



Massachusetts Bay Transportation Authority

Pro Forma: Assumptions Purchased Services and Materials, Supplies, & Services FY19-FY24

Fiscal and Management Control Board

November 18, 2019

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Introduction

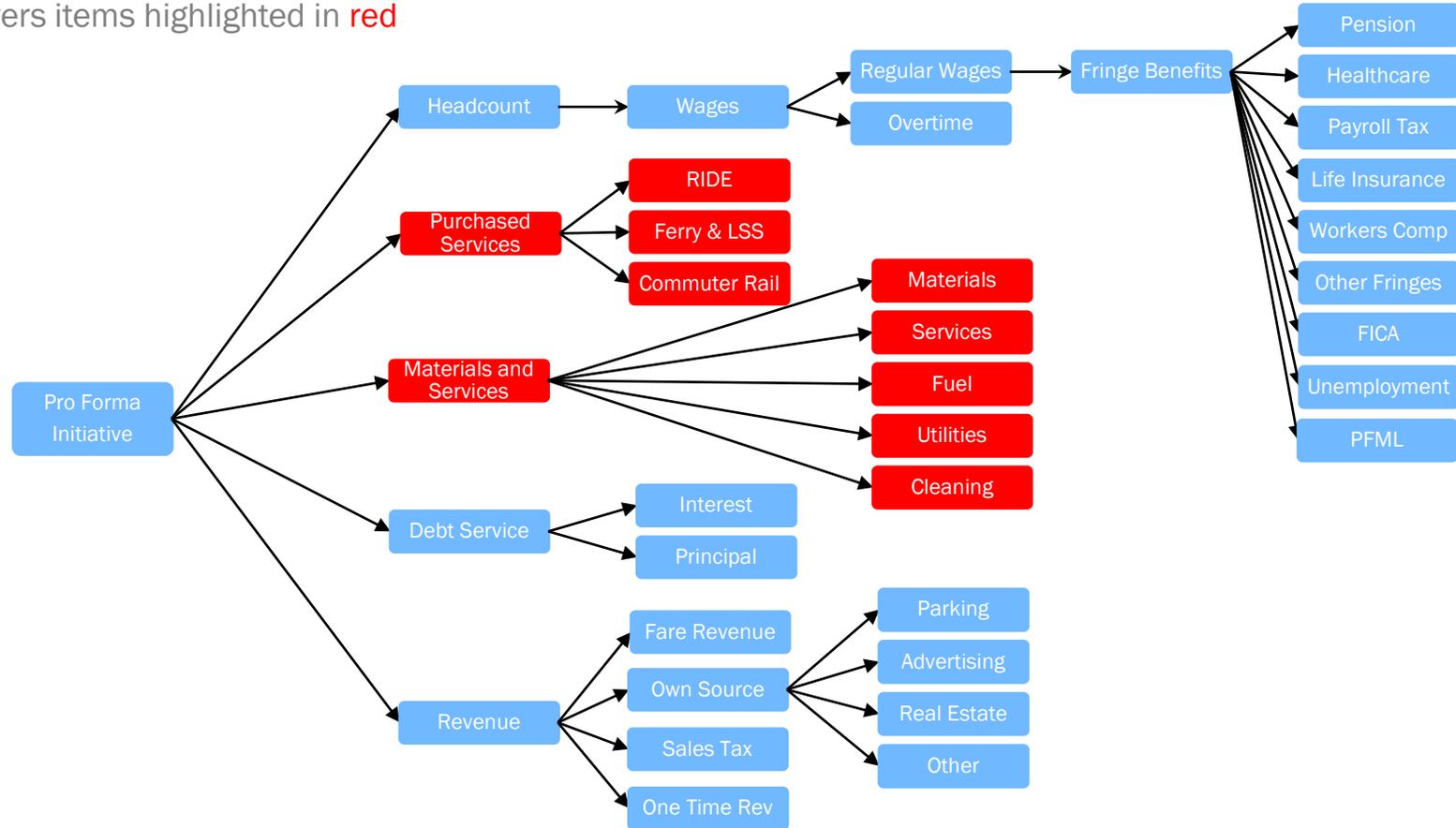
- **What is the pro forma?**
 - A 5-year financial model projecting FY20-FY24 operating budget.
 - A tool to inform priorities, help shape policy decisions and guide short and long term budget decisions.
 - Financial impact of initiatives and policy decisions are analyzed and incorporated into the pro forma
- **What is the goal of this presentation?**
 - To review assumptions related to Purchased Services (Commuter Rail, The RIDE, Ferry, and LSS) and Materials, Supplies, and Services (M&S).
 - To quantify how Purchased Services and M&S implications impact the operating budget over the next 5 years.
- **What assumptions are in this presentation?**
 - Achieving the safety, reliability and service goals associated with major investments in the MBTA's Capital Investment Plan (CIP) requires adjustments to Purchased Services contracts and greater M&S needs.
 - This presentation outlines assumptions related to the Purchased Services and M&S needs to support the day-to-day operations necessary to achieve these goals.
 - Major Initiatives included in this presentation:
 - Red & Orange Line Improvement Programs, Green Line Extension, AFC 2.0, PTC/ATC, South Coast Rail



Introduction: Operating Expense Categories

Cost Driver & Expense Category Flow Chart

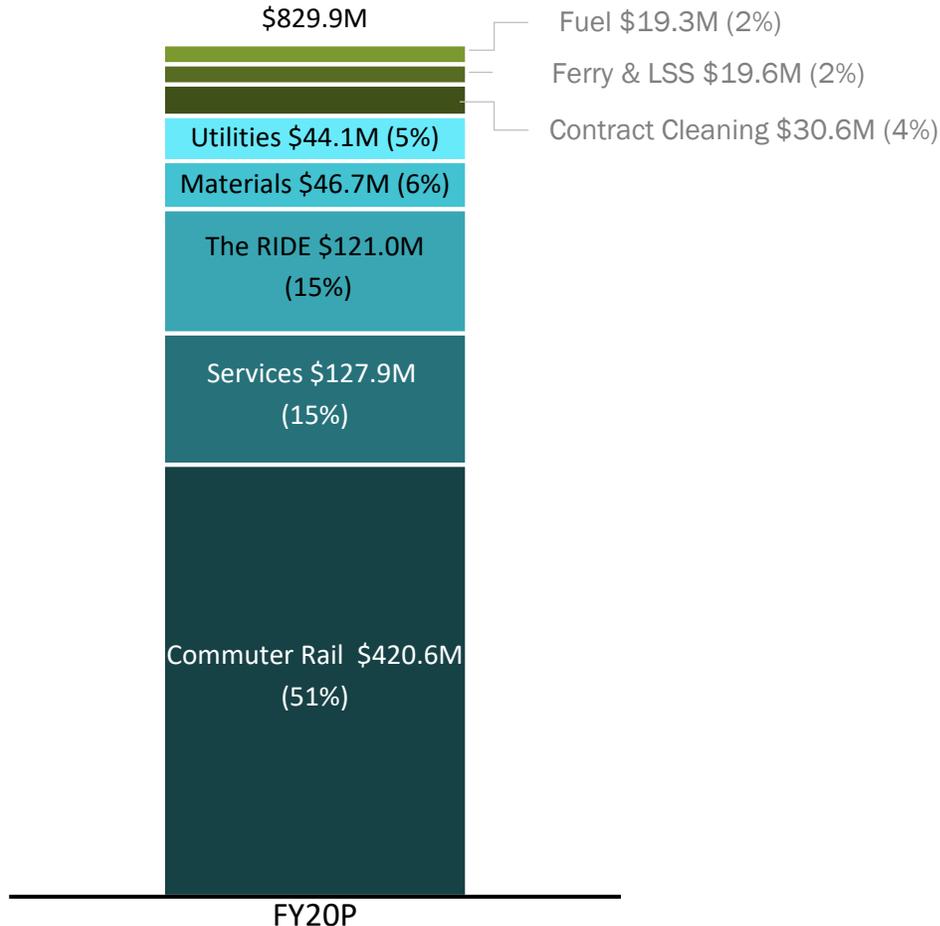
This deck covers items highlighted in red



Executive Summary

Materials & Services Expense Categories

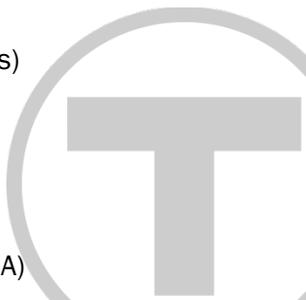
M&S Spending is 50% of FY20 projected operating expenses



