



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

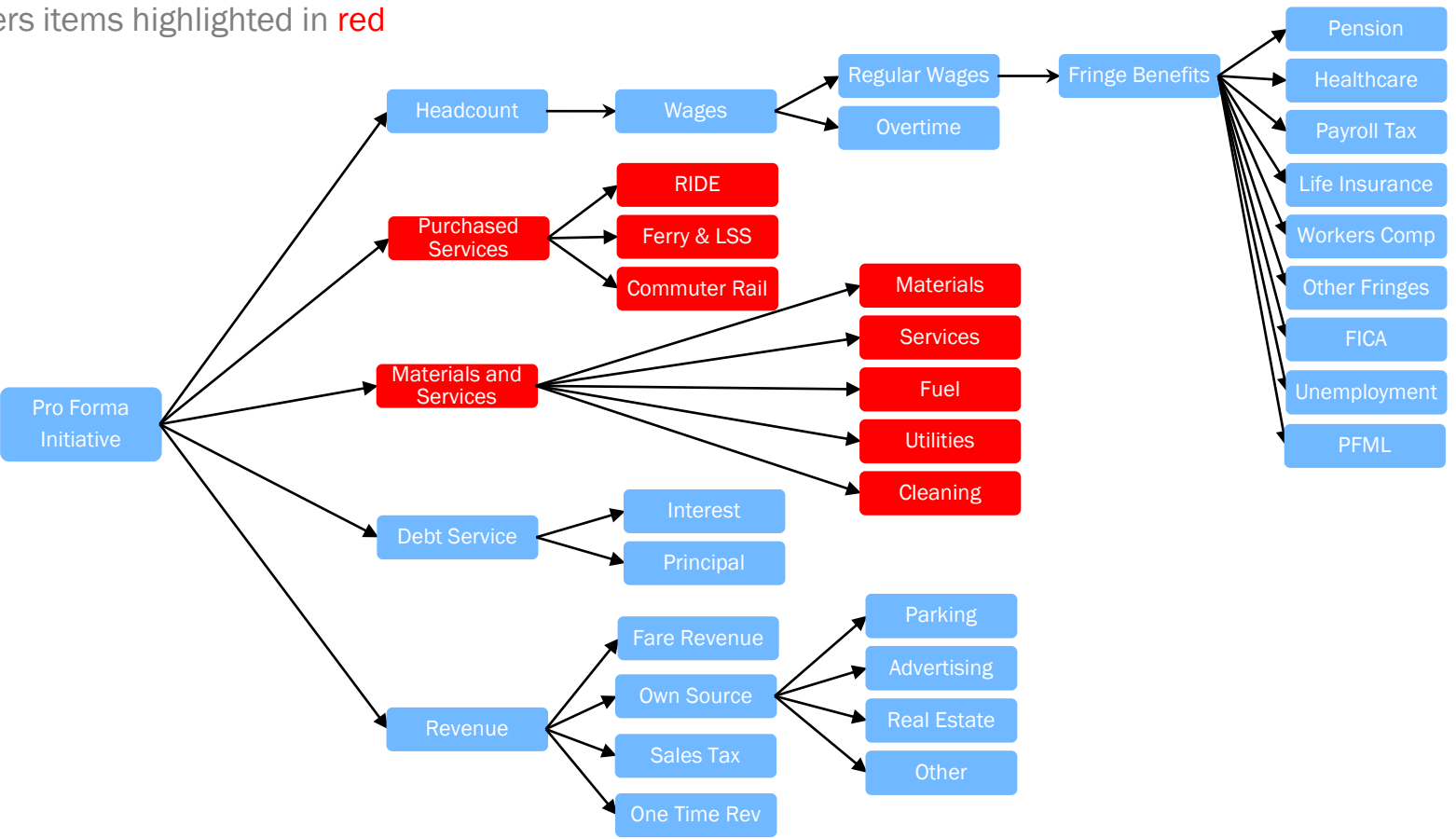
- **What is the pro forma?**
 - A 5-year financial model projecting FY20-FY24 operating budget.
 - A tool to inform priorities, help shape policy decisions and guide short and long term budget decisions.
 - Financial impact of initiatives and policy decisions are analyzed and incorporated into the pro 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

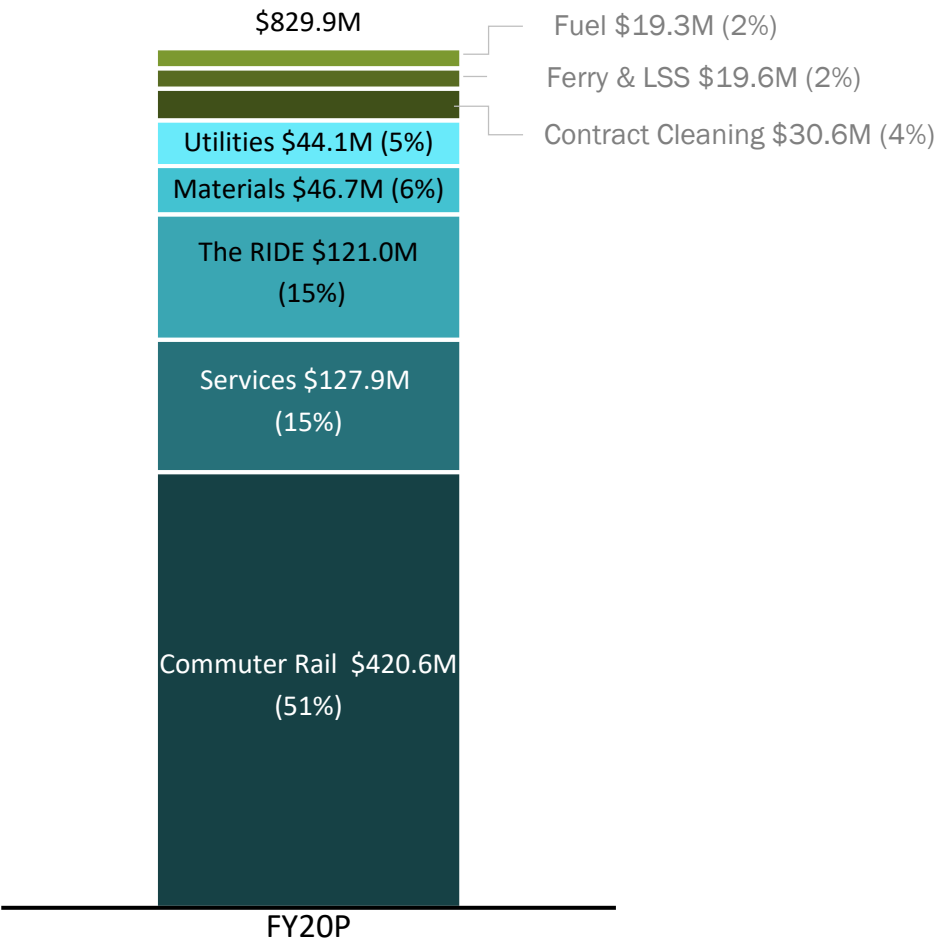
This deck covers items highlighted in red



