Quarterly Service Performance Review
1st Quarter, FY23 (July- September 2022)

Engineering & Operations Committee
December 1, 2022

KPI Grouping

Service Performance

Service Delivery

Capacity

- Weekday - Average Ridership
- Throughput – Transbay
  - AM
  - PM

Punctuality

- On-time – Customer
  - Daily
  - Peak
- On-time – Train
  - Daily Train
  - Connection to E-Line

Railway Asset Availability

Revenue Fleet

- Revenue Fleet - Fleet Reliability
  - 4 AM - Car Availability
  - Vehicle MTBSD - (Hours)
  - DMU - MDBF (Miles)

Wayside

- Wayside - Train Control Systems
  - Wayside Train Control System
  - Computer Control System
- Wayside - Railway Systems
  - Track
  - Traction Power

Operations

- Transportation

Stations

- Availability – Elevators
  - Station
  - Garage
- Availability – Escalators
  - Street
  - Platform
- Availability – Fare Collection
  - Gates
  - Vendors

Customer Experience

Customer Service

- Customer Service
  - Complaints
  - Customer Service

Environment

- Environment – Stations
  - Outside
  - Inside
- Environment – Trains
  - Cleanliness
  - Temperature
- Environment – Code of Conduct
  - Station Graffiti
  - Fare Evasion
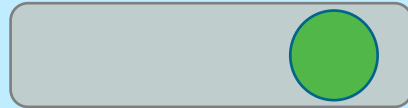
Safety and Security

Safety

- Safety – Passenger
  - Station Incidents
  - Vehicle Incidents
- Safety – Employee
  - Lost Time Injuries
  - OSHA Recordable Injuries
- Safety – Violations
  - Unscheduled Door Openings
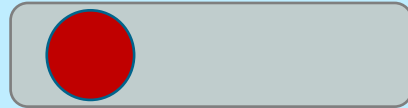 - OSHA Recordable Injuries

Security

- Police Coverage
  - BPD Presence
  - BPD Response Time
- Crime – Against Person
- Crime – Burglary
  - Bike Thefts
  - Auto Burglaries
  - Auto Thefts

Category | Class | Slide

Dashboard

Customer Experience

Environment	🟢
Customer Service	🔴

Safety and Security

Safety	🟢
Security	🟢
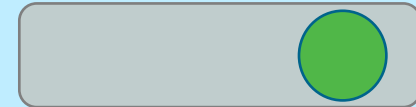
Railway Asset Availability
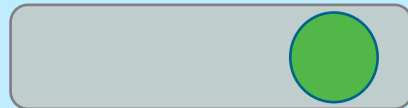
Revenue Fleet	🟢
Stations	🟢
Wayside	🔴
Operations	🔴
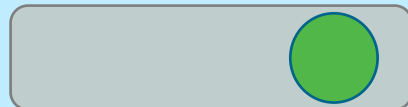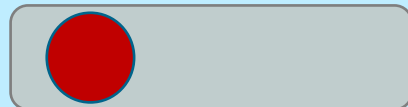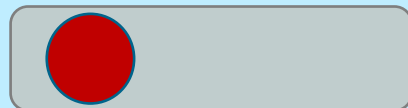
FOCUS

Service Delivery
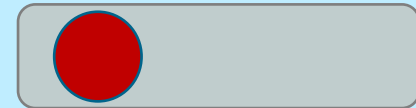
Punctuality	🔴
Capacity	🟠
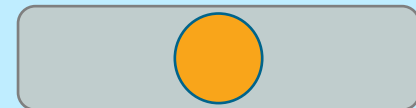
Summary – Service Delivery
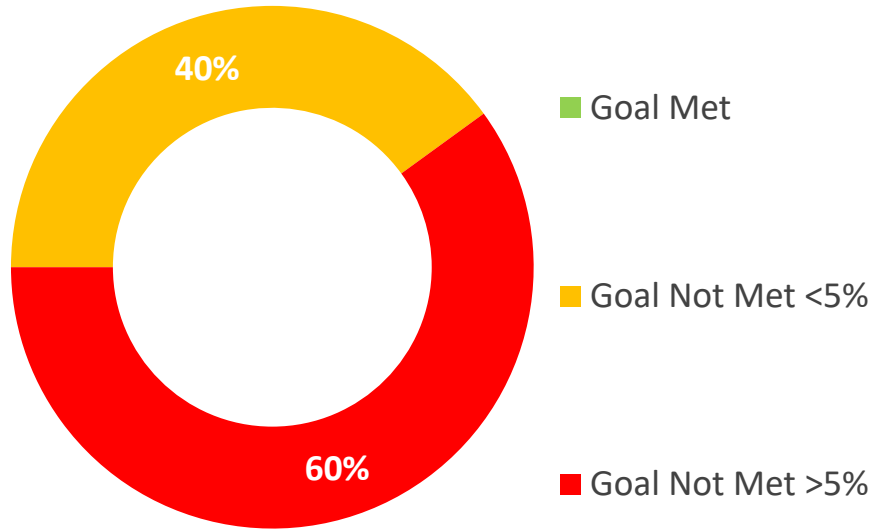
Metric		FY23 Q1	Goal	Change from FY22 Q4
All-Day				
Weekday - Average Ridership	▲	145,785	153,737	6.99%
Daily - Trains On-Time	▼	74.16%	91%	3.9%
Daily - Customers On-Time	▼	82.79%	94%	4.12%
Daily - Composite On-Time	▼	78.47%		3.29%
Peak				
Peak - Trains On-Time	▼	72.19%		5.74%
Peak - Customers On-Time	▼	85.77%		2.94%
Throughput				
AM Peak - Throughput	▲	94.88%	97.5%	2.64%
PM Peak - Throughput	▲	94.51%	97.5%	2.98%

40%

60%

- Goal Met
- Goal Not Met <5%
- Goal Not Met >5%

Service Delivery – Delay Incident Detail

10,291 Delayed Trains Caused by Incidents

Planned Work, 405

Societal, 3704

Cancellation, 1399

State of Good Repair, 2987

Other, 1796

Police and Security / Intrusion
- 64%
- 36%
- Police and Security
- Intrusion

Wayside / Vehicle / Operations
- 72%
- 21%
- 7%
- Wayside
- Vehicle
- Operations

Staffing Shortage / Car Shortage
- 88%
- 12%
- Staffing Shortage
- Car Shortage

Passenger / Weather / Miscellaneous / Congestion
- 32%
- 34%
- 20%
- 14%
- Passenger
- Weather
- Miscellaneous
- Congestion

Trains Delayed - Top Ten Single Incidents

Incident	Trains
9/23 3rd Rail Power	304
8/30 Train Struck Object On Trackway	253
9/16 Person On Trackway	198
9/21 Rain	167
9/18 Loose 3rd Rail Coverbd	152
7/5 MUX	131
8/16 Heat Wave	125
7/19 Fire Near Trackway	104
7/6 3rd Rail Power	100
8/26 BPD Hold	94
9/8 Propulsion	93
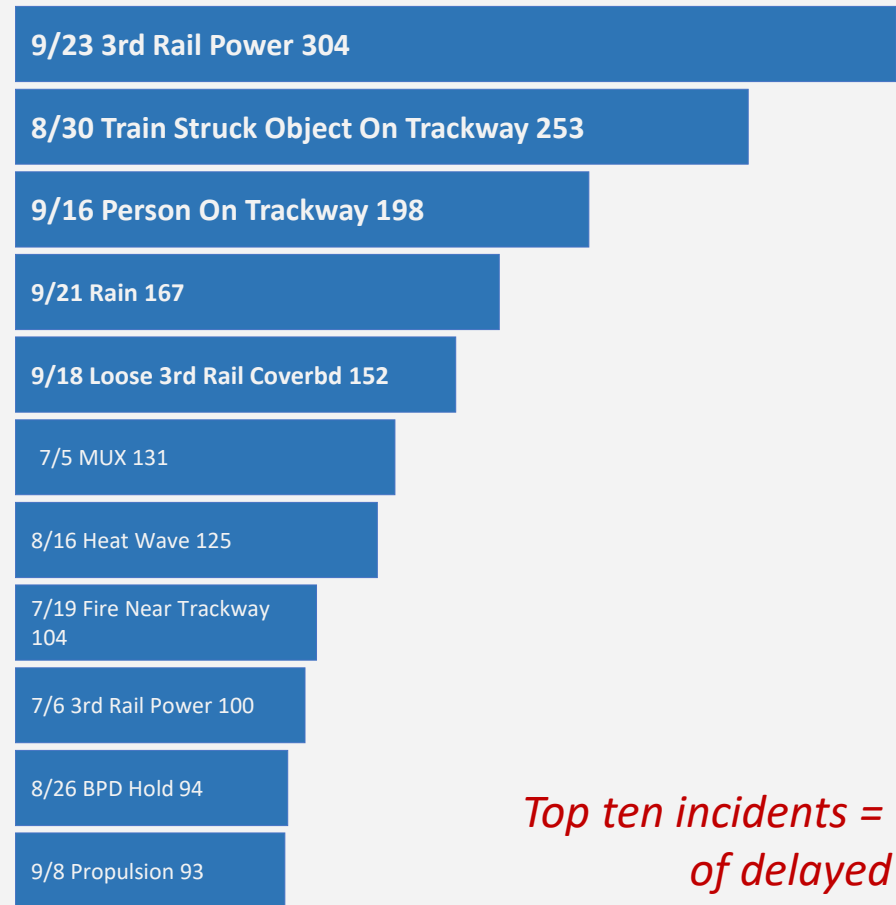
Top ten incidents = 15.9% of delayed trains