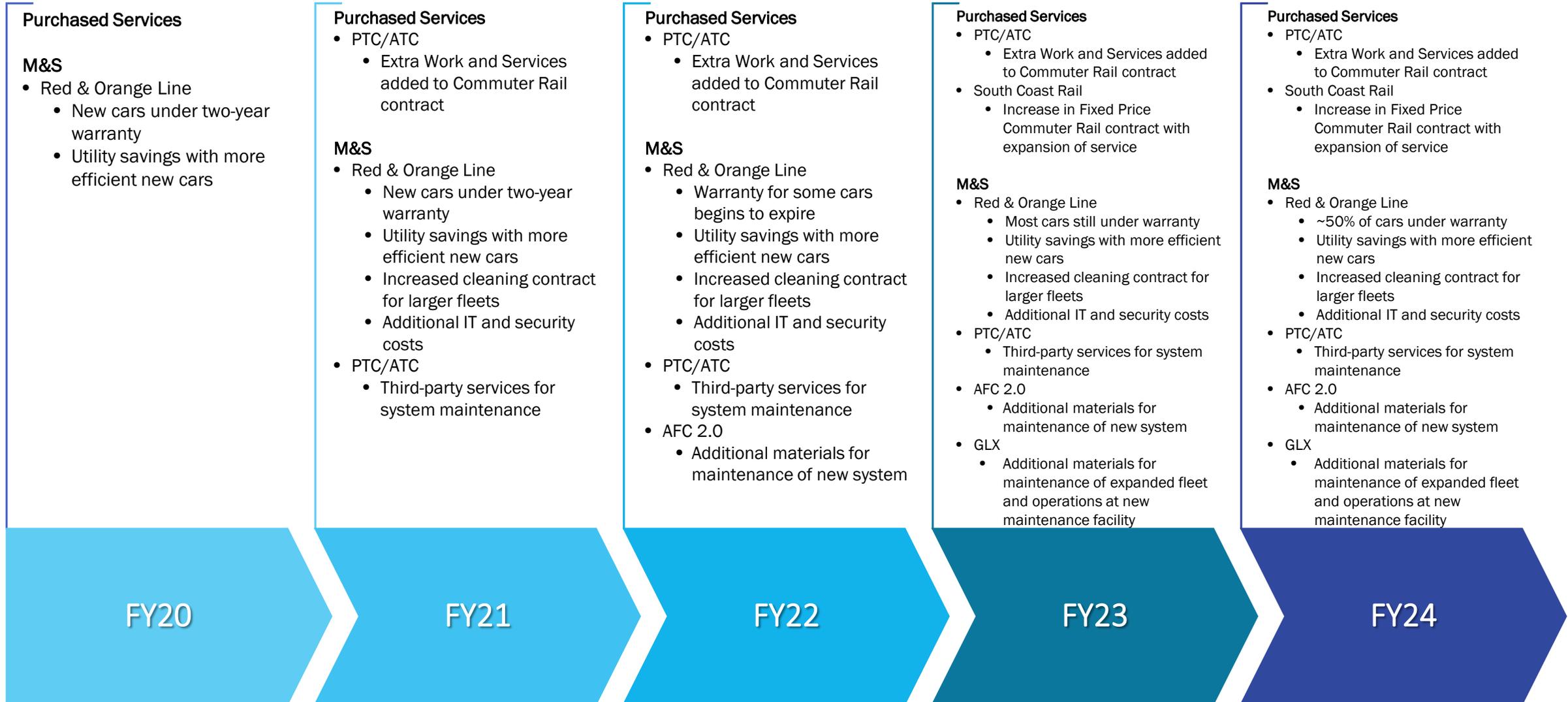
Growth Assumptions by Category

Commuter Rail, GLX and PTC/ATC are the major growth drivers

- **Commuter Rail** – 3.7% CAGR FY20-FY24 (~\$14M increase per year)
 - Current Contract until FY23
 - 4 Cost Categories: Fixed Payment (80%), Extra Work & Services (11%), Fuel (7%), PRIAA (2%)
- **Services** – 3.1% CAGR FY20-FY24 (~\$6M increase per year)
 - PTC/ATC maintenance costs will increase service spending by \$10M/year
 - GLX estimated \$5M/year additional facilities & vehicle maintenance costs in FY23
 - Red & Orange Line Cars will have minimal impact (>\$300K/year)
 - Services Breakdown: Consulting (38%), Legal (23%) Financial/Actuarial (16%), Engineering (14%), Other (9%)
- **The RIDE** – 0.8% CAGR FY20-FY24 (~\$600K increase per year)
 - New procurement completed – contract transition in process
- **Materials** – 4.7% CAGR (~\$2M increase per year)
 - GLX \$5M/year additional materials costs in FY23
 - CAGR is only 2.3% if GLX is excluded
- **Utilities** – (0.5%) CAGR FY20-FY24 (~\$500K increase/decrease per year)
 - More efficient Red & Orange line cars projected to reduce electricity costs
 - Utility price projections taken from Energy Information Administration (EIA)
- **Contract Cleaning** – 4.3% CAGR FY20-FY24 (~\$1M/year)
 - Procurement in Process
 - GLX \$2.5M/year additional materials costs in FY23 (facilities & vehicles)
 - CAGR is only 2.3% if GLX is excluded
- **Ferry & LSS** – 2.6% CAGR FY20-FY24 (~500K/year)
 - Ferry Contract Renegotiation in FY22
- **Fuel** – 1.0% CAGR FY20-FY24 (~300K/year)
 - Fuel price projections taken from Energy Information Administration (EIA)



Purchased Services and M&S Assumptions

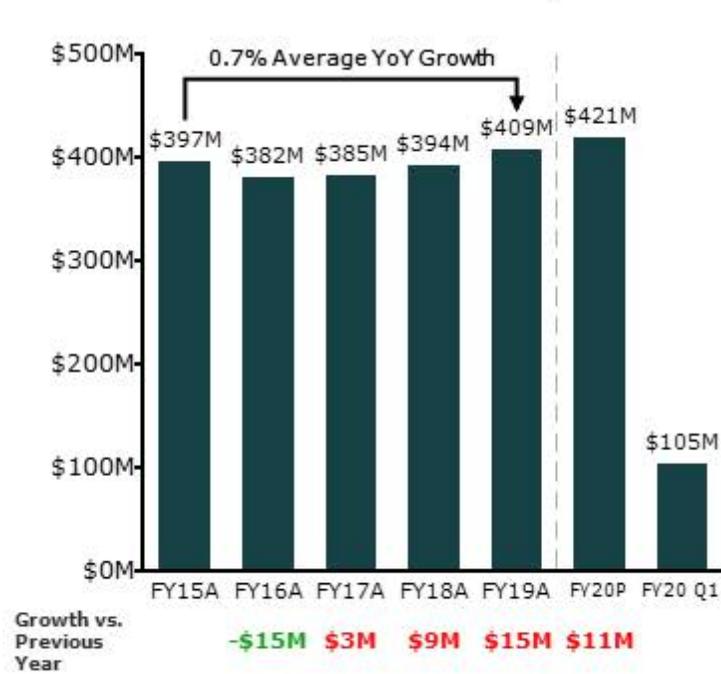


Purchased Services

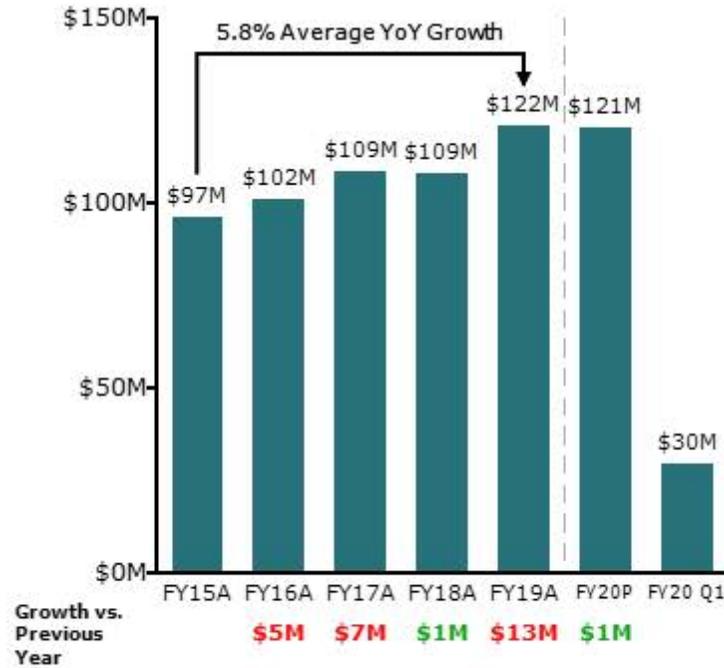


Historical Purchased Services Expenses

Purchased Commuter Rail Expenses



The RIDE



Ferry



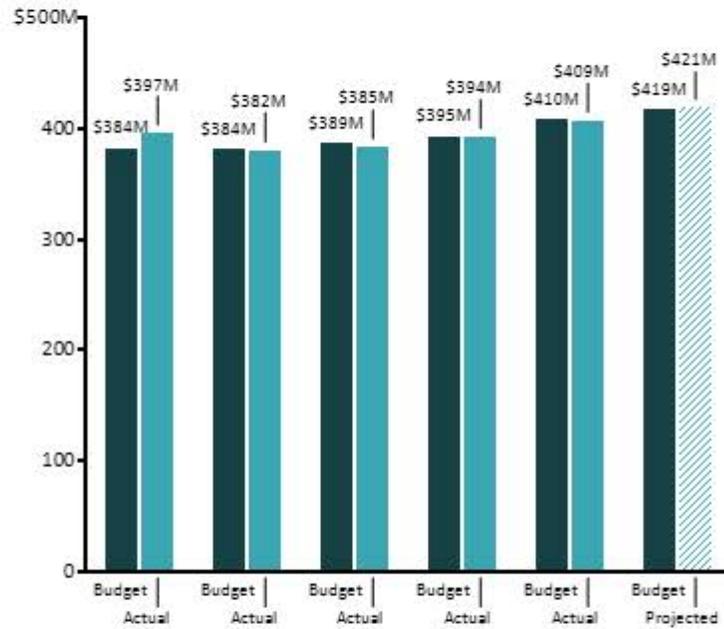
- Four components of Commuter Rail payment:
 - Fixed Payment
 - Fuel
 - Extra Work & Services
 - PRIAA
- Contract expires in FY22
 - Single-year options for FY23 & FY24

- The main drivers are customer demand, policy changes, and vendor management
- Contracts with multiple service providers
- Extended service provider transition and delay in new software hurt productivity in FY19
 - Service provider procurement ongoing for implementation in FY21

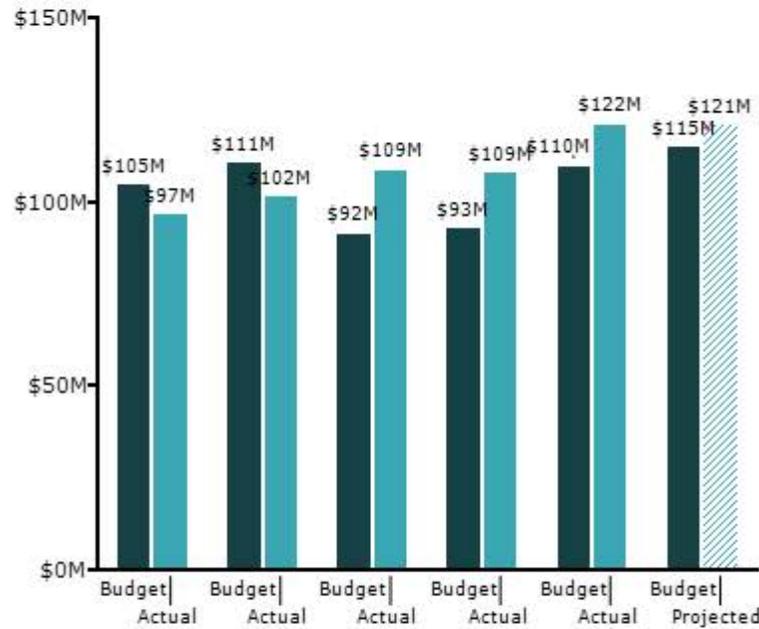
- Current contract expires June 30th, 2023
- Current contract was signed in Spring of FY19

Purchased Services Expenses vs. Budget

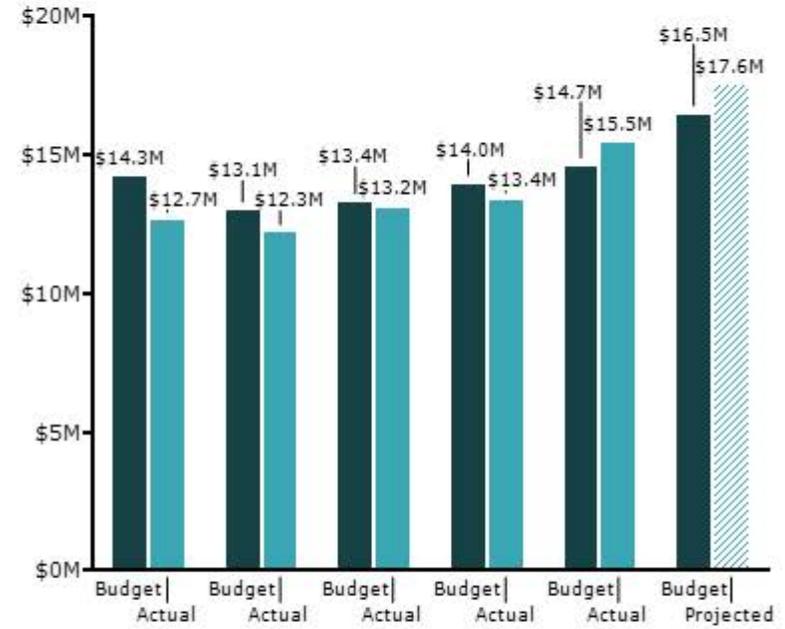
Purchased Commuter Rail Expenses



The RIDE



Ferry



Fiscal Year	FY15	FY16	FY17	FY18	FY19	FY20
Variance	\$13M	\$2M	\$4M	\$1M	\$1M	\$2M

