# Creating the Foundation for Quality Asset Data

September 28, 2023

TRANSIT ASSET MANAGEMENT

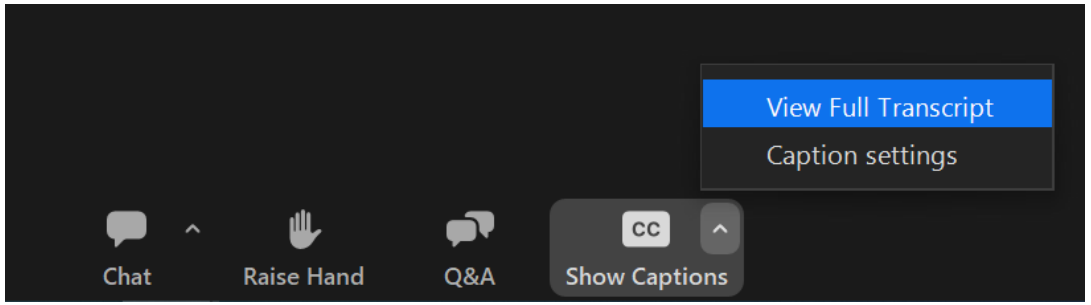
**Justin Barclay,** Maryland Transit Administration
**Mariyana Tozeva**, Maryland Transit Administration
**Dan Hofer,** Utah Transit Authority

FTA
FEDERAL TRANSIT ADMINISTRATION

U.S. Department of Transportation
Federal Transit Administration

# Event Logistics

- Presentation available at www.transit.dot.gov/TAM -> TAM Events
- This Webinar is being recorded and will be posted to the FTA TAM website
- Questions should be submitted using the Q&A feature
  - Some questions may not get published due to time constraints
- Closed captioning is available by clicking “Show Captions”, then selecting “View Full Transcript”



# NTD TAM DATA SUMMARY
# “NTD SNAPSHOT”

# NTD TAM Summary

## 2021 TAM Data Summary

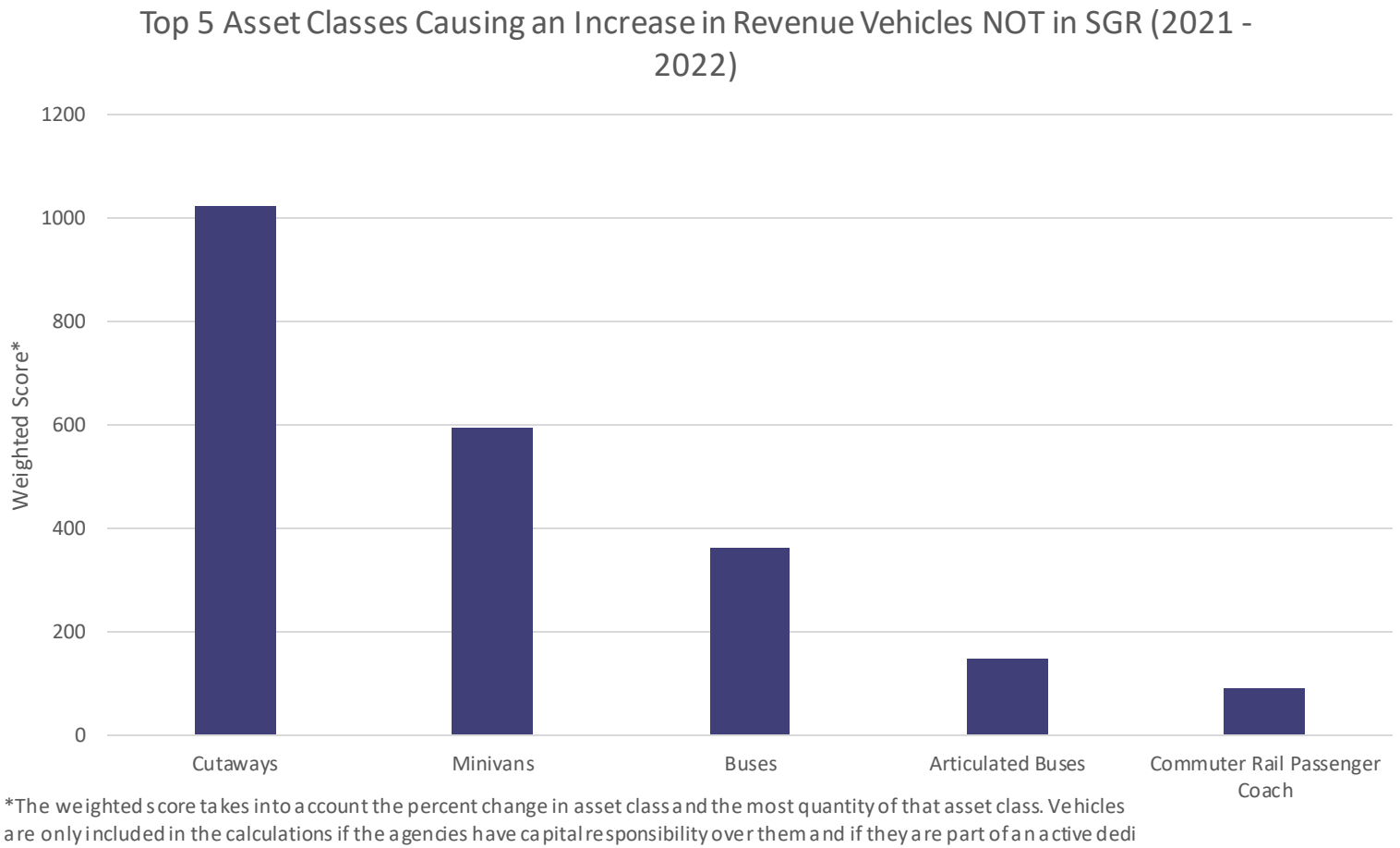
| Asset Category | Total Assets | Assets with Capital Responsibility | % in SGR in 2021 | *% in SGR in 2020* |
|---|---|---|---|---|
| **Revenue Vehicles** | 168,235 | 145,731 | 80.1% | *79.8%* |
| **Equipment (Service Vehicles)** | 31,202 | 30,996 | 63.4% | *63.8%* |
| **Facilities** | 14,094 | 11,938 | 89.6% | *88.9%* |
| **Infrastructure (Track Miles)** | 13,634 | 11,457 | 95.7% | *96.3%* |

# Revenue Vehicles 2018-2022

| Report Year | Total Assets | Assets with Capital Responsibility | % in SGR |
|---|---|---|---|
| **2018** | 173,733 | 151,035 | 79.2% |
| **2019** | 176,824 | 150,446 | 80.0% |
| **2020** | 172,845 | 147,879 | 79.8% |
| **2021** | 168,235 | 145,731 | 80.1% |
| **2022** | **166,083** | **143,485** | **78.7%** |

*Preliminary*

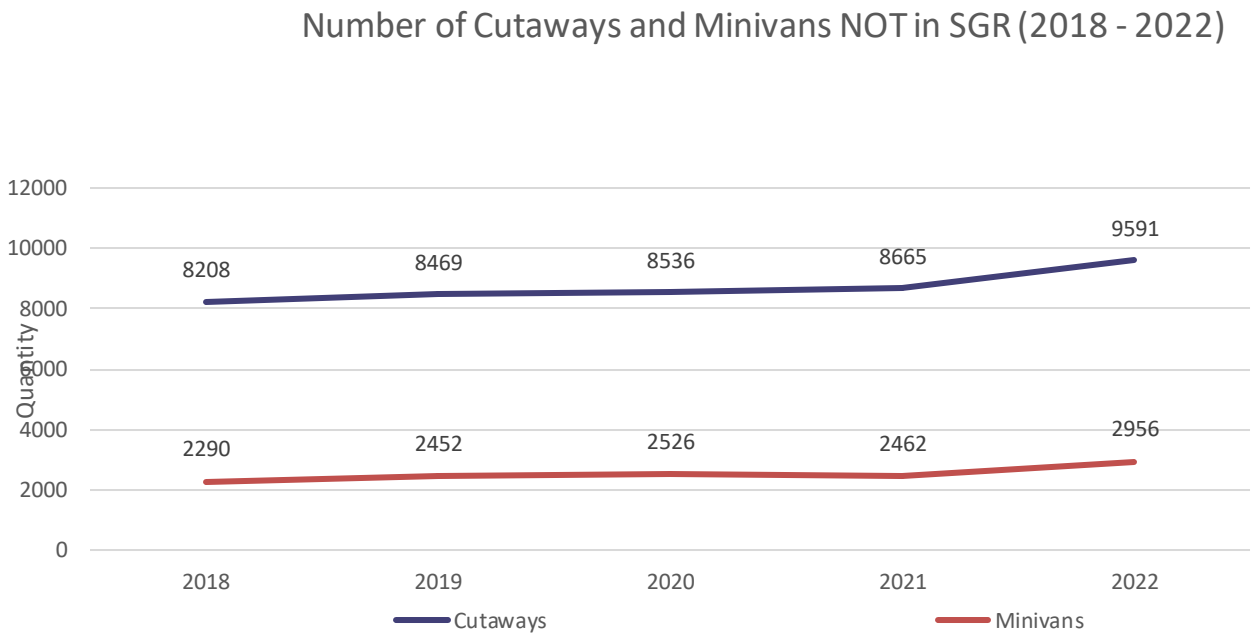
# Assets Classes in Backlog (2021 - 2022) weighted




*The weighted score takes into account the percent change in asset class and the most quantity of that asset class. Vehicles are only included in the calculations if the agencies have capital responsibility over them and if they are part of an active dedi

# Poll 1

# Cutaways and Minivans




Vehicles are only included in the calculations if the agencies have capital responsibility over them and if they are part of an active dedicated fleet.