Executive Summary

Materials & Services Expense Categories

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

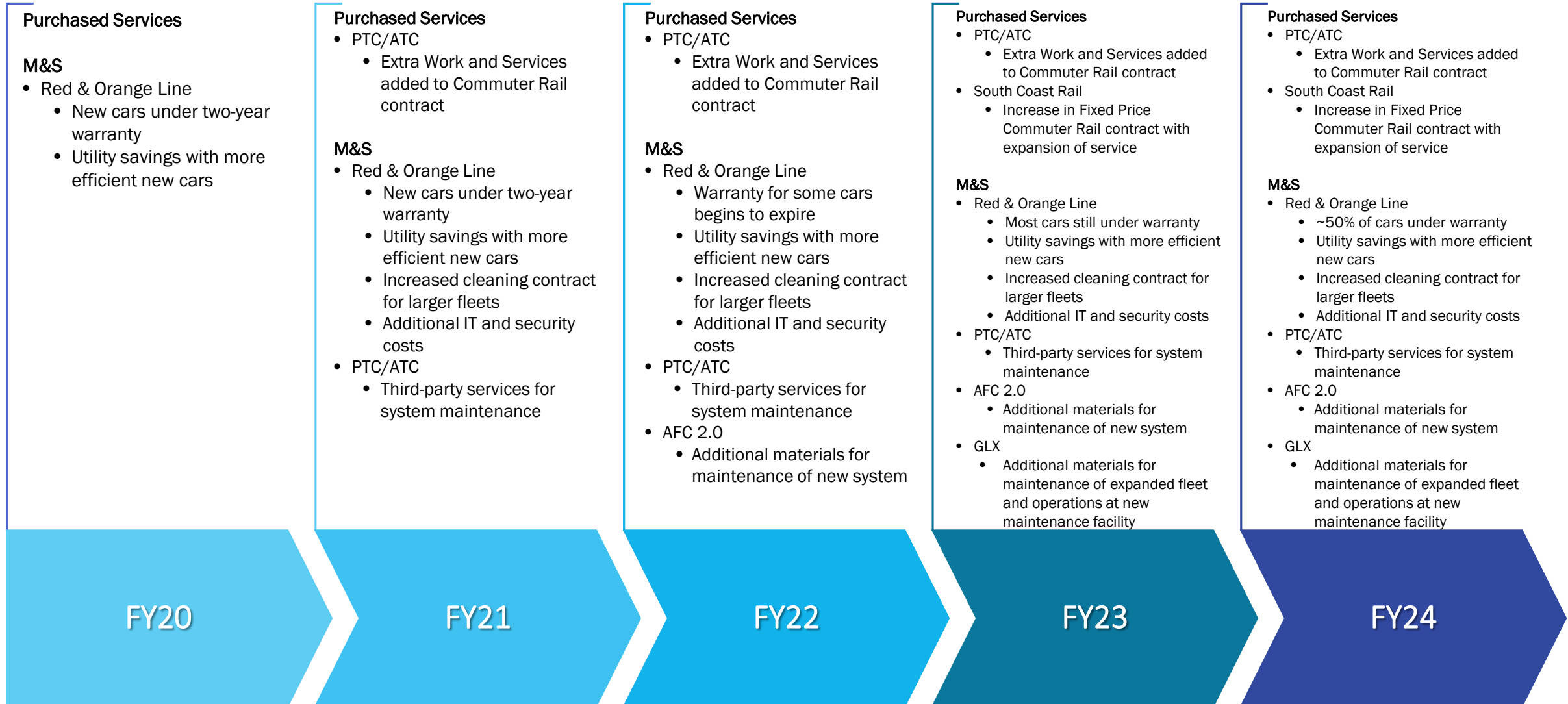


Growth Assumptions by Category

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

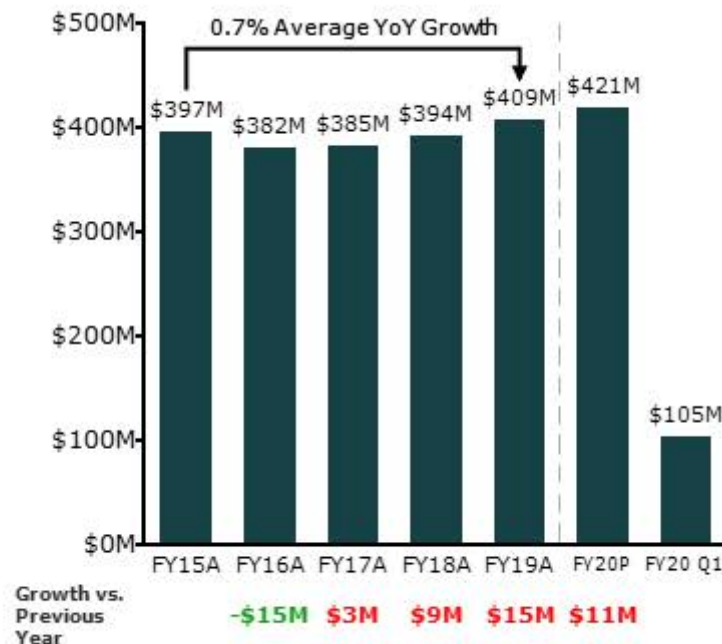


Purchased Services



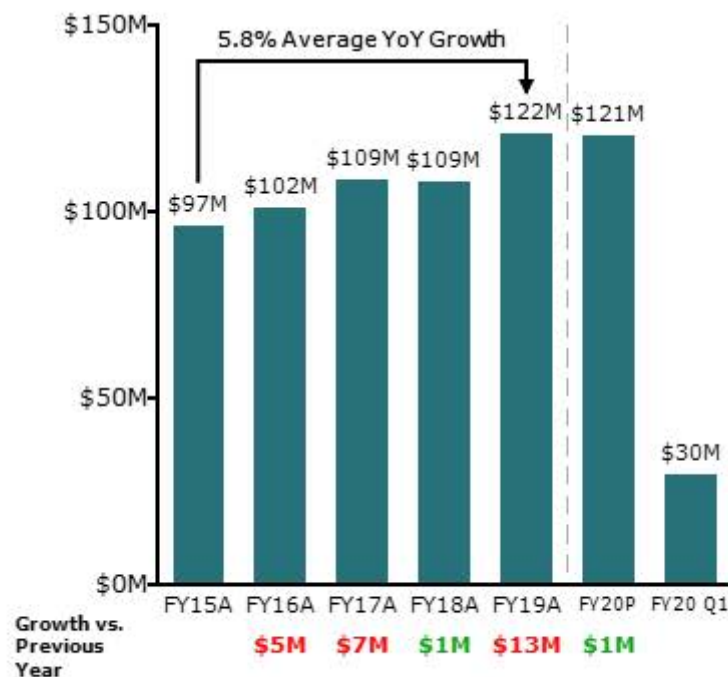
Historical Purchased Services Expenses

Purchased Commuter Rail Expenses



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

The RIDE



- 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

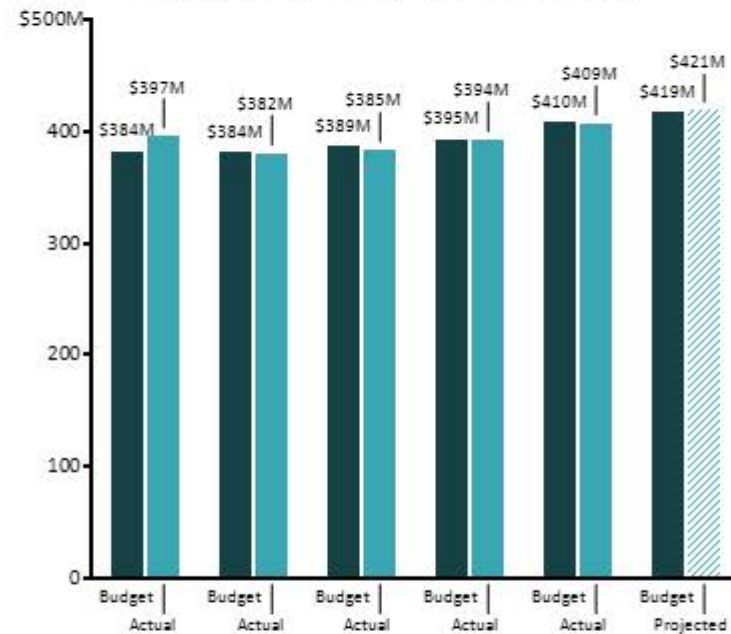
Ferry



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

Purchased Services Expenses vs. Budget