Capacity – Ridership

- Ridership below budgeted goal increased in September, as schools reopened

Weekday Hourly System Activity

50K Exits
5K Exits

Pre-COVID
Oct 2022
Sep 2022
April 2020

6 A.M.   noon   6 P.M.   Midnight

Average Ridership - Weekday

Average Weekday Trips

250K
200K
150K
100K
50K
K

July Aug Sept Oct Nov Dec Jan Feb Mar April May June July Aug Sept

◆ Results   Budgeted Goal

Day of Week

■ Oct 2022   ■ Oct 2019

500,000
400,000
300,000
200,000
100,000
0

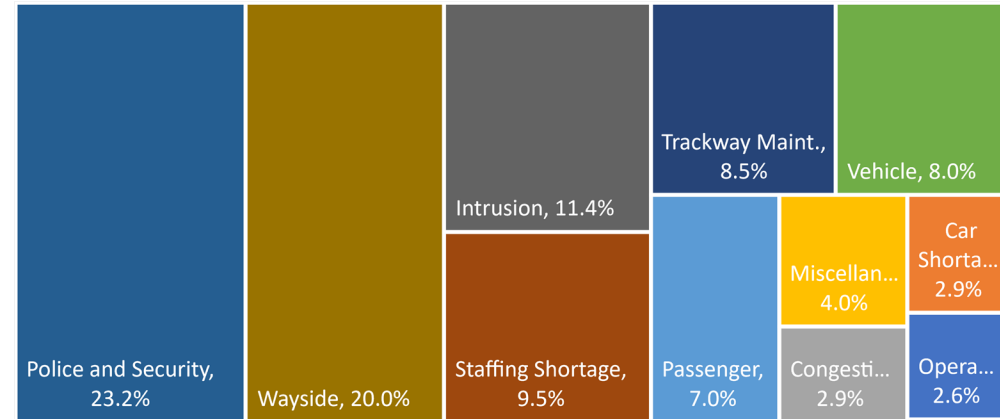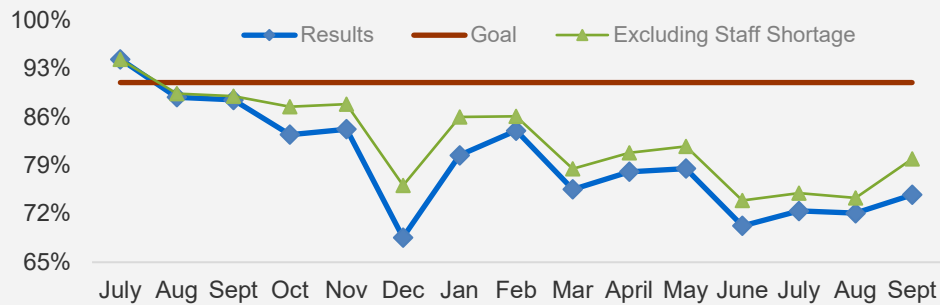| Sun	Mon	Tue	Wed	Thu	Fri	Sat
63%	35%	40%	39%	39%	37%	59%

Punctuality – Trains On-Time
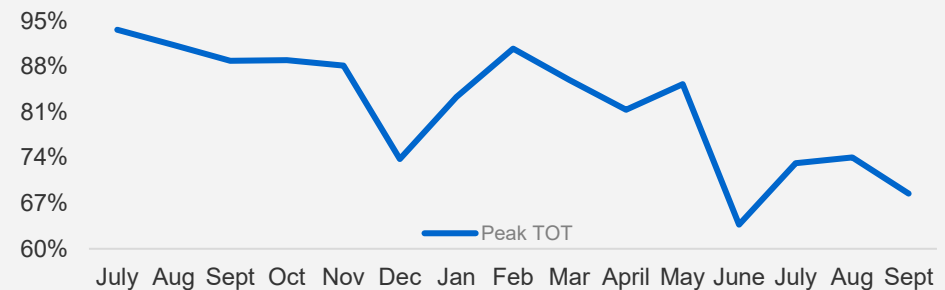

Scheduled Trains On-Time End-of-line
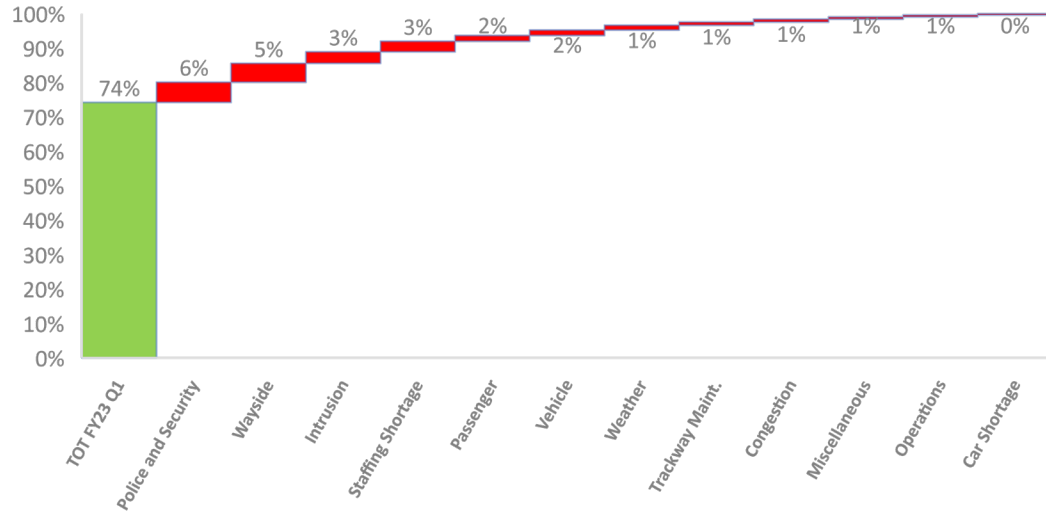
Estimate of EOL Late Trains by Incident Cause

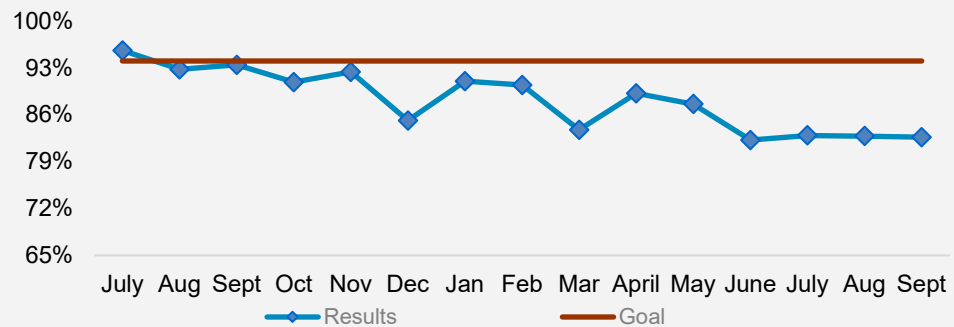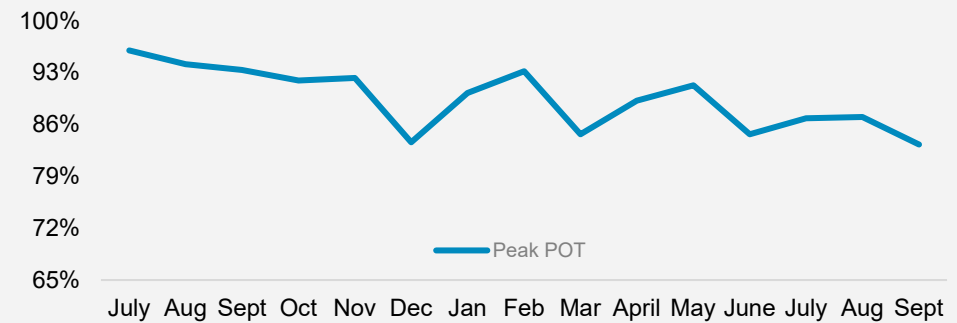## Daily On-Time

Peak Period On-Time

Punctuality – Customer On-Time

- Customer On-Time Performance is the percentage of customer trips that were on-time, relative to the published schedule
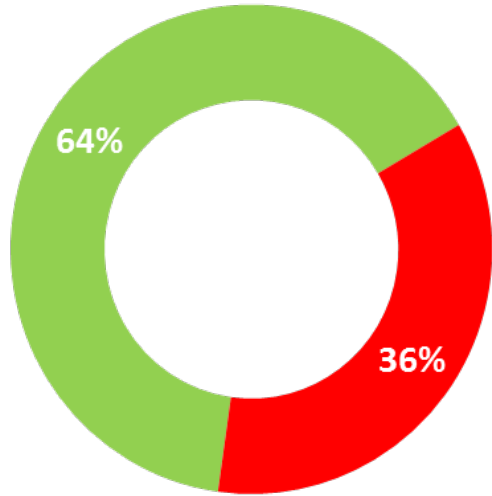
🔴 **Daily Customer On-Time**

Peak Customer On-Time
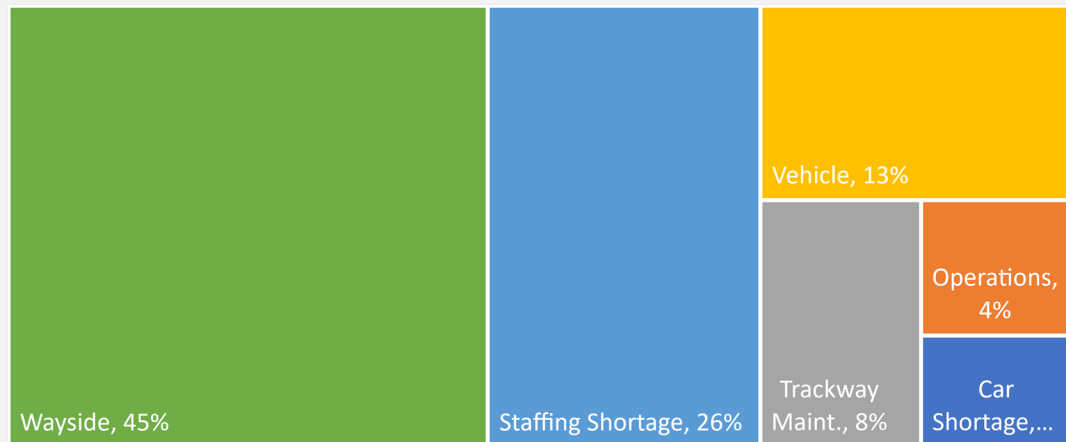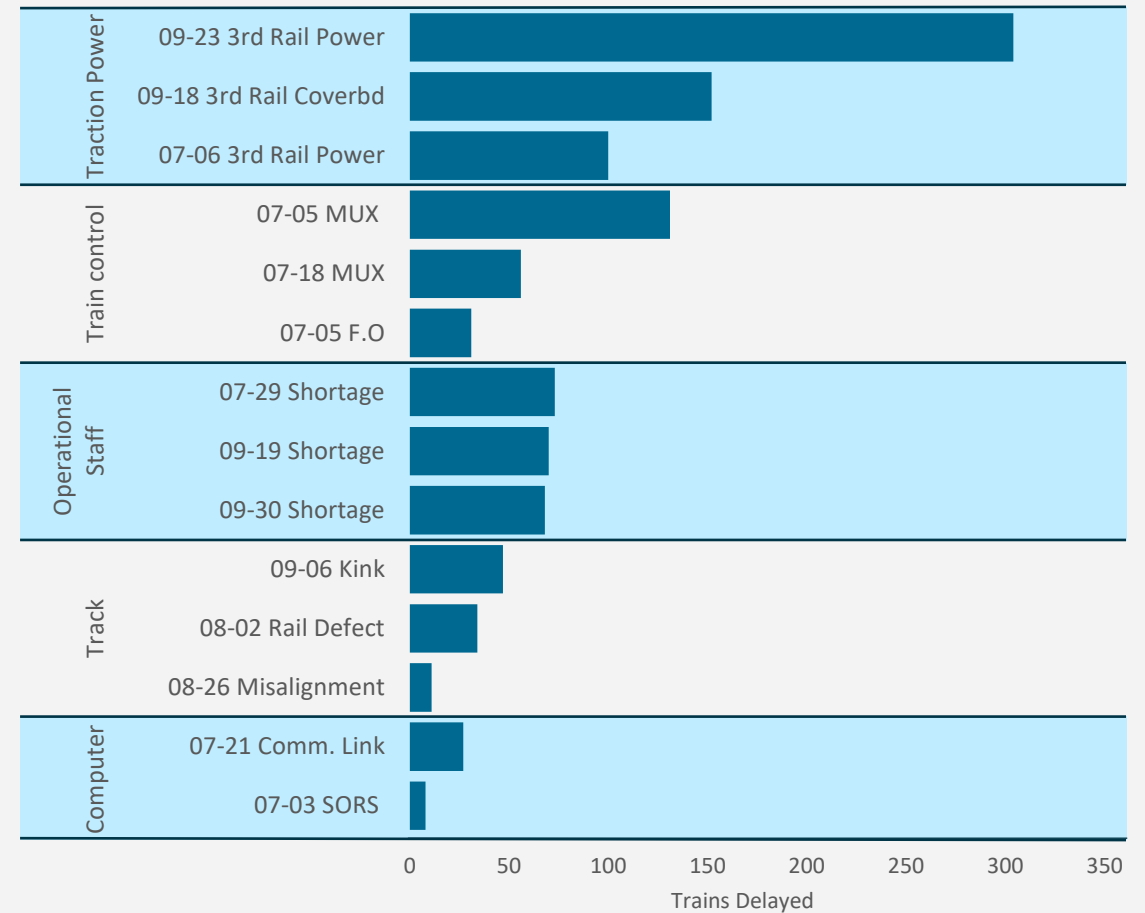
Summary – Railway Asset Availability