Fiscal Year	FY15	FY16	FY17	FY18	FY19	FY20
Variance	\$8M	\$9M	\$17M	\$15M	\$11M	\$6M

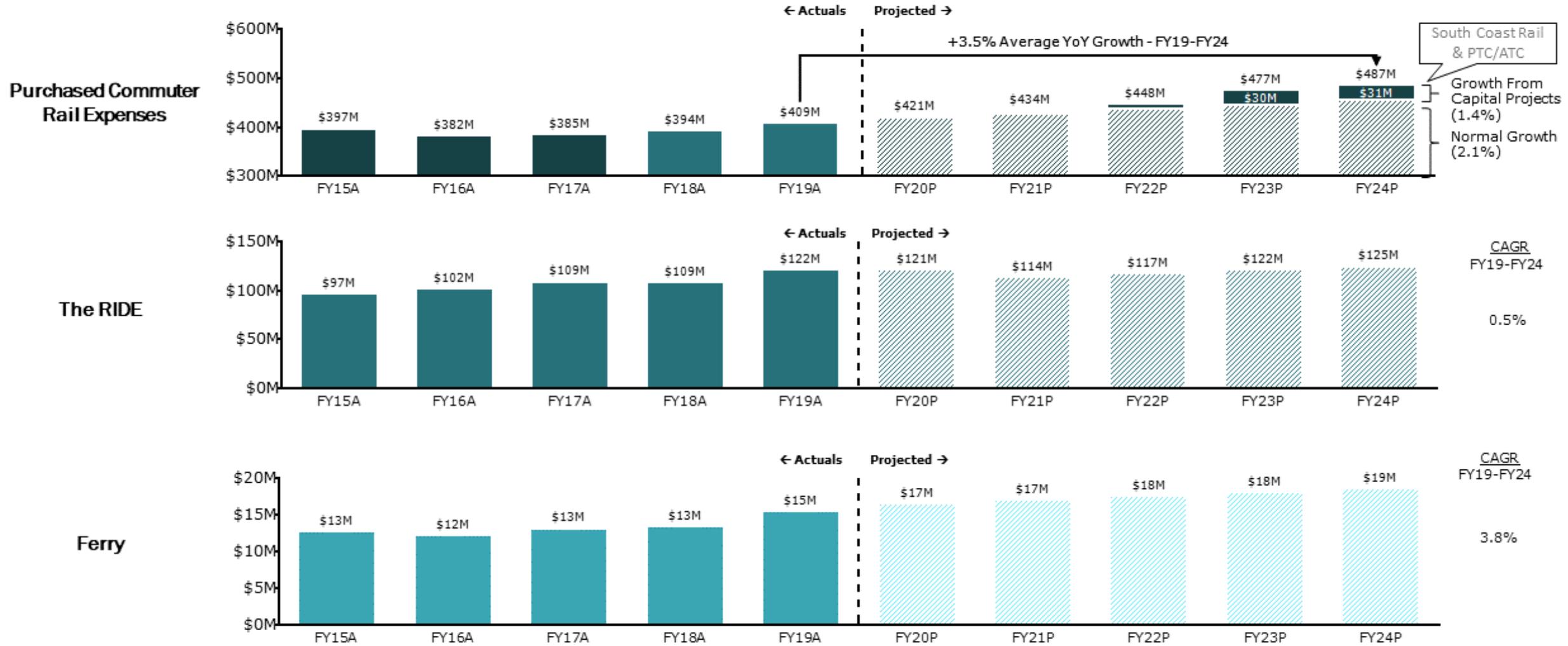
Fiscal Year	FY15	FY16	FY17	FY18	FY19	FY20
Variance	\$1.6M	\$0.8M	\$0.2M	\$0.6M	\$0.8M	\$1.1M

➤ FY20P based on Q1 actuals (\$104.9M).

- Weather was a mitigating factor in FY15
- Aggressive cost savings targets from FY17 - FY19
- FY20P based on Q1 actuals (\$30.3M)

➤ FY20P based on Q1 actuals (\$4.4M).

Purchased Commuter Rail Expenses Expected to Increase with Capital Projects

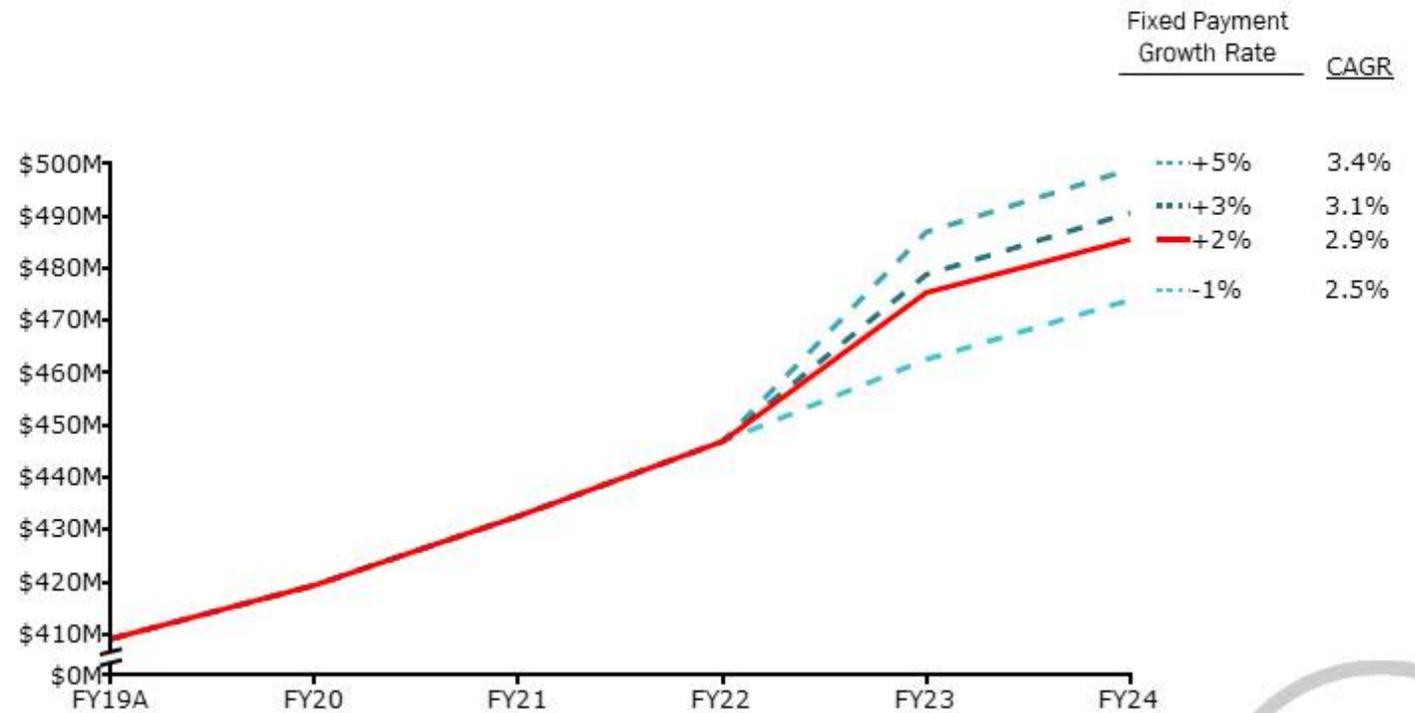


Commuter Rail Cost Sensitivity Analysis

Sensitivity Analysis

- The Commuter Rail payment has 4 components
 - Fixed Payment
 - Fuel
 - Extra Work & Services
 - PRIAA
- The current 2% growth rate is based on contracted increases (Fixed Price), historical extra work & services inflation rates, and National Fuel Price Projections
- One Variable was examined for this analysis: change in Fixed Rate Growth after contract expires at end of FY22
 - +2% Fixed Rate Growth (Current Trajectory)
 - -1% Fixed Rate Growth
 - cumulative difference in expenses (FY23-FY24): **+\$24.4M**
 - +3% Fixed Rate Growth
 - cumulative difference in expenses (FY23-FY24): **-\$8.5M**
 - +5% Fixed Rate Growth
 - cumulative difference in expenses (FY23-FY24): **-\$25.0M**

Fixed Payment Sensitivity Analysis
 South Coast Rail, PTC/ATC, and Contract Changes happen in FY23



The RIDE Sensitivity Analysis

Sensitivity Analysis

- Capital projects not expected to have a significant impact on the RIDE
- Demand, policy changes, and vendor management are the main drivers

Scenarios

➤ Current Trajectory

- Demand/Population Growth: 2% per year
- Modest productivity improvements due to new scheduling software (1.16 in FY20; 1.26 FY21 – FY25)
- DSP New Contract Date: Apr 1, 2020
- Moderate ramp-up of NDSPs (1% today; 14% by 2025)
- Modest success in shifting customers to fixed route / feeder service (2.5% of trips)

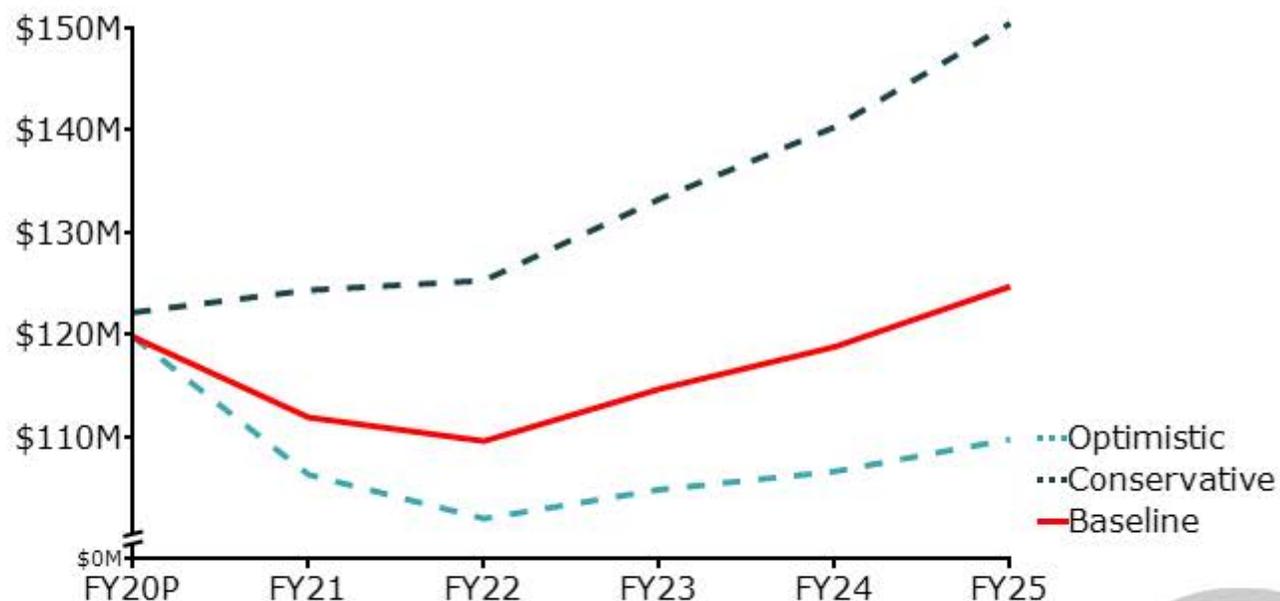
➤ Optimistic

- Demand/Population Growth: 0% per year
- Strong productivity improvements due to new scheduling software (1.16 in FY20; 1.30 FY21 – FY25).
- DSP New Contract Date: Apr 1, 2020
- Rapid ramp-up of NDSPs (21% by 2025)
- Modest success in shifting customers to fixed route / feeder service (2.5% of trips)
- Cumulative difference in expenses (FY21-FY25): +\$50.12M