# Poll 2

# MTA Speakers

**Mariyana Tozeva**
Asset Management Coordinator
Maryland Transit Administration

**Justin Barclay**
Transit Asset Management Program Manager
Maryland Transit Administration

# Asset Management System Pilot

**Mariyana Z. Tozeva**
**Asset Management Coordinator**

**Justin M. Barclay**
**Asset Management Manager**

# Agenda

- Background
- Asset Data Challenges
- Scope of an AMS
- SOPs Inventory Data Maintenance
- Summary

# Maryland Transit Administration

**2,560** sq. mi.
Service Area

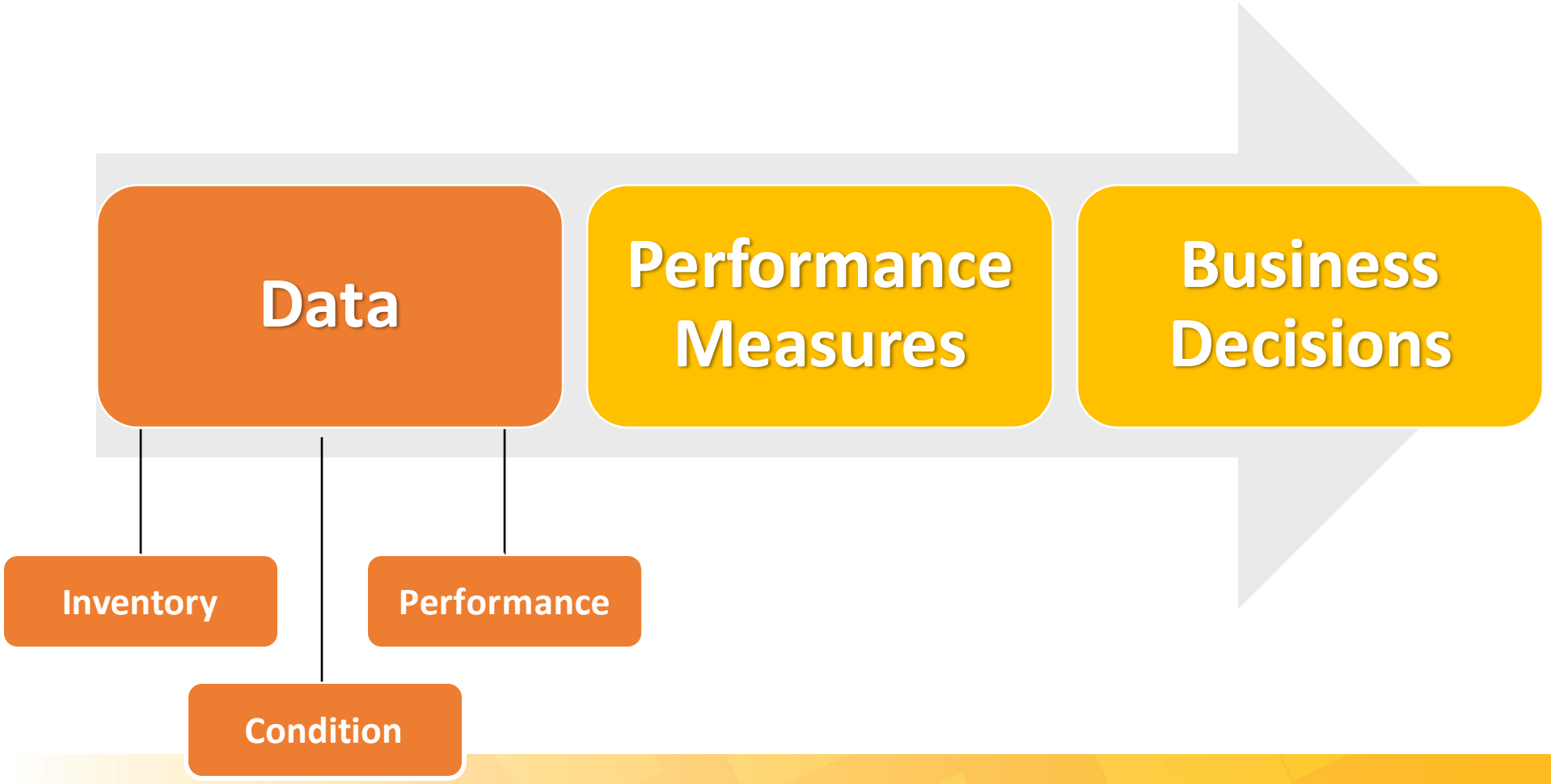
**$12.6** Billion
Asset Base (2022)

**23** Locally Operated
Transit Systems

## 6 MODES

- Local Bus
- Heavy Rail (Metro)
- Light Rail
- Commuter Rail (MARC)
- Commuter Bus
- Mobility (Paratransit)

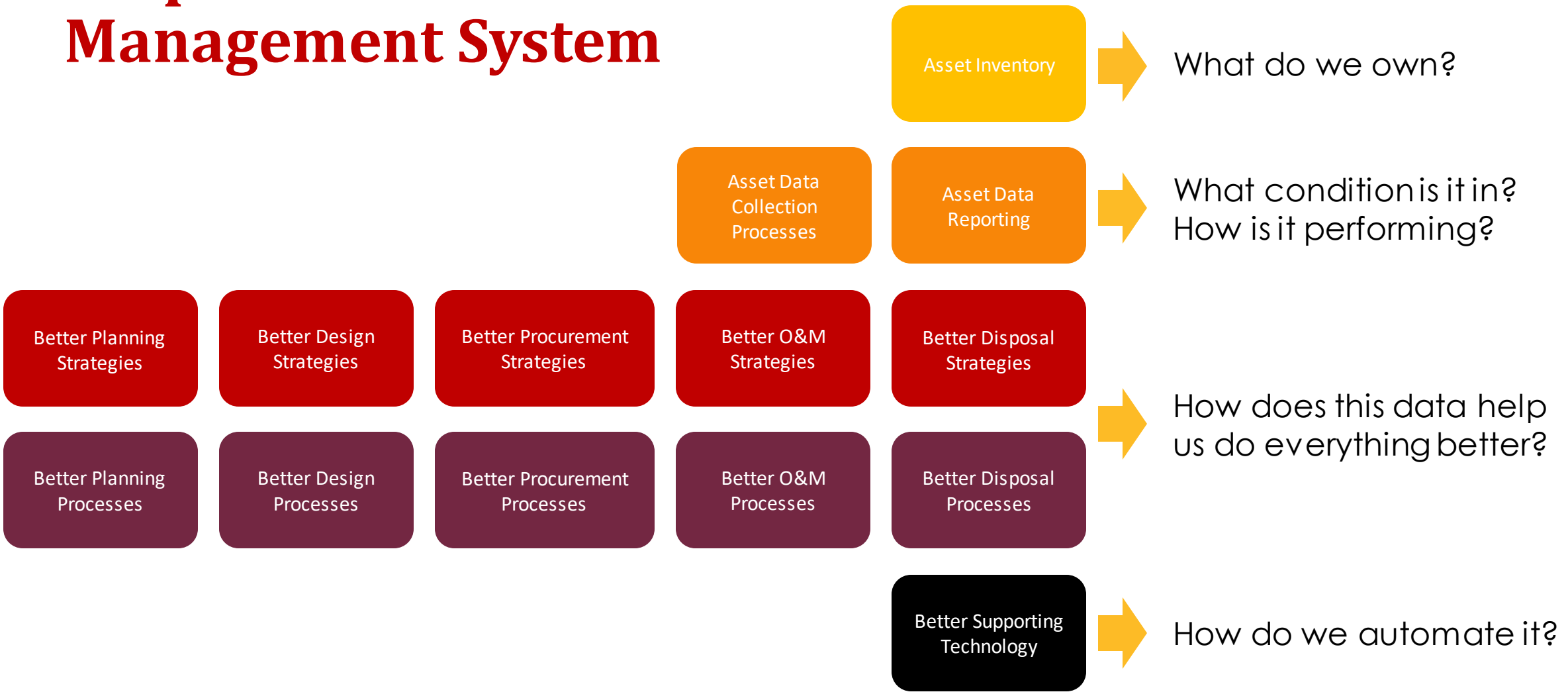
# Goal is to Use Data to Make Better Decisions