Metric		FY23 Q1	Goal	Change from FY22 Q4
Station Equipment				
Elevators in Service - Station	▼	99.5%	98%	0.06%
Elevators in Service - Garage	▲	99.9%	97%	0.01%
Escalators in Service - Street	▲	97.4%	93%	0.10%
Escalators in Service - Platform	▼	96.9%	96%	1.03%
Automatic Fare Collection - Gates	▼	99.1%	99%	0.21%
Automatic Fare Collection - Vendors	▲	97.3%	95%	0.32%
Revenue Vehicle				
Vehicle MTBSD - (Hours)	▼	7,046	6,500	0.12%
4 AM - Car Availability	▲	682	632	4.28%
DMU - MDBF (Miles)	▲	16,577	20,000	4.79%
Wayside Equipment				
Track	▼	0.25	0.3	2400.%
Transportation	▼	2.72	0.5	31.4%
Traction Power	▼	1.23	0.2	95.23%
Wayside Train Control System	▼	1.56	1	6.84%
Computer Control System	▲	0.09	0.08	71.87%

- 64% ■ Goal Met
- 36%
- ■ Goal Not Met <5%
- ■ Goal Not Met >5%

Railway Asset Availability – Detail

Breakdown of 4,791 Trains Delayed by Incidents due to Railway Asset Unavailability

- Wayside, 45%
- Staffing Shortage, 26%
- Vehicle, 13%
- Trackway Maint., 8%
- Operations, 4%
- Car Shortage,…

Trains Delayed –Three Worst Asset-Related Incidents by Department

Traction Power
- 09-23 3rd Rail Power
- 09-18 3rd Rail Coverbd
- 07-06 3rd Rail Power

Train control
- 07-05 MUX
- 07-18 MUX
- 07-05 F.O

Operational Staff
- 07-29 Shortage
- 09-19 Shortage
- 09-30 Shortage

Track
- 09-06 Kink
- 08-02 Rail Defect
- 08-26 Misalignment

Computer
- 07-21 Comm. Link
- 07-03 SORS

Trains Delayed
(0 50 100 150 200 250 300 350)

Revenue Fleet – Reliability

- Fleet of the Future continues to outperform the legacy fleet

- Delays related to the top three systems are mostly due to legacy cars

- MTBSD goal is increasing to 6,500 hours between service delays for FY2023

Fleet Type

Worst Three Systems for Delays

■ Legacy ■ FOTF

● Car Availability at 4 AM

● Mean Time Between Service Delays

LEGACY 437
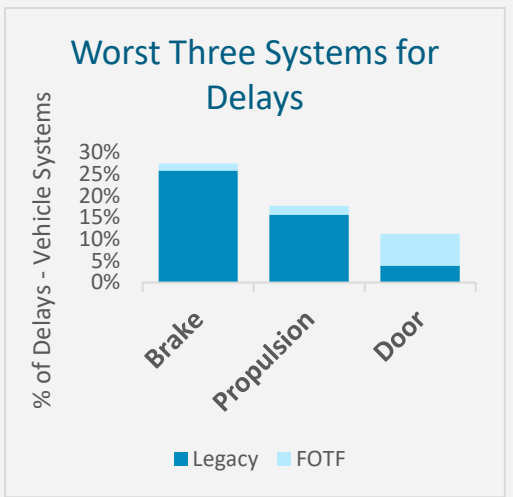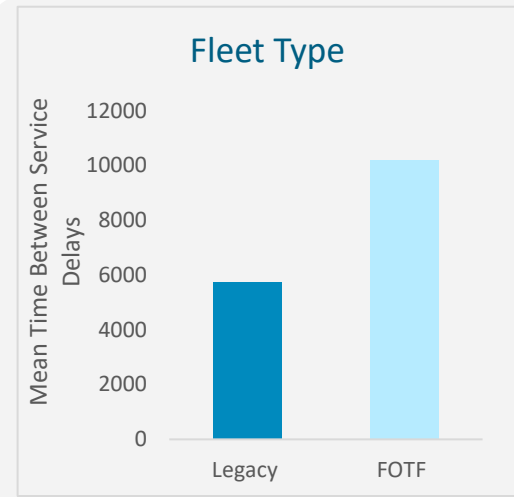
FOTF 423

Car count as of 11/18/2022

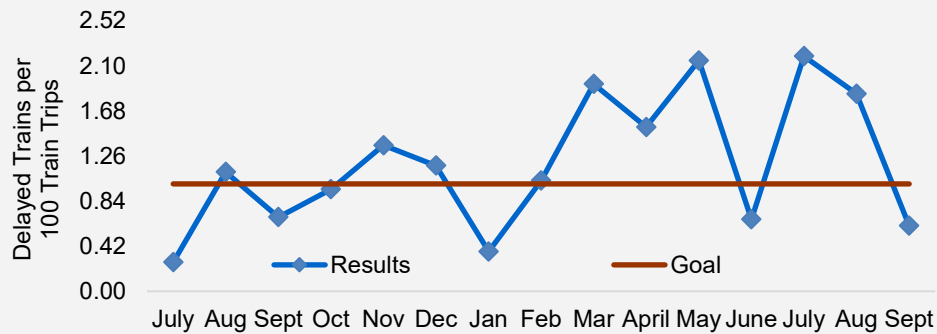# Wayside Equipment – Train Control Systems
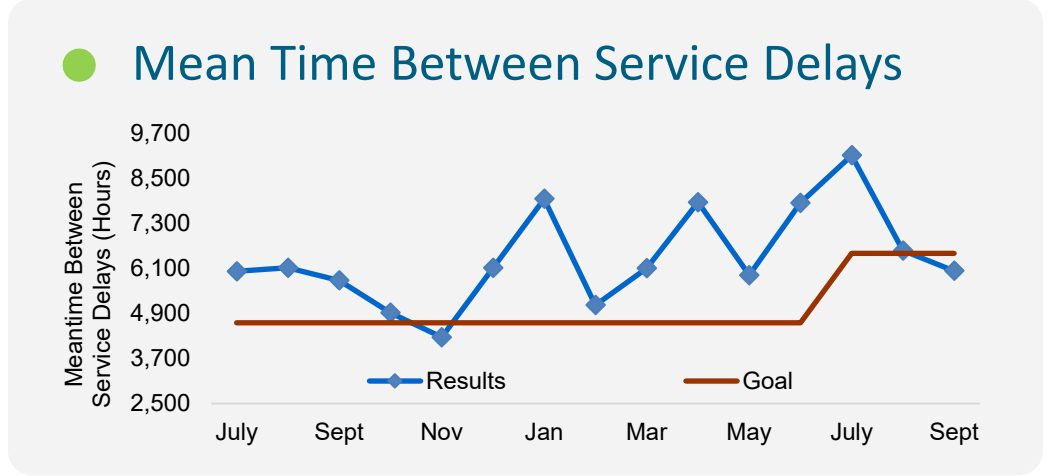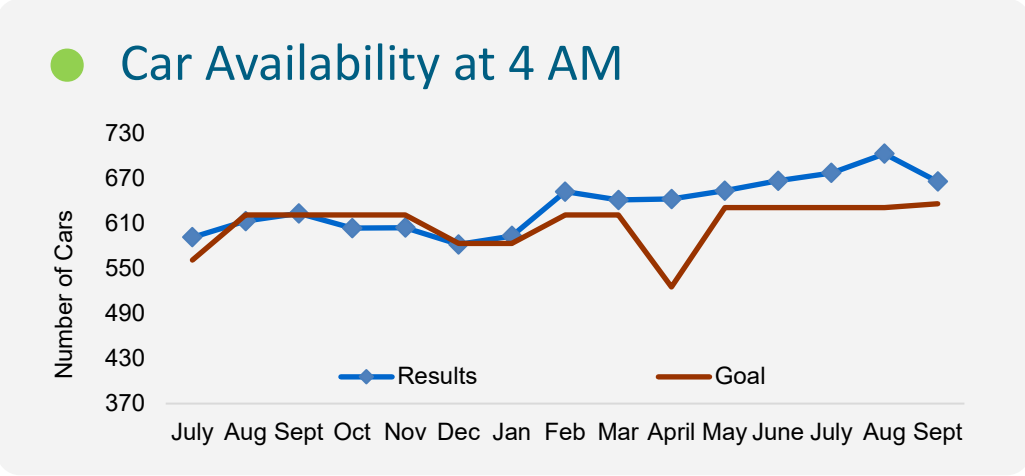
Wayside Train Control System

- Several MUX track circuit failures, NET.com failures, and GEALOC failures in July and August were responsible for most delays in this category

Wayside Computer Control System

- Communication system failure on July 21 which impacted 28 trains was the primary contributor this quarter
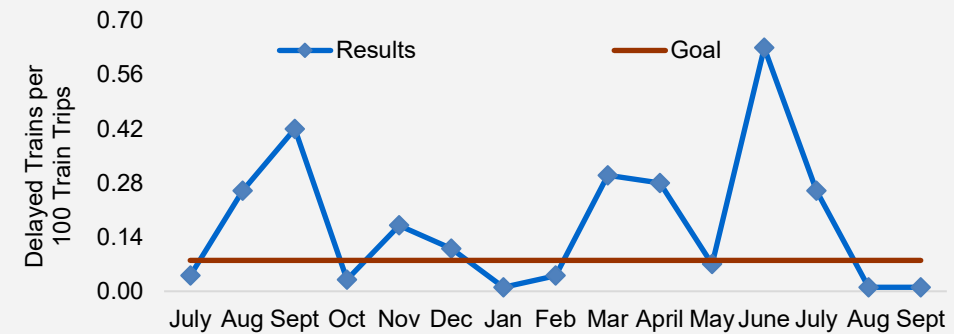
Wayside Equipment – Railway