➤ Conservative Trajectory

- Demand/Population Growth: 4% per year
- No productivity improvements due to new scheduling software (1.14 for all fiscal years)
- DSP New Contract Date: July 1, 2020
- Very slow adoption of NDSPs (9% by 2025);
- No success in shifting customers to fixed route / feeder service
- Cumulative difference in expenses (FY21-FY25): -\$96.3M

The RIDE Sensitivity Analysis

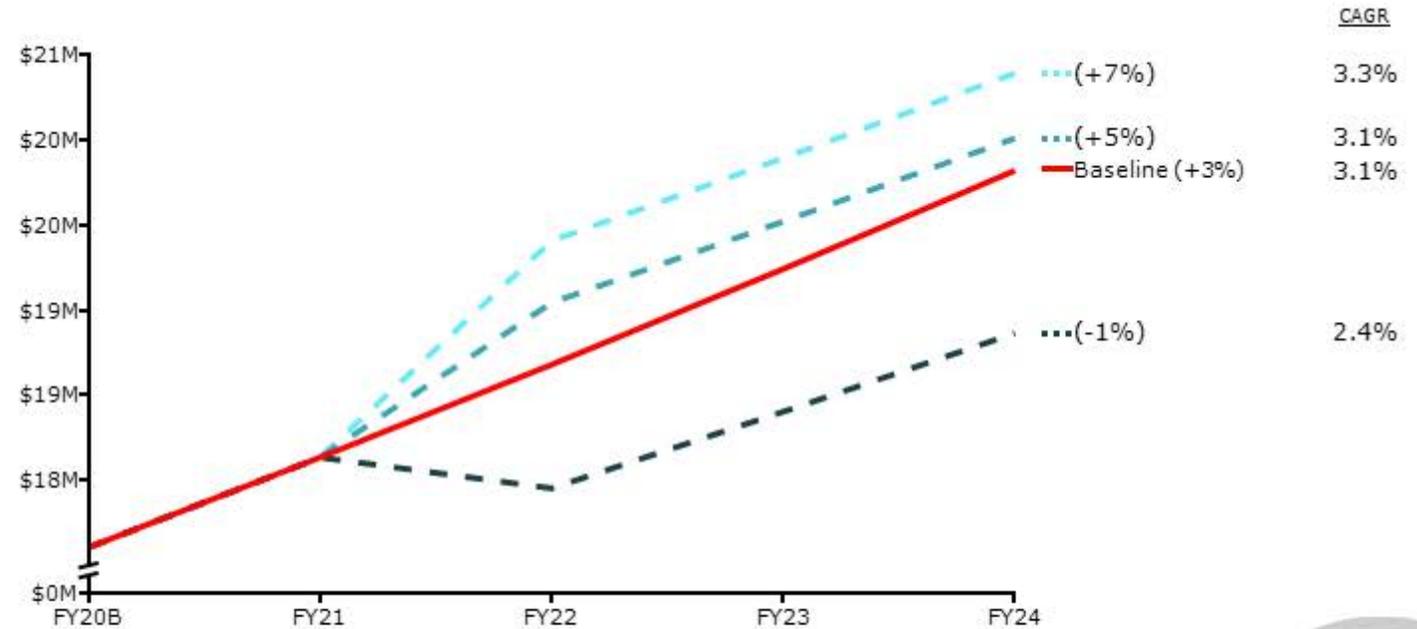


Ferry Sensitivity Analysis

Sensitivity Analysis

- Contract expires June 30th, 2023
- Baseline scenario assumes 3.0% p.a. growth
- Sensitivity analysis evaluates 3 alternative scenarios about FY22 contract growth vs. FY21
 - -1.0%
 - cumulative difference in expenses (FY22-FY28): +\$2.5
 - +5.0%
 - cumulative difference in expenses (FY22-FY28): -\$0.8M
 - +7.0%
 - cumulative difference in expenses (FY22-FY28): -\$2.0M
- All 3 scenarios assume 2.5% p.a. growth in subsequent years

Ferry Sensitivity Analysis



Materials, Supplies, and Services

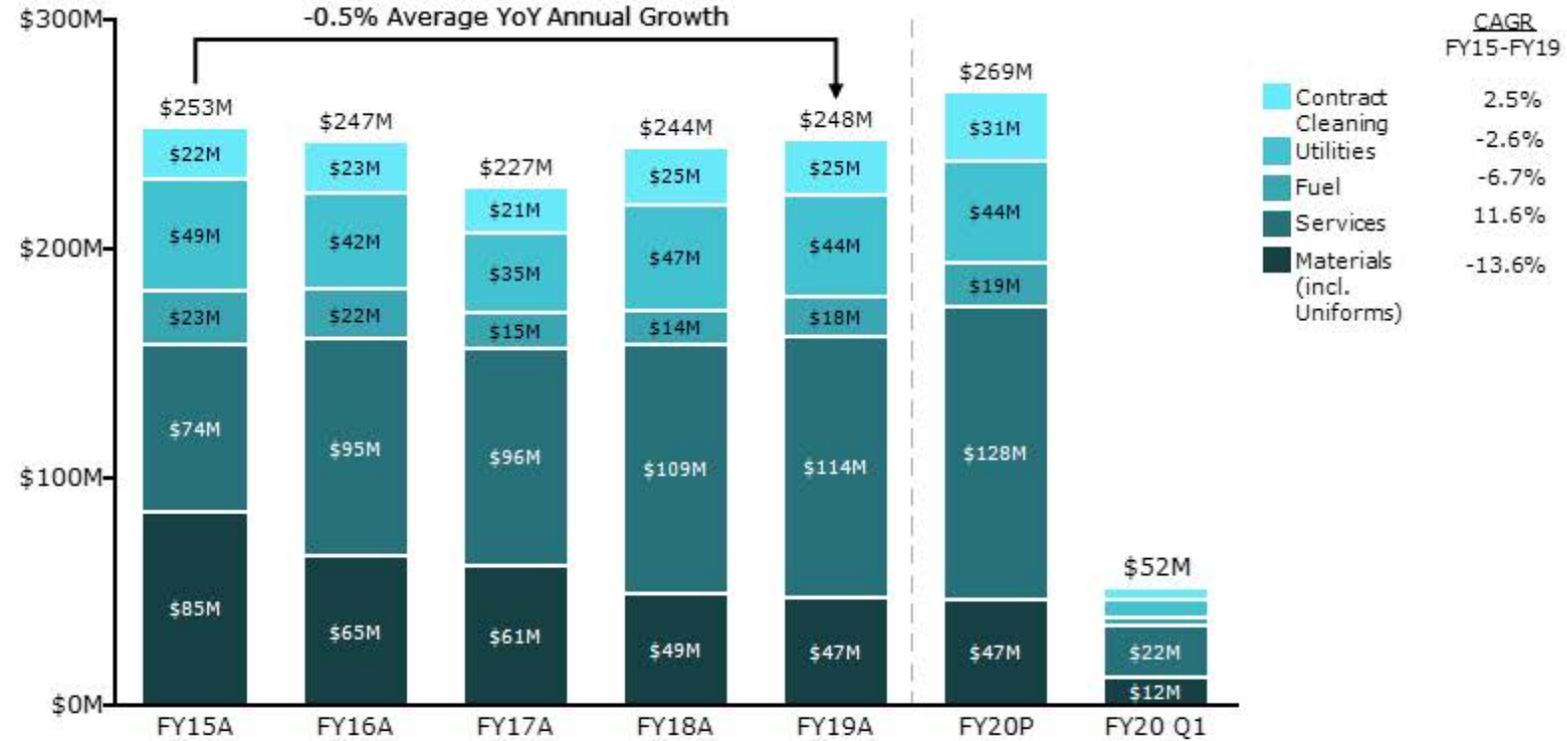


Historical M&S Expenses

Materials, Supplies, and Services

Historical

- Achieved fuel and utilities cost savings by securing long-term electricity rates and hedging commodity exposure.
- Controlled growth of cleaning contract through improved contract enforcement and utilizing performance-based contracts.
- Growth in services driven by professional services
- Materials cost reductions achieved by:
 - Maintenance supplies significantly lower in FY16 (\$20M) vs FY15 (\$43); ~\$35M+ from FY17-FY19
 - ~\$20M reduction in Equipment costs between FY15-FY19



Growth vs. Previous Year

Growth by Line Item

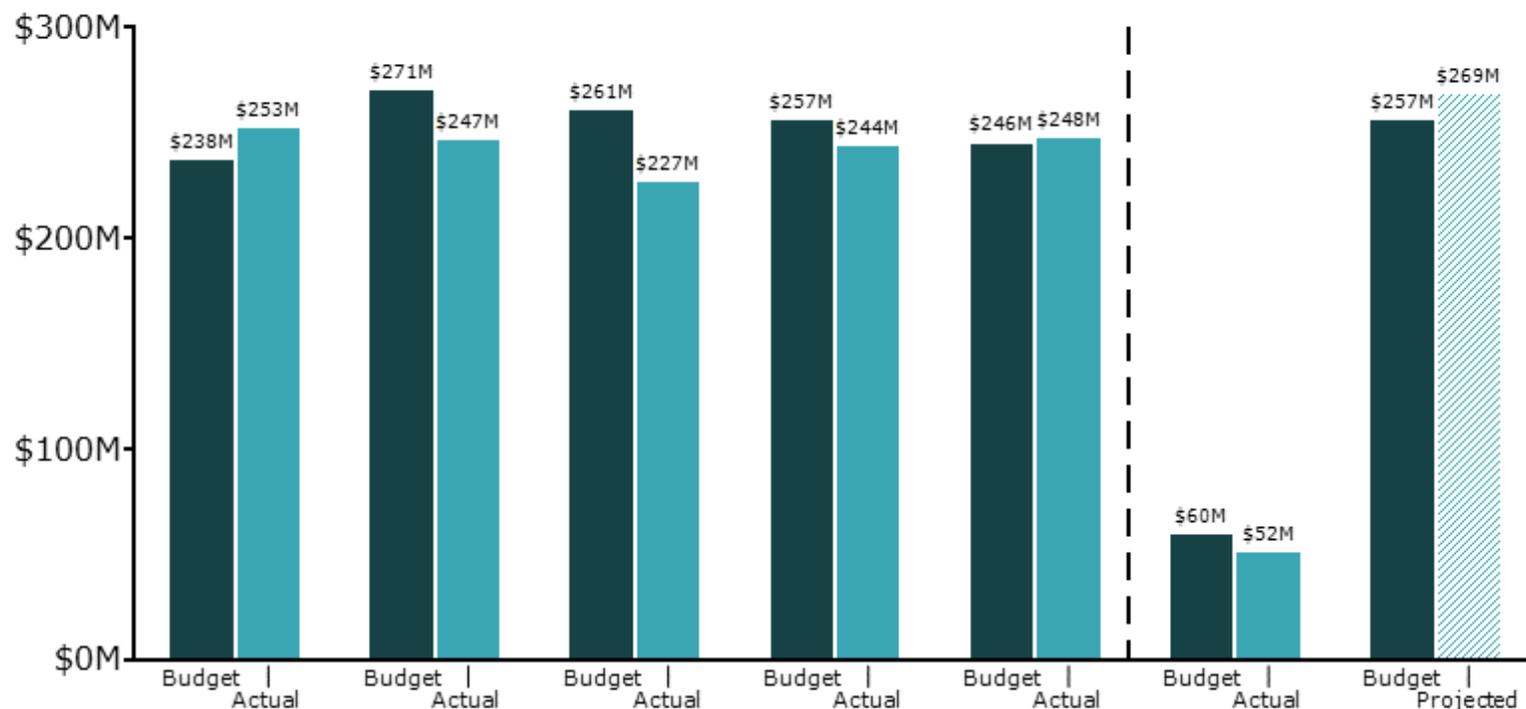
	FY16A	FY17A	FY18A	FY19A
Materials (incl. Uniforms)	-\$20M	-\$4M	-\$12M	-\$2M
Services	+\$22M	+\$0M	+\$14M	+\$5M
Fuel	-\$2M	-\$7M	-\$1M	+\$3M
Utilities	-\$7M	-\$7M	+\$11M	-\$3M
Contract Cleaning	\$0M	-\$2M	+\$5M	\$0M