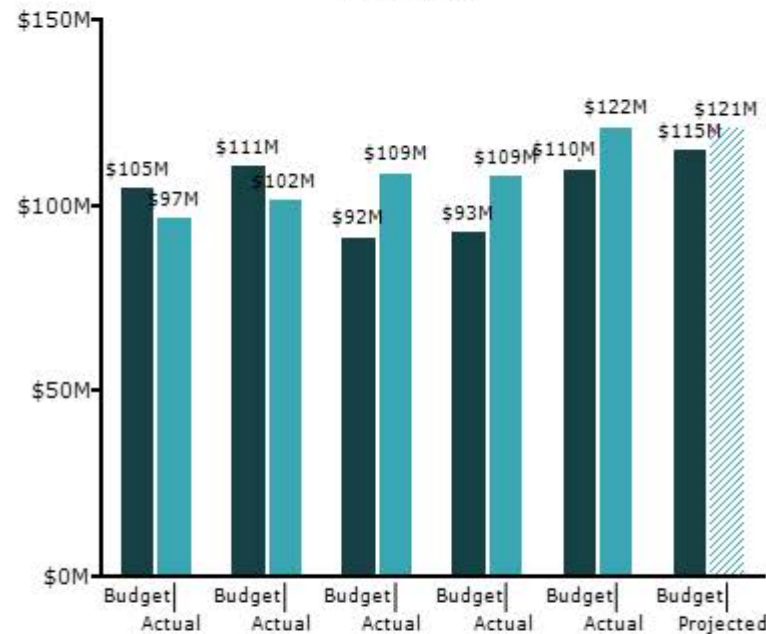
Purchased Commuter Rail Expenses



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

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

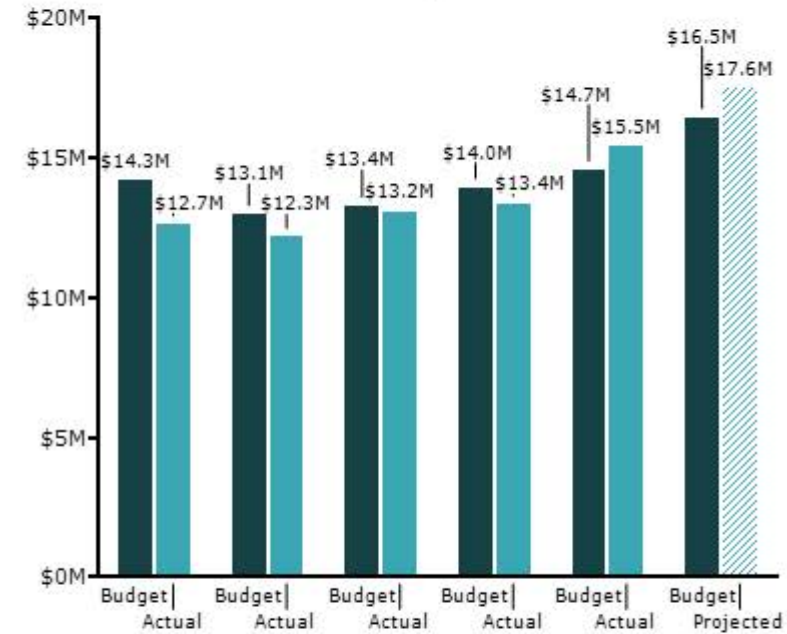
The RIDE



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

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

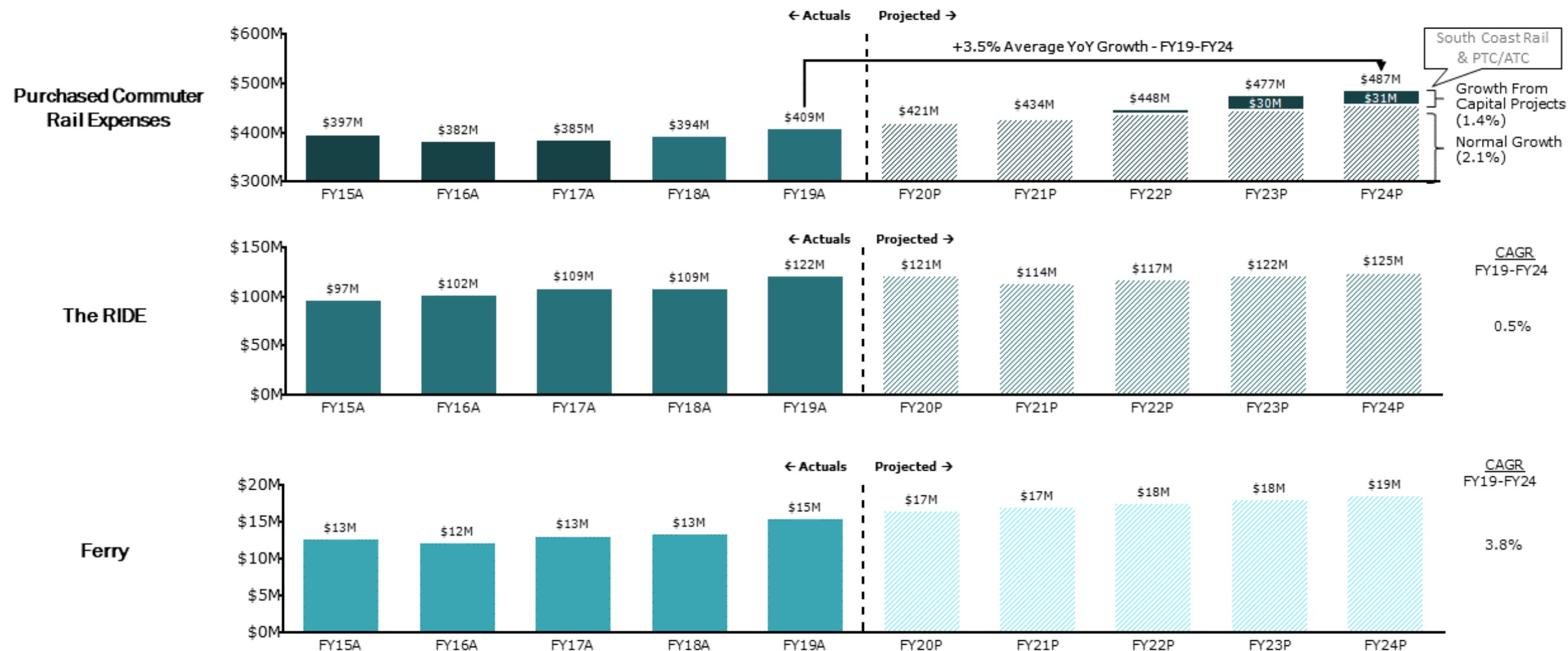
Ferry



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 (\$4.4M).

Purchased Commuter Rail Expenses Expected to Increase with Capital Projects



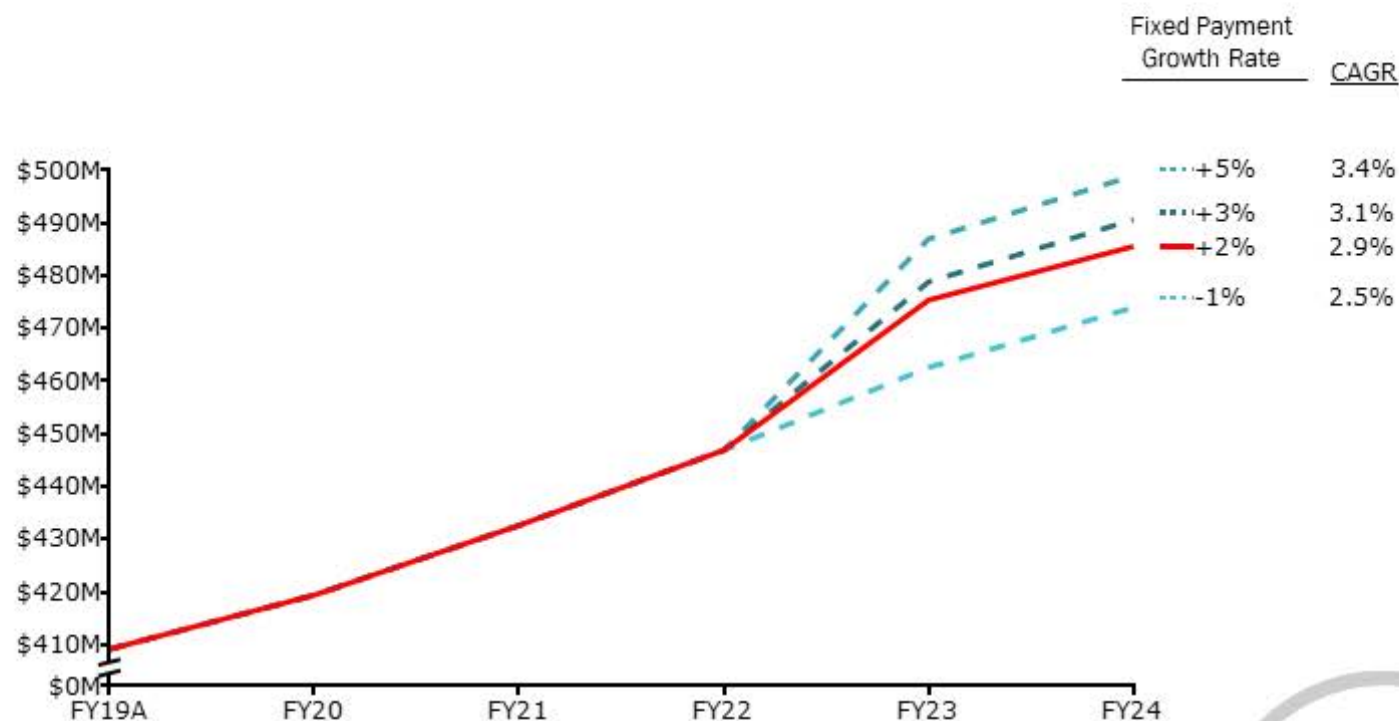
Commuter Rail Cost Sensitivity Analysis

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)