Traction Power System

- 3rd rail power issues in the Transbay Tube and on the A-line

- Increase in failed coverboards

Track System

- Work related to June 2022 C-line derailment continued to impact Track System

- Weather impacts due to high heat and heavy rain
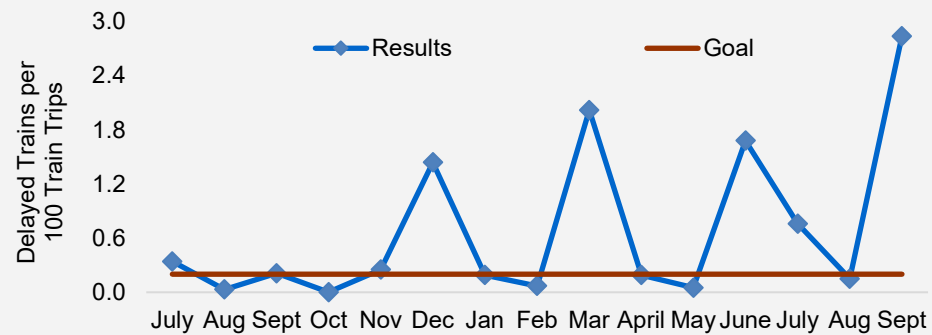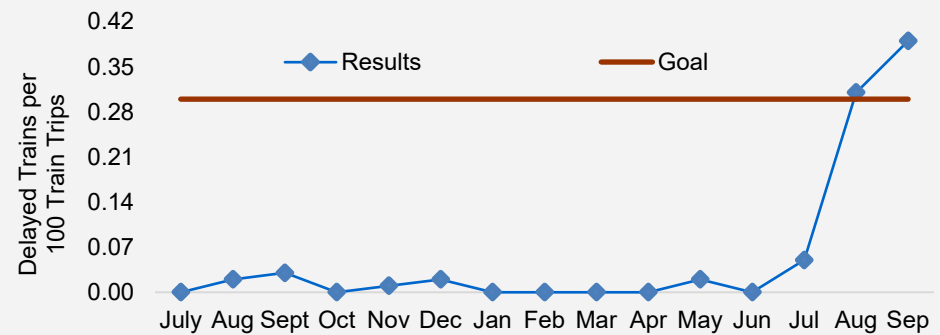
Outlook – Wayside: Recovery from 2022

Operations - Transportation
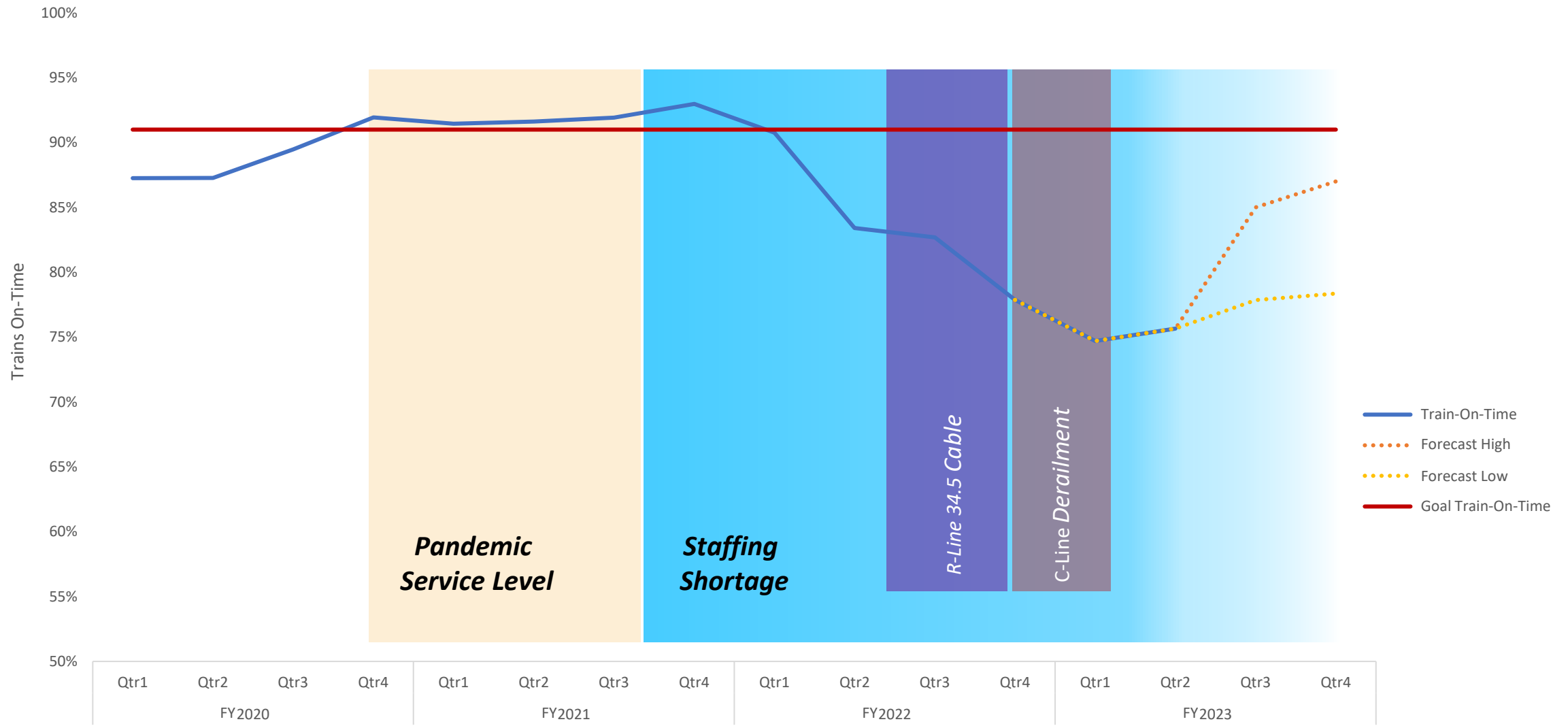
- Staff shortage makes up the vast majority of Operations-related train delays

- Recruiting of Train Operators, Rail Controllers, and Foreworkers remains the highest priority

● Operations
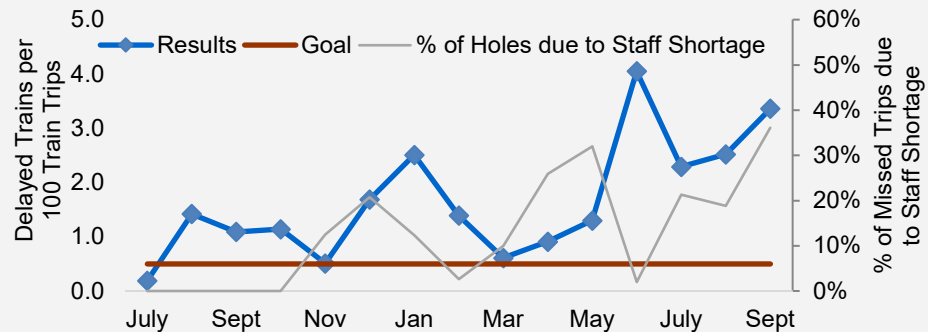
Breakdown of 1,365 trains Delayed by Incidents due to Operations Unavailability

Staff Shortage, 88%

T.O. Procedu... 5%

Yard, 2%

Outlook – Train Operator Staffing

- Predict reaching TO Full-Staffing Level as soon as late CY 2023
- Rate of train cancellations will subside before full staffing is achieved

Station Equipment – Elevator Availability
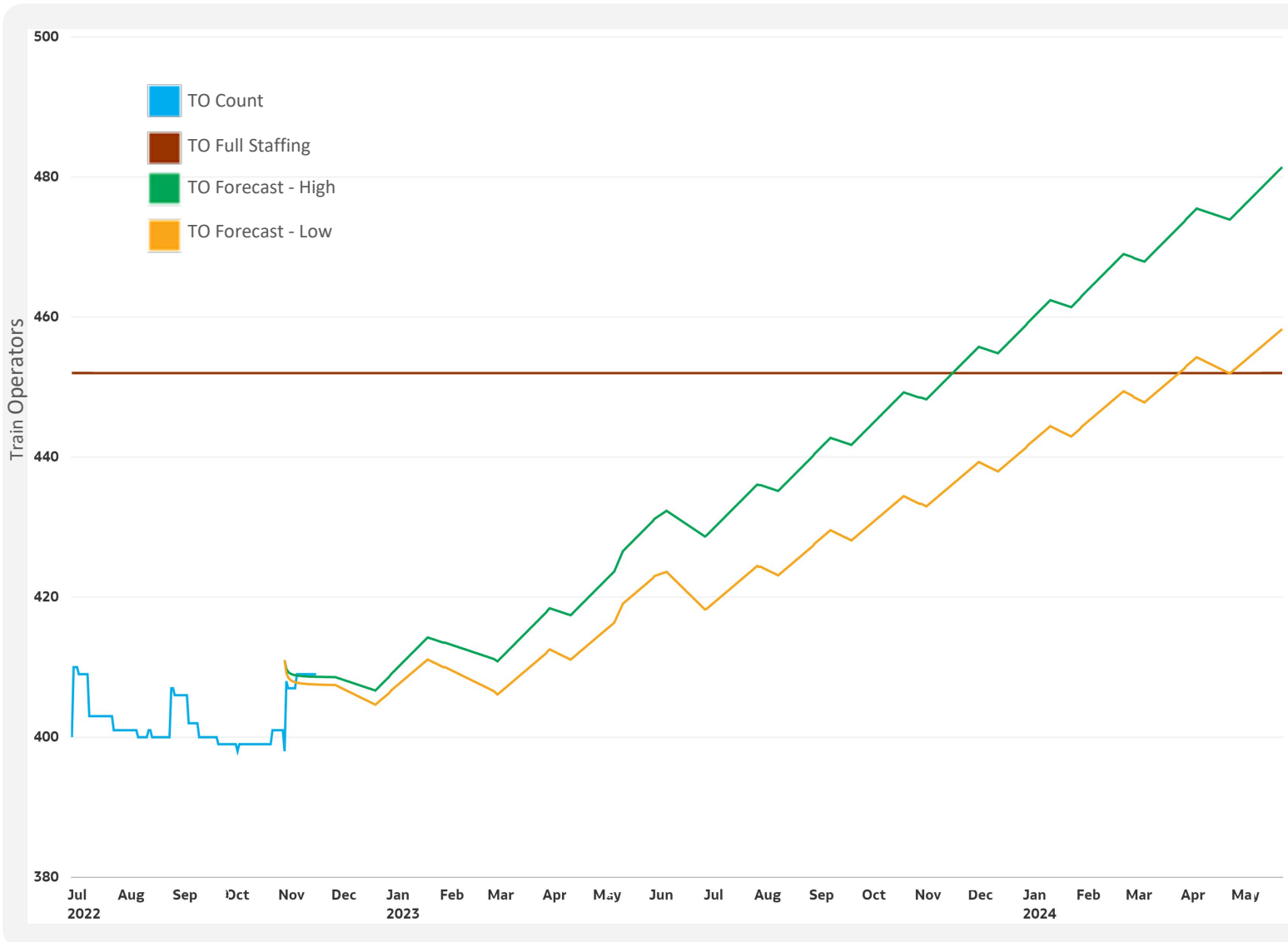
Station Elevator

