CapMetro

Vehicle Maintenance – Bus & DR

UT Interns – Fall 2025

3/11/2026 FAA Committee Meeting

Objective & Scope

Use Data Analytics to achieve the following:

- Evaluate the Completeness & Accuracy of the Data
- Gather any insights or trends in the data.

Obtain management requests of desired reports and/or analysis and create as many deliverables as possible during the Fall semester.

Summarize observations and create recommendations.

Requested Deliverables from UT Interns

No.	Deliverable & Task	Deliverables	Comment
1	Life cycle costs for each Vehicle	-	Data not available – Labor Rate ($36.78) loaded in 10/2025
2	Cost per mile	***Deliverable 2***	Parts only 2024 & 2025 - Labor Rate ($36.78) loaded in 10/2025
3	Cost per year-category or manufacturer	***Deliverable 3***	Parts only 2024 & 2025 - Labor Rate ($36.78) loaded in 10/2025
4	Repeat Failures - returning for the same issue or shortly after PM	-	Merged with 9
5	Mean Distance Between Failures (MDBF)	***Deliverable 5***	MDBF
6	Road Calls-Failed in Service	***Deliverable 6***	MDBF-Category-Month
7	Road Calls - analysis of types of road calls, root cause	***Deliverable 7***	Road Calls-MDBF-Chargeable and causes (System failure)
8	Labor hours cost analysis	-	Data not available – Labor Rate ($36.78) loaded in 10/2025
9	Last PM per Vehicle	***Deliverable 9***	Miles for Last PM
10	Road Calls - trends, frequency, root causes	-	Merged with 6
11	Part cost analysis & trends-per vehicle	***Deliverable 11***	Parts only 2024 & 2025
12	Keolis metrics template-comprehensive	-	Data not available
13	Data Completeness and Accuracy	***Deliverable 13***	VMA list reports
14	Industry Benchmarking - APTA, ABBG, FMCSA	-	Did not have access to benchmarking
15	Quadrennial Performance Audit	-	Framework in process

Completeness & Accuracy Observations

- Identified some Work Orders (WO) that had unrealistically high hours. In some cases amount paid to third party vendor was recorded as maintenance hours. Note, now that a Labor Rate has been loaded it will be easier to identify anomalies in the data.
- Some WO's had zero activity hours. Note, standard hours for common maintenance activities have not been loaded.
- Mean Distance Between Failures (MDBF) is better than what has been reported. Some accidents were incorrectly being included as a Chargeable Road Call in the MDBF calculations which reduces MDBF miles.
- Many extended "waiting for parts" WO's are the result of supervisors failing to update the work order status after the parts have arrived.

Findings and Recommendations- Data governance

Observations/Findings:

- EAM is not configured (hard coded) to drive completeness and accuracy (e.g. which fields are required or conditional, edit or reasonableness checks, etc.).
- Lack of exception reports, monitoring and data governance. For example, what data quality checks are done by Keolis/MTM and formal process to correct data errors.
- Some compliance issues (e.g. clock in/out on WO; updating "waiting for parts" on WO when part received; etc.)

Recommendations:

- Evaluate available fields and determine which fields are required and/or conditional. Consider locking or removing unnecessary fields to streamline the process. Create data dictionary, glossary and data owners with governance.
- As part of data governance, create exception reports with clear thresholds and assigned owners (Keolis/MTM and CapMetro). Add quality control checks for work orders (Keolis/MTM) and require a documented process from opening through closing each work order.
- Identify ways to prevent and detect data compliance issues, and incentives/penalties for right behaviors.

Findings and Recommendations – Automate Visuals

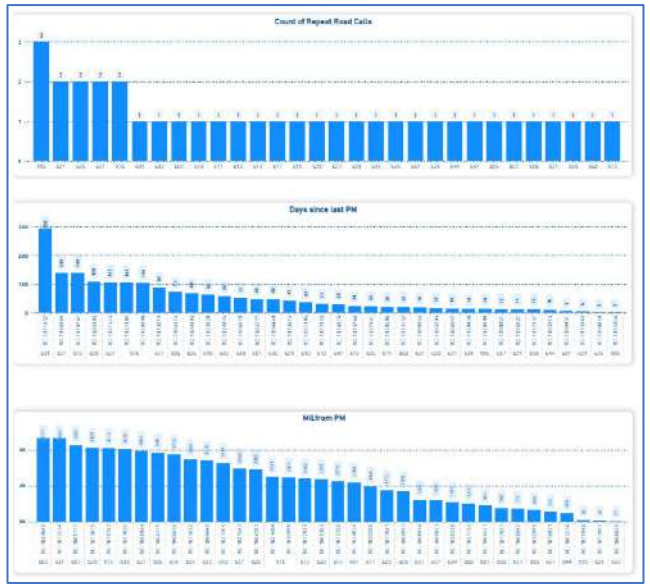
Observations/Findings:

- The visualizations of “last preventive maintenance (PM) per vehicle” are produced through manual Excel methods, which limits automation, increases the risk of inconsistent calculations, and requires significant staff effort.

Recommendations:

➢ Implement Power BI to visualize the “last preventive maintenance (PM) per vehicle” reporting to reduce manual effort, improve accuracy, and provide timely insights for operational decision making.







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Questions?