# SGR & Capital Working Group
## Initial Overview

8/31/2015

# Contents

- Review of 9/15 deliverables and process

- Review of SGR process and recent actions

- SGR asset overview

- SGR financing scenarios

# FMCB deliverables

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

SGR and Capital Team Deliverables

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# Additional FMCB mandates

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
6. to reorganize internal structure of the MBTA (pending MassDOT board approval)

# 9/15 report agenda

- **Winter preparation planning**
  - Update / status report / drills / contingency plans

- **SGR strategy**
  - Review of current state of data-base/technology
  - Initial cut on criteria for prioritization of projects for FY17

- **Capital Spending**
  - Procurement improvements
  - Expenditure monitoring

- **Operational redesign**
  - Modal organization

- **FMLA**
  - Review current procedures and strategy development for third party vendor involvement

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# SGR & Capital Budget Stability Committee Process and Timeline

## Phase 1
### 9/20 report
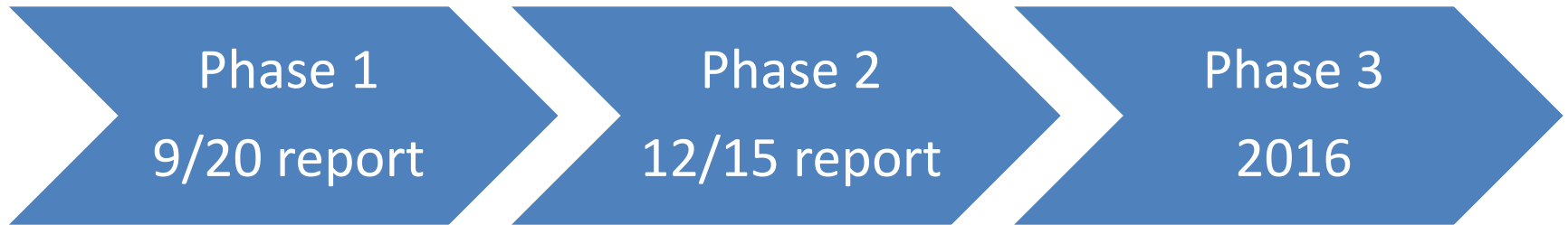
- Establish SGR baseline
- Update FMCB on current SGR backlog
- Overview of prioritization and weighting of projects
- Overview of SGR and Capital spending

## Phase 2
### 12/15 report

- Consider changes to project prioritization process
- Continue to improve SGR database
- Recommend investment strategies for next 5 year CIP

## Phase 3
### 2016

- Implement SGR and Capital spend based on CIP
- Continue to update and refine SGR backlog
- Calibrate project recommendations based on new information
- Launch asset management programs

# Contents

**Massachusetts Bay Transportation Authority**

- Review of SGR process and recent actions

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# Capital Spending Overview: Definitions of Capital Investment Categories

1. **State of Good Repair:** Returning assets to their attended purpose and use.

   – Example: Green line signal systems, Harvard bus way tunnel

2. **Safety and Security:** Category is distinct from SGR and include new assets needed for safety and security needs.

   – Example: Positive Train Control and Green Line Collision Avoidance

3. **Systemwide Accessibility**: Distinct from SGR and involves upgrading stations and other assets for the purposes or making them accessible

   – Example: Hynes Station improvement

4. **Expansion**: Addition of new assets and services funded by the Commonwealth.

   – Example: include South Coast Rail, GLX, Silver Line to Chelsea expansion

5. **Capacity**: Addition of additional capacity to carry more riders

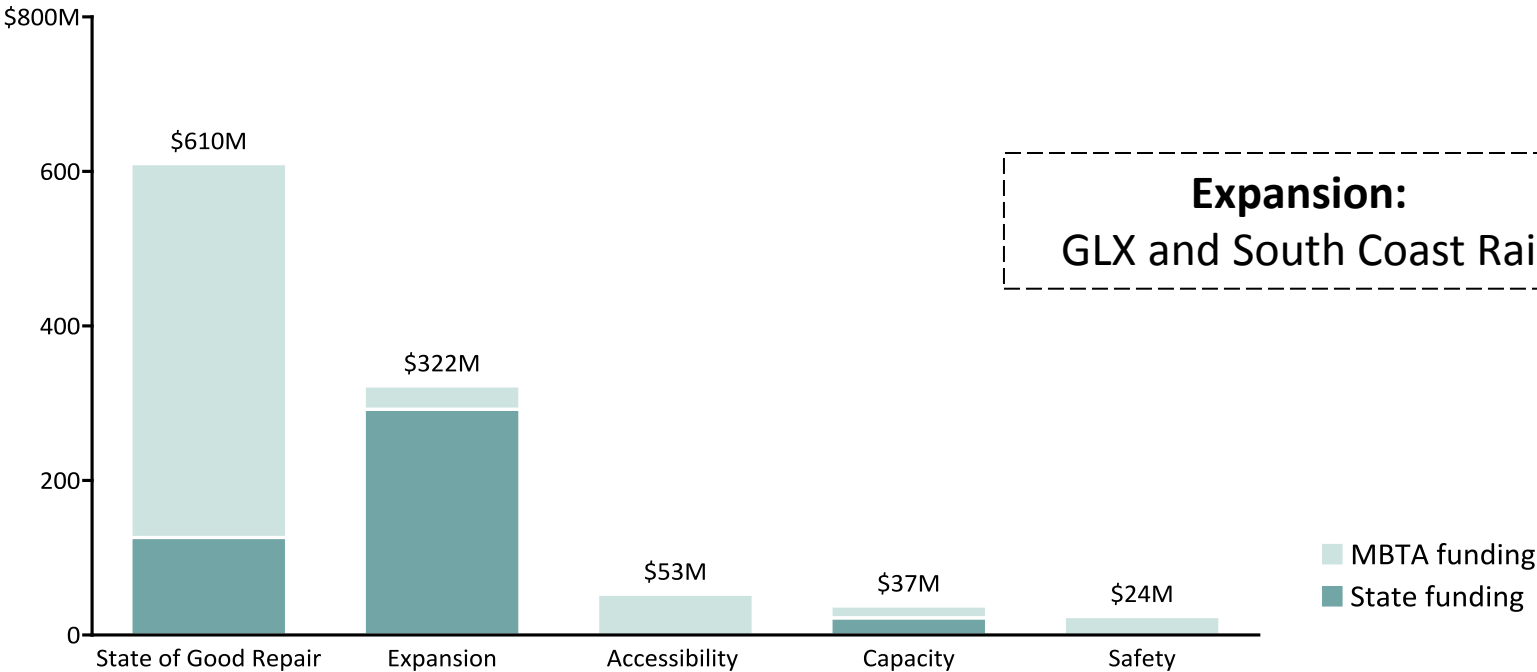   – Example: Orange line car replacement

