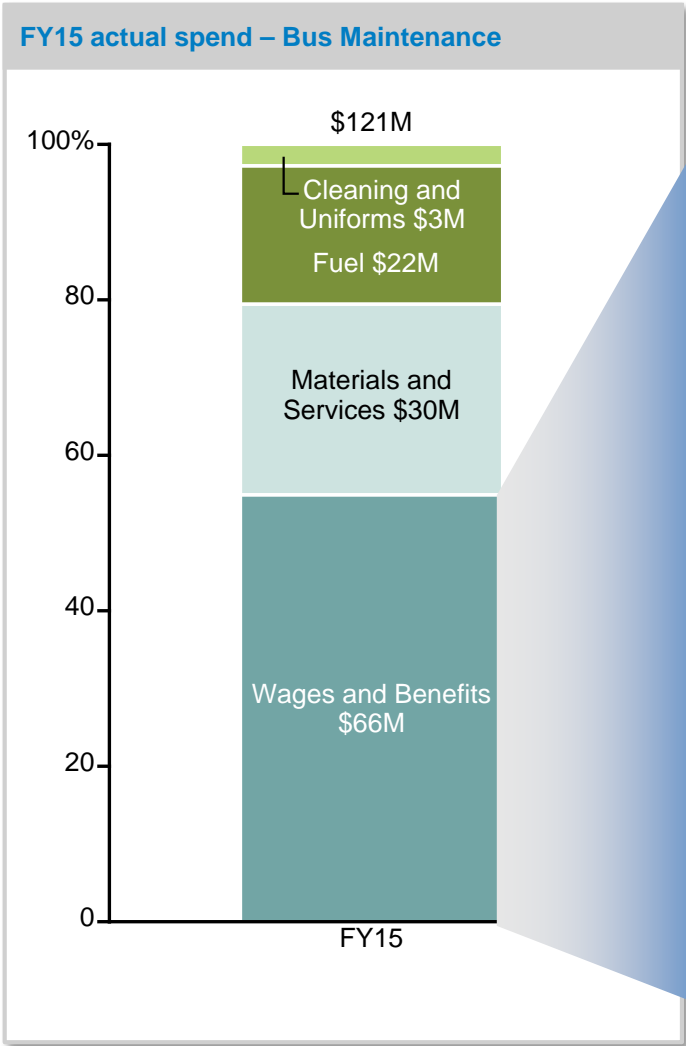
1 Includes all miles and hours driven (e.g., revenue, deadhead, free shuttle) and all fuel (both maintenance and operating fuel)

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3 Does not include 5 FTEs in shared bus maintenance administrative function

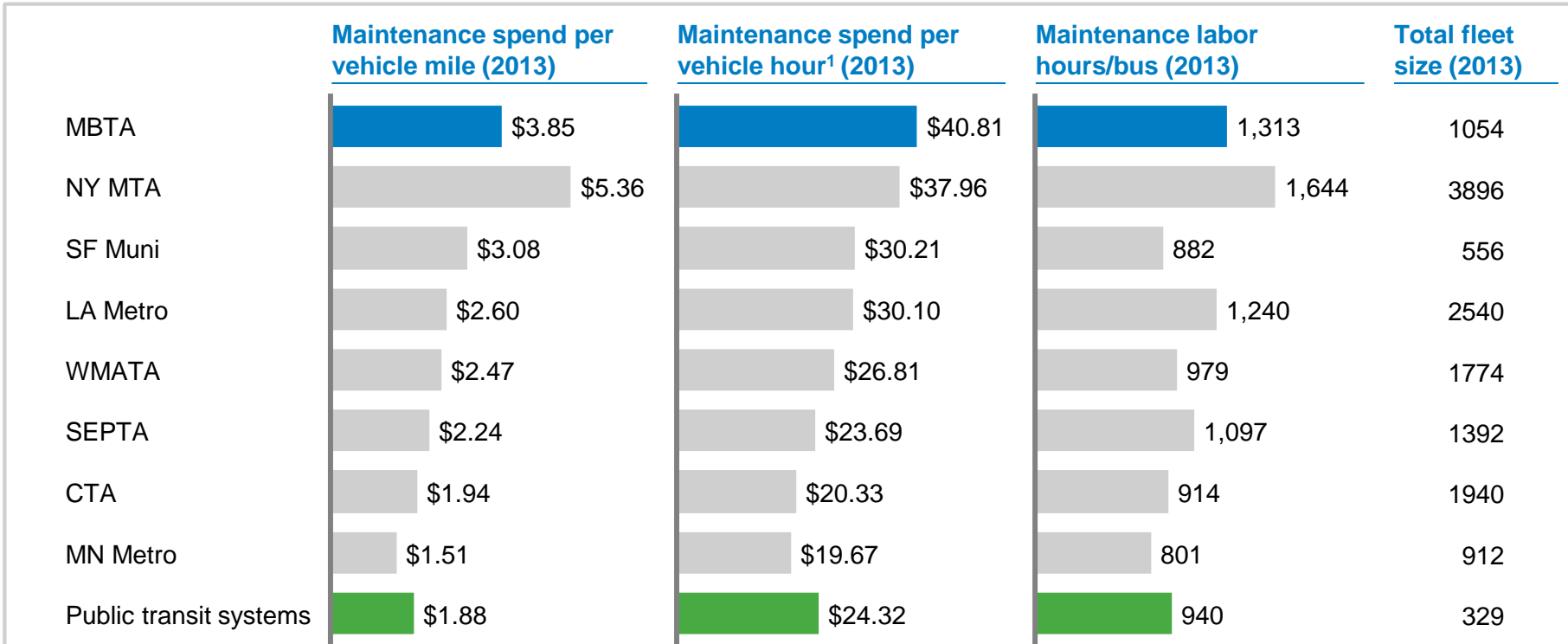
Source: MBTA operations and bus maintenance departments