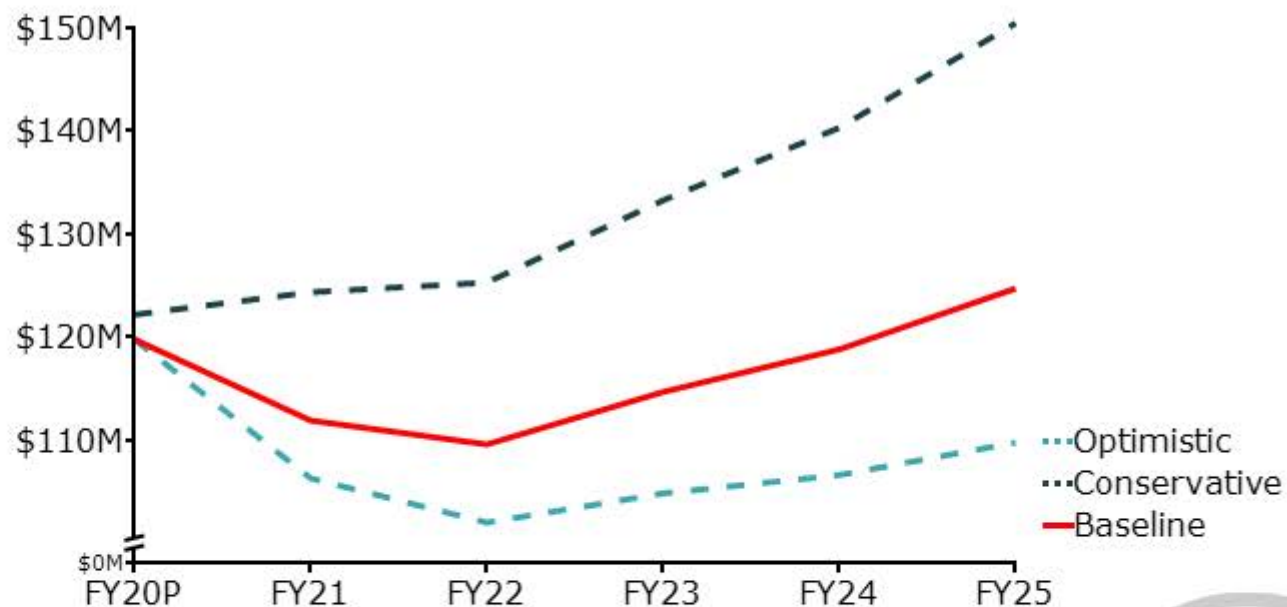
➤ Optimistic

- 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

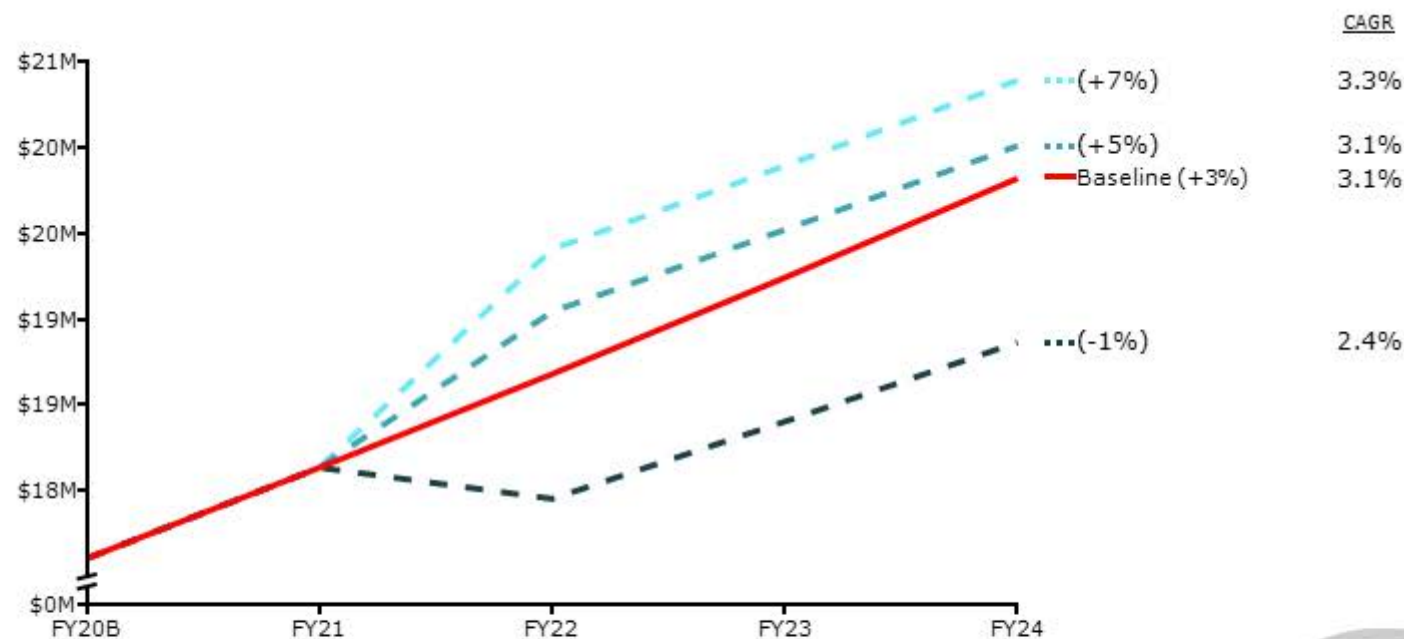


Ferry Sensitivity Analysis

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

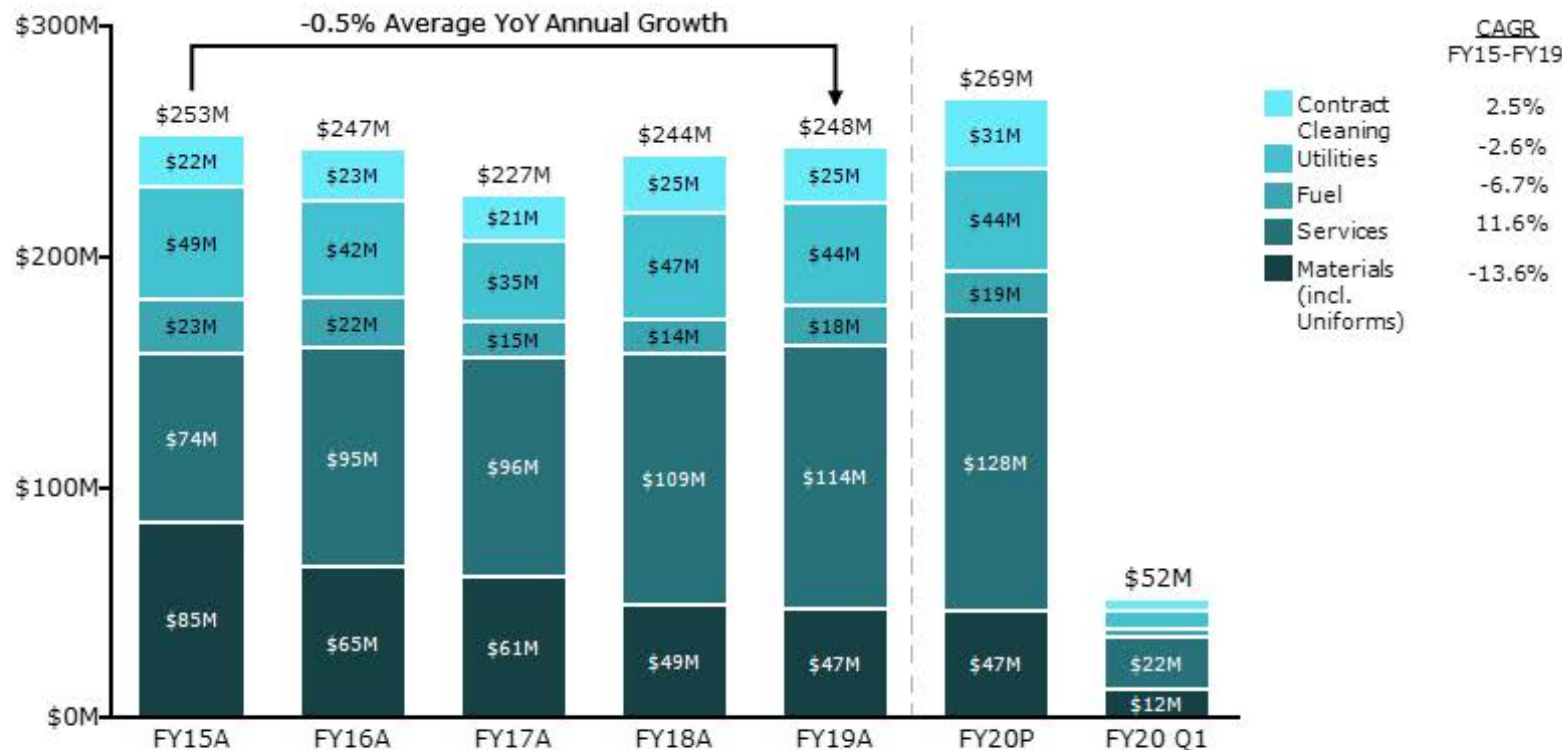


Historical M&S Expenses

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

Materials, Supplies, and Services



Growth vs. Previous Year

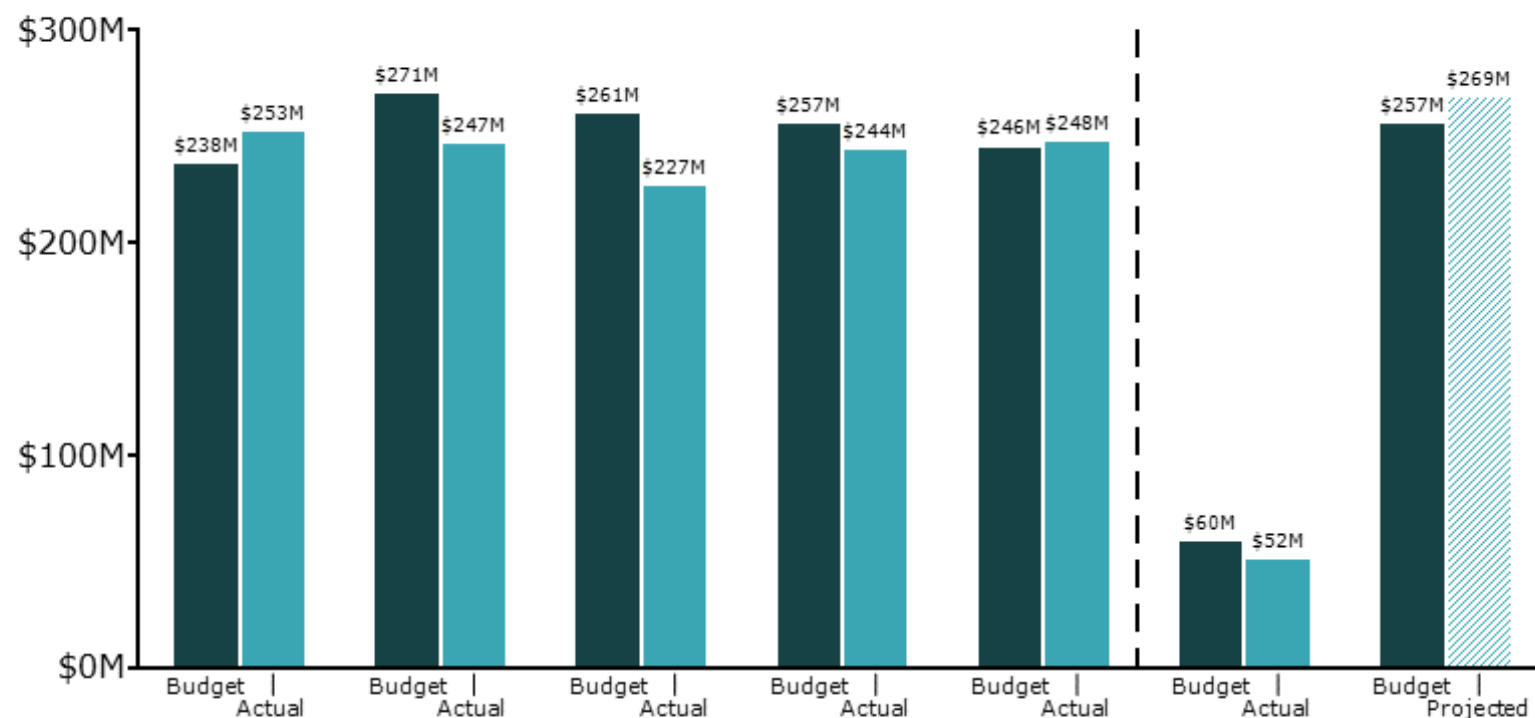