M&S Expenses vs. Budget

Historical & FY20

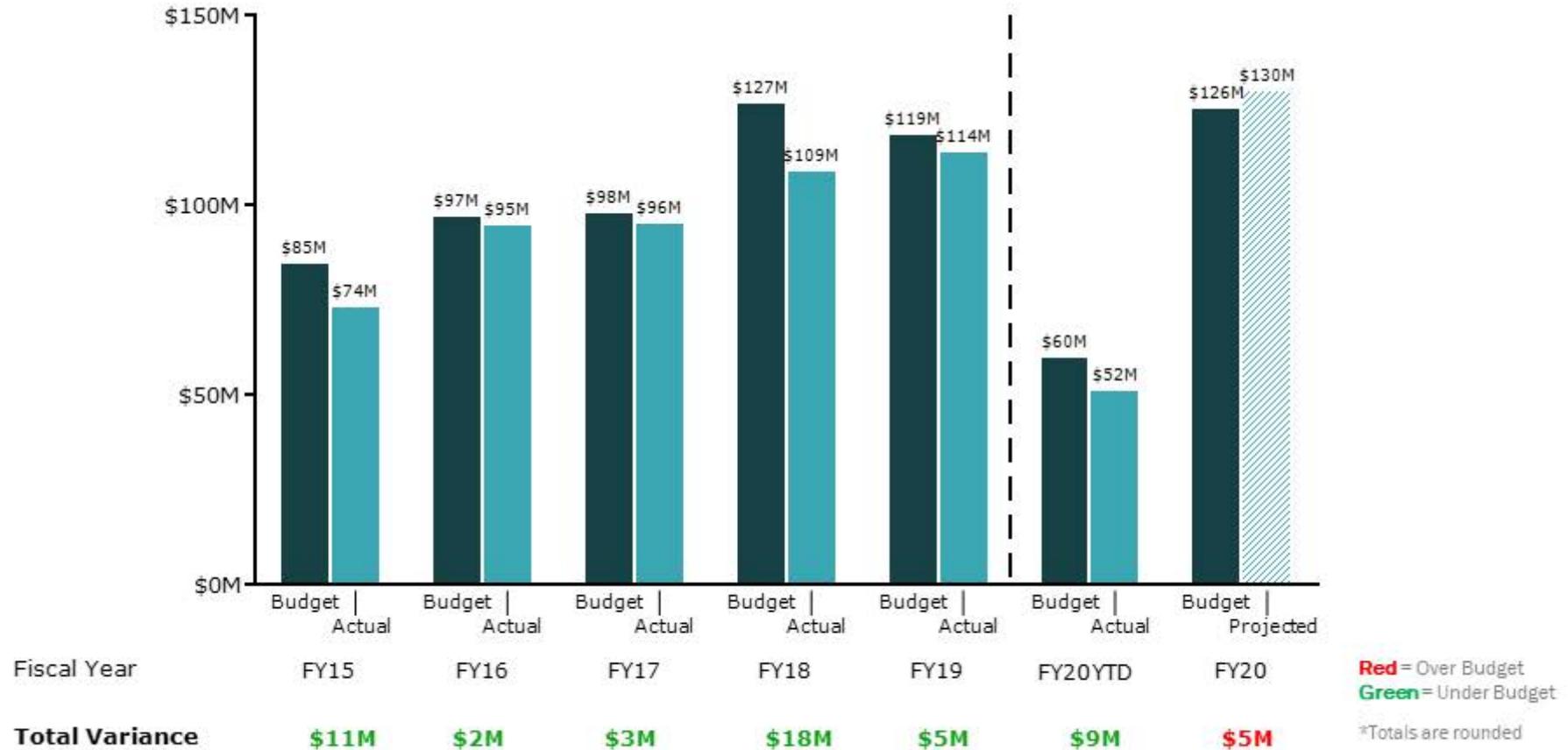
- Years with prolonged inclement weather result in increased M&S spending
- FY20P based projected to surpass budget due to various factors:
 - \$4.5M Prof. Services risk
 - \$1.5M Risk Insurance - new initiative
 - \$1.0M Tree Removal (TFM - Northern Tree) - new regulations + messed up PO
 - \$1.0M NECC Commuter Rail Cost Sharing - Bill for FY20 came after FY20 budget creation
 - \$1.0M CTD Initiatives - multiple smaller contracts
 - \$4M fuel hedge and diesel price variability
 - \$5M electricity cost risk



Fiscal Year	FY15	FY16	FY17	FY18	FY19	FY20 YTD	FY20
Total Variance	-\$15M	\$24M	\$34M	\$13M	-\$2M	\$9M	-\$12M
<i>Variance by Line Item</i>							
Materials (incl. uniforms)	-\$25M	\$4M	\$9M	\$0M	\$0M	-\$1M	-\$1M
Services	\$11M	\$2M	\$3M	\$18M	\$5M	\$8M	-\$2M
Fuel	\$2M	\$4M	\$5M	\$3M	-\$3M	-\$1M	-\$4M
Utilities	\$0M	\$11M	\$13M	-\$7M	-\$4M	\$1M	-\$3M
Contract Cleaning	-\$4M	\$3M	\$4M	-\$1M	-\$1M	\$0M	\$30M

Historical Services Spending

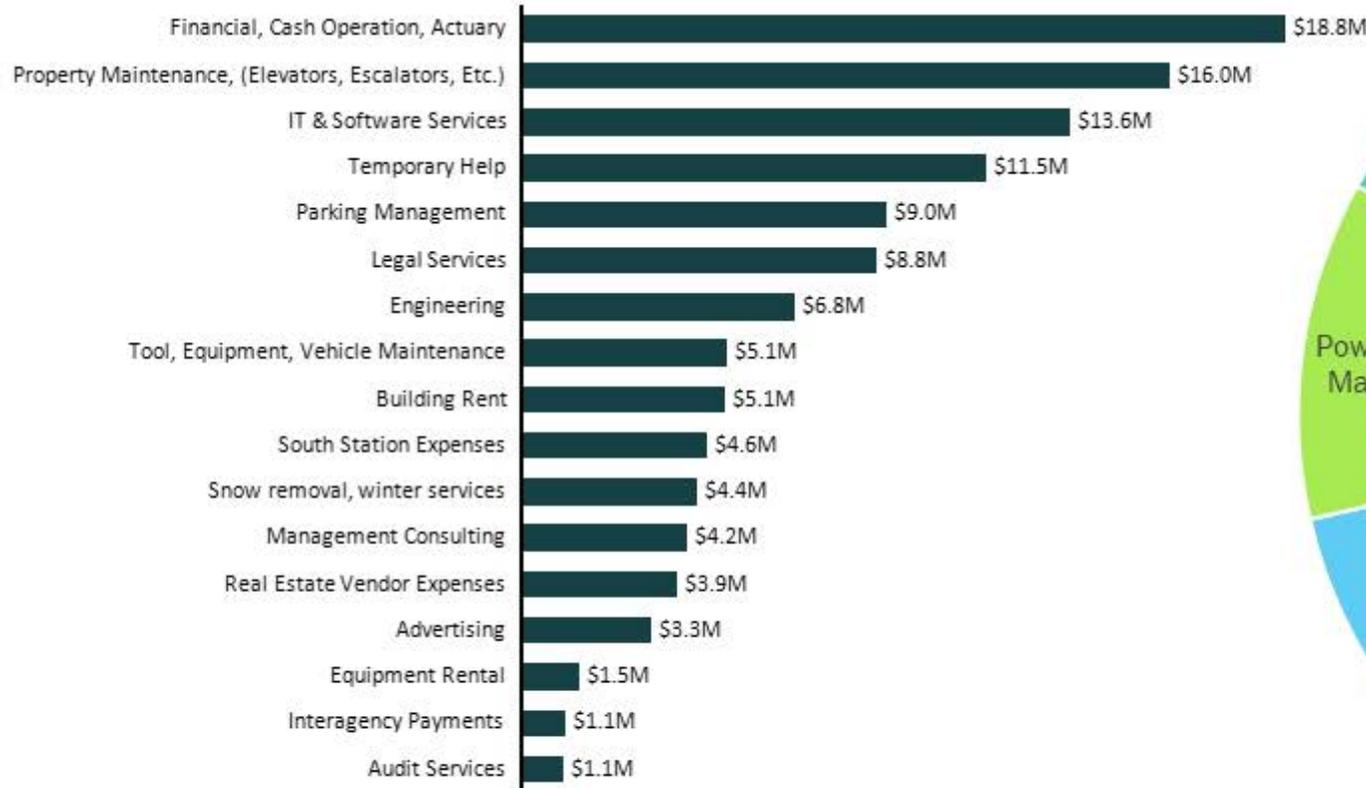
Historical Services spending has finished below budget
However, significant risks exist in FY20



