Asset Management & State of Good Repair:
Planning for a smarter tomorrow

Transit Asset Management:

Asset Management involves the balancing of costs, opportunities and risks against the desired performance of assets, to achieve the organizational objectives.

Source: ISO55000

State of Good Repair

The condition in which a capital asset is able to operate at a **full level of performance**. This means the asset:

1. Is able to perform its designed function,
2. Does not pose a known unacceptable safety risk, and
3. Its lifecycle investments have been met or recovered.

What is an Asset?

Any tangible item of a defined value; based on cost or criticality to service, that is owned, leased, or maintained by RTD, or a subcontractor, which may at some point after its useful life require a capital repair or replacement.

SGR Grants Program

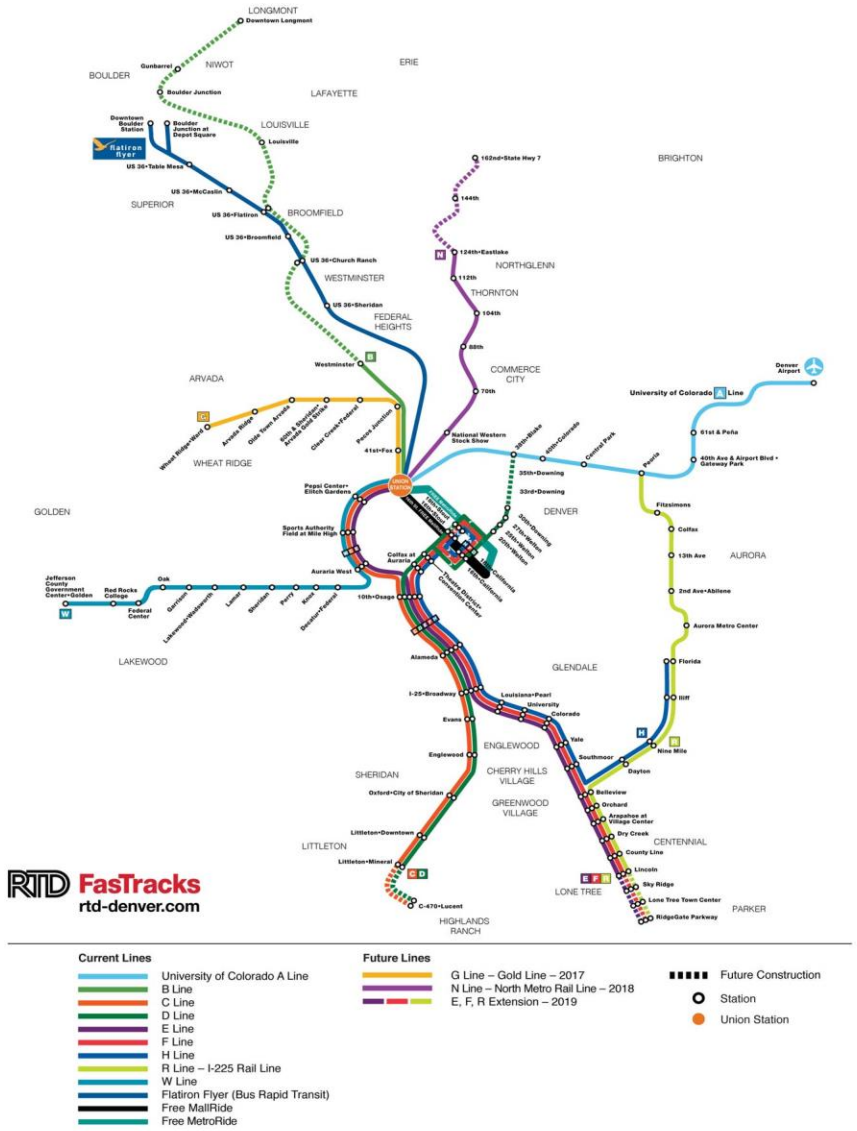
These grants are to assist agencies with major repair, refurbishment, and/or replacement of assets no longer in a state of good repair.

What does this have to do with my group?

- Every division has projects or assets
  - Forecasting when best to replace assets
  - Based on risk and condition rather than age alone
  - Better data can help to get them prioritized correctly
- Better stewards of taxpayers' money
  - 50% of RTD' s funds are tax based

RTD Overview

- **Regional Transportation District in Denver**, or RTD, started operation in 1972
- RTD has a service area of 2,410 square miles in eight counties
- RTD employs about 2,500 people
- RTD has over 140 bus routes, 80 Park-n-Rides, 10,000 stops
- RTD has approximately 1,200 full size buses, 400 cut-a-way buses, 400 support vehicles.
- RTD has 9 light rail lines, 35 miles of track, 37 stations
- RTD has 174 Light rail vehicles, with 20 more on order
- RTD has 58 commuter rail vehicles
- Accessibility services, call-n-Rides, seasonal rides and many other programs
- Fastracks will add 5 new lines, approximately 35 miles of track for light and commuter rail, and over 35 new Stations and P-n-Rs



RTD's Asset Management program

- RTD's Board of Directors as part of a strategic objective put into place the goal to create an Asset Management program with a State of Good Repair component in 2010
- RTD created an Asset Management division and began the process of creating and implementing a State of Good Repair (SGR) program in July 2011
- Pilot program was completed in December of 2011 with program adoption

RTD's Asset Management Program

- The quick implementation of AM and SGR was made possible by the District's complete ERP upgrade in 2007
- Data is housed in an Enterprise Asset Management software (EAM) Trapeze, AssetWorks or "Maximus" database (historical data starting in 2007)
- AM and SGR reporting & analysis is preformed using ETLs (Extract, Transform and load process) to a data warehouse and using Oracles Business Intelligence Enterprise Edition (OBIEE 11g)

Paradigm Shift

- Different ways of thinking about long range budgeting
- Policy and procedure change must come from the top down
- Lifecycle costing versus lowest up front cost
- Monitoring back log of rebuild or replacements

Show Me the Money

Organization

2011 – Cost analyses done on hiring a consulting firm vs. using in-house resources

