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TAM PILOT PROGRAM PRESENTATION

DOT/Federal Transit Administration
FTA 2011 004 TPM

December 11, 2013
Washington DC

MOVING YOU



Regional
Transportation
Authority



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Transportation
Authority

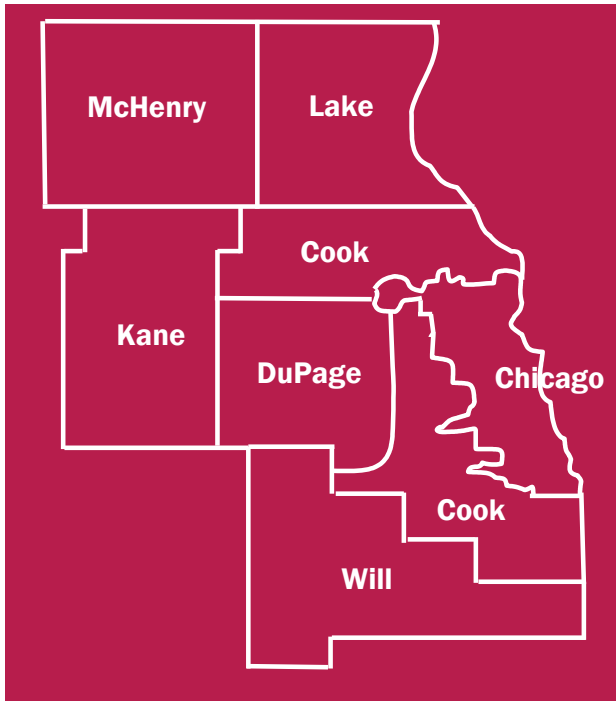
AGENDA

- Volume 1 – Asset Inventory and Condition Assessment “How To” Guide
- Volume 2 – Capital Optimization Support Tool (COST)
- Capital Planning and Programming Applications
- Funding and Contract Administration
- Defining State of Good Repair
- Questions and Answers

FIRST VOLUME DISCUSSION

- Background: RTA and service boards
 - TAM Purpose from Agency Perspective
 - TAM evolution in RTA region
 - 2009 Baseline Assessment
- 5-Year Asset Management Program in RTA Region
 - Repeatable Asset Condition Update Process
 - How to build and update an asset inventory
 - How to conduct an asset condition assessment
 - How to conduct asset sampling

RTA – REGIONAL FUNDING AND OVERSIGHT OF THREE SERVICE BOARDS



- Chicago Transit Authority (CTA) – nation’s 2nd largest agency by trips
- Metra – 4th largest commuter rail agency by trips, largest by track miles
- Pace – largest suburban operator
- RTA – 3rd largest transit market by trips, 2nd largest by rail network size
- Total \$151 billion in assets

RTA'S CONDITION ASSESSMENT PROGRAM

History

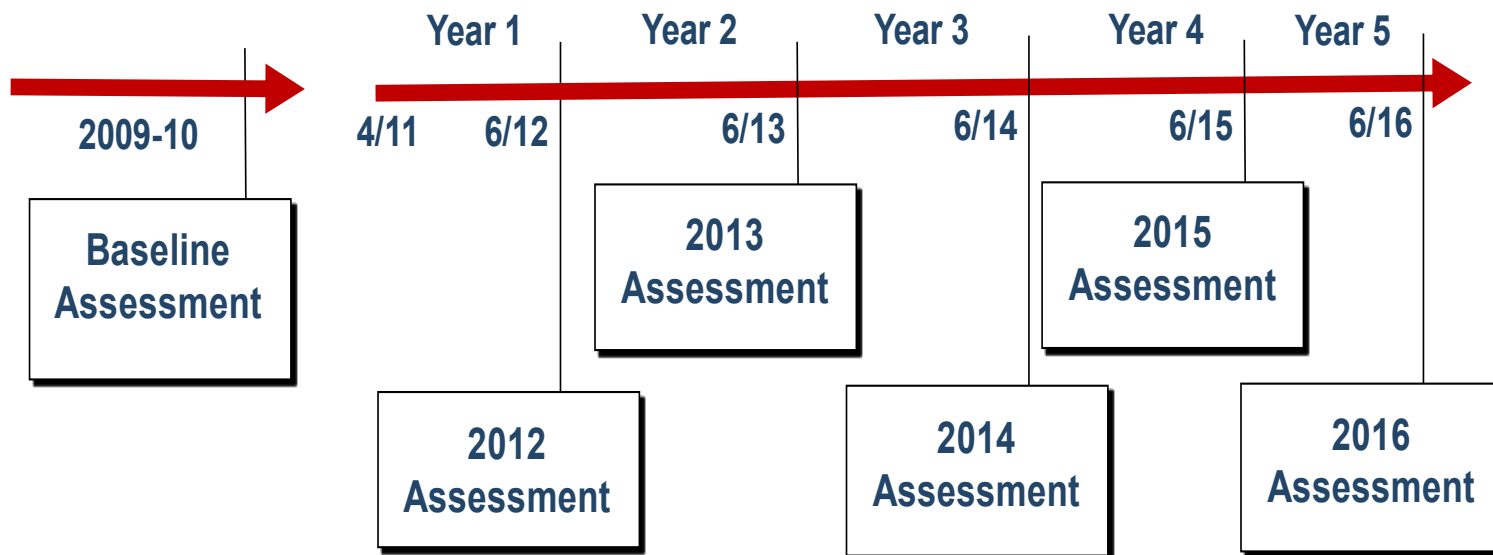
- Bedrock Improvement Program (BIP), 1987
- Capital Asset Model (1997)
- Regional Transportation Asset Management System (RTAMS), 2006
- 2010 Baseline Condition Assessment Report (URS)
- 2013 Strategic plan identifies SGR as key objective



Current Program

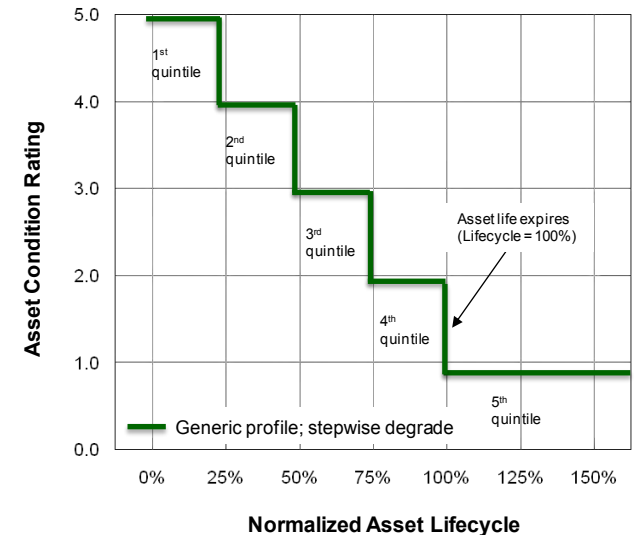
- Regional asset inventory (type, age, location, utilization, riders served)
- Annual condition assessment program (sample)
- COST needs analysis and investment prioritization tool
- Annual Condition Assessment Report
- Monthly meetings with Service Board, RTA and consultant staff

BASELINE ASSESSMENT



CREATE A BASELINE ASSESSMENT

- First order of business
- It can be a stand alone project (Decision Tool, Asset Management System)
- Current, Correct, Complete
- K.I.S.S.
- Age Based
- Condition 1 - 5 in Quintiles
- State of Good Repair
- Consistency versus Customization



BASELINE STEP 1 – RECORD ALL ASSETS



CFS1a CTA Stations

LINE	STATION	BRANCH	STATION TYPE	LINES SERVED	PLACED IN SERVICE DATE	RECONSTRUCTION DATE	REPAIRS DATE	Condition Rating
	HOWARD	HOWARD	EMB	RED, PUR, YEL	1920	2009		5
	JARVIS	HOWARD	EMB	RED	1920			1
	MORSE	HOWARD	EMB	RED	1920		1990	1
	LOYOLA	HOWARD	EMB	RED	1920	1980		3
	GRANVILLE	HOWARD	EMB	RED	1920	1979		2
	THORNDALE	HOWARD	EMB	RED	1920		1975	1
	BRYN MAWR	HOWARD	EMB	RED	1920		1975	1
	BERWYN	HOWARD	EMB	RED	1920			1
	ARGYLE	HOWARD	EMB	RED	1920			1

GARAGES AND REPAIR FACILITIES

- Roofs
- HVAC
- Fire Suppression
- Electrical
- Parking
- Plumbing
- Lifts
- Washers
- Repair Equipment



ROLLING STOCK

- Buses
- Rail Revenue Passenger Cars
- Non Revenue
- Work Equipment
- Locomotives
- Paratransit



TRACK & STRUCTURES

- Elevated Track
- Bridges
- Retaining Walls
- Ties
- Rail
- Special Trackwork
- Special Yard Facilities



COMMUNICATIONS

- Radio Systems
- GPS Vehicle Trackers
- CCTV
- Telephones
- Fiber Optic
- SCADA Systems
- Public Address



SIGNALING / FARE COLLECTION EQUIPMENT

- Interlockings
- Cab Signal
- Controls
- Grade Crossings
- Fare Collection Equip.
- Positive Train Control



BASELINE STEP 2 – DETERMINE CONDITION

- Observation
Inspection
- Previous Experience
- Research
- Age
- Useful Life
- Ratio of Age to
Useful life =
Condition Rating
- Record Assumptions



SAMPLING FOR BASELINE ASSESSMENT

- Across all asset types
- Initial goal for Baseline Assessment: 1% of all assets
- Verify Adequacy of Data



BASELINE STEP 3 – DETERMINE COST TO REPLACE ALL “1”s (= BACKLOG)



CTA	\$10.0B
Metra	\$3.7B
<u>Pace</u>	<u>\$0.1B</u>
Region	\$13.8B



BASELINE STEP 4 – DETERMINE COST TO PROVIDE 10 YEAR NORMAL REPLACEMENT

CTA	\$3.2B
Metra	\$1.7B
<u>Pace</u>	<u>\$1.9B</u>
Region	\$6.8B



BASELINE STEP 5 – DETERMINE COST FOR 10 YEAR CAPITAL MAINTENANCE

CTA	\$1.7B
Metra	\$1.9B
<u>Pace</u>	<u>\$0.2B</u>
Region	\$3.8B



BASELINE STEP 6 – ADD ELEMENTS TO DETERMINE SGR TOTAL NEED

BACKLOG
+ 10 yr. NORMAL REPLACEMENT
+ 10 yr. CAPITAL MAINTENANCE

= 10yr. SGR TOTAL NEED

RTA BASELINE ASSESSMENT FINDINGS

Includes Soft Costs and Contingencies

CTA \$14.9B

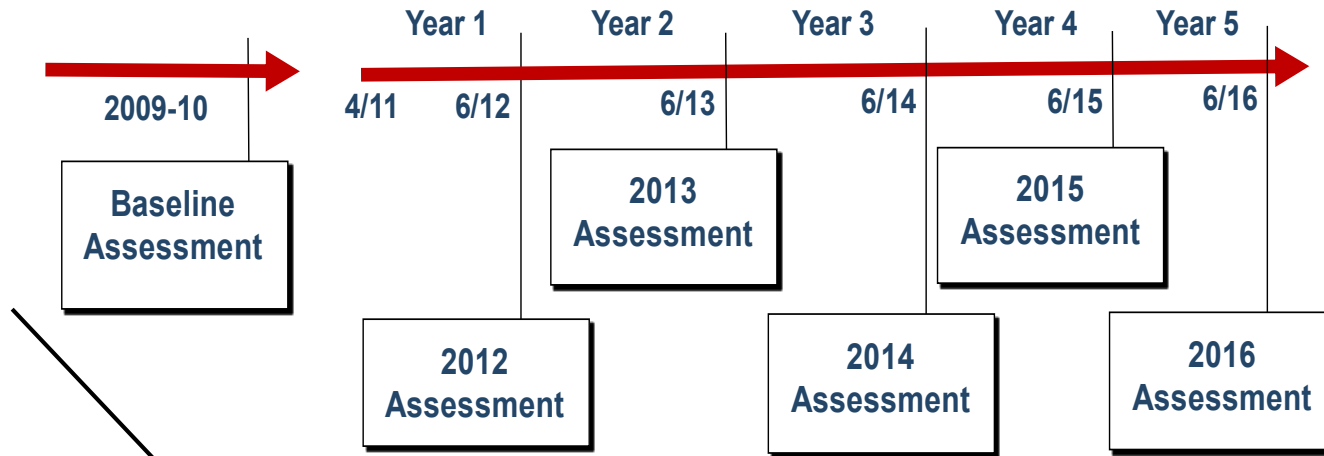
Metra \$7.5B

Pace \$2.2B

Region \$24.6B



REPEATABLE ASSET CONDITION UPDATE PROCESS

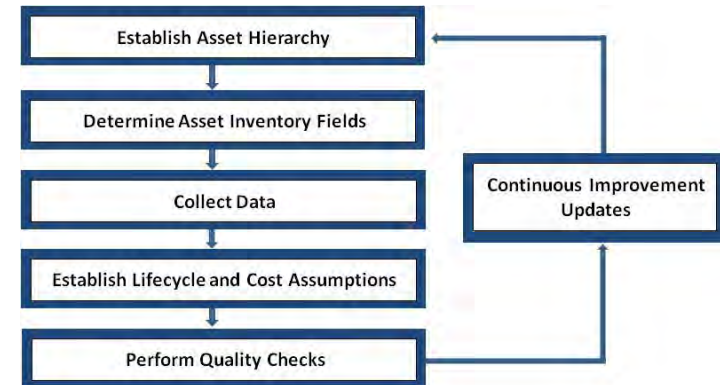


Fulfills RTA's goals:

- Leverage full value of Baseline Assessment
- Maintain focus on incremental refinement of Service Board inventories
- Move away from "one time" snapshot analysis
- Increase sampling over time
- Steer process toward congruence with FTA guidelines

HOW TO BUILD/UPDATE AN ASSET INVENTORY

- Strongly consider FTA/ TERM structure for parent/ child asset hierarchy
- Trade-offs with data collection and aggregation for analysis
- Choose structure that accommodates multiple EAM systems
- Worked with SBs to agree on common lifecycle and underlying cost assumptions (e.g., soft costs, contingency costs)



HOW TO CONDUCT A CONDITION ASSESSMENT AND SAMPLING

Traditional Maintenance Management Strategy	Using Computerized Maintenance Management System (CMMS) / Enterprise Asset Management System (EAM) <ul style="list-style-type: none">▪ Planned capital replacements, mid-life and other rehabilitations▪ In-field reports for deficiencies▪ Reliability centered maintenance
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Condition Assessments	Using Decision Tools (Predictive)	<pre>graph LR; A[Age-Based] --> B[FTA Decay Curves]; B --> C[Agency-calibrated Decay Curves]</pre>
	Using In-Field Observations	<p>Sampling</p> <p>0% —————> 100%</p>

