TRANSIT
ASSET
MANAGEMENT

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

2017 TAM Roundtable August 28, 2017

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

Moderator

Mshadoni Smith *Federal Transit Administration (FTA)*

Panel

Kristyl Horton *Bay Area Rapid Transit (BART)*

Shruti Hari *Metropolitan Transportation Council (MTC)*

David Springstead *Metropolitan Atlanta Rapid Transportation Authority (MARTA)*

asset management

FTA ROUNDTABLE UPDATE

PEOPLE

PROCESS

TECHNOLOGY

August 2017

Our Agency

- Tier 1 Rail Agency Serving the Greater Bay Area
- Carry 400K passengers per day
- Primarily electric rail but as we expand we now have a “cable car” system and soon diesel trains
- Diverse asset base
  - Underwater tube

Agency Projects:

Expansion:

- 2014 - Oakland Airport Connector
- 2017 – Warm Springs / South Fremont
- 2018 – eBART to extend the yellow line
- 2018 – SVBX with VTA to extend to the South Bay

Agency Projects:

Other Asset Centric Initiatives:

- New Train Cars
  - Train Control Modernization
  - New Maintenance Facility
- Earthquake Safety
- Station Modernization
- Transit Oriented Development

BART Asset Management

- 2013 Started our Asset Management Journey
  - Board Approved Policy
- 2014 – 2015 Asset Registers, Risk Registers, etc.
- 2016 Formalized the AM Program
- Key Deliverable = Annual State of the Assets Report
  - Demonstrated our need for a Bond
- Function as a Governance Group

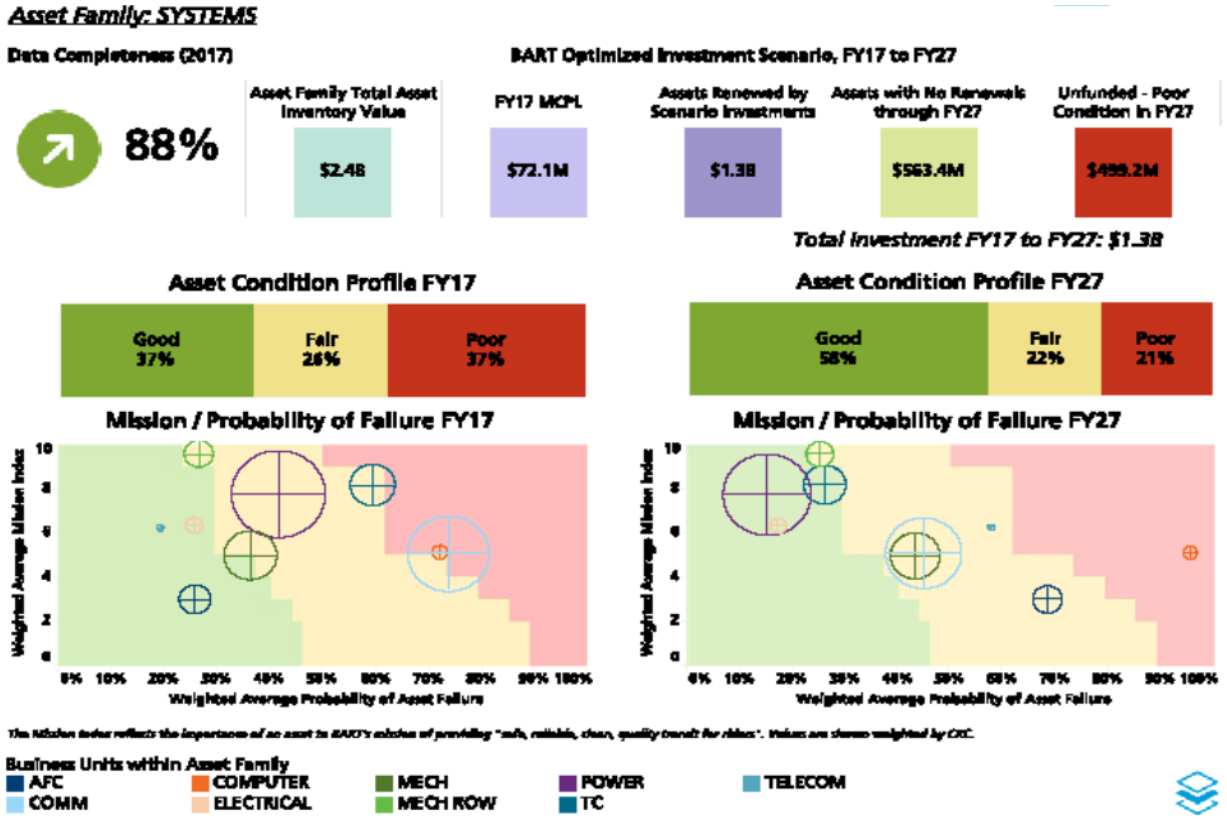
How does our ISO55000/IAM journey differ from traditional Asset Management approach?

Ask the question:

Are you willing & able to prioritize investments based on risk to your organizational objectives?

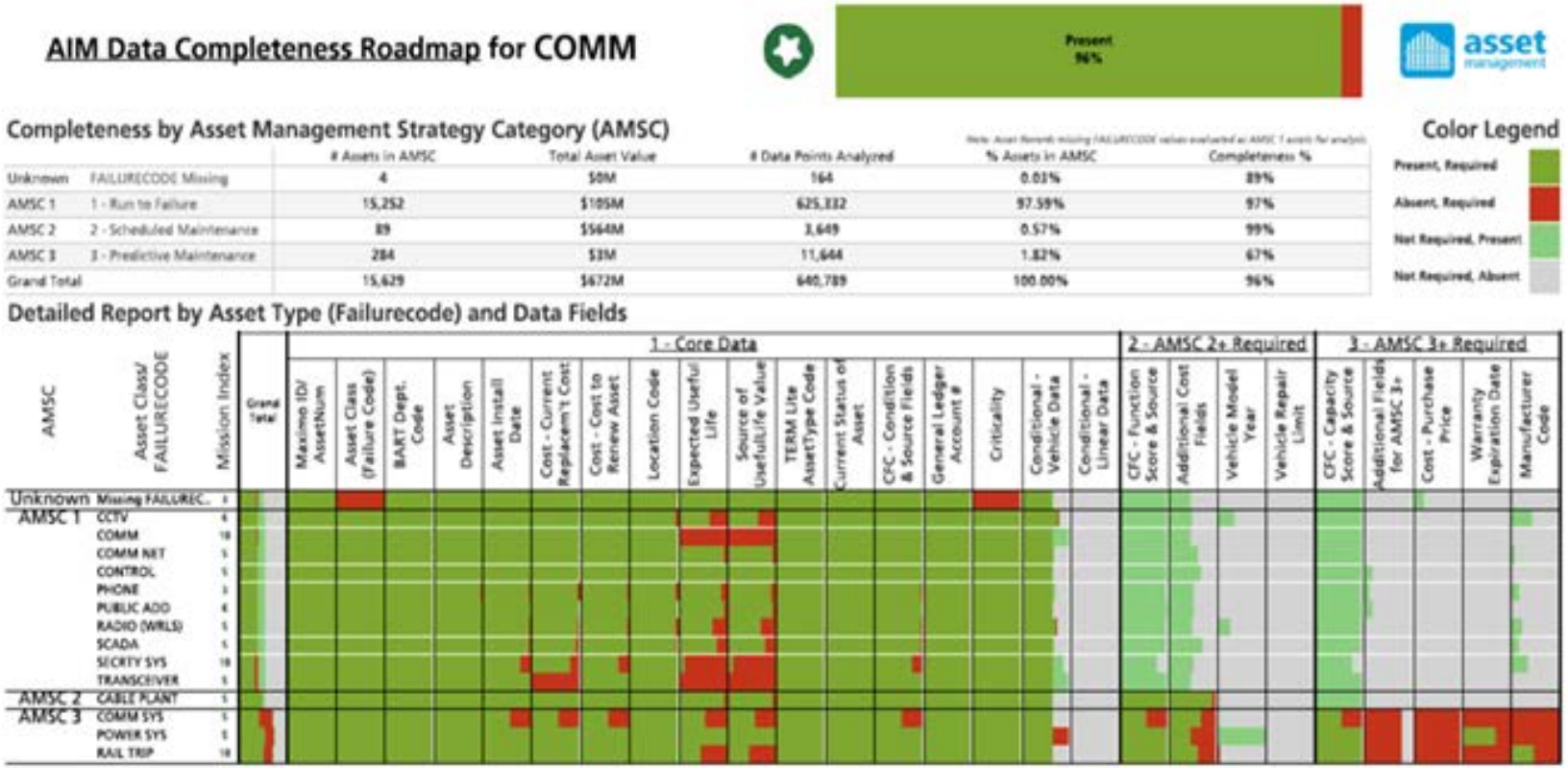
Management of Assets Advancements:

- State of the Asset Report (SOAR) = 10 Year Optimization Model
  - Plugs the color of (planned) money into assets
  - Basis for our holistic TAM Plan
  - Byproduct = Automated Unfunded Risk Register



Management of Assets Advancements

- Neutral Feedback Tool to Quantify Data Confidence
  - Provides transparency into SOAR settings



AIM Data Completeness Roadmap for COMM

Present 96%

Completeness by Asset Management Strategy Category (AMSC)

		# Assets in AMSC	Total Asset Value	# Data Points Analyzed	% Assets in AMSC	Completeness %
Unknown	FAILURECODE Missing	4	$0M	164	0.03%	89%
AMSC 1	1 - Run to Failure	15,252	$105M	625,332	97.59%	97%
AMSC 2	2 - Scheduled Maintenance	89	$564M	3,649	0.57%	99%
AMSC 3	3 - Predictive Maintenance	284	$3M	11,644	1.82%	67%
Grand Total		15,629	$672M	640,789	100.00%	96%

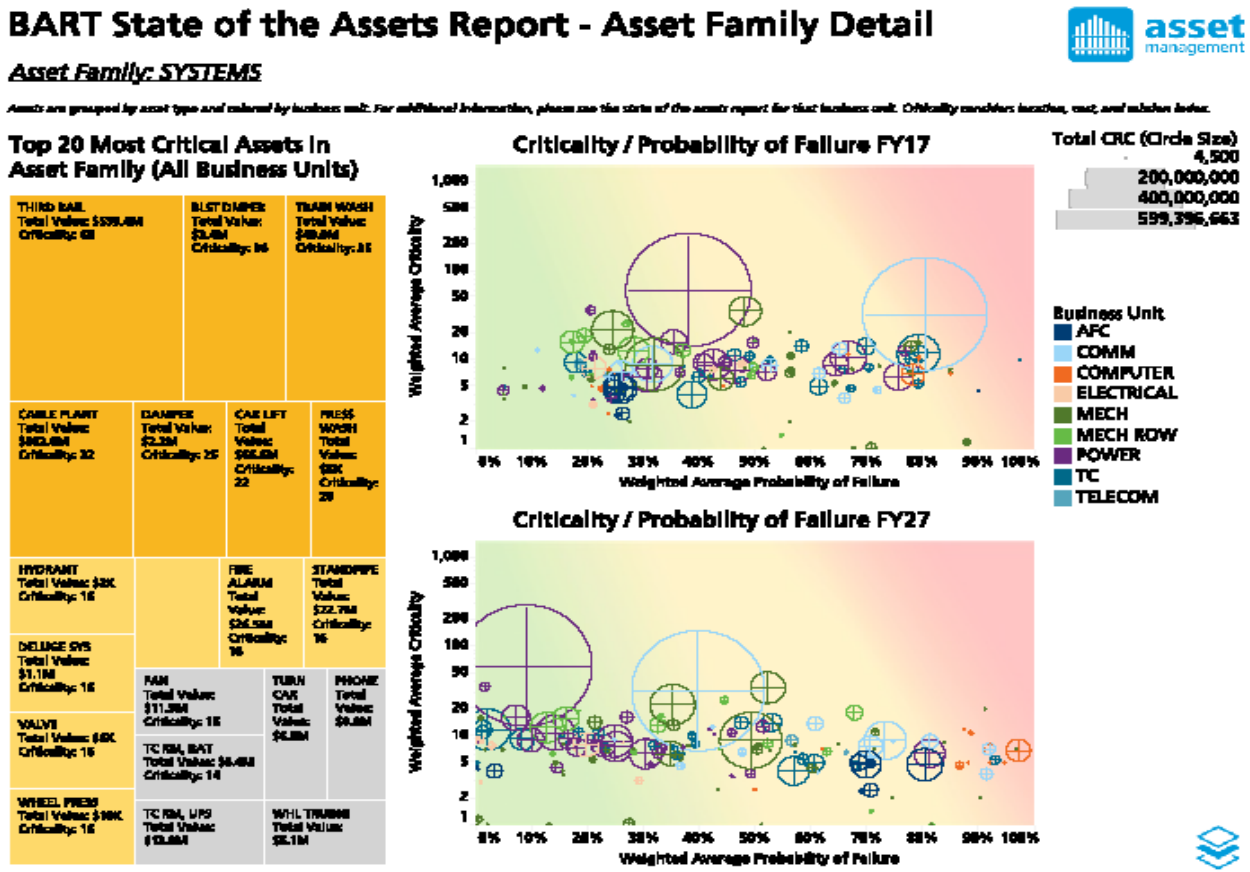
Color Legend: Present, Required; Absent, Required; Not Required, Present; Not Required, Absent

Detailed Report by Asset Type (Failurecode) and Data Fields

AMSC	Asset Class/ FAILURECODE	Mission Index	Grand Total	1 - Core Data: Maximo ID/ AssetNum	Asset Class (Failure Code)	BART Dept. Code	Asset Description	Asset Install Date	Cost - Current Replacem't Cost	Cost - Cost to Renew Asset	Location Code	Expected Useful Life	Source of Usefull/Life Value	TERM Lite AssetType Code	Current Status of Asset	CFC - Condition & Source Fields	General Ledger Account #	Criticality	Conditional - Vehicle Data	Conditional - Linear Data	2 - AMSC 2+ Required: CFC - Function Score & Source	Additional Cost Fields	Vehicle Model Year	Vehicle Repair Limit	3 - AMSC 3+ Required: CFC - Capacity Score & Source	Additional Fields for AMSC 3+	Cost - Purchase Price	Warranty Expiration Date	Manufacturer Code
Unknown	Missing FAILUREC.	1																											
AMSC 1	CCTV	6																											
	COMM	18																											
	COMM NET	5																											
	CONTROL	5																											
	PHONE	3																											
	PUBLIC ADD	4																											
	RADIO (WRLS)	5																											
	SCADA	5																											
	SECRTY SYS	10																											
	TRANSCEIVER	5																											
AMSC 2	CABLE PLANT	5																											
AMSC 3	COMM SYS	5																											
	POWER SYS	5																											
	RAIL TRIP	10																											

Management of Assets Advancements:

- Calculated Criticality for Departments
  - Mission Index X CRC X Location

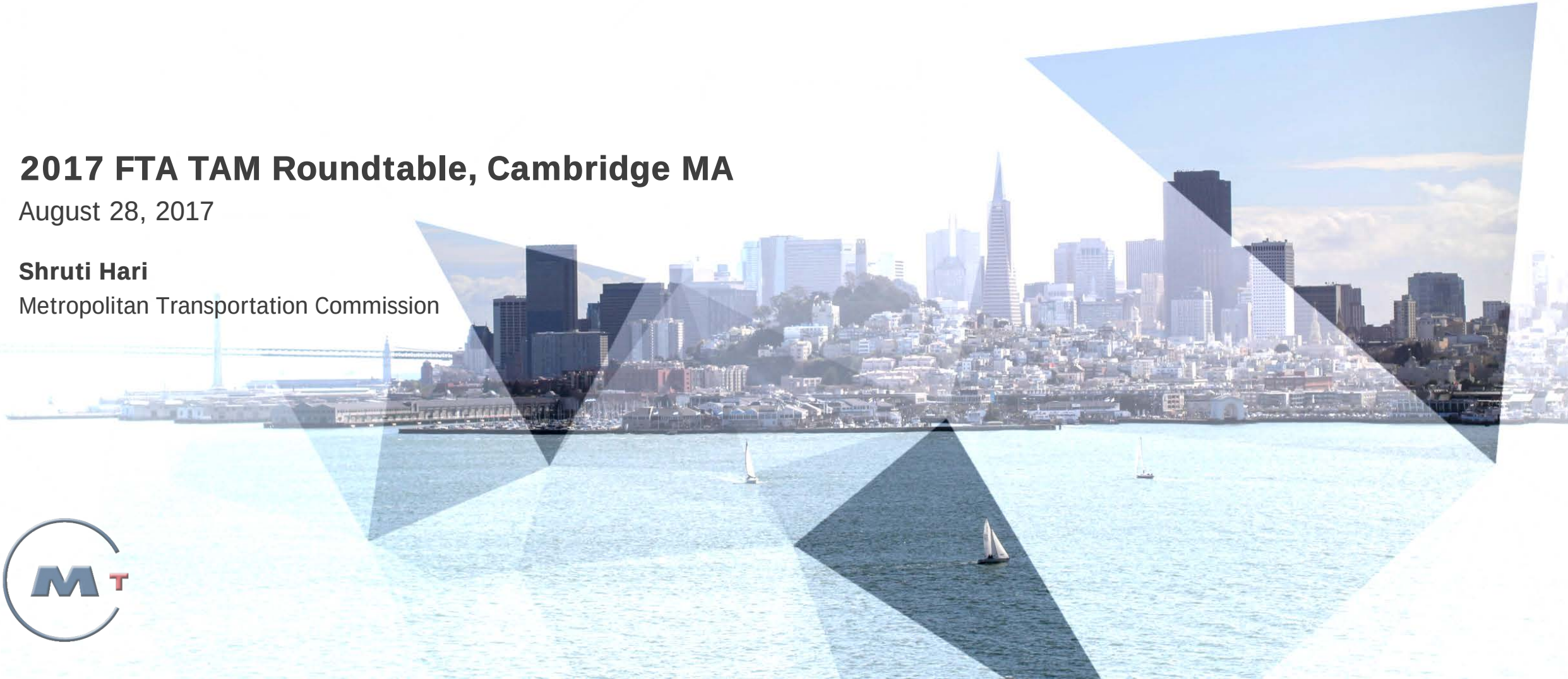


Thank you!

asset management

BART

MTC's Role in Regional TAM Coordination - SF Bay Area



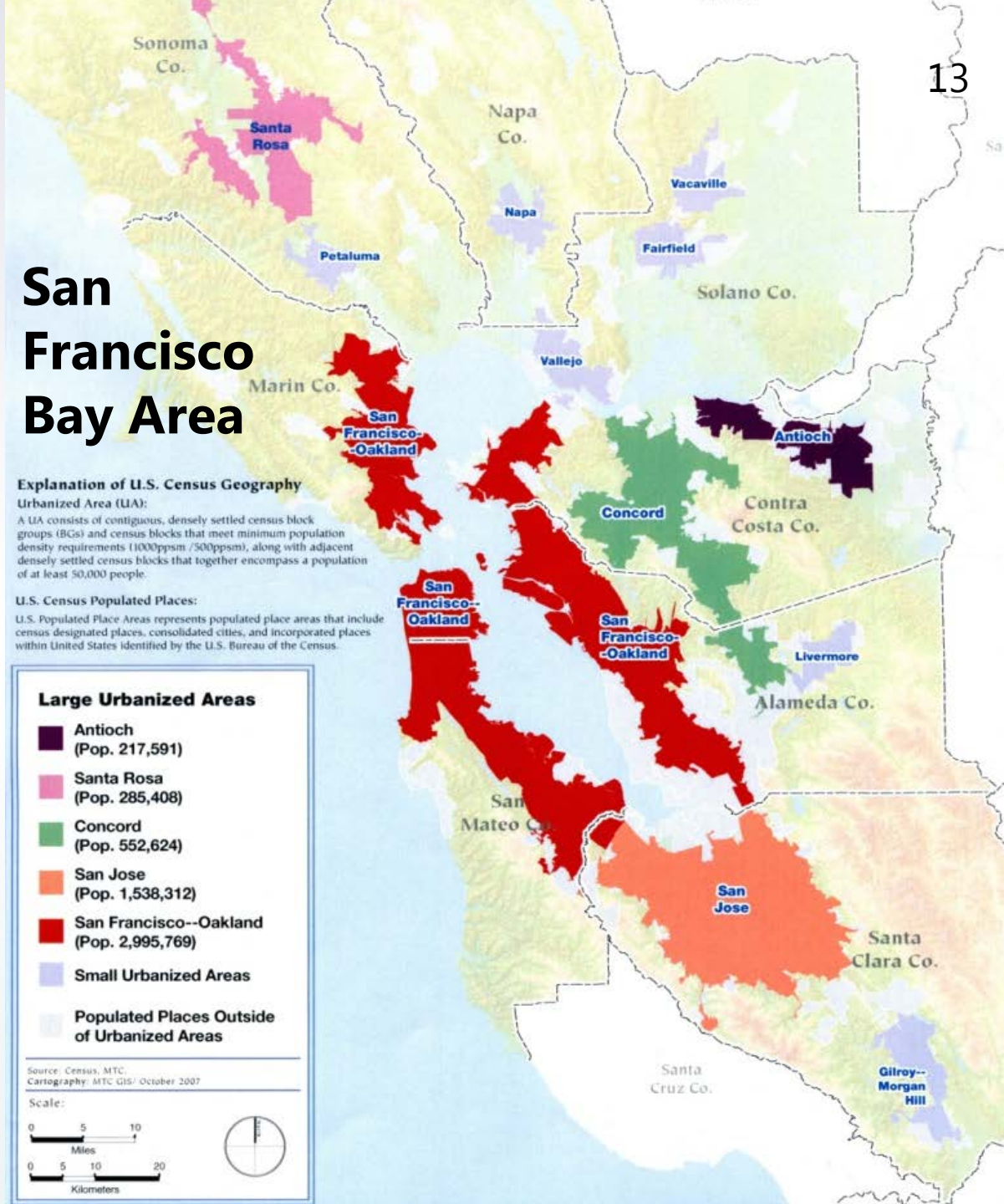
2017 FTA TAM Roundtable, Cambridge MA

August 28, 2017

Shruti Hari
Metropolitan Transportation Commission

Metropolitan Transportation Commission (MTC)

- **Metropolitan Planning Organization (MPO) for San Francisco Bay Area**
  - 9 counties, 12 urbanized areas, 101 cities & towns
  - 7,000 square miles
  - Population 7.4 million
  - Served by 27 independent transit operators
- **Develops long-range Regional Transportation Plan**
  - Projected needs & funding for transit capital replacement & rehabilitation



Designated Recipient – Federal funds

- **Federal formula funds:**
  - FTA 5307, 5337, 5339
  - FHWA Surface Transp. Program
- **MTC programs formula funds to 22 transit operators, including:**
  - San Francisco MTA
  - SamTrans
  - Caltrain
  - Golden Gate Transit
  - BART
  - Santa Clara VTA
  - AC Transit

Roles and Responsibilities

Transit Operators

- Own, Operate, Maintain Assets
- Transit Asset Management Plans
- Performance Targets/Monitoring

MTC: MPO

- Prioritizes Regional Projects
- Manages Discretionary Funds
- Performance Targets/ Monitoring

Regional Collaboration

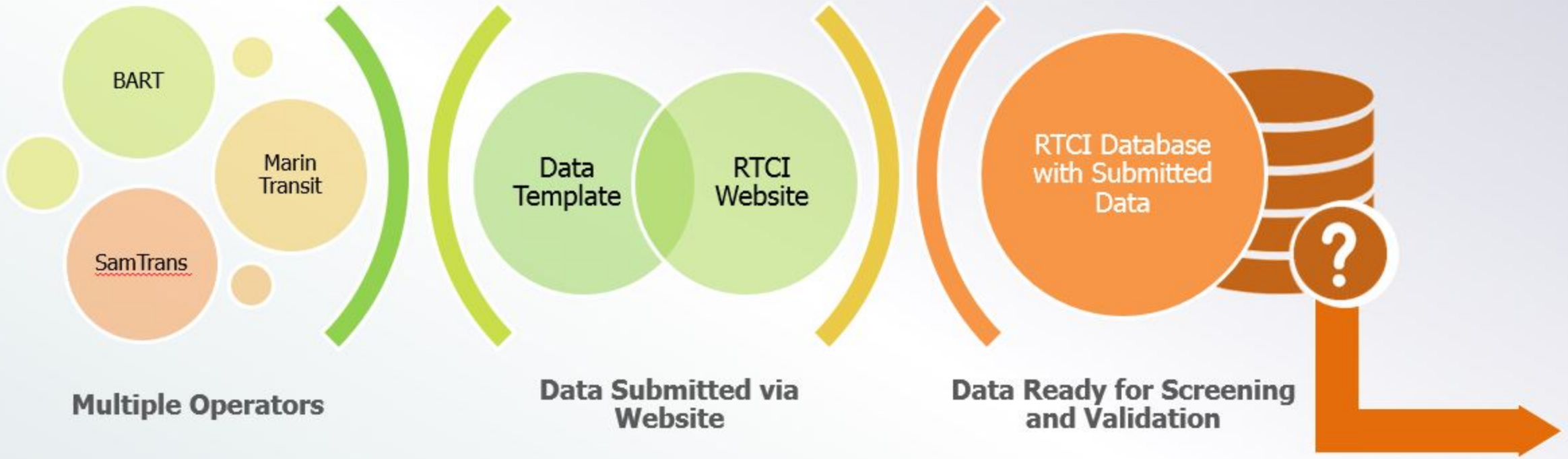
- Funding Policies
- Data Sharing
- Regional Standards/ Best Practices

Transit Asset Management at MTC

- **Previous TAM activities focused on needs and funding policies**
- **In 2012, MTC consolidated asset management activities under one group including:**
  - Transit
  - Local Streets and Roads
  - Local Bridges
  - Other
- **MTC Asset Management Group consists of four FTEs**
- **@$500,000 / year in consultant assistance**
- **TAM Working Group**
- **MTC sponsoring Regional TAM Group Plan for 16 Tier II operators**

Regional Transit Capital Asset Inventory (RTCI)

RTCI Update Process



- Database of existing Transit Capital Assets and their attributes
- Contains asset type, quantity, year in service, and cost
  - Vehicles, Guideways, Facilities, Stations, Systems
- Covers 25 different agencies in 9-county Bay Area Region

TAM Plan Compliance

- RTCI provides basis for compliance with FTA TAM Rule
- Facilitates:
  - Consistent target setting,
  - Condition assessments,
  - Performance tracking, and
  - Group plan development
  - NTD reporting

ABC Transit Agency							
CompanyName	AssetDesc	YRInService	ULB	Quantity	Meet or Exceed ULB	Targets	
Revenue Vehicles							
ABC Transit Agency	Articulated Bus (60 ft)	1/1/2000	14	55	55		
Articulated Bus (AB)		Calculated % of Assets that meet or exceed the ULB:				Targets (AB)	
ABC Transit Agency	Bus (40 ft)	9/30/1998	14	6	6		
ABC Transit Agency	Bus (40 ft)	1/1/2003	14	4	No		
ABC Transit Agency	Bus (40 ft)	1/1/2003	14	60	No		
ABC Transit Agency	Bus (40 ft)	12/1/2013	14	25	No		
ABC Transit Agency	Bus (40 ft)	10/1/2014	14	21	No		
ABC Transit Agency	Bus (40 ft)	1/1/2009	14	91	No		
ABC Transit Agency	Bus (40 ft)	1/1/1977	14	2	2		
ABC Transit Agency	Bus (40 ft)	1/1/1984	14	1	1		
ABC Transit Agency	Bus (40 ft)	9/30/1998	14	3	3		
ABC Transit Agency	Bus (35 ft)	1/1/2009	14	40	No		
ABC Transit Agency	Bus (30 ft)	1/1/2009	14	4	No		
ABC Transit Agency	Bus (30 ft)	1/1/2013	14	4	No		
ABC Transit Agency	Bus (30 ft)	1/1/2014	14	12	No		
Bus (BU)		Calculated % of Assets that meet or exceed the ULB:				Targets (BU)	
ABC Transit Agency	Over-the-Road Coach	1/1/2002	16	6	No		
Van (VN)		Calculated % of Assets that meet or exceed the ULB:				Targets (VN)	

Vision for Multi-function Utility

- Performance and Target Setting Reports
  - Operator and regional targets
  - Transit Asset Management Plans
- Integration with NTD reporting
- Geo-Coding
- Regional risk-based/condition assessment
- Informed funding policies

Questions?

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THANK YOU!

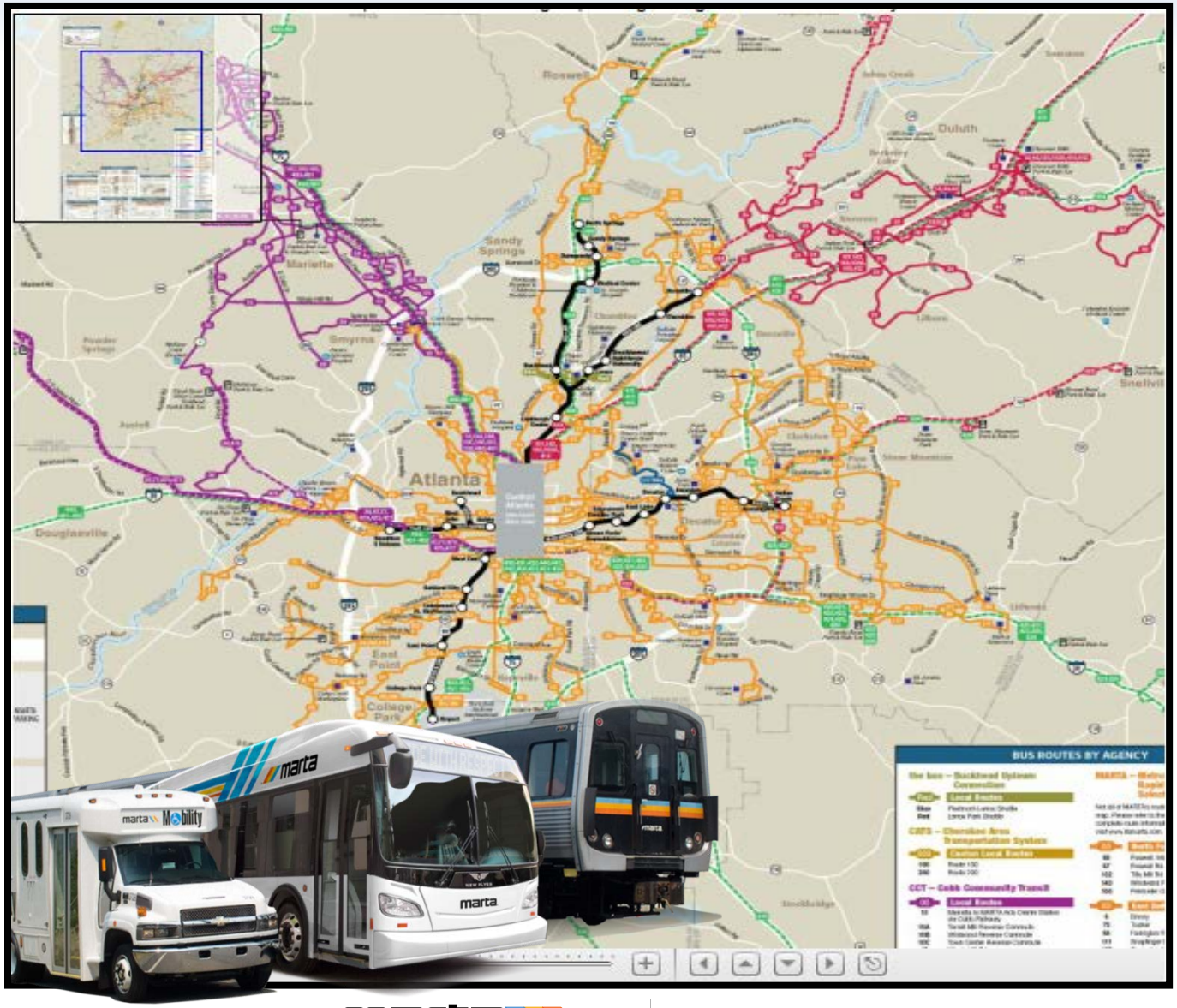
Federal Transit Administration

2017 TAM Roundtable
August 28-29, 2017

Connecting Performance Measures, Targets and Business Strategies

David M. Springstead
marta | AGM of Capital Programs & Development

A System of Systems – Operational Perspective



A System of Systems
Critical Infrastructure & Rolling Stock

Public Transportation Infrastructure Creates Jobs in Communities Across America

Putting local citizens to work, building stronger communities, and helping create a more energy-efficient America

Architectural
1. Wall System
2. Ceiling Systems
3. Floor Materials
4. ADA Tactile Edging
5. Entrance Canopies
6. Fare Gate Barriers
7. Customer Service Booth
8. Escalators
9. Elevators
10. Elevator Enclosure and Cars
11. Signage and Supports
12. Green Roof
13. Building Façade Design/ Materials
14. Staircases
15. Platform Barriers/Screens
16. Steel Structures
17. Concrete Structures
18. Retaining Walls
19. Slurry Walls
20. Secant Pile Walls
21. Underground Structures
22. Waterproofing
23. Fire Protection/Ratings

Mechanical
24. Heating
25. Air Conditioning
26. Tunnel Ventilation
27. Emergency Exhaust Systems
28. Over-track Exhaust Systems

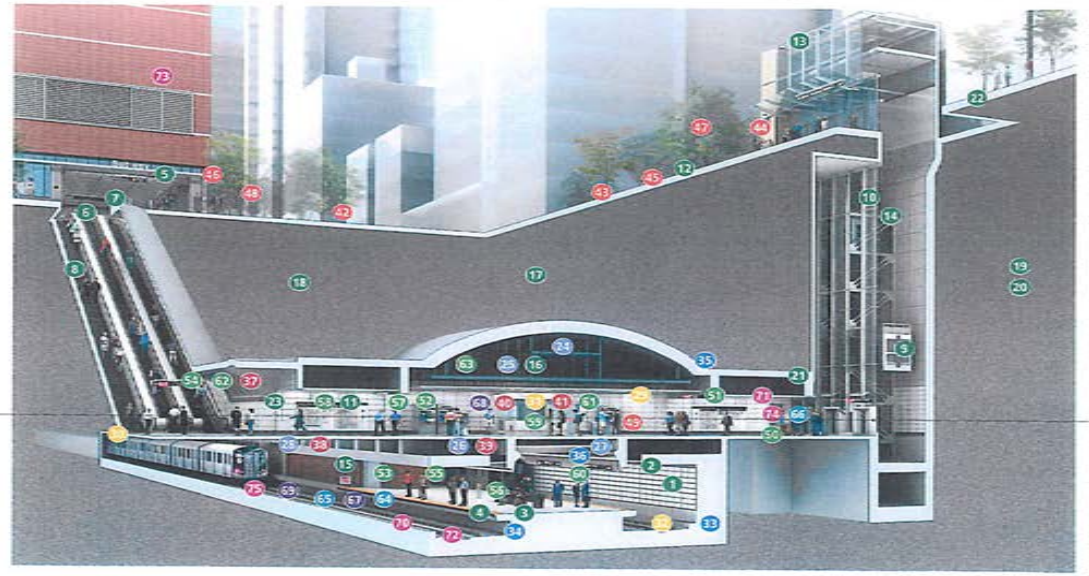
Electrical
29. Decorative/Architectural Lighting Systems in Public Areas
30. Back of House Lighting Systems
31. Electronic Signs
32. Power Systems

Plumbing
33. Sanitary Systems
34. Track Drainage
35. Cavern Drainage Systems
36. Water Supply

Fire Protection
37. Wet Sprinklers
38. Dry Sprinklers
39. Water Mist Systems
40. Halon Systems
41. Inergin Systems

Amenities
42. Street Restoration
43. Sidewalk Restoration
44. Signage
45. Pavement Markings
46. Street Lights
47. Trees and Landscaping
48. Bus Shelters
49. Fare Vending Equipment

Communication Systems
50. Fiber Optic Network
51. CCTV
52. Intrusion Access Control
53. Fire Alarm
54. Public Address and Customer Information Signs
55. Help Point and Safe Point Intercoms
56. Emergency and Office Telephone Systems
57. Mobile Communications Network
58. Supervisory Control and Data Acquisition Systems
59. Emergency Alarm (Blue Light & Emergency Shutdown of 3rd Rail)
60. Emergency Booth Communication Systems
61. Time Clock Synchronization
62. Induction Loop Intercom (ADA wireless system for deaf)
63. WiFi Networks



Track
64. Track Fixation (attachments)
65. Rail
66. Rail Switches and Crossovers

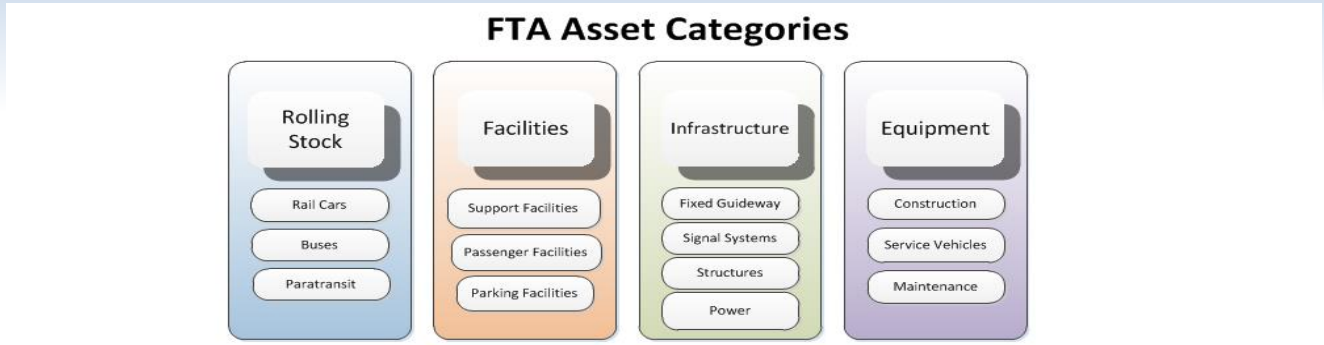
Signal Systems
67. Component Infrastructure
68. Wayside Signal Display Boxes
69. Track Circuit Hardware

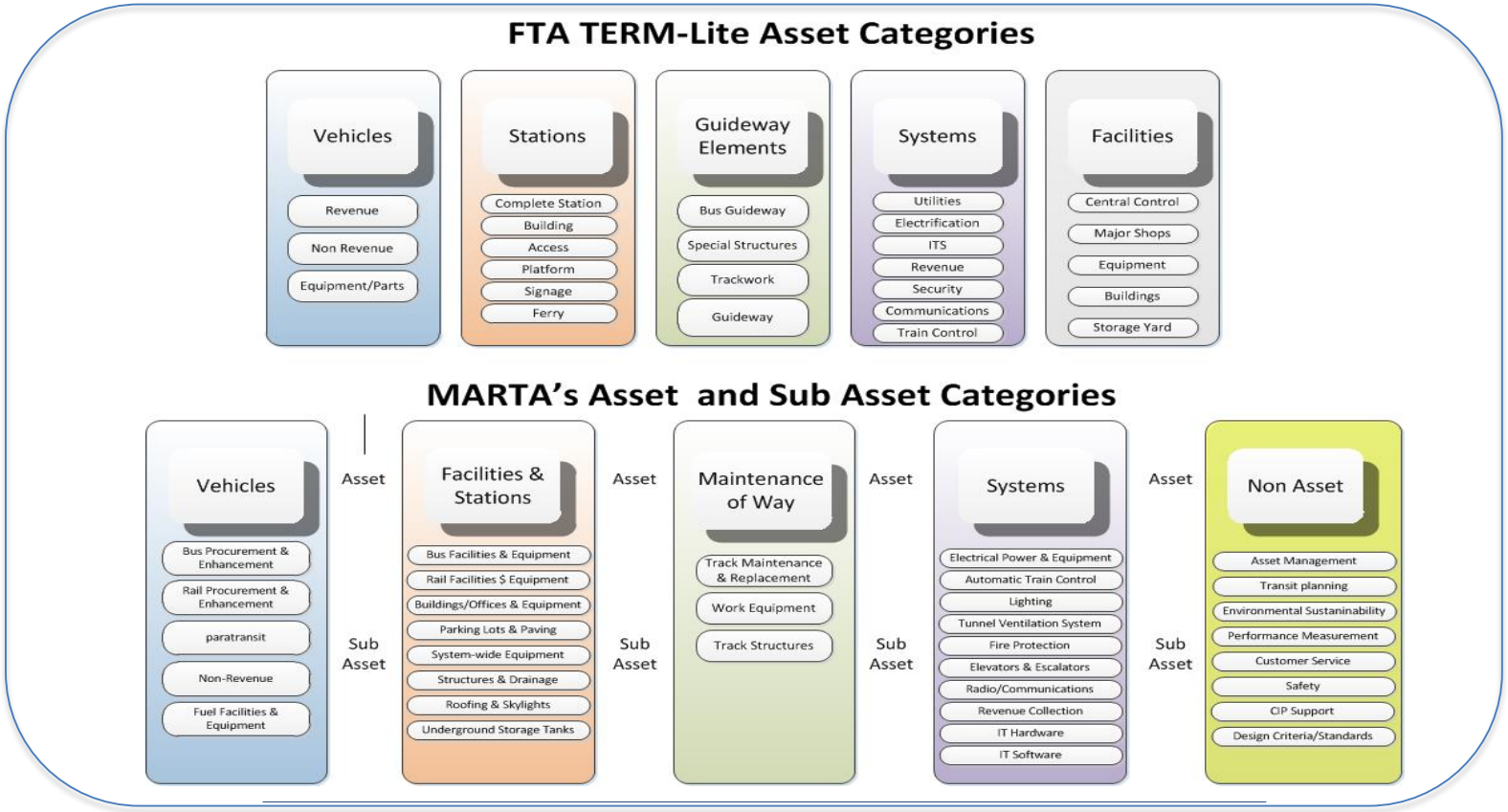
Traction Power
70. Trackbed Infrastructure
71. SCADA Train Control System
72. Third Rail (and third rail material)
73. Substation
74. Power Control Room
75. Regenerative Braking Equipped Railcar

Quick Facts
- Every dollar communities invest in public transportation generates approximately $4 in economic returns.
- Public transportation investment can create or save more than 500,000 private sector jobs per year through reduced congestion.

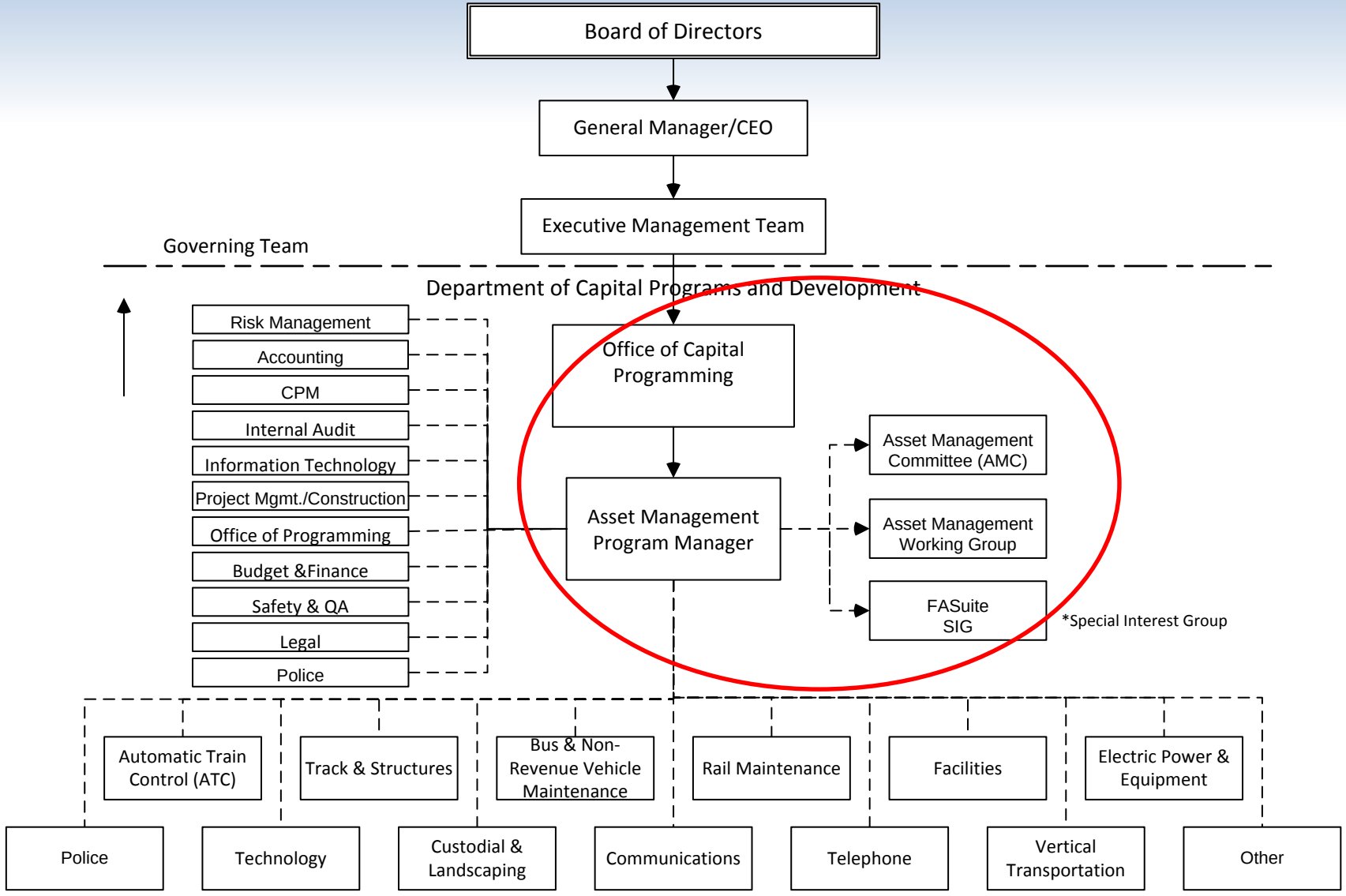
75 INTER-RELATED SYSTEMS; OVER 58,000 ASSETS

Asset Categories





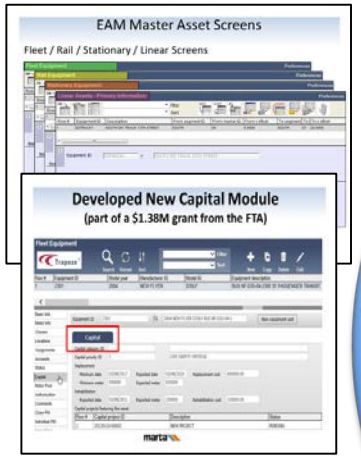
Organizational Chart



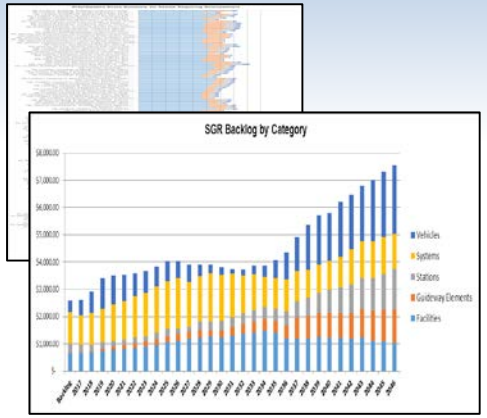
**Subject Matter Experts (SME's) for MARTA's Maintenance departments

Three (3) Focus Areas

- ✓ Age
- ✓ Condition
- ✓ Priority (Safety, Regulatory, Operation Critical)
- ✓ Performance



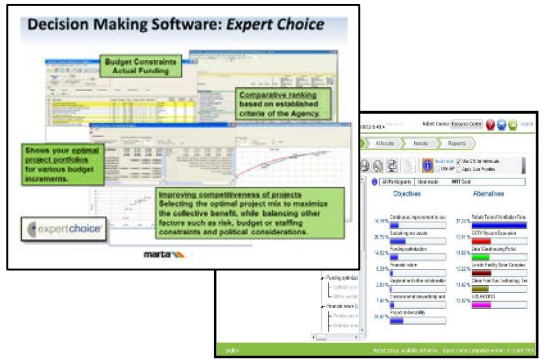
- ✓ Condition
- ✓ Reliability
- ✓ Safety
- ✓ Cost Impact
- ✓ Customer Defined



EAM System Asset Data Base (58,000+ assets)

FTA Transit Economics Requirements Model (*TERM*)

Expert Choice Comparative Analysis Decision Tool



- ✓ Customer Impact
- ✓ SGR/Sustainability
- ✓ Safety & Security
- ✓ Funding
- ✓ Financial Return
- ✓ Regional Collaboration
- ✓ Environmental Stewardship
- ✓ Deliverability

Three (3) Focus Areas

- ✓ Age
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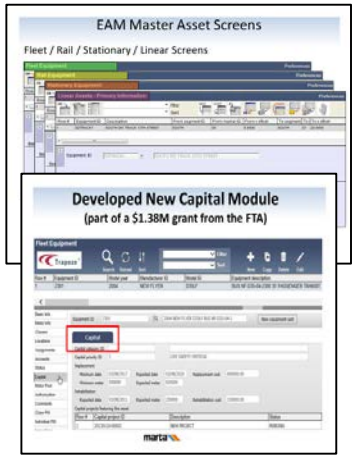

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