

2026 Transit Asset Management (TAM) Roundtable

Theme: Lifecycle Management

Denver, CO

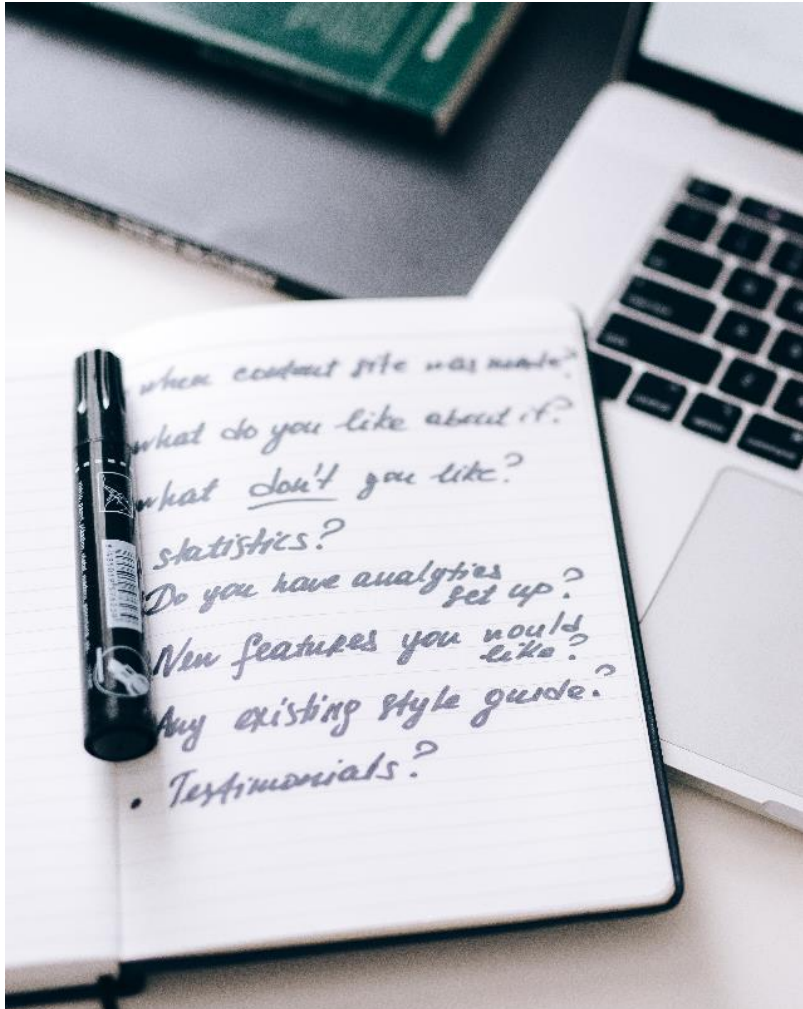
July 14-15, 2026



U.S. Department of Transportation
Federal Transit Administration

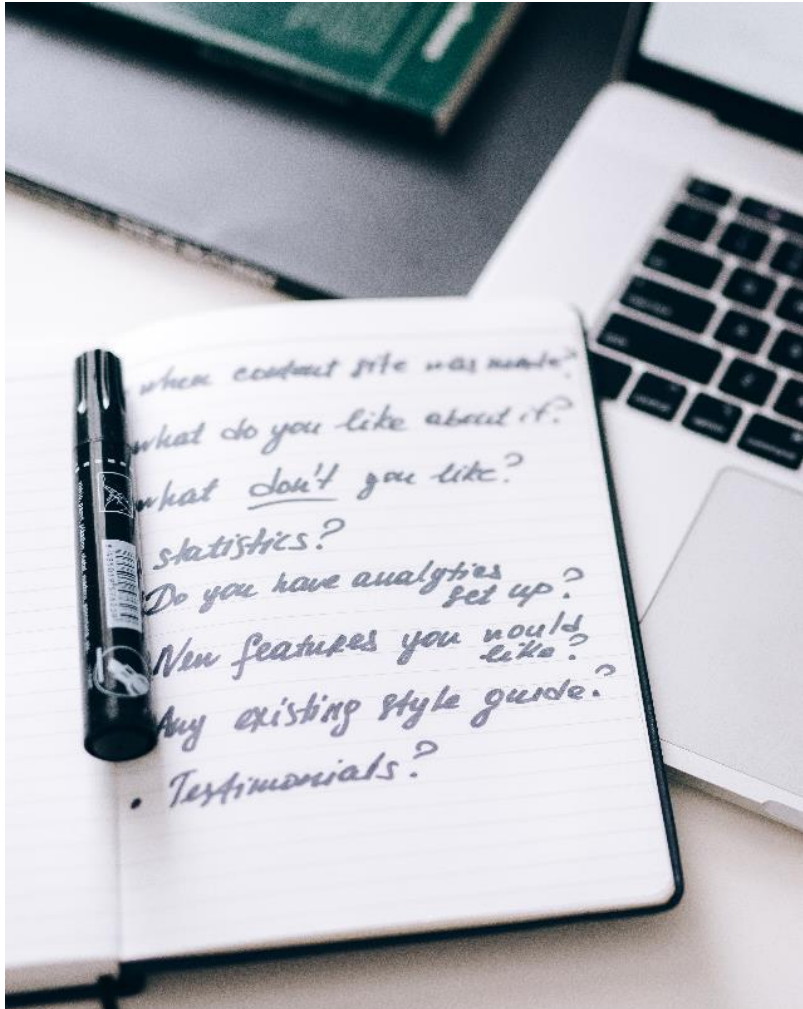


Agenda: Day 1



Time	Session
9:00 AM	Welcome
9:15 AM	Round Robin Introductions
10:15 AM	<i>Break</i>
10:25 AM	Using Data and Lifecycle Management to Reimagine Fleet Investment
11:05 AM	Small Group Discussion and Report Back
11:45 AM	<i>Lunch (on your own)</i>
1:00 PM	RTD Keynote Speaker
1:30 PM	Tour(s)
4:30 PM	<i>End of Day 1</i>

Agenda: Day 2



Time	Session
8:15 AM	<u>Optional</u> Peer Networking Session
9:00 AM	Welcome
9:15 AM	FTA TAM Program Updates
10:00 AM	<i>Break</i>
10:15 AM	Implementing FTA TAM Systems Guidance in Traditional Asset Classes
11:00 AM	Small Group Discussion and Report Back
11:45 PM	<i>Lunch (on your own)</i>
1:00 PM	Group Activity
3:00 PM	<i>End of Day 2</i>

Day 2 Group Activity

- Use your notecard during the event to document:

Key Takeaways:
Major insights and
lessons learned

Expectations & Goals:
What do I want to bring
back?

Surprises:
What caught me off
guard or challenged my
thinking?

Questions:
What do I still need to
ask or clarify?

Topics of Interest:
What do I want to discuss
further?

Peer Connections:
Who do I need to follow
up with?

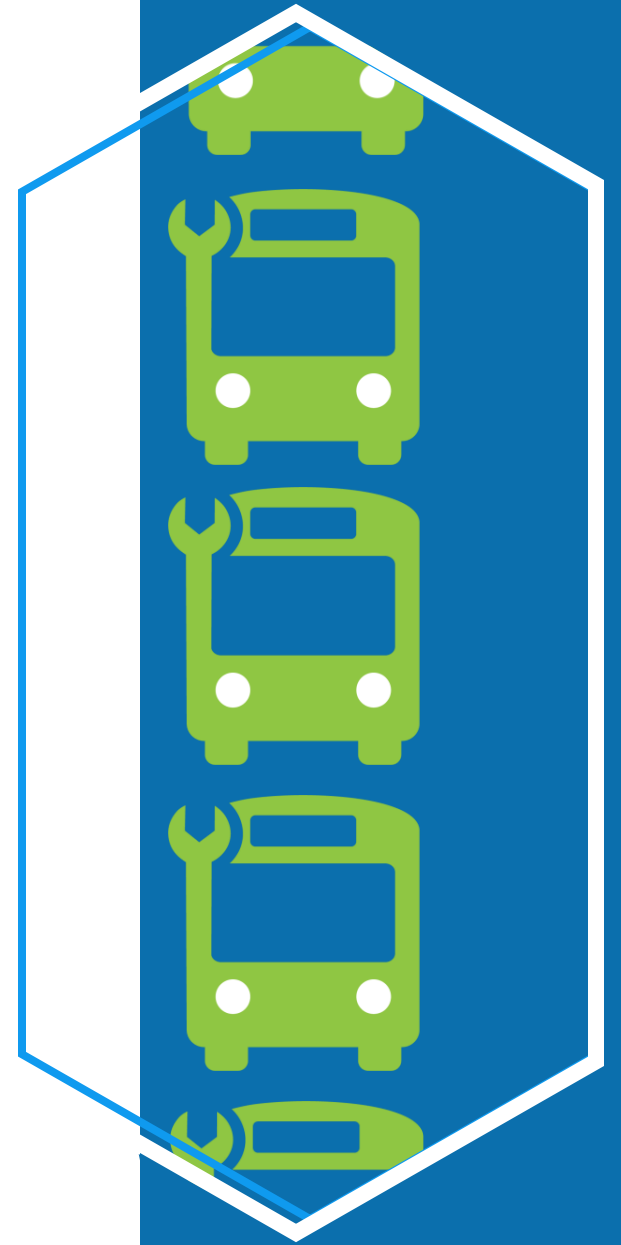
- Your notecard will be used for day 2 group activity
 - 3 rounds of discussion (Organization type, TAM experience, and dealer's choice)

Welcome: Day 1

Tracey MacDonald, FTA Region 8
Director of Planning and Program Development



U.S. Department of Transportation
Federal Transit Administration



Tracey MacDonald

Director of Planning and Program Development

FTA Region 8

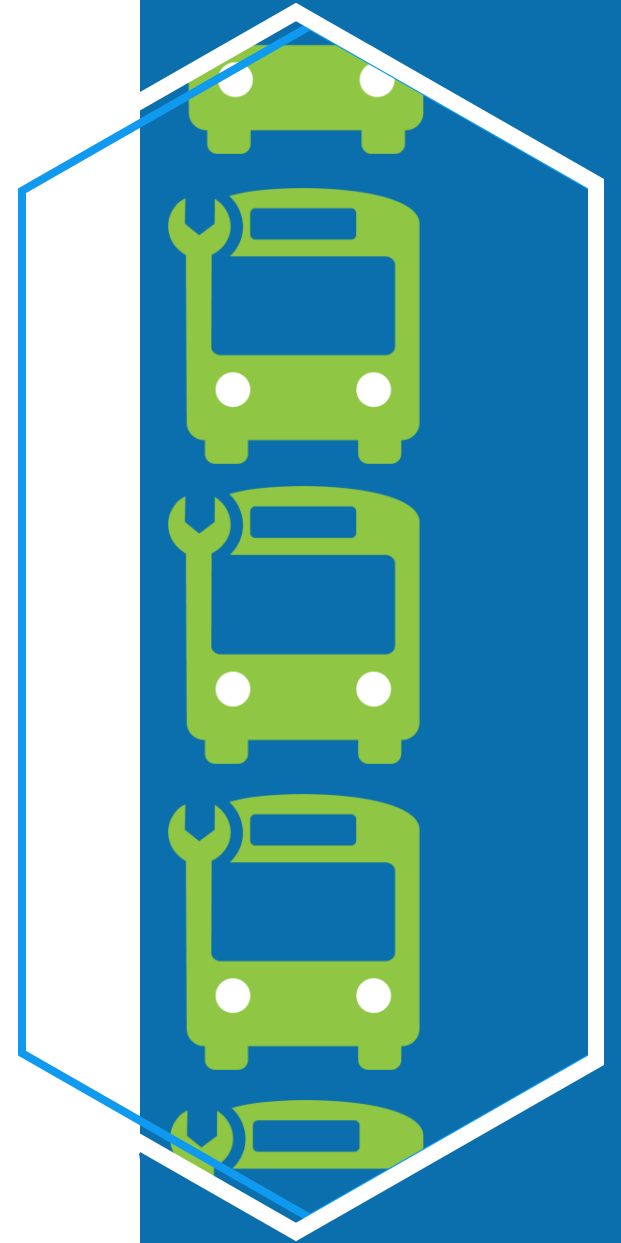


U.S. Department of Transportation
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Round Robin Introductions



U.S. Department of Transportation
Federal Transit Administration



Round Robin

Name, organization, role and response to:

With unlimited funding for asset management, what issue would you would fix first?

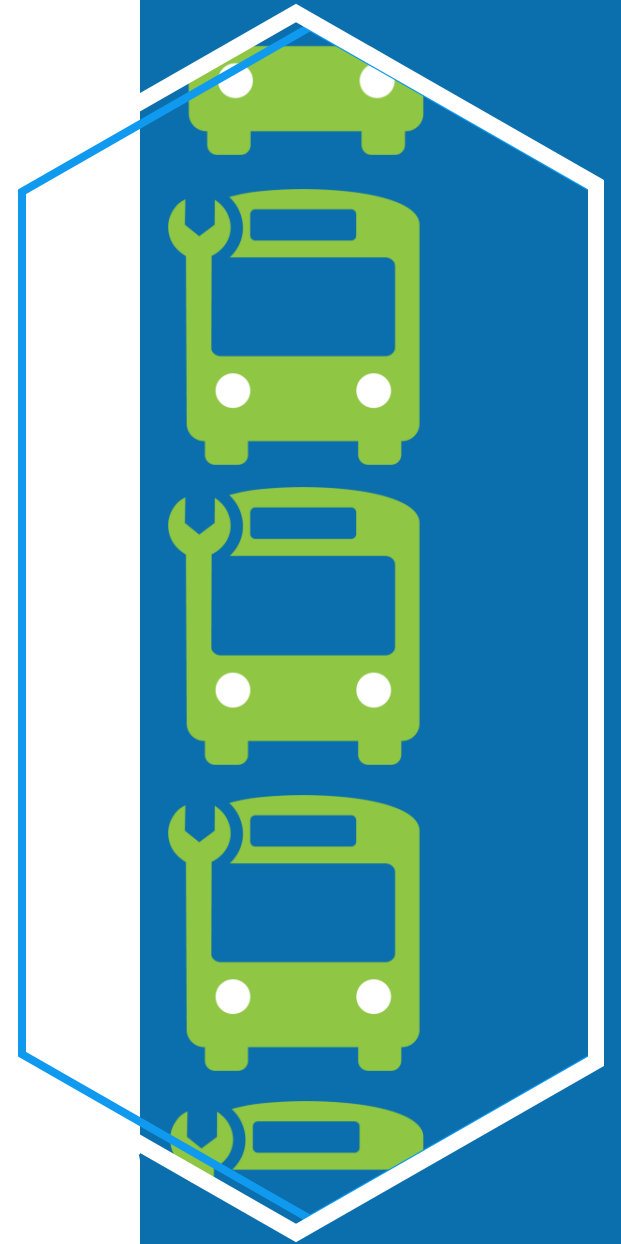
Bonus Question: What is your organization's oldest asset and how is it doing?

Using Data and Lifecycle Management to Reimagine Fleet Investment

Claude McCrea and Robert Dutton,
Delaware Transit Corporation



U.S. Department of Transportation
Federal Transit Administration





2026 FTA TAM Roundtable

DART Reimagined: From Replacement to Rehabilitation

How DTC Used Data and Lifecycle Management to
Reimagine Fleet Investment

Claude McCrea | Deputy Chief Operating Officer, Transportation
Robert Dutton | Vehicle Maintenance Director
Delaware Transit Corporation | July 14–15, 2026 | Denver, Colorado



Our Mission & Vision

DART – Connecting you to what matters

Every Ride

We strive to provide a safe, reliable, convenient ride to everyone.

Every Customer

We aspire to provide our customers with an excellent experience with every interaction.

Every Day

We connect people to their destinations throughout the state and the region.



DART At-A-Glance

DTC is Delaware’s Public Transit provider operating DART services.



Statewide multimodal services include Fixed Route, Paratransit, Microtransit, Commuter services, and Resort Service.

The Challenge We Faced

How do we maximize the value of our assets while maintaining reliable service?

Aging Fleet

Buses approaching higher-cost years

Rising Costs

New vehicle costs continued to climb

Procurement Delays

Long manufacturing and delivery lead times

Maintenance Pressure

More repair demand as assets age

The question was not whether the fleet needed investment, it was what kind of investment would create the greatest value.

Reimagining the Possibilities

Before we pursued funding, we challenged ourselves to rethink how we manage aging assets.



The Rehabilitation Project did not begin with a grant opportunity.

It began with a conversation.