# Total Capital Spending FY 2016B by Category and Funding Source

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TOTAL FY 2016B CAPITAL BUDGET IS $1.046B

**TO BE UPDATED AS PROJECT ALLOCATIONS CHANGE**

**Expansion:**
GLX and South Coast Rail



Total Capital Spending by Category and Funding Source

- State of Good Repair: $610M
- Expansion: $322M
- Accessibility: $53M
- Capacity: $37M
- Safety: $24M

Legend:
- MBTA funding
- State funding

# Recent Improvements in SGR Backlog Process

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- **Since 2012, the MBTA has engaged in a fresh effort to collect asset data**

  - Updated database includes multiple asset classes and modal details (204,000 individual assets)

  - Utilizing web-based computer model (AECOM) to map and run potential SGR improvement plans

  - Much better developed rating system of MBTA assets, consistent with FTA guidelines

- **Commuter rail data collection is a continuing challenge**

    - Priority for the team to resolve in near future:

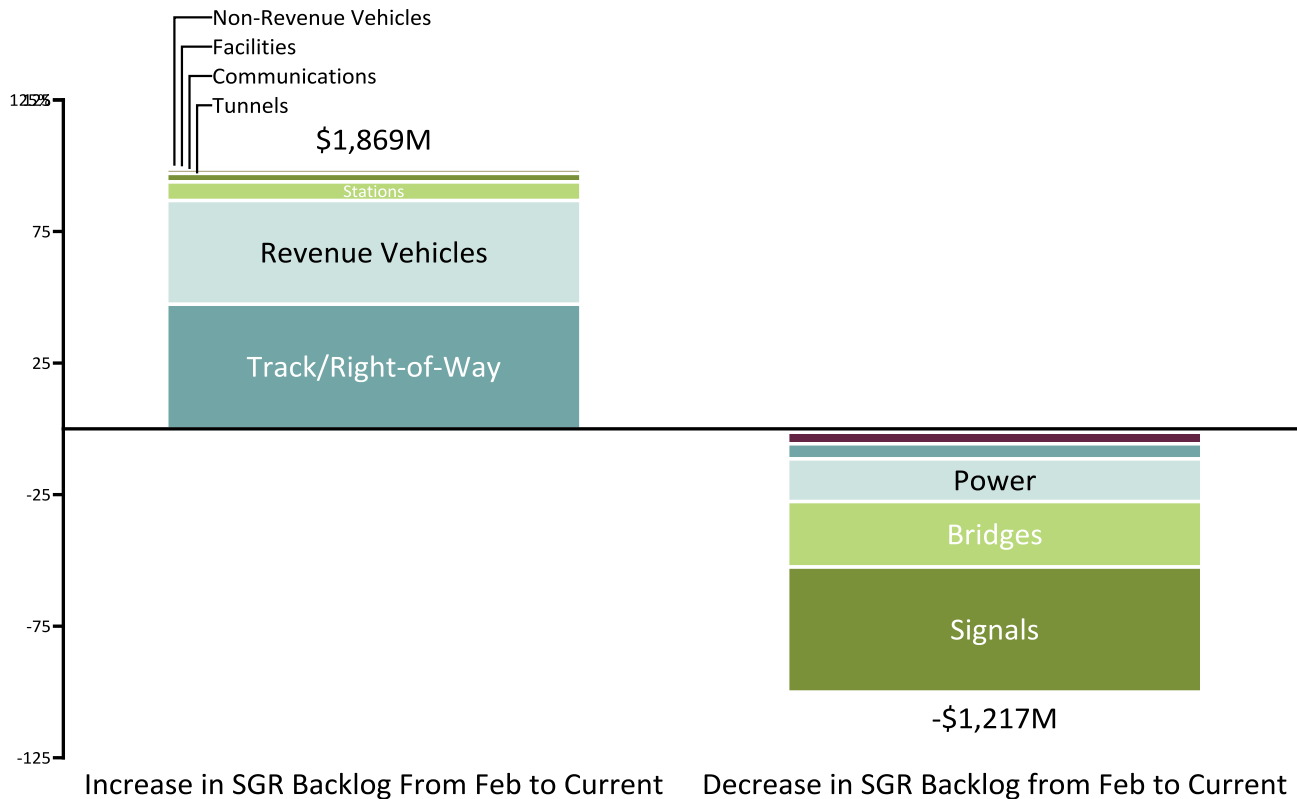    - Non-vehicle commuter rail, power, signals are major gaps

# SGR Backlog Growth:
# $6.7B Feb-15 report to $7.3B current state

- **The 2009 SGR Report included only 95,316 individual assets; the 2015 Report includes over 250,000 individual assets**

- **The significant differences between the February Preliminary Estimate and the Current Report are:**
  - Current asset inventory has 10% more asset records and 58% more individual assets than the preliminary inventory from February
  - Asset inventory updated with revisions to a number of data points such as the service year, useful life, and redistributions of the age, condition, and performance weights
  - Change in condition and performance rating calculations to reflect FTA guidance and best practices that were not available in February
  - Improved age score and decay curve calculations
  - Updates to the backlog calculations

DRAFT

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- TRACK / ROW AND REVENUE VEHICLES SAW BIGGEST GROWTH AT $885M and $737M
- SIGNALS AND BRIDGES BACKLOG DECREASED BY $579M and $302M



Non-Revenue Vehicles
Facilities
Communications
Tunnels

$1,869M

Stations

Revenue Vehicles

Track/Right-of-Way

Power

Bridges

Signals

-$1,217M

Increase in SGR Backlog From Feb to Current      Decrease in SGR Backlog from Feb to Current

# SGR Scoring Methodology

- All assets are rated based on age, condition and performance

  - Generally SGR score weighting baseline is age (50%), condition (25%) and performance (25%)

  - Relatively weighting may change by asset class

  - Assets are reviewed annually

- SGR capital funds are allocated by the Capital Investment Plan ("CIP")

