

# Operations Improvement and KPIs

## Draft Deliverables

8/24/2015

The legislation creating the FMCB lays out 13 distinct areas on which the FMCB is to report on monthly and annually:

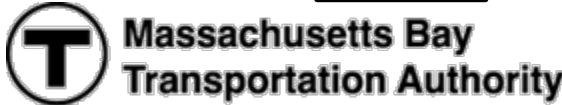
1. capital planning
2. separation of capital and operating budgets
3. own-source revenue
4. review of expansion proposals
5. procurement and contracting improvements
6. emergency preparedness
7. internal reorganization
- 8. customer-oriented performance management**
9. best practices for workplace productivity
10. reducing employee absenteeism
11. public private partnerships
12. the sale and lease of real estate assets
- 13. development of performance metrics across organization**

In addition, there are 6 additional powers and responsibilities of the FMCB:

1. to develop 1 and 5 year operating budget beginning with FY 2017, balanced thru own-source revenue and cost control, which will facilitate the transfer of capital employees to the operating budget
2. to establish 5 and 20 year capital plans
- 3. to establish a performance management system**
4. to review any service contract
5. to change fares consistent with chapter 46 to reorganize internal structure of the MBTA (pending MassDOT board approval)

# Customer-oriented PM System

DRAFT



Recent Past
450+ metrics
Internal facing
Measure what we have. Not what we need
Un-aligned processes
Un synchronized publishing and reporting-out/

Near Term
6 core metrics
Customer focused
Measure what customer experiences
Coordinated processes
Weekly reporting to FMCB & online

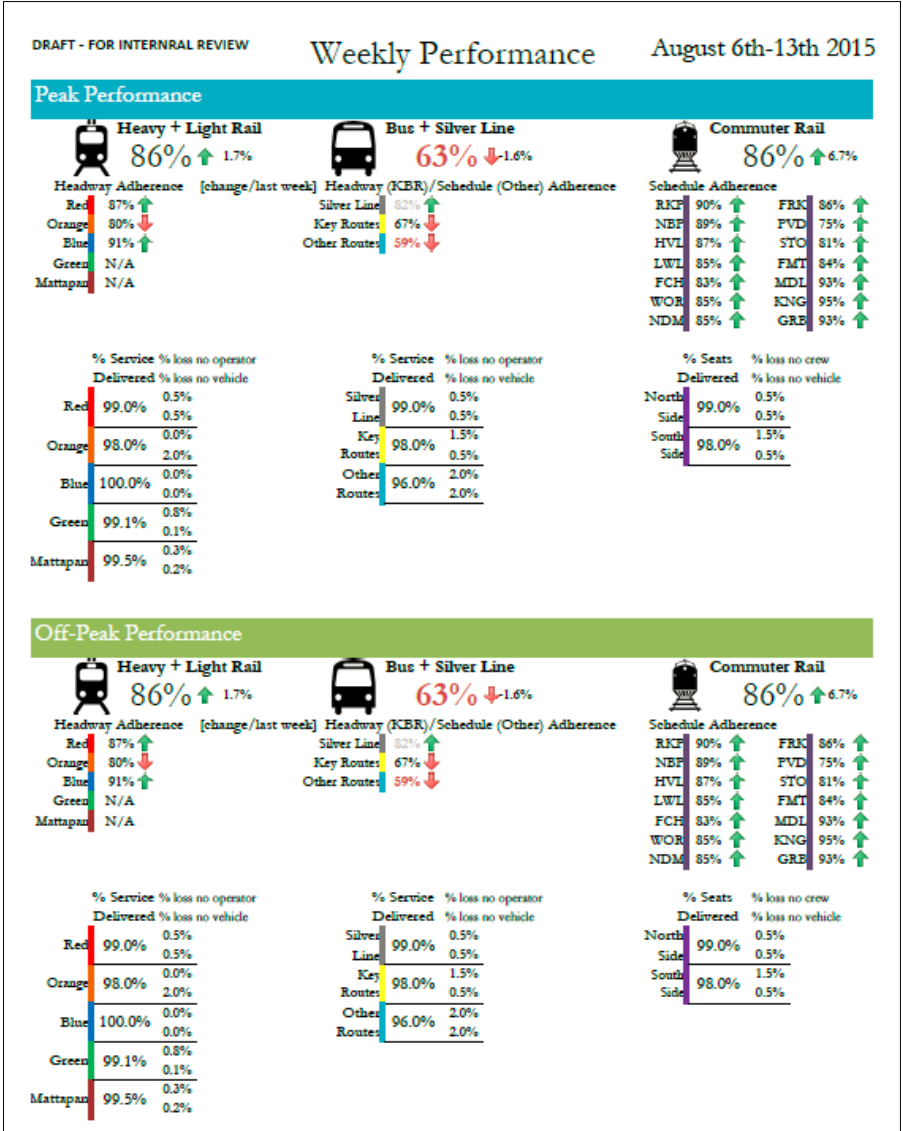
# Customer-oriented PM System

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## New MBTA Scorecard

- Focus on the thing that customers want most- their bus/train to arrive on time
- Assesses Peak & Off-Peak Performance
- Compares performance to last week
- Breaks out each rapid transit line, bus into 3 service categories, and CR by line
- Percent of service delivered is the inverse of dropped trips, with service dropped broken out by reason (no operator, no vehicle)



