



# Tim Elsberry

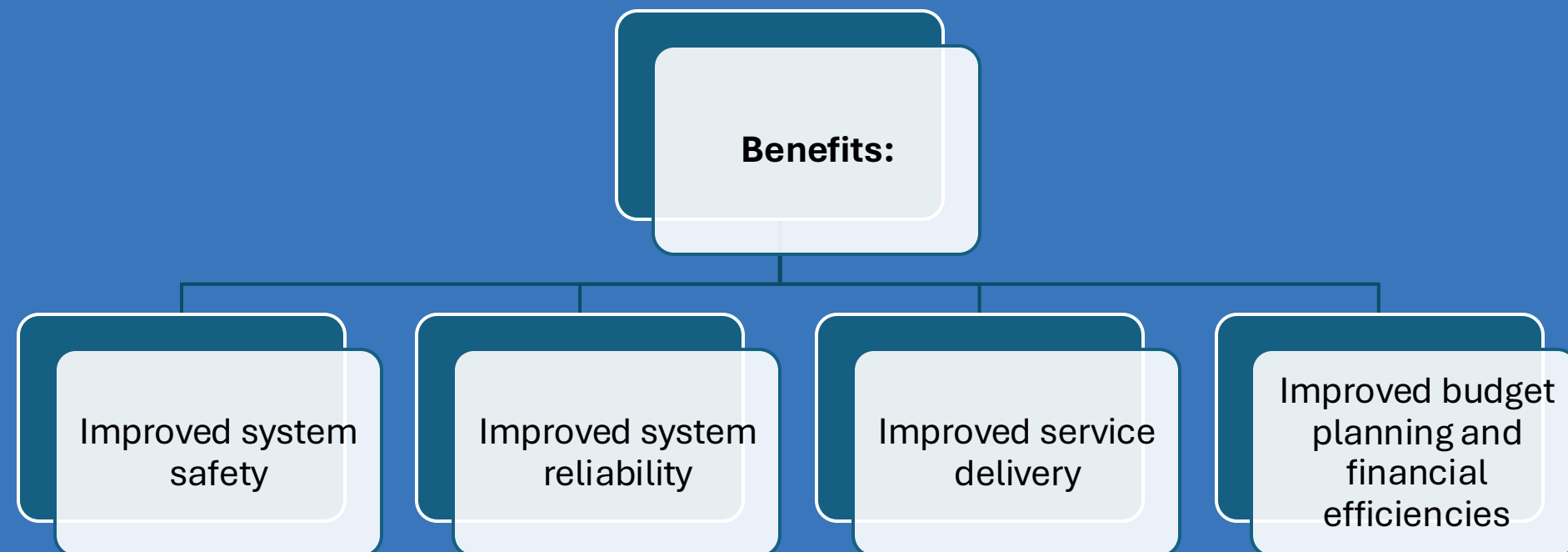
Vice President of Business  
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# State of Good Repair & Asset Management Process for Rail Transit Systems