Executive Leadership

Operations

Maintenance

Fleet

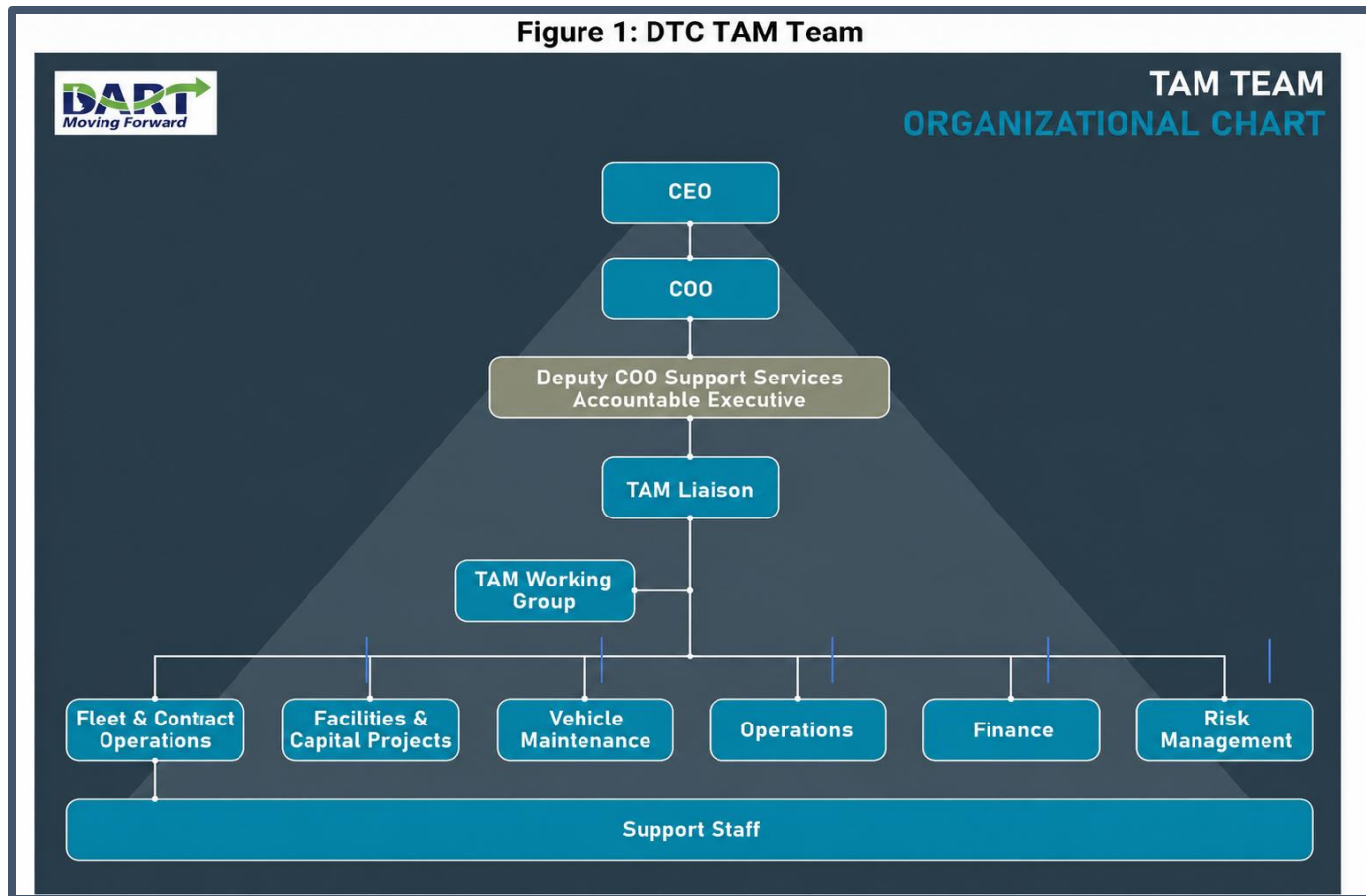
Finance

Consulting Firm

This Wasn't a Fleet Decision

It was a TAM decision.

Figure 1: DTC TAM Team



DTC's TAM structure connects asset decisions to agency-wide priorities.

Fleet & Contract Operations

Vehicle Maintenance

Operations

Finance

Risk Management

Executive Leadership

The project demonstrates that TAM is strongest when data, funding, operations, and maintenance are aligned.

Data Led the Discussion

The deeper we looked, the clearer the answer became.



The data pointed toward rehabilitation as a practical, cost-effective lifecycle management strategy.

The Million-Dollar Question

Was replacement our only option?

Replace 51 Vehicles

≈ **\$45+M**

Estimated replacement scenario

Rehabilitate 51 Vehicles

\$17.8M

Funded project strategy

Estimated Lifecycle Savings

\$7.4 Million

DTC Midlife Rehabilitation Program

DART Reimagined Fleet Rehabilitation Initiative



51

Revenue
Vehicles

42

Gillig Buses

9

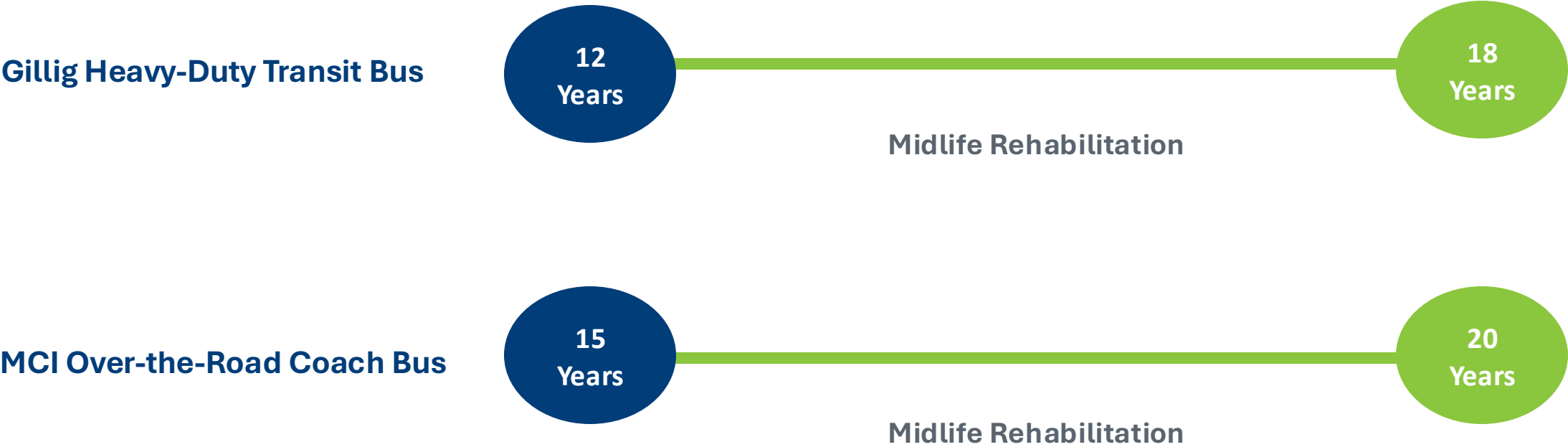
MCI Coaches

23% of DTC's Fixed Route Fleet

The program will rebuild selected buses to “like new” operating condition to improve reliability, reduce lifecycle costs, and extend service life.

Useful Life Extension

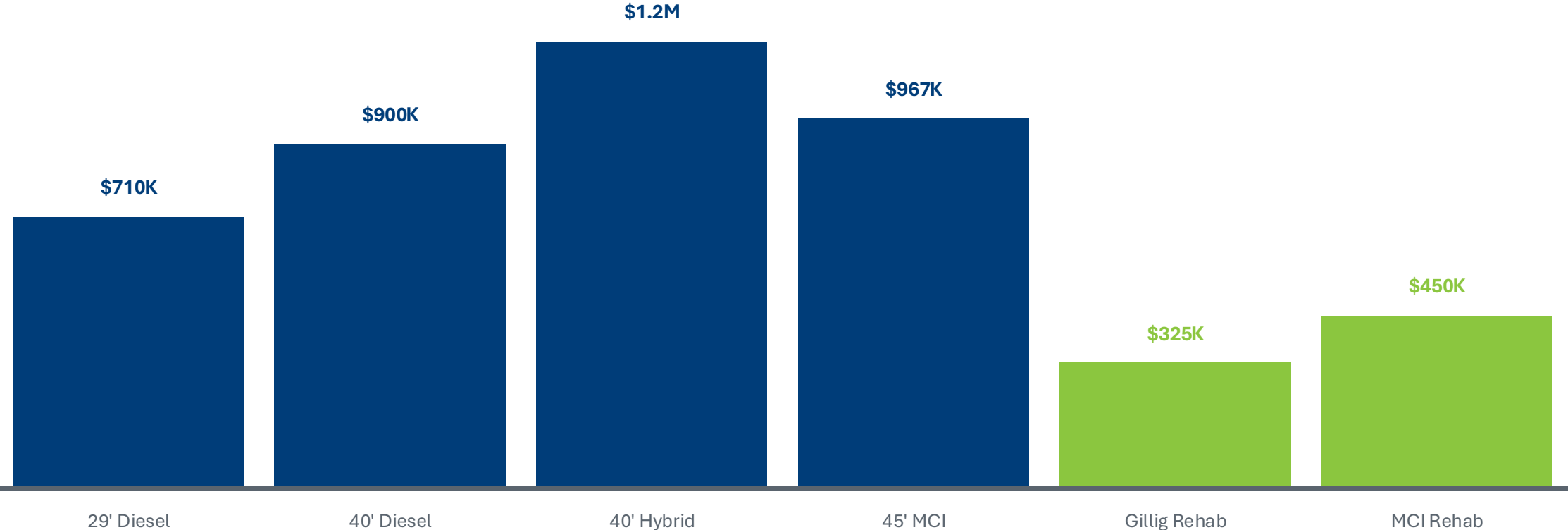
The goal is not simply to repair vehicles. The goal is to reset asset value.



Extending useful life allows DTC to preserve capital, reduce immediate replacement pressure, and plan future fleet transitions more strategically.

Replacement vs. Rehabilitation

Estimated costs show why the alternative mattered.



Rehabilitation cost is a fraction of replacement cost while still delivering substantial lifecycle value.

Lifecycle Cost Analysis

The analysis quantified the value of the rehabilitation approach.

\$352,509

Savings per MCI coach

\$94,975

Savings per Gillig bus

\$7.4M

Total projected savings

The LCCA evaluated Replacement vs. Rehabilitation using present value dollars, discounted future costs, and maintenance cost assumptions.

MCI Buses	
Total Life Cycle Cost (60-year cycle length)	
Replacement Option	\$2,561,895.58
Refurbishment Option	\$2,209,386.91
Cost Savings per Bus with Refurbishment	\$352,508.68
Cost Savings for 10 MCI Buses	\$3,525,086.75

Gillig Buses	
Total Life Cycle Cost (36-year cycle length)	
Replacement Option	\$1,862,719.46
Refurbishment Option	\$1,767,744.88
Cost Savings per Bus with Refurbishment	\$94,974.57
Cost Savings for 41 Gillig Buses	\$3,893,957.57

Note: All dollar values shown above are expressed in "Present Value" Dollars.

Lifecycle Cost Analysis – MCI

Detailed maintenance cost assumptions included in lifecycle analysis

Replacement LCC

\$2.56M

Rehabilitation LCC

\$2.21M

Projected Savings

\$352K

Annual Savings

\$7.3K

Maintenance Replacement Vehicle Cost Assumptions

- Years 1–8 Maintenance Cost: \$19,440
- Years 9–15 Maintenance Cost: \$33,300
- Average Annual Maintenance Cost (Over 15yr Lifespan): \$32,385

The lifecycle analysis demonstrated that rehabilitation provides meaningful long-term savings while extending useful life strategically.

Lifecycle Cost Analysis – Gillig

Detailed maintenance cost assumptions included in lifecycle analysis

Replacement LCC

\$1.86M

Rehabilitation LCC

\$1.77M

Projected Savings

\$95K

Annual Savings

\$2K

Maintenance Replacement Vehicle Cost Assumptions

- Years 1–8 Maintenance Cost: \$19,440
- Years 9–15 Maintenance Cost: \$33,300
- Average Annual Maintenance Cost (Over 15yr Lifespan): \$24,060

The lifecycle analysis demonstrated that rehabilitation provides meaningful long-term savings while extending useful life strategically.

Grant Award

From strategic idea to funded investment.

Delaware Transit Corporation (DTC) News Release

FOR IMMEDIATE RELEASE:
March 5, 2026

Contact: DTC Public Affairs
Albert.Loyola@delaware.gov
(302) 576-6002

Delaware Transit Corporation Secures Federal Grant for Major Fleet Rehabilitation

The Delaware Transit Corporation (DTC) has been awarded a federal grant through the Federal Transit Administration's (FTA) FY2026 Bus and Bus Facilities Program for \$14.3 million. This funding will launch a midlife rehabilitation program for 51 buses, representing 23% of DART's fixed-route fleet.

By overhauling existing vehicles rather than purchasing new ones, DTC is implementing a high-return investment strategy to maintain a "State of Good Repair" while navigating the rising costs of new equipment. This program will enable DTC to improve fleet reliability, reduce maintenance costs, and maximize DTC's federal funding.

The midlife rehabilitation program focuses on improving the utility of the current fleet. By performing these comprehensive overhauls, DTC expects to achieve significant long-term efficiencies by extending the operational life of 40' transit buses from 12 to 18 years and 45' over the road coach buses from 15 to 20 years.

Rather than incurring the full expense of new vehicle acquisitions, the midlife program is expected to save \$7.4 million in future costs. John Sisson, DTC's Chief Executive Officer, stated, "This federal investment allows us to modernize our fleet in a way that is both fiscally responsible and operationally efficient, ensuring our riders have the reliable service they deserve without the heavy burden of total vehicle replacement costs."

The Delaware Transit Corporation, a subsidiary of the Delaware Department of Transportation (DelDOT), operates DART First State. For more information, please visit DartFirstState.com or call 1-800-652-DART. Real-Time Bus Information, DART Connect on-demand microtransit service and DART Pass mobile fare payment are all available on the free [DART Transit app](#) (iOS and Android).



-end-



\$17.8 Million

Total Project Investment

\$14.3M

Federal Funding

\$3.5M

State Funding

FTA FY2026 Grants for Buses and Bus Facilities Competitive Program (5339(b))

Funding allows DTC to implement a high-return rehabilitation strategy rather than accelerating large-scale vehicle replacement.



15

From Concept to Implementation

Phased schedule to protect service continuity.



Implementation assumption: two to four buses at a time, approximately eight weeks per bus, roughly 17 buses per year.

Why It Matters

Reliable assets support access across Delaware.

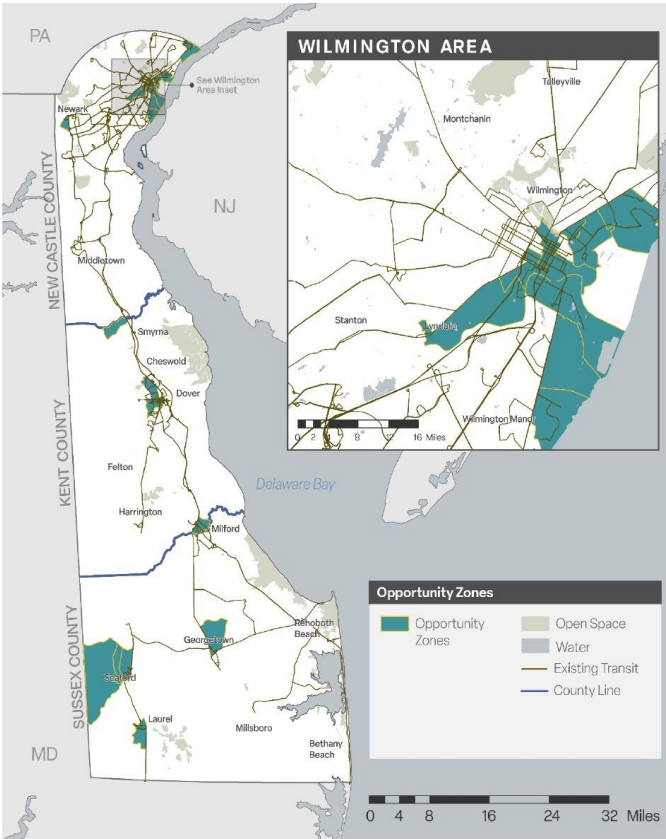


Figure 1: Opportunity Zones in Delaware (Source: Delaware Division of Small Businesses)

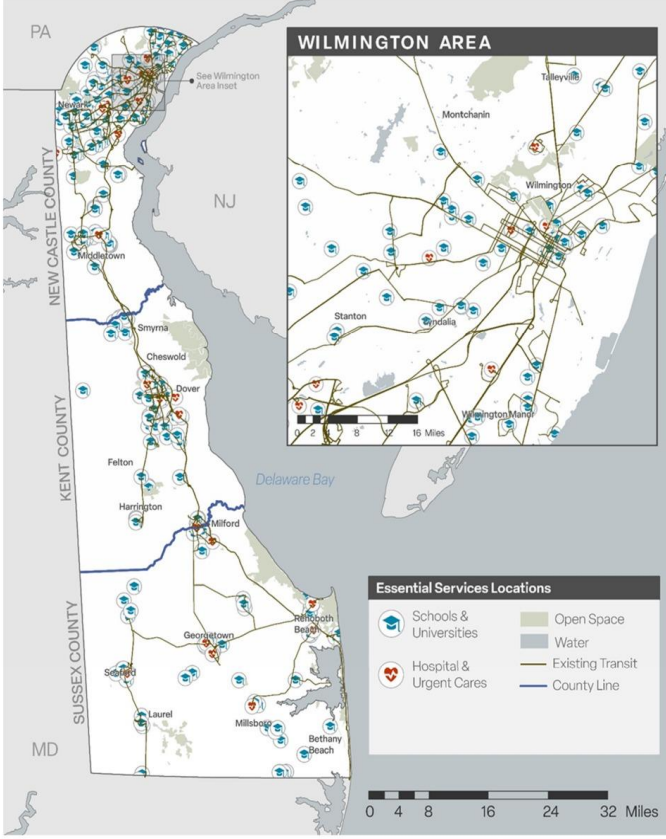


Figure 2: Locations of Essential Services (Source: Homeland Infrastructure Foundation-Level Data)

Project benefits extend beyond the fleet.