Growth by Line Item

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

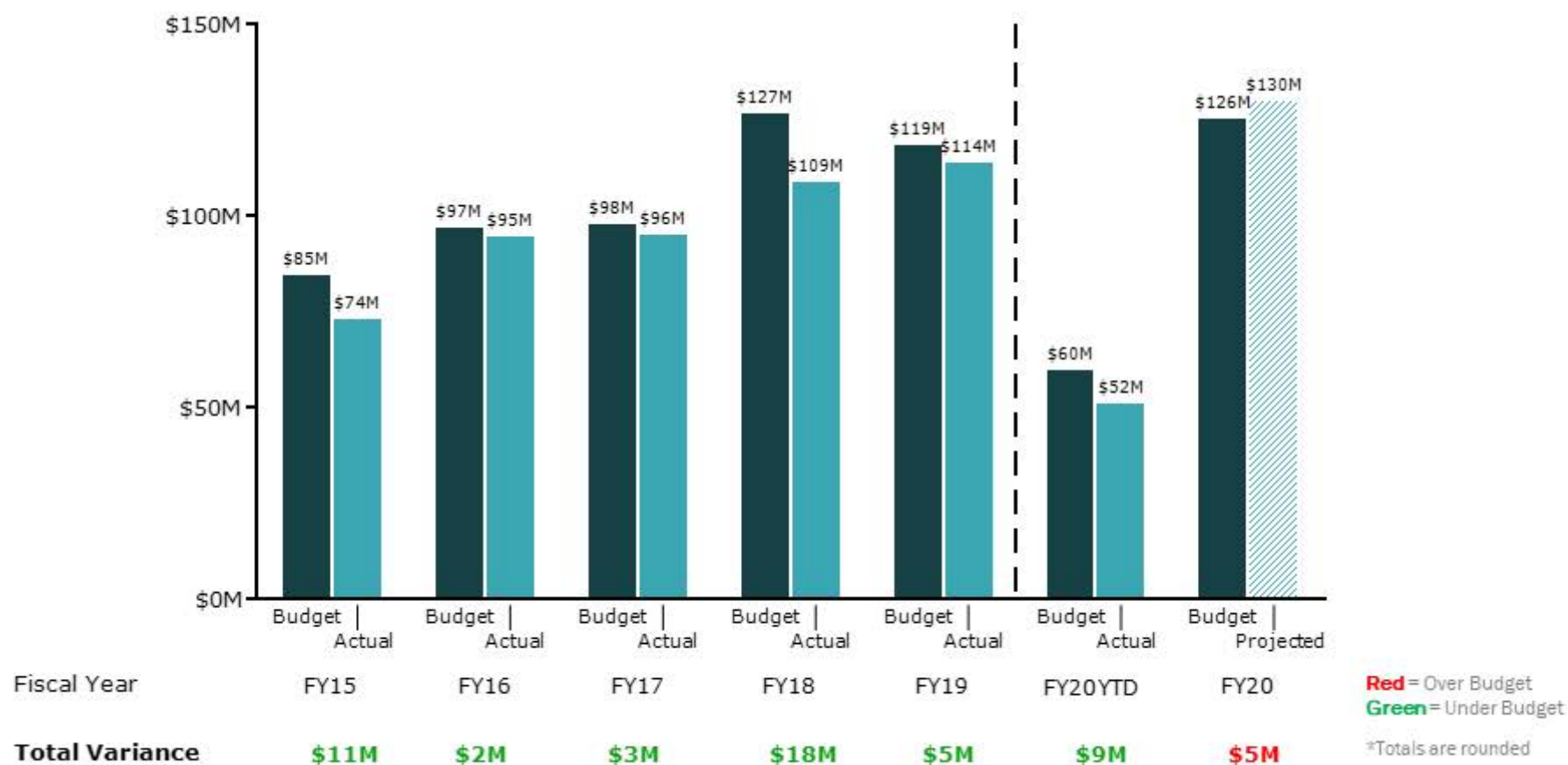
Total Variance

Variance by Line Item

	FY15	FY16	FY17	FY18	FY19	FY20 YTD	FY20
Total Variance	-\$15M	\$24M	\$34M	\$13M	-\$2M	\$9M	-\$12M
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

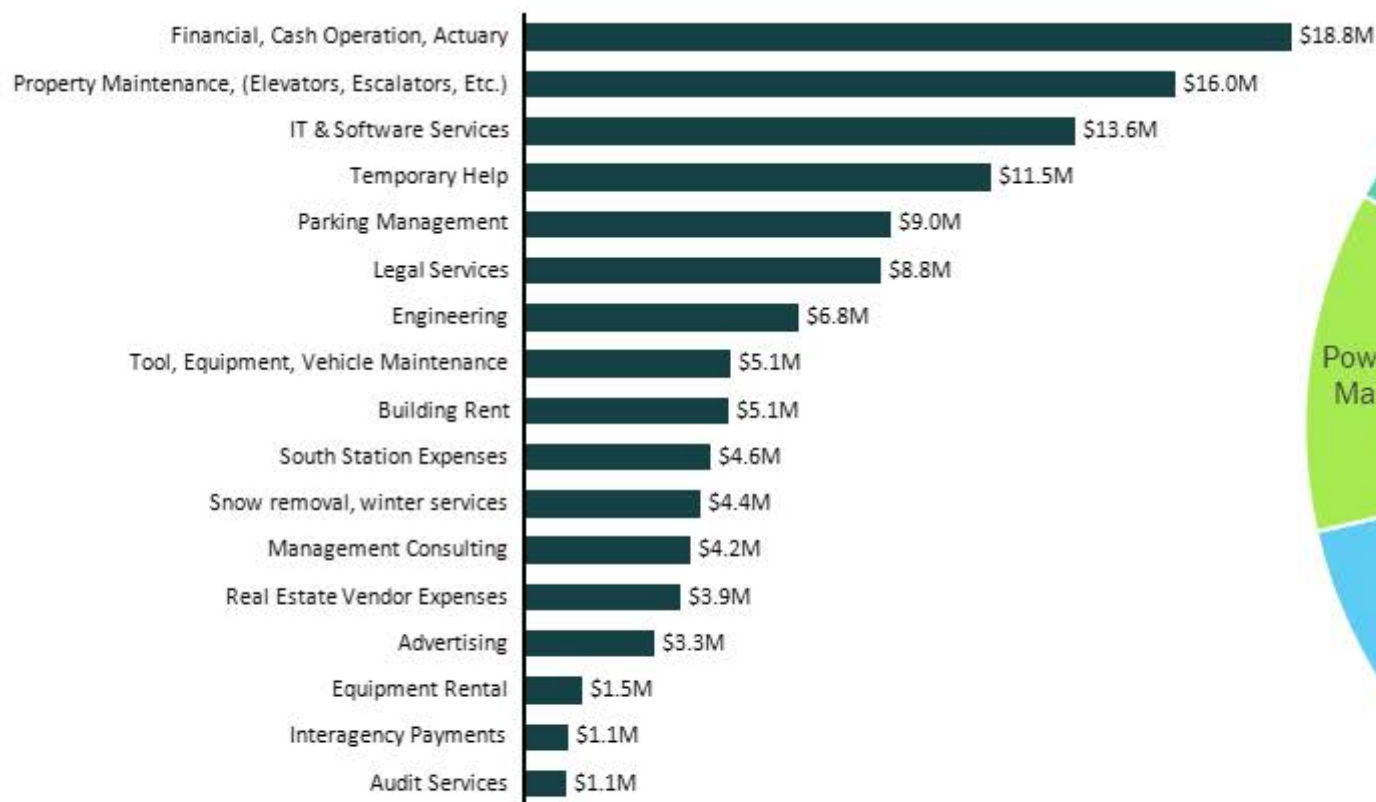
Historical Services spending has finished below budget
However, significant risks exist in FY20