HOW TO CONDUCT A CONDITION ASSESSMENT AND SAMPLING

Condition Approaches	Methodology	RTA Experience
Age Quintiles	Asset useful life divided into five quintiles	Basis for condition used during Baseline Assessment
Asset Condition Decay Curves	Estimated asset condition based on asset type specific decay curve	FTA-developed curves used to estimate asset conditions for Condition Assessment Update
Sampling Observations	Physical observation by condition experts, then rated by using a scale	Process initiated. Will be used in future to validate/recalibrate FTA decay curves

RTA Evolution



Key Takeaways

1. Age quintiles legitimate approach as first step to estimate condition
2. Decay curves and calibrated decay curves represent increased level of sophistication/ accuracy
3. In-field condition assessments are costly and time consuming
4. Progressive sampling a good approach to validate predictive approach

SAMPLING FORMS

BUS MAINTENANCE FACILITY (BUS GARAGE) ASSESSMENT FORM

Facility Name:			Date: / /
Facility Capacity (# of Buses):			Assessed by:
Age: Yrs.	Gross Area: Sq. Ft.	Date of last Facility Renovation:	

ASSET CONDITION RATINGS: 1 = WORN, 2 = MARGINAL, 3 = FAIR, 4 = GOOD, 5 = EXCELLENT

ASSET CLASS	COMMENT	LAST RENOV.	PHOTO	CONDITION
Site (sidewalks, landscaping/grounds, fences, roadways/driveways, lighting)				1 2 3 4 5
Building (exterior - walls, windows, stairs, doors, interior - flooring, walls, ceiling, stairs)				1 2 3 4 5
Roof (roofing system, gutters/drains, skylight)				1 2 3 4 5
Heat/Ventilation (capacity/reliability, ventilation/air conditioning)				1 2 3 4 5
Mechanical/Plumbing Systems (floor drains, plumbing fixtures, fire protection system)				1 2 3 4 5
Electrical System (wiring, panels, convenience outlets and switches)				1 2 3 4 5

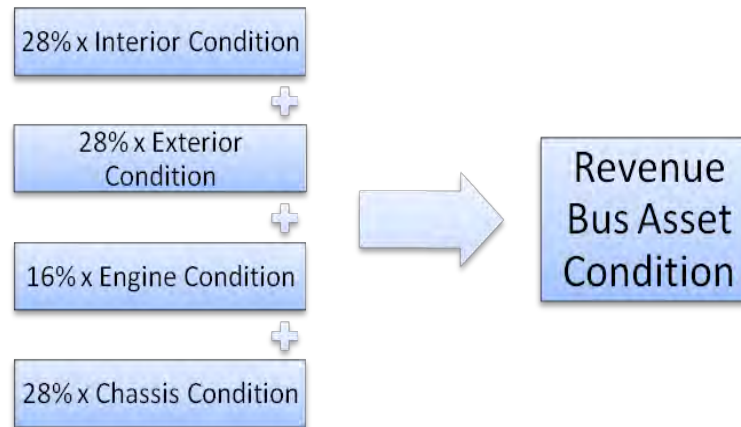
KEY TO HAVE COMMON DEFINITIONS

Facilities: Bus Maintenance Facilities (Garages)

Component	Element	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
Roof	Summary	Significant deterioration; over 30 years old; leaks, patches and broken parts; poor drainage	Signs of deterioration; over 20 years old; minor leaks; drainage problems; strong consideration for replacement	Minor signs of deterioration; 1-20 years old; no leaks; drainage functional	No signs of wear or deterioration; 5-10 years old	New; under warranty; rehabilitated or renovated
	Roofing System	Significant deterioration; several roof leaks, numerous patches; over 39 years old; rotting roof deck	Signs of deterioration; minor leaks; water ponding; greater than 20 years old	Minor signs of deterioration; no leaks; 10-20 years old; minor repairs	No signs or wear or deterioration; 5-10 years old	New; under warranty; rehabilitated or renovated
	Gutters, Drain System	Gutters missing in part, leaking, defective or broken supports, incorrect pitch; roof drainage system not functioning as designed	Some gutters and drains not functioning	Gutters and drains functional; only minor defects	All gutters and drains in good condition and good working order	New; under warranty; rehabilitated or renovated

CONDITION SCORE AGGREGATION

- How do you aggregate condition score?
- Revenue vehicle example:



- Weigh sub-asset against replacement cost value and consistently apply to vehicles sampled

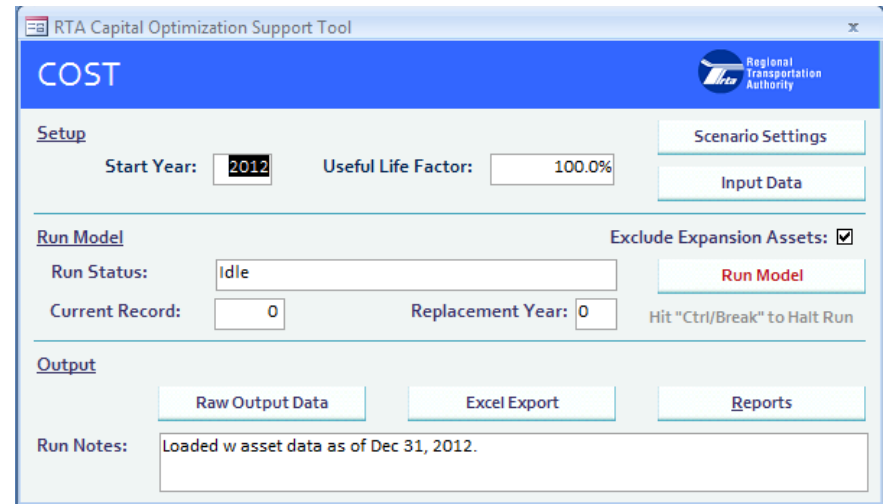
SECOND VOLUME DISCUSSION

- RTA Capital Optimization Support Tool (COST) Model
- Multi-Criteria Investment Prioritization Process
- Asset to Project Mapping
- COST demo



CAPITAL OPTIMIZATION SUPPORT TOOL (COST)

- Tool to assess and prioritize regional capital needs:
 - Preservation / SGR
 - Expansion & Enhancement
- Supports Annual SGR Report:
 - What is our current SGR backlog?
 - How will changes in priorities and funding impact the backlog, conditions and performance?
- Support needs based capital planning
- Developed jointly with service boards: CTA, Metra, Pace
- Approach to be shared with TERM Lite

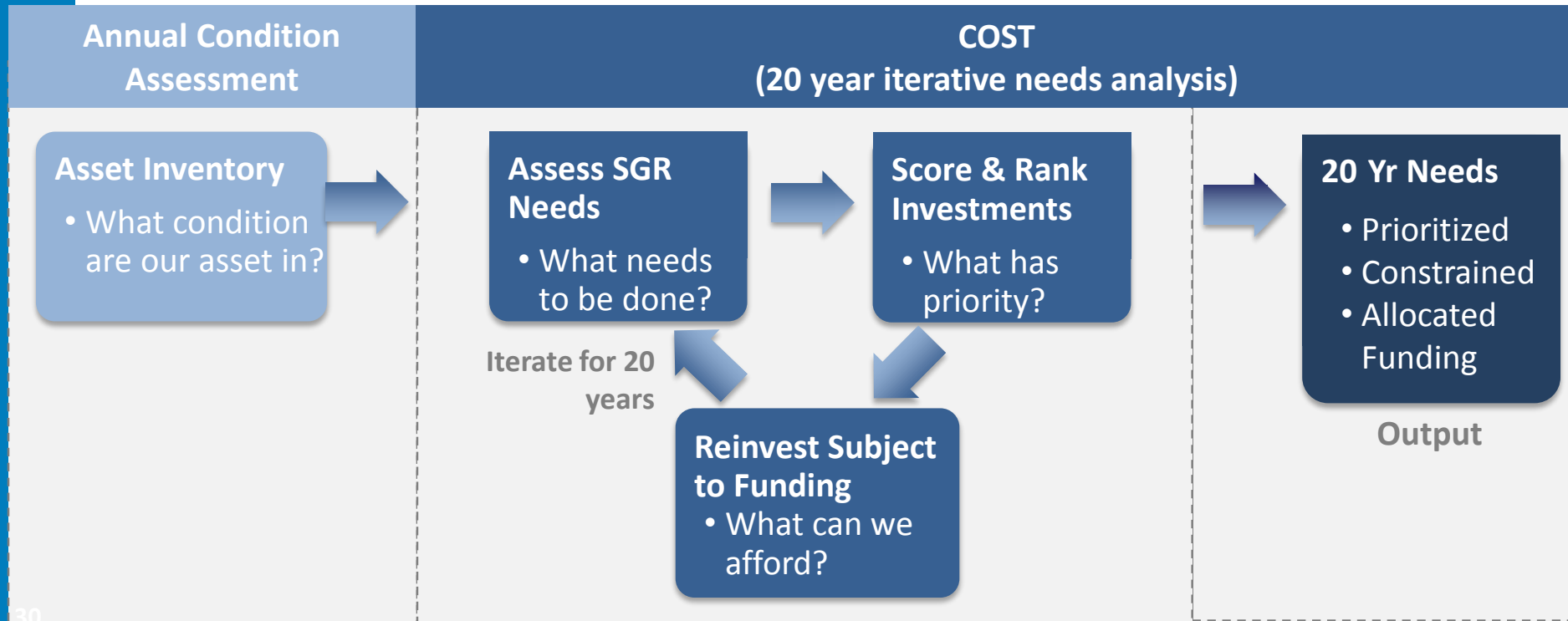


COST Based on TERM Lite Platform

NEEDS ASSESSMENT AND PRIORITIZATION TOOL

- COST is not “just” a long-term prioritization tool...
- It both *projects* (simulates) and *prioritizes* needs over a 20-year period
- Supports SGR “what if” analysis (e.g., level of investment to attain SGR)

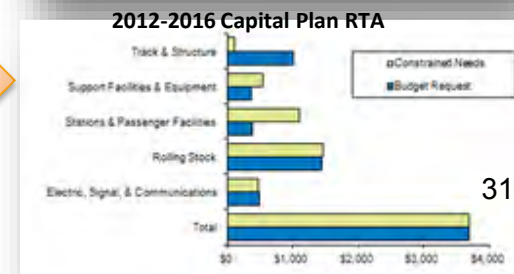
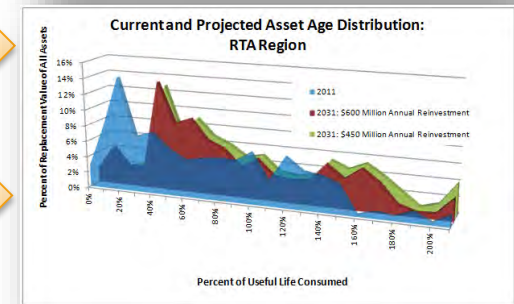
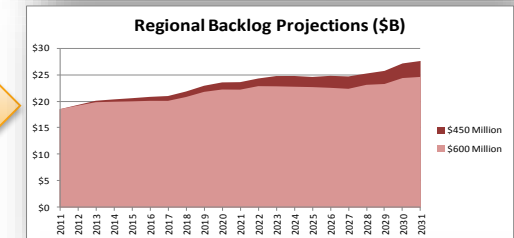
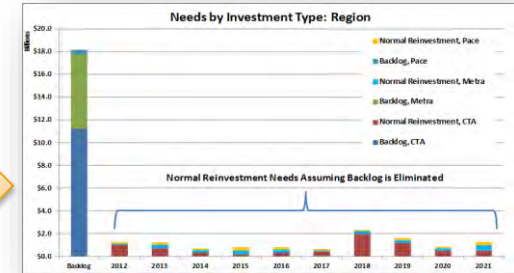
How Does COST Work?



COST APPLICATIONS

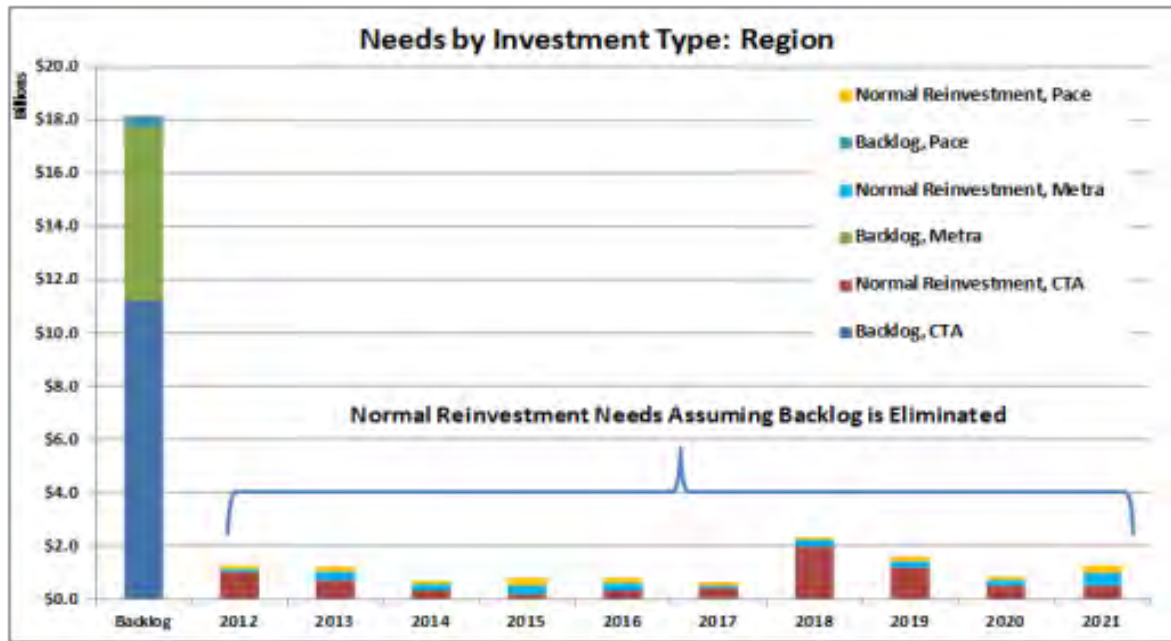
RTA Uses of COST

Application	Description
Unconstrained Needs	<ul style="list-style-type: none"> Condition Assessment Reports No funding limit
Constrained Needs	<ul style="list-style-type: none"> “What-if” analysis for backlog, conditions... Prioritization required as limited funding
Conditions Today	<ul style="list-style-type: none"> Current distribution of assets conditions and ages
Conditions Tomorrow	<ul style="list-style-type: none"> Future distribution of assets conditions and ages (depending on funding)
Budget Support	<ul style="list-style-type: none"> Prioritized expenditures for next five-year period Impact of proposed budget on backlog