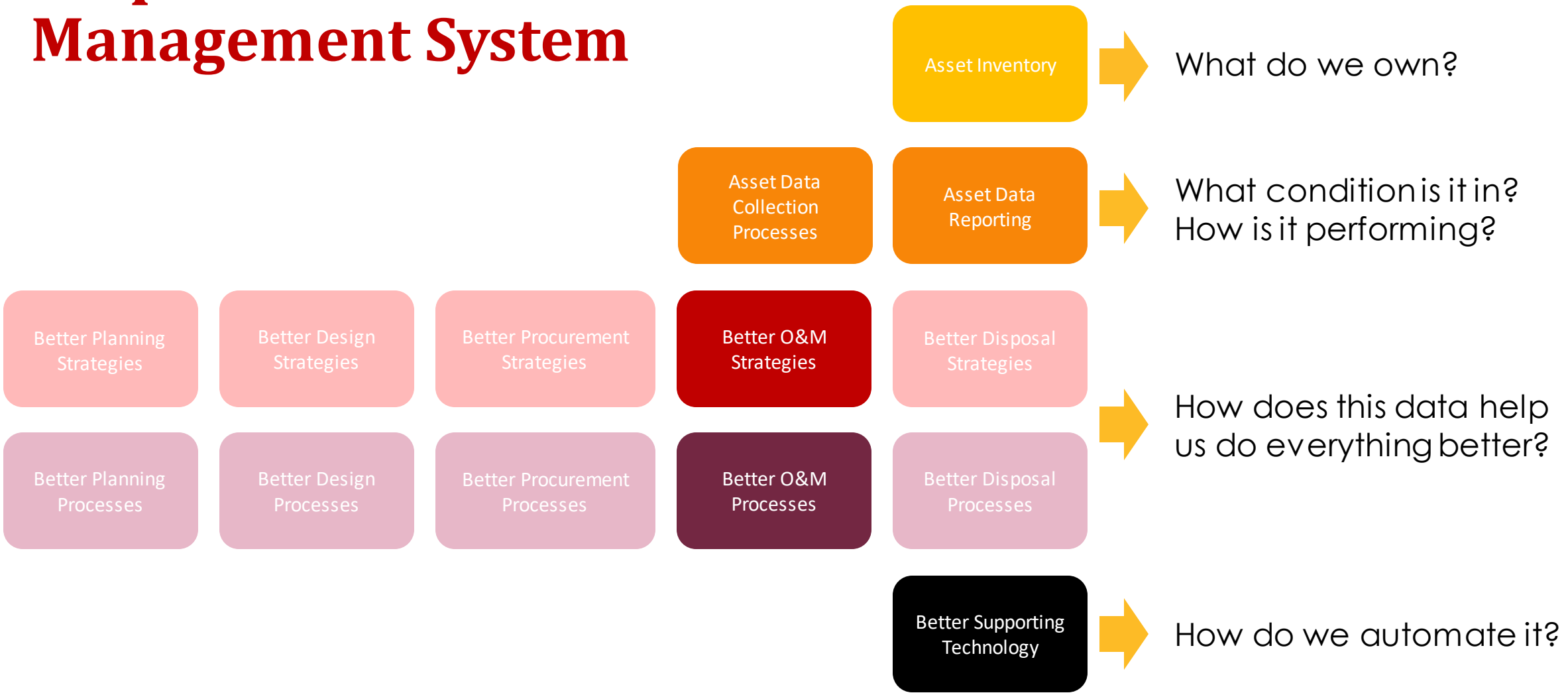
# Asset Data Challenges

- Inconsistent records on assets owned by MTA
- Unknown asset data attributes
- Incompatible Maryland State, TERM, and FTA/NTD asset hierarchies
- Not up-to-date
  - Annual snapshot
  - Records coming from multiple sources
  - Not all records are in “system of record”

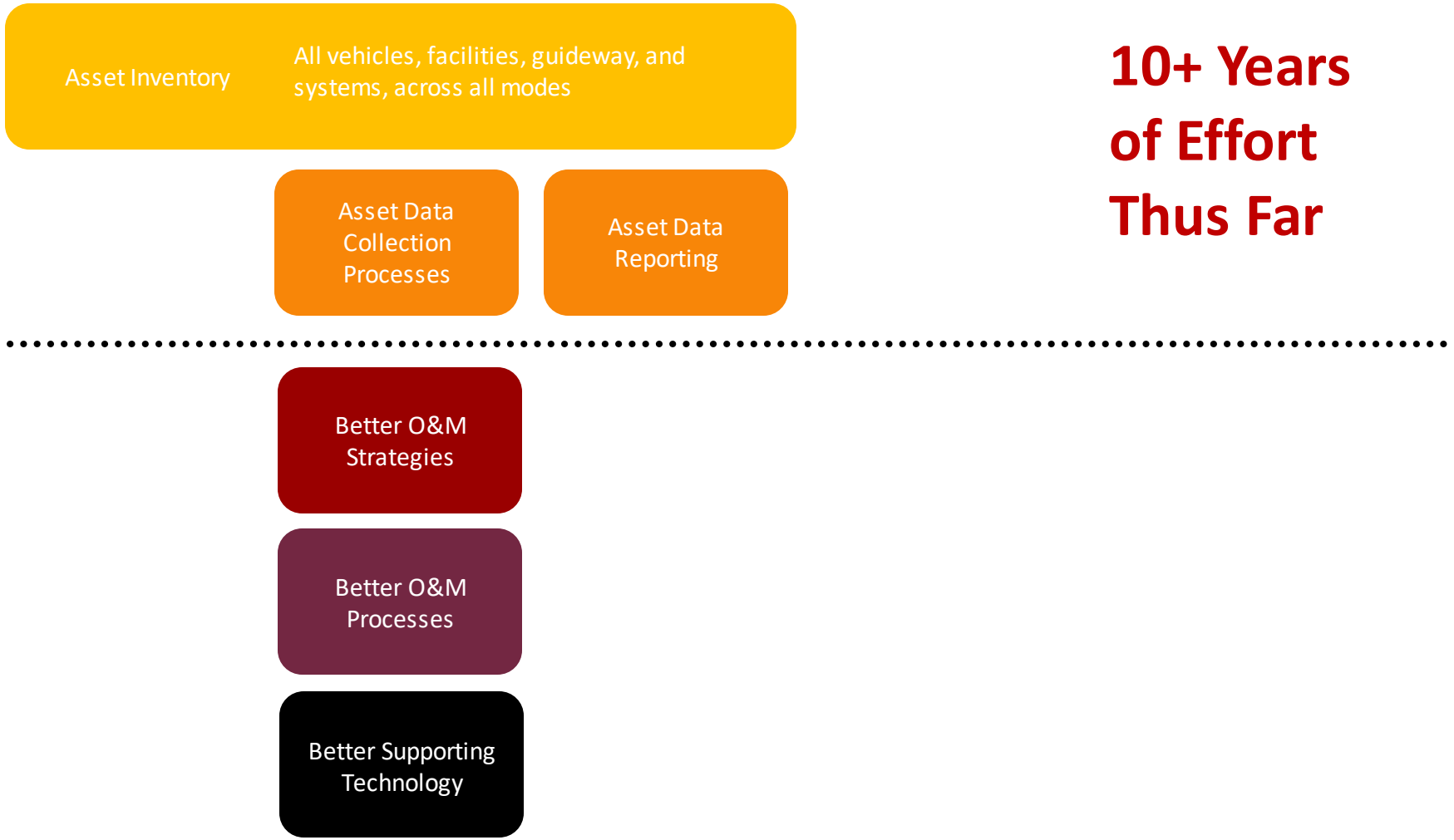
# Scope of an Asset Management System



# Scope of an Asset Management System



# Whole Agency At Once



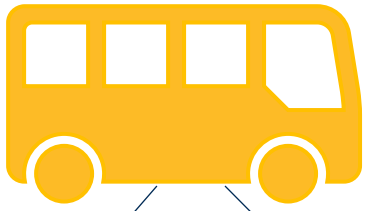

**10+ Years of Effort Thus Far**

# Proposed Approach

| | | | | | |
|---|---|---|---|---|---|
| **MILESTONE** | **Comprehensive Asset Inventory** | **Condition and Performance Analysis** | **Asset Management Strategies** | **Repeatable Processes** | **Software Requirements** |
| **DESCRIPTION** | Build a data foundation | Analyze asset condition and performance | Develop lifecycle plans | Document workflows | Plan Maximo configuration changes |
| **DEPARTMENT RESPONSIBILITIES** | Identify fatal flaws in inventory hierarchy and standard attributes | Identify fatal flaws in condition and performance analysis requirements and approaches | Help identify strategies for achieving asset condition and performance targets | **Help develop SOPs related to inventory maintenance,** condition and performance assessment | Identify fatal flaws in approaches to software configuration |

