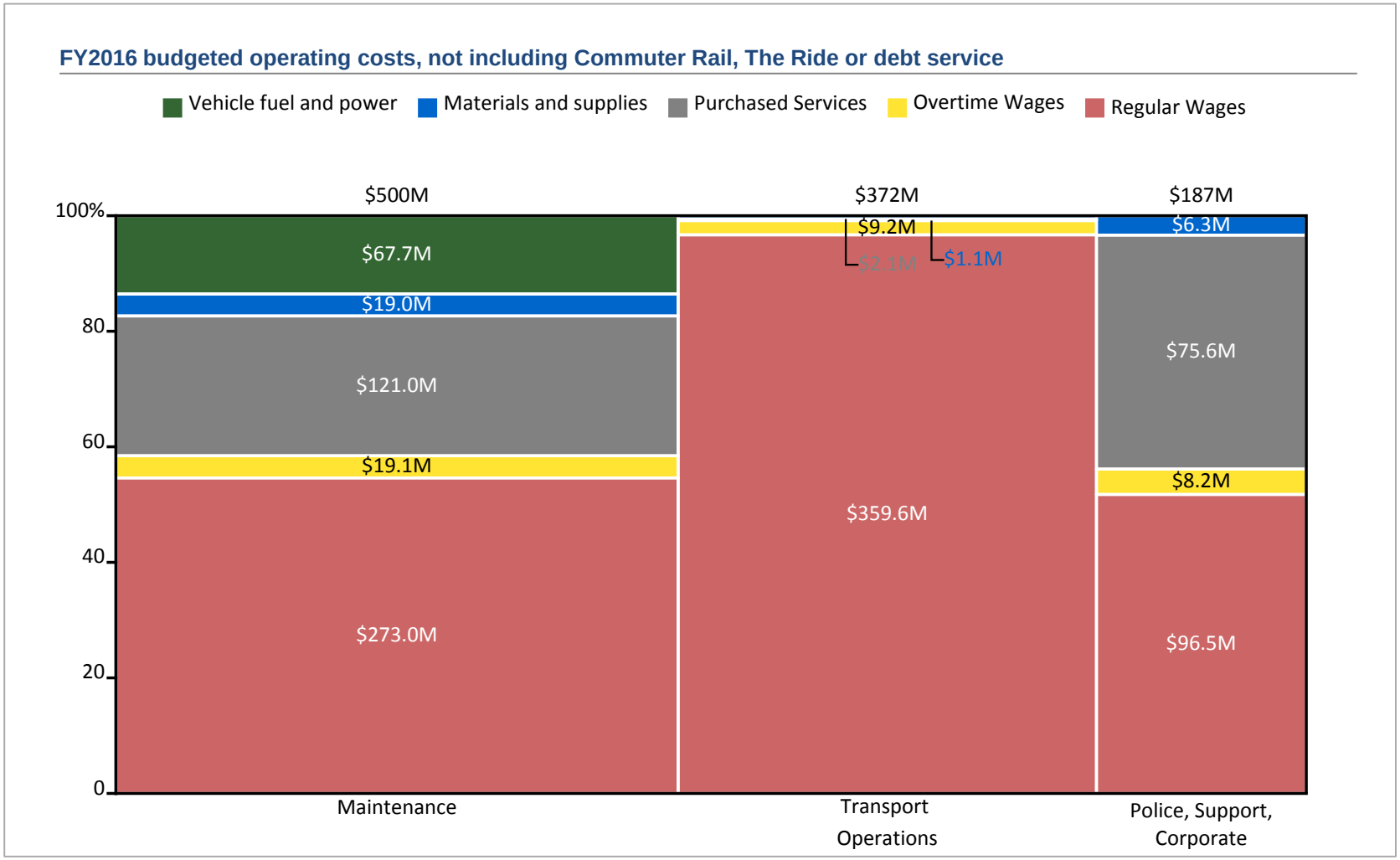
Massachusetts Bay Transportation Authority