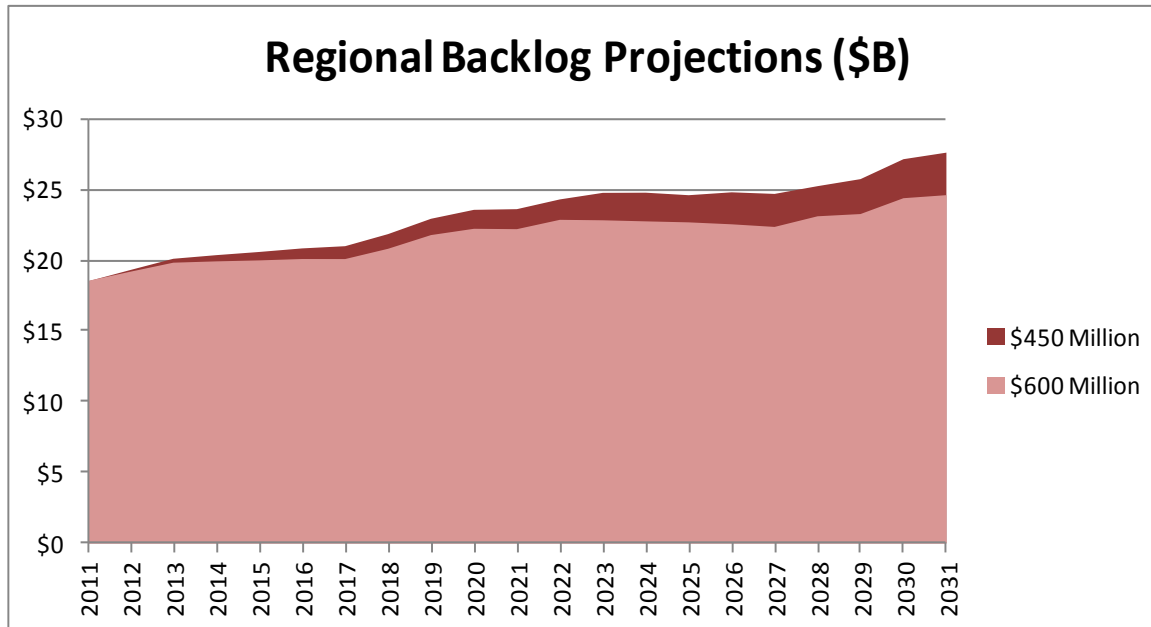
APPLICATION: UNCONSTRAINED NEEDS

Application	Cost to eliminate backlog and then address all normal reinvestment needs thereafter
Used for...	Needs as presented in 2012 Condition Assessment Report
Strength	Easy to understand and communicate
Weakness	Assumes backlog can be replaced “immediately”



APPLICATION: CONSTRAINED NEEDS

Application	Estimate impact of limited funding on future conditions and backlog
Used for...	<ul style="list-style-type: none"> Section 7.6 of 2012 Condition Assessment Report
Value	<ul style="list-style-type: none"> Answers question: “What is the impact of differing levels of funding on the backlog and future conditions?” Based on prioritization settings: “What ends up in the backlog?”

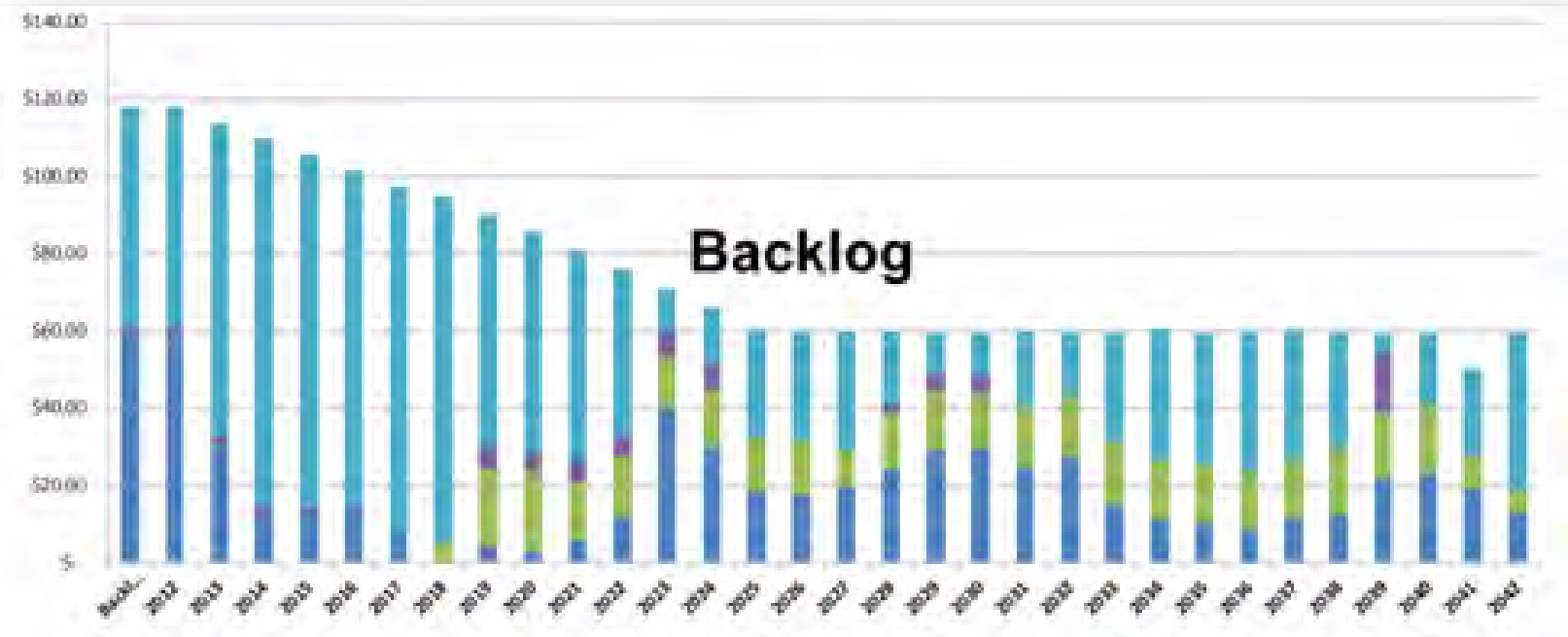


Tool's prioritization scoring used to determine what needs are addressed and what needs end up in the backlog when funding is limited



APPLICATION: CONSTRAINED NEEDS

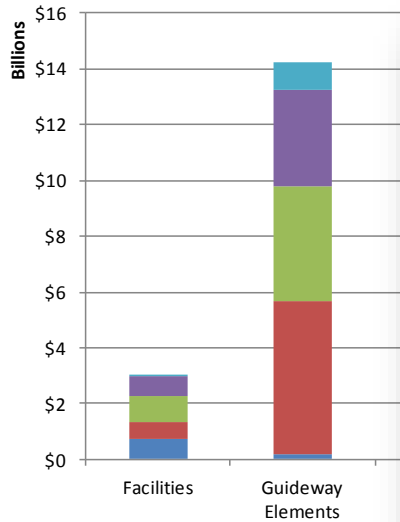
Application	Estimated funding to attain specific investment targets (e.g., reduce backlog by 50% in ten years)
Used for...	<ul style="list-style-type: none"> • Future TAM Plan • Stakeholder / funding partner outreach
Value	<ul style="list-style-type: none"> • Answers question: “What is the level of funding required to attain specific SGR backlog targets?”



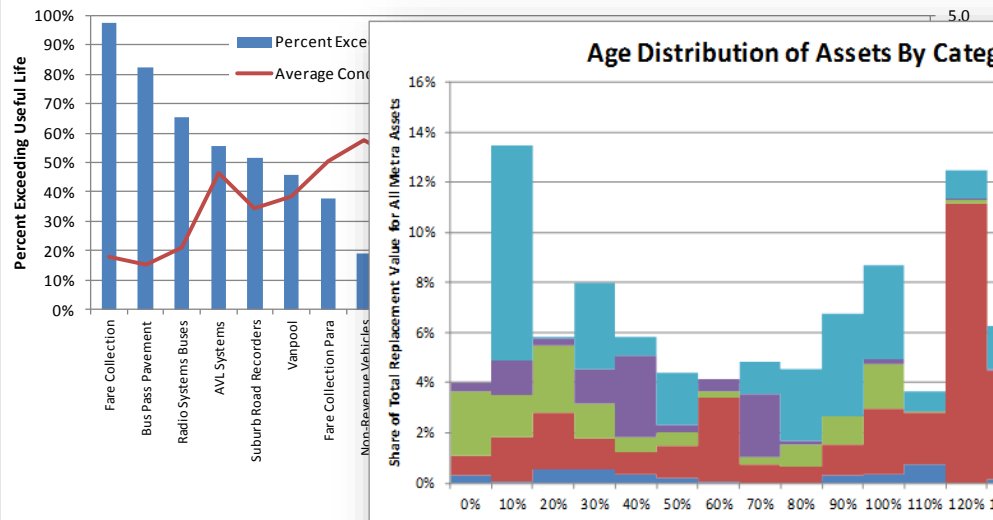
APPLICATION: CURRENT CONDITIONS

Application	Estimate current physical condition of region's transit assets
Used for...	<ul style="list-style-type: none"> Chapter 6 of 2012 Condition Assessment Report
Strength	<ul style="list-style-type: none"> Estimated condition (based on decay curves) is inexpensive
Weakness	<ul style="list-style-type: none"> Estimated conditions are an approximation Does not capture unforeseen conditions

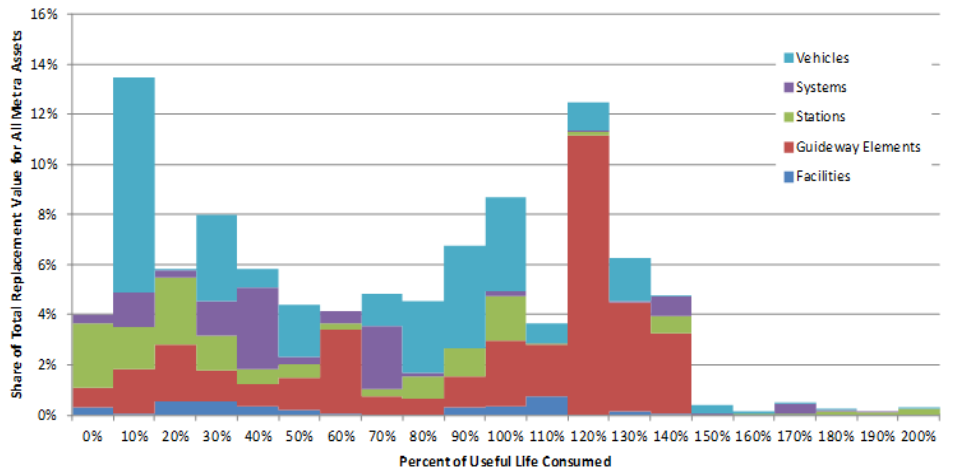
Distribution of Asset Conditions by Asset Category: CTA