## Benefits of SOGR



# State of Good Repair & Asset Management Process for Rail Transit Systems

## Facts

### Facts

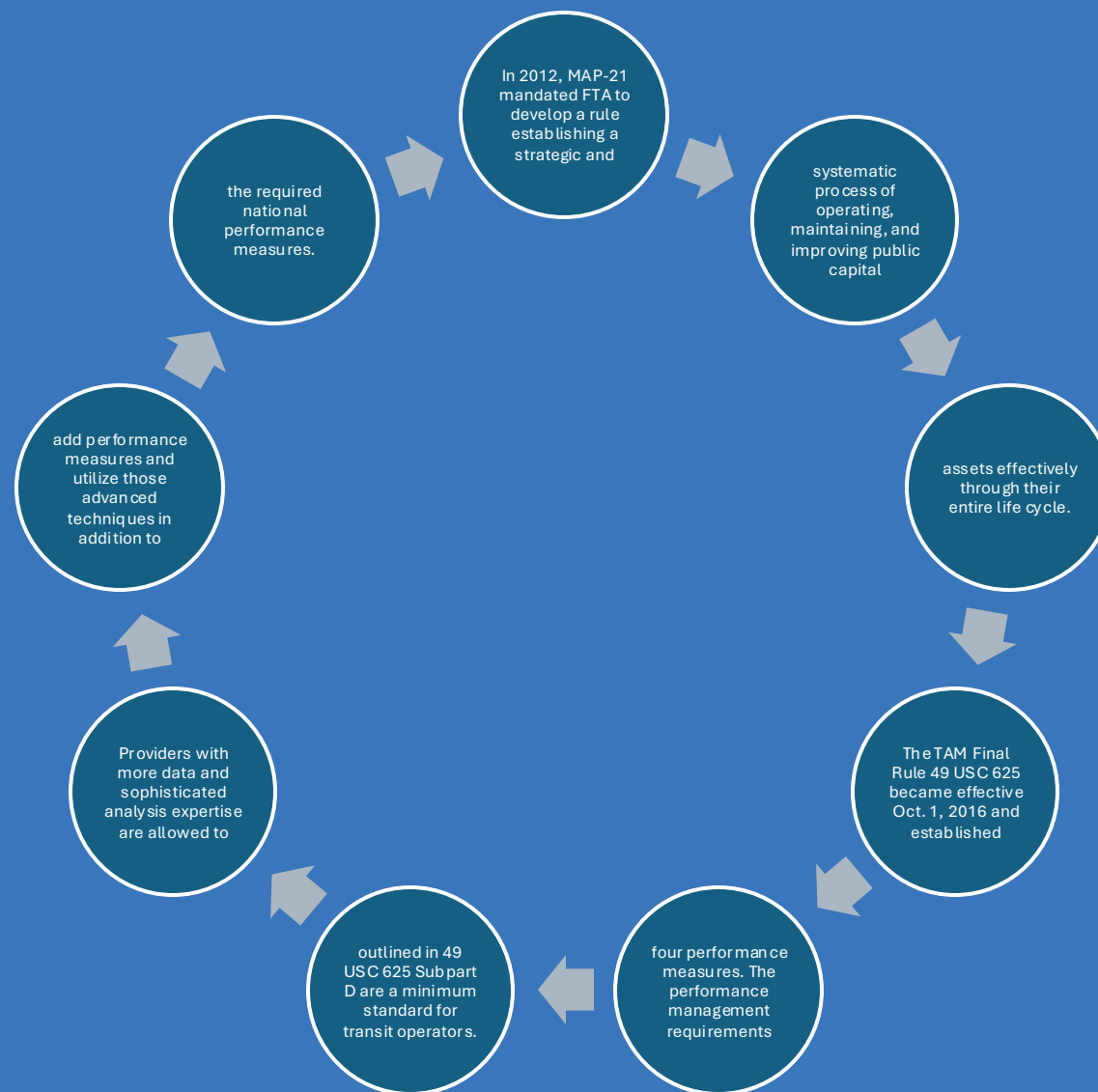
1. You do not know if you are in a State of Good Repair (SGR) unless you have an asset management program/process.
2. State of Good Repair is easily determined through good Asset Management (AM).
3. Reporting SGR/AM is a requirement if you receive federal funding





# State of Good Repair & Asset Management Process for Rail Transit Systems

## Federal Regulations for TAM



# State of Good Repair & Asset Management Process for Rail Transit Systems

## State of Good Repair

### A typical definition for State of Good Repair:

The condition in which an asset is able to operate at a full level of performance.

The asset is considered to be in a state of good repair when that asset:

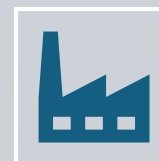
1. Is able to perform its designed function
2. Does not pose a known unacceptable safety risk
3. Its lifecycle investments must have been met or recovered



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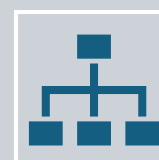
## Asset Management Plan



### Asset Management Plan:



The first step in achieving SGR is by developing an asset management plan.