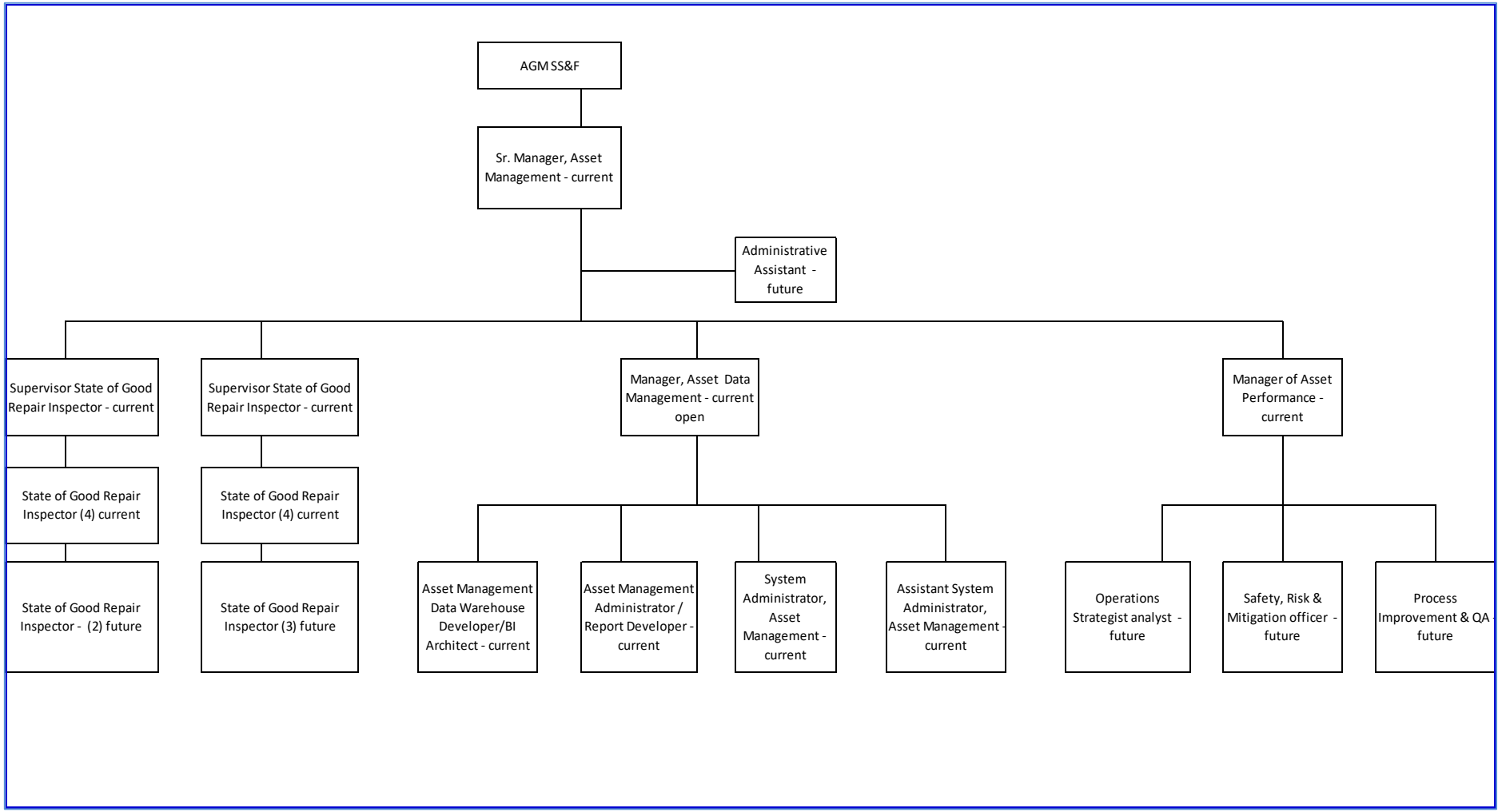
2012 – Approval of a three year roll out of AM division to include

- Manager
- Data group - 3
- SGR group – 9

2014 – Started reorg to move reporting to Executive Safety Officer and add additional positions