Largest driver of maintenance expense is wages/benefits at \$66M in FY15 for 525 employees (\$127K per employee)



Source: MBTA bus maintenance department

Average maintenance cost per hour for US public sector transit fleets with fleet size of 100+ and fleet age of 10+ years was \$24.32



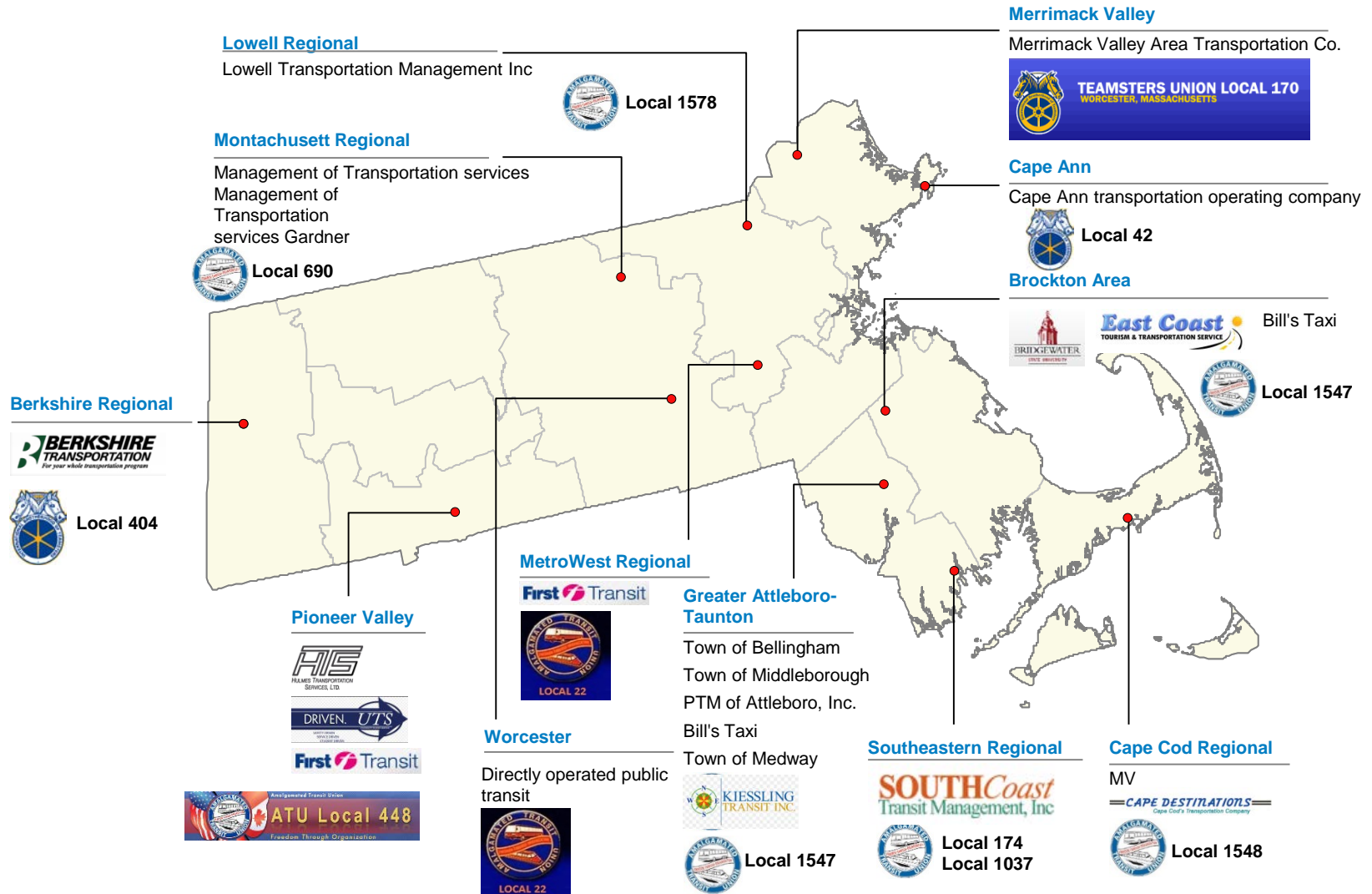
For the 7 large, urban transit peer comparisons above, the average fleet age was 10 years