- Goal met

Garage Elevator

- Goal met

Station Equipment – Escalators Availability
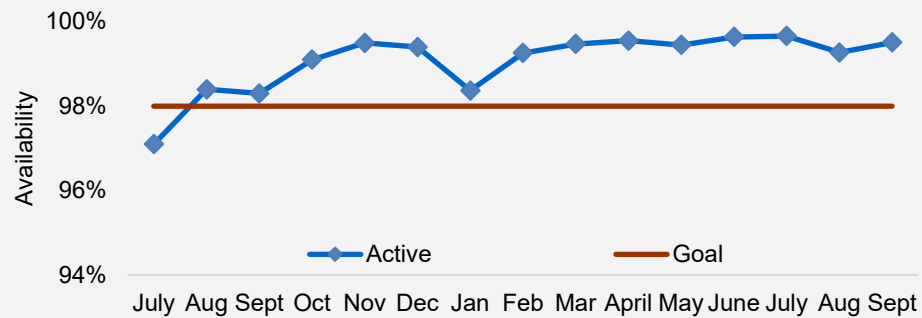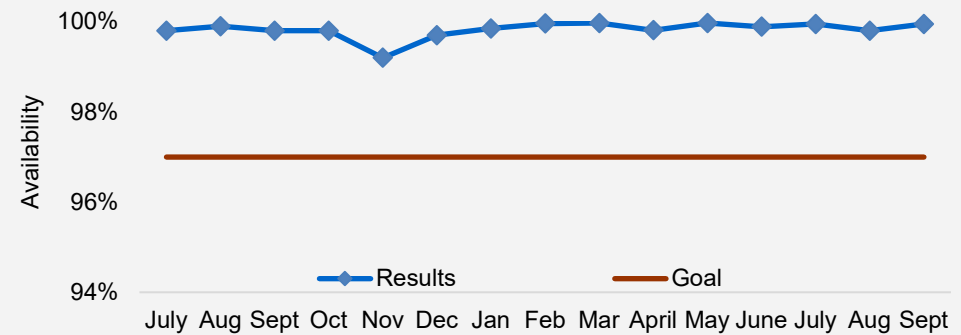
Street Escalator

- Goal met

Platform Escalator

- Goal met

Street Escalator — Availability (99% to 85%), months July through Sept. Results line stays above Goal line at 96%.

Platform Escalator — Availability (99% to 85%), months July through Sept. Results line stays above Goal line at 93%.

Station Equipment – Automatic Fare Collection
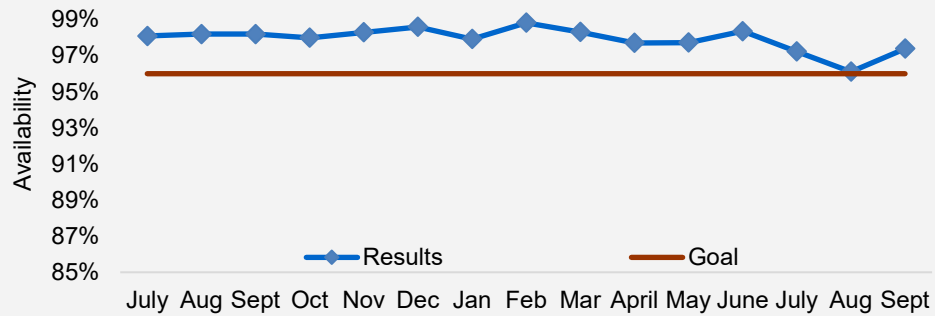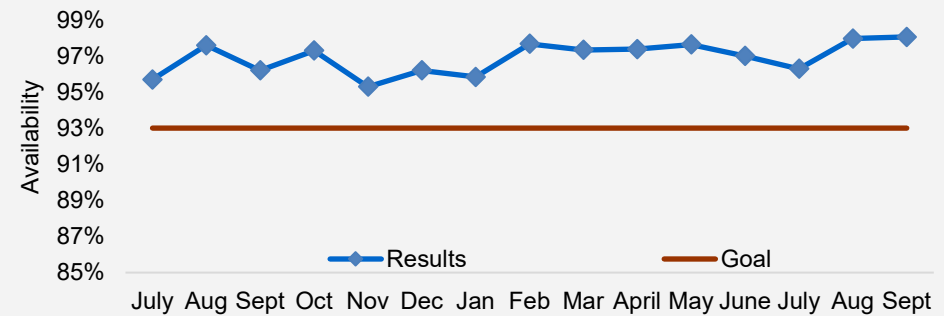
Gate Availability

- Goal met

- Installed newly retrofitted swing gates at Rockridge (C10), Walnut Creek (C40), and North Berkeley (R30)

Vendor Availability

- Goal met

- Converted (8) Ticket Vendor Machines to handle Mag-Stripe Tickets at SFO to increase customer media options

Gate Availability chart showing Results (blue) versus Goal (brown line at 95%) from July to Sept, with Availability axis from 90% to 100%.

Vendor Availability chart showing Results (blue) versus Goal (brown line at 99%) from July to Sept, with Availability axis from 98% to 100%.
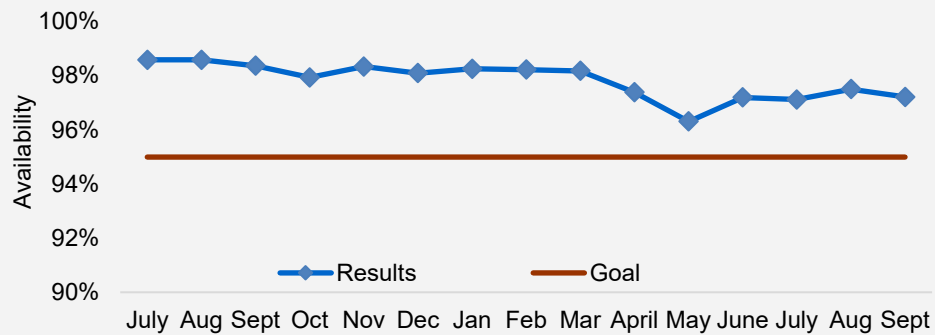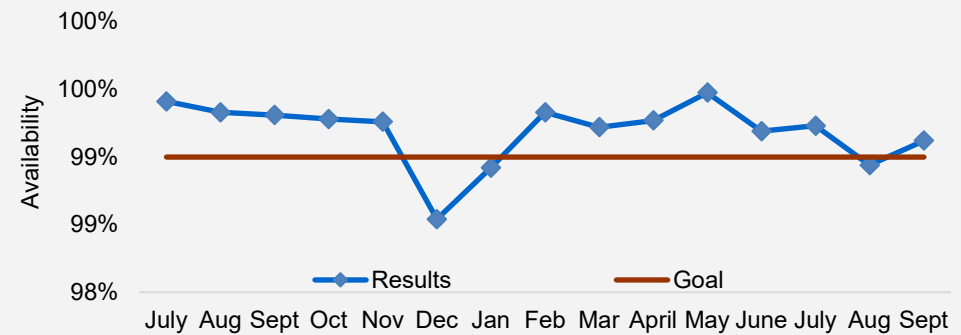
Summary – Customer Experience
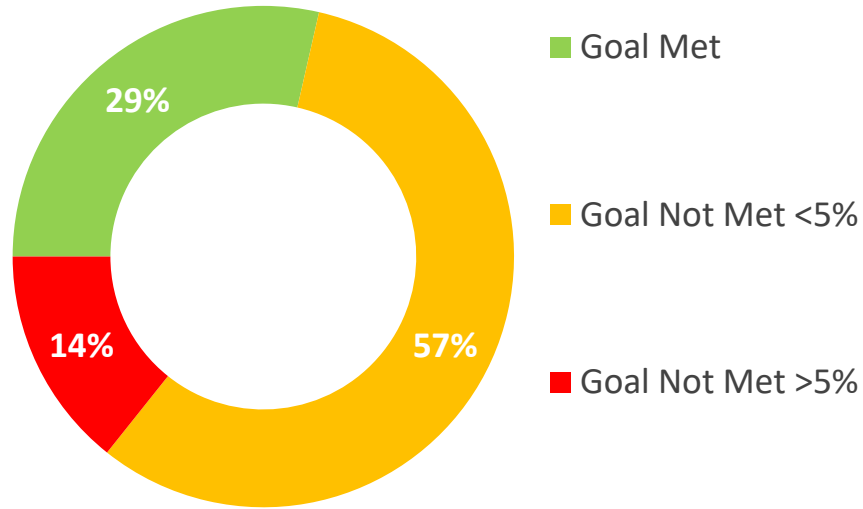
	Metric		FY23 Q1	Goal	Change from FY22 Q4
Service					
	Customer Service	▼	73.6%	75%	6.49%
	Complaints per 100,000 Passenger Trips	▼	27.06	5.07	33.96%
Train Environment					
	Train Temperature	▼	83.5%	82%	2.25%
	Train Interior Cleanliness	▼	69.7%	70%	5.49%
Station Environment					
	Environment Outside Stations	▼	66.1%	70%	4.11%
	Environment Inside Stations	▼	63.1%	64%	7.28%
Code of Conduct					
	Station Graffiti	▼	71.1%	73%	7.58%
	Fare Evasion	▲	22.11%		22.50%

Legend: Goal Met · Goal Not Met <5% · Goal Not Met >5%

Customer Service

Customer Service

- Transportation Management is integrating customer service expectations with a large number of new Station Agents
  - Commendations and acknowledgments continue in the field and Ops Newsletter for positive reinforcement
  - Training Department strong focus on Customer Service

Customer Service Rating

Legend: Results, Goal

Y-axis: % of Excellent & Good (40% to 90%)
X-axis: FY22 Q1, FY22 Q2, FY22 Q3, FY22 Q4, FY23 Q1

Customer Complaints

- Increase in complaints this quarter consistent with wayside and staffing service delivery issues

Breakdown of 3,095 Customer Complaints

Service, 25%
Police, 9%
AFC, 8%
Personnel, 8%
Maintenance and Equipment, 8%
Apps, 7%
Trains, 6%
Biohazard, 6%
Pass... Infor... 5%
Train Cleanlin...
Station Cleanliness, 5%
Policies, 4%
Qual... of Lif...