Percent of Assets Exceeding Useful Life vs Average Condition: Pace

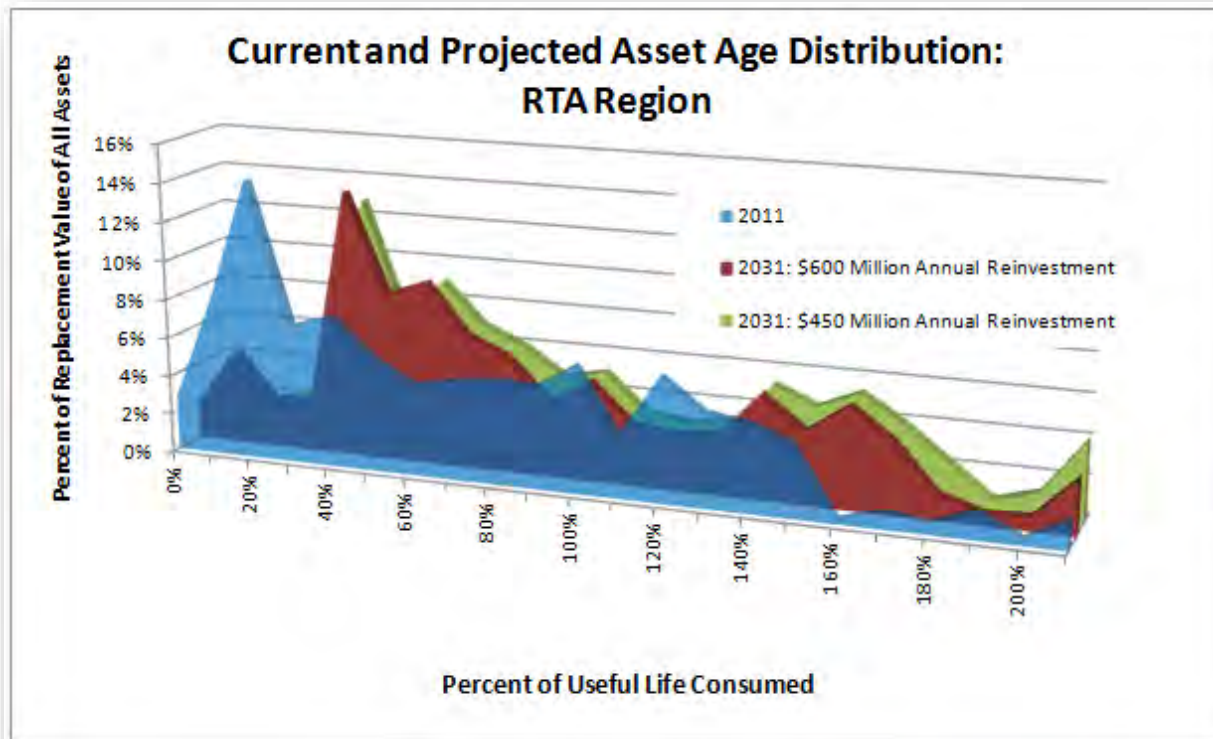


Age Distribution of Assets By Category: Metra



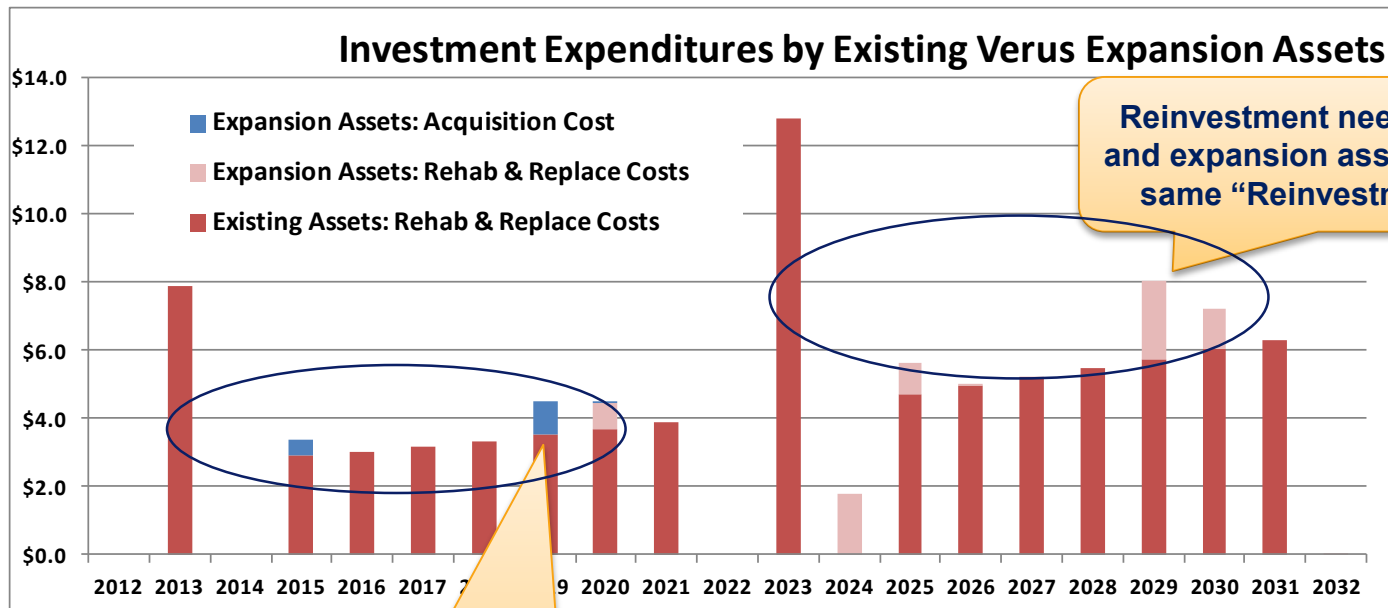
APPLICATION: FUTURE CONDITIONS

Application	Estimate future physical condition of region's transit assets given assumed levels of funding
Used for...	<ul style="list-style-type: none"> Section 7.6 of 2012 Condition Assessment Report
Value	<ul style="list-style-type: none"> Demonstrates consequences of limited funding



APPLICATION: REINVESTMENT VERSUS EXPANSION

Application	Determine Impact of expansion investments on future reinvestment (SGR) needs
Used for...	<ul style="list-style-type: none"> • New Starts Planning
Value	<ul style="list-style-type: none"> • Demonstrates consequences of expansion on future needs



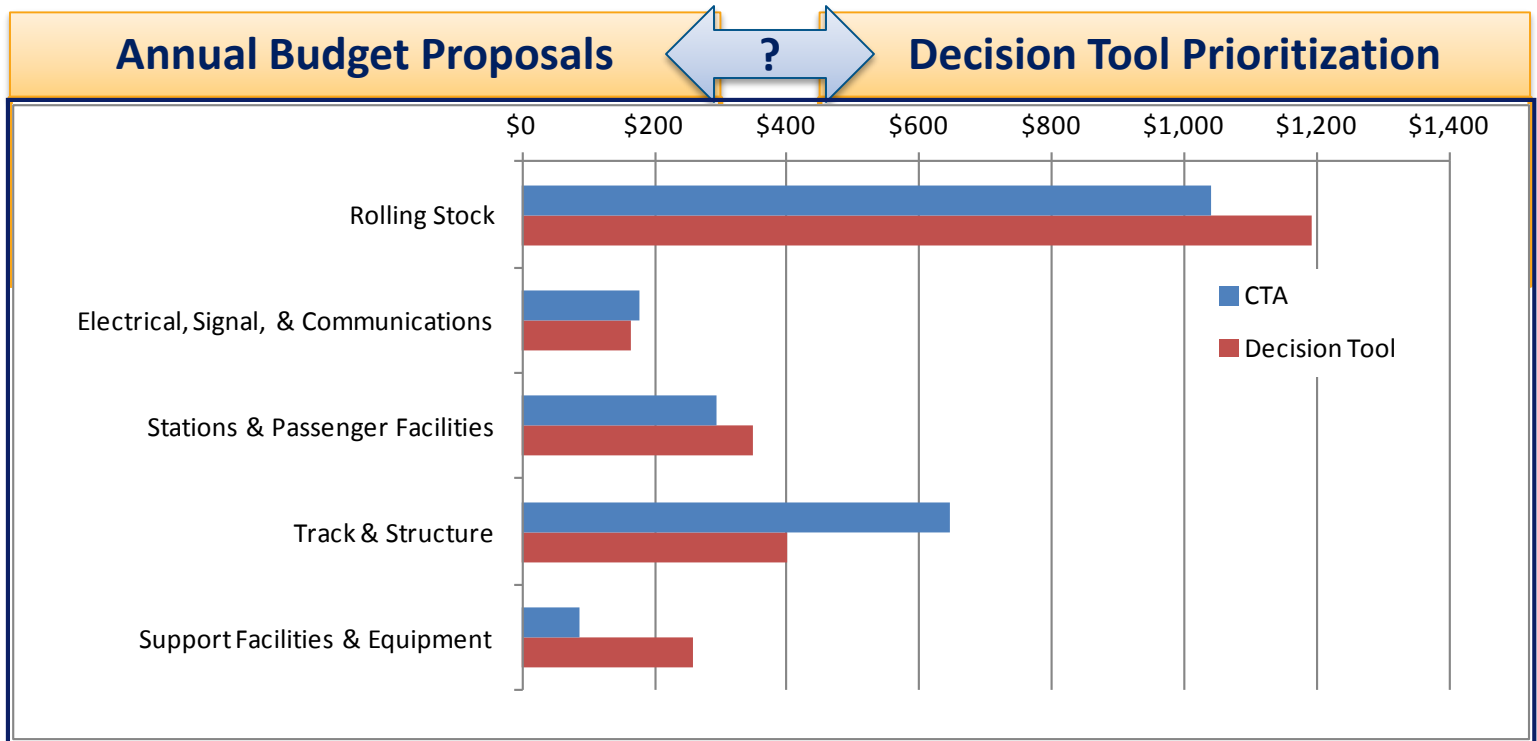
Reinvestment needs for existing and expansion assets compete for same "Reinvestment Budget"

Expansion acquisition needs covered by independent "Expansion Budget"

Expansion analysis demonstrates impact of expansion investments on future rehab-
replace needs

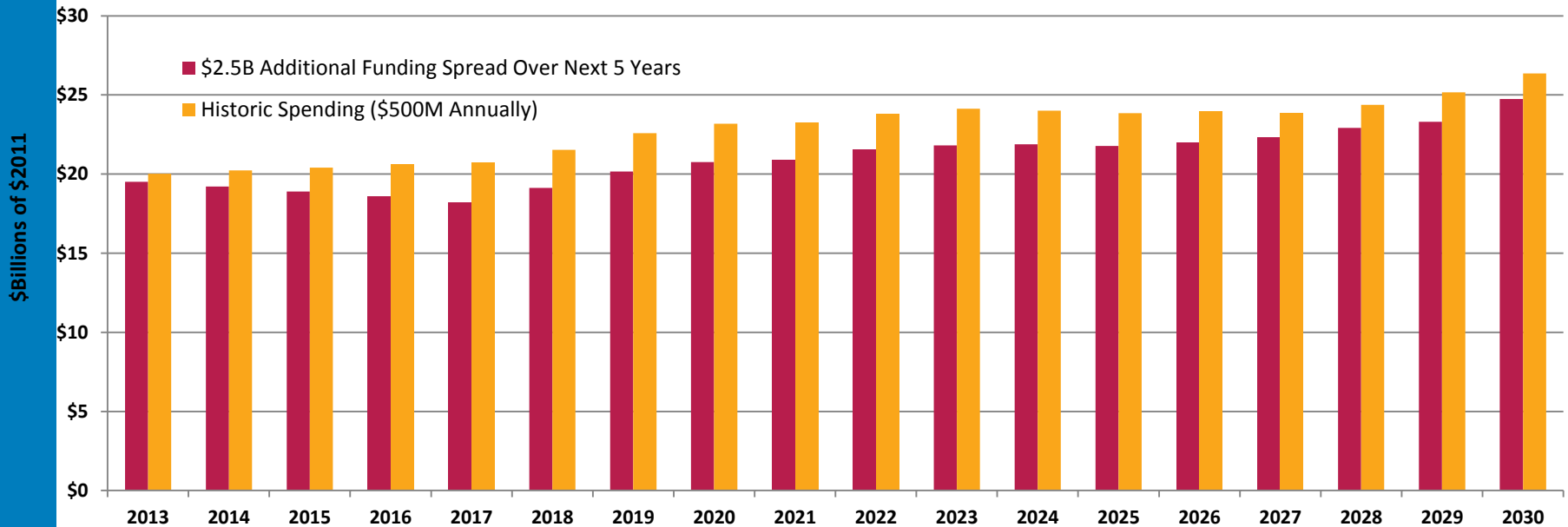
APPLICATION: BUDGET PRIORITIZATION

Application	Use Tool prioritization to support budget development
Used for...	<ul style="list-style-type: none"> Compare COST prioritized needs with Service Board budget proposals
Value	<ul style="list-style-type: none"> Provides independent assessment of investment priorities and impact of changes in priorities on what remains in the backlog



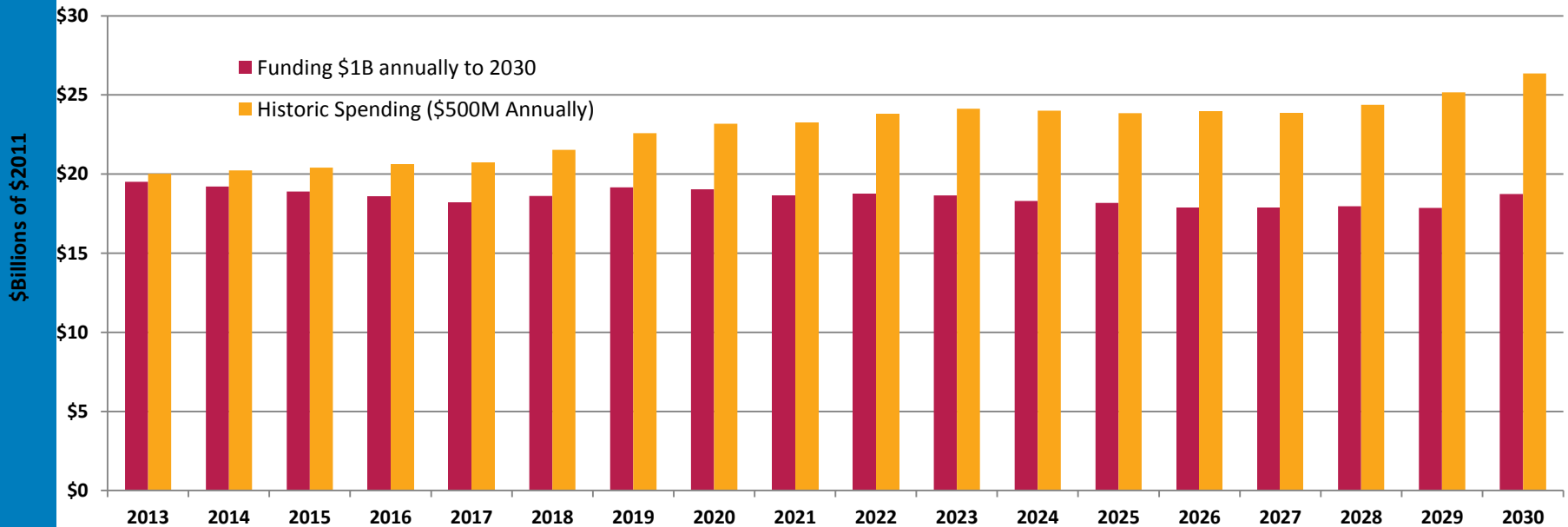
EXAMPLE APPLICATION: SGR DRAWDOWN

SGR Backlog Forecasts: Historic Funding Vs. Additional \$2.5 Billion Over Next Five Years