97,000

Residents in Opportunity Zones

6,000

Businesses

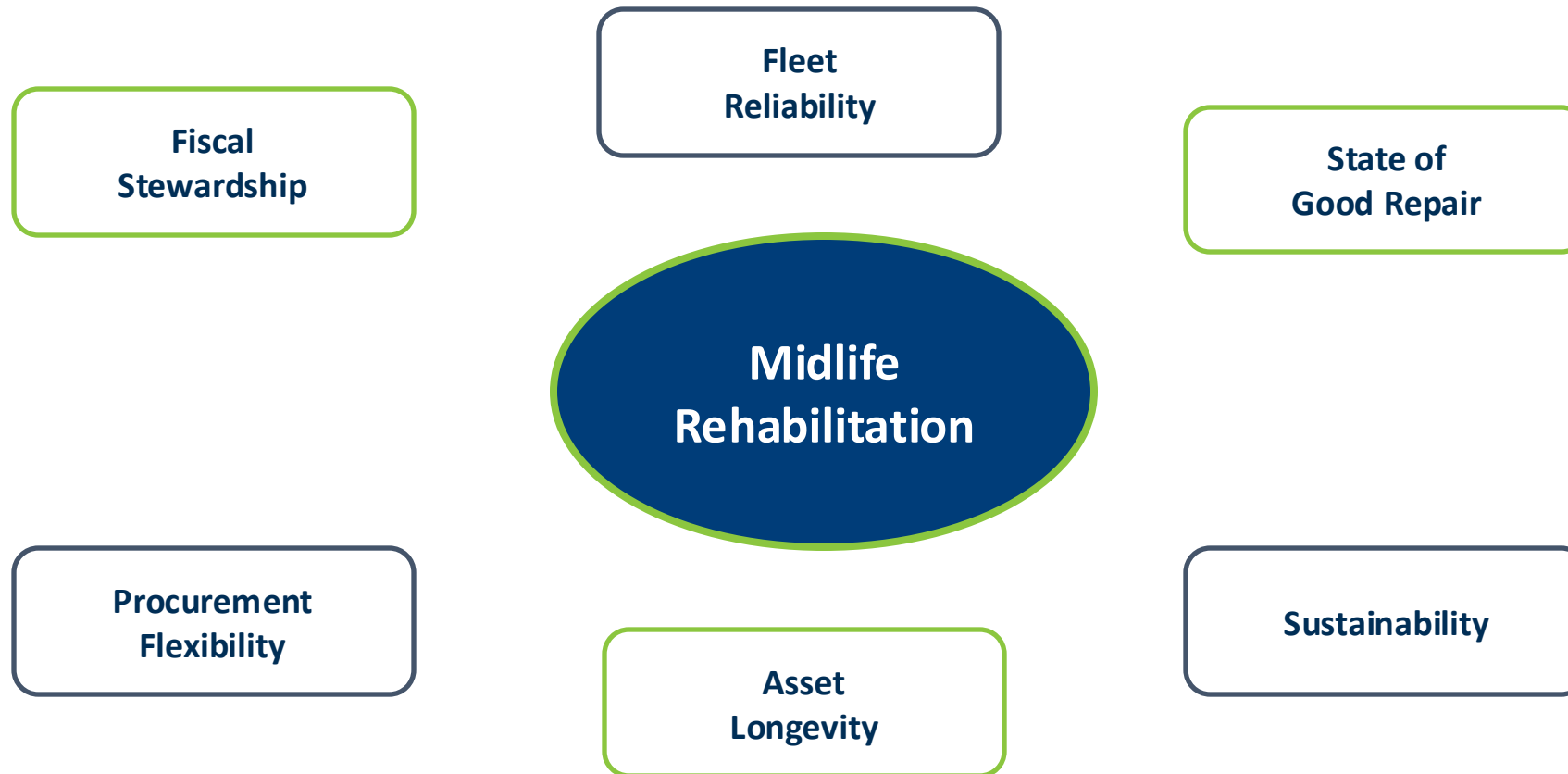
108,000

Jobs

Reliable transit supports access to jobs, healthcare, education, recreation, and essential services.

Strategic Benefits

The rehabilitation strategy balances operational reality and long-term asset planning.



A practical TAM investment can deliver multiple outcomes at once.

What We Learned

- 1 Data Matters** Good asset data turns assumptions into strategy.
- 2 Collaboration Matters** TAM decisions require Fleet, Maintenance, Operations, Finance, and Leadership.
- 3 Timing Matters** Midlife decisions need to happen before assets are fully past their prime.
- 4 Flexibility Matters** A phased approach protects service while work is underway.
- 5 TAM is About People** Assets matter because customers depend on reliable service.



DART: Reimagining the Future

51 Vehicles

\$17.8M Investment

5 – 6 Additional Years of Useful Life

\$7.4M Lifecycle Savings

“Sometimes the best investment isn’t replacing an asset. It’s reimagining what that asset can become.”

Delaware Transit Corporation
2026





Thank You

Questions & Discussion

*“Every asset has a lifecycle.
Every decision shapes the future.”*

DATA

Informs Decisions

COLLABORATION

Strengthens Outcomes

SERVICE

Drives the Mission

Audience Q&A



Small Group Discussion Questions

1. Has your organization performed or considered revenue vehicle rehabilitation?

○ *If so:*

- How did you evaluate your options to rehabilitate or replace? What data or metrics did you use?
- What was your rehabilitation strategy? (e.g., phased overhauls, mid-life, in-house vs. contracted labor)
- What were the takeaways, unexpected challenges, or financial findings?

○ *If not:*

- What strategies do you use to sustain fleet reliability and extend vehicle life?
- What barriers are preventing you from performing rehabilitation? (e.g., funding, specialized labor, facility limitations)
- What do your future fleet investments look like?

2. Where does the asset management discussion begin in your organization?

- Who drives the effort? Who is involved?
- What agency-wide priorities (e.g., fiscal stewardship, service reliability) influence your TAM decisions?
- What improvements have you seen from aligning these priorities?

Report Back

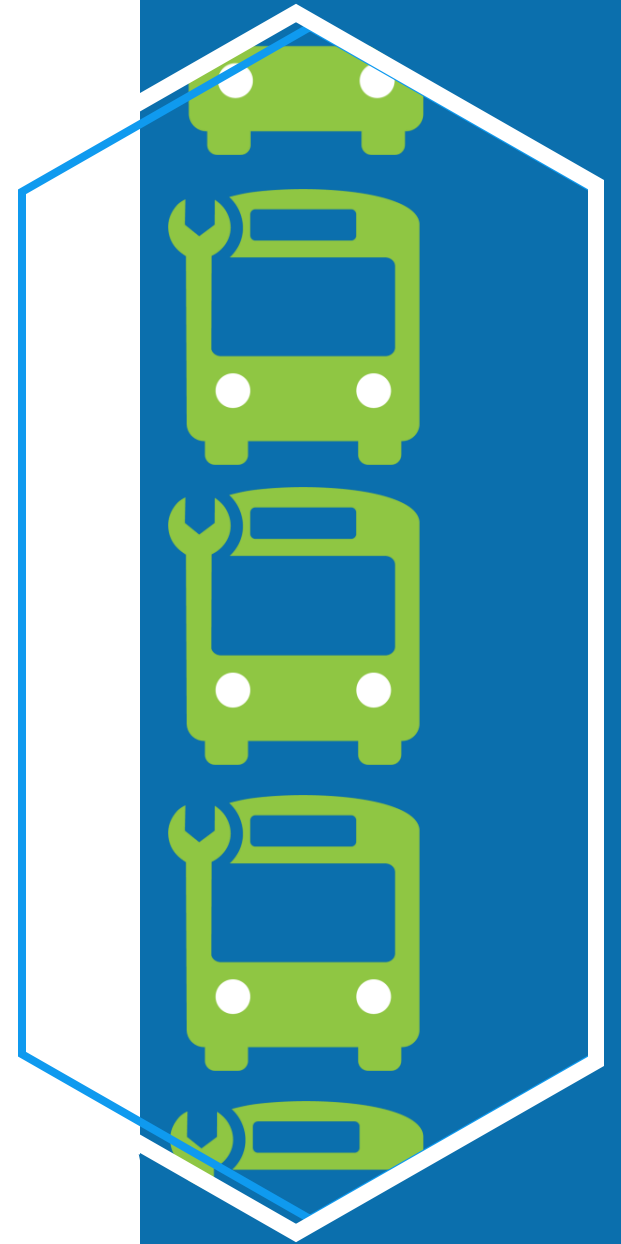


Denver RTD Keynote Speaker

Kelly Mackey, Chief Financial Officer



U.S. Department of Transportation
Federal Transit Administration





Kelly Mackey

Chief Financial Officer • RTD

PRESENTER

22 years leading complex financial operations and organizational transformation

A strategic, results-driven finance executive with 22 years of experience, leading complex financial operations and organizational transformation. As Chief Financial Officer at RTD, she oversees the agency's stewarding resources with fiscal integrity on behalf of more than 3,000 employees and advancing financial strategies that support RTD's mission to make lives better through connections.

SELECTED LEADERSHIP

- **Staples**, leadership roles in B2B e-commerce distribution and delivery for one of North America's largest private delivery networks

EDUCATION & CERTIFICATIONS

Certified Public Accountant

MBA, University of Colorado Denver

BS, Finance, Oral Roberts University

Advanced Management Program, Harvard Business School



AN ASSET MANAGEMENT JOURNEY

Where we actually are.

Navigating budget, turnover, and external pressures with the discipline of asset management.

Kelly Mackey, Chief Financial Officer • RTD



AGENDA

Four parts to the story

01

Who we are

RTD's growth, system & the scale we steward

02

The pressures converging

Budget, turnover & external pressures

03

Asset management as the answer

One discipline that addresses all three

04

Asset management in motion

The Downtown Rail Reconstruction Project



Organizational context

A quarter-century of growth, the system it produced, and the scale we steward today.

01

26 years of expansion

02

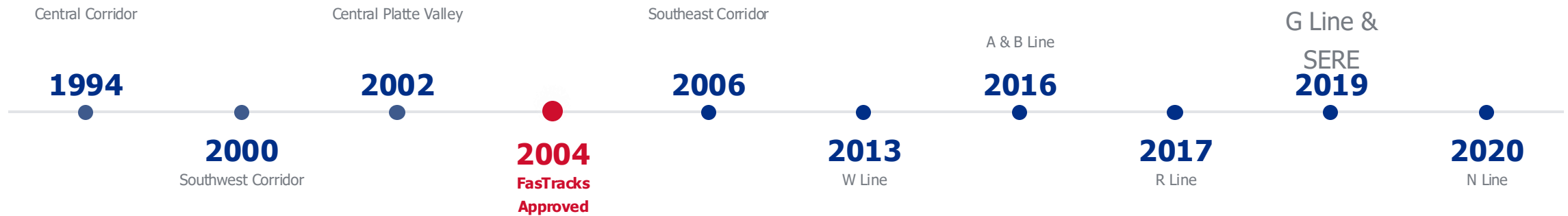
The system today

03

RTD by the numbers

OPENING · THE EXPANSION ERA

26 years of expansion



THE STRUCTURAL CATCH

Growth without equivalent renewal investment compounds quietly,
until the bill comes due.

OPENING · THE SYSTEM AT A GLANCE

The system, end to end

Eight rail lines spanning the metro, Eastlake to RidgeGate, the airport to Golden. This is the system the rest of the conversation is about.

-  **Downtown Denver core** , where the Downtown Rail Reconstruction Project is underway.
-  **Modified rail services** in effect during reconstruction, see legend.



The scale we steward

BUS

~1,000

vehicles · fixed route

PARATRANSIT

344

vehicles · Access-a-Ride

COMMUTER RAIL

66

vehicles · 4 lines

LIGHT RAIL

200

vehicles · 6 lines

Across a **2,345 sq mi** service area, 8 counties, 40 municipalities, funded primarily by a **1% regional sales tax**.

The pressures converging now

RTD is navigating several at once, and not one of them is unique to us. Every agency in this room knows these pressures.

01

Budget Constraints

02

Turnover

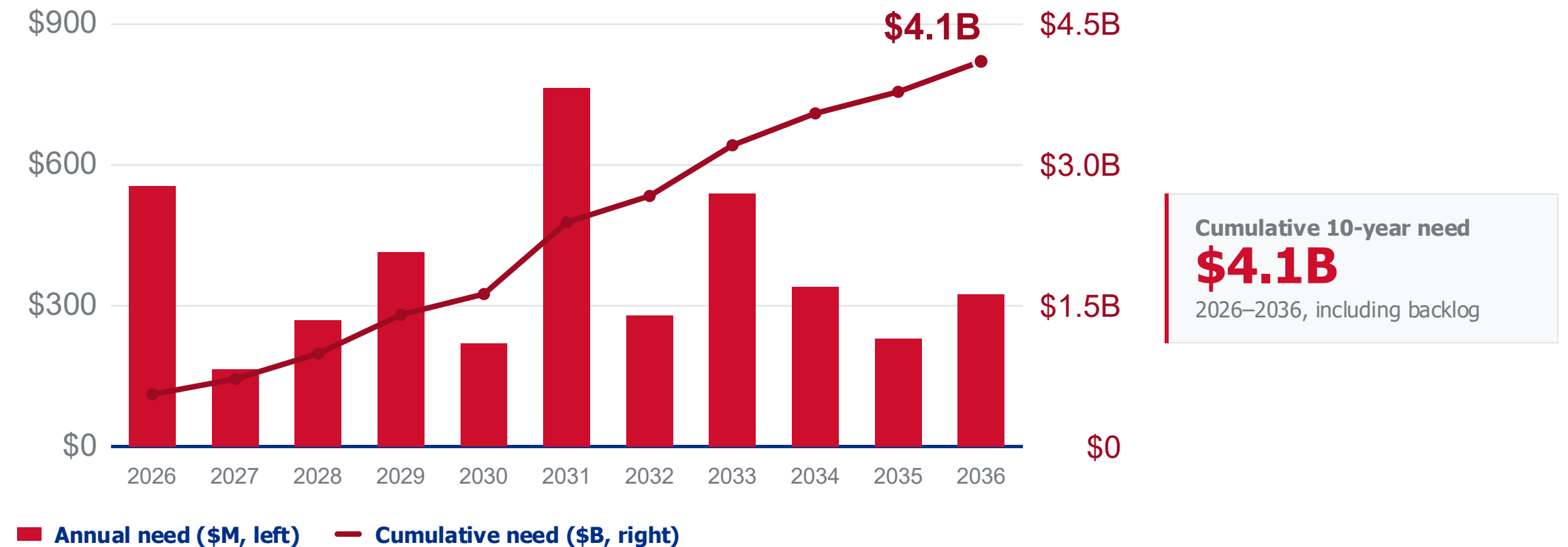
03

External Pressures

■ THE PRESSURE · THE BUDGET REALITY

Budget Constraints: Need

10-year capital asset need, annual & cumulative

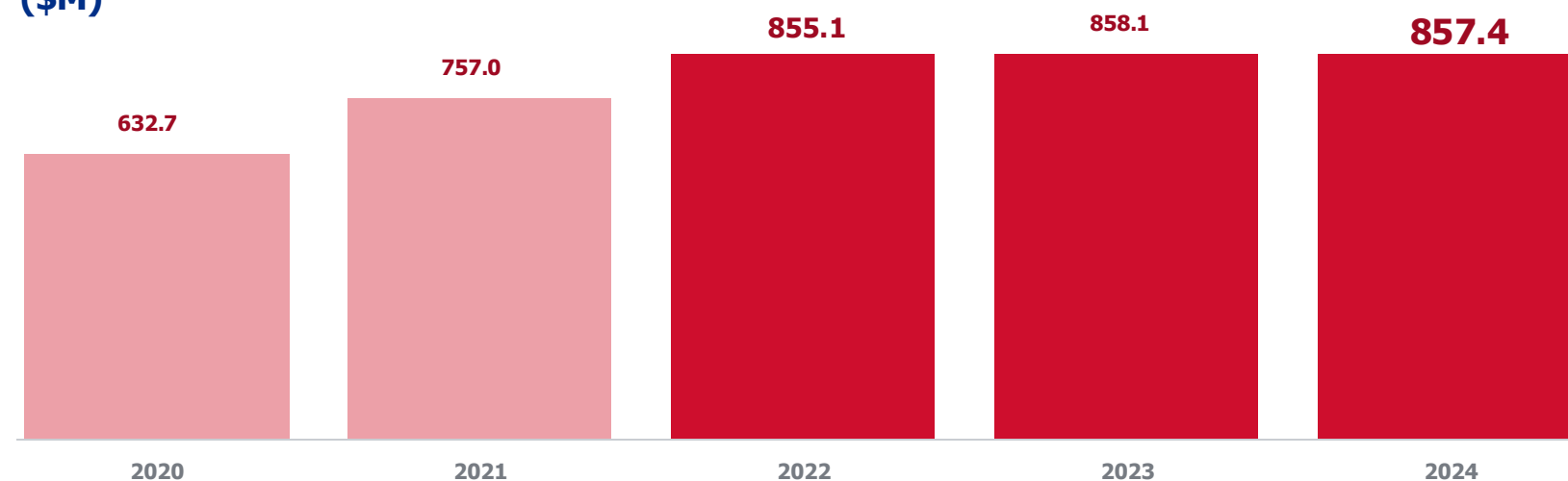


2026 includes existing backlog. Source: RTD 10-Year Capital Asset Needs Summary.