- Senior Manager
- Performance group - 4
- SGR group – 4

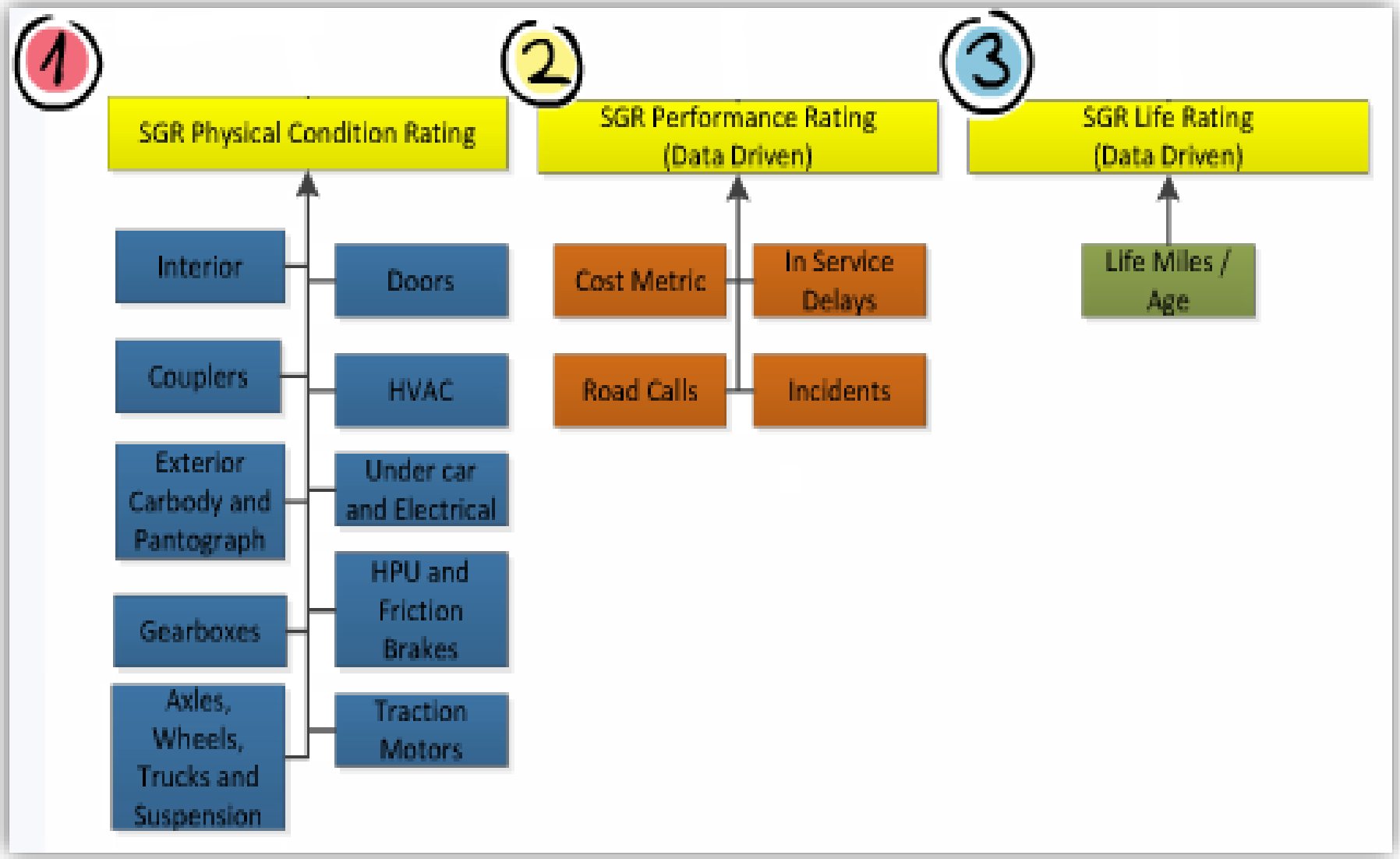
Org Chart

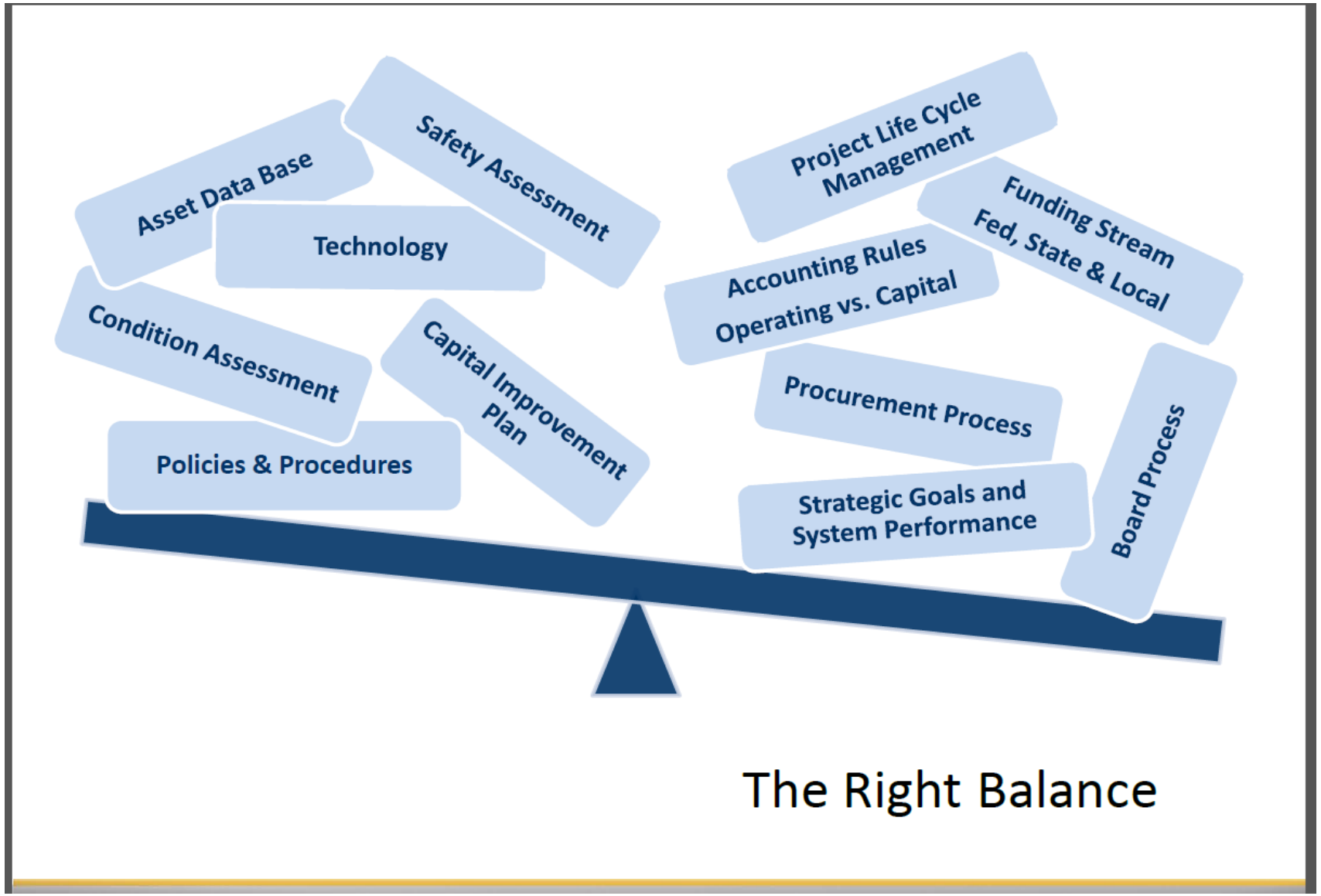

AGM SS&F
Sr. Manager, Asset Management - current
Administrative Assistant - future
Supervisor State of Good Repair Inspector - current
Supervisor State of Good Repair Inspector - current
Manager, Asset Data Management - current open
Manager of Asset Performance - current
State of Good Repair Inspector (4) current
State of Good Repair Inspector (4) current
State of Good Repair Inspector - (2) future
State of Good Repair Inspector (3) future
Asset Management Data Warehouse Developer/BI Architect - current
Asset Management Administrator / Report Developer - current
System Administrator, Asset Management - current
Assistant System Administrator, Asset Management - current
Operations Strategist analyst - future
Safety, Risk & Mitigation officer - future
Process Improvement & QA - future