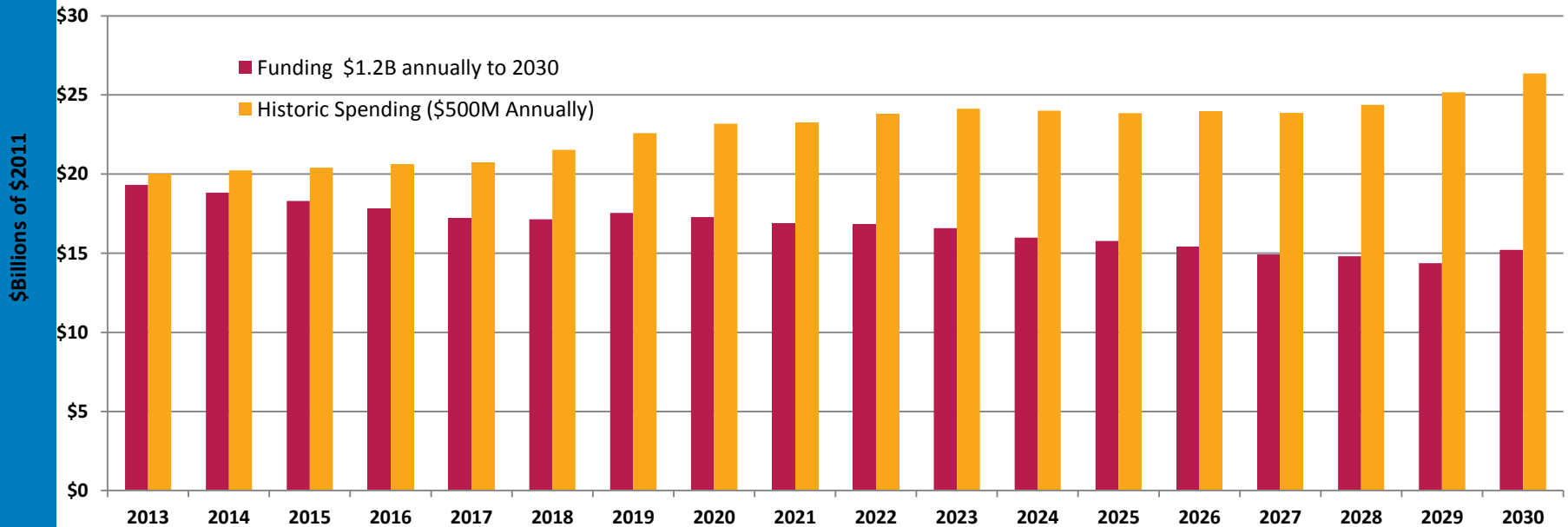
EXAMPLE APPLICATION: SGR DRAWDOWN

SGR Backlog Forecasts: Historic Funding Vs. \$1.0 Billion Annually



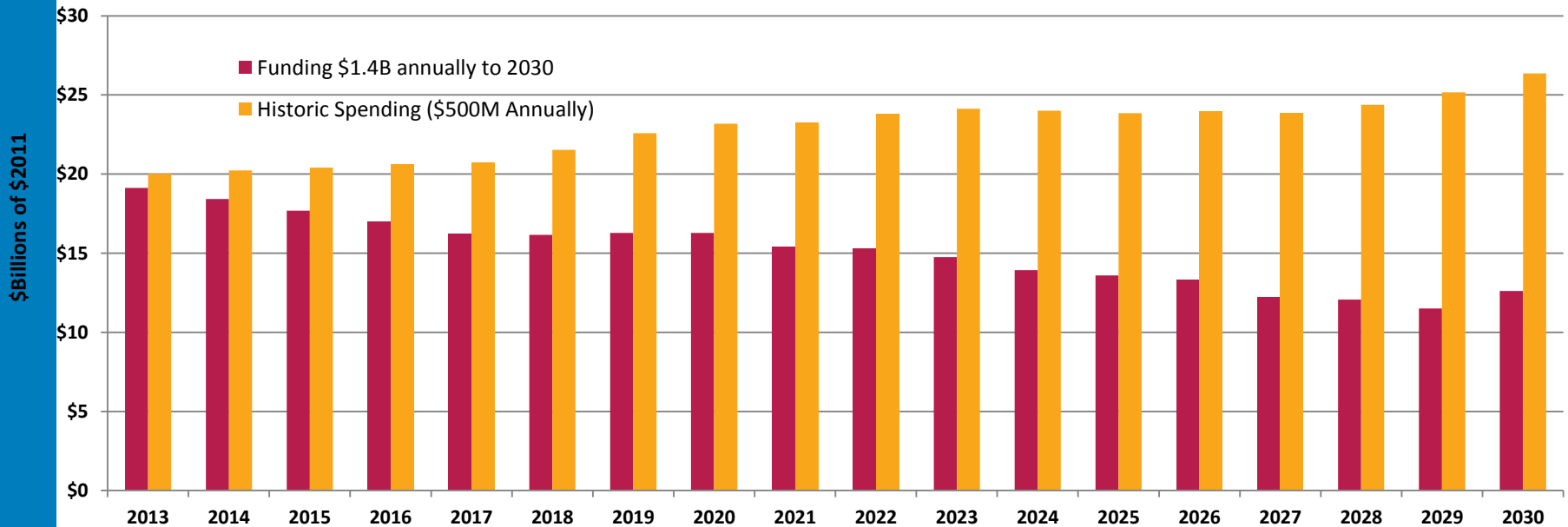
EXAMPLE APPLICATION: SGR DRAWDOWN

SGR Backlog Forecasts: Historic Funding Vs. \$1.2 Billion Annually



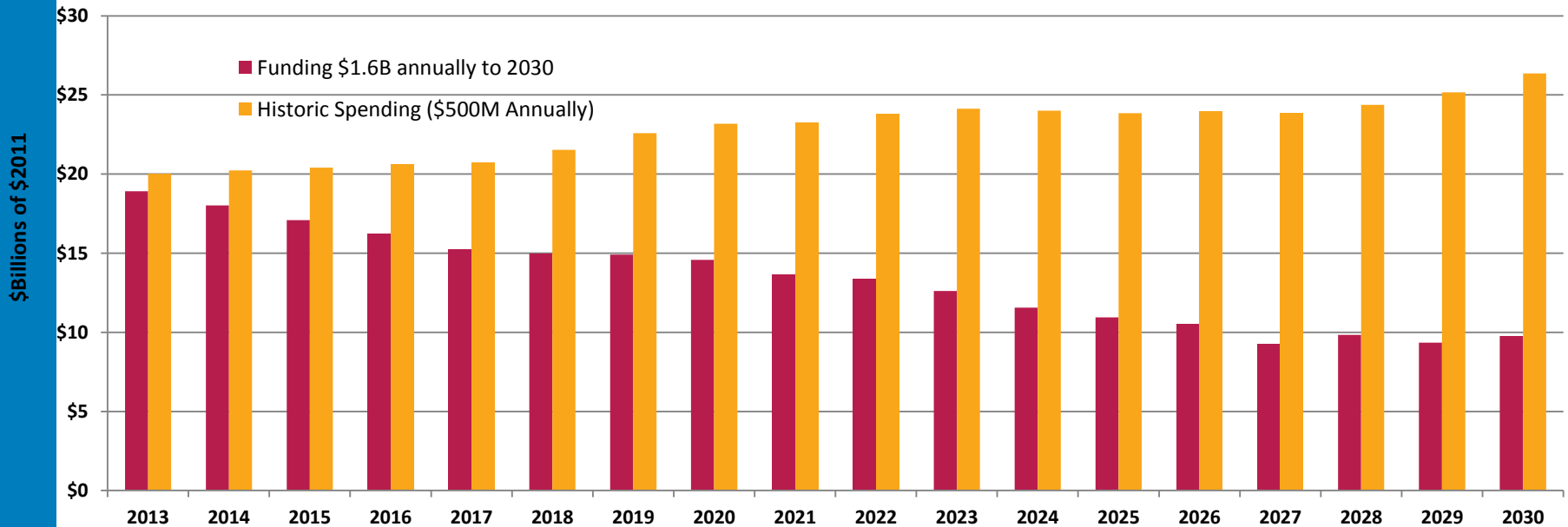
EXAMPLE APPLICATION: SGR DRAWDOWN

SGR Backlog Forecasts: Historic Funding Vs. \$1.4 Billion Annually



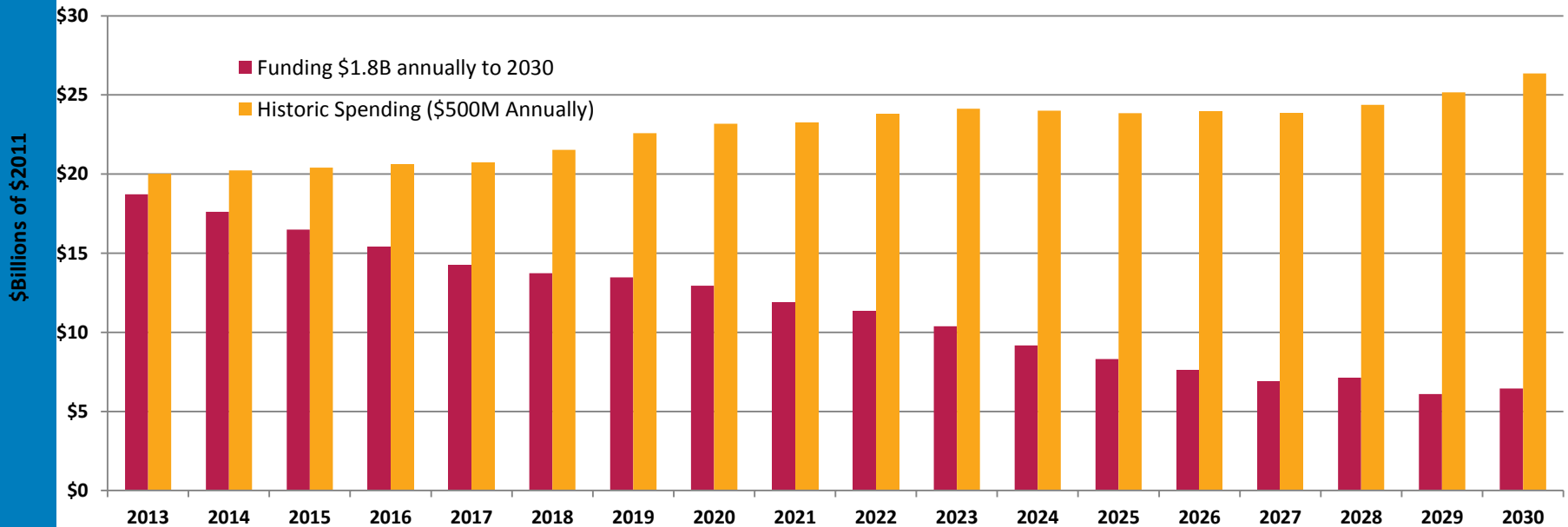
EXAMPLE APPLICATION: SGR DRAWDOWN

SGR Backlog Forecasts: Historic Funding Vs. \$1.6 Billion Annually



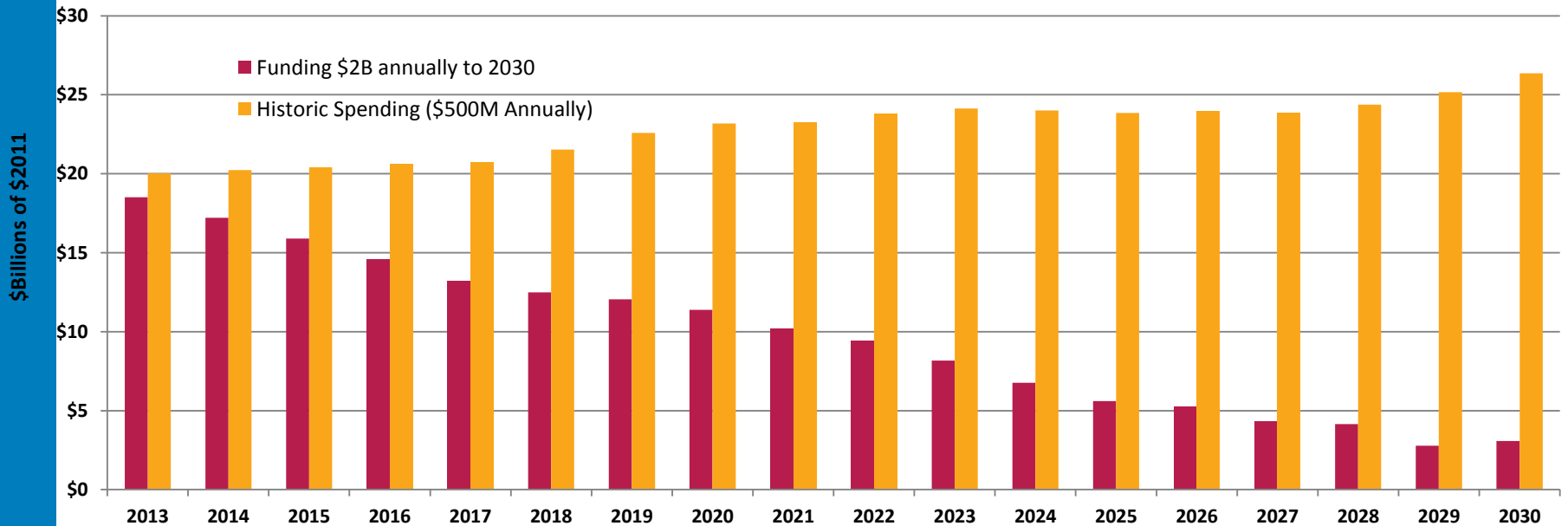
EXAMPLE APPLICATION: SGR DRAWDOWN

SGR Backlog Forecasts: Historic Funding Vs. \$1.8 Billion Annually



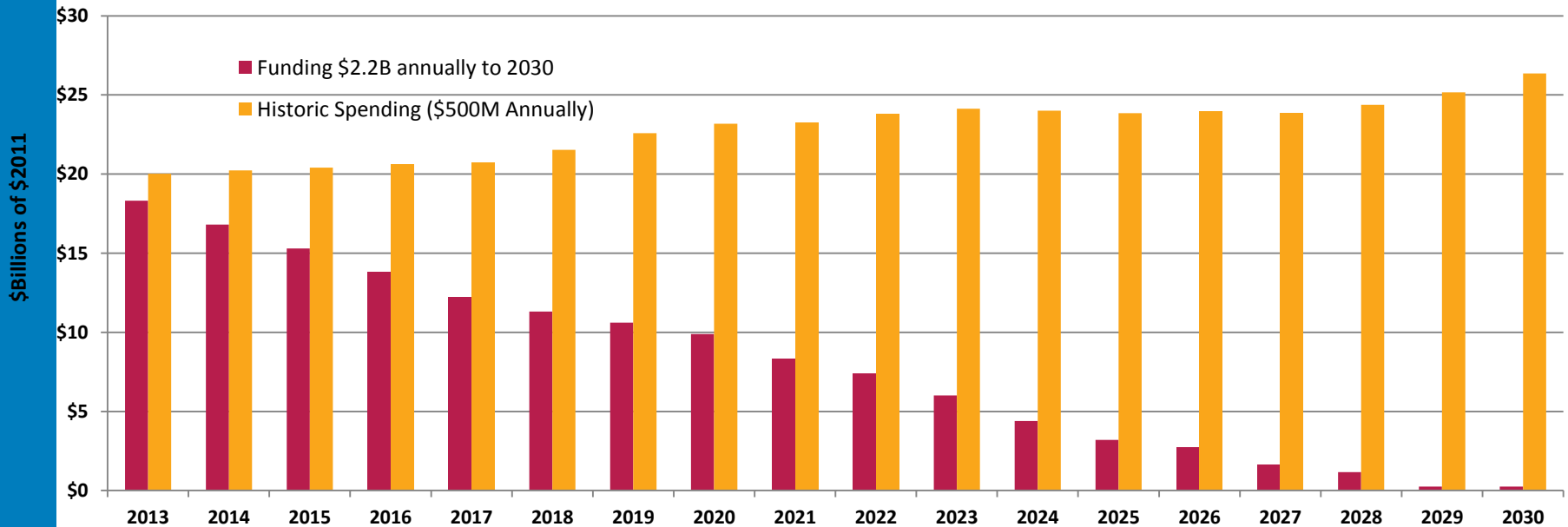
EXAMPLE APPLICATION: SGR DRAWDOWN

SGR Backlog Forecasts: Historic Funding Vs. \$2.0 Billion Annually



EXAMPLE APPLICATION: SGR DRAWDOWN

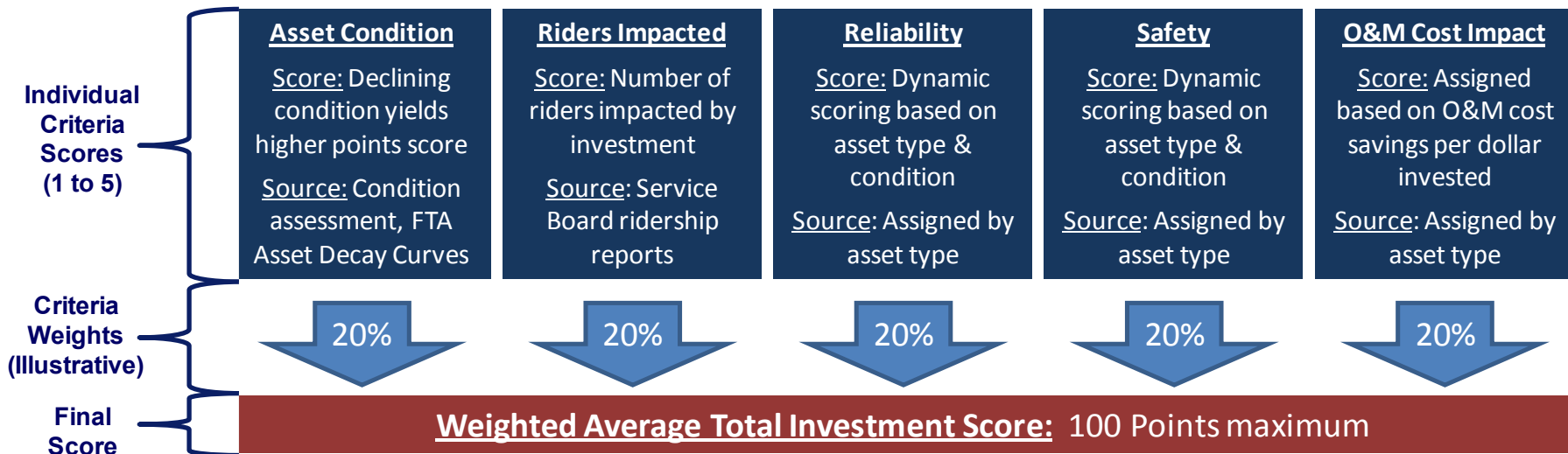
SGR Backlog Forecasts: Historic Funding Vs. \$2.2 Billion Annually