“Public transit systems” average includes 71 public transit systems with

- Average fleet age older than 10 years
- Total fleet size over 100 buses
- Largely public, but some private operators

¹ Includes both revenue and deadhead hours Source: National Transit Database. All numbers are for 2013 and include maintenance fuel expenditures, but not operating fuel expenditures (and thus not comparable to internal benchmarks on slide 8)

Most RTAs's outsource bus maintenance to private operators who employ union labor



*Source: 12 MA RTAs reported to the NTD 2013 contractor database; all MA RTAs reporting to NTD are included above. Worcester performs in house maintenance

Costs vary across MA regional transit authorities

 Directly operated system

PRELIMINARY

MA RTAs (2013 numbers)	Maintenance spend per vehicle mile	Maintenance spend per vehicle hour ¹	Total fleet size	Fleet age	Union affiliation ²
MBTA	\$3.85	\$40.81	1054	11	ATU 589/IAM 264
Berkshire	\$1.16	\$20.63	28	7	IBT 404
Greater Attleboro-Taunton	\$1.06	\$19.72	50	7	ATU 1547
Merrimack Valley	\$1.46	\$18.96	54	9	IBT 170
Southeastern Regional	\$1.17	\$15.39	65	10	ATU 174/1037
Pioneer Valley	\$1.07	\$15.14	182	7	ATU 448
Montachusett	\$1.01	\$14.96	37	11	ATU 690
Brockton Area	\$1.45	\$14.81	49	9	ATU 1547
Lowell	\$0.92	\$14.18	50	8	ATU 1578
Cape Cod	\$0.89	\$13.22	45	7	ATU 1548
Cape Ann	\$1.03	\$12.40	17	12	IBT 42
MetroWest	\$0.50	\$7.39	27	6	ATU 22
MA RTA average (excl. Worcester)	\$1.09	\$15.28	52	8	n/a
Worcester – in house maintenance	\$1.96	\$23.78	27	6	ATU 22
Public transit systems ²	\$1.88	\$24.32	329	11	n/a