Structure

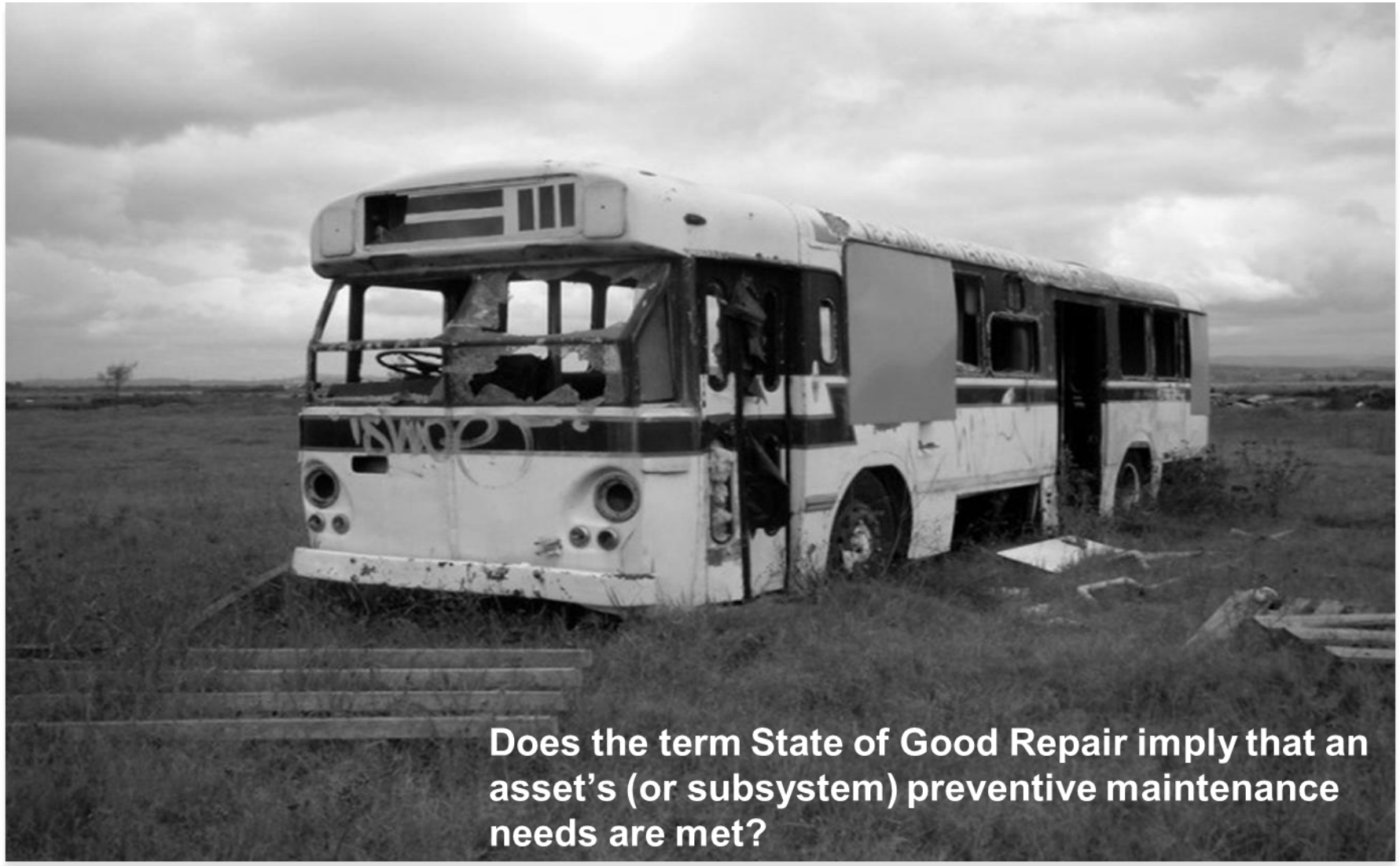

Commissionin
g
Replacement
& Future
Requirements
Operation &
Maintenance
Transit Asset
Management
Performance
Based
Budgeting
Condition
Assessments
Performance
Metrics

Monitoring RUFL

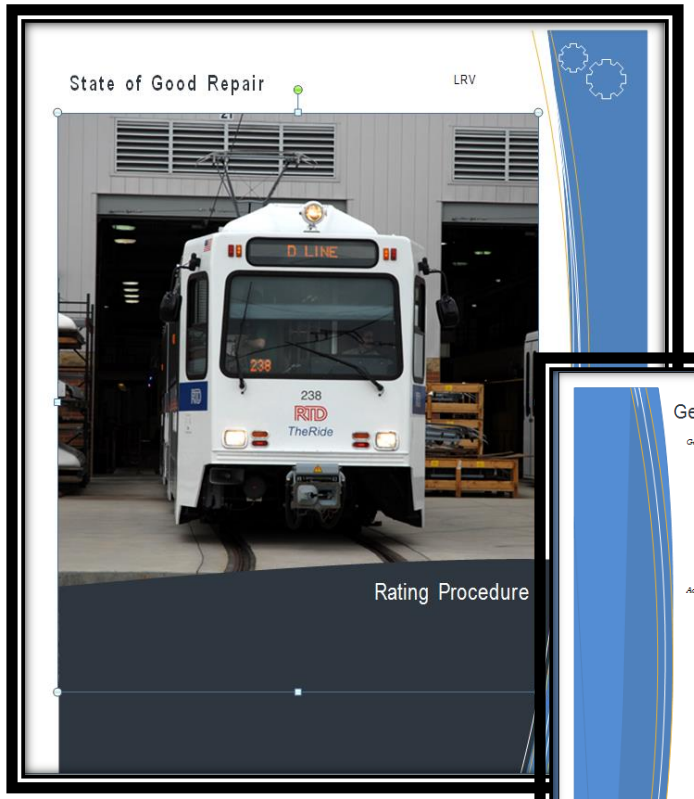



Asset Data Base
Safety Assessment
Technology
Condition Assessment
Capital Improvement Plan
Policies & Procedures
Project Life Cycle Management
Funding Stream Fed, State & Local
Accounting Rules Operating vs. Capital
Procurement Process
Board Process
Strategic Goals and System Performance
The Right Balance

Preventive Maintenance and SGR



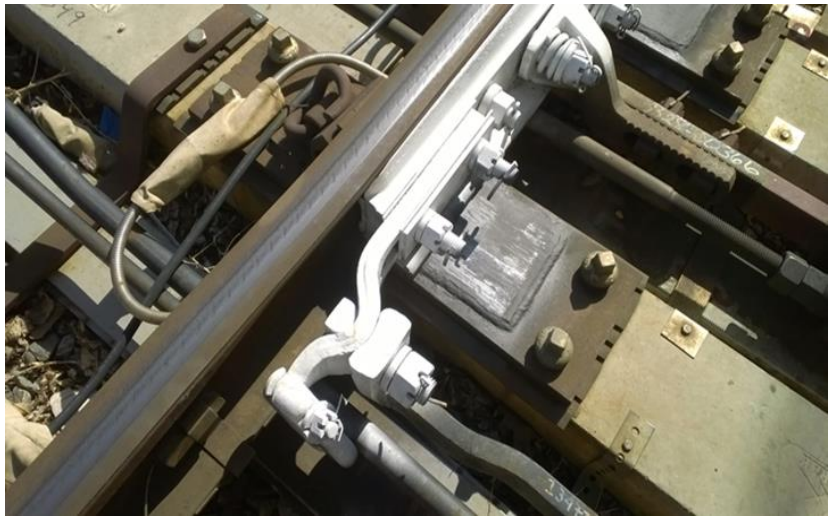
Ratings Inspections



Task Number	Equipment	Task
SGR1	Axles, Wheels & Tires, Trucks and Suspension	1. Inspect wheels and tires for general condition and estimate approximate remaining tire life. 2. General inspection of axles, truck frames, shocks, primary and secondary suspension systems.
SGR2	Electro-Hydraulic Unit and Accumulators and Friction Brakes	1. Using Assetworks generated report as the baseline mileage combined with system inspection. 2. Inspection of sanding system for damage or deterioration 3. Inspect Brake calipers, pads, rotors, reaction rods, mounts, lines, hoses and fittings