Services Spending Department Distributions

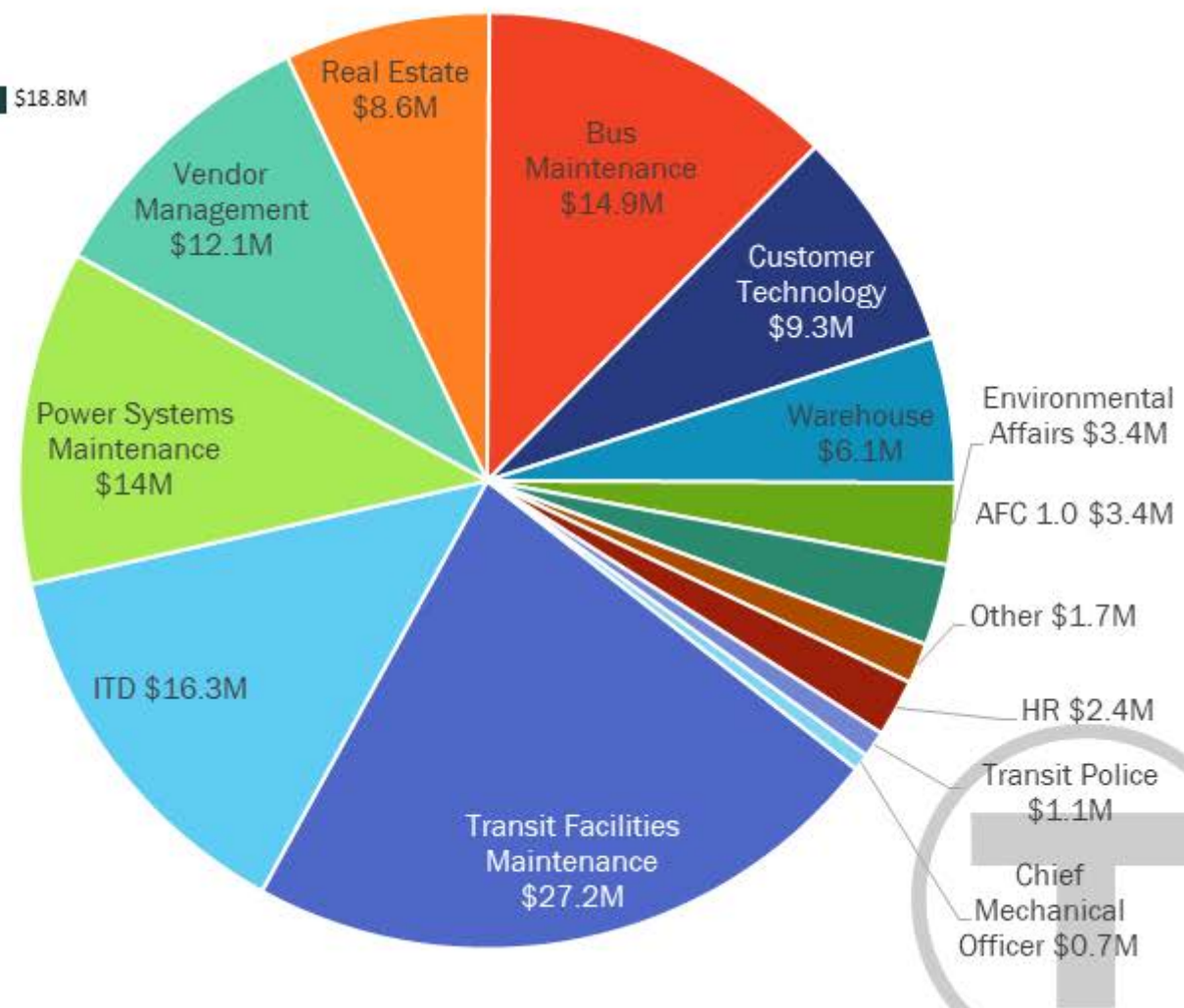
FY20 Services Expenses Budget by *Line Item*

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

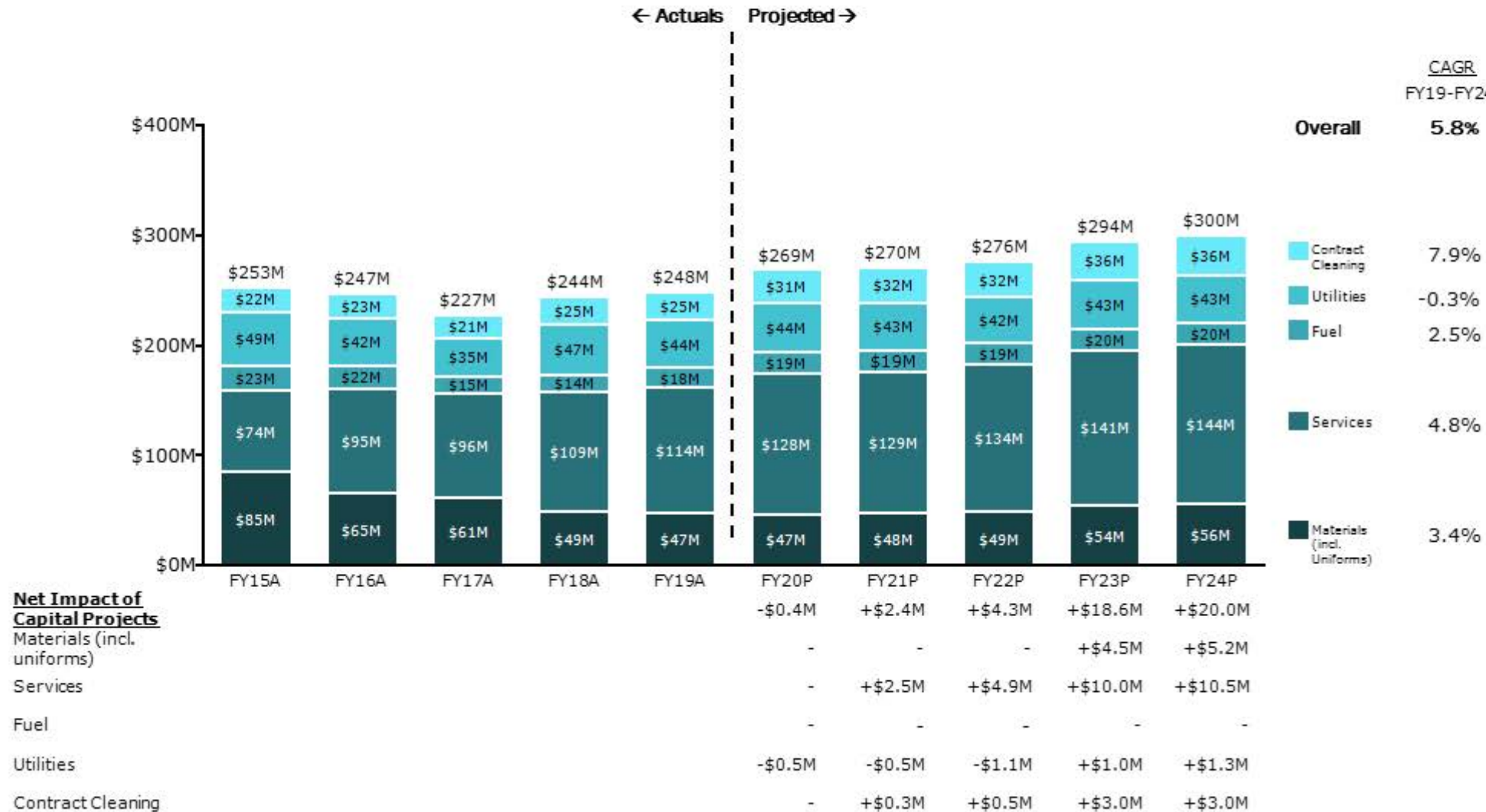
Historical

- 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



*Totals are rounded



MBTA Procurement and Vendor Management

Procurement Challenges

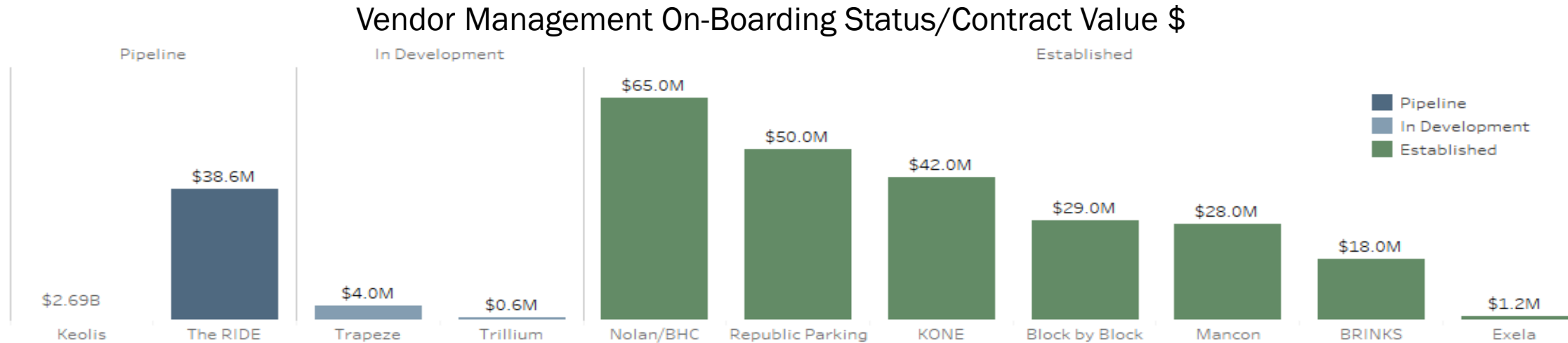
- Outdated or old infrastructure must be fixed. Limits potential vendors and “can’t buy Off the Rack/Standardized Equipment”:
 - Creating high number of Single and Sole Source Procurements
- Expanding scope of services meeting updated or new requirements
- Limits wanting to conduct business with MBTA:
 - 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 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