Customer Complaints

Legend: Results, Goal

Y-axis: Complaints per 100,000 Customers (0 to 36)
X-axis: July, Aug, Sept, Oct, Nov, Dec, Jan, Feb, Mar, April, May, June, July, Aug, Sept

Environment – Stations

Environment Outside Station

- Goal met

Environment Inside Station

Customer Rating - Outside Station
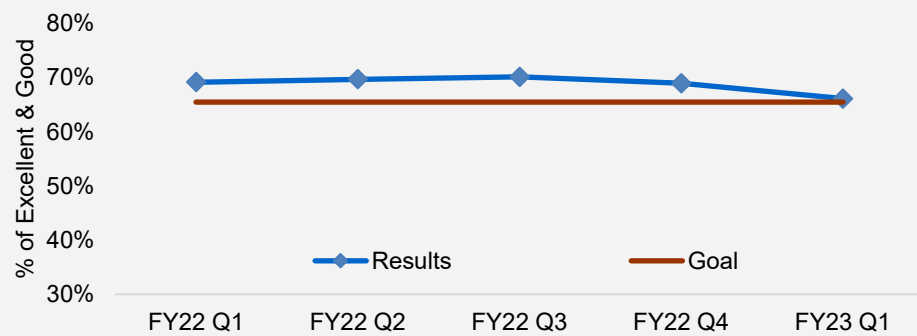
Customer Rating - Inside Station

Environment – Trains
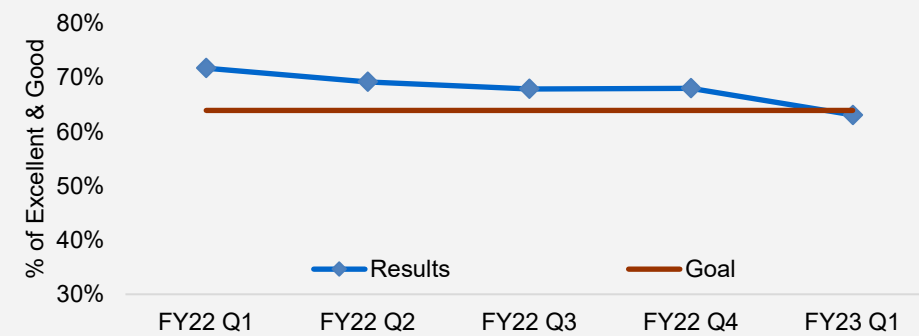
Train Interior Cleanliness

Train Temperature

- FOTF HVAC software update released in August 2022, 76% of D/E cars updated during Q1

● Customer Rating – Interior Cleanliness
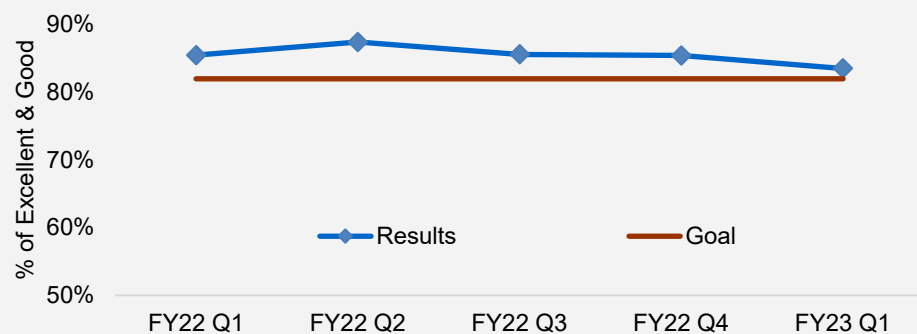
● Customer Rating - Temperature

Data acquired from PES Survey

Environment – Code of Conduct
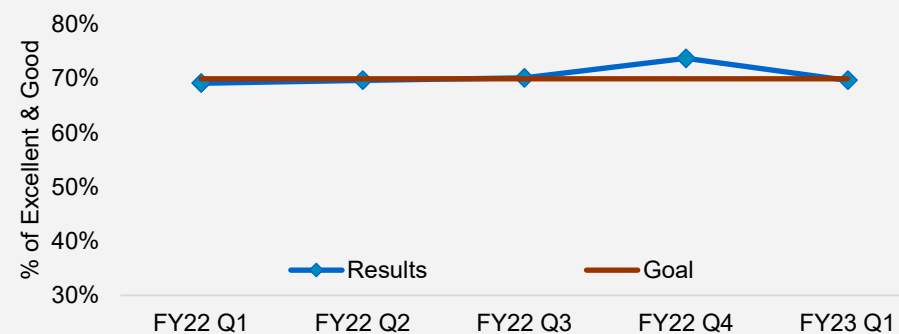
Station Graffiti

Fare Evasion

Based upon your current trip today, please rate whether BART Station is Kept Free from Graffiti
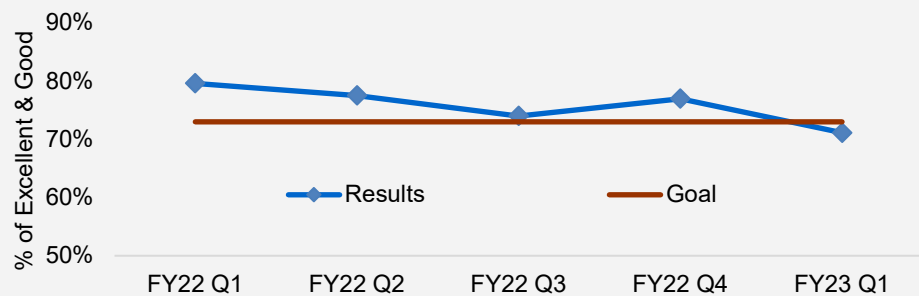
Did you see anyone enter or exit the Station without paying their fare today?

● Station Graffiti

● Fare Evasion

Data acquired from PES Survey
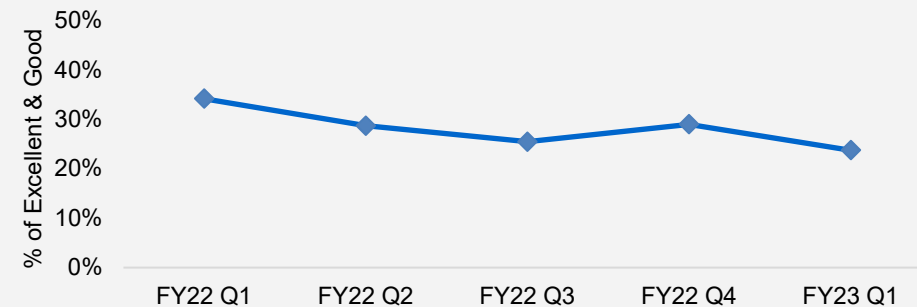
Summary – Safety and Security
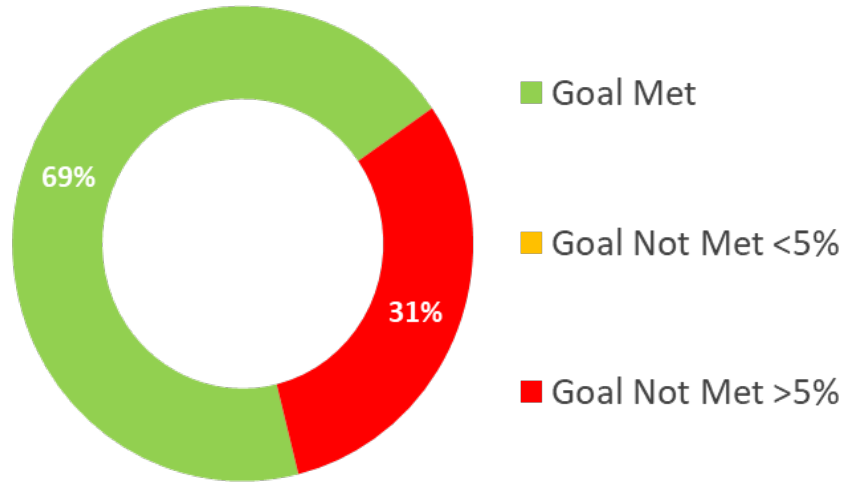
Metric		FY23 Q1	Goal	Change from FY22 Q4
Safety				
Vehicle Incidents/Million Patrons	▲	0.35	0.60	25.53%
Unscheduled Door Openings/Million Car Miles	▲	0.19	0.20	64.81%
Rule Violations Summary/Million Car Miles	▲	0.14	0.25	41.66%
Station Incidents/Million Patrons	▼	1.75	2	33.58%
OSHA-Recordable Injuries/Illnesses/Per OSHA	▼	13.96	12	13.58%
Lost Time Injuries/Illnesses/Per OSHA	▼	7.92	6.50	20.73%
Security				
Police Response Time/Emergency Incident (Minutes)	▼	4	5	11.11%
Bike Thefts	▼	48	100	65.51%
Auto Thefts/1,000 Parking Spaces	▼	1.02	2.25	11.36%
Auto Burglaries/1,000 Parking Spaces	▼	1.95	6	5.61%
BART Police Presence	▼	9.61%	12%	7.14%
Crimes Against Persons/Million Riders	▼	8.40	2	1.85%

Legend: Goal Met / Goal Not Met <5% / Goal Not Met >5%

Donut chart: 69% Goal Met, 31% Goal Not Met >5%

Safety – Passenger

Station Incidents

Breakdown of 20 Station Incidents

Vehicle Incidents

Breakdown of 4 Vehicle Incidents

● Station Incidents

● Vehicle Incidents

Safety – Employee

Lost Time due to Injuries

Breakdown of 76 Lost Time Cases

Trauma, 26 | Other, 23 | Contusion, 16 | Strain Injury, 11
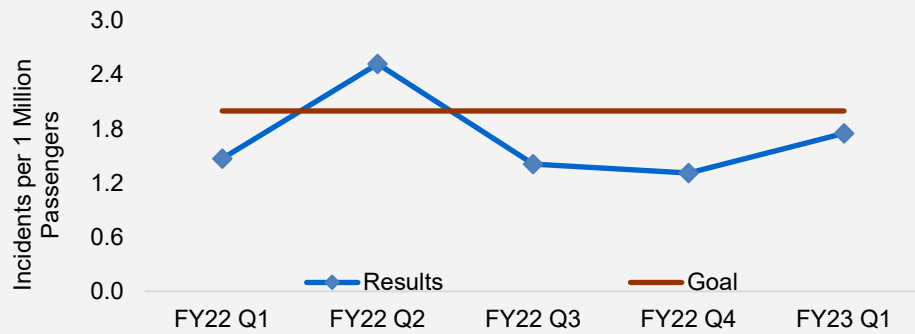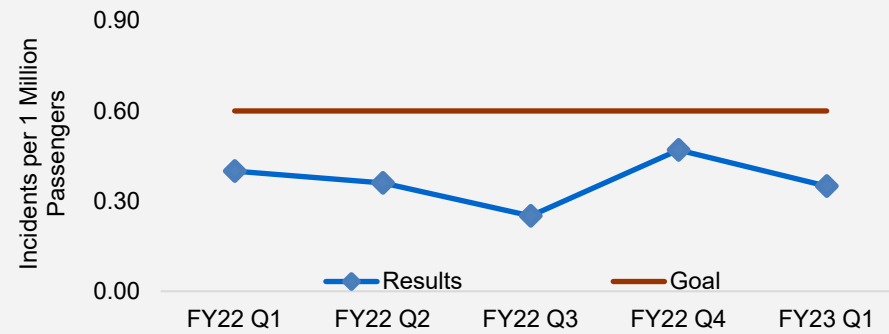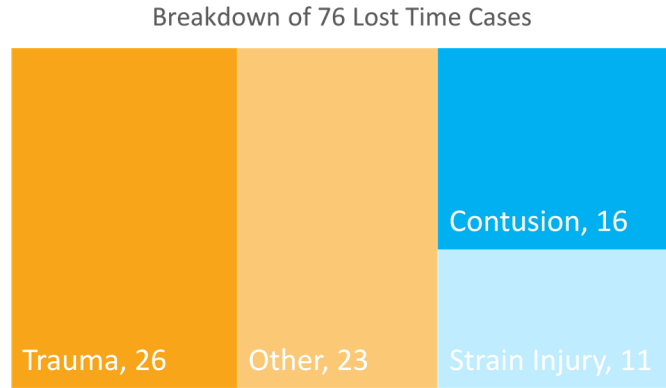
🔴 Lost Time due to Injuries