MULTI-CRITERIA PRIORITIZATION

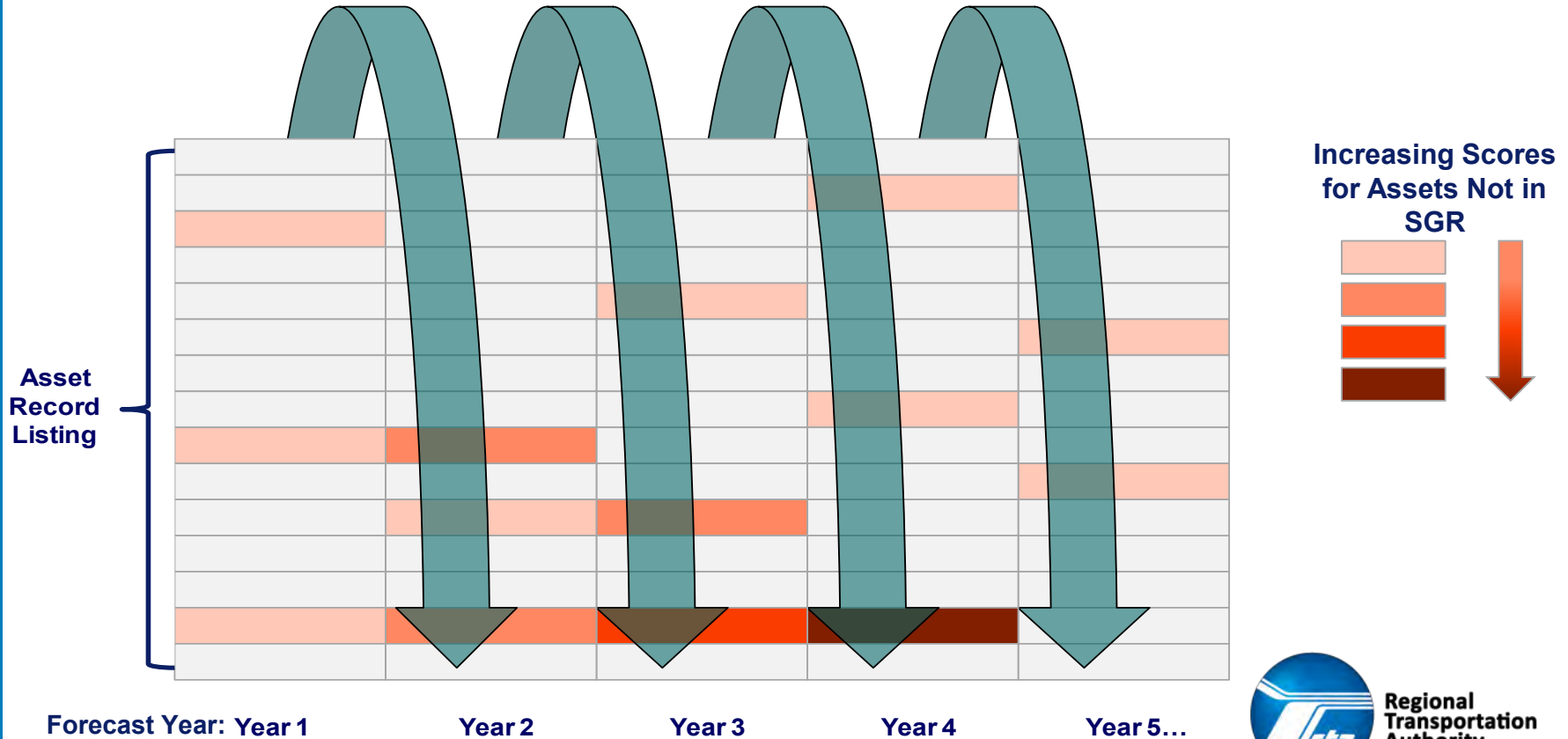
- **Multi-Criteria Scoring:** COST prioritizes investment needs based on five criteria
 - Each criterion scored independently
 - Criteria scores weighted and summed to determine total score

Multi-Criteria Decision Analysis (MCDA) Scoring



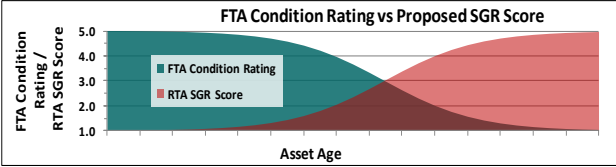
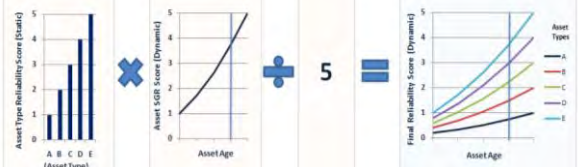
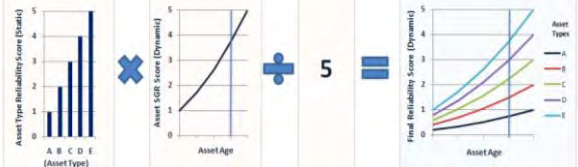
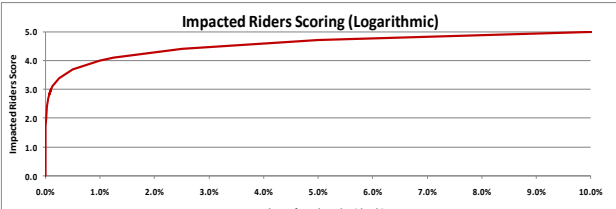
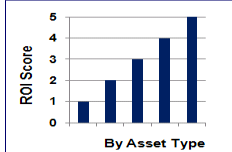
DYNAMIC SCORING

- **Dynamic scoring** drives up prioritization scores over the 20-year analysis period for assets not replaced due to financial constraints (applies to condition, safety and reliability)



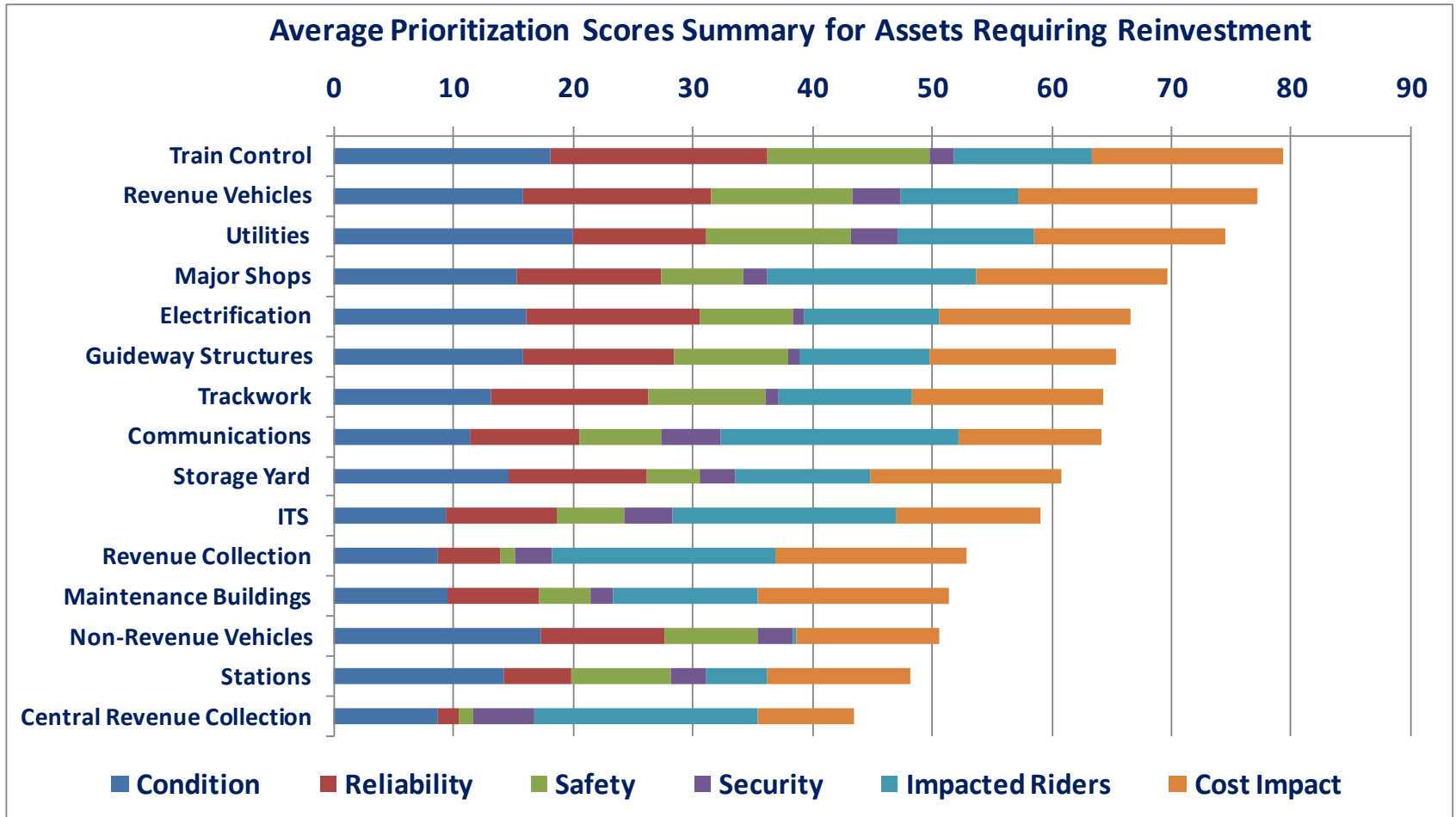
CRITERIA SCORING

Prioritization Criteria Scoring

Criterion	Definition	Scoring Approach
<p>State of Good Repair (Condition)</p>	<ul style="list-style-type: none"> ▶ Asset physical condition ▶ The lower the condition rating, the higher the prioritization score ▶ <i>Dynamic Scoring: Asset condition</i> 	 <p>The chart shows two overlapping bell-shaped curves. The left curve, labeled 'FTA Condition Rating', is green and peaks at a rating of 5.0 for an asset age of 0. The right curve, labeled 'RTA SGR Score', is red and peaks at a score of 5.0 for an asset age of 10. The x-axis is 'Asset Age' and the y-axis is 'FTA Condition Rating / RTA SGR Score'.</p>
<p>Reliability</p>	<ul style="list-style-type: none"> ▶ Degree to which reinvestment impacts service reliability (reduces service failures) ▶ Low cost / higher probability event ▶ <i>Dynamic Scoring: Asset type and condition</i> 	 <p>The diagram illustrates the calculation of a final reliability score. It starts with a bar chart of 'Asset Type Reliability Score (Static)' for types A, B, C, D, and E. This is multiplied (indicated by a blue 'x' symbol) by a line graph of 'Asset SGR Score (Dynamic)' vs 'Asset Age'. The result is then added (indicated by a blue '+' symbol) to a constant value of 5. The final output is a line graph of 'Final Reliability Score (Dynamic)' vs 'Asset Age' for five different asset types (A-E).</p>
<p>Safety & Security</p>	<ul style="list-style-type: none"> ▶ Degree to which reinvestment impacts the safety and security of passengers / employees ▶ High cost / lower probability event ▶ <i>Dynamic Scoring: Asset type and condition</i> 	 <p>This diagram is identical in structure to the Reliability scoring diagram, showing the combination of static asset type scores and dynamic SGR scores to produce a final dynamic score for safety and security.</p>
<p>Rider Impact</p>	<ul style="list-style-type: none"> ▶ Number of riders impacted by asset reinvestment ▶ <i>Logarithmic Scoring: Based on riders served by asset (location driven)</i> 	 <p>The chart shows a logarithmic curve representing the 'Impacted Riders Score' on the y-axis (ranging from 0.0 to 5.0) against the 'Share of Total Mode Ridership' on the x-axis (ranging from 0.0% to 10.0%). The score increases rapidly at first and then levels off as the share of ridership increases.</p>
<p>ROI (O&M Cost Impact)</p>	<ul style="list-style-type: none"> ▶ Degree to which reinvestment reduces operating costs or increased revenues ▶ <i>Static Scoring: By asset type</i> 	 <p>The bar chart shows the 'ROI Score' on the y-axis (0 to 5) for five different asset types (A, B, C, D, E) on the x-axis. The scores are approximately 1.0, 2.0, 3.0, 4.0, and 5.0 respectively.</p>