# SOPs Approach

Vehicle (revenue and non-revenue)

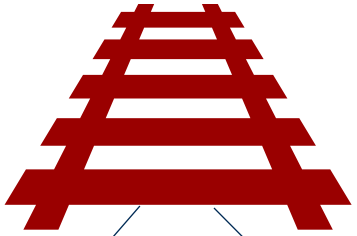


- Procurement & Onboarding
- Lifecycle Maintenance & Disposal

Vertical (buildings, stations, shelters)

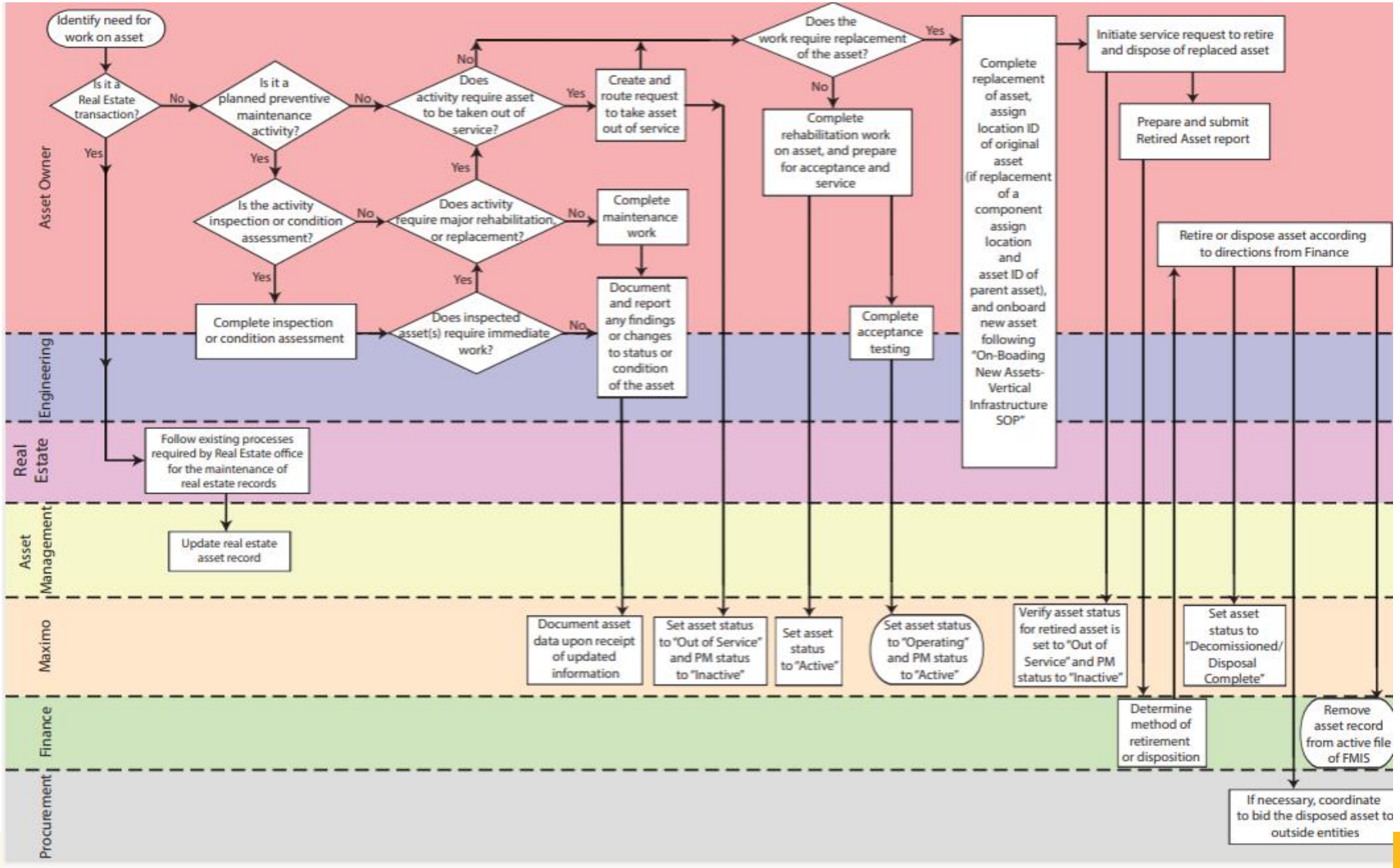
- Procurement & Onboarding
- Lifecycle Maintenance & Disposal

Horizontal (rail, ROW, parking lots)