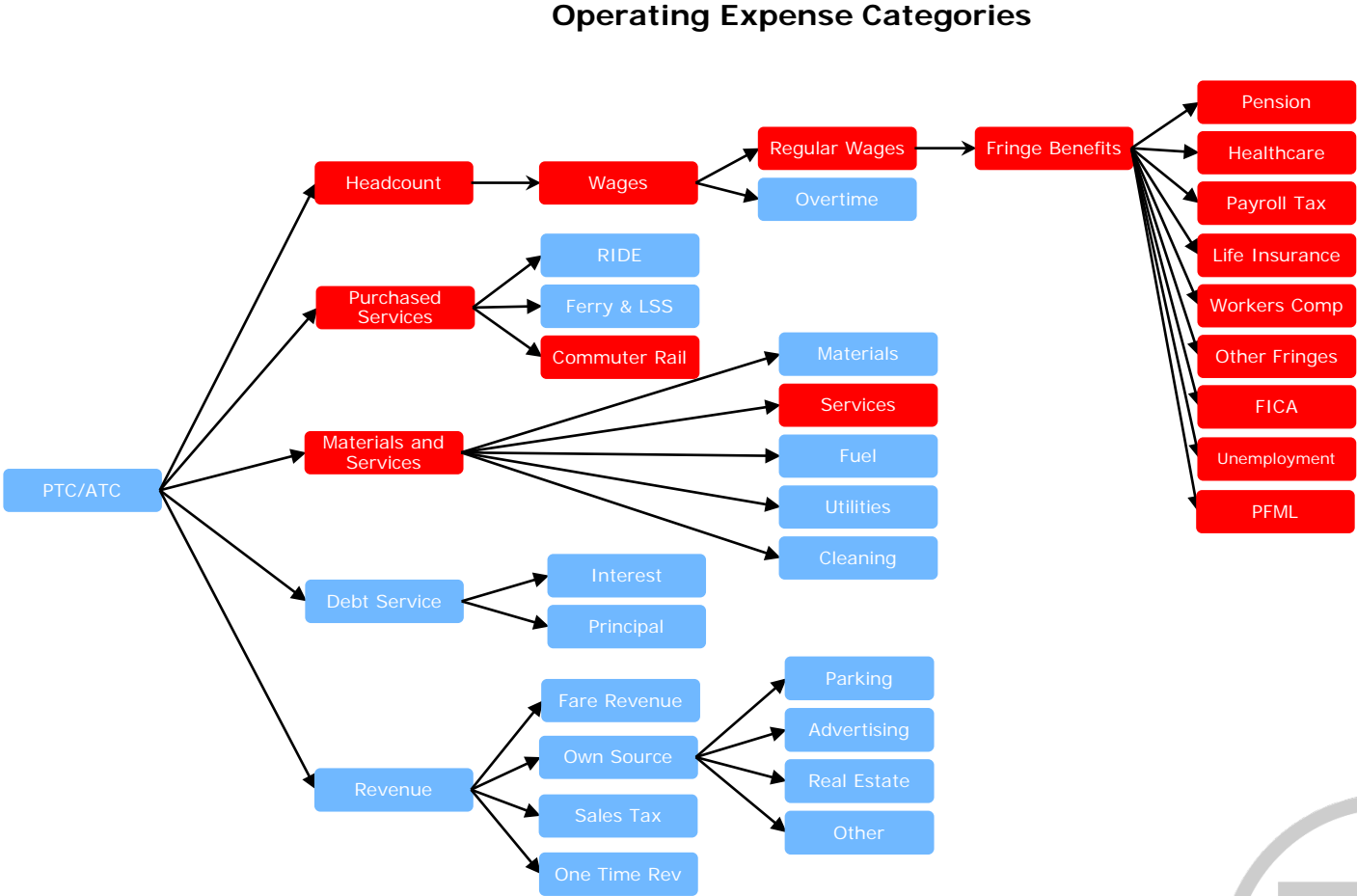


Appendix



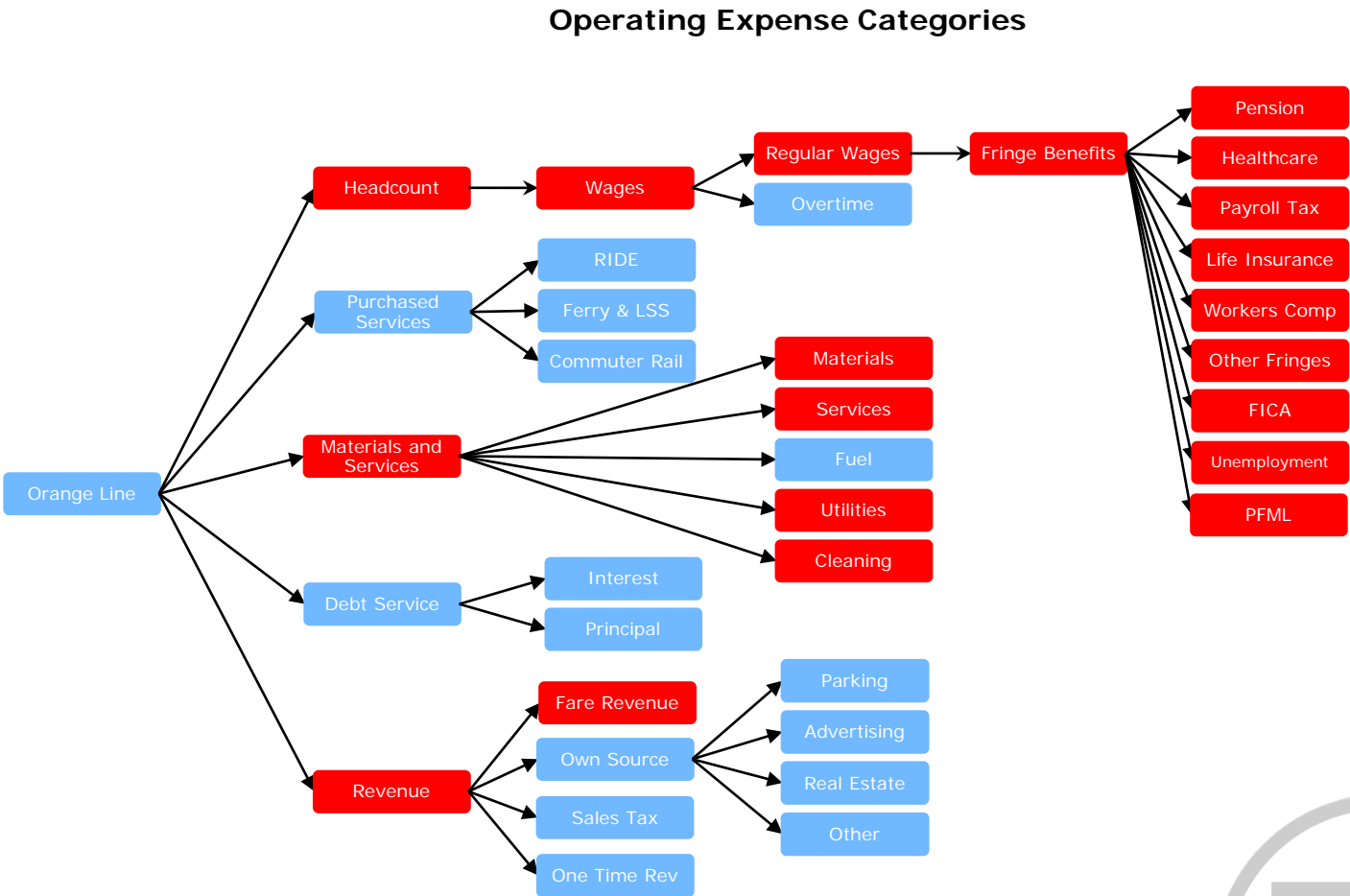
PTC/ATC Operating Expense Assumptions

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



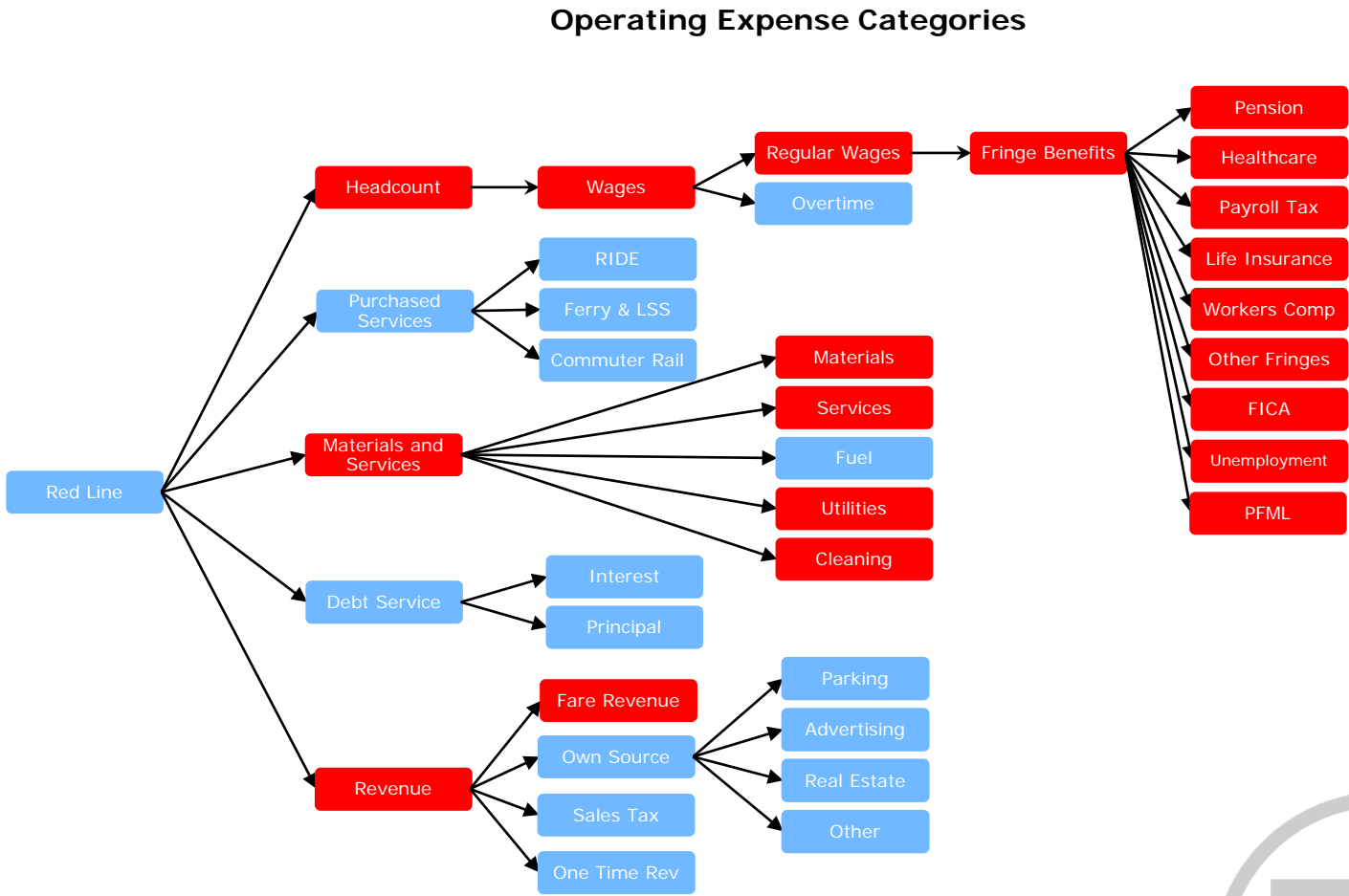
Orange Line Improvement Program Operating Expense Assumptions