# Customer-oriented PM System

DRAFT



Massachusetts Bay  
Transportation Authority

- Rapid transit metric: Headway adherence (Headway is the interval between vehicles) Within a 1 minute of the scheduled headway is on-time.
- Bus metric: timepoint (key stops) headway or schedule adherence depending on service frequency. Service more frequent than every 10 minutes is judged on headway consistency and on-time is within 150% of the scheduled headway. Less frequent service is judged on adherence to the schedule and on-time is within 3 minutes at start, 7 at midpoints, 5 at end.
- Commuter Rail metric: terminal schedule adherence- train arrives at terminal within 5 minutes of schedule.
- Dropped Trips: shows percentage service that operated. Also breaks down percentage of trips dropped due to no operator, or no vehicle.
- Cancelled Trains: number of cancelled commuter rail train trips.
- Work is ongoing to bring in Green Line and Mattapan Line data.

# Customer-oriented PM System

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New Survey Regime to leverage customer feedback to improve service delivery, resource allocation, and policy making.

MBTA Survey Policy : Standard methodology; Question Bank; Database of results- **Completed**

Annual Intercept Customer Satisfaction Survey- **Completed**

Annual Keolis Customer Satisfaction Survey- **Completed**

*Ad Hoc* Service Delivery Standards Survey- **Completed**

5-year Ridership Census (OBPS)- **Scheduled for 11/15**

Customer Panel Survey- **Ongoing Monthly**

# Establish a PM system

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## Recent Past

Limited internal data sharing

Highlight the positive, downplay the negative

Ad Hoc internal reporting structure

Monthly or quarterly horizon

## Near Term

Transparent reporting to management team

Agnostic reporting

Daily process to report and discuss

Daily internal process



# Establish a PM system

## 7AM Snap Shot from Keolis

Daily email blast to about 25 people include T, MassDOT, and GOV office.

Created during the winter, and refined over time.

Details yesterday's performance and discusses upcoming issues

OTP by line  
Equipment availability  
Service notes

Daily discussion at highest levels

Equipment availability							
North	24 Sets						
South	39 Sets						1 spare locomotive 1059(S)
Total	63 Sets						
Overall OTP							
Minutes	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
On Time	North = 92%	North = 94%	North = 96%				
	South = 81%	South = 88%	South = 88%				
	Total = 85%	Total = 90%	Total = 91%				
5 - 9	91%	93%	95%				
10 - 14	94%	96%	97%				
OTP by Line - South Side 8/19/15							
Greenbush	91%						
<b>Kingston</b>	<b>75%</b>						
Needham	93%						
Providence	97%						
Franklin Branch	88%						
<b>Worcester</b>	<b>66%</b>						
Stoughton	100%						
Fairmount	92%						
Middleboro	87%						
<p><b>Worcester Line</b> – (16) trains delayed 262 mins heat restrictions issued 121 p.m. until 547 p.m.; trains impacted delayed between 121 p.m. and 547 p.m.</p> <p><b>Kingston Branch</b> – (4) trains delayed 38 mins. account heat restrictions issued near Halifax.</p>							
OTP by Line - North Side 8/19/15							
Eastern Route	100%						
Fitchburg	91%						
Gloucester	96%						
Lowell Line	100%						
Haverhill	92%						

# Establish a PM system

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## Subway/Bus Weekday Report from T Operations

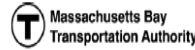
Daily email blast to 35+ people include T, MassDOT, and GOV office.

Recently created

Details yesterday's performance and discusses upcoming issues

OTP by for heavy rail and bus  
Dropped Trips for HR and bus

Daily discussion among COO and Operations staff.