■ THE PRESSURE · THE BUDGET REALITY

Budget Constraints: Revenue

Sales & use tax: the recurring base
(\$M)



+0.3%

revenue growth, 2022 → 2024

Recovery Plateau

Audited actuals. Source: RTD ACFR, 2020–2024.

Turnover

Leadership
New executive leadership

New leadership resets expectations overnight, but it does not reset the condition of the assets underneath it.

EXECUTIVE

The Board
New governance, by law

Colo. SB26-150 (Modernizing RTD) reshapes the Board's structure, accountability, and oversight.

COLO. SB26-150

Staff
Reorganizing for what's next

An internal reorganization to align the workforce with the agency's next chapter, renewal as the priority.

WORKFORCE

External Pressures

Expansion

Demands to keep growing

Three new asks at once: modify the light rail corridor for the Broncos stadium, expand BRT, and help fund the CoCo. Each a major draw on capital.

CAPITAL TRADE-OFF

Accountability & transparency

A higher bar for oversight

New expectations to show how decisions are made and where dollars go, with the evidence to back it up.

PUBLIC TRUST

Customers

Rising customer expectations

Customers expect reliable, modern service today, judging the system by their daily experience, not the capital plan behind it.

SERVICE

THE PRESSURE • THE THROUGHLINE

Three pressures, one discipline

01 Budget constraints

02 Turnover

03 External pressures

None of this is unique to RTD, it is the operating environment for transit **nationwide**.

**ONE DISCIPLINE ANSWERS ALL
THREE**

Asset management

NEXT • THE ANSWER →

Asset management as the answer

One discipline that answers all three pressures, and makes hard decisions defensible.

01

Budget Constraints

02

Turnover

03

External Pressures

THE ANSWER · WHAT IT ACTUALLY MEANS

Not software. Not a checkbox. A decision discipline.

Right money

Match the level of investment to the consequence of failure.

Right year

Time the work before risk compounds, not after.

Right assets

Direct capital by condition and risk, not by who asks loudest.

Right reasons

Evidence that lets the agency defend a yes, and a no.

Seeing the need early is our biggest lever

Save for it Capital reserve fund	Borrow for it Bond financing	Compete for it Local & federal grants	Ask for it Ballot measure
Build reserves deliberately over years so the agency can self-fund predictable renewal when it comes due.	Issue debt against future revenue to fund large renewals now and spread the cost across the asset's service life.	Time to scope, position, and compete for grant programs, with the data to make the case credible.	For the largest needs, a voter-approved measure for new dedicated funding, backed by an evidence-based case.
INTERNAL · SAVINGS	CAPITAL MARKETS · DEBT	EXTERNAL · PARTNERED	PUBLIC · NEW REVENUE

From a people-dependent agency to a system-driven one

WHERE MOST AGENCIES ARE TODAY

People-dependent

- Knowledge lives in individuals
- Vulnerable to turnover and retirement
- Decisions vary by who is in the room



WHERE RTD IS HEADING

System-driven

- Knowledge lives in process and data
- Scalable and auditable
- Consistent decisions, generation to generation

WHAT THE SYSTEM DELIVERS Consistently

Right people

Right task

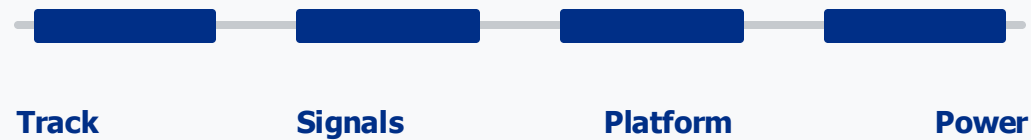
Right time

Right reason

Bundling work to spare the customer

PROJECT BY PROJECT

The same locations are reopened and disrupted every time a different asset comes due.



4× separate disruptions at the same locations

BUNDLED & PACKAGED

Co-located work grouped into one coordinated mobilization across locations.



1× one disruption, segments fully renewed

Decisions the agency can show its work on

JUDGMENT ALONE

When the rationale lives in people's heads, every decision is a fresh argument.

- Hard to explain to a board or an auditor
- Answers vary by who is in the room
- Trust erodes when the “why” is invisible

ON THE RECORD, WITH THE AMP

The same criteria, applied the same way every time, and written down.

- Documented criteria and prioritization
- Condition and risk data behind every call
- An auditable trail anyone can follow

WHY IT EARNS TRUST

The same evidence that **drives** a decision is what **defends** it.

What we've created, and what we're still building

ESTABLISHED

- ✓ A functioning AMP cycle
- ✓ Condition assessment across major asset classes
- ✓ Investment prioritization tied to risk
- ✓ An Asset Information Policy
- ✓ An Asset Management Accountability Leadership Team (AMALT)

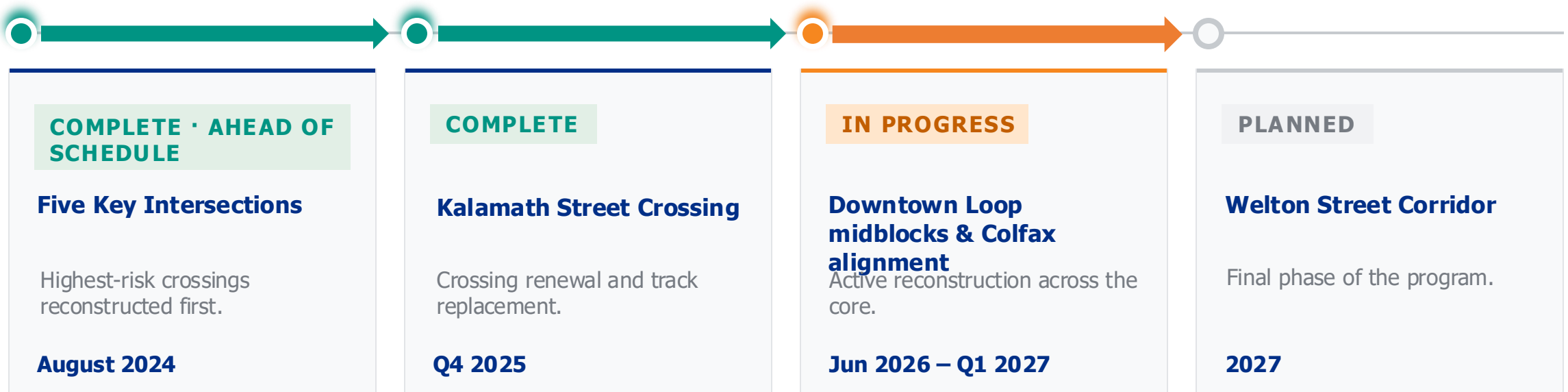
IN DEVELOPMENT

- Stronger data governance
- Integration of asset management with capital programming
- A management system less dependent on individual expertise
- Reorganizing to unite planning and capital delivery under one structure (Infrastructure & Planning Services)

Asset management in motion

Not a plan on paper, a renewal underway in the heart of the system, and the story our customers see.

30 years of service on the original infrastructure



Where the work is happening



● **YOU ARE HERE**

Sheraton Downtown Denver

The reconstruction is underway in the blocks all around us this week.

IN MOTION · WHAT OUR CUSTOMERS SEE



We all face the same pressures, and the same need to defend our decisions

01 Budget constraints

02 Turnover

03 External pressures

None of this is unique to RTD, it is the operating environment for transit **nationwide**.

ASSET MANAGEMENT

It doesn't tell us what the right answer is. It ensures we can **explain why a given answer is the right one.**

THANK YOU

The right investment, at the right time, for the right reason.

RTD came here to listen as much as to present. Where have you found the hardest gaps between intent and operational reality?

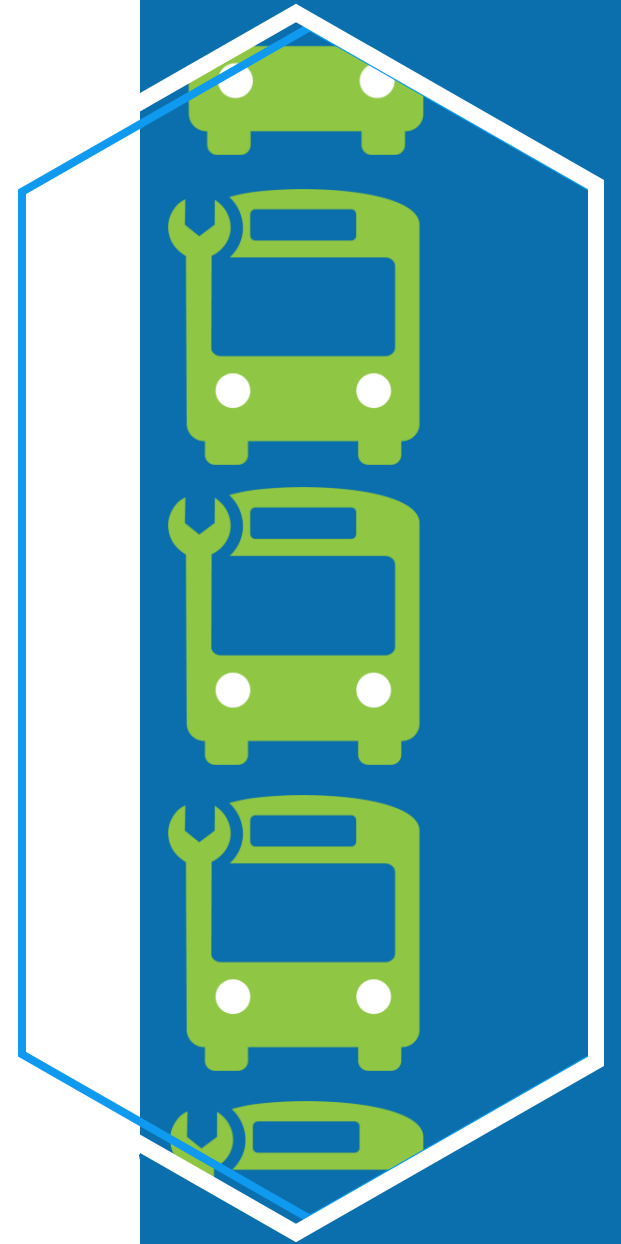
Kelly Mackey Chief Financial Officer, Regional Transportation District

RTD Tours

Please join your assigned tour when called



U.S. Department of Transportation
Federal Transit Administration



Logistics

Tours this afternoon:

- Ensure you attend the correct tour as assigned
- Look for your federal POC for your tour
- Day ends after tours conclude
- Groups will return to the venue

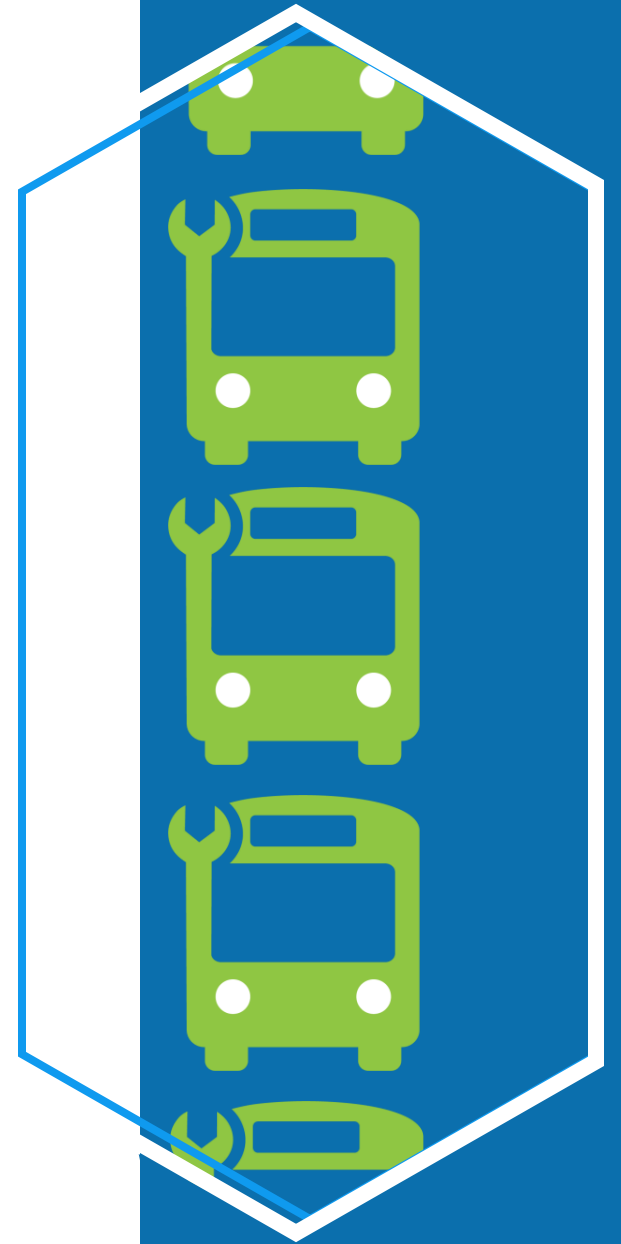
Tomorrow Morning:

- Optional Peer Networking session
- 8:15-9:00 am
- In this room

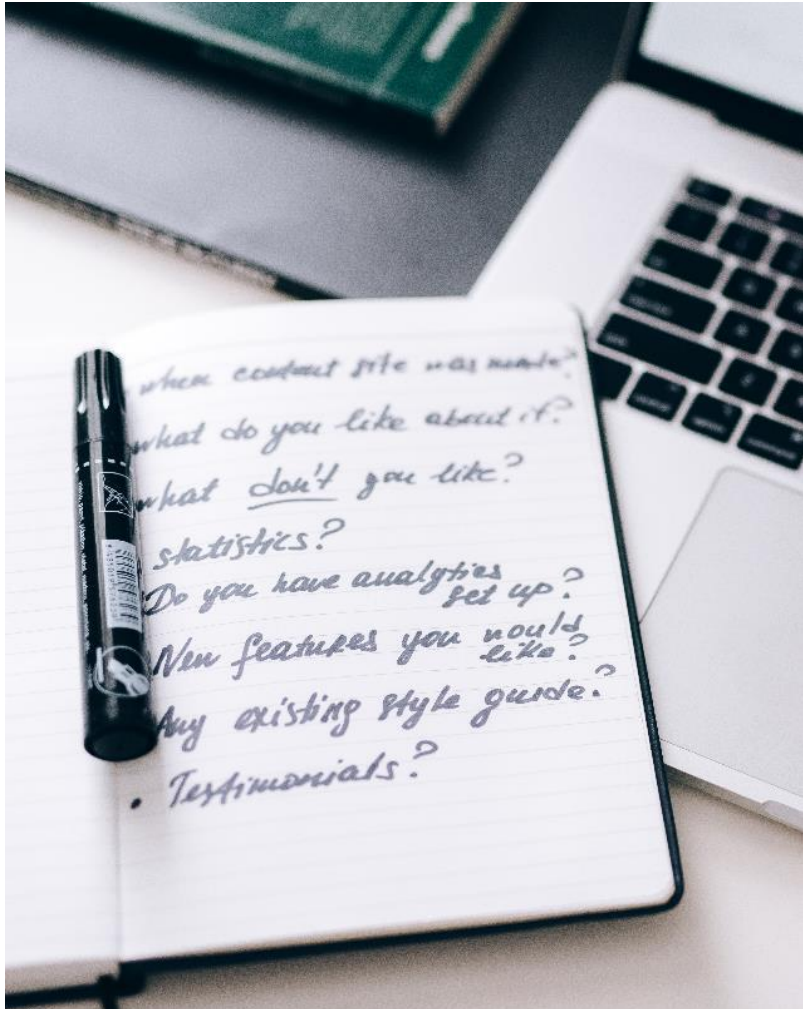
Welcome: Day 2



U.S. Department of Transportation
Federal Transit Administration



Agenda: Day 2



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3:00 PM	<i>End of Day 2</i>

Transit Asset Management (TAM) Program Update

Tamalynn Kennedy, TAM Program Manager
FTA TAM Roundtable

07/15/2026



U.S. Department of Transportation
Federal Transit Administration

Agenda

1. TAM Overview

- The intent and purpose of the Transit Asset Management (TAM) Program.

2. SGR Backlog

- The TAM Program estimates the national state of good repair (SGR) backlog as the percentage of the Nation's transit assets that are not in a state of good repair.

3. New Releases

- By statute, the Secretary is required to provide TAM technical assistance to transit agencies.