The asset management plan should include:

- Executive-level direction to support the goals of the asset management program
- Documented commitment to achieving SGR
- Defined asset management objectives
- Defined and assigned roles and responsibilities





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## Federal Asset Groupings

Category	Class
Equipment	<ul style="list-style-type: none"> <li>Construction</li> <li>Service Vehicles</li> <li>Maintenance</li> </ul>
Rolling Stock	<ul style="list-style-type: none"> <li>Railcars</li> <li>Buses</li> <li>Other Passenger Vehicles</li> <li>Ferries</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>Fixed Guideway</li> <li>Signal Systems</li> <li>Structures</li> <li>Power</li> </ul>
Facilities	<ul style="list-style-type: none"> <li>Support Facilities</li> <li>Passenger Facilities</li> <li>Parking Facilities</li> </ul>



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## Asset Inventory

The second step in developing a process to manage your assets would be to generate an inventory of asset records by asset types. This is the point when you will want to identify and document your asset breakdown structure or “ABS”. This should be a parent-child relationship including components that make up an asset. You would include all rail cars, buses, facilities, track, bridge, tunnel, electrical, 3<sup>rd</sup> rail or Catenary, PTC/ATC, signals, switch and crossing assets. Having a correct asset inventory is essential in determining the State of Good Repair.

Critical fields for the asset record would be:

- In-service/installed date
- Estimated Useful life or Useful Life benchmark
- Meters: this could be miles, hours or usage
- Original Cost
- Maintenance and rehab costs
- Condition rating

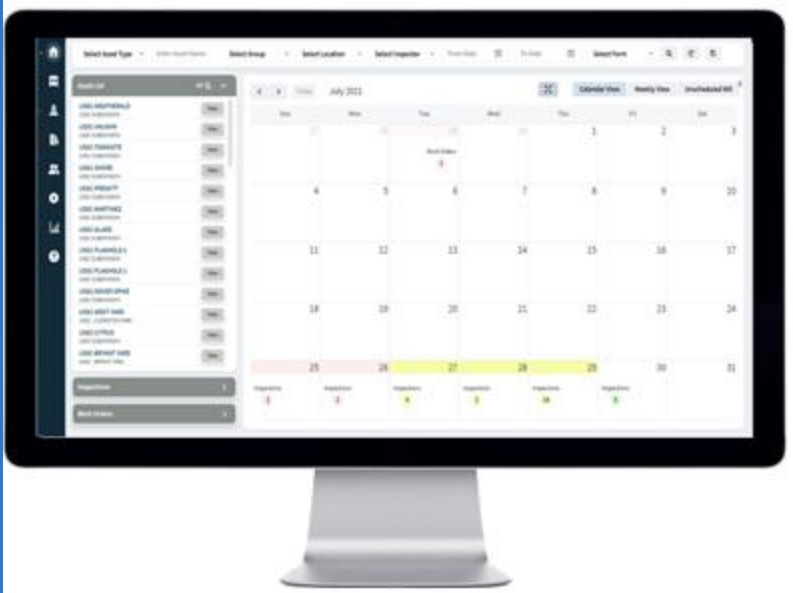




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## Building Your Asset Inventory

Some asset indicators can be set-up to capture usage. For example, how many times a switch throws or # of trains or tonnage on a track asset.

You should also think of methodology to capture performance restrictions against assets. In the railroad industry slow orders, out-of-service (OOS) and FRA Part 213.9 (b) are a few examples.



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## Linear Assets

Linear Assets provide more challenges as the asset could be 100's of miles long.