  - SGR score is a key criteria for project funding

# SGR Scoring Methodology

**Massachusetts Bay Transportation Authority**

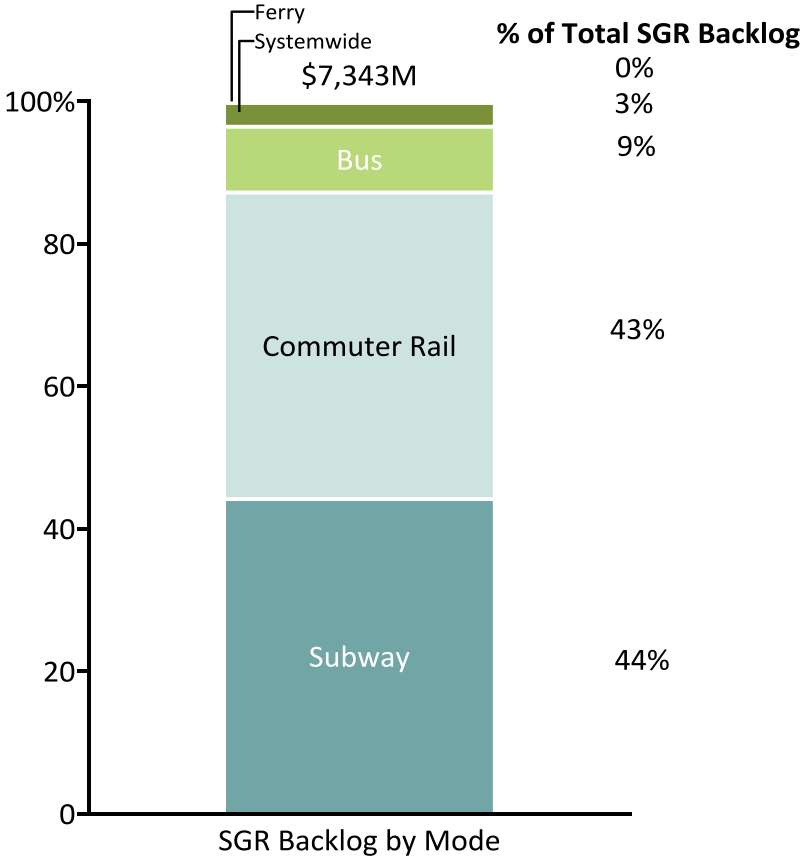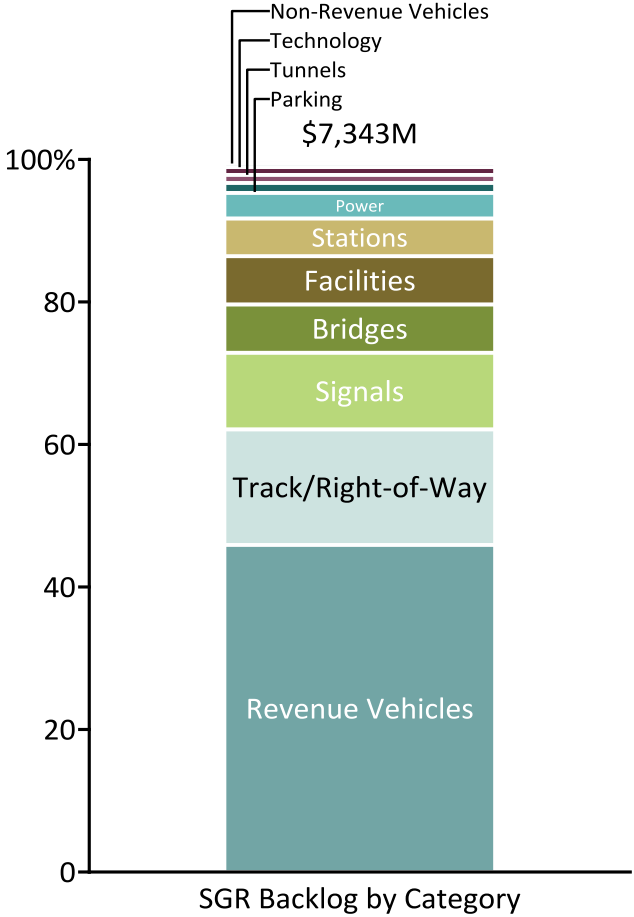| SGR Score | | | | Age / Usage | Condition | Performance |
|---|---|---|---|---|---|---|
| **Asset SGR Rating** | | | | Life-Cycle Rating | Physical Condition Rating | Functional Rating |
| Rating Description | Scoring Range | | | (Percent % of Useful Life Remaining) | (Physical Condition, Level of Required Maintenance) | (Serving Intended Function, Reliability, Industry Standards) |
| Excellent | 4.4 to 5.0 | | | Asset new or nearly new (0%-25% of useful life) | Asset new or like new; no visible defects or deterioration | Asset meets or exceeds all performance and reliability metrics, industry standards |
| Good | 3.8 to 4.3 | | In SGR > 2.5 | Asset nearing or at its midlife point (26%-50% of useful life) | Asset showing minimal signs of wear; some slight defects or deterioration | Asset generally meets performance and reliability metrics, industry standards |
| Fair | 3.2 to 3.7 | | | Asset has passed its midlife point (51%-75% of useful life) | Some moderately defective or deteriorated components; expected maintenance needs | Occasional performance and reliability issues; may be sub-standard in some areas |
| Marginal | 2.6 to 3.1 | | | Asset is nearing the end of its useful life (76%-100% of useful life) | Increasing number of defects, deteriorating components; growing maintenance needs | More frequent performance and reliability issues; sub-standard in some areas |
| | | | SGR 2.50 | | | |
| Substandard | 1.8 to 2.5 | | Not SGR ≤ 2.5 | Asset is just beyond its useful life (101%-125% of useful life) | Significant defects and component deterioration; excessive maintenance needs | Performance and reliability problems becoming more serious; sub-standard elements |
| Poor | 1.0 to 1.7 | | | Asset is considerably beyond its useful life (125% + of useful life) | Asset in need of replacement or restoration; may have critically damaged components | Frequent performance and reliability problems; does not meet industry standards |
| Non-Operable | 0 | | | Asset non-operable | Asset non-operable | Asset non-operable |

# SGR backlog by Category and Mode Current State ($7.3B)

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Left chart — SGR Backlog by Category ($7,343M):
- Non-Revenue Vehicles
- Technology
- Tunnels
- Parking
- Power
- Stations
- Facilities
- Bridges
- Signals
- Track/Right-of-Way
- Revenue Vehicles