Services Spending Department Distributions

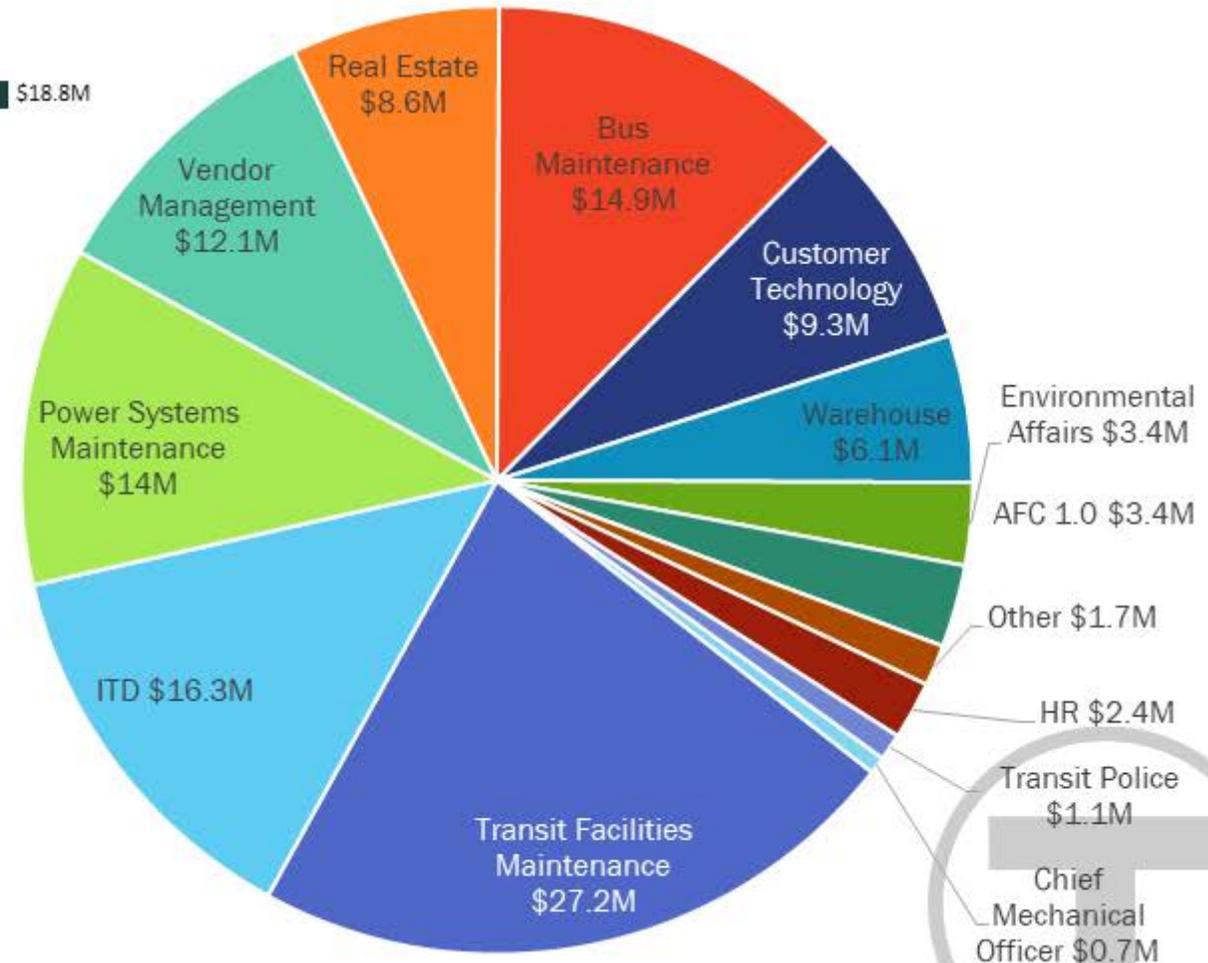
FY20 Services Expenses Budget by Line Item

The following categories make up 95% of Services Spending



FY20 Services Expenses Budget By Department

The following departments make up 95% of Services Spending



Historical M&S Expenses – Services Breakout

Historical

- 5-year Average YoY Growth: 11.6%
- Notable items:
 - Winter services grew from ~\$200k in FY16 (first year included) to ~\$5M in FY18/FY19
 - Parking management (\$9.1M) shows up for first time in FY19
 - South Station expense (~\$4M) shows up for first time in FY18
 - Real Estate vendor expense (~\$3M) shows up for first time in FY18
 - +24% CAGR for Professional Services
 - +9% CAGR for Tech & Logistical Services
 - -21% CAGR for Vehicle & Equipment Rental/Repair/Maintenance
- Professional Services include:
 - Consulting (5-year average: 38% share of prof. services)
 - Legal Services (23%)
 - Financial/Actuary (16%)
 - Engineering (14%)
 - Other Professional Services (4%)
 - Advertising (2%)
 - Audits (2%)
 - Labor Negotiation and Arbitration (1%)
 - Medical Services (<1%)
 - Translation (<1%)

Materials, Supplies, and Services Services Breakout



M&S Expenses Expected to Increase with Initiatives



Annual Growth Rate Equation	
1.9%	Underlying Growth
+3.9%	Capital Project Impact
5.8%	Total Annual Growth Rate

Overall CAGR FY19-FY24 **5.8%**

Contract Cleaning	7.9%
Utilities	-0.3%
Fuel	2.5%
Services	4.8%
Materials (incl. Uniforms)	3.4%

Net Impact of Capital Projects

Materials (incl. uniforms)									
Services									
Fuel									
Utilities									
Contract Cleaning									

*Totals are rounded



MBTA Procurement and Vendor Management

Procurement Challenges

- Outdated or old infrastructure must be fixed. Limits potential vendors and “can’t buy Off the Rack/Standardized Equipment”:
 - Creating high number of Single and Sole Source Procurements
- Expanding scope of services meeting updated or new requirements
- Limits wanting to conduct business with MBTA:
 - Contract scope specifications can be over-detailed and cumbersome to review
 - Liability and Risk to vendors limits the pool vendors wanting to do with MBTA
- Regulatory Compliance such as for capital procurements meeting 30 39M
- Expanding/upgrading from old to new technology and equipment, e.g. FMIS

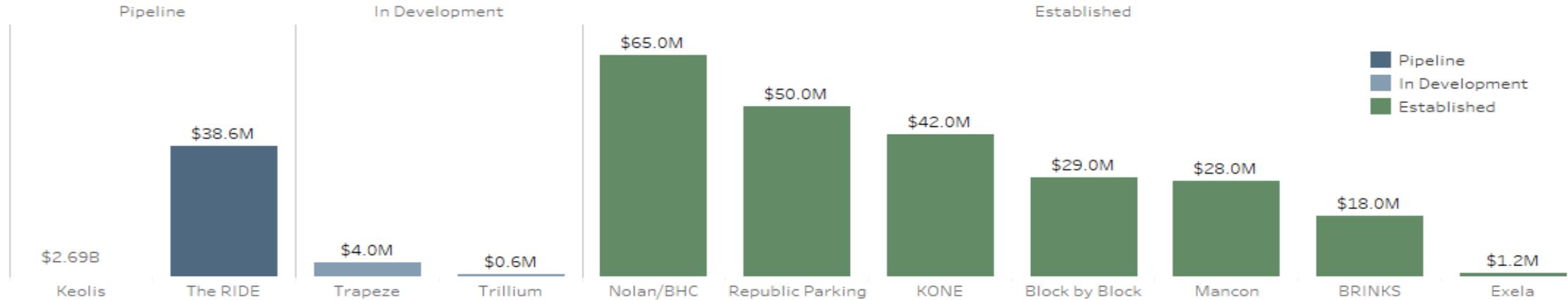
Procurement Strategy

- Procurement must be more value-driven in delivering broader services, not just focused on cost reduction, with ability to provide better business contracts, contract management, cost innovation and process with agility and speed
- Leverage internal and external sources to measure vendor contract performance through Vendor Management program
- Increase collaboration with MBTA divisions on scope development, Key Performance Indicators and Service Level Agreements.
- Develop proactive view and review for contract expirations
- Build stronger supplier market place foundation including more proactive reach out versus reactive
- Drive contract scalability for smaller procurements \$50k less where 95% of purchase orders created
- Continue drive down procurement life cycle time



FY20 MBTA Vendor Management: October 2019

Vendor Management On-Boarding Status/Contract Value \$



Vendor Management Strategic Vendors

Vendor	Service	Base Contract	Options	Total Years w/Opt	Notes	Contract Value \$
Keolis	Commuter Rail	4 Years	2/2 Year Opt	8 Years	Currently in year 5	\$2,690.0M
Nolan/BHC	Ferry Service	4 Years 7 Mos	2/1 Year Opt	7 Years	Currently in year 2	\$65.0M
Republic Parking	Garage and Parking Lot Maintenance	5 Years	2/5 Year Opt	15 Years	Currently in year 2	\$50.0M
KONE	Elevator/Escalator Maintenance	5 Years		5 Years	Currently in Year 3	\$42.0M
The RIDE	Door-to-Door Paratransit Service					\$38.6M
Block by Block	In-Station Customer Service	1 Year	3/1 Year Opt	4 Years	Currently in Year 3	\$29.0M
Mancon	Warehousing and Logistics	5 Years	2/2 Year Opt	9 Years	Currently in Year 2	\$28.0M
BRINKS	Fare Revenue Cash Collection	3 Years	2/1 Year Opt	5 Years	Currently in Year 4	\$18.0M
Trapeze	Transit Master Software Solutions					\$4.0M
Exela	Customer Call Center	3 Years	2/1 Year Opt	5 Years	Currently in Year 2	\$1.2M
Trillium	CNG Equipment Maintenance					\$0.6M
Total						\$2,966.4M

Next Steps

- Present comprehensive 5 year pro forma in January 2020
- Continue refining pro forma assumptions as part of the overall FY20 & FY21 budget process
- Provide budget update and impact of FY20 initiatives in December 2019
- Safety Panel recommendations are forthcoming; impact TBD
- Overall capital impact beyond expansion projects need to be reviewed