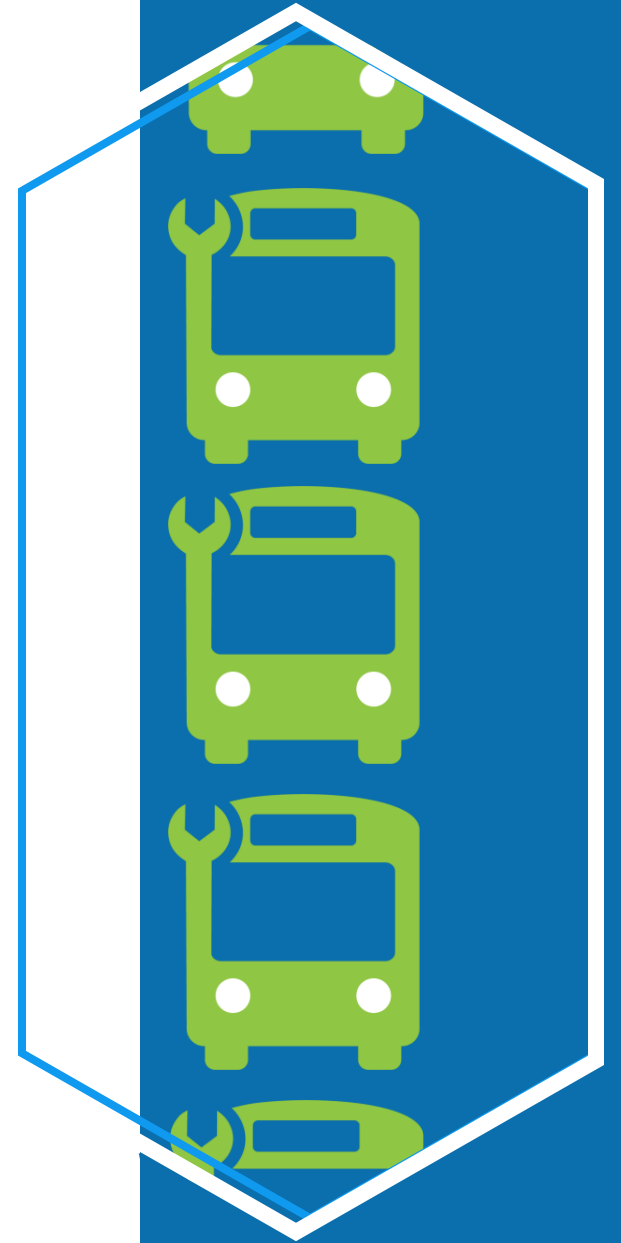
4. Next Steps

- Required 2026 TAM Plan update and upcoming TAM program activities.

TAM Overview



U.S. Department of Transportation
Federal Transit Administration



What is Transit Asset Management (TAM)?

Transit Asset Management (TAM) is a business model that uses the condition of assets to guide the optimal prioritization of funding at transit properties in order to keep our transit networks in a State of Good Repair.

Benefits of TAM

- Improved transparency and accountability
- Optimized capital investment and maintenance decisions
- More data-driven maintenance decisions
- Potential safety benefits

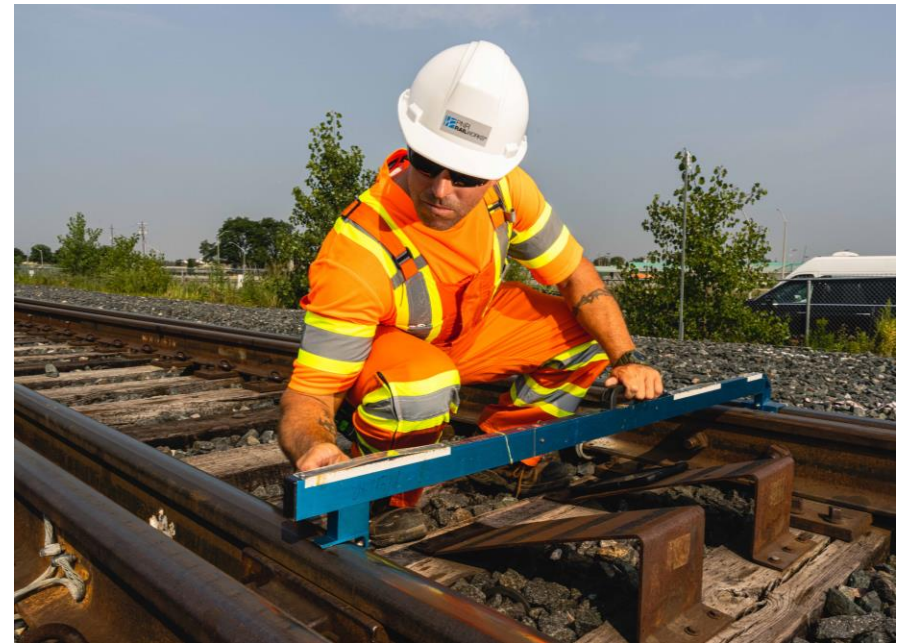


Photo credit: RailWorks

State of Good Repair

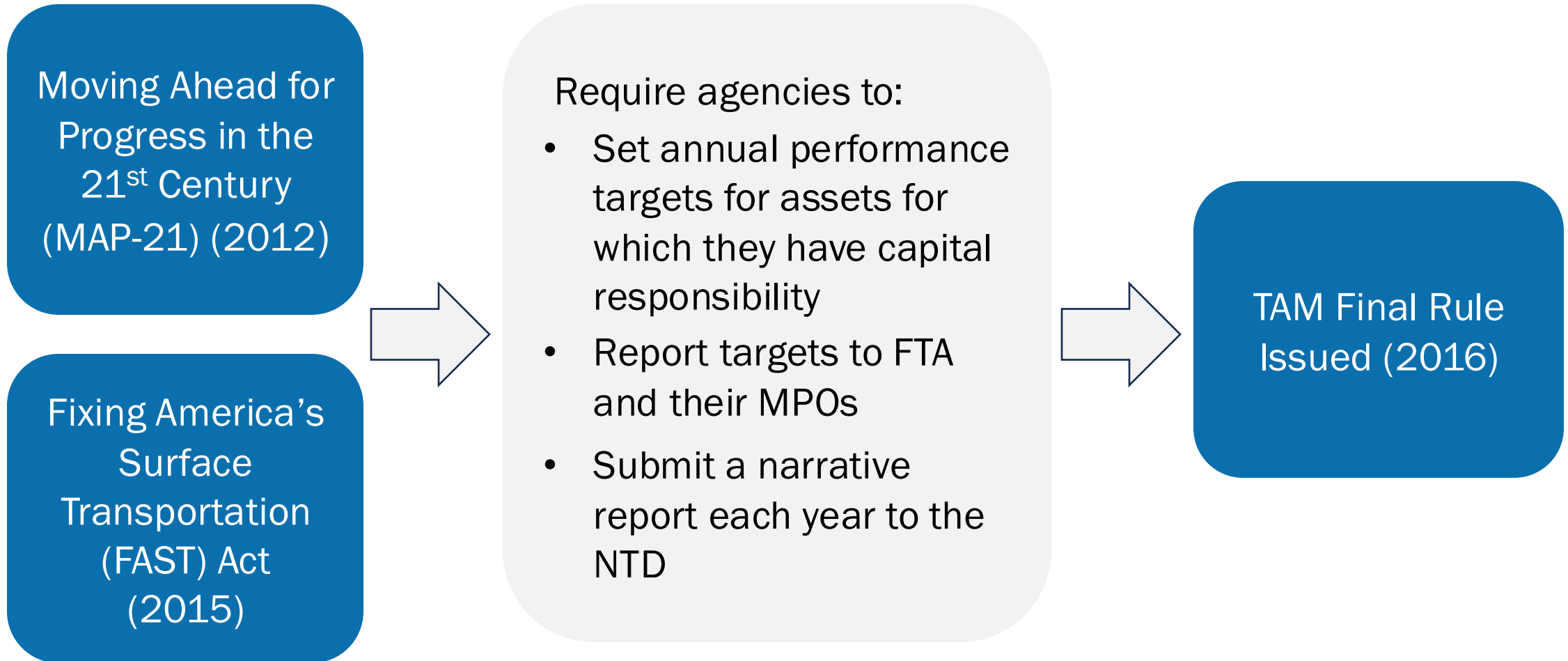
Consequences of not being in a SGR include:

- Safety risks
- Decreased system reliability
- Higher maintenance costs, and
- Lower system performance



Photo credit: XanderCrews2

Authorizing Legislation and Program Background



TAM Final Rule

- Defines “State of Good Repair;”
- Requires transit agencies to develop and implement a TAM Plan;
- Establishes SGR standards and performance measures;
- Requires transit agencies to set performance targets;
- Establishes reporting requirements to National Transit Database (NTD);
- Provides for technical assistance to transit agencies.

TAM Plan Contents

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

All Transit Agencies
Tier 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

49 CFR § 625.25 (a)

TAM Program Mission

The FTA TAM Program provides targeted resources, learning opportunities, and technical assistance to help transit agencies make data-driven decisions to reduce the state of good repair backlog and improve the safety, reliability, and effectiveness of public transportation for America's communities.

TAM Program Goals

- Ensure that the right asset lifecycle investments are made at the right time;
- Save transit agencies money to invest in more state of good repair projects or other priorities; and
- Implement state of good repair investments that reduce asset failures, resulting in fewer injuries and less equipment and property damage, and improve service reliability.

Four Key Program Areas

Resources, Learning Opportunities, and Technical Assistance

- Deliver targeted resources, learning opportunities, and one-on-one technical assistance to address the TAM needs and priorities of transit agencies.

Communications and Messaging

- Clarify and target communications and messaging to key audiences so that the requirements and the benefits of TAM are understood throughout the transit industry.

Evaluation and Emerging Priorities

- Continually evaluate and adapt the TAM Program's key topics, activities, and research to address emerging transit agency trends and priorities.

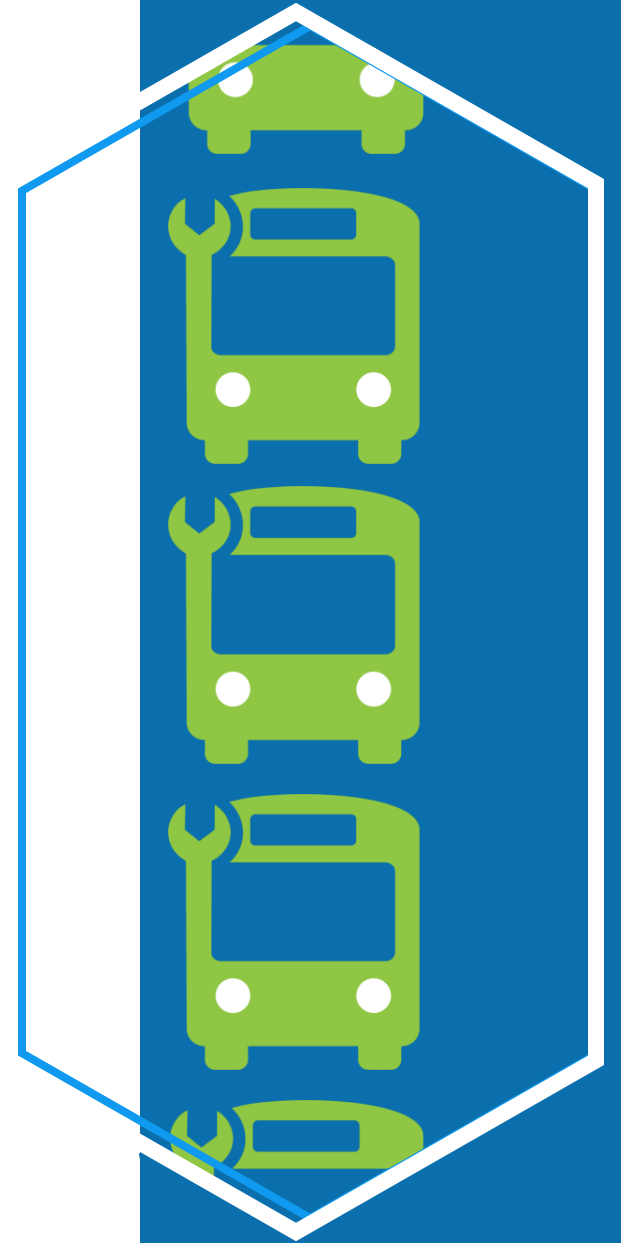
Internal and External Coordination

- Work with other FTA Offices to align TAM with other FTA priorities and leverage relationships with partner organizations to broaden the reach of the TAM Program.

SGR Backlog



U.S. Department of Transportation
Federal Transit Administration



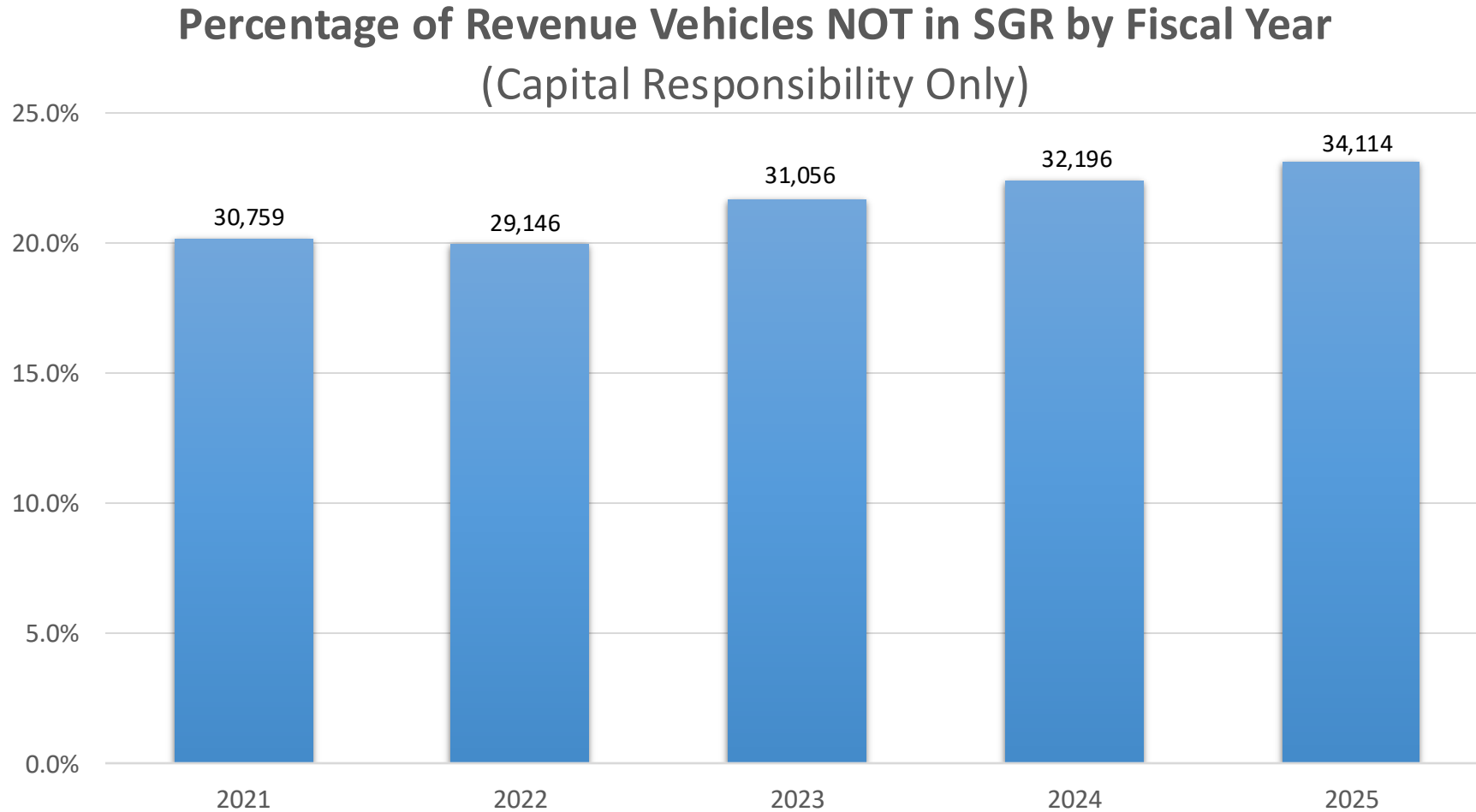
TAM Required Performance Measures

Asset Category	Performance Measure
Revenue Vehicles	Percentage of revenue vehicles (by class) that meet or exceed the ULB
Equipment (Service Vehicles)	Percentage of nonrevenue service vehicles (by class) that meet or exceed the ULB
Facilities	Percentage of facilities that are rated less than 3.0 on the TERM scale
Infrastructure (Track Miles)	Percentage of track miles (by mode) with performance restrictions

2024 NTD TAM Data Summary

Asset Category	Total Assets with Capital Responsibility	Percentage of Assets NOT in SGR FY 2024	Percentage of Assets NOT in SGR FY 2025
Revenue Vehicles	147,555	22.4%	23.1%
Equipment (Service Vehicles)	33,757	39.6%	39.3%
Facilities	12,581	7.5%	7.6%
Infrastructure (Track Miles)	13,267	3.1%	2.7%

Revenue Vehicles SGR Backlog Is Increasing: Undermining the Safety and Reliability of America's Transit Systems



Deeper Dive: Why Have Transit Agencies Struggled to Maintain a State of Good Repair?

- The TAM program was concerned by the negative trend in SGR backlog for revenue vehicles
- We conducted an in-depth analysis of the backlog by Region, asset type, and propulsion type
- We conducted a Natural Language Processing (NLP) survey of the annual NTD narrative reports

Overall Findings

Transit agencies reported supply chain disruptions, which delayed the delivery of new vehicles and led to shortages of replacement parts.

Smaller transit agencies reported that price increases exceeded their available funds, and they had additional challenges securing local matching funding.

Together, these supply chain disruptions and price increases disproportionately impacted the SGR backlog for buses, cutaways, and vans.