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



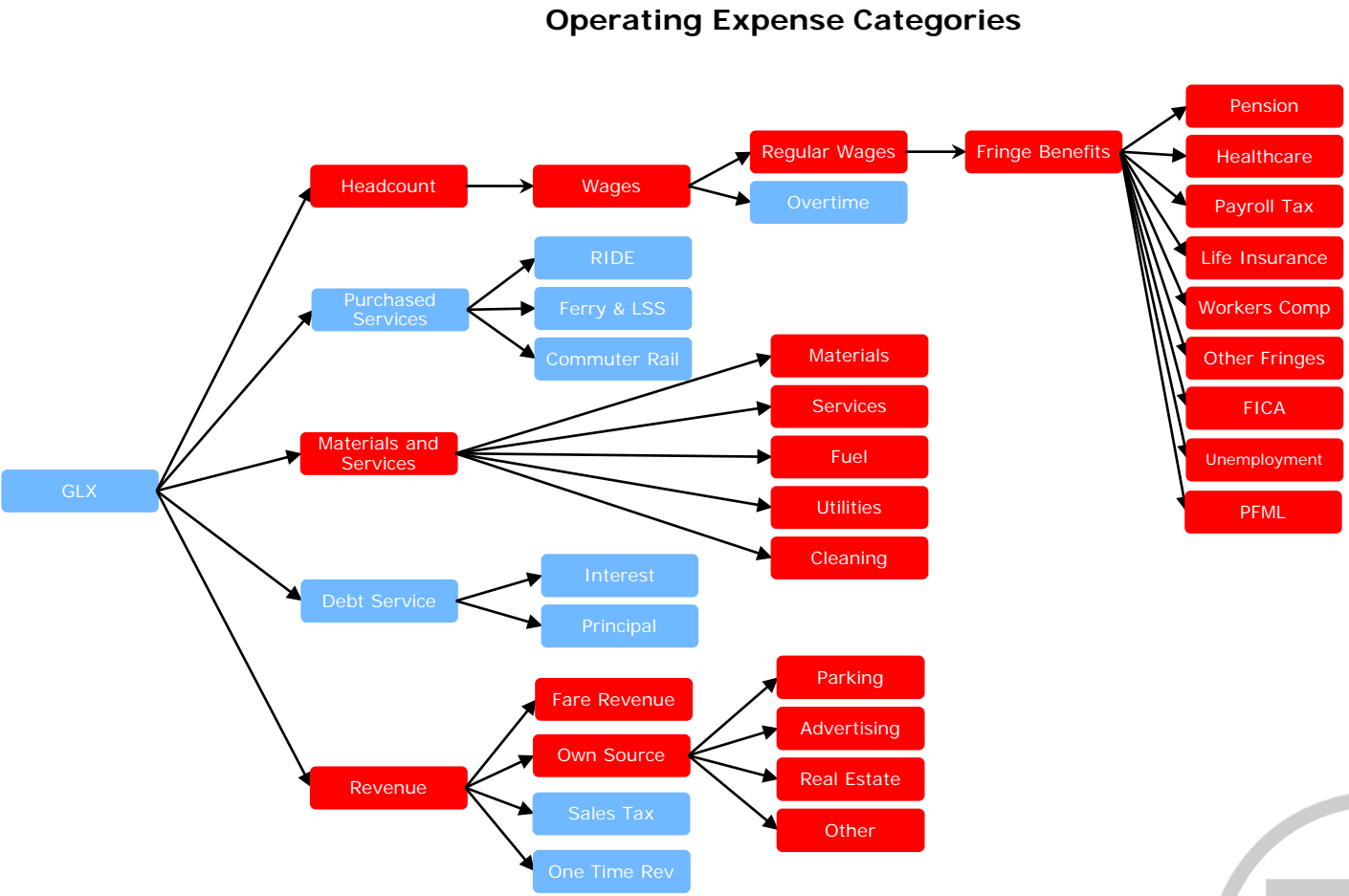
Red Line Improvement Program Operating Expense Assumptions

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



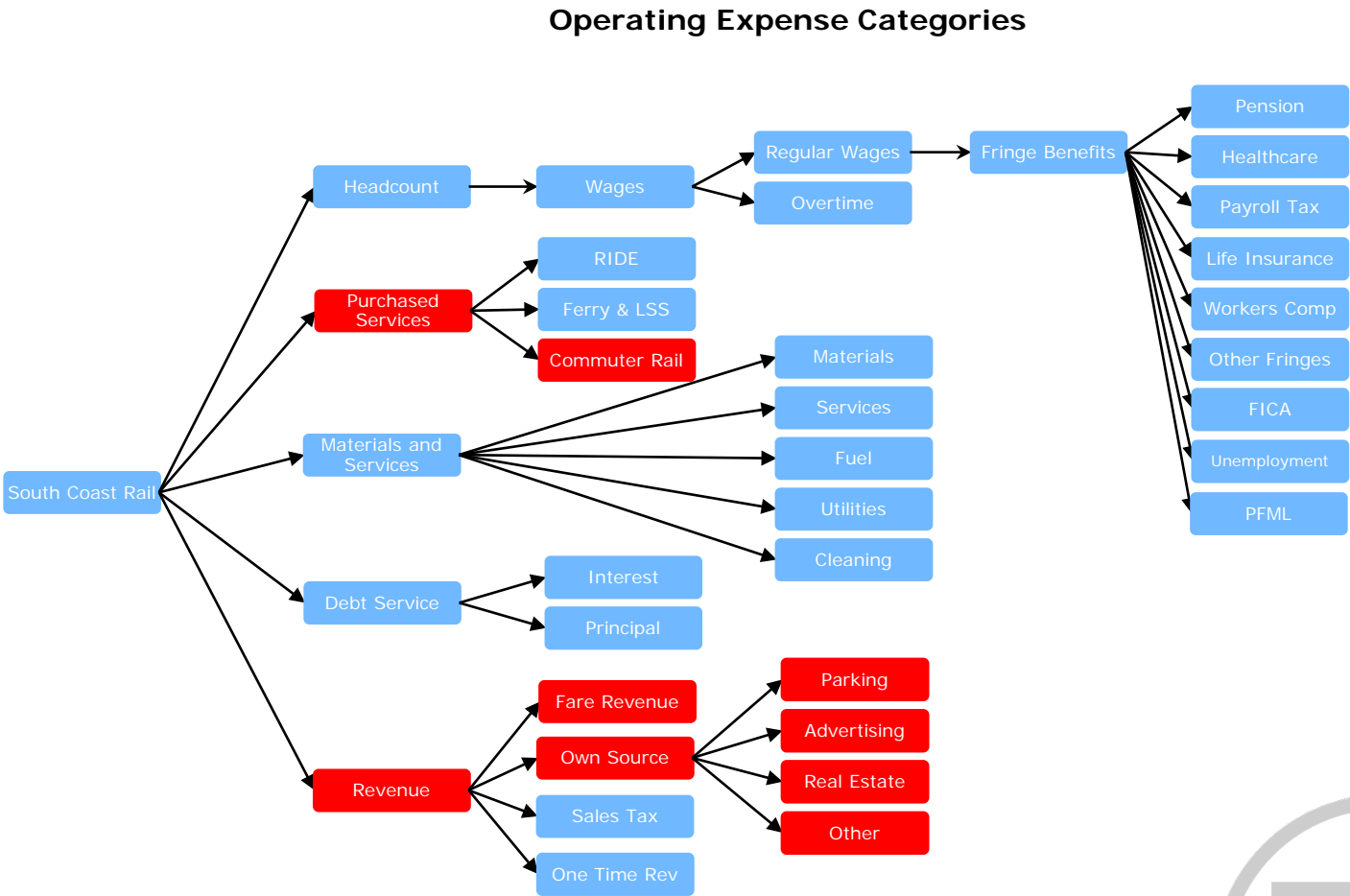
GLX Operating Expense Assumptions

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



South Coast Rail Operating Expense Assumptions

Project Goals	Assumed Quantifiable Impacts
<div>➤ Extends commuter rail service (Middleborough/Lakeville line) to Taunton, Fall River, and New Bedford by end of 2023</div> <div>➤ Adds service to 9 existing stations and 6 new stations</div>	<div>➤ 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</div> <div>➤ Service Planning<ul style="list-style-type: none">➤ 26 trains daily in each direction for weekday service</div>



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)