Right chart — SGR Backlog by Mode ($7,343M) / % of Total SGR Backlog:
- Ferry — 0%
- Systemwide — 3%
- Bus — 9%
- Commuter Rail — 43%
- Subway — 44%

# SUBWAY Backlog Detail
## MBTA spending $3.2B of $7.3B

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THE SUBWAY SGR BACKLOG of $3.2B REPRESENTS 44% OF THE TOTAL SGR BACKLOG



Other subway
Mattapan Line

$3,244M

Blue Line
Orange Line
Green Line
Red Line

SGR Backlog by MBTA Line
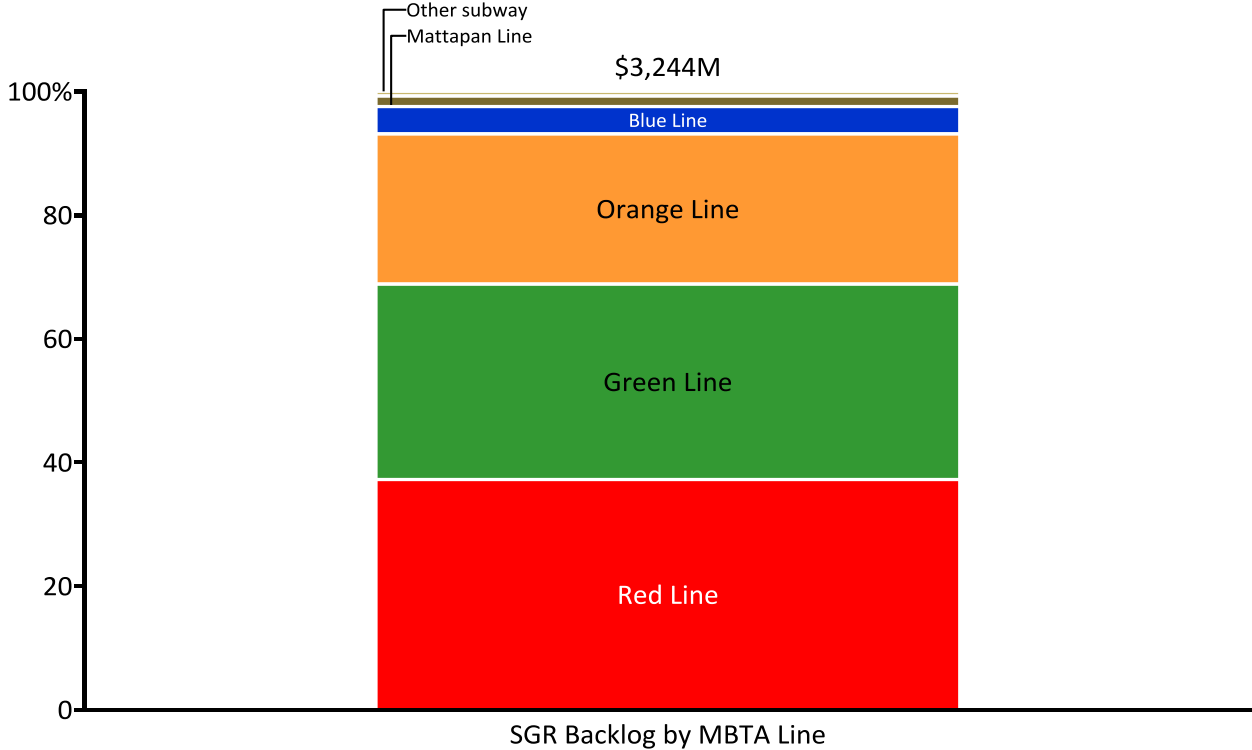
# SGR Backlog burn down rate:
## $472M spending level / Maintain $7B Backlog