OSHA Recordable Injuries

Breakdown of Recordable Injuries

Other, 53 | Trauma, 30 | Contusion, 27 | Strain Injury, 24

🔴 OSHA Recordable Injuries

Safety – Procedure Violations
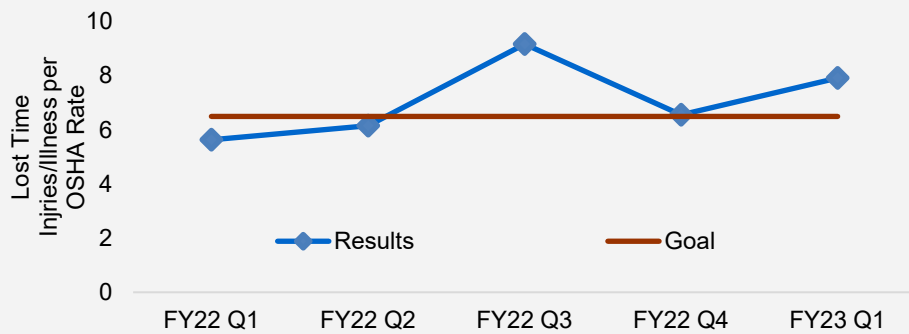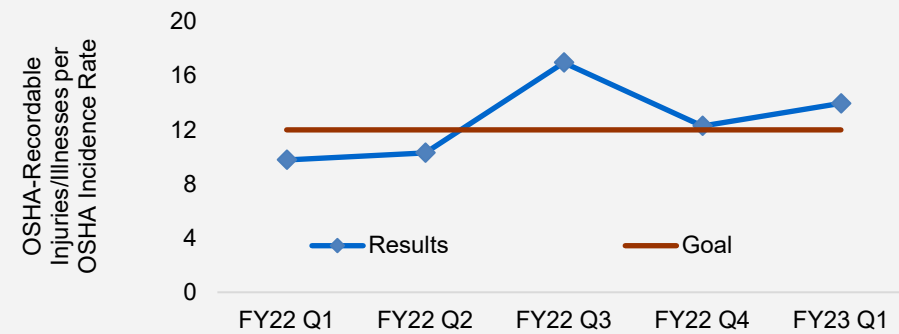
Unscheduled Door Openings

- September 2022 – 2 Unscheduled Openings
- July 2022 – 2 Unscheduled Openings

Rule Violations

- July 8th – 1 Transportation Rule Violation
- July 8th – 1 M&E Rule Violation
- July 22nd – 1 M&E Rule Violation

● Unscheduled Door Openings

Y-axis: Unscheduled Door Openings per Million Car Miles (0.0 – 0.6)
X-axis: FY22 Q1, FY22 Q2, FY22 Q3, FY22 Q4, FY23 Q1

Legend: Results, Goal

● Rule Violations

Y-axis: Rule Violations per Million Car Miles (0.0 – 0.6)
X-axis: FY22 Q1, FY22 Q2, FY22 Q3, FY22 Q4, FY23 Q1

Legend: Results, Goal

Security – Police Coverage
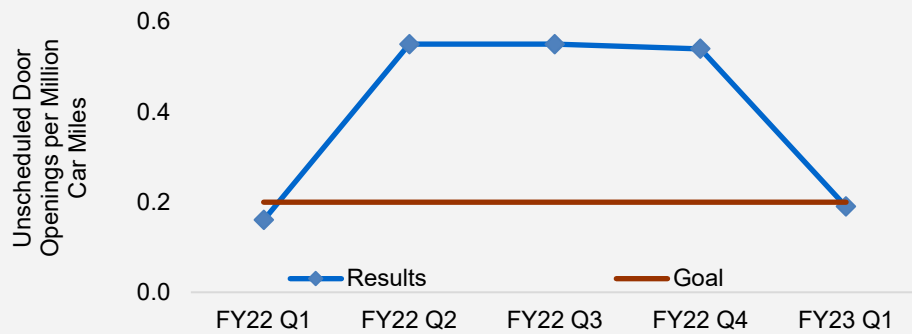
Police Presence

- Continuing high-visibility deployment to maximize coverage in stations and on trains

Did you see BART Police in the station today?
Did you see BART Police outside the station today?
Did you see BART Police on this train?

● BART Police Presence
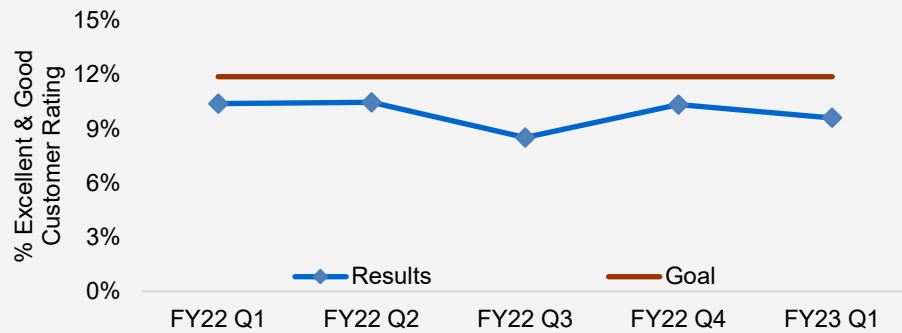
Police Response Time

- Goal met

● BART Police Response Time
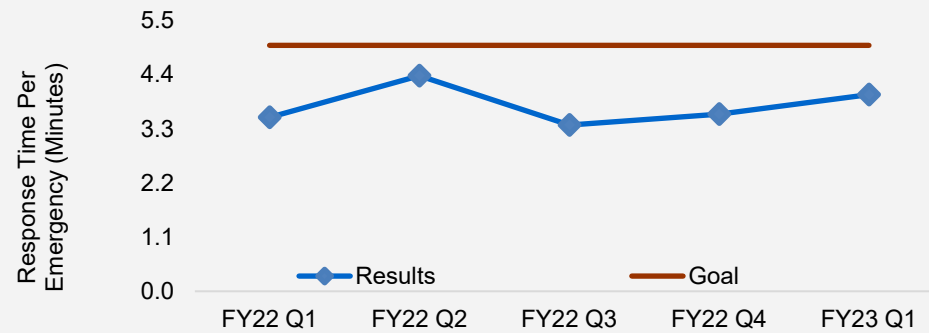
Crime – Against Persons
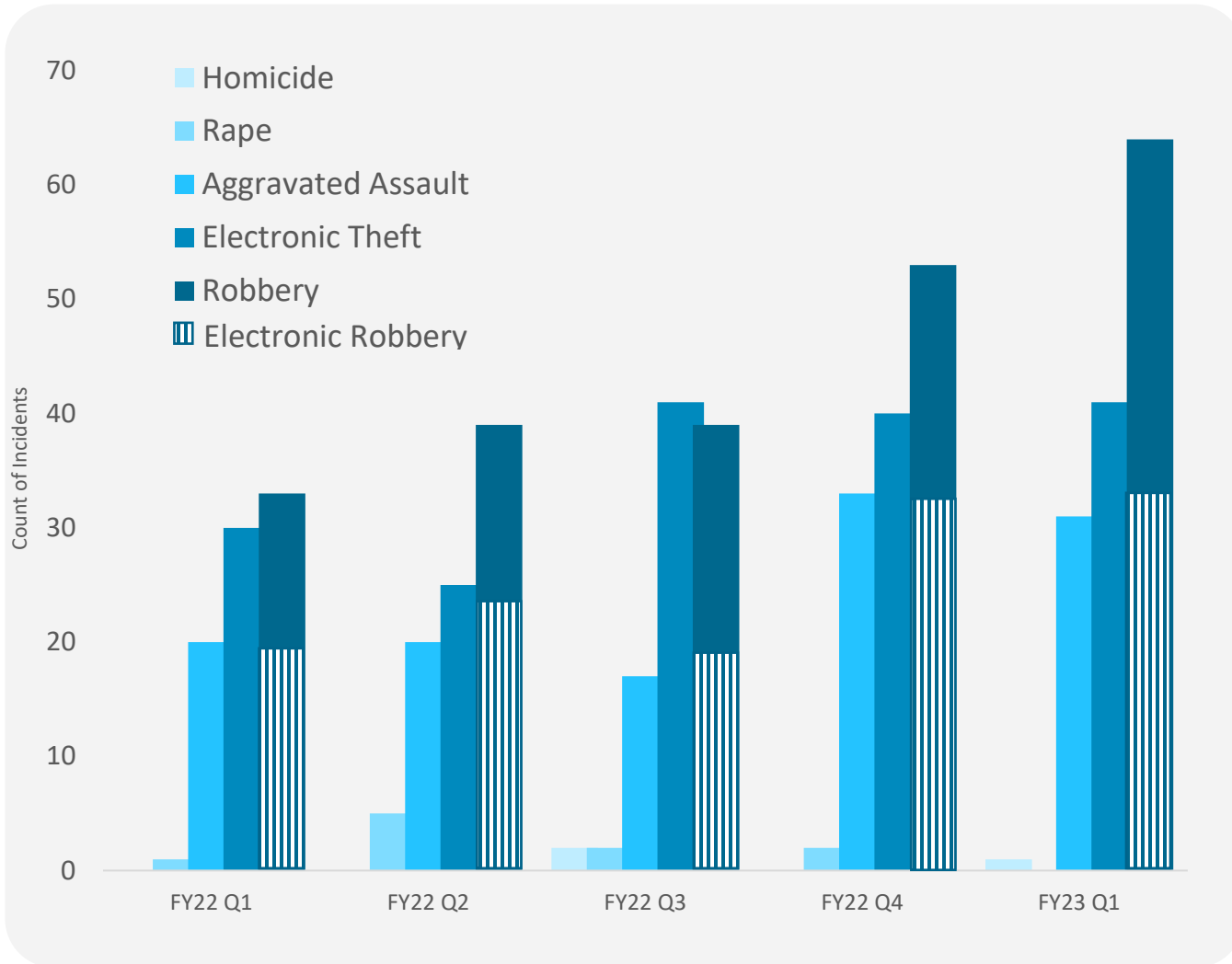
- Continued upward trend in Robbery and Assault incidents