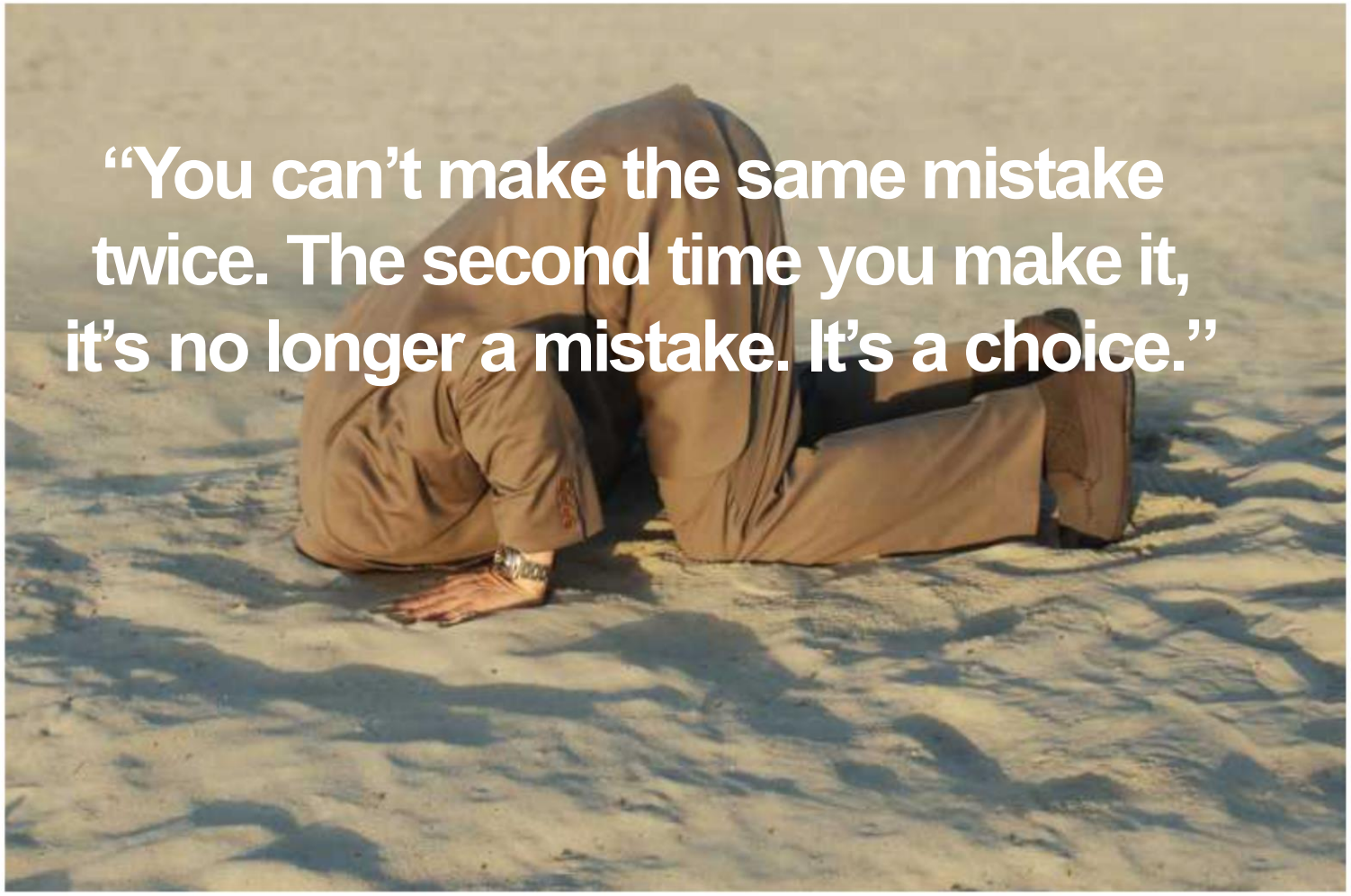
Current Conditions

Good Condition



Not in a State of Good Repair

Lessons Learned



Questions

- About this part of the presentation?
- Short break

CFR Part 625
Transit Asset Management Final Rule

A. General Provisions

B. National Transit Asset Management System

C. Transit Asset Management Plans

D. Performance Management

E. Recordkeeping and Reporting Requirements

TAM Plan Elements

1. Inventory of Capital Assets
2. Condition Assessment
3. Decision Support Tools
4. Investment Prioritization

All Providers
(Tier I & II)

I II

5. TAM and SGR Policy
6. Implementation Strategy
7. List of Key Annual Activities
8. Identification of Resources
9. Evaluation Plan

Tier I only

I

Timelines

- Final Rule Oct 1, 2016
- SGR Targets Jan 1, 2017
- Initial TAM Plans Oct 1, 2018
- Plan covers 4 years
  - Updated entirely every 4 years
  - Amended during the 4 years
- Targets for Performance Measures
  - Set and reported annually for each asset class
  - Supported by Data (Condition, Performance and financial projections)
- Reporting Inventory and Condition 2018
- Narrative Report 2019