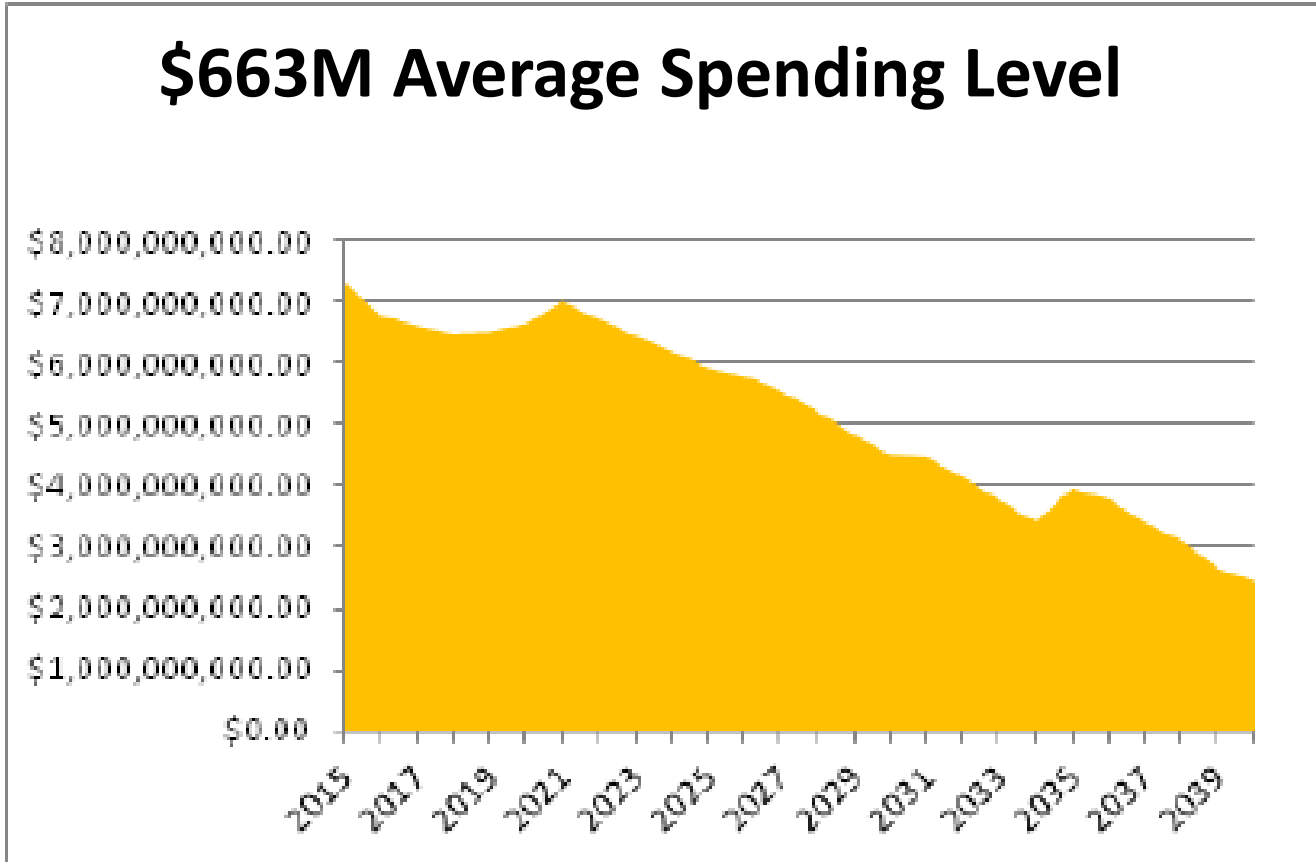$472M - Maintain Existing Backlog
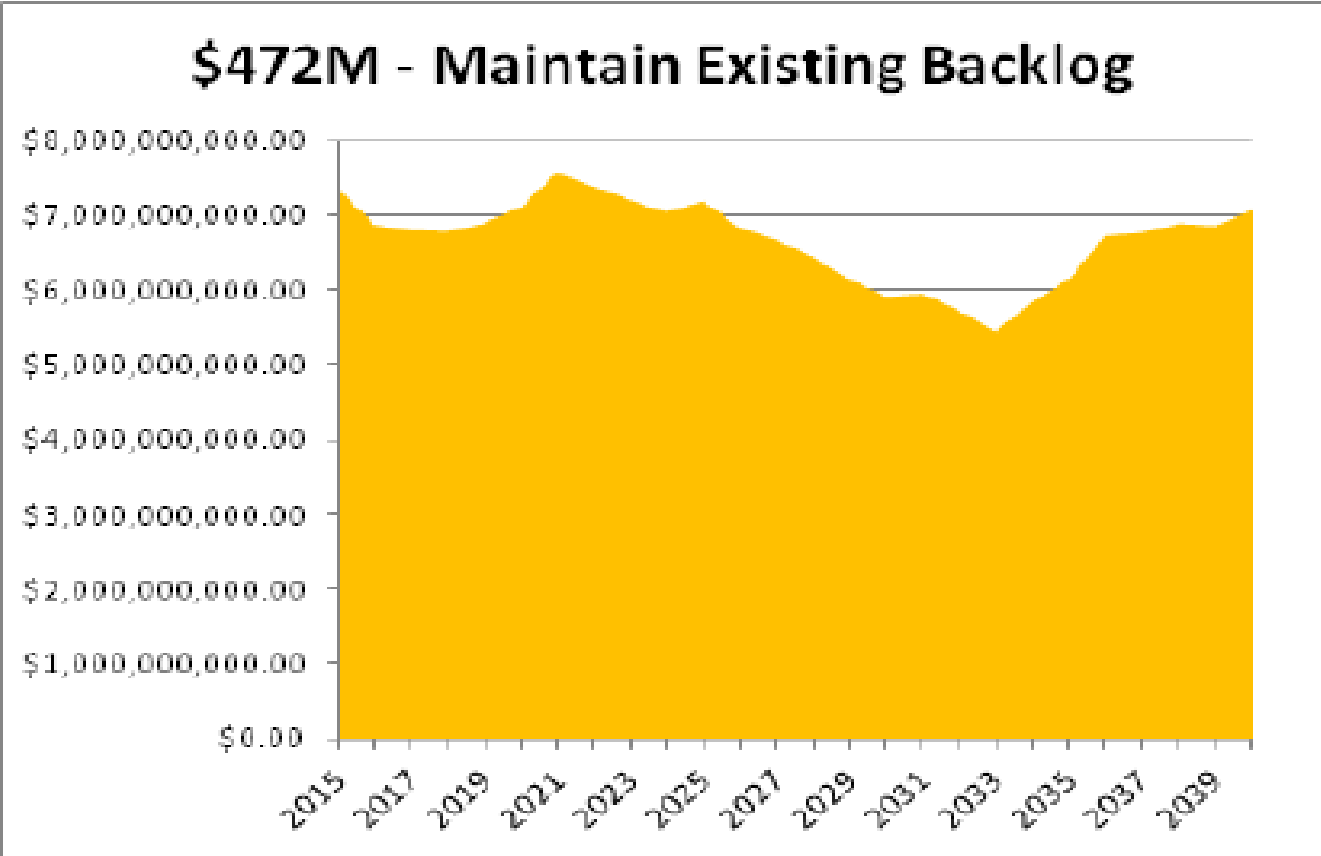
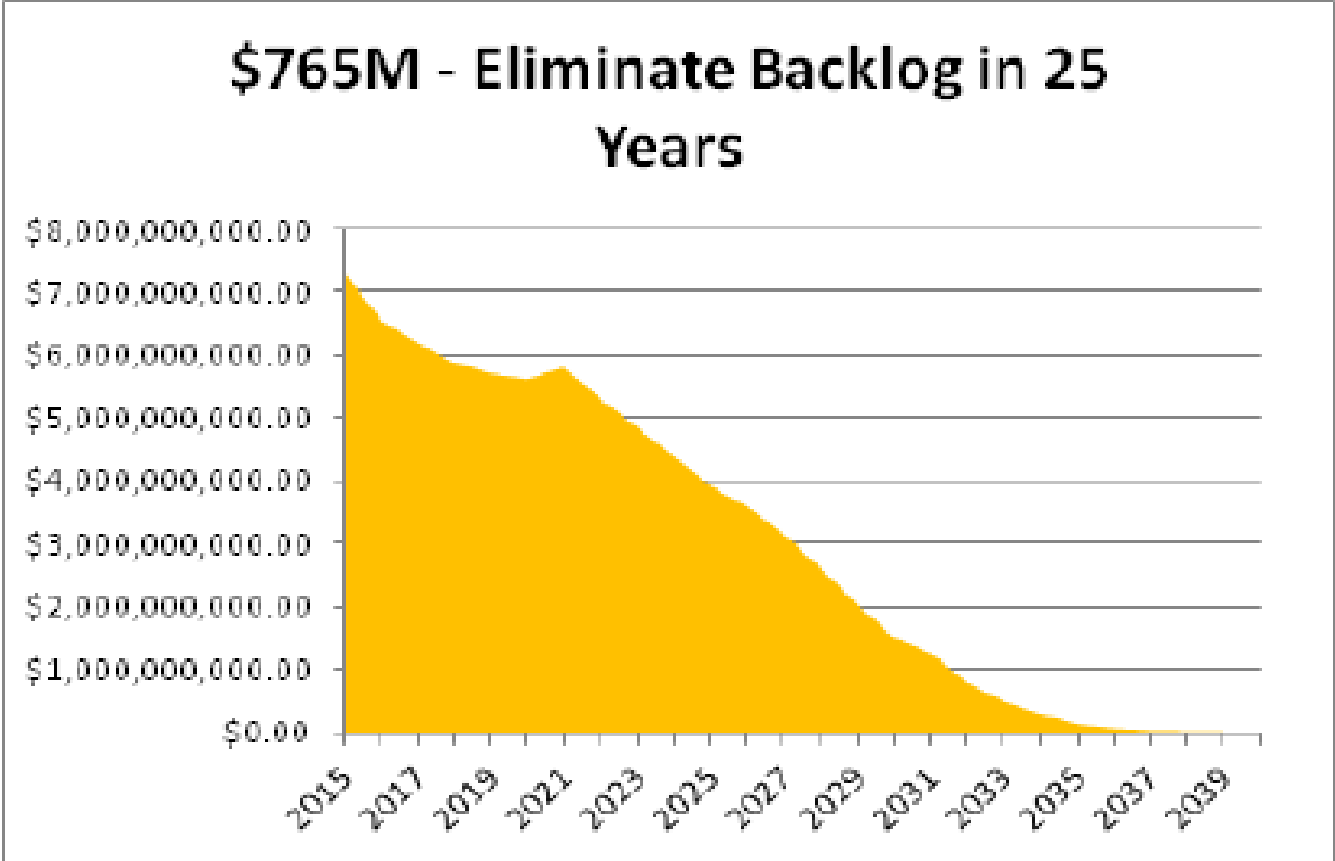# SGR Backlog burn down rate:
## $663M average spending level / Reduces Backlog to $2.6B by 2040
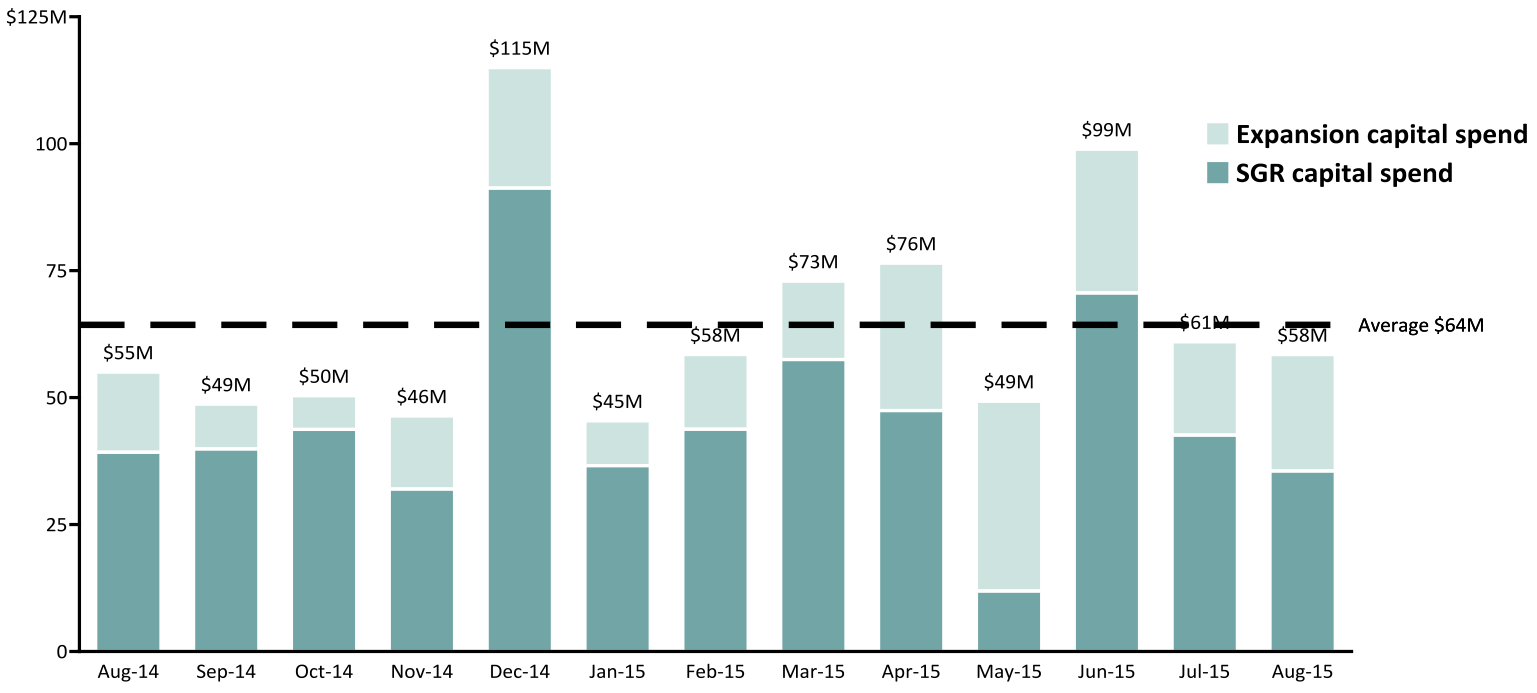
**$663M Average Spending Level**