MBTA

CH2M
Bus Maintenance Efficiency Study

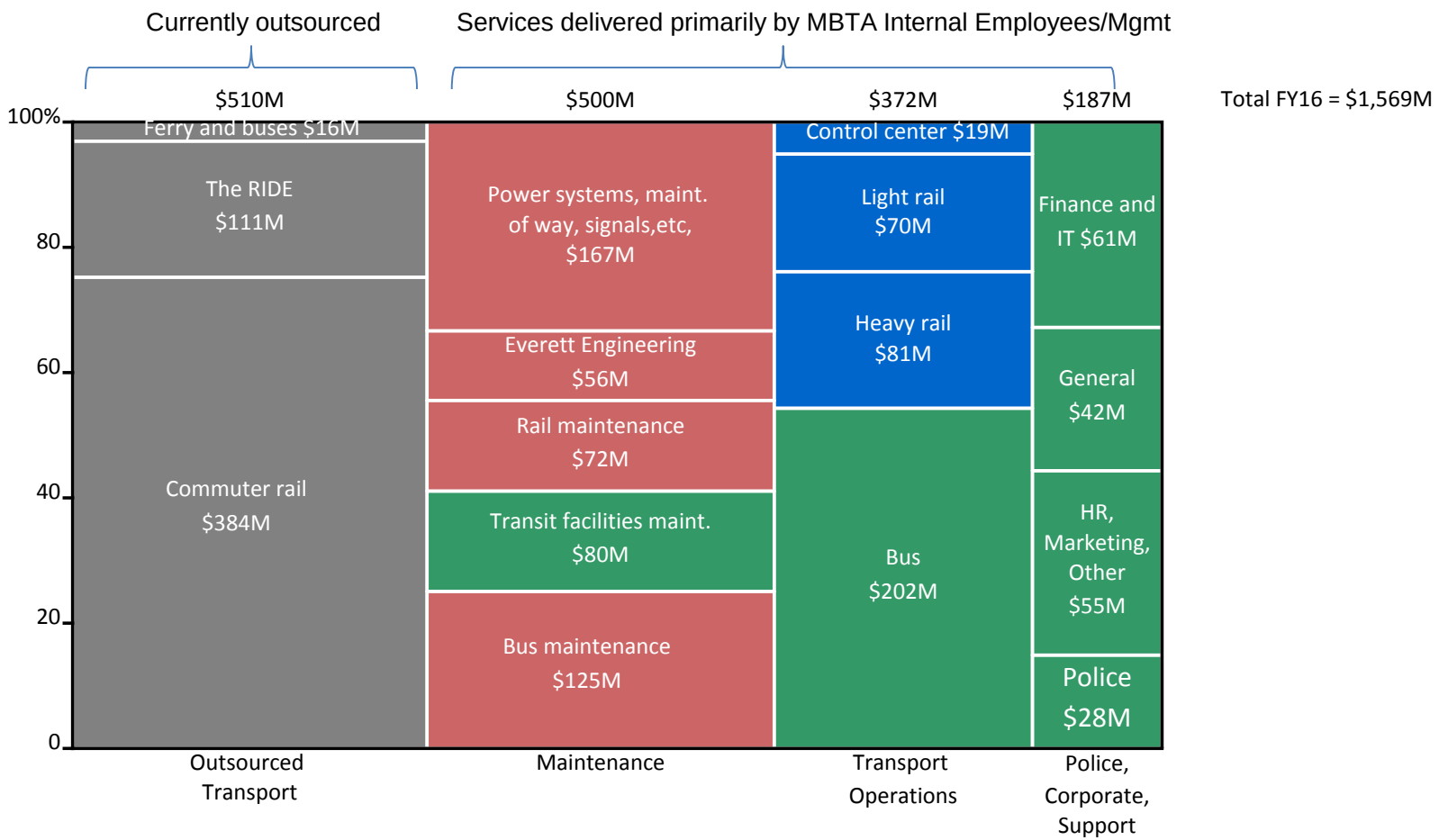
Progress Briefing
February 22, 2016

Excluding Commuter Rail and The Ride, MBTA FY16 forecast operating expenses are $1B, of which wages & benefits is 72%



NOTE: Benefits and payroll taxes are allocated according to regular wages

Total MBTA operating expenses (not including debt service) for FY16 are forecast at $1.6B



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

Summary of CH2M Scope

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- Purpose:
  - Evaluate the maintenance program and operations, highlight specific areas for improvement as observed, and identify the most likely areas where substantial improvement may be realized
- Key questions to address:
  - What short and long-term actions can the MBTA take to improve cost-efficiency of bus maintenance functions?
  - What are the best metrics to measure cost-efficiency as a baseline and going forward?
  - What are “best-in-class” industry standards for efficient bus maintenance practices?