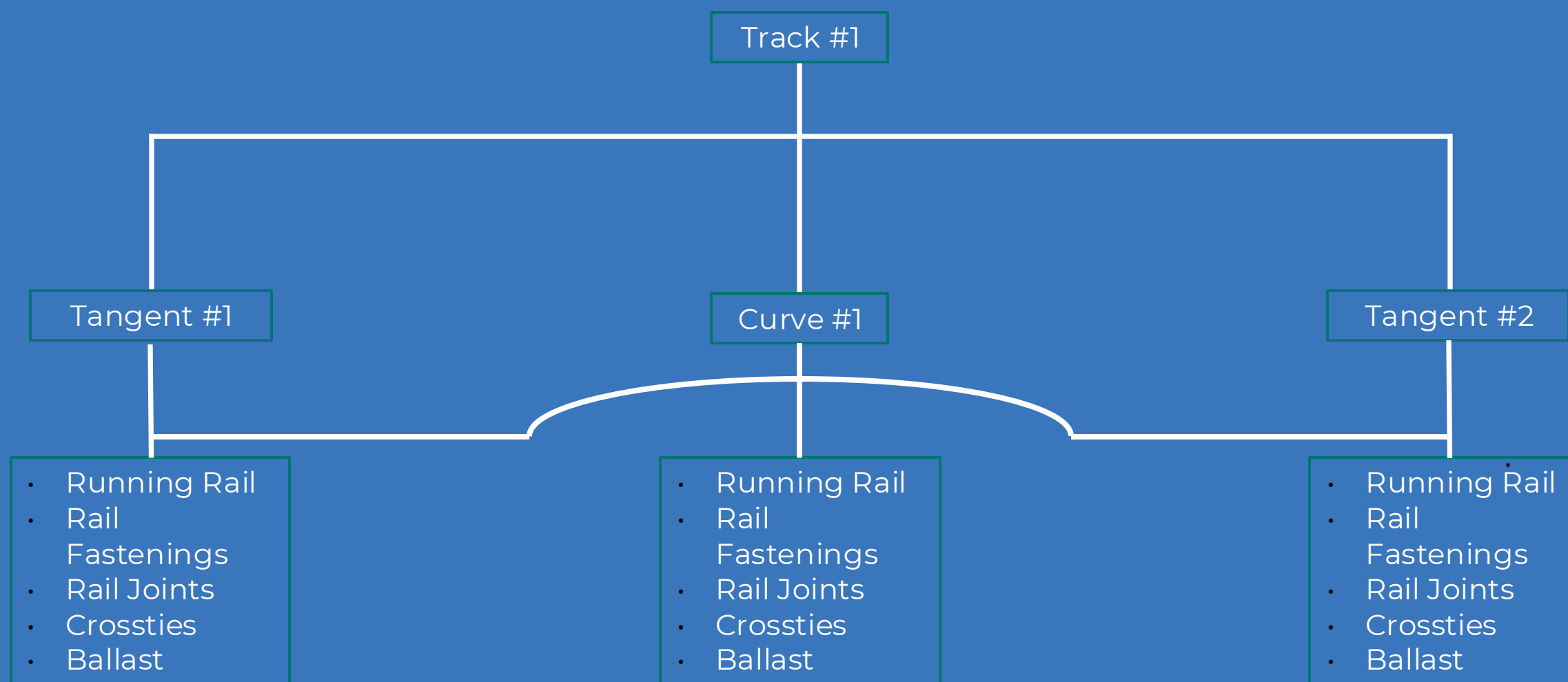
- Figuring out what parts of that asset should be rehabbed or replaced is a challenge.
- Also, you must match asset information to like minded assets, i.e., all curves should be a parent-asset and all tangent sections should be an asset as well.
- The curve assets and components will deteriorate quicker than those on tangent. One other thing to consider is if the track segment is in the tunnel or outdoors as UV rays can damage elastomer type fasteners.





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## Linear Asset Breakdown Structure





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## Condition Assessment

Once you have comprised your asset inventory and populated the before mentioned fields, you should embark upon a condition assessment process. This process typically utilizes a numbering system to determine the current condition of the asset.

One example of a condition rating method is:

Status	Condition Score	Description
Excellent	5	No visible defects, near-new condition
Good	4	Some slightly defective or deteriorated components
Adequate	3	Moderately defective or deteriorated components
Marginal	2	Defective or deteriorated components in need of replacement
Poor	1	Seriously damaged components in need of immediate repair
Failed	0	Asset is out of service



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## Condition Assessment

### How is the condition rating updated?

- The asset conditions can be updated during normal scheduled inspections
- Or you can schedule a third of the assets per year and you will always keep them up-to-date.
- This condition rating may be used to extend the asset life due to the asset not wearing as originally thought.