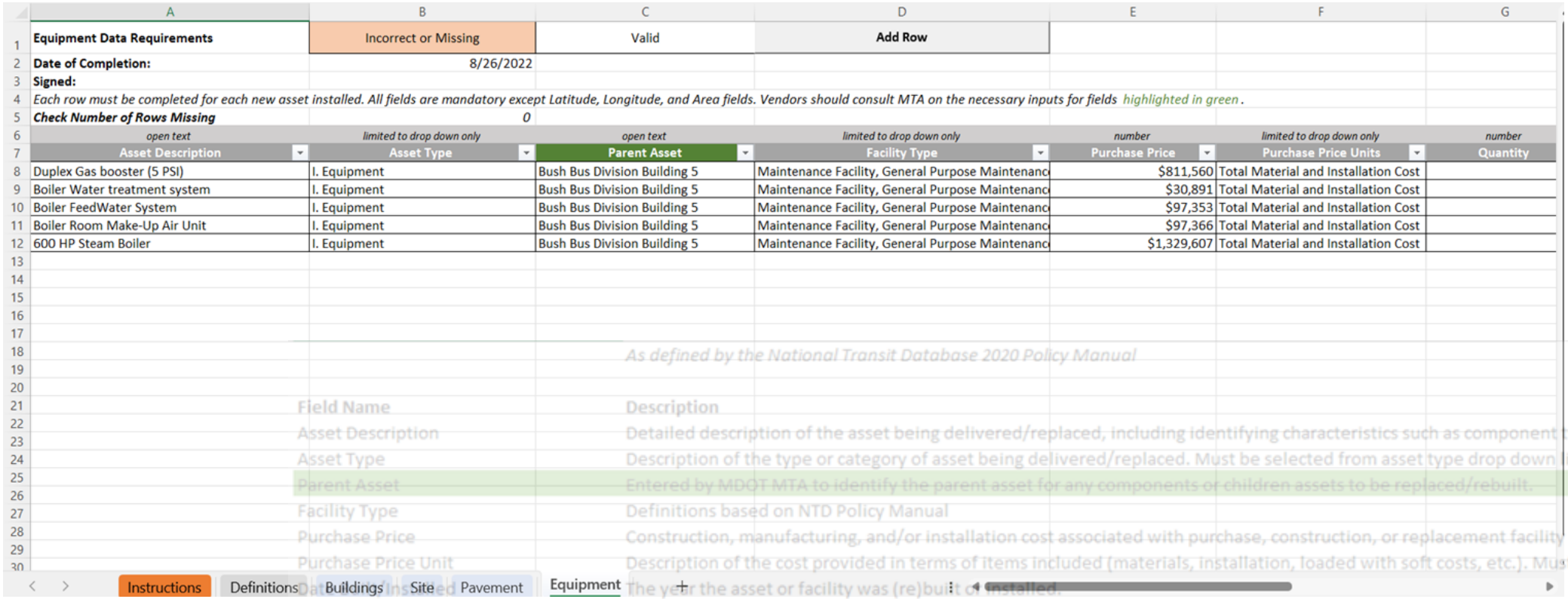


- Procurement & Onboarding
- Lifecycle Maintenance & Disposal

# Example Process Flow Chart



# Excel Tool Example



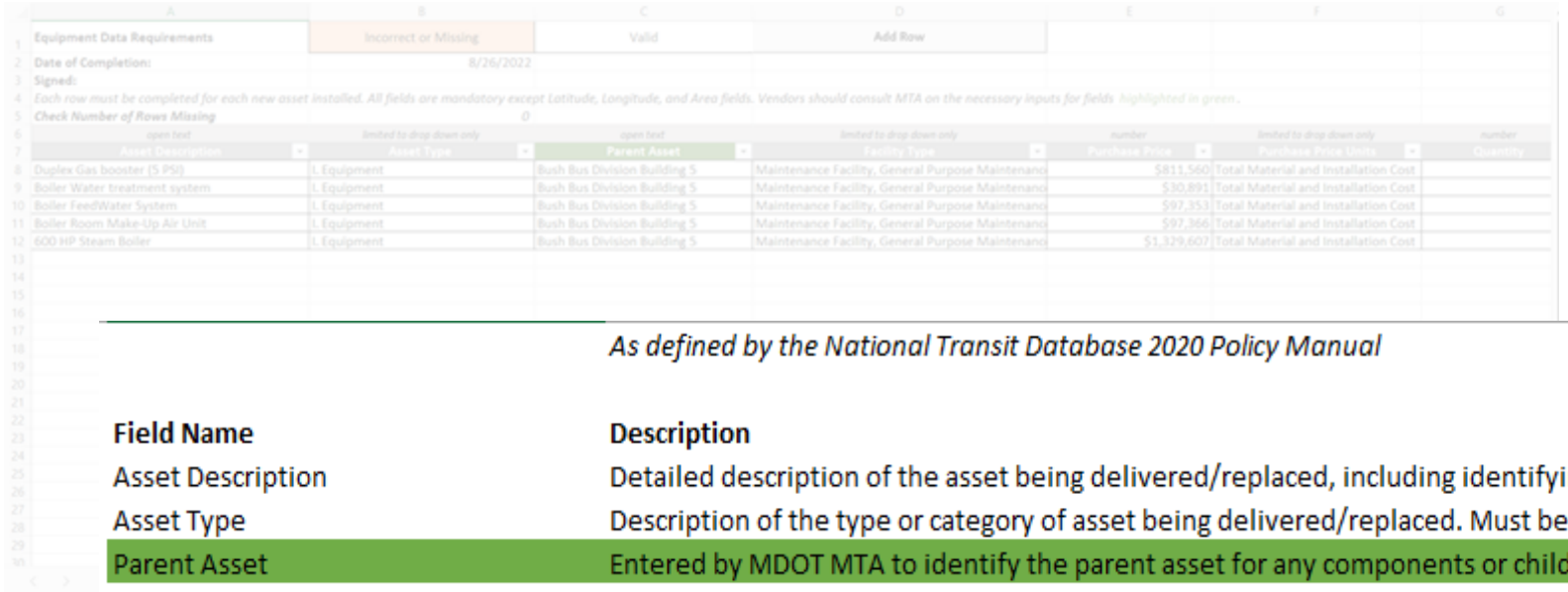
| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | **Equipment Data Requirements** | Incorrect or Missing | Valid | **Add Row** | | | |
| 2 | **Date of Completion:** | 8/26/2022 | | | | | |
| 3 | **Signed:** | | | | | | |
| 4 | *Each row must be completed for each new asset installed. All fields are mandatory except Latitude, Longitude, and Area fields. Vendors should consult MTA on the necessary inputs for fields highlighted in green.* | | | | | | |
| 5 | ***Check Number of Rows Missing*** | *0* | | | | | |
| 6 | *open text* | *limited to drop down only* | *open text* | *limited to drop down only* | *number* | *limited to drop down only* | *number* |
| 7 | **Asset Description** | **Asset Type** | **Parent Asset** | **Facility Type** | **Purchase Price** | **Purchase Price Units** | **Quantity** |
| 8 | Duplex Gas booster (5 PSI) | I. Equipment | Bush Bus Division Building 5 | Maintenance Facility, General Purpose Maintenanc | $811,560 | Total Material and Installation Cost | |
| 9 | Boiler Water treatment system | I. Equipment | Bush Bus Division Building 5 | Maintenance Facility, General Purpose Maintenanc | $30,891 | Total Material and Installation Cost | |
| 10 | Boiler FeedWater System | I. Equipment | Bush Bus Division Building 5 | Maintenance Facility, General Purpose Maintenanc | $97,353 | Total Material and Installation Cost | |
| 11 | Boiler Room Make-Up Air Unit | I. Equipment | Bush Bus Division Building 5 | Maintenance Facility, General Purpose Maintenanc | $97,366 | Total Material and Installation Cost | |
| 12 | 600 HP Steam Boiler | I. Equipment | Bush Bus Division Building 5 | Maintenance Facility, General Purpose Maintenanc | $1,329,607 | Total Material and Installation Cost | |

Instructions | Definitions | Buildings | Site | Pavement | Equipment

*As defined by the National Transit Database 2020 Policy Manual*

| Field Name | Description |
|---|---|
| Asset Description | Detailed description of the asset being delivered/replaced, including identifying characteristics such as component type, location, or make/model. |
| Asset Type | Description of the type or category of asset being delivered/replaced. Must be selected from asset type drop down list. |
| Parent Asset | Entered by MDOT MTA to identify the parent asset for any components or children assets to be replaced/rebuilt. |
| Facility Type | Definitions based on NTD Policy Manual |
| Purchase Price | Construction, manufacturing, and/or installation cost associated with purchase, construction, or replacement facility or asset. |
| Purchase Price Unit | Description of the cost provided in terms of items included (materials, installation, loaded with soft costs, etc.). Must select from drop down list. |
| Date Asset Installed | The year the asset or facility was (re)built or installed. |
| Expected Service Years | The average number of service years of asset or each element. |
| Primary Mode Served | Transit agencies must report a primary mode for each facility. |
| Location | Enter name of station, facility, site, or building where asset is being installed. |
| Latitude/Longitude of Asset Location | Enter the longitude and latitude data of the site the facility or the asset is located. |
| Square Footage | Enter area in square-foot of the station, facility, site, or building footprint. |

# Excel Tool Example



| Equipment Data Requirements | Incorrect or Missing | Valid | Add Row |
|---|---|---|---|
| Date of Completion: | 8/26/2022 | | |
| Signed: | | | |
| *Each row must be completed for each new asset installed. All fields are mandatory except Latitude, Longitude, and Area fields. Vendors should consult MTA on the necessary inputs for fields highlighted in green.* | | | |
| *Check Number of Rows Missing* | 0 | | |

| Asset Description | Asset Type | Parent Asset | Facility Type | Purchase Price | Purchase Price Units | Quantity |
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# Solutions

## Challenges

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- Unknown asset data attributes
- Incompatible Maryland State, TERM, and FTA/NTD asset hierarchies
- Not up-to-date
  - Annual snapshot
  - Records coming from multiple sources
  - Not all records are in “system of record”

## Solutions

- SOP Inventory maintenance for vehicles, horizontal, vertical assets
- Improved processes for facility maintenance
- Maximo configuration for facility assets
- Improved performance monitoring

# Thank You


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# UTA Speaker

**Dan Hofer**
Director of Capital Assets and Project Controls
Utah Transit Authority

# Facility SGR Inspections

September 28th, 2023

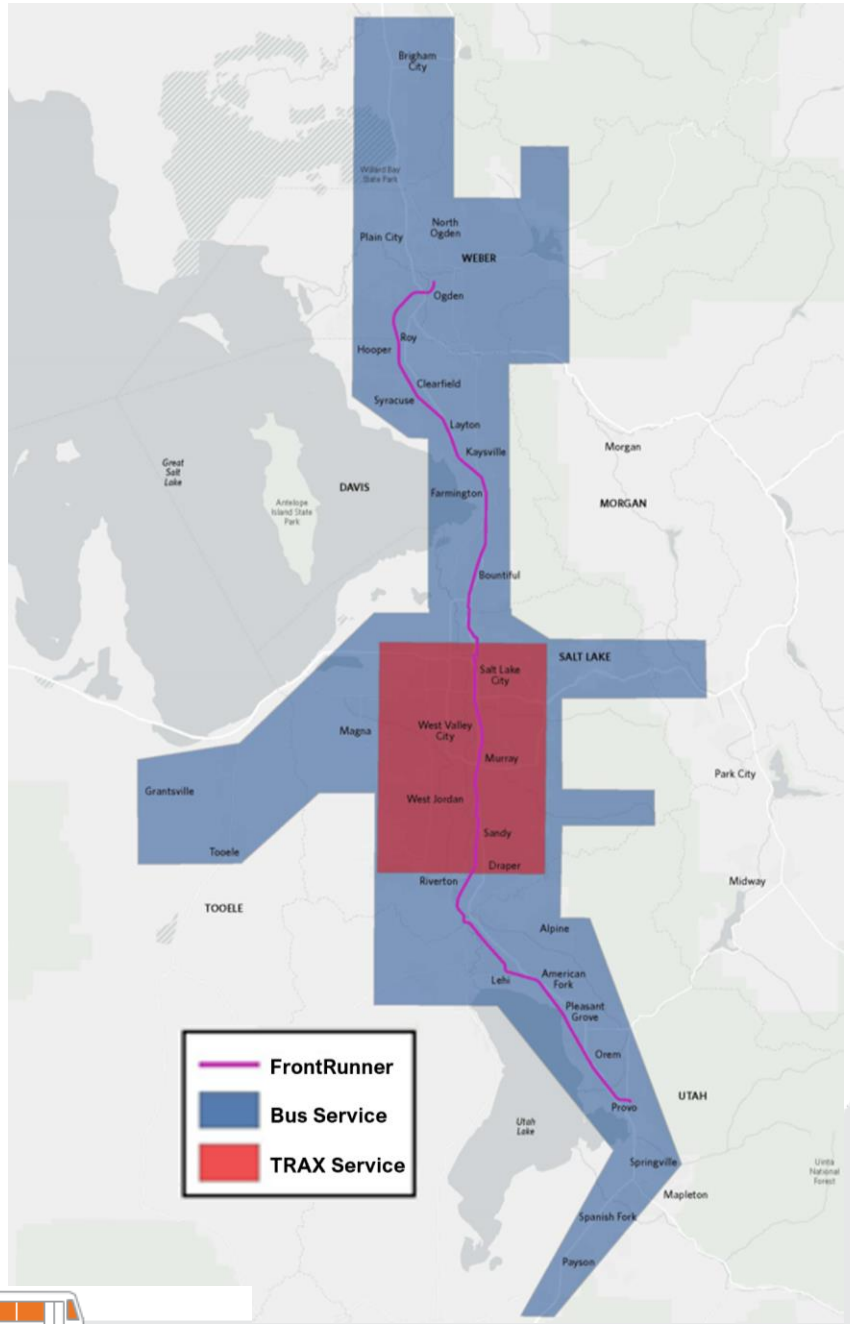
Daniel Hofer
Director- Capital Assets and Project Controls
Utah Transit Authority