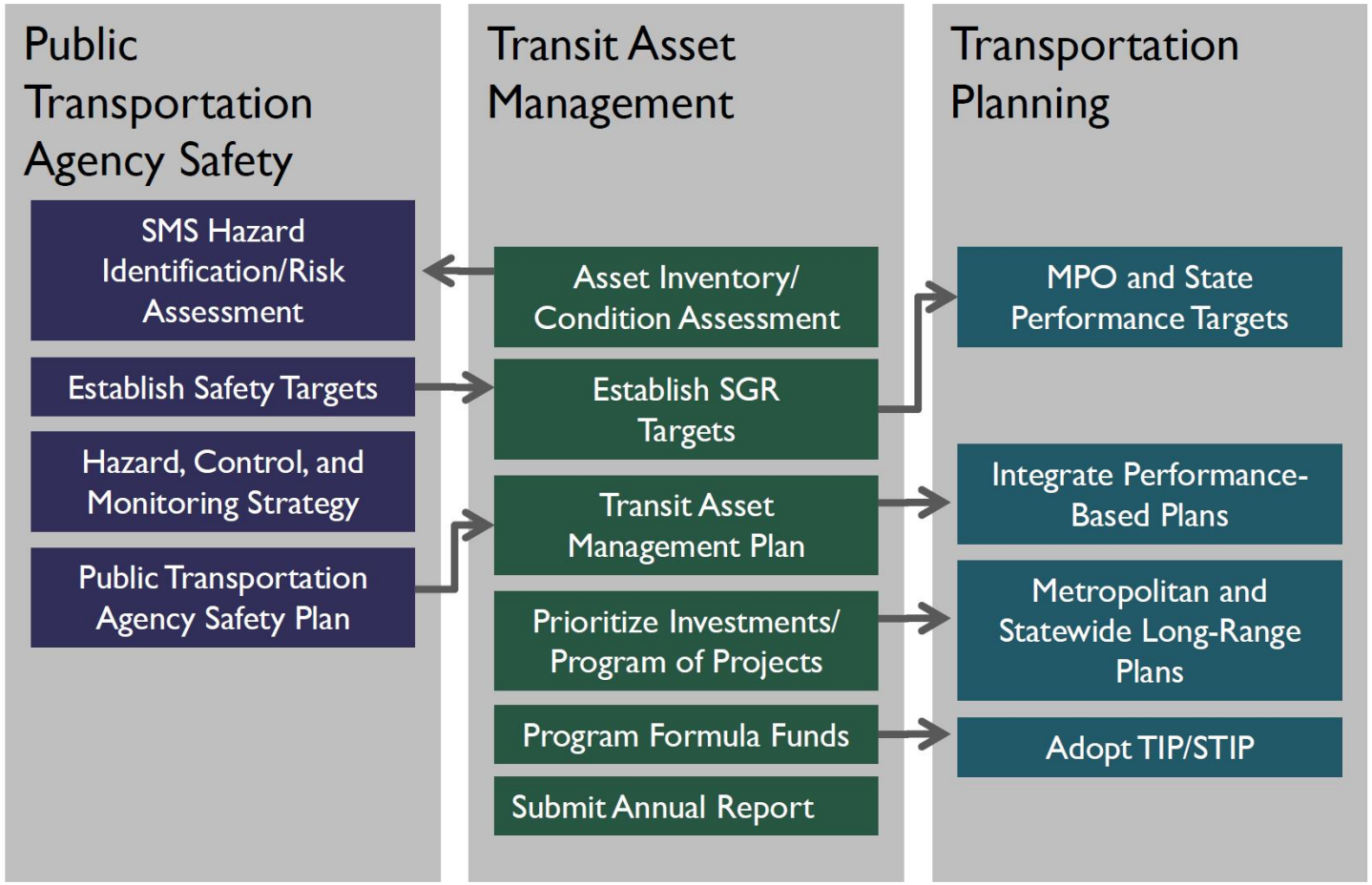
Annual Reporting / Records Requirements

- Data Reports
  - Projected performance targets
  - System Condition and Performance Reports
- Narrative Report
  - Change in condition
  - Progress toward targets
- Maintain Records support TAM Plan
  - Share with MPO (TAM Plan, performance targets, investment strategies, annual condition assessments)

Certification

- TAM Plans are Self-Certified by the Accountable Executive
- FTA will update Certifications and Assurances to reflect TAM Plan requirements
- FTA will review TAM Plans and Programs during Triennial and State Management Reviews

Linking Proposed Regulations



Data Quality

If the quality of data is low then decisions based on this data without external input cannot exceed our level of confidence in the data.

FTA Rule Making Targets

“Section 625.25 lists the TAM plan requirements, including an asset inventory, condition assessments, a description of analytical processes or decision-support tools used to estimate and prioritize capital investment needs over time, and a project-based prioritization of investments.”

FTA TAM Final Rule

Tools & Software Agnostic

A man shall not say he knows or believes that which he has no scientific grounds for professing to know or believe.

– Thomas Henry Huxley

What We Use (Our Tools)

Transactional Data

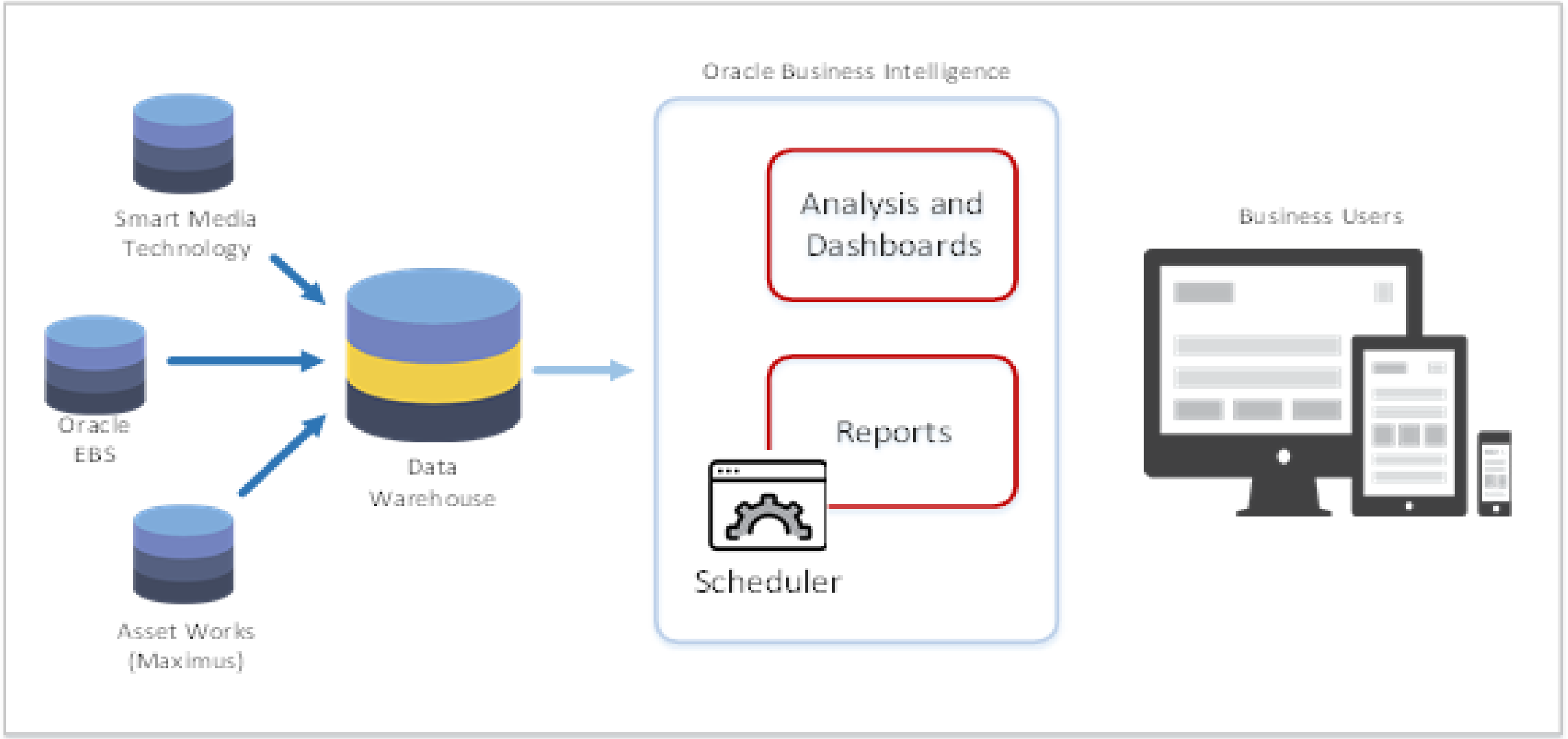
- Asset Works (Trapeze EAM)
- Oracle EBS