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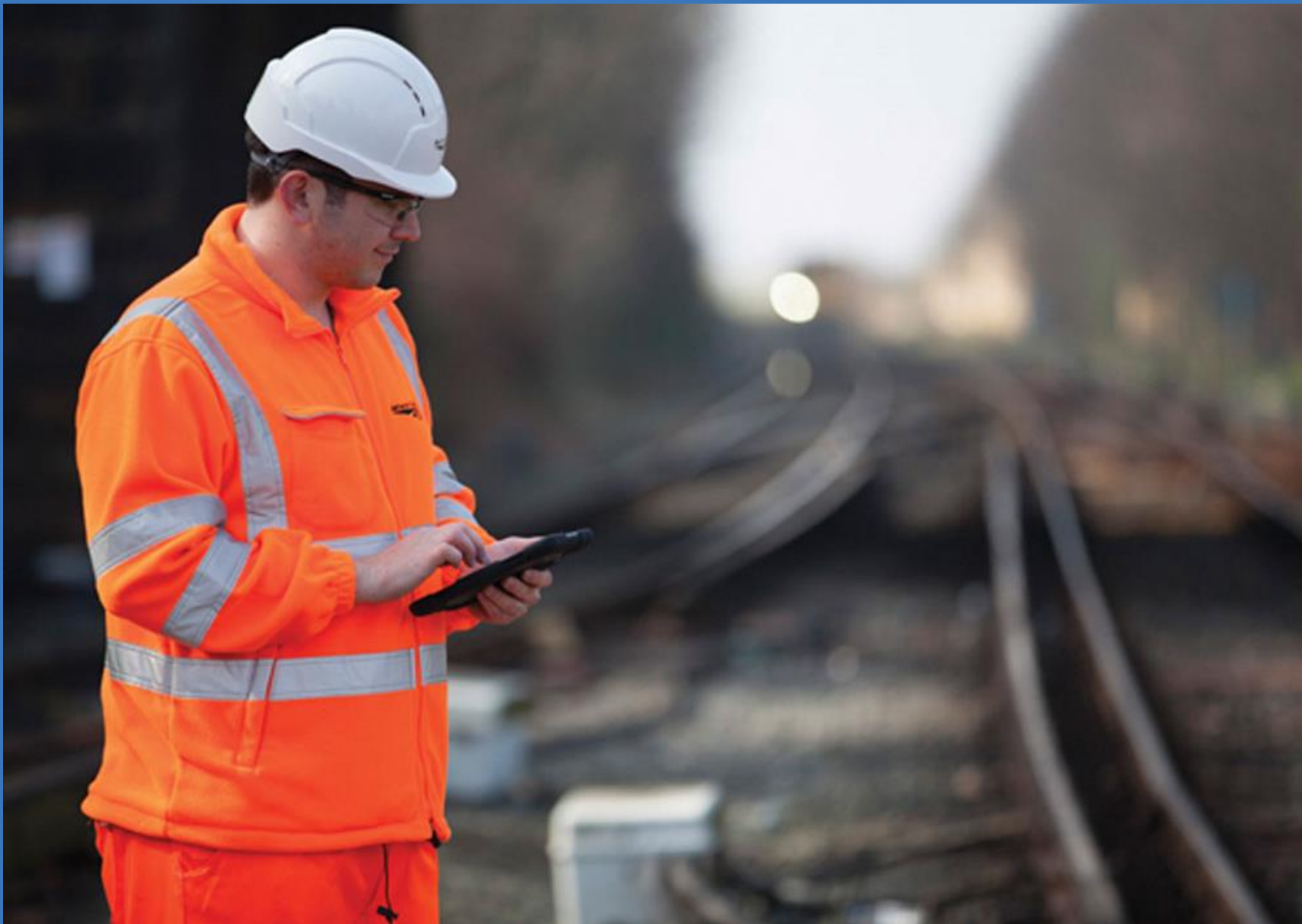
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## Condition Assessment

- State of Good Repair & Asset Management for Transits

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Condition Assessments can be performed during normal inspections or by special inspection:

Status	Condi on Score	Description
Excellent	5	No visible defects, near-new condition
Good	4	Some slightly defective or deteriorated components
Adequate	3	Moderately defective or deteriorated components
Marginal	2	Defective or deteriorated components in need of replacement
Poor	1	Seriously damaged components in need of immediate repair
Failed	0	Asset is out of service