# Utah Transit Authority

**Mission:** We Move You

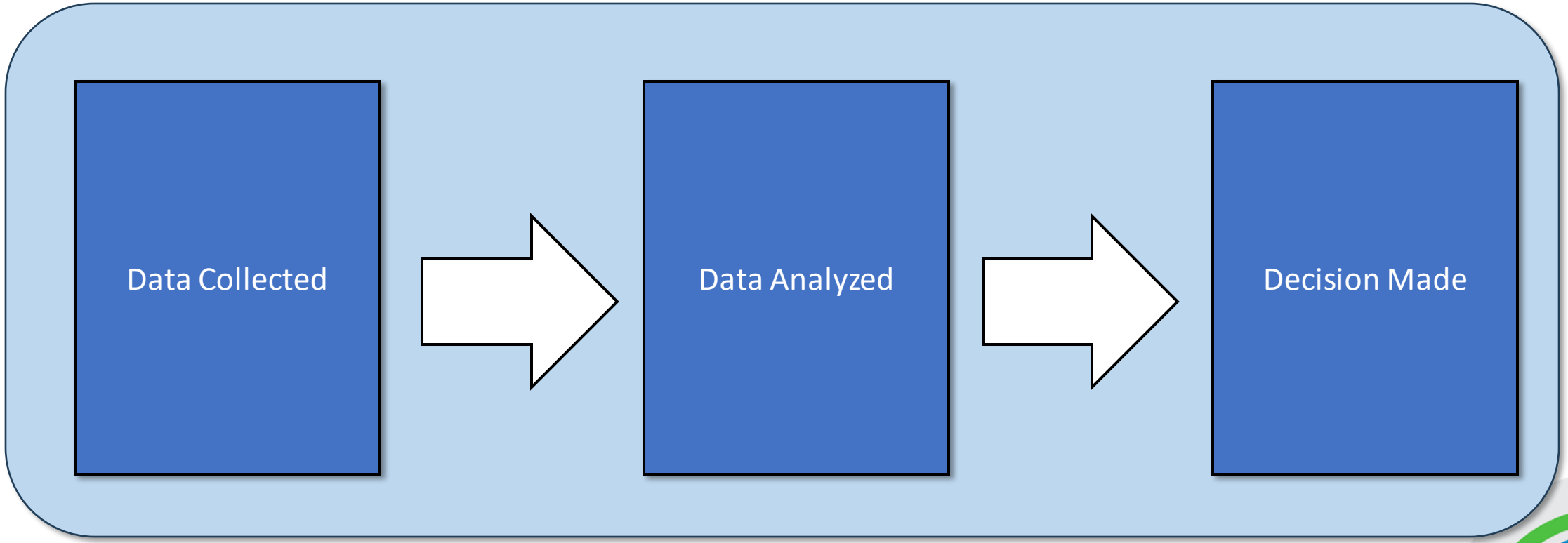
**Vision:** Leading Utah's mobility solutions and improving quality of life

- Incorporated March 3, 1970
- UTA serves nearly 80 percent of Utah's population
- 732 square mile service area
- Over 2,800 full-time employees
- 89 miles of commuter rail service
- 43 miles of light rail service



# TAM- Basic Philosophy

- Data Driven Decisions



# Three basic questions on how to start Facility Inspection Program

- Three basic questions:
  - What data to collect?
  - How to collect it?
  - How do I use it?

# Pro Tip- Asset Capital Project Assignment

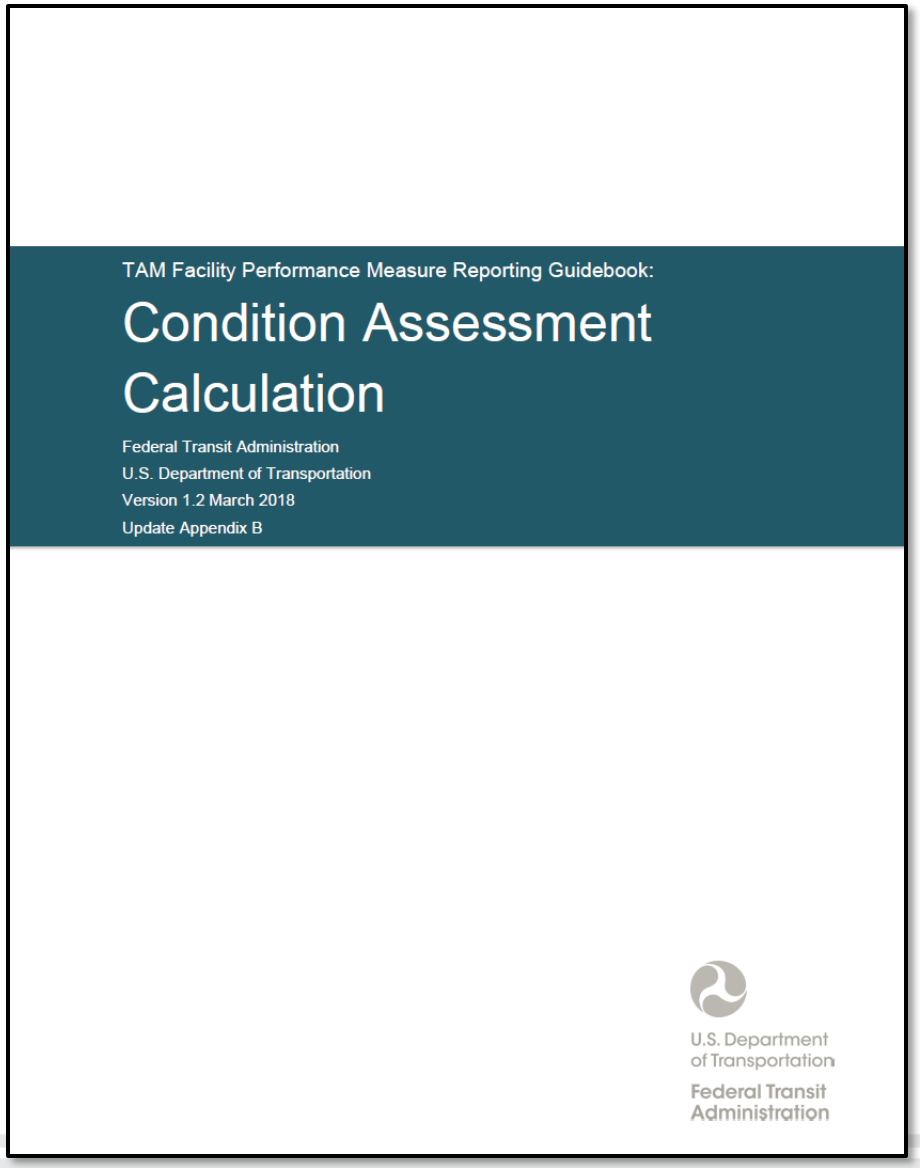
- Storing Capital Project where rehab or replacement activities will be addressed under as part of the asset record is a huge help when generating future projections.

| Project | 2023 Total Budget | 2024 Total Budget | 2025 Total Budget | 2026 Total Budget | 2027 Total Budget | 2023-2027 Total Budget |
|---|---|---|---|---|---|---|
| FMA652- Facilities, Equipment Managed Reserve | 943,000 | 500,000 | 1,000,000 | 500,000 | 750,000 | 3,693,000 |
| FMA653- Facilities Rehab and Replacement | 2,161,000 | 1,500,000 | 2,000,000 | 1,000,000 | 1,000,000 | 7,661,000 |
| FMA672- Park and Ride Rehab/Replacement | 615,000 | 750,000 | 1,000,000 | 500,000 | 500,000 | 3,365,000 |
| FMA673- Stations and Platforms Rehab/Replace | 730,000 | 250,000 | 250,000 | 500,000 | 250,000 | 1,980,000 |
| FMA685- Wheel Truing Machine JRSC | - | 4,000,000 | - | - | - | 4,000,000 |
| SGR390- Jordan River Bldg 2 Remodel | 1,965,000 | 1,000,000 | 900,000 | - | - | 3,865,000 |