TAM Program Goal

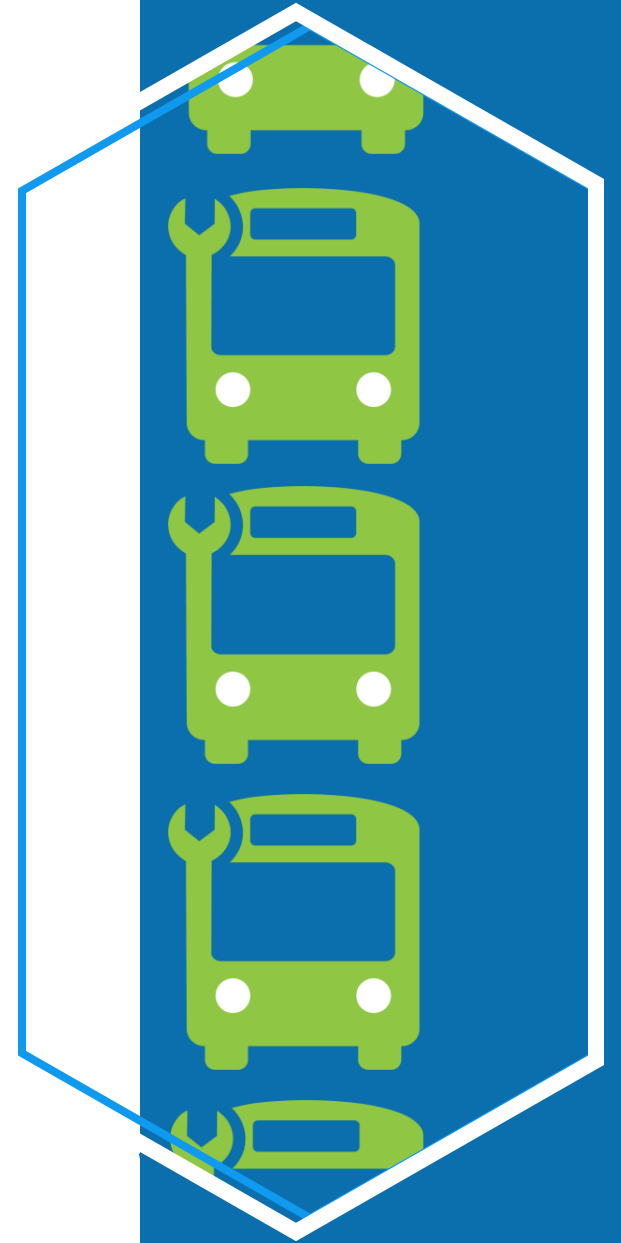
Reduce the state of good repair backlog for transit revenue vehicles



New Releases



U.S. Department of Transportation
Federal Transit Administration



TERM Lite: Updated Version 2.4

TERM Lite is a tool that allows transit agencies to estimate capital investment needs over extended time horizons to achieve and maintain a state of good repair.

Key updates in version 2.4 include:

- Updated Asset Assumptions: Default parameters have been updated to align with other FTA datasets on vehicle lifecycles and costs.
- Enhanced Data Validation: Clarified system messages help users identify and resolve data discrepancies quickly.
- Improved Output Formatting: Refined reporting makes it easier for decision-makers to analyze investment timelines.



NTI Course: Introduction to Transit Asset Management (TAM)

- Introductory course for those that are new to TAM
- Original National Transit Institute (NTI) course was designed for in-person delivery.
 - NTI stopped running it during the pandemic but was offered again beginning in 2024 as a virtual course.
 - Content was updated again in late 2025.
- [NTI Course Details](#)

TAM Plan Self Assessment

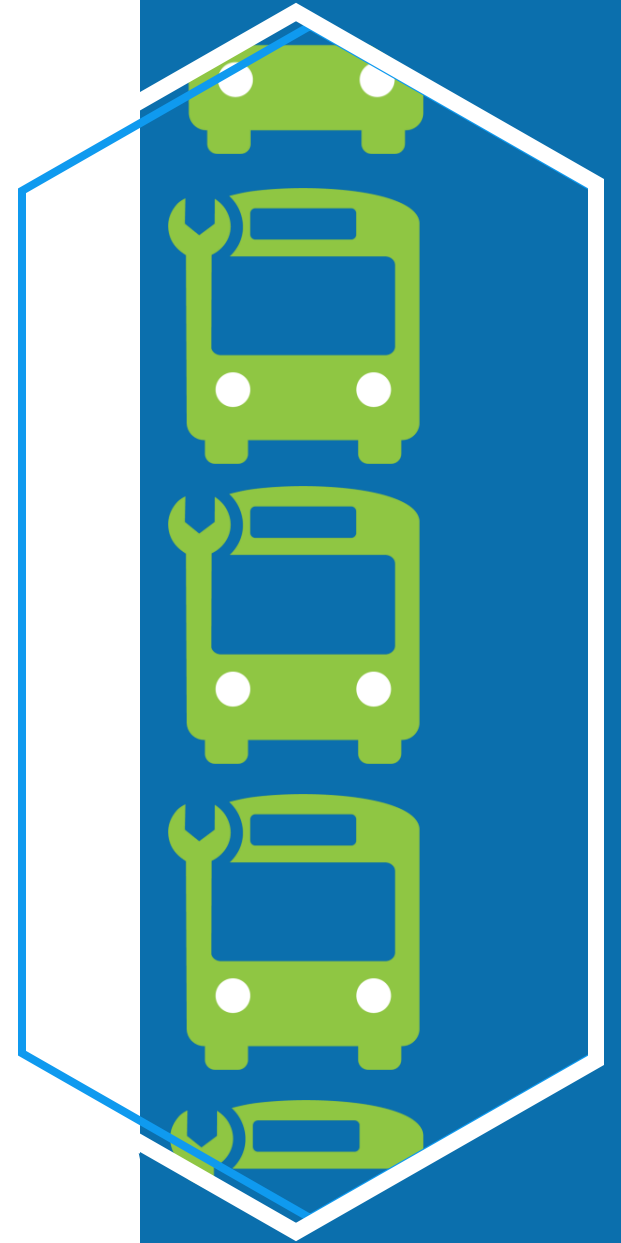
- Provides transit operators with a tool to review components within each of the required elements in a TAM Plan, along with establishing a method for assessing their plans.
- Geared towards agencies that have met all FTA TAM plan requirements and are looking to go further to determine and enhance its maturity and effectiveness.
- Launched in 2020, recently updated.



Next Steps



U.S. Department of Transportation
Federal Transit Administration



2026 TAM Plan Update

Recipients will complete the next revision of their TAM Plan by October 2026



Upcoming Technical Assistance

- TERM Lite
 - [Updated user manual](#) is available now
 - Video tutorial in development
- TAMPLATE
 - [User manual](#) is available now
 - Video tutorial in development
- NTI Course Update: Enhancing Your Transit Asset Management Program with Lifecycle Management
- TAM Program Needs Assessment
- NTD Narrative Report Analysis



Peer Programming



- Roundtable
- Webinars
- Peer Exchanges
- Peer Working Group
- Discussion Forums
- [Sign up for updates](#)

FTA Mission, Vision, Values



Mission

Improve America's Communities through Public Transportation



Vision

A Better Quality of Life for All Built on Public Transportation Excellence

Values

<i>Service</i>	Provide reliable, transparent, responsive, and anticipatory services to meet stakeholder needs
<i>Integrity</i>	Commitment to the highest professional and ethical standards
<i>Innovation</i>	Foster new ideas, concepts, and solutions for improved outcomes
<i>Sustainability</i>	Optimize decisions, resources, and systems to make long-term positive impacts on the environment, infrastructure, and safety
<i>Equity</i>	Remove barriers for systemically underserved communities to access all aspects of economic, social, and civic life

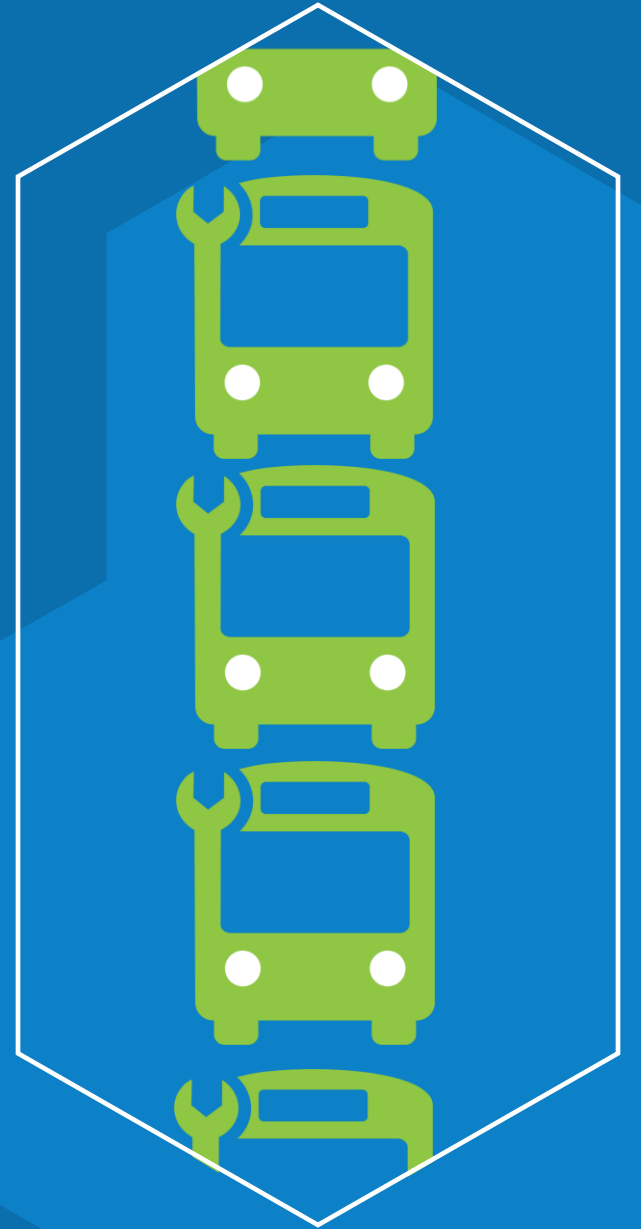
Thank you!

Tamalynn Kennedy

tamalynn.kennedy@dot.gov



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Federal Transit Administration



Audience Q&A

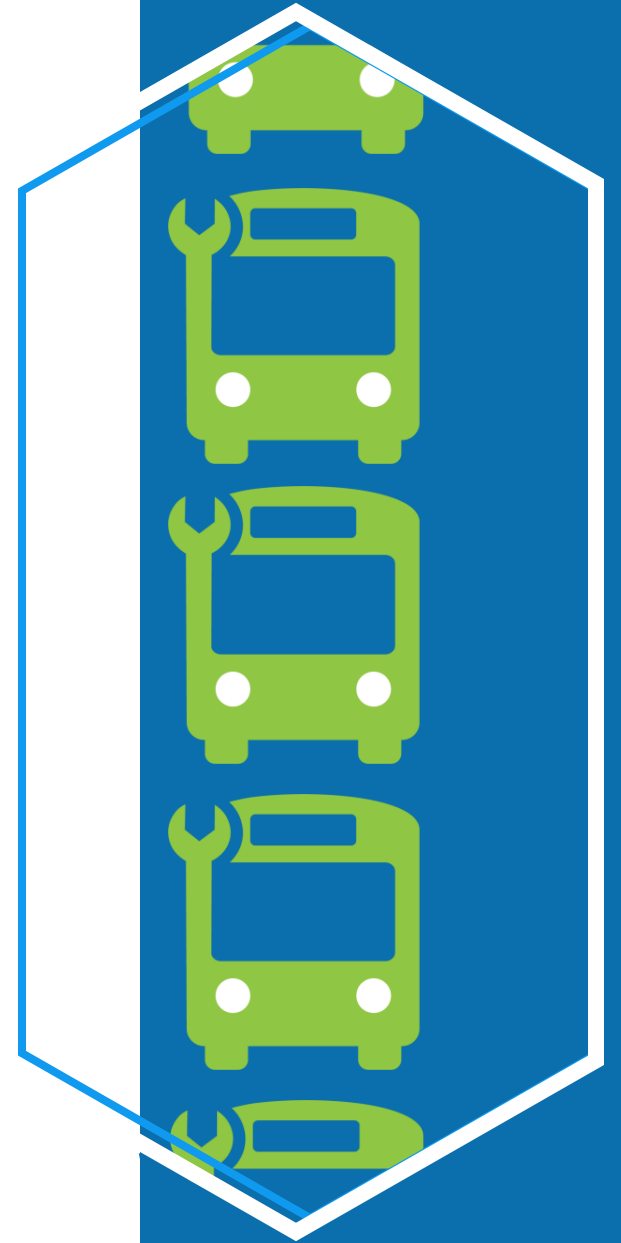


Implementing FTA TAM Systems Guidance in Traditional Asset Classes

Dennis Yaklich, Denver RTD



U.S. Department of Transportation
Federal Transit Administration





FTA Transit Asset Management (TAM) Roundtable

Implementing FTA TAM Systems Guidance in Traditional Asset Classes

Dennis Yaklich | Senior Manager, Asset Management

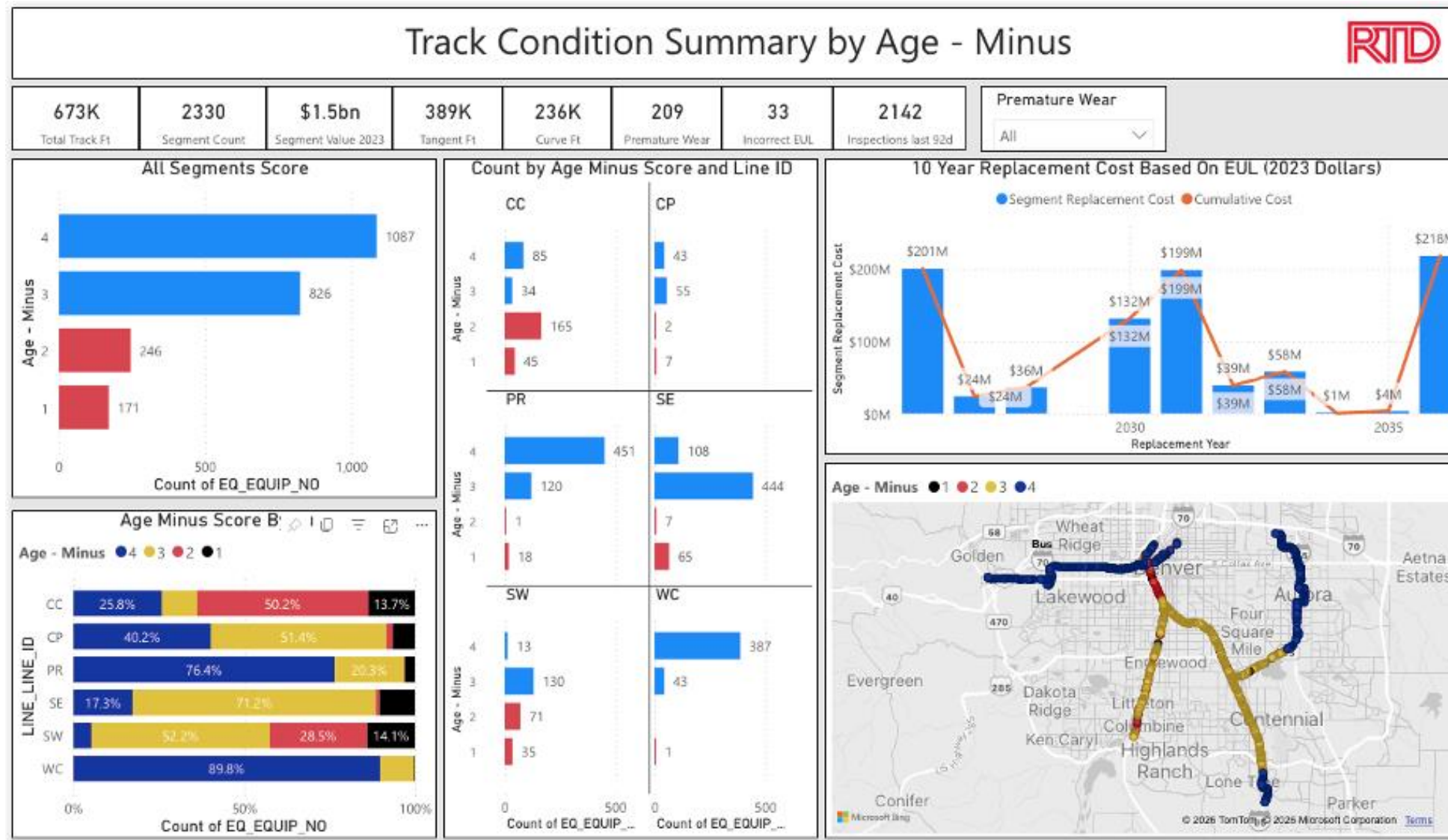
Regional Transportation District (RTD) Denver

Wednesday July 15, 2026

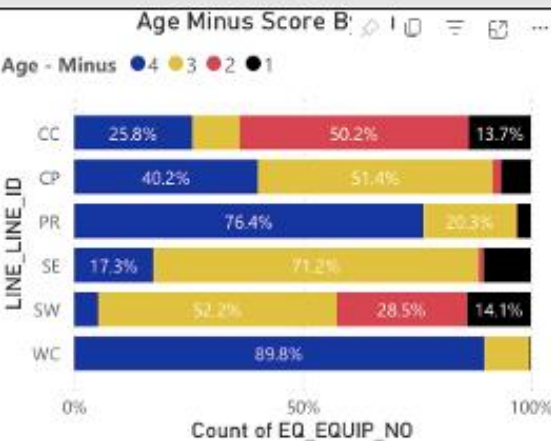


WHERE THIS ENDS UP

This is a story of how we got here.