## Condition Assessment

Group \*

EP&E Tech

Name \*

Sw -23-AR

Region

Southeast

Location \*

Blue Line

Description

Switch #23 at Armor Yard

Status \*

Active

Latitude

33.760644

Longitude

-85.004199

Actual MP

0.00

Override MP

0.00

Available track

Asset Details

In-Service Date

09/25/2001

Useful Life Benchmark

15 years

Est Replacement Date

09/25/2016

Current Condition Rank

3 Moderately defective or deteriorated components

Original Cost

100000

Priority

1 - Operational/Safety Critical

Add Custom Field

Asset Items

Map Components

Report

Backup Power

No Components

Add Component

Notes

Notes Details

User Name

Date/Time

Action

There are no notes details to display

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Status	Condition Score	Description
Excellent	5	No visible defects, near-new condition
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## Condition Assessment

Asset photos

Asset files

Panel

Control Unit

System

Car

Valves

Control Unit

Steps Under System/Components

Fault Relay Panel

LRV-HVAC

Wheel Set

Doors

Flooring

Door Holding

Group \*

Rail Car Mech

Name \*

SC-M1- 1011

Region

Midwest

Location \*

Havelock Yard

Description

Alstom Streetcar

Status \*

Active

Latitude

33.760644

Longitude

-85.004199

Actual MP

0.00

Override MP

0.00

Available track

Asset Details

Manufacturer

Alstom

Model #

CQ 312

In-Service Date

04/13/2021 00:00

Condition Rating

4 - Good

Estimated Useful Life

50 Years

Original Cost

1,000,000

Wheel Flange Wear

3 - Adequate

Wheel Wear Condition

3 - Adequate

Add Custom Field

Asset Items

Comm. Control Panel

No Components

Add Component

Electronic Control Unit

No Components

Add Component

Destination Sign

No Components

Add Component

Friction Brake System

No Components

Add Component





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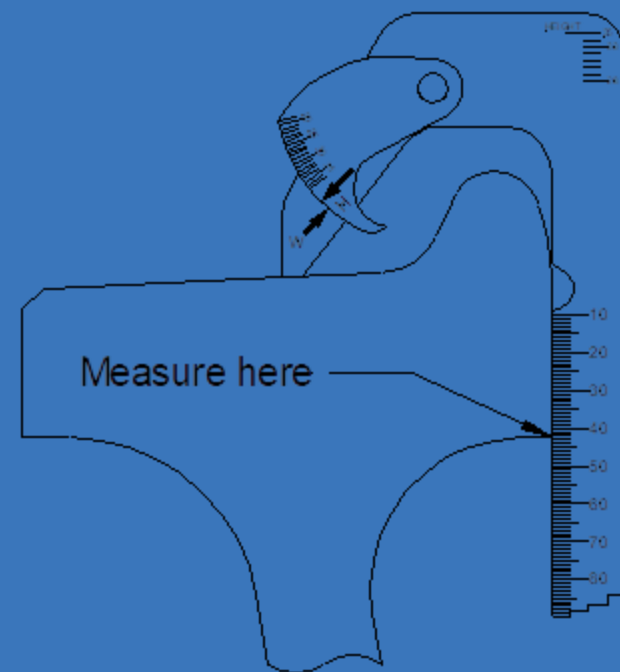
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## Wheel Measurements



Left Front 1:		Right Front 1:	
Left Front 2:		Right Front 2:	
Left Satellite:		Right Satellite:	
Left Rear 1:		Right Rear 1:	
Left Rear 2:		Right Rear 2:	
Left Match Wagon:		Right Match Wagon:	

The wheel wear can be updated through the normal or special inspection frequency.  
Data can be used to trend and project when the wheel would need truing or replaced.