# Systems UTA uses for Facility Inspections and Programming

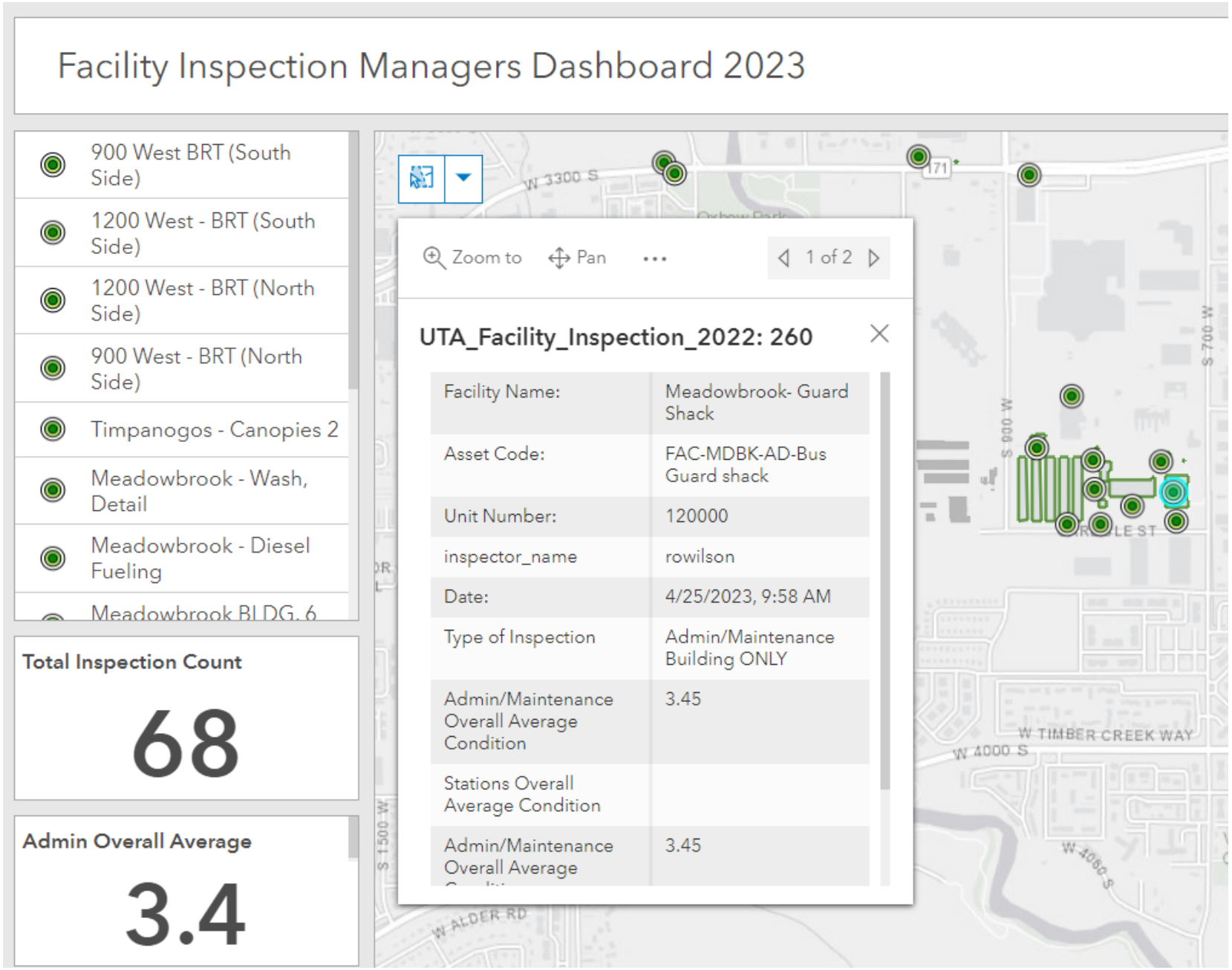
- UTA uses the following systems/hardware for Facility Condition Inspections:
  - ArcGIS Survey 123
  - ArcGIS Enterprise
  - iPads/iPhones
  - Excel
    - Date Exported into Excel
    - Analyze the data
  - TERM-Lite
    - Capital Programming

# What Data to Collect??

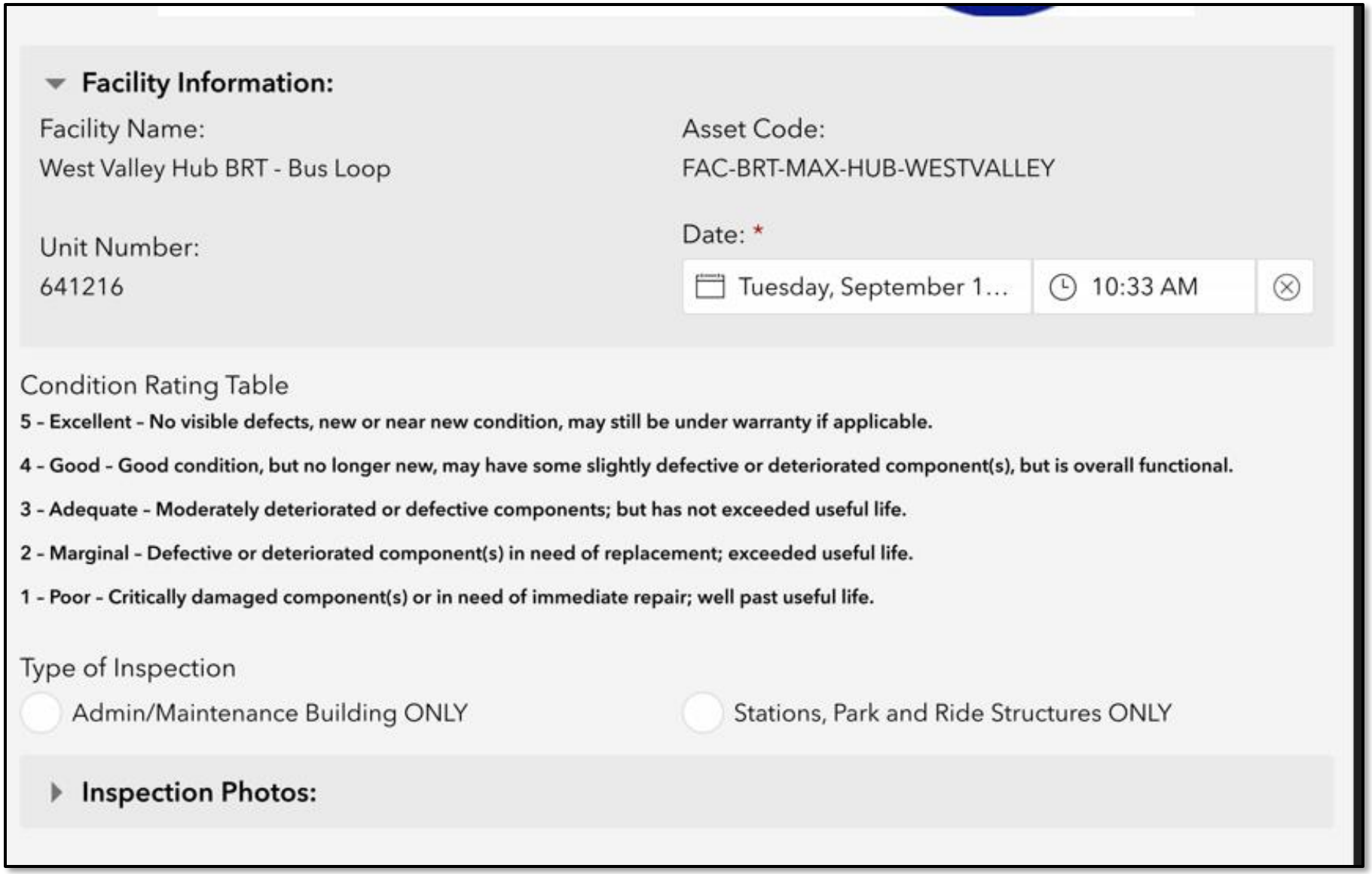



- Good place to start for Facilities:
  - https://www.transit.dot.gov/regulations-and-guidance/asset-management/tam-facility-performance-measure-reporting-guidebook
  - Talks about:
    - Identifying Facility Types and Rating Levels
    - Provides Condition Assessment Procedures
    - Condition Rating Score Aggregation Approaches
    - Calculating the Performance Measures
    - Reporting Requirements

# Dashboard



# How UTA Collects Data



**Facility Information:**

Facility Name:
West Valley Hub BRT - Bus Loop

Asset Code:
FAC-BRT-MAX-HUB-WESTVALLEY

Unit Number:
641216

Date: *
Tuesday, September 1… 10:33 AM

Condition Rating Table

**5 - Excellent - No visible defects, new or near new condition, may still be under warranty if applicable.**

**4 - Good - Good condition, but no longer new, may have some slightly defective or deteriorated component(s), but is overall functional.**