SAMPLE PRIORITIZATION SCORES

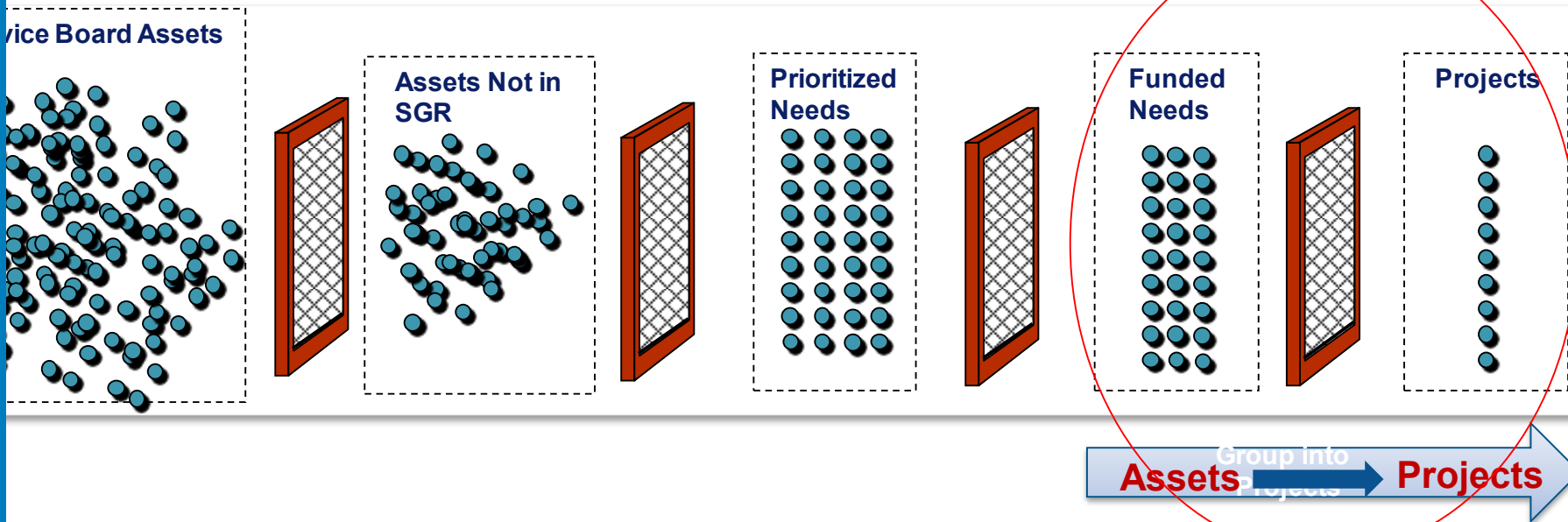
Comparative Scoring by Asset Type



ASSET TO PROJECT MAPPING (APM)

- **COST:** Estimates needs for individual assets
- **Capital Budgets/CIPs:** Service Boards group related asset needs into projects
- **APM:** Groups related assets with SGR needs into logical project groupings
 - **Goal:** Help Service Boards identify related SGR needs (not to propose actual projects)

Prioritization Process: “Screening”

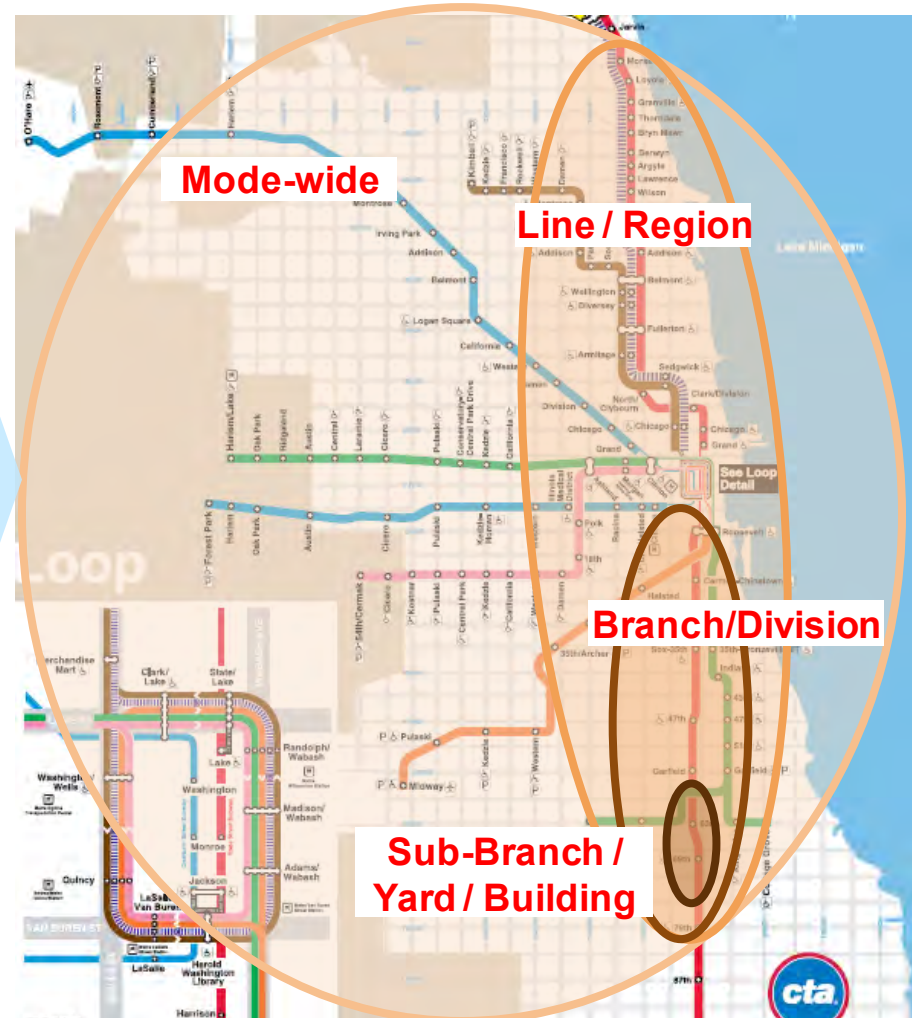


APM: PROJECT NAME AND SCOPE

Related Assets Grouped into Projects...

Illustrative Project Names
On-Vehicle Revenue Collection
Passenger Communications Systems
Radio
Retained Cut
Revenue Vehicles
Roadway Traffic Signals
Safety and Security
SCADA
Signal Bridge
Signals/Interlockings/Special Trackwork
Station Access
Station Platform
Station Signage & Graphics
Stations
Storage Yards
Trackwork

...Then Projects Assigned a Scope



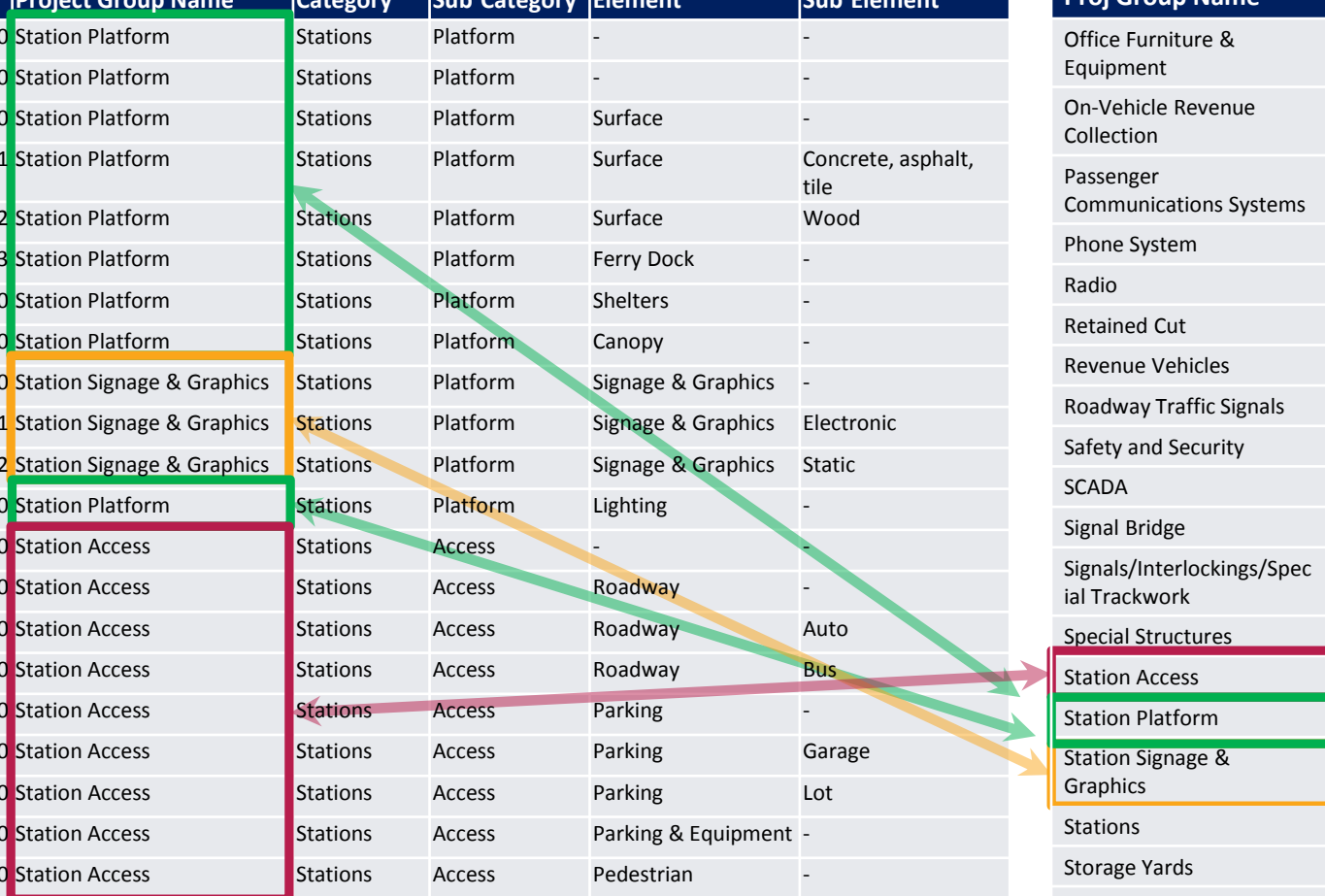
ASSIGNING ASSETS TO PROJECTS AND SCOPE

Asset Types Table (Sample)

tbl05AssetTypeData					
Type	Project Group Name	Category	Sub Category	Element	Sub Element
45000	Station Platform	Stations	Platform	-	-
45400	Station Platform	Stations	Platform	-	-
45410	Station Platform	Stations	Platform	Surface	-
45411	Station Platform	Stations	Platform	Surface	Concrete, asphalt, tile
45412	Station Platform	Stations	Platform	Surface	Wood
45413	Station Platform	Stations	Platform	Ferry Dock	-
45420	Station Platform	Stations	Platform	Shelters	-
45430	Station Platform	Stations	Platform	Canopy	-
45440	Station Signage & Graphics	Stations	Platform	Signage & Graphics	-
45441	Station Signage & Graphics	Stations	Platform	Signage & Graphics	Electronic
45442	Station Signage & Graphics	Stations	Platform	Signage & Graphics	Static
45450	Station Platform	Stations	Platform	Lighting	-
46000	Station Access	Stations	Access	-	-
46100	Station Access	Stations	Access	Roadway	-
46110	Station Access	Stations	Access	Roadway	Auto
46120	Station Access	Stations	Access	Roadway	Bus
46200	Station Access	Stations	Access	Parking	-
46210	Station Access	Stations	Access	Parking	Garage
46220	Station Access	Stations	Access	Parking	Lot
46230	Station Access	Stations	Access	Parking & Equipment	-
46300	Station Access	Stations	Access	Pedestrian	-

Project Names Table

tblAssetToProject_GroupNames	
Proj Group Name	Proj Group Scope
Office Furniture & Equipment	Modewide
On-Vehicle Revenue Collection	Modewide
Passenger Communications Systems	Modewide
Phone System	Modewide
Radio	Modewide
Retained Cut	Line/Region
Revenue Vehicles	Modewide
Roadway Traffic Signals	Line/Region
Safety and Security	Modewide
SCADA	Modewide
Signal Bridge	Line/Region
Signals/Interlockings/Special Trackwork	Sub-Branch/Building
Special Structures	Line/Region
Station Access	Line/Region
Station Platform	Line/Region
Station Signage & Graphics	Line/Region
Stations	Line/Region
Storage Yards	Modewide
Systems	Line/Region
Trackwork	Sub-Branch/Building
Underground	Branch/Division



ASSET TO PROJECT MAPPING: GUI

- **AMP interface** allows users to assign each asset type to a “Project Name”
 - Project Names than assigned a geographic “Scope” (from mode wide to sub-branch level)

APM User Interface

Asset to Project Builder >Create New Project Name, Assign Assets to Project, Edit Scope or Primary Asset Category

Select Action: Current Project Name, Scope and Primary Asset Category: Help

Select Existing Project to Edit: Project Name: Trackwork

Create New Project Scope (group assets by): Sub-Branch/Building

Primary Asset Category: Guideway Elements

Assets Currently Assigned to Project (read-only)

Code	Project	Category	Sub-Category	Element	Sub-Element
11000	Trackwork	Guideway Elements	Trackwork	-	-
11110	Trackwork	Guideway Elements	Trackwork	Direct Fixation	-
11111	Trackwork	Guideway Elements	Trackwork	Direct Fixation	Tangent
11112	Trackwork	Guideway Elements	Trackwork	Direct Fixation	Curve
11113	Trackwork	Guideway Elements	Trackwork	Direct Fixation	Guarded
11114	Trackwork	Guideway Elements	Trackwork	Direct Fixation	Platform
11115	Trackwork	Guideway Elements	Trackwork	Direct Fixation	Tangent - CTA

Record: 1 of 33 No Filter Search

Select Additional Assets to Assign to this Project Grouping (read-only except for select field) Assign Selected Assets to Project

Select	Code	Project	Category	Sub-Category	Element	Sub-Element
<input type="checkbox"/>	10000	General Guideway and Trackwork	Guideway Elements	Guideway	-	-
<input type="checkbox"/>	10110	At Grade Ballast	Guideway Elements	Guideway	At Grade Exclusive	-
<input type="checkbox"/>	10120	At Grade Ballast	Guideway Elements	Guideway	At Grade Exclusive	Expressway
<input type="checkbox"/>	10200	At Grade-In-Street	Guideway Elements	Guideway	At Grade-In-Street	-
<input type="checkbox"/>	10205	At Grade-In-Street	Guideway Elements	Guideway	At Grade-In-Street	Ductbank
<input type="checkbox"/>	10206	At Grade-In-Street	Guideway Elements	Guideway	At Grade-In-Street	Manhole
<input type="checkbox"/>	10210	At Grade-In-Street	Guideway Elements	Guideway	At Grade-In-Street	Grade Crossing

Record: 1 of 423 No Filter Search

ASSET TO PROJECT MAPPING: OUTPUT

- COST** reports needs for all “Projects” – related assets with concurrent SGR needs in same geographic location