Approach

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- Completed site visits and & interviews
  - All MBTA bus garages
  - Everett main bus repair facility
  - Lowell RTA
  - Worcester RTA

- Data analysis in progress
- Recommended industry comparisons provided
- Final report due March

Key Findings

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Reactive vs. Scheduled Maintenance

- Data show 70-80% maintenance cost as recorded is reactive work vs. industry expectation of ~30%
- Fleet reliability performance (MMBF) above peers' average
- MBTA lacks predictable capital funding for a program of preventive component replacement, vehicle overhaul and fleet replacement
- Move to Reliability Centered Maintenance practices
- MBTA must strengthen maintenance planning and quality control functions

Key Findings

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MBTA fleet size is
~30% above facility capacity

- MBTA: 13.8 buses per bay
- CH2M estimates ideal of 8.7 per bay
- Most facilities are aging and lack sufficient indoor storage

Recent Large Bus Facilities

	Agency	Bus to Bay Ratio	# of buses per bay
a.	NYCT Mother Clara Hale	150 buses / 14 bays	10.71
b.	SEPTA Philadelphia Allegheny	119 buses / 14 bays	8.5
c.	SEPTA Philadelphia Midvale	306 buses / 41 bays	7.46
d.	MTA Baltimore Kirk Ave	178 buses /15 bays	11.87
e.	North County Clarksville, MD	250 buses / 25 bays	10
f.	WMATA Andrews Federal Center	175 buses / 19 bays	9.21
g.	WMATA Shepherd Parkway	250 buses / 28 bays	8.93
h.	West OX Fairfax, VA	300 buses / 26 bays	11.54
i.	GRTA Georgia	120 buses / 12 bays	10
j.	Santa Monica, CA	204 buses / 21 bays	9.71
k.	CTA 103rd Street, Chicago IL	229 buses / 24 bays	9.54
l.	LACMTA Division 13, Los Angeles, CA	200 buses / 19 bays	10.5
		Average	**9.83**

Key Findings

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Development of Repair Time Standards

- Peer agencies moved to time standards for most frequent repair tasks
- MBTA implementation initiated
  - 9 garages
  - 11 fleet types

- Concurrent initiatives
  - Strengthen budget, warranty and quality controls
  - Improve maintenance and production planning
  - Expand supplemental use of individualized computer based training
  - Form Lean Management councils

Performance Metrics Comparison

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	Year 2013 Performance Metric in NTD						
Agencies	Total Fleet Size	Fleet Spare Ratio	MMBF or MDBF	Avg. Fleet Age	Average Operating Speed (mph)	Vehicle Maintenance Cost per Mile	Have Work Standards?
MBTA							
Metric	955	17.8%	12,946	9.3	10	$5.99	Initial Implementation Phase
Ranking Among Peers below	6th	4th	1st	7th	3rd (tie)	6th	
Relevant Peer Agencies in North America							
Baltimore MTA	729	20%	7,226	7.2	12	$2.13	Partial
CTA - Chicago Transit Authority	1,872	13%	3,008	7.0	9	$2.38	Yes
NJT - New Jersey Transit	2,413	19%	6,821	6.8	14	$2.34	TBD
NYCT - New York City Transit	3,840	16%	5,696	7.5	7	$6.13	Yes
SEPTA - Southern Pennsylvanian Transportation Authority	1,389	19%	4,128	8.7	10	$2.96	Yes
WMATA - Washington Metropolitan Area Transportation Authority	1,541	15%	6,390	6.8	10	$2.96	Yes

Next Steps: Bus Maintenance Study

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- Final report due March
- Management review of recommendations
- Implementation of selected CH2M recommendations
- Examine expanded use of Everett shop for bus heavy repair work
- Negotiations with Local 264 / IAM on further contract efficiencies

- Track key maintenance metrics vs. selected industry peers

- Scope facilities strategic study
  - Propulsion
  - Fleet size
  - Optimize location(s)