Analysis & Visualization

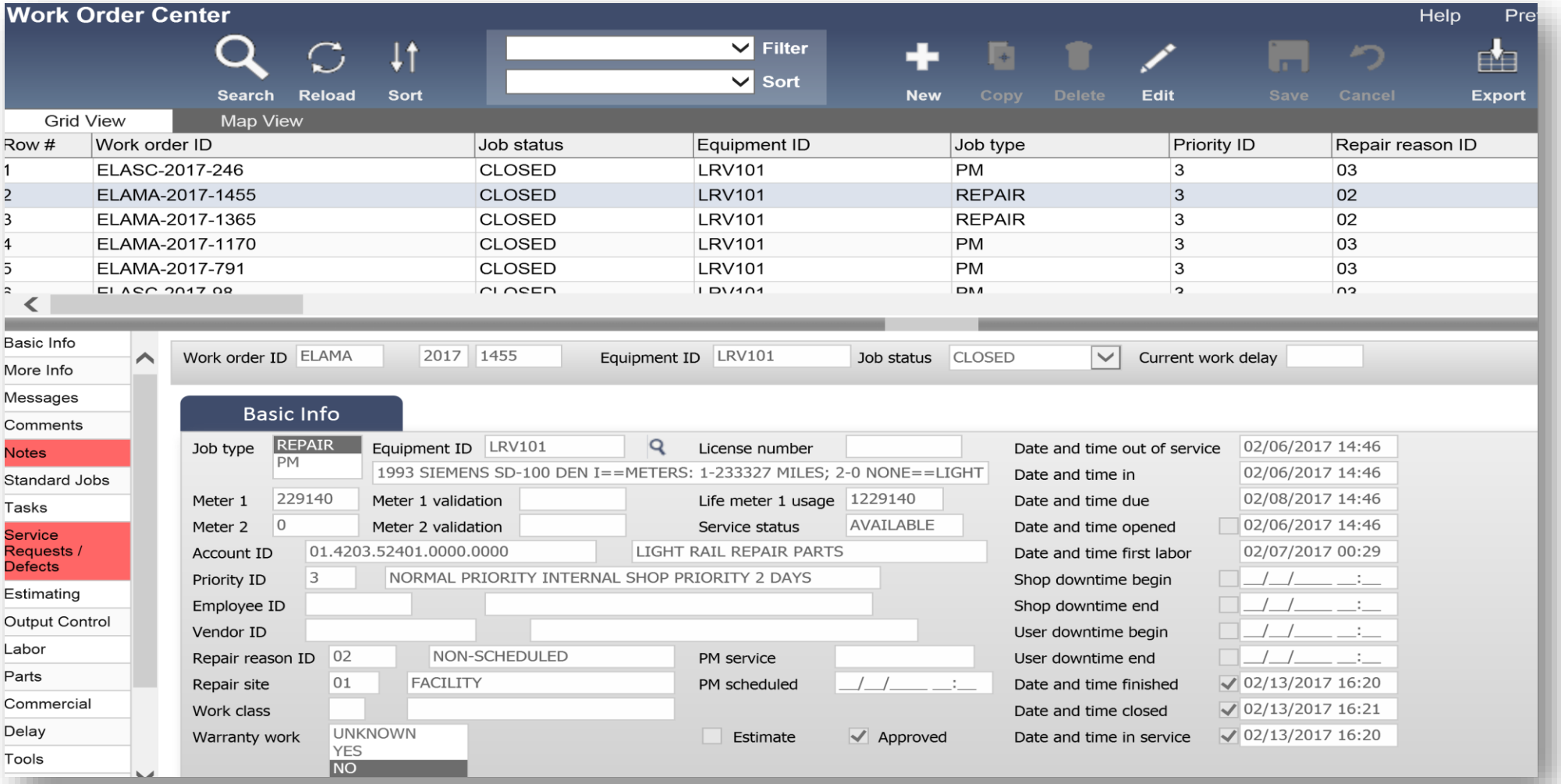
- Oracle OBIEE
- Tableau

How do we make them work as part of a bigger system?