# SGR Backlog burn down rate:
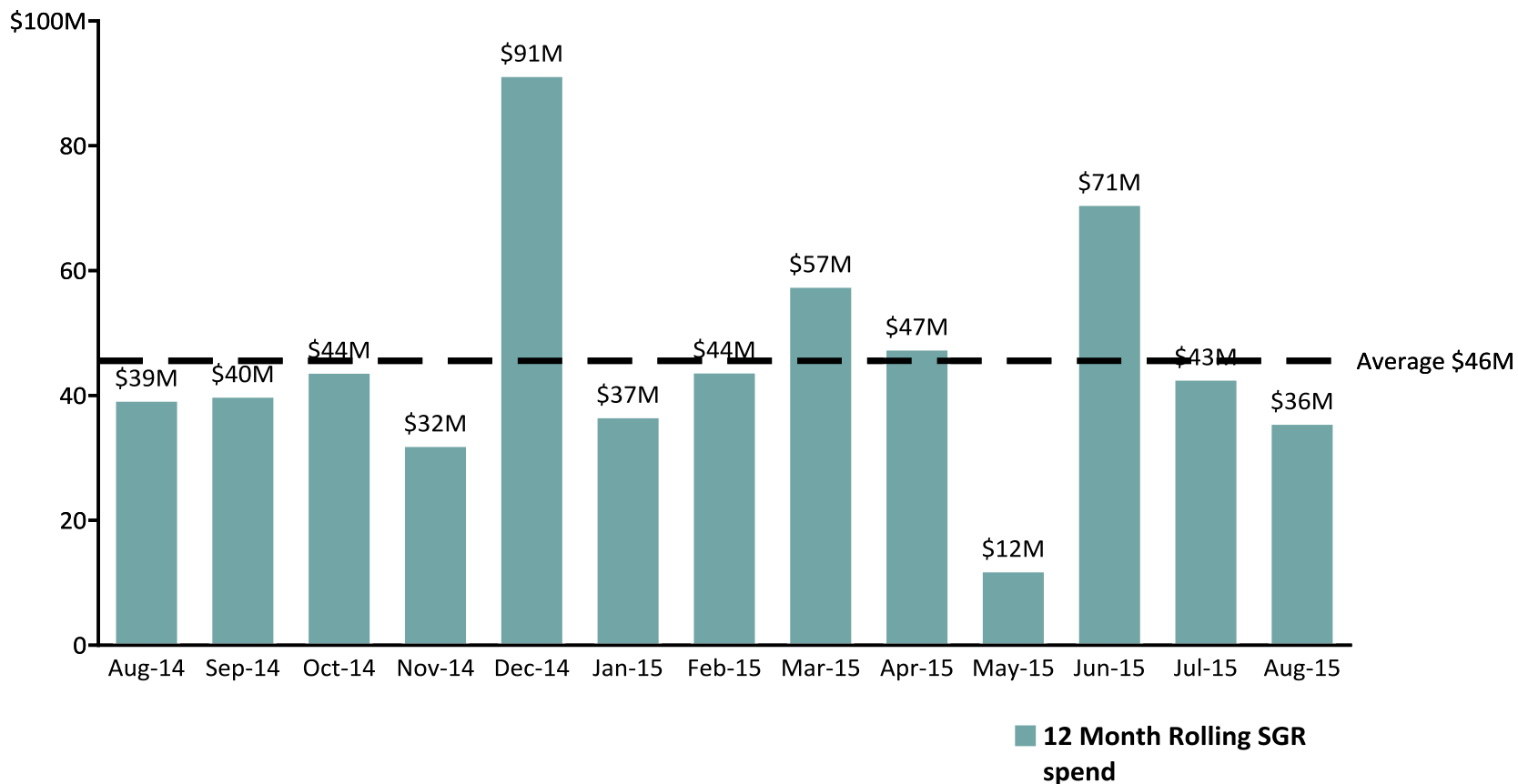## $765M spending level / Eliminate Backlog by 2040