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### Wheel Measurements

trackasset

INS-0000115

Asset Name : EMU-256

Section : --

Inspector\*  
RRS Demo Account

Combined Form Name : EMU Weekly Inspectopm

Asset Type : Electrical Multiple Unit

Form Layouts : ☒ Table ☐ Form

Start Date : -

☐ Amplifier and Control Unit

☐ ATC

☐ ATO

☐ Axles, roller bearings, and wheels

☐ Battery

☐ Doors

☐ Cut-Out Brake Valves

☐ Electronic Control Unit

☐ Fault Relay Panel

☐ Friction Brake

☐ Interior Lighting

☐ Pantograph

☐ Propulsion Unit

☒ Wheel Measurement

Wheel Measurement

Asset Type	LF-1	RF1	LF2	RF2	LR1	RR1	LR2	RR2	Result
Electrical Multiple Unit									<div><input type="radio"/> C - Test Completed - Left in Compliance</div> <div><input type="radio"/> A - Adjustments Made - Test Completed - Left in Comp</div> <div><input type="radio"/> R - Repair/Replace - Test Completed - Left in Complai</div>

Pending

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## SGOR Score

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_

target	hits	score	target	hits	score
1			1		
2			2		
3			3		
4			4		
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		
13			13		
14			14		
Total 1st 14			Total 2nd 14		
			1st 14		
			Total Round		

VISIT our Pro Shop for your Archery needs.  
We handle the very fine line of Bear Archery  
equipment.

Most agencies and properties consider themselves in a state of good repair when the overall rating is above a 3. This of course depends on the criticality of the asset and the impact to safety. It is possible to have an overall acceptable score for state of good repair but have an individual asset such as a bridge that is in a poor state of good repair. The latter would take precedence over the SGR score.

Some advantages of using a condition rating system is that if an asset has reached its useful life benchmark but still functioning as designed, it would not be flagged for capital rehab or replacement. Another advantage is that you can generate an overall condition score for each asset type to help pinpoint the best use of funding to maintain your property in a state of good repair.



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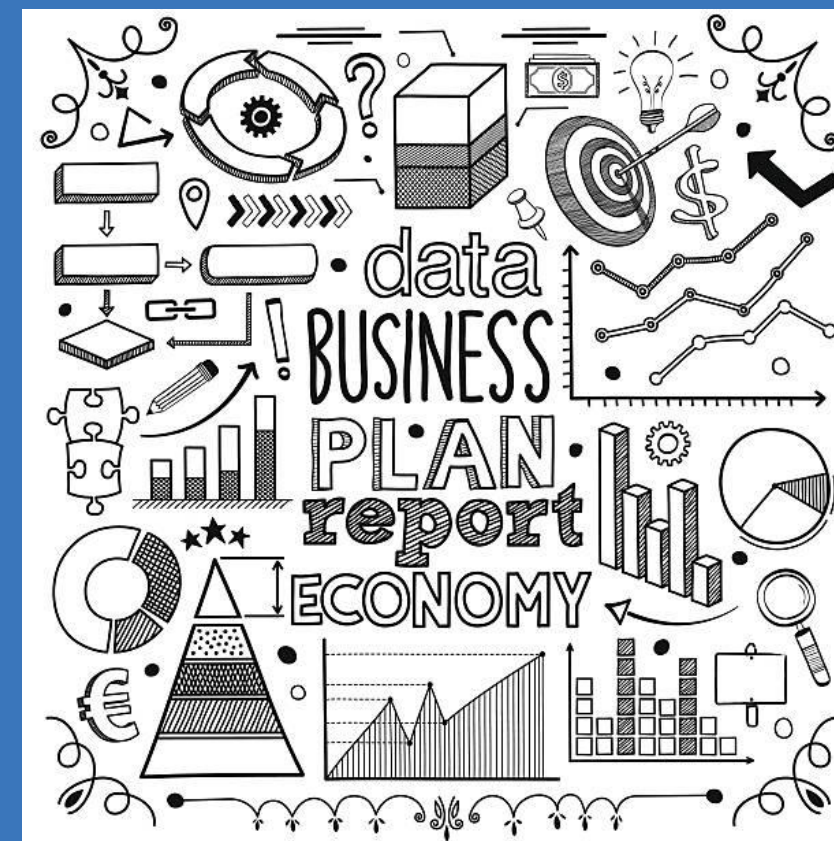


## Continuous Quality Improvement

Please keep in mind that the asset record is alive and will need continuing updates. In the railroad and transit industries, track, signal, crossing, and bridge inspection intervals typically follow the Federal Railroad Administration's guidelines and provide an easy means of updating current condition ratings.