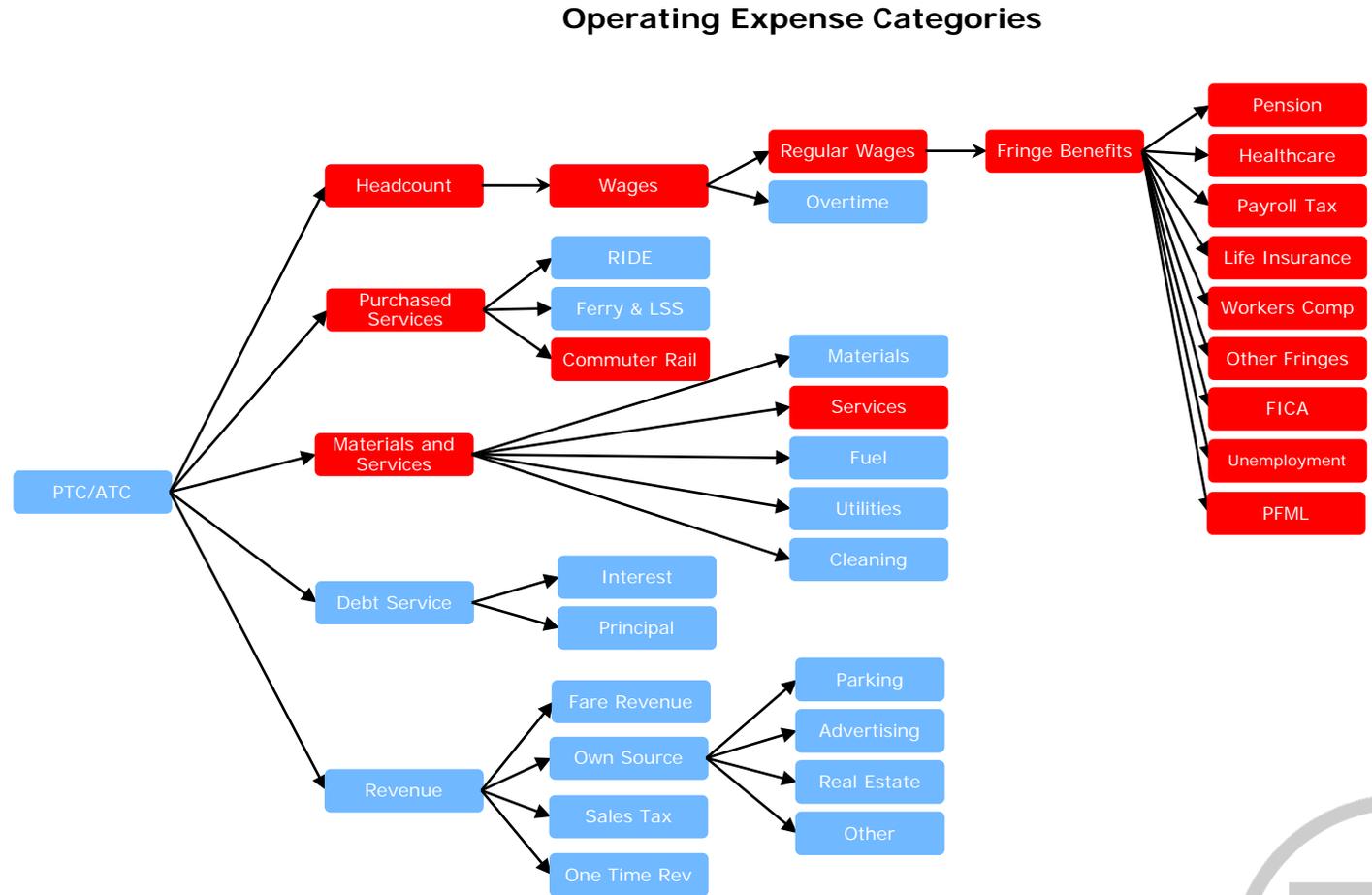


Appendix



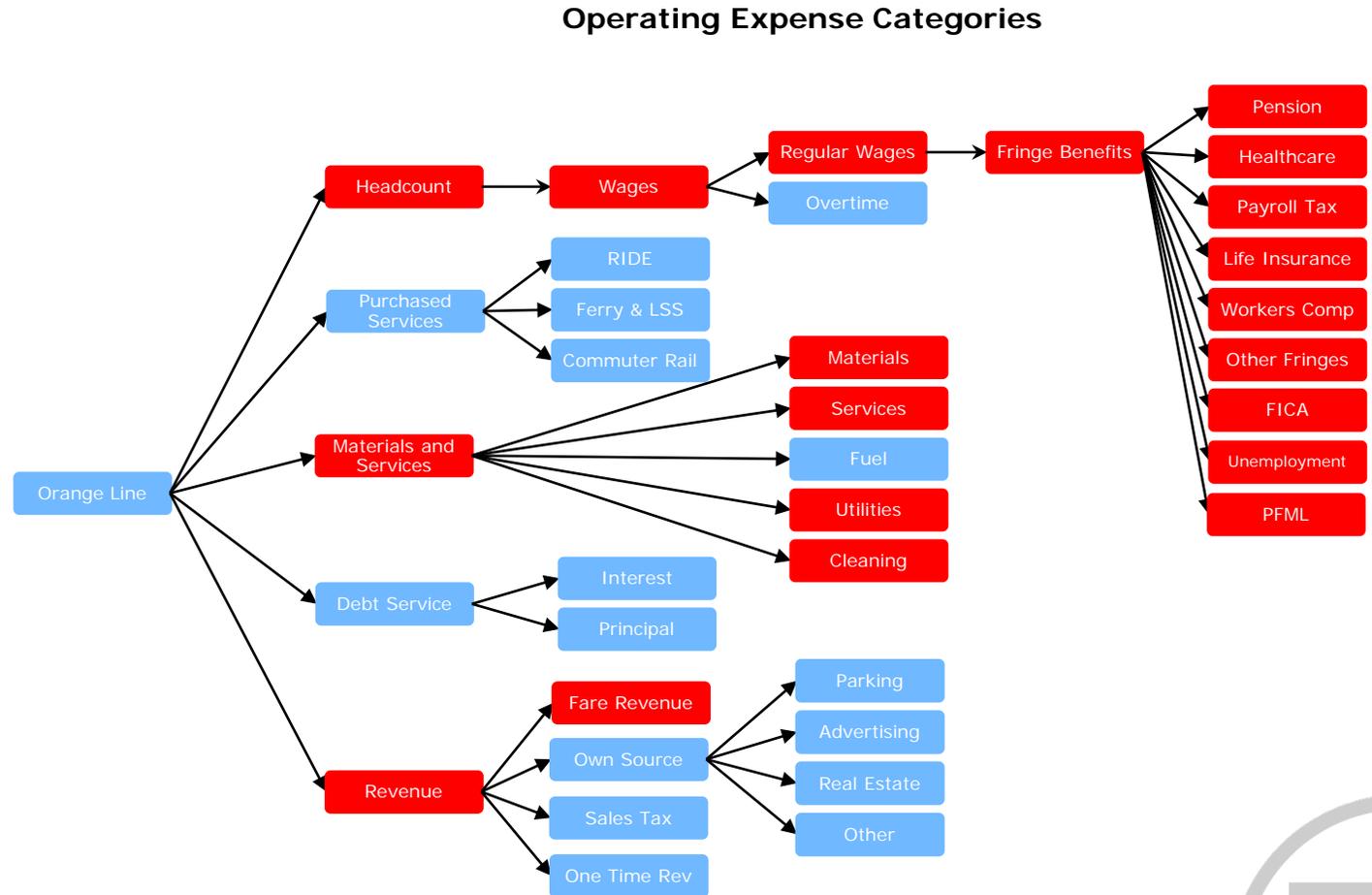
PTC/ATC Operating Expense Assumptions

Project Goals	Assumed Quantifiable Impacts
<ul style="list-style-type: none"> ➤ Improves safety on commuter rail, reducing the risk of human error ➤ Adheres to federal train safety standards <ul style="list-style-type: none"> ➤ Complete deployment mandated by December 31, 2020 	<ul style="list-style-type: none"> ➤ Headcount: 3 new MBTA Railroad Operations staff ➤ Third-party management fees for system maintenance <ul style="list-style-type: none"> ➤ Rolling stock <ul style="list-style-type: none"> ➤ Daily departure inspections of 179 cars ➤ Communication systems <ul style="list-style-type: none"> ➤ 320 miles of fiber/cables ➤ 174 communication towers and radio installations ➤ Wayside systems <ul style="list-style-type: none"> ➤ 2,400 transponders



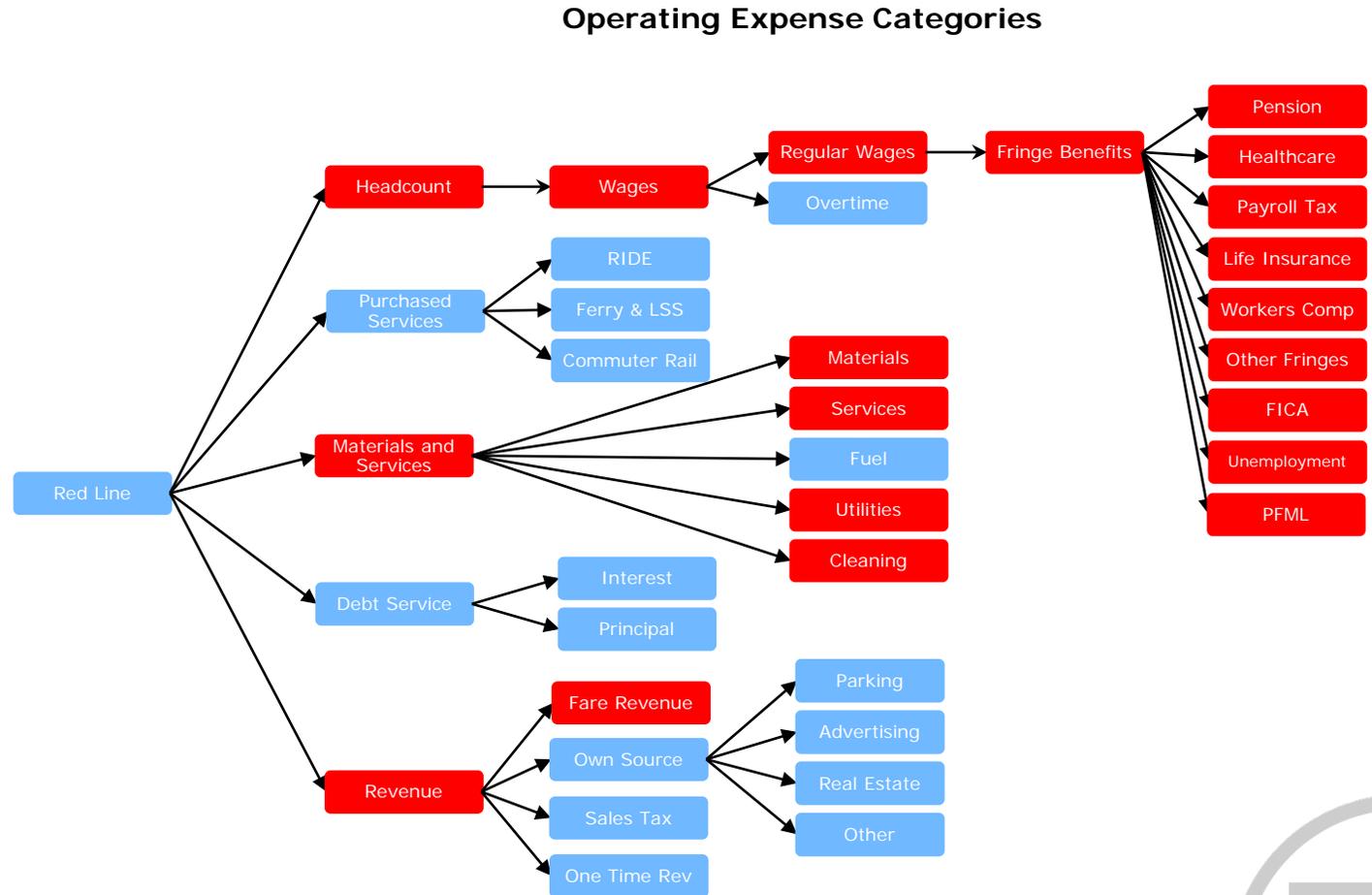
Orange Line Improvement Program Operating Expense Assumptions

Project Goals	Assumed Quantifiable Impacts
<ul style="list-style-type: none"> ➤ Reduces headways during peak from 6 mins to 4.5 mins ➤ Increases peak ridership <i>capacity</i> by 40% (30,000 daily) ➤ Increases fleet by 32 cars, from 120 to 152 ➤ Improves safety and reliability 	<ul style="list-style-type: none"> ➤ 11 identified new Transportation staff (Motorpersons) ➤ 1 identified new Rail Maintenance staff (data analytics on new cars) ➤ 10 identified new System Maintenance staff ➤ Additional overtime costs during transition period with both new and old cars ➤ More costly materials for new cars ➤ Electricity usage savings with more efficient new cars ➤ Security camera and IT maintenance costs