**3 - Adequate - Moderately deteriorated or defective components; but has not exceeded useful life.**

**2 - Marginal - Defective or deteriorated component(s) in need of replacement; exceeded useful life.**

**1 - Poor - Critically damaged component(s) or in need of immediate repair; well past useful life.**

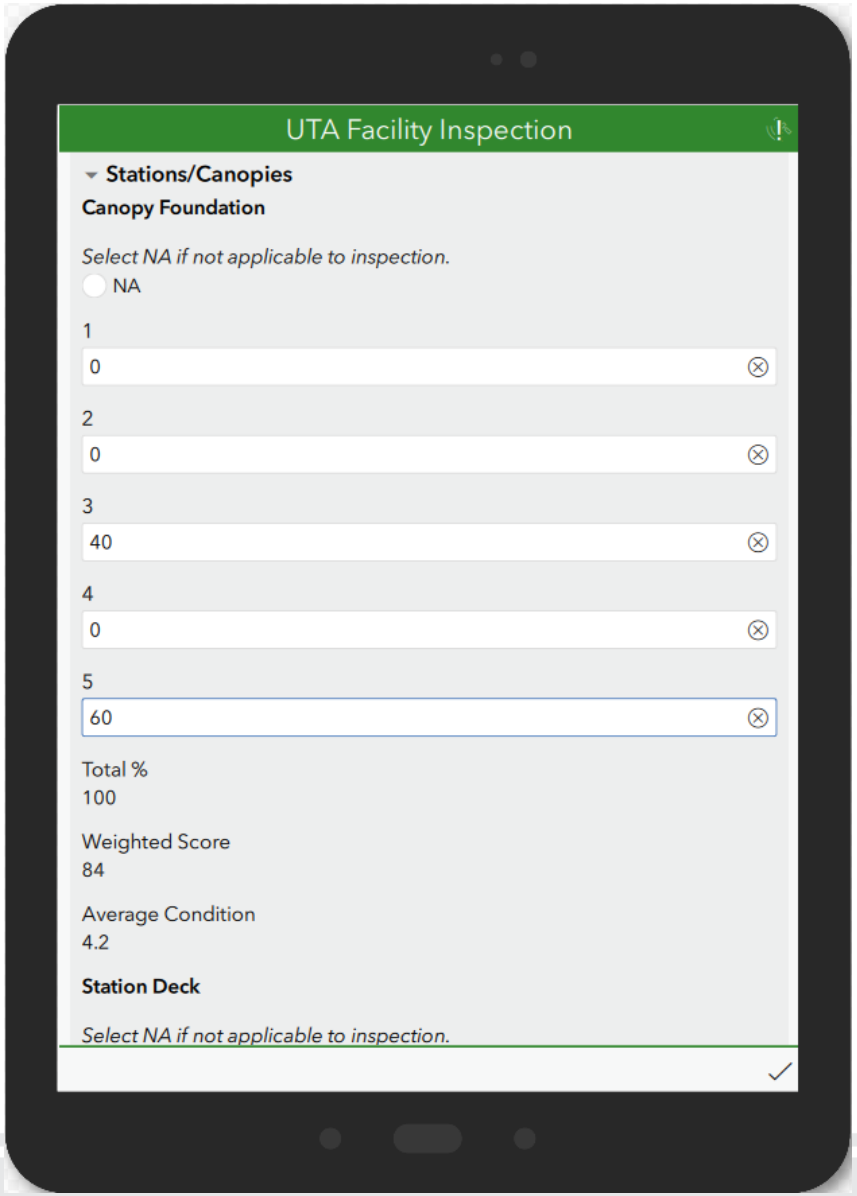
Type of Inspection

Admin/Maintenance Building ONLY

Stations, Park and Ride Structures ONLY

**Inspection Photos:**

# Place holder- Screenshot of Station Condition Inspection



# How does UTA use Collected Data?- Analyze

| | | Electrical | | | Site | | | | | | | | | | Misc. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Service, Panels, Wiring & Outlets/Switches | Security & Data/Comm | Emergency Systems (Generator, UPS) | Sidewalks/Bus/Dropoff/Concrete | Snow Melt (if equipped) | Lighting (Platform & Parking) | Parking Lot Surface: Striping | Parking Lot Surface: Asphalt | Drainage/Storm Drains | Fencing | Landscaping & Grounds | Plumbing (Irrigation) | Air Compressors, Sump Pumps & Ejectors | Doors (Exterior & Interior | Stairs (Exterior & Interior | |
| Asset # | Location: | 77 (19/43) | 78 (20) | 79 (21) | 80 (44/38) | 81 (41) | 82 (33/35) | 83 (N) | 84 (30/34) | 85 (29/40) | 86 (32) | 87 (31) | 88 (39) | 89 (22) | Column1 | Column2 | Total Condition Score |
| 24235 | Pleasant View Station | 4. | 4. | | 3. | | 4. | 3. | 3. | 4. | 4. | 4. | 4. | | | | 3.99 |
| 41896 | Pleasant View Station P&R | 4.00 | 4.00 | | 3.75 | | 4.00 | 3.75 | 3.75 | 4.00 | 4.00 | 4.00 | 4.00 | | | | 3.75 |
| 24278 | Ogden Intermodal Station | 2.85 | 2.85 | | 2.85 | | 2.85 | | | | 2.80 | 2.80 | 2.80 | | | | 2.81 |
| 27654 | Ogden Intermodal Station P&R | 2.80 | | | 2.80 | | 2.80 | 2.80 | 2.80 | 2.85 | 2.85 | 2.70 | 2.80 | | | | 2.80 |
| 24279 | Roy Station | 2.85 | 2.85 | | 2.85 | | 2.85 | | | | 2.85 | 2.80 | 2.85 | | | | 2.80 |
| 41897 | Roy Station P&R | 2.75 | | | | | 2.85 | 2.75 | 3.00 | 2.85 | 2.85 | 2.80 | 2.80 | | | 2.80 | 2.82 |
| 24280 | Clearfield Station | 2.80 | 2.80 | | 2.80 | | 2.85 | 2.80 | | | 2.85 | 2.80 | 2.80 | | | | 2.76 |
| 41910 | Clearfield Station P&R | | | | 2.80 | | 2.00 | 2.00 | 2.00 | 2.00 | | | | | | | 2.16 |

Consolidating to Excel allows for horizontal and vertical programming

# Analysis turns into recommendations

- 2023 Recommendations (22 page document)

  Facilities recommendations for 2023

## Condition Assessment Review

In looking at the Condition Assessment Review Matrix, all facilities requiring condition assessment in the current 4-year cycle (2022) have been completed. See Appendix B for Maintenance and Admin Building condition ratings and for Appendix C Platforms, Stations, and Park & Ride condition ratings. The data seems to indicate the following areas might be good for facilities projects:

### Maintenance and Administration Buildings

There have been a total 62 facilities rated in this category. There are currently 7 facilities rated with condition ratings ranging from needing attention to below the SGR threshold, they are shown below along with their overall score:

1. 7200 S. Building Unit # 640007 (1.00)
2. Semi Service Building Unit # 825000 (2.66)
3. SLC Intermodal Hub - Intermodal Hub for buses & Greyhound Unit # 710000 (2.72)
4. Central Bldg. 2 Fares Unit # 420000 (2.72)
5. Central Bldg. 3 Maintenance Unit # 430000 (2.60)
6. Central Bldg. 4 Fuel Island Unit # 440000 (2.65)
7. Ogden Bldg. 5 Canopies Unit # 350000 (2.74)

From a possible campaign perspective, staff can focus on similar building components at different UTA campuses to see where assets may benefit from planning a rehab or replacement effort(s). The same condition values apply, with assets falling in the 2.51 – 2.99 range needing attention, and assets <= 2.5 being below the SGR threshold:

1) Fire Protection System
   a. Meadowbrook Bldg. 1 Admin (2.5)
   b. Meadowbrook Bldg. 8 Support & Body (2.5)
   c. Riverside Bldg. 1 Operations (2.75)
   d. Riverside Bldg. 3 Maintenance (2.5)
   e. Riverside Bldg. 4 Fuel Island (2.5)
   f. Ogden Bldg. 4 Fuel Island (2.75)

2) Roof (Surfaces, Drain System)
   a. Ogden Bldg. 1 Operations (2.75)
   b. Ogden Bldg. 3 Maintenance (2.75)
   c. Ogden Bldg. 5 Canopies (2.7)
   d. Ogden Intermodal Transit Center (2.6)

3) Exterior Stairs
   a. Central Pointe 2100 S. Building (2.75)
   b. SLC Intermodal Hub - Intermodal Hub for buses & Greyhound (2.7)
   c. JRRSC OK Manufacturing (2.0)

4) Drains, Fixtures, Pipes/Valves
   a. Ogden Bldg. 5 Canopies (2.7)

# Questions

# Peer Program

- Upcoming Discussion Forum on Setting TAM Performance Targets
- 2024 TAM Peer Working Group
- Sign up here to subscribe to receive correspondence from the TAM Program, including announcements for peer learning offerings.
  - TAM or SGR subscriber group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