The continuous updating of the asset condition ensures that the overall condition score for each asset type is in an acceptable state of good repair.

Asset Details			
In-Service Date	09/25/2001	Useful Life Benchmark	15 years
Est Replacement Date	09/25/2016	Current Condition Rank	3 Moderately defective or deteriorated components
Original Cost	100000	Priority	1 - Operational/Safety Critical



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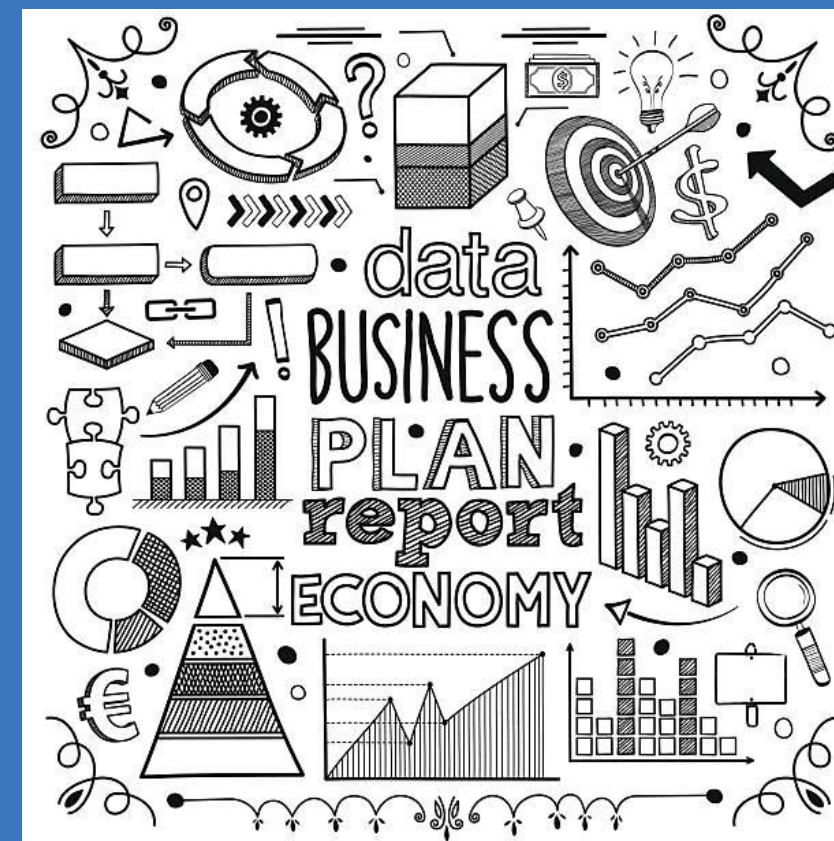


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## Key Performance Indicators



A key performance indicator that can be used for track asset types is the “percentage of track currently under a performance restriction. An agency can set their own acceptable goals for this section. Things to consider would be if the performance restrictions on your road are causing service and delivery delays.



Asset management is not a “one and done” exercise. It is very important that an agency or property involve all stakeholders and asset owners and that all parties buy-in to the asset management plan. In my experience, I have witnessed those who thought of this process as just another set of numbers to provide management and they experienced little to no improvement.



On the opposite end of the spectrum, I have also witnessed those who bought-in to the asset management process and maintained their assets in better repair while spending less money.



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## Summary



State of good repair and good asset management processes lead to a safer rail system and greatly reduces unnecessary spending by focusing on the assets that actually need to be rehabbed or replaced. For many, this is a cultural change but improving safety and decreasing operating and capital costs more than justify initiating a comprehensive asset management methodology.



The federal government has many opportunities for funding that will support state of good repair and asset management. If your agency or property has already implemented this methodology, their chances of receiving grants grows exponentially.



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## ISO 55001 Certification

- MARTA Received ISO 55,001 certification in 2019.
- First North American Transit to receive this honor.
- It takes many departments/stakeholders using the same playbook (Asset Management Plan)





# State of Good Repair & Asset Management Process for Rail Transit Systems



## Questions & Contact Info

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