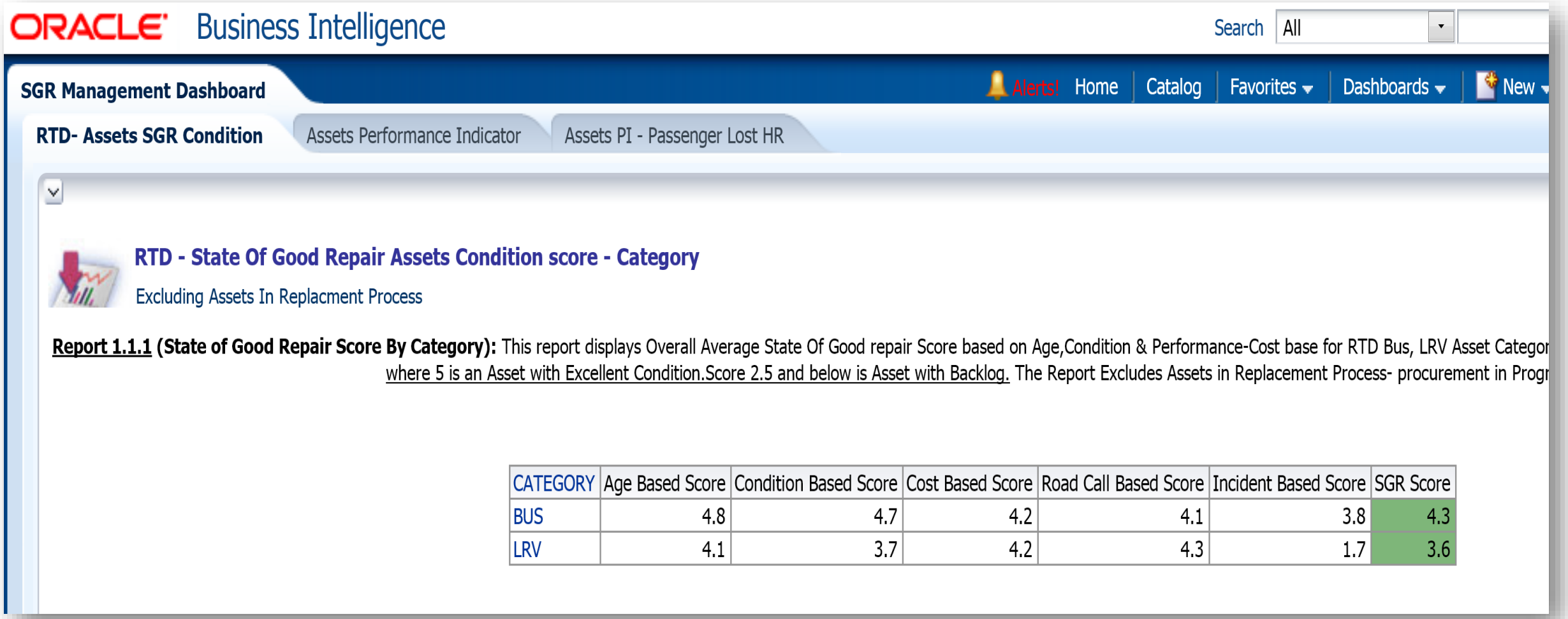
Data Work-Flow



Asset Records

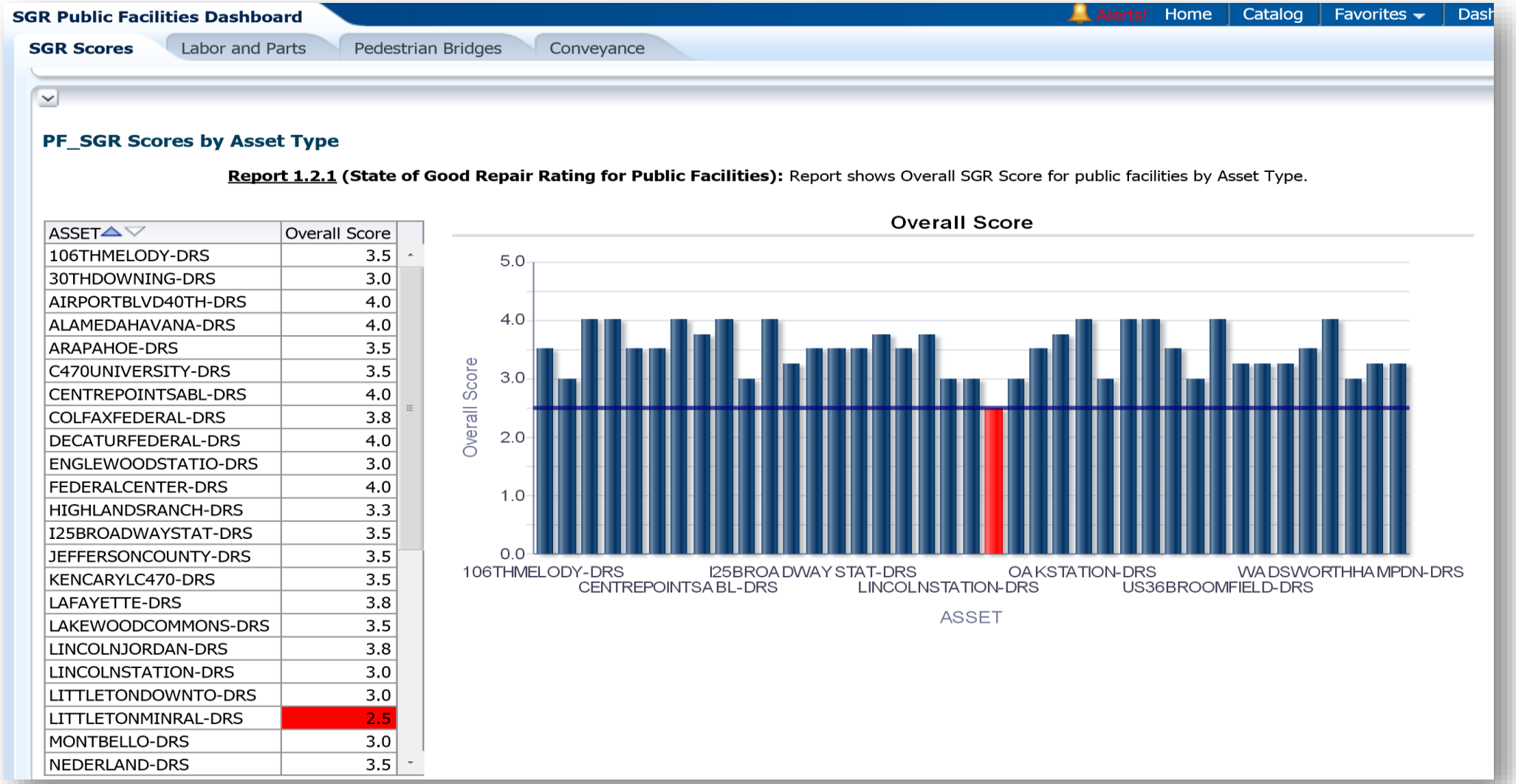


Data to Information



CATEGORY	Age Based Score	Condition Based Score	Cost Based Score	Road Call Based Score	Incident Based Score	SGR Score
BUS	4.8	4.7	4.2	4.1	3.8	4.3
LRV	4.1	3.7	4.2	4.3	1.7	3.6

Hard to read slide to make a point



“If information were the answer, we’d all be billionaires with perfect abs.”

Derek Sivers

Shifting Perspective

- “MAP-21 fundamentally shifted the focus of Federal investment in transit to emphasize the need to maintain, rehabilitate, and replace existing transit investments.” FTA
- “Deciding how to best balance and prioritize reasonably anticipated funds (revenues from all sources) towards improving asset condition and achieving a sufficient level of asset performance within those means.” FTA

Next Steps

With Leadership investment, sustained effort and a organizational approach to Asset Management, we will increase system safety and performance; while reducing risk and cost -

which supports growing ridership by offering more and safer service at lower cost.

Questions

- About this part of the presentation?
- Short break

ISO 55000

Asset Management

ISO 55000 means:

We say what we do
We do what we say
We constantly improve it

Asset Management purpose:

To maximize value from assets in achieving organizational objectives

Should we pursue ISO 55000?

Does certification really matter?

Crosswalk

FTA TAM Regulation

- more accessible for agencies with less capacity
- Specific deliverables and steps
- Decision making framework

ISO 55000 Standards

- Comprehensive organization wide process
- Scalable non specific and adaptable to environment
- Asset management framework

Focus on leadership, communication and monitoring performance

FTA
FEDERAL TRANSIT ADMINISTRATION

ROI?

Cost?

Benefits?

Improved financial performance

Can ISO 55000 benefit all industries?

Asset Intensive

Reflects both the **volume** of physical assets and the **importance** of the assets in delivering the organizational objectives

Asset Intensive

1. Net physical assets
2. Physical assets turnover
3. Physical asset proportion

RTD

1. Net physical assets	$6.13B
2. Physical assets turnover	0.11
3. Physical asset proportion	88%

Move the needle

Change is hard!

Other benefits

Other benefits

- Reduced exposure to legal liability
- Improved carryover of knowledge often lost to attrition
- Demonstrated social responsibility
- Enhanced reputation

Where is RTD on the journey?

Questions?

Lou.Cripps@rtd-denver.com
Jim.Sutton@rtd-denver.com
Charles.Austin@rtd-denver.com
Luke.Westlund@rtd-denver.com
Gemechisa.Ayana@rtd-denver.com