Red Line Improvement Program Operating Expense Assumptions

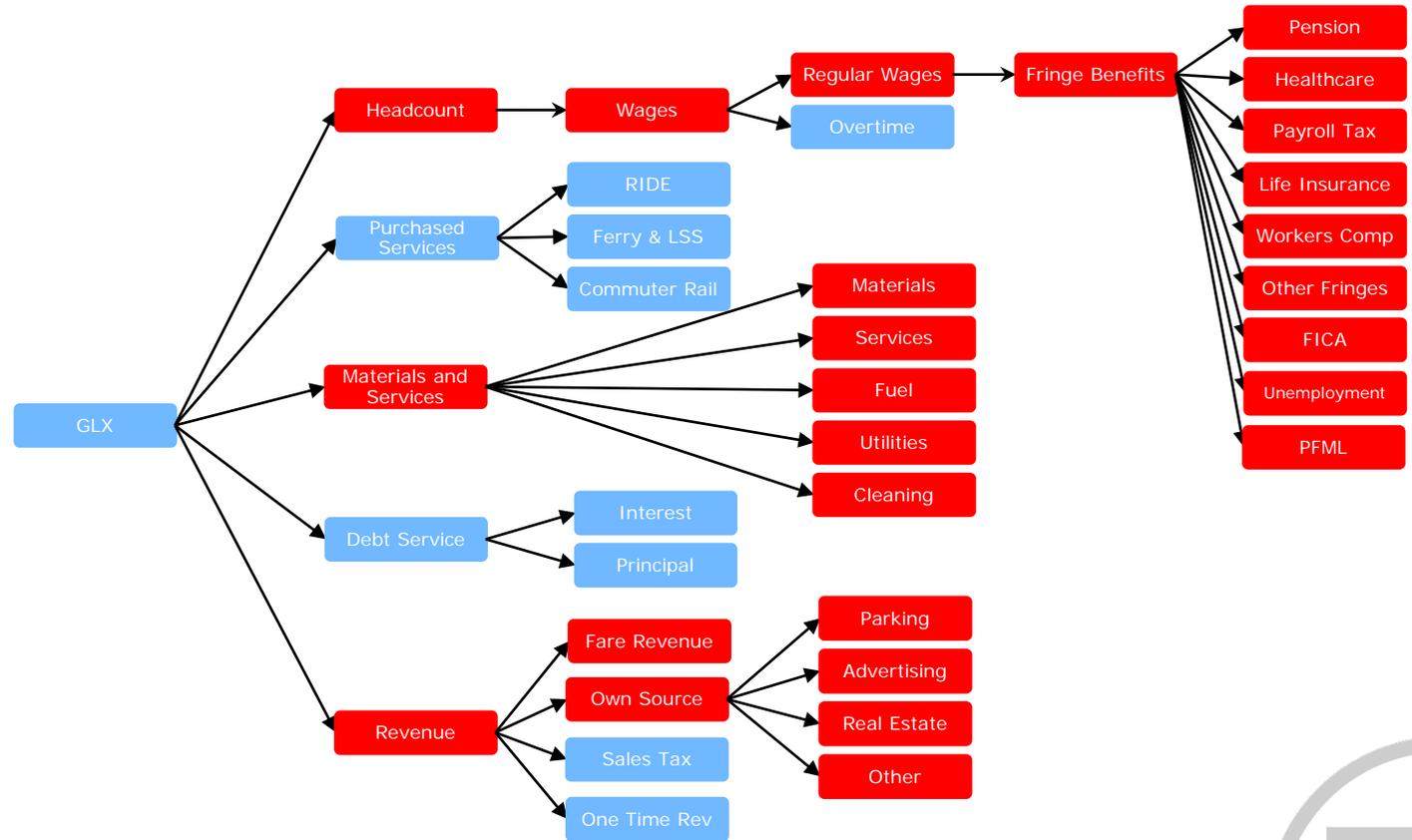
Project Goals	Assumed Quantifiable Impacts
<ul style="list-style-type: none"> ➤ Reduces headways during peak from 4.5 mins to 3 mins ➤ Increases peak ridership <i>capacity</i> by 50% (65,000 daily) ➤ Increases fleet by 34 cars, from 218 to 252 ➤ Improves safety and reliability 	<ul style="list-style-type: none"> ➤ 11 identified new Transportation staff (Motorpersons) ➤ 1 identified new Rail Maintenance staff (data analytics on new cars) ➤ 12 identified new System Maintenance staff ➤ Additional overtime costs during transition period with both new and old cars ➤ More costly materials for new cars ➤ Electricity usage savings with more efficient new cars ➤ Security camera and IT maintenance costs



GLX Operating Expense Assumptions

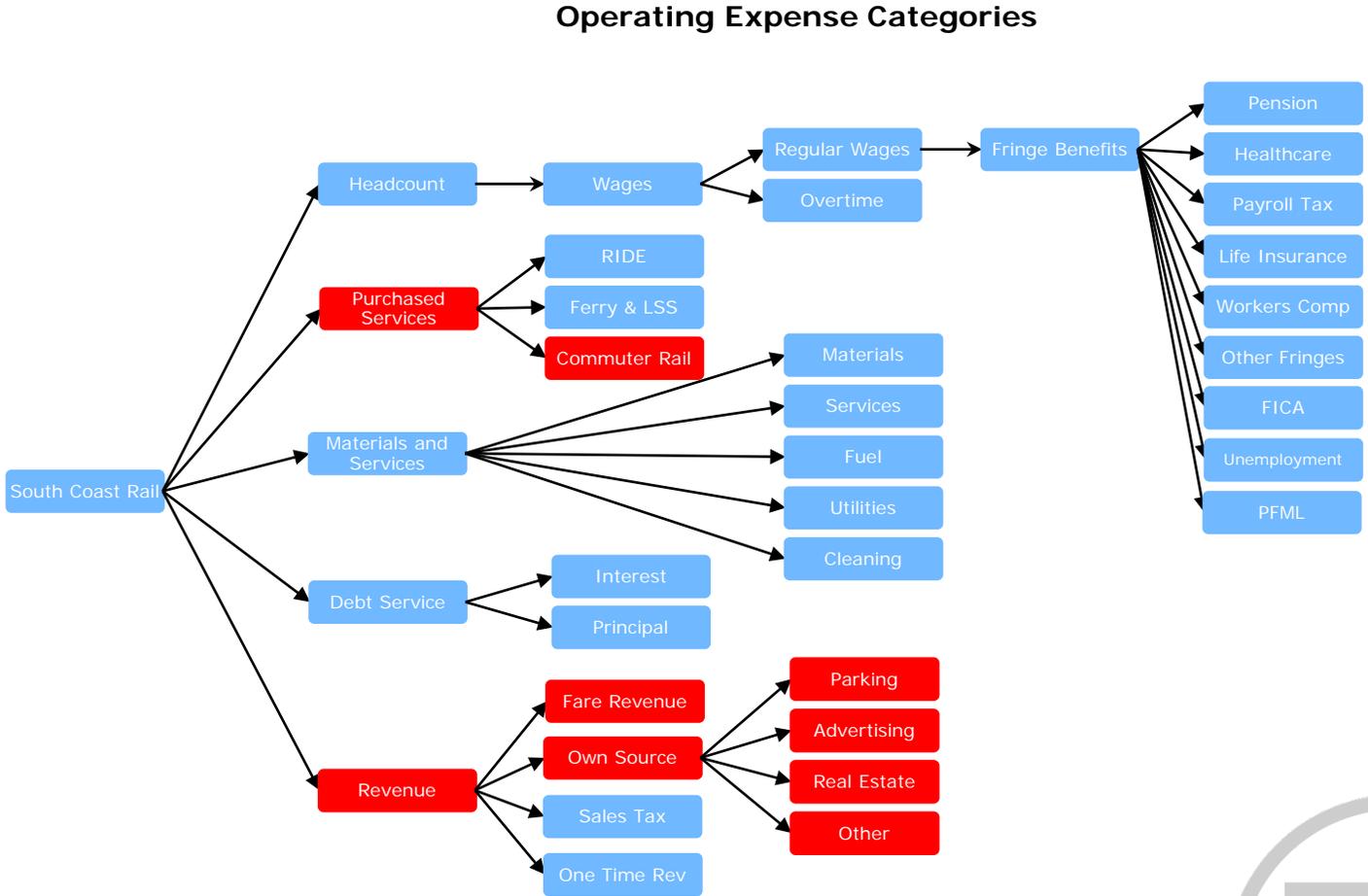
Project Goals	Assumed Quantifiable Impacts
<ul style="list-style-type: none"> Expands service to Somerville and Medford <ul style="list-style-type: none"> Serves communities with a combined population of 160,000 New vehicles to improve accessibility and reduce crowding Increase ridership by up to 50,000 passenger trips per day (25% increase) Projected to be operational in FY23 	<ul style="list-style-type: none"> 1 new maintenance facility 6 new stations 8 miles of new track 24 new vehicles <ul style="list-style-type: none"> assumes 19 additional vehicles in service at peak 48 identified new Transportation staff <ul style="list-style-type: none"> 20 Motorpersons 9 Inspectors 5 Yard Masters 5 Chief Inspectors 3 Instructors 3 Dispatchers 2 Supervisors 1 Superintendent 23 identified new Rail Maintenance staff 73 identified new System Maintenance staff <ul style="list-style-type: none"> 26 - MOW 19 - PSM 18 - SCM 10 - TFM

Operating Expense Categories



South Coast Rail Operating Expense Assumptions

Project Goals	Assumed Quantifiable Impacts
<ul style="list-style-type: none"> ➤ Extends commuter rail service (Middleborough/Lakeville line) to Taunton, Fall River, and New Bedford by end of 2023 ➤ Adds service to 9 existing stations and 6 new stations 	<ul style="list-style-type: none"> ➤ Third-party management fees <ul style="list-style-type: none"> ➤ Escalated to account for 48 new hires ➤ Operations at 6 new stations, including 2 layover and maintenance facilities ➤ Service Planning <ul style="list-style-type: none"> ➤ 26 trains daily in each direction for weekday service



AFC 2.0 Operating Expense Assumptions

Project Goals	Assumed Quantifiable Impacts
<ul style="list-style-type: none"> ➤ Improves fare collection efficiency ➤ Facilitates fare payment for customers with a standardized payment system ➤ Expedites boarding times across system by up to 10% <ul style="list-style-type: none"> ➤ e.g. allows all door boarding on Green Line and Buses 	<ul style="list-style-type: none"> ➤ Headcount: 80 new fare inspectors <ul style="list-style-type: none"> ➤ Inspection model requires revised legislation ➤ Administrative staff will be a blend of former AFC 1.0 and new AFC 2.0 hires <ul style="list-style-type: none"> ➤ AFC 1.0 technicians will transition to E&M ➤ Call Center: Expected increase in call volume (scope of potential need for more hires under review) ➤ Fare Revenue: Adjustment for new revenue collection model in first full year of operation (FY23)