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$765M - Eliminate Backlog in 25 Years

# Over the past 13 months, the average monthly total capital spend has been $64M

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| | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 | Jul-15 | Aug-15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Capital Spend** | $55M | $49M | $50M | $46M | $115M | $45M | $58M | $73M | $76M | $49M | $99M | $61M | $58M |
| Expansion capital spend | $16M | $9M | $7M | $14M | $24M | $9M | $15M | $15M | $29M | $37M | $28M | $18M | $23M |
| SGR capital spend | $39M | $40M | $44M | $32M | $91M | $37M | $44M | $57M | $47M | $12M | $71M | $43M | $36M |

Legend: Expansion capital spend, SGR capital spend, Average $64M

# Over the past 13 months, the average monthly spend on SGR has been $46M

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SRG Capital Spend

Legend: 12 Month Rolling SGR spend

| Month | Spend |
|-------|-------|
| Aug-14 | $39M |
| Sep-14 | $40M |
| Oct-14 | $44M |
| Nov-14 | $32M |
| Dec-14 | $91M |
| Jan-15 | $37M |
| Feb-15 | $44M |
| Mar-15 | $57M |
| Apr-15 | $47M |
| May-15 | $12M |
| Jun-15 | $71M |
| Jul-15 | $43M |
| Aug-15 | $36M |

Average $46M

# June 2015 monthly SGR spending was significantly increased over 2013 and 2014, while in the months of July and August 2015, spending was slightly behind the 2013/2014 pace