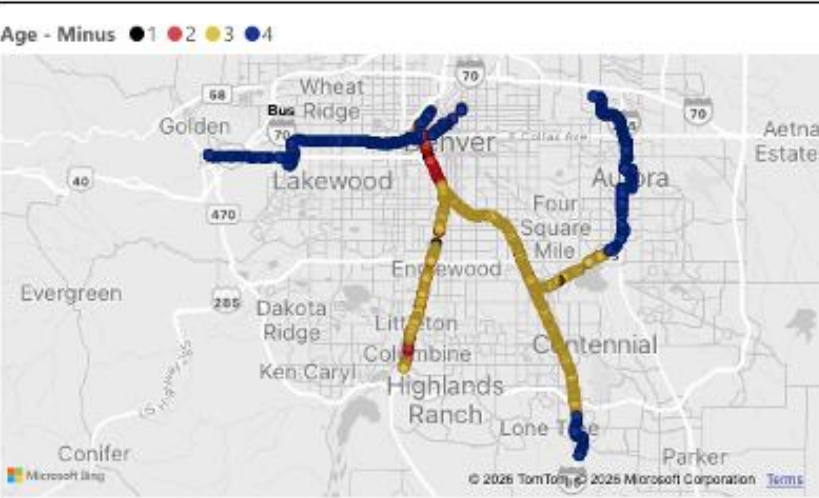


Age Minus Score Breakdown by Line ID



LINE_LINE_ID	Age-Minus 4 (%)	Age-Minus 3 (%)	Age-Minus 2 (%)	Age-Minus 1 (%)
CC	25.8%	50.2%	13.7%	10.3%
CP	40.2%	51.4%	2.3%	4.1%
PR	76.4%	20.3%	3.3%	0%
SE	17.3%	71.2%	11.5%	0%
SW	52.2%	28.5%	14.1%	6.2%
WC	89.8%	10.2%	0%	0%

Map of Track Network



Legend: Age - Minus 1 (black), 2 (red), 3 (yellow), 4 (blue)

Agenda

01

History

19th & Stout, and the requirements it surfaced

02

Asset Inventory

Systems, a breakdown structure, and the right granularity

03

Condition Assessments

APTA safety standards on the five-point TERM scale

04

Strategy

Age-Minus scoring and full-depth replacement

05

Action

The quarterly meeting that turns scores into decisions

06

Themes

Applying the same thinking elsewhere

Grounded in the FTA Systems Handbook



PART 1

History

19th & Stout, and the requirements it surfaced



19th & Stout: a catalyst to modernize

CATALYST What prompted the change

- In late 2020, a segment of track was condemned and had to be taken out of service
- As a PUC-regulated system, this prompted a focused regulatory review
- A Corrective Action Plan (CAP) was issued
- Existing practice was scarcity-based, limited shutdown windows with a focus on service availability

OPPORTUNITY What the CAP made possible

- The mandate, and momentum, to modernize track asset management
- Move to a proactive, condition-based inspection methodology
- Plan large-scale renewals before failure
- **A corrective action became the catalyst for a better way to manage track**

We had to change

FINANCIAL NEEDS

- Fund and schedule large-scale renewals with a planning runway
- Move from a scarcity-based approach to a needs-based approach

SAFETY NEEDS

- Move beyond binary safe/unsafe to see deterioration coming
- Apply safety standards proactively under PUC / SSO oversight

OPERATIONS NEEDS

- Coordinate maintenance, engineering, delivery, and finance
- Optimize to track availability, replace before failure, not after

COMPLIANCE REPORTING NEEDS

- Satisfy the PUC corrective action plan
- Streamline NTD and regulatory reporting with valid records

Requirements gathering

Those four needs translated into six concrete requirements, business requirements, not a tool, that shaped everything that followed. Each is answered in a later section:

01 Improve asset information

ASSET INVENTORY

02 Apply safety standards, positively and negatively

CONDITION ASSESSMENTS

03 Describe what a renewal means

STRATEGY - FULL DEPTH

04 A renewal & replacement strategy tying everything together

STRATEGY - AGE MINUS

05 Identify maintenance vs. renewal activities

ACTION

06 Clear roles & responsibilities

ACTION

PART 2

Asset Inventory

Describing assets the way they're renewed and maintained, systems, a breakdown structure, and the right granularity.



PART 2 OF 6 - ASSET INVENTORY

We started with the FTA guidance

Rather than invent our own method, we adopted the FTA's Transit Asset Management Systems Handbook, federal guidance for managing systems and their associated assets.

OUR STARTING POINT

Everything that follows, the ABS, track-as-a-system, granularity, comes straight out of this handbook.



FTA Transit Asset Management Systems Handbook

Systems, not components

WHAT THE GUIDANCE IS

- Guidance on managing systems and their associated assets in transit, in support of the FTA TAM rule
- A framework of systems concepts and defined system classes and types, for consistency across agencies
- Practical help to inventory system assets and target investments across the life cycle

A SYSTEM, DEFINED

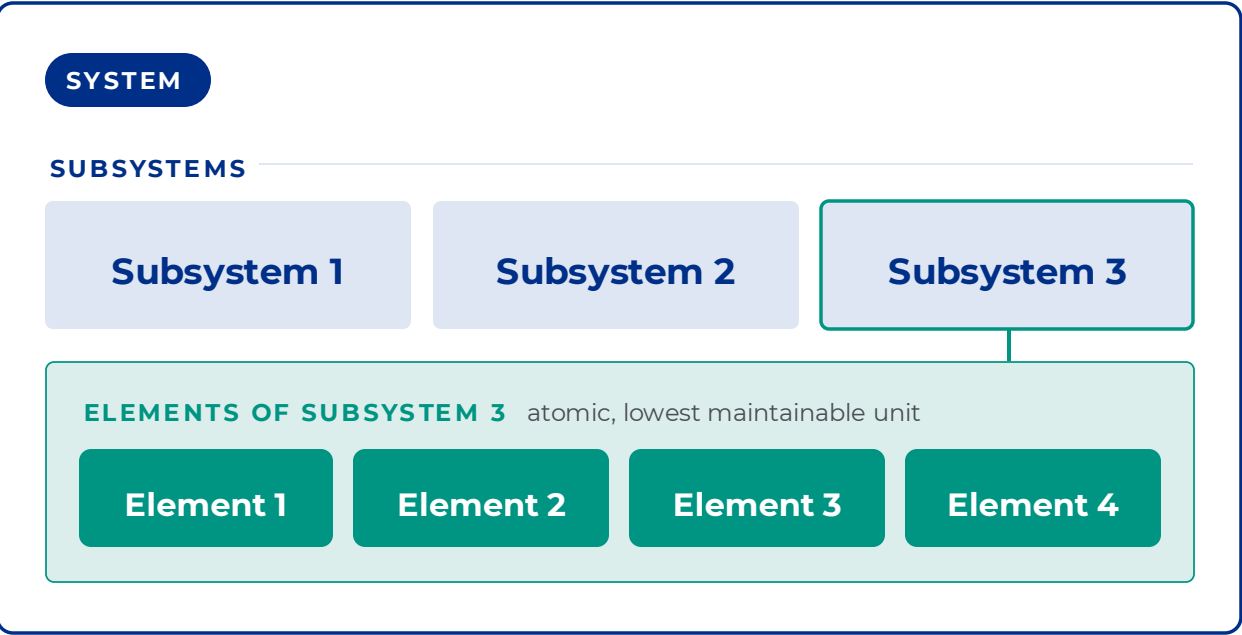
"An organized set of interacting parts capable of performing a function that no one subset of parts has."

ISO/IEC/IEEE 15288

RTD'S INTERPRETATION

The same thinking scales from **light rail track** to **public facilities**, and **maintenance facilities**, giving us a data-driven prioritization framework.

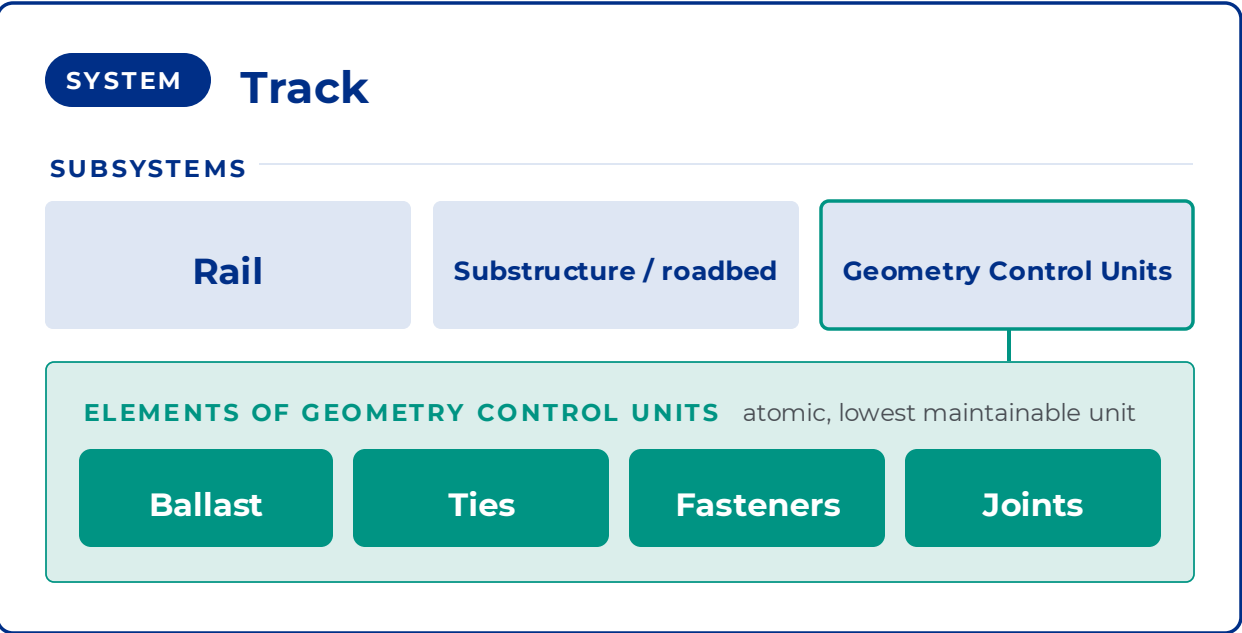
Down to the atomic unit



WHAT THIS MEANS FOR OUR WORK

- Think of the asset as a system
- Describe its designed function
- Identify the system boundaries
- Improve inventory to reflect how assets are renewed and maintained

Track is a system



PERFORM IN CONCERT

If one component fails to perform as designed, the segment can be unsafe and require a performance restriction.

WHERE WE DREW THE LINE

A rail system is more than track, but track is the boundary we set for compliance and asset management.

One segment definition, three jobs

BY SEGMENT

Renew

- Assets are renewed by the segment
- Segments set by track type: curve vs. tangent, ballasted vs. direct fixation
- Types differ in cost, construction, lead time, useful life, safety standards

BY COMPONENT

Maintain

- Maintained at the component level
- Maintain the rail without touching other components
- Small fixes like clips done during inspection, often no unique work order

BY NTD TYPE

Report

- Segments align to NTD track types: tangent, curve, non-revenue
- Guideway by construction: at-grade ballast, embedded, elevated, below-grade

Define the segment once to satisfy all three. The inventory does triple duty.

PART 2 OF 6 - ASSET INVENTORY

Improve asset information

SECTION RECAP

- Started with the FTA Systems Handbook
- Think in systems, not components
- Decompose into an Asset Breakdown Structure (ABS)
- Model track as a system of components
- Pick the right granularity, one segment serves renewal, maintenance & reporting

THE REQUIREMENT

01 Improve asset information

ASSET INVENTORY

WHAT WE DELIVERED

New Asset Breakdown Structure (ABS) , all 2,330 segments inventoried

PART 3

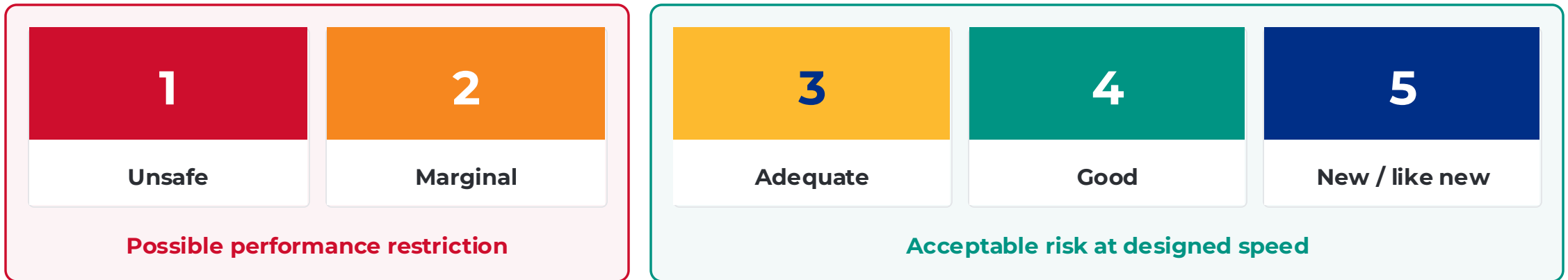
Condition Assessments

Scoring age and condition together on the five-point TERM scale, rooted in APTA safety standards.



A common currency for condition

Pass or fail was insufficient. A scale lets us plan, and the FTA TERM scale lets us compare age and condition across asset classes, building on the track safety standards, not replacing them.



Age score by expected useful life

While not perfectly correlated, age and condition tend to move together.

Expected Useful Life (EUL) of Asset	1 – Unsafe / Condemned	2 – Performance Restriction	3 – Adequate	4 – Good	5 – New / Like New
30-year	30+ years		20–30 years	10–19 years	0–9 years
25-year	25+ years		18–25 years	9–17 years	0–8 years
15-year	15+ years		11–15 years	6–10 years	0–5 years

Averages hide variability

Same four component scores, two ways to read them. A system performs only if every part performs.

Read as an average	
Rail	1
Ties	4
Geometry controls	4
Ballast	4
AVERAGE	3.25
Looks roughly adequate.	

Read as the lowest score	
Rail	1
Ties	4
Geometry controls	4
Ballast	4
LOWEST	1
The asset is unsafe.	

What makes it repeatable

Five pieces turn condition assessment from a judgment call into a routine anyone qualified can run.

01

Standards

Documented condition standards define each score.

02

Forms

Individualized to each segment, capturing condition consistently in the field.

03

Schedule

A recurring cadence ensures segments get inspected and reviewed by the right personnel.

04

Inspector

Qualified, trained and authorized personnel perform assessments.

05

Batch loading

Results load into the system of record in batches, easing the administrative burden on maintenance staff.

Apply safety standards

SECTION RECAP

- Adopt the FTA TERM five-point scale , grounded in APTA safety standards
- Score age against expected useful life
- Take the lowest component score, never the average
- Make assessment repeatable: standards, forms, schedule, inspector

THE REQUIREMENT

02 Apply safety standards, positively and negatively

CONDITION ASSESSMENTS

WHAT WE DELIVERED

New condition assessment methodology , APTA safety standards on the TERM scale

PART 4

Strategy

Full-depth replacement and Age-Minus scoring, driving a 10-year renewal forecast.



What piecemeal repairs taught us

For years we renewed the track one component at a time. It kept service running, but a post-mortem of those repairs showed the fixes never restored the segment's useful life.

POST-MORTEM: PAST REPAIRS DIDN'T EXTEND USEFUL LIFE

- Alternative clip designs for a corroded rail base were not functional
- Bearing pads wear
- Pandrol barrels on ties corrode and cannot be recovered
- Rail worn until contact with the flangeway disrupted electrical current

Replace the whole system, on purpose

WHAT FULL-DEPTH GIVES US

- Reduce risk & variability. The whole segment resets to new.
- Improved financial certainty. Known scope and cost, easier to budget.
- Planned service disruptions. Scheduled outages on our terms, not emergencies.
- Planned capital renewals. A fundable, sequenced renewal pipeline.