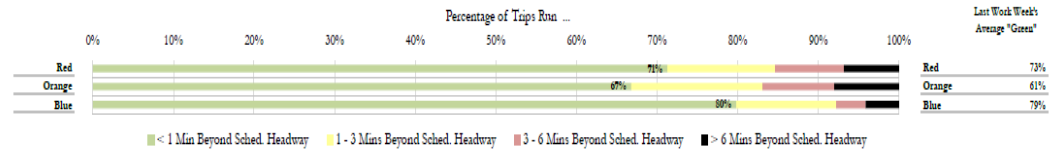


Operations Directorate: Weekday Service Update

8/19 - Wednesday

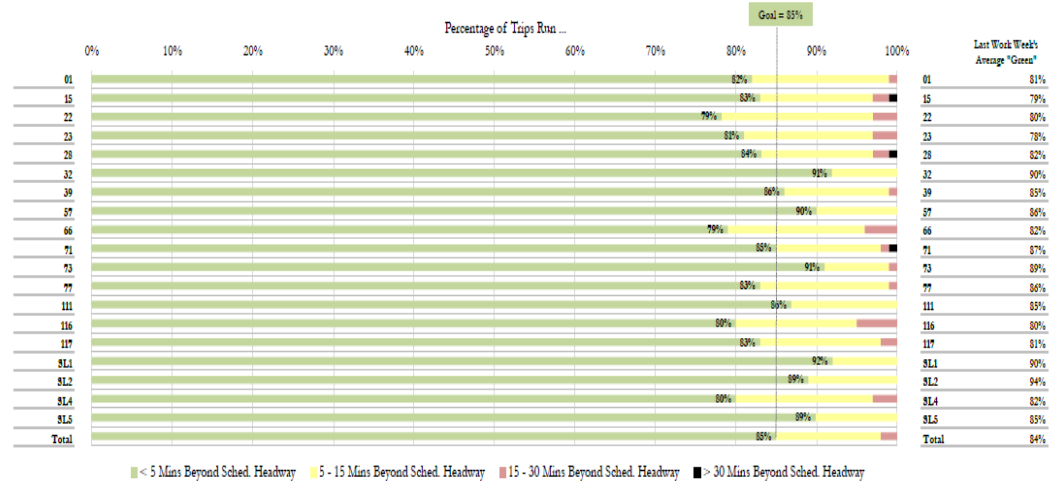
### Headway Adherence

Heavy and Light Rail Lines



Note: During entry access diversions, headways are still measured against schedule, but closed stations are excluded

Key Bus Routes



# Develop metrics across organization

Recent Past
Monthly Management Report
Optional reporting
Non-standard format
Limited target setting or accountability to team for performance

Near Term
Performance Reporting
Required Monthly submissions
Standard template- data driven, numbers bases
Accountability to Executive Management / FMCB



# Develop metrics across organization

## Prototype: Operations Division Performance Report (under development)

Based on a established Vehicle Maintenance Monthly Report

Key indicators across all Operations offices

Reviewed by all Operations senior staff at specially-scheduled monthly meetings

Bus Transportation Department  
Heavy Rail Transportation Department  
Light Rail Transportation Department  
Vehicle Engineering Department  
Service Planning & Scheduling Department  
Engineering & Maintenance Department  
Other Operating Departments...



MBTA Operations  
Mechanical Division  
Monthly Management Report  
**June 2015**



# Develop metrics across organization

## Prototype: New Service Delivery Policy (SDP)

(under development)

SDP sets standards for service provision for bus and subway service.

Last updated in 2010

Define new standards for: coverage, span of service, frequency, reliability, safety and comfort, cost effectiveness.

Development includes new customer survey, face-to-face meetings with 10 stakeholder groups, and internal and external SMEs.

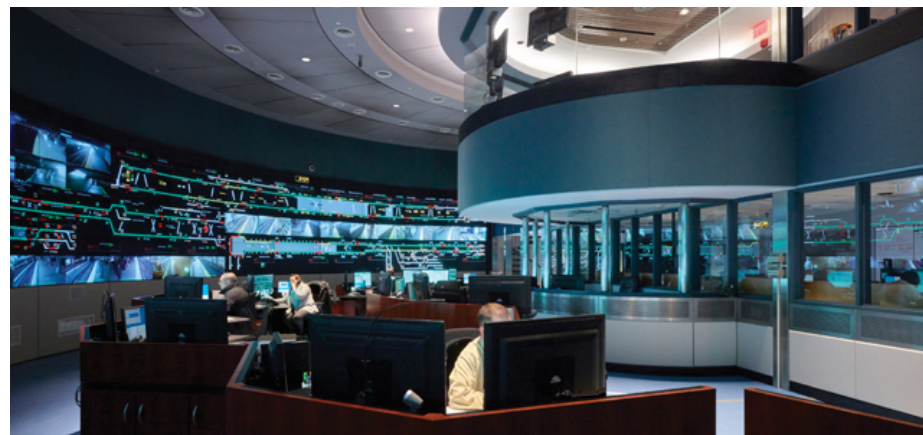
FMCB review requested in fall 2015



# Develop metrics across organization

Multiple on-going studies, product developments, and strategic initiatives to provide new ways to monitor performance, effect change in real-time, and improve customer experience:

- Research Server and Open Data
  - Service Delivery Policy Revision
  - Customer Surveying
  - Data warehouse - MBTA 360
  - Real-time performance reporting
  - Origin Destination inference (ODx)
  - Load profiles and crowding heat maps
  - Green Line dispatching tools
  - Fare Payment and Validation Location Study- MassDOT Research contract
  - Analysis of bus routes and service planning using ODX- MIT students
  - Prioritization of Dedicated Bus Lanes- CTPS
  - MBTA Fares Non-interaction Study- CTPS
  - Identifying Opportunities to Alleviate Bus Delay – CTPS
- (partial listing)



- Operations Improvement & KPI Development Thread team selected
- Monica Tibbits-Nutt, Board liaison
- Brian S. Kane, Director of Operations Analysis- Team Lead
- First set of deliverables established for inclusion in 9/22 report
- Board feedback requested on prioritization and ideas for future metrics, programs, and deliverables
- No dashboard is static- constant improvement until customers are satisfied