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SRG Capital Spend

Legend:
- CY 15
- CY 14
- CY 13

May: $59M (CY 13), $33M (CY 14), $12M (CY 15)
June: $44M (CY 13), $41M (CY 14), $71M (CY 15)
July: $34M (CY 13), $47M (CY 14), $43M (CY 15)
August: $37M (CY 13), $39M (CY 14), $36M (CY 15)
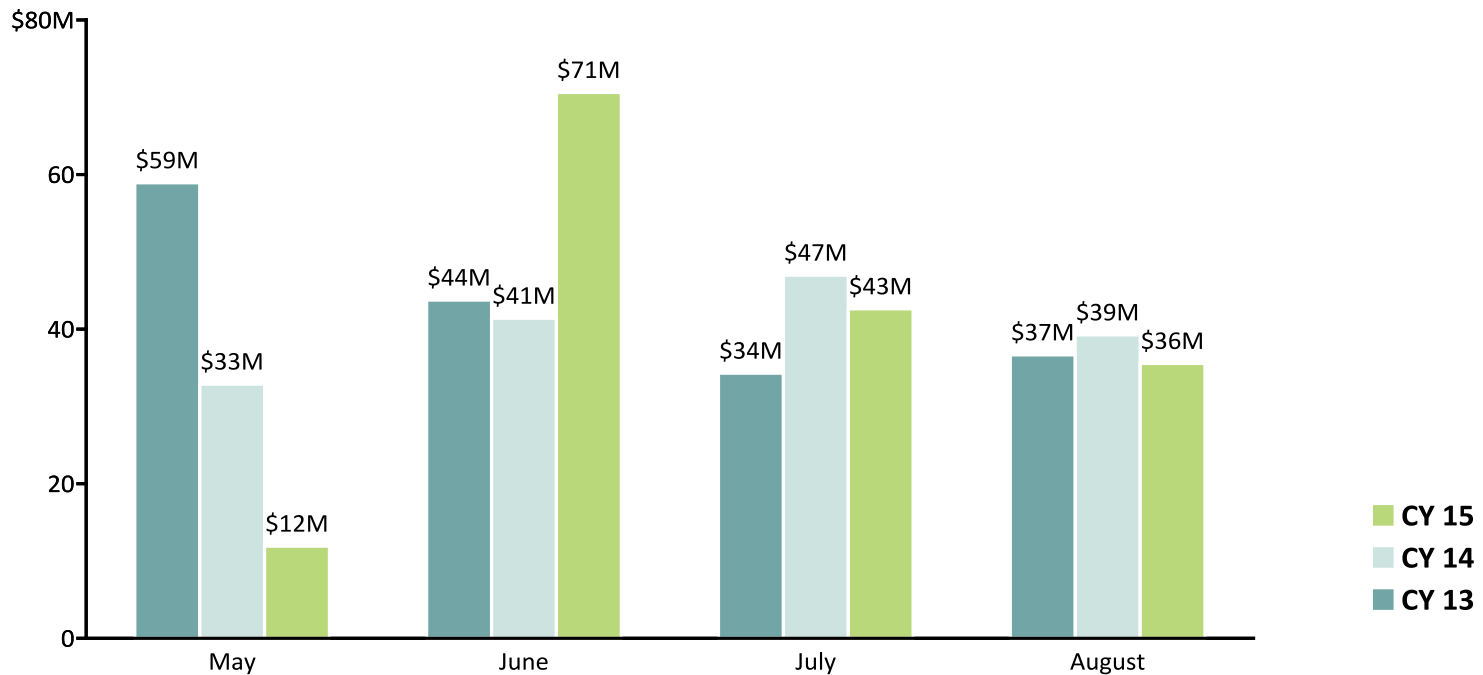
# Total May – August 2015 SGR spending to date is ahead of May – August 2014 spending by $11M but behind 2013 levels

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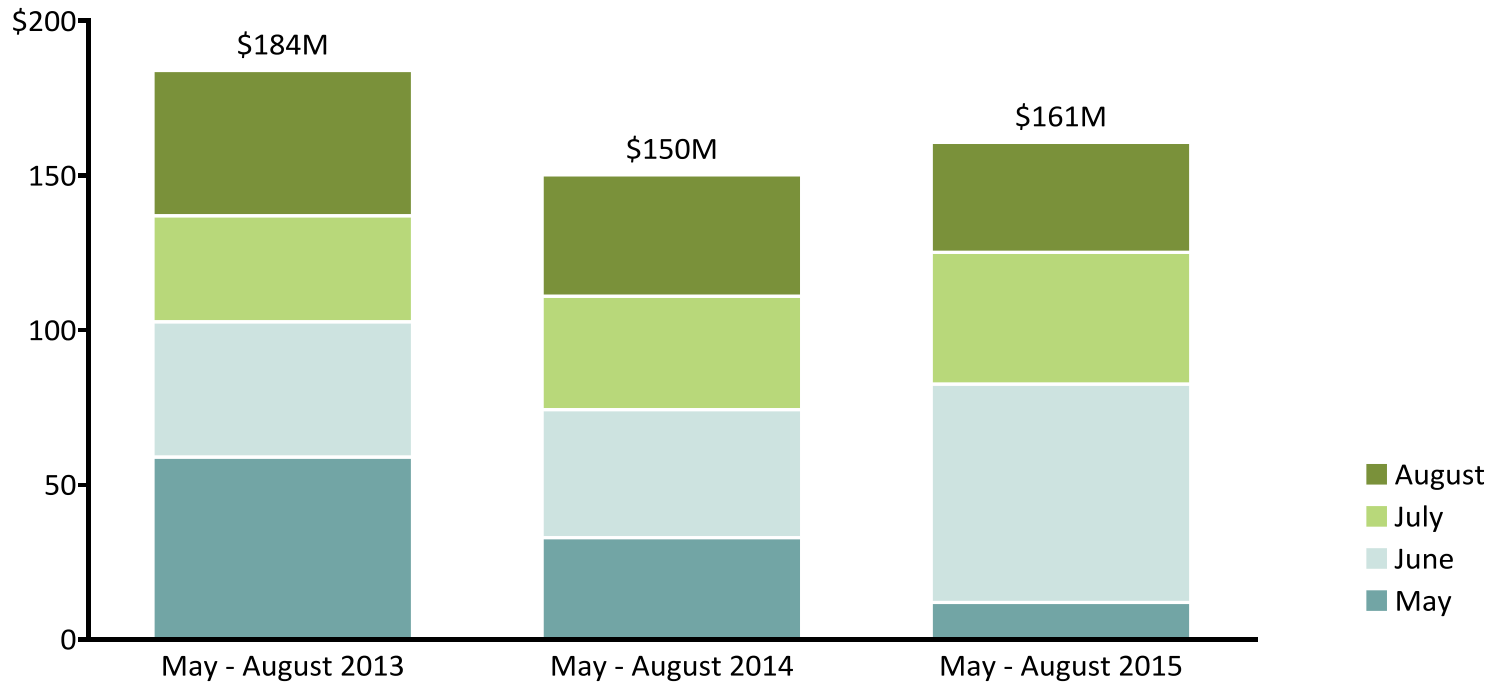
# ENTERPRISE ASSET MANAGEMENT

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- MBTA-wide asset and maintenance system

- Replaces multiple antiqued maintenance systems

- FTA MAP 21 required

- Allows deployment of modern technology (phones, tablets) for asset tracking, maintenance reporting and work flow

- Programmed preventative maintenance vs. corrective maintenance

# MANAGEMENT SYSTEM BENEFITS

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- Helps to understand the trade off between the cost of undertaking maintenance and the increasing risks associated with a deteriorating asset

- Furthers planning process

- Supports CIP investment strategy

- Helps to reduce the total life cycle cost of an asset, while improving system reliability

- Feeds data into SGR Database (e.g., asset condition, operating costs) to support long-term capital planning