THE REQUIREMENT

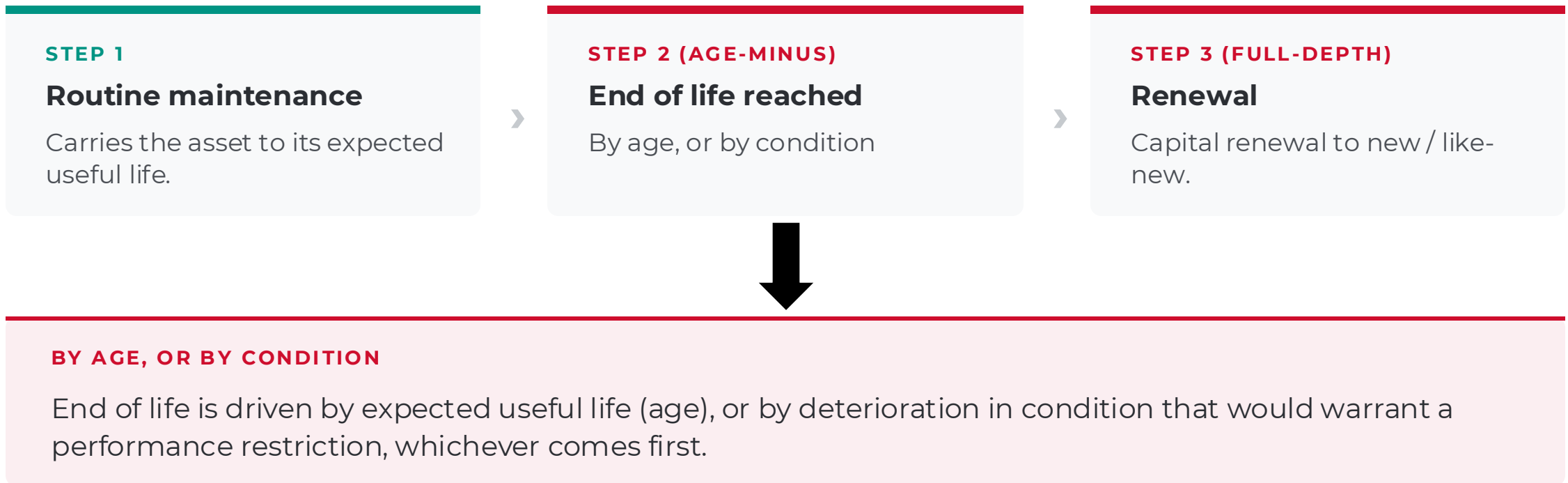
03 Describe what a renewal means

STRATEGY

WHAT WE DELIVERED

Adopted a Full-Depth Replacement strategy

Age and condition, in combination



Four examples, tangent track (30-year life)

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3	EXAMPLE 4
Age · 11 yrs4	Age · 11 yrs4	Age · 11 yrs4	Age · 31 yrs2
Inspects at2	Inspects at4	Inspects at5	Inspects at4
SCORE2	SCORE4	SCORE4	SCORE2
Premature wear	As predicted	Capped by age	Due for full-depth replacement

PART 4 OF 6 - STRATEGY (AGE MINUS)

Age-Minus scoring

WHAT AGE-MINUS GIVES US

- Score age and condition together on the five-point scale
- Take the lower of the two, never the average
- Flag a renewal need before failure, with time to plan

THE REQUIREMENT

04 A renewal & replacement strategy tying everything together

STRATEGY

WHAT WE DELIVERED

New Age-Minus scoring that identifies renewals before failure

PART 5

Action

The quarterly Age-Minus meeting that turns condition scores into maintenance and renewal decisions.



The quarterly Age-Minus meeting

The right people get together, review the right information about the right assets, and decide the right action to take.

THE RIGHT PEOPLE

Maintenance,
Engineering, Delivery,
and Finance.

THE RIGHT INFORMATION

Age-Minus scores,
condition breakdowns,
and renewal flags.

THE RIGHT ASSETS

The specific segments
and components the
scores surface.

THE RIGHT DECISION

What action to take:
maintain now or plan a
full-depth replacement.

Identify maintenance vs. renewal

WHAT WE ARE DOING

- Review every observed score, 1s and 2s, and assign an action, maintenance or renewal
- Maintenance corrects the condition and keeps the asset in service
- Renewal is planned full-depth replacement of the segment
- The two stay distinct, renewal is never replaced by maintenance

THE REQUIREMENT

05 Identify maintenance vs. renewal activities

ACTION

WHAT WE DELIVERED

The quarterly meeting splits maintenance repair from large-scale renewal

PART 5 OF 6 - ACTION

Clear roles & responsibilities

WHAT WE ARE DOING

- Assign a clear owner to every action
- Maintenance own corrective repairs
- Engineering owns renewals and the business case
- Finance owns capital planning and funding
- Delivery owns project implementation

THE REQUIREMENT

06 Clear roles & responsibilities

ACTION

WHAT WE DELIVERED

The quarterly meeting assigns who owns each action

Requirements to deliverables

Every requirement we set out at the start produced a concrete deliverable.

01 New Asset Breakdown Structure (ABS)

DELIVERED

02 New condition assessment methodology (APTA + TERM)

DELIVERED

03 Adopted a Full-Depth Replacement strategy

DELIVERED

04 New Age-Minus Full-Depth Renewal strategy , the living dashboard

DELIVERED

05 Quarterly meeting splits maintenance repair from renewal

DELIVERED

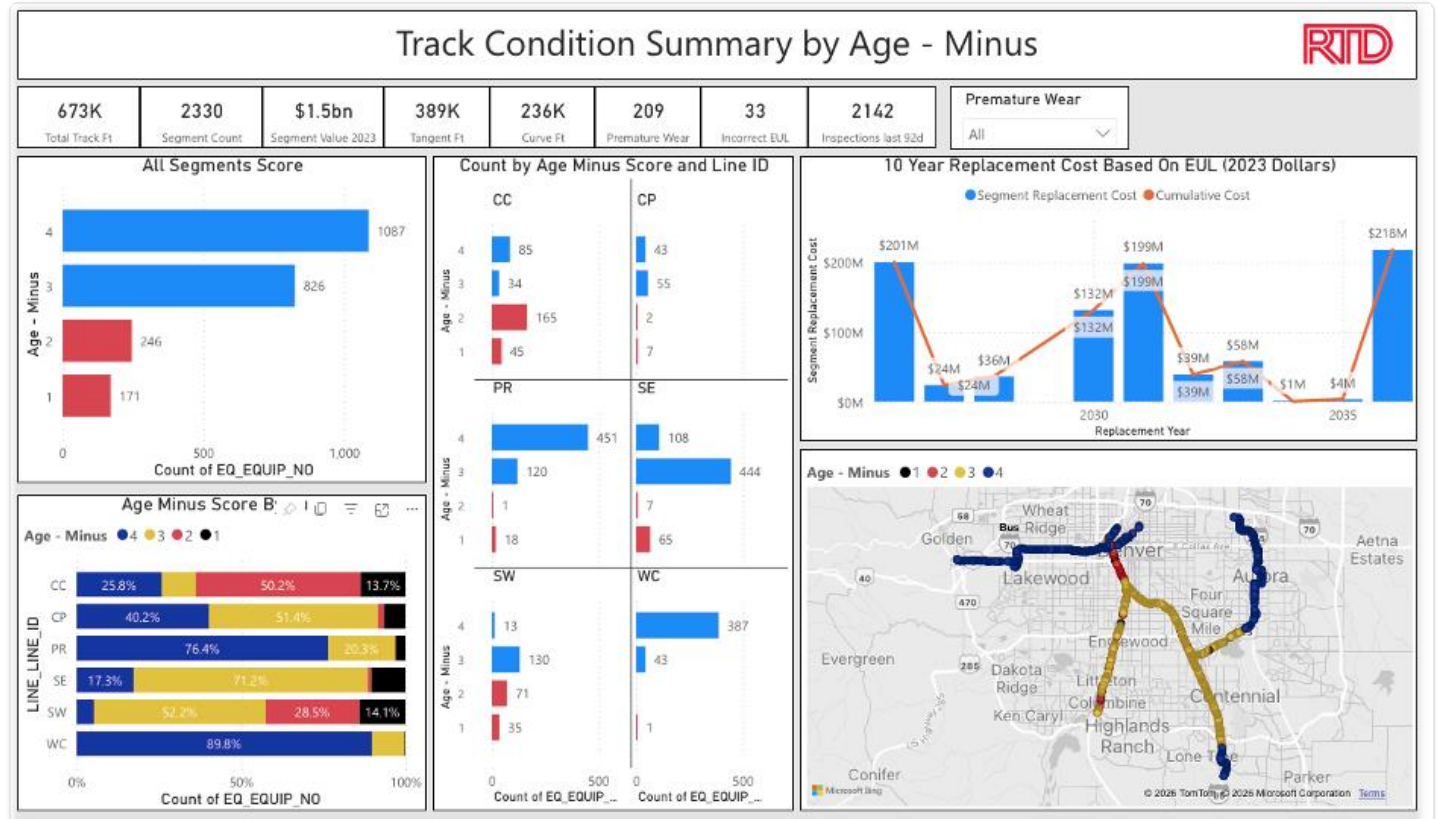
06 Same quarterly meeting assigns who owns each action

DELIVERED

PART 5 OF 6 - ACTION

It all comes together in one dashboard

- 01 Asset Breakdown Structure
- 02 Condition assessment
- 03 Full-Depth Replacement
- 04 Age-Minus renewal strategy
- 05 Maintenance vs. renewal
- 06 Roles & responsibilities



PART 6

Themes

Applying the same thinking elsewhere



The same thinking, public facilities

Define the system
A station is a system with a designed function and a boundary.

Get granularity right
Decompose to components that are actually maintained and renewed.

Risk-based inspection
Focus inspection where failure carries the most risk.

A STATION, DECOMPOSED

Platform
Tactile strips, curbs, stem walls, flatwork

Boarding area

Walkways

NOT ASSESSED
Benches, trashcans

Don't average it away

EXAMPLE · THE HIGH BLOCK

A station's high block enables level, ADA-compliant boarding. If it fails, the station needs supplementary service to stay compliant.

An average station score would hide that failure. So we surface it, just like a failed rail on a segment.

ALSO IN BUSES

Replacements chosen on lowest whole-life cost , not a blended sticker price.

THE THEME

Use the measure that reflects reality .

The repeatable approach

- 1 Think in systems, not components
- 2 Get granularity right, so one inventory serves renewal, maintenance, and reporting
- 3 Combine age and condition with Age-Minus, on the TERM scale
- 4 Take the lowest score, never the average
- 5 Plan renewals before failure, and fund them deliberately

Thank you.

rtd-denver.com



Audience Q&A



Small Group Discussion Questions

1. Reflect on the evaluation methods discussed during the past two days.
 - What are the challenges in defining the boundaries of a "system" (e.g. a light rail track system or public facility system) versus simply tracking individual components?
 - What level of granularity does your agency use? Where has your agency struggled with data that was too broad for planning or too detailed to accurately maintain? How did you find your balance?
2. In a systems context, a high average score can mask critical local failures. The lowest score is often a better indicator of actual performance and operational risk.
 - How can asset managers present condition data to highlight these "weak links" rather than letting them get lost in system-wide averages?
 - What specific challenges does your agency face when trying to capture these critical local failures during condition assessments?
3. The systems framework suggests "full-depth" replacement (replacing all system components at once) rather than incremental patching to reduce risk.
 - What logistical, operational, or budgetary barriers make full-system overhauls difficult for your agency compared to component patching?
4. After hearing from presenters, how might these evaluation processes (e.g., systems framework, lifecycle cost analysis) help improve your organization's TAM practices?

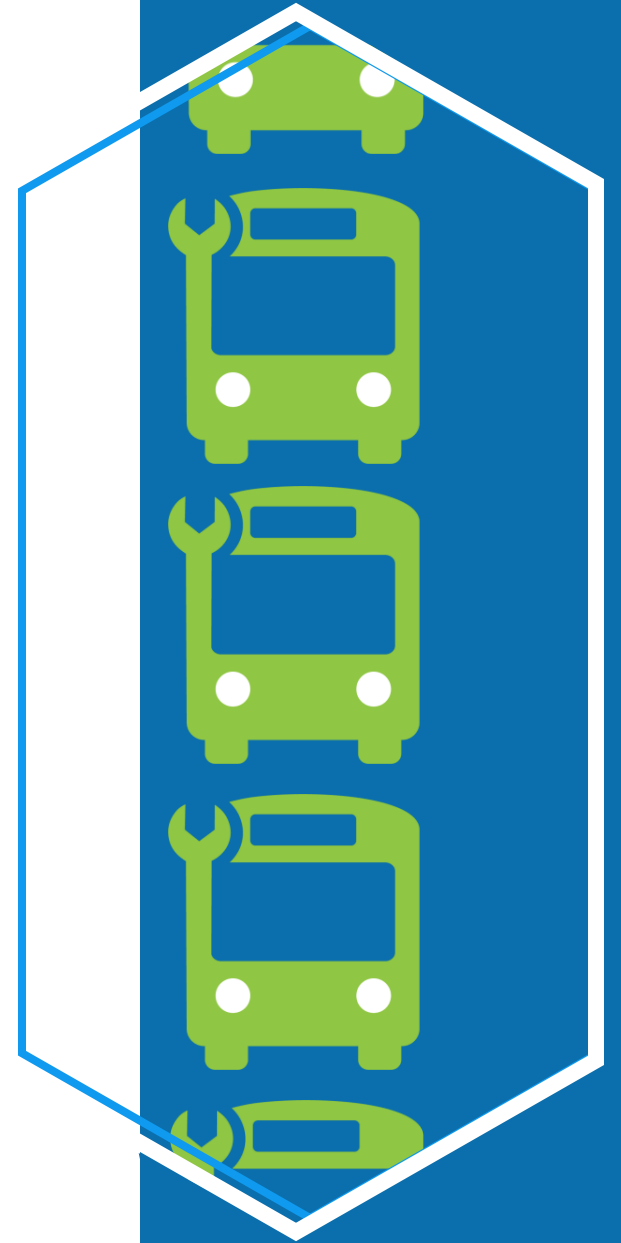
Report Back



Group Activity



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Group Activity

- Please make sure you are at your assigned table
- There will be 3 rounds of small group discussion
- Groupings change each round and are based on the categories below

Round 1:
Organization Type
(20 mins)

Round 2:
TAM Experience
(20 mins)

Round 3:
No Assignments
(30 mins)

Group Activity

- Discussions will be based on the contents of your notecard:

Key Takeaways:
Major insights and
lessons learned

Expectations & Goals:
What do I want to bring
back?

Surprises:
What caught me off
guard or challenged my
thinking?

Questions:
What do I still need to
ask or clarify?

Topics of Interest:
What do I want to discuss
further?

Peer Connections:
Who do I need to follow
up with? *(Round 3)*

- If you have not had a chance yet to complete your notecard, please take a few minutes to do so now.

Round 1: Assigned by Organization Type

- Any ideas from this roundtable you may want to implement, but your specific organization or landscape make it uniquely complicated to execute - *ask for advice!*
- Which new processes are you ready to implement? Which ones do you need to workshop a bit first?
- Is there a problem that you've successfully solved recently that someone at your table may be struggling with currently? *Share it!*

Round 2: Assigned by TAM Experience

- What guidance do you need from peers with a similar tenure to advance your goals?
- Newer folks: how will you pitch new ideas to leadership?
- Experienced folks: how do you break through the “*we’ve always done it this way*” barrier to implement new practices?
- What’s something you learned at this workshop that surprised you? Why?

Round 3: No Seating Assignments/Last Peer Networking Opportunity

- What is the single biggest gap remaining between what you came here to learn and what you're taking away?
- What is the single most actionable step you will take once back at your office?
- Do you have contact information for folks with whom you intend to follow up or stay in contact?

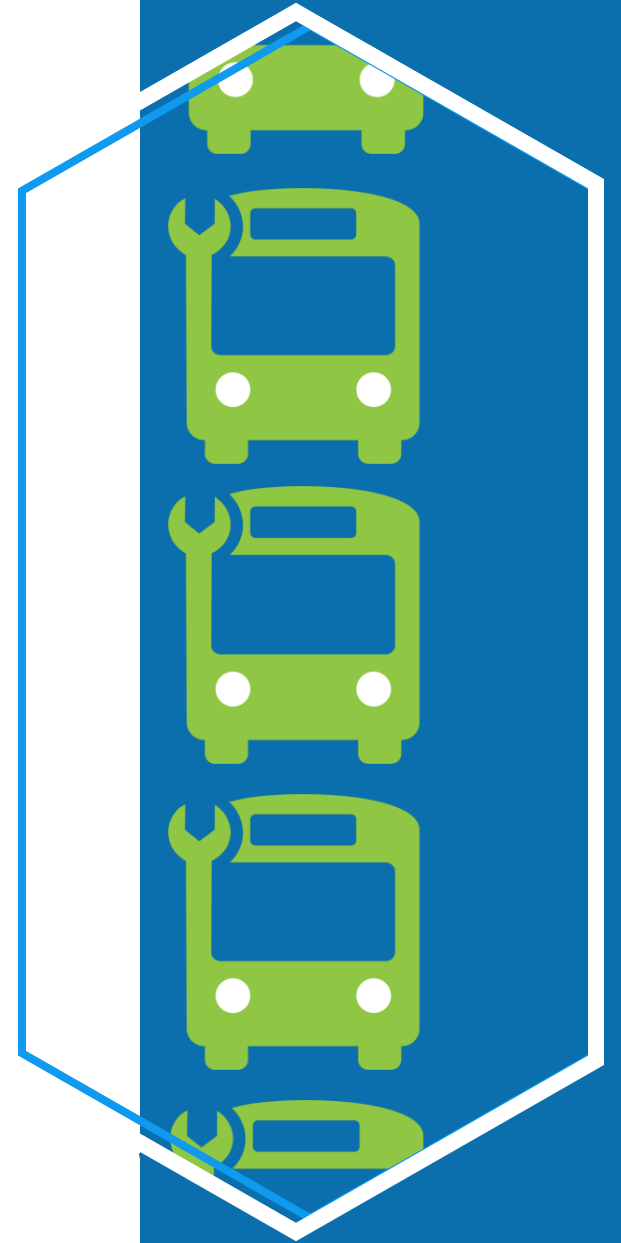
Report Back



Wrap up & Evaluation



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Thank you!



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