Constrained Needs-- 10 Year, Project Level: 2011 - 2021

Summary Report

By Asset Category

08-Jan-13

Project Type / RTA Asset Category	Rail Line / Bus Division / Branch	Annual Needs (\$M)											
		10 Year Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CTA													
CTA: HR													
Electrification	ROW Traction Power	BLUE	Forest Park	\$33.4				\$17.2	\$11.0	\$5.2			
Electrification	ROW Traction Power	BROWN	Kimball	\$40.4							\$15.9	\$24.5	
Electrification	ROW Traction Power	RED	Howard	\$4.0	\$4.0								
Electrification				\$77.8	\$4.0			\$17.2	\$11.0	\$5.2	\$15.9	\$24.5	
Revenue Vehicles	Rail Revenue Cars	Mode wide	Mode wide	\$317.4				\$116.4	\$105.8	\$95.2			
Revenue Vehicles				\$317.4				\$116.4	\$105.8	\$95.2			
Trackwork	Rail	Blue	Forest Park	\$15.3	\$15.2								
Trackwork	Rail	Blue	O'Hare	\$5.9		\$5.9							
Trackwork	Rail	Brown	Kimball	\$12.4	\$3.5	\$2.9	\$3.4	\$2.7					
Trackwork	Rail	Brown/ Purple	Kimball	\$49.0	\$3.2	\$1.9					\$29.6		\$13.3
Trackwork	Rail	Brown/ Purple/ Gree	Loop	\$12.0	\$11.3								
Trackwork	Rail	Orange/Green	Midway	\$1.8			\$1.8						
Trackwork	Rail	Red	95th/Dan Ryan	\$2.7		\$2.7							
Trackwork	Rail	Red	Howard	\$25.6	\$2.9		\$4.2		\$3.4		\$2.6		\$11.2
Trackwork	Special Trackwork	Blue	Forest Park	\$2.9	\$1.5	\$1.5							
Trackwork	Special Trackwork	Brown	Kimball	\$3.7	\$3.7								
Trackwork	Special Trackwork	Brown/Purple/Green	Loop	\$2.9				\$1.5	\$1.5				
Trackwork	Special Trackwork	Red	Howard	\$2.2							\$1.5		
Trackwork				\$136.6	\$42.0	\$14.9	\$9.5	\$4.9	\$5.4	\$1.4	\$33.6		\$24.5

RTA CAPITAL PROGRAM SOURCES

- Federal Transit Administration
 - Section 5307/5340 - Urbanized Area Formula Grants
 - Section 5337 - State of Good Repair Grants
 - Section 5339 - Bus and Bus Facilities Formula Grants
- Other Federal Sources (CMAQ, TIGGER)
- State of Illinois
- Local Service Board

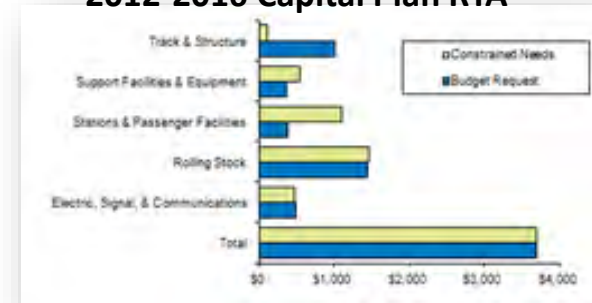
RTA CAPITAL PROGRAM REQUIREMENTS

- Project Description and Justification
- Scope, schedule, budget
- Asset useful life
- Asset condition
- Category: Maintain, Enhance, Expand
- Progress toward SGR
- Documentation of COST ranking

BUDGET APPLICATIONS OF COST

- Compare Investment allocations
 - Are the proposed programs moving toward SGR?
 - Consider budget amounts by asset category
- Understand differences
 - How / why are priorities different?
- Address and assess allocations
 - How is the backlog addressed?
 - Utilize the tool's other functionalities to inform budget decisions

2012-2016 Capital Plan RTA



BUDGET APPLICATIONS OF COST

- Operational analysis
 - First quarter budget and project review
- Upcoming responsibilities to Service Boards
 - Reevaluation of criteria
 - Navigable database integration
 - Potential additions:
 - Climate
 - Risk
 - Grant and funding identifiers

THE FUTURE OF RTA CAPITAL PROGRAMMING

- Challenges:
 - Future funding scarcity
 - Addressing backlog, SGR and Expansion needs
 - Change in funding allocation
- Goal:
 - Performance Based Planning and Programming for the region
 - Alignment with best practices (PAS-55, ISO 55000)

FUNDING AND CONTRACT ADMINISTRATION



- RTA Funded TAM Program
- FTA TAM Pilot Project
- Unified Work Program (UWP)
 - Enhancement and expansion projects
 - Training
 - Performance based planning and programming / Best practices / PAS-55, ISO 55000
 - Tagging assets to funding sources

RTA-FUNDED TAM PROGRAM

- Capital Asset Condition Assessment – Baseline
 - Two years
 - URS – Final Report completed in 2009
- Capital Decision Prioritization Support Tool
 - 18 months
 - Booz Allen Hamilton/CH2M HILL
- Capital Asset Condition Assessment
 - Five Year Effort
 - Booz Allen Hamilton/CH2M HILL

FTA-FUNDED TAM PILOT PROJECT

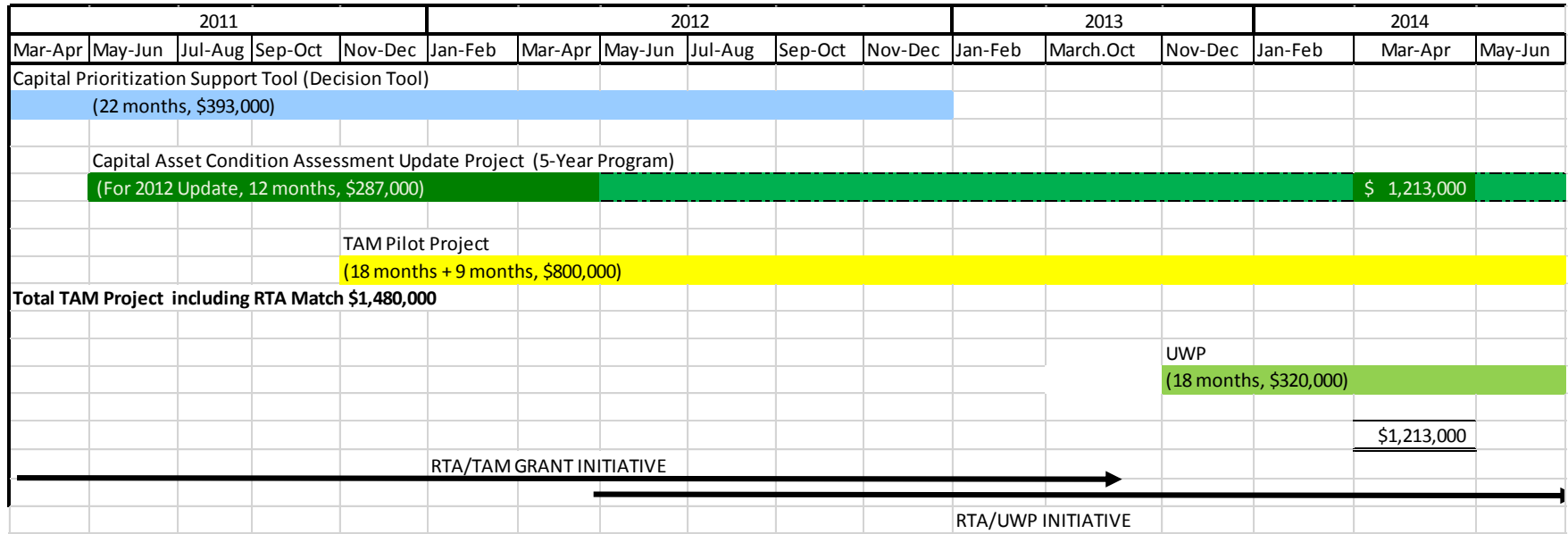
- Enhancement to Capital Optimization Support Tool
- Enhancement to Capital Asset Condition Assessment
 - CH2M HILL

Product	Baseline Budget	Change	Budget	COMPLETE
Product 1: Refinement and Documentation of Inventory and Condition Assessment Process	\$569,798	\$0	\$569,798	
Product 2: Design Multi-Criteria Transit Investment Prioritization Process and Tool	\$227,203	\$0	\$227,203	
Product 3: Design Asset to Project Aggregation Methodology				
Product 4: Develop Final Tool to Assess Capital Needs				
Total	\$797,001	\$0	\$797,001	

Completed on time and on budget



RTA TAM PROGRAM



RTA'S DEFINITION OF SGR

Asset Level SGR

An asset is in a state of good repair (SGR) if (i) its age does not exceed its expected useful life and (ii) all rehabilitation and annual capital maintenance activities are up to date. Under these circumstances, an asset has no deferred capital reinvestment needs(...). If an asset has undergone a major life extending rehabilitation, it can exceed its expected useful life and still be in SGR. Under this definition, non-attainment of SGR does not imply an asset is unfit for service or unsafe but it may increase the likelihood of sub-optimal performance (i.e. reliability and availability performance may decrease).

Mode, Service Board, or Regional Level (Aggregate) SGR

Any grouping of assets including a transit mode, Service Board or the region is considered to be in SGR if each of its component assets is in SGR (as defined above). Mode, Service Board and regional level SGR represents an ideal state and is not attainable in practice as (i) rehabilitation and replacement needs arise continuously and (ii) mode, Service Board and regional level budgets are generally insufficient to meet these continuous needs. As such, a more realistic view of SGR at an aggregate level is based on the region's target/tolerance for achieving reinvestment goals (...).

RTA'S MEASURE OF SGR

Name of Measure: “Percent of Assets in SGR”

Definition: The degree of attainment of SGR for a group of assets is evaluated as the total level of reinvestment required to replace all assets that exceed their useful life and address all outstanding rehabilitation and annual capital maintenance needs divided by the total replacement value of those assets. Measurement of SGR applies to the aggregate level (e.g., asset class) and would not normally be calculated on an asset level. As the RTA SGR measure is intended to help assess reinvestment need, it is weighted by replacement value.

Interpretation: “Percent of Assets in SGR” is a measure of outstanding investment needs relative to the replacement value of all existing transit assets (e.g., a Percent of Assets in SGR measure of 80%, suggests that reinvestment needs are equal to $1 - 0.80 = 20\%$ of total asset replacement value). Hence, Percent of Assets in SGR is a measure of investment need and cannot be used to assess other asset attributes (such as performance or safety).

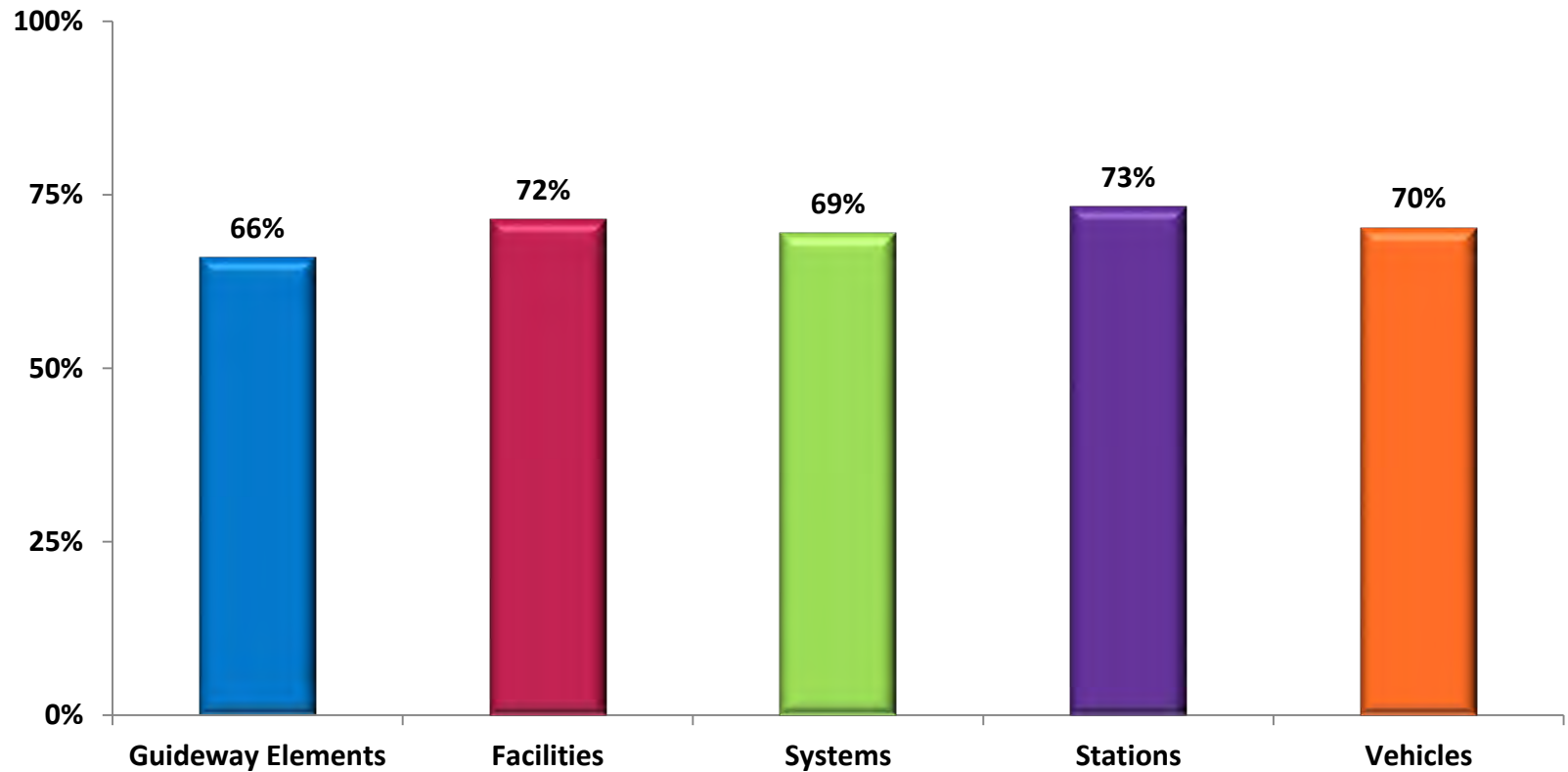
Formula: $1 - (\sum (\text{Deferred Replacement, Rehabilitation \& Annual Capital Maintenance needs}) / \sum \text{Total Replacement Value})$.

RTA'S MEASURE OF SGR: USES

- Annual Condition Assessment Report
- Sub-Regional Report (i.e., Performance Measures Report)
- Capital Budget Development Support
- Future backlog composition

MAINTENANCE & CAPITAL INVESTMENT: RTA REGION

Percent of Assets in a State of Good Repair



RTA'S DEFINITION OF SGR: FUTURE REFINEMENT

- SGR Definition and Measure just introduced:
 - RTA and Service Boards expect changes/refinements over time as we “live” with this definition
- Age based approach: current approach must rely on age given large number of regional assets and limited condition samples. However...
 - RTA will begin to utilize actual condition data where sampled
 - Asset useful life values will continue to be refined based on:
 - Condition assessment results
 - Asset location and utilization (e.g., high, moderate, low utilization)
 - Assessment of deferred rehab needs

QUESTIONS AND ANSWERS