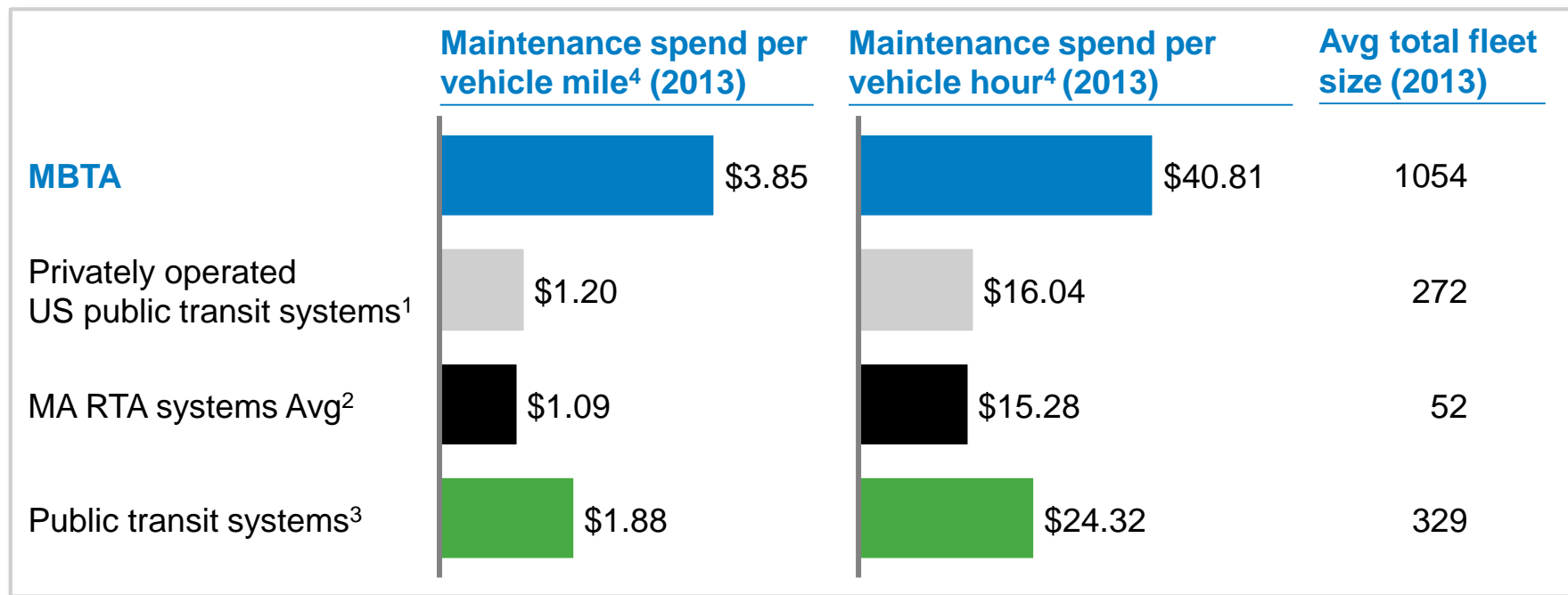
1 Includes both revenue and deadhead hours 2 ATU: Amalgamated Transit Union; IAM: International Associations of Machinists; IBT: International Brotherhood of Teamsters. The MBTA works with several unions, but ATU 589/IAM 264 together comprise 61% of the 2015 workforce 2 Average of 71 agencies with fleet size >100 buses and average fleet age >10 years

Source: National Transit Database. All numbers are for 2013 and include maintenance fuel expenditures, but not operating fuel expenditures

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Summary benchmark bus maintenance costs

PRELIMINARY



- On a \$/vehicle hour basis, the MBTA costs 2.5x more to operate than the outsourced US system average
- On a \$/mile basis, the MBTA costs 3.2x more to operate than the outsourced US system average
- MA-based RTAs are slightly outperforming the national average for cost efficiency in outsourcing

¹ 25 Privately operated public transit systems with a fleet of over 100 buses (e.g, Honolulu, Denver, Phoenix, Las Vegas)

² 11 regional transit authorities based in Massachusetts who outsource maintenance to private operators – excluding Worcester which has in house maintenance

³ For 71 agencies with weighted average fleet age >10 years and more than 100 buses ⁴ Includes both revenue and deadhead miles and hours

Source: National Transit Database. All numbers are for 2013 and include maintenance fuel expenditures, but not operating fuel expenditures

- Establish time standards for the most common bus maintenance tasks within next 60 days
- Engage an outside firm to analyze our current footprint and recommend strategy to maximize efficiency
 - Including: cost-control, staffing strategy, workforce practices, facility footprint consolidation/reduction; fleet consolidation/reduction; outsourcing options; capital needs
- Mgmt and Local 264 will connect with RTA's mgmt and union leadership to understand RTA model and best practices