- Some correlation to increased ridership and on-going regional issues

🔴 **Crime Against Persons**

Crime – Theft and Burglary
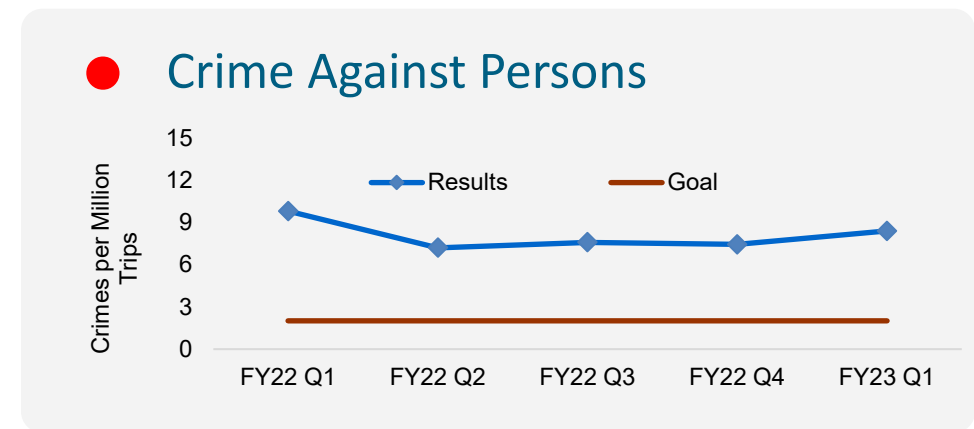
Bike Theft

- Goal met

Auto Theft

- Goal met

Auto Burglary

- Goal met

Bike Theft — Total Quarterly Bike Thefts, with Results and Goal lines across FY22 Q1, FY22 Q2, FY22 Q3, FY22 Q4, FY23 Q1.

Auto Theft — Crimes per 1,000 Parking Spaces, with Results and Goal lines across FY22 Q1, FY22 Q2, FY22 Q3, FY22 Q4, FY23 Q1.

Auto Burglary — Crimes per 1,000 Parking Spaces, with Results and Goal lines across FY22 Q1, FY22 Q2, FY22 Q3, FY22 Q4, FY23 Q1.
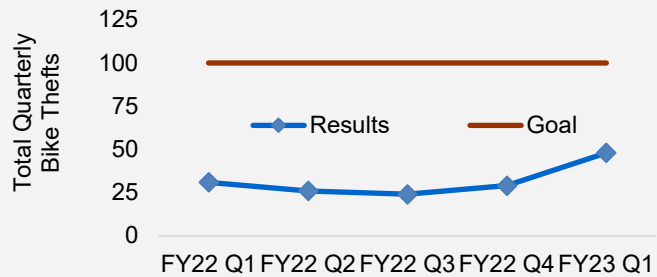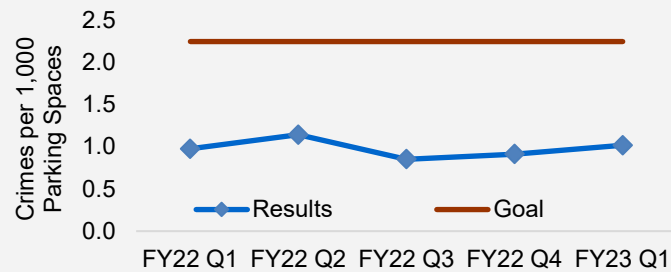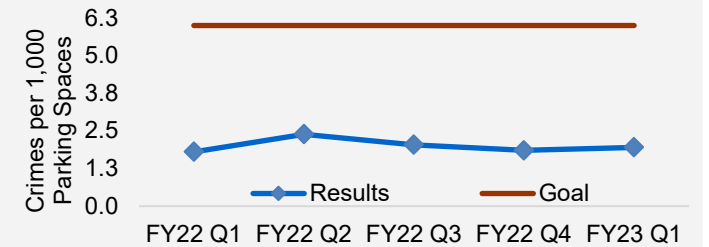
Appendix

QPR Summary – Service Delivery & Railway Asset Availability

KPI CATEGORY & CLASS		PERFORMANCE INDICATORS	CURRENT QUARTER				PRIOR QTR ACTUALS		YEAR TO DATE			
							LAST QUARTER	THIS QTR LAST YEAR				
			ACTUAL	STANDARD	STATUS				ACTUAL	STANDARD	STATUS	
Service Delivery	Capacity	**Average Ridership - Weekday**	145,785	153,737	NOT MET	🟥	136,258	93,014	145,785	153,737	NOT MET	🟥
		Peak Period Transbay Car Throughput										
		AM Peak	94.88%	97.50%	NOT MET	🟨	92.44%	95.69%	94.88%	97.50%	NOT MET	🟨
		PM Peak	94.51%	97.50%	NOT MET	🟨	91.77%	92.36%	94.51%	97.50%	NOT MET	🟨
	Punctuality	**All-Day**										
		Trains On-Time	74.16%	91.00%	NOT MET	🟥	77.18%	90.17%	74.16%	91.0%	NOT MET	🟥
		Customers On-Time	82.79%	94.00%	NOT MET	🟥	86.35%	93.94%	82.79%	94.00%	NOT MET	🟥
		Peak										
		Trains On-Time	72.19%	N/A	N/A		76.59%	90.94%	72.19%	N/A	N/A	
		Customers On-Time	85.77%	N/A	N/A		88.37%	94.52%	85.77%	N/A	N/A	
Railway Asset Availability	Station Equipment	**Elevators in Service**										
		Station	99.48%	98.00%	MET	🟩	99.55%	97.93%	99.48%	98.00%	MET	🟩
		Garage	99.90%	97.00%	MET	🟩	99.89%	99.83%	99.90%	97.00%	MET	🟩
		Escalators in Service										
		Street	97.44%	93.00%	MET	🟩	97.34%	96.50%	97.44%	93.00%	MET	🟩
		Platform	96.92%	96.00%	MET	🟩	97.94%	98.17%	96.92%	96.00%	MET	🟩
		Automatic Fare Collection										
		Gates	99.10%	99.00%	MET	🟩	99.31%	99.35%	99.10%	99.00%	MET	🟩
		Vendors	97.28%	95.00%	MET	🟩	96.97%	98.52%	97.28%	95.00%	MET	🟩
	Revenue Fleet	Car Availability at 4 AM (0400)	682	632	MET	🟩	654	609	682	632	MET	🟩
		Mean Time Between Service Delays	7,046	4,650	MET	🟩	7,055	5,937	7,237	4,650	MET	🟩
	Wayside Equipment	Track	0.25	0.30	MET	🟩	0.01	0.02	0.25	0.30	MET	🟩
		Transportation	2.72	0.50	NOT MET	🟥	2.07	0.90	2.72	0.50	NOT MET	🟥
		Traction Power	1.23	0.20	NOT MET	🟥	0.63	0.19	1.23	0.20	NOT MET	🟥
		Wayside Train Control System	1.56	1.00	NOT MET	🟥	1.46	0.69	1.56	1.00	NOT MET	🟥
		Computer Control System	0.09	0.08	NOT MET	🟥	0.320	0.240	0.090	0.08	NOT MET	🟥

SUMMARY CHART 1st QUARTER FY 2023 - SERVICE DELIVERY & RAILWAY ASSET AVAILABILITY

LEGEND: 🟩 Goal Met   🟨 Goal Unmet by < 5%   🟥 Goal Unmet by > 5%

QPR Summary – Customer Service, Safety, & Security

SUMMARY CHART 1st QUARTER FY 2023 - CUSTOMER SERVICE, SAFETY, & SECURITY

KPI CATEGORY & CLASS		PERFORMANCE INDICATORS	CURRENT QUARTER				PRIOR QTR ACTUALS		YEAR TO DATE			
							LAST QUARTER	THIS QTR LAST YEAR				
			ACTUAL	STANDARD	STATUS				ACTUAL	STANDARD	STATUS	
Customer Experience	Service	Customer Service	73.6%	75.0%	NOT MET	🟨	78.7%	82.0%	73.6%	75.0%	NOT MET	🟨
		Customer Complaints per 100,000 Passenger Trips	27.06	5.07	NOT MET	🟥	20.20	21.15	27.06	5.07	NOT MET	🟥
	Train Environment	Train Interior Cleanliness	69.7%	70.0%	NOT MET	🟨	73.8%	75.1%	69.7%	70.0%	NOT MET	🟨
		Train Temperature	83.5%	82.0%	MET	🟩	85.5%	85.5%	83.5%	82.0%	MET	🟩
	Station Environment	Environment Outside Stations	66.1%	65.5%	MET	🟩	69.0%	69.2%	66.1%	66.0%	MET	🟩
		Environment Inside Stations	63.1%	64.0%	NOT MET	🟨	68.1%	71.8%	63.1%	64.0%	NOT MET	🟨
	Code of Conduct	Station Graffiti	71.1%	73.0%	NOT MET	🟨	77.0%	79.6%	71.1%	73.0%	NOT MET	🟨
		Fare Evasion	22.1%	N/A	N/A	⬜	18.1%	14.2%	22.1%	N/A	N/A	⬜
Safety & Security	Safety	Station Incidents/Million Patrons	1.75	2.00	MET	🟩	1.31	1.47	1.75	2.00	MET	🟩
		Vehicle Incidents/Million Patrons	0.35	0.60	MET	🟩	0.47	0.40	0.35	0.60	MET	🟩
		Lost Time Injuries/Illnesses/Per OSHA	7.92	6.50	NOT MET	🟥	6.56	5.63	7.92	6.50	NOT MET	🟥
		OSHA-Recordable Injuries/Illnesses/Per OSHA	13.96	12.00	NOT MET	🟥	12.29	9.79	13.96	12.00	NOT MET	🟥
		Unscheduled Door Openings/Million Car Miles	0.19	0.20	MET	🟩	0.540	0.160	0.190	0.200	MET	🟩
		Rule Violations Summary/Million Car Miles	0.14	0.25	MET	🟩	0.240	0.420	0.140	0.250	MET	🟩
	Security	BART Police Presence	9.61%	12.00%	NOT MET	🟥	10.35%	10.36%	9.61%	12.00%	NOT MET	🟥
		Quality of Life per million riders	128.03	N/A	N/A	⬜	144.16	222.41	128.03	N/A	N/A	⬜
		Crimes Against Persons per million riders	8.40	2.00	NOT MET	🟥	8.25	7.21	8.40	2.00	NOT MET	🟥
		Auto Burglaries per 1,000 parking spaces	1.95	6.00	MET	🟩	1.85	1.80	1.95	6.00	MET	🟩
		Auto Thefts per 1,000 parking spaces	1.02	2.25	MET	🟩	0.91	0.97	1.02	2.25	MET	🟩
		Police Response Time per Emergency Incident (Minutes)	4.00	5.00	MET	🟩	3.60	3.53	4.00	5.00	MET	🟩
		Bike Thefts (Quarterly Total and YTD Quarterly Average)	48	100.00	MET	🟩	29	31	48	100.00	MET	🟩

LEGEND: 🟩 Goal Met   🟨 Goal Unmet by < 5%   🟥 Goal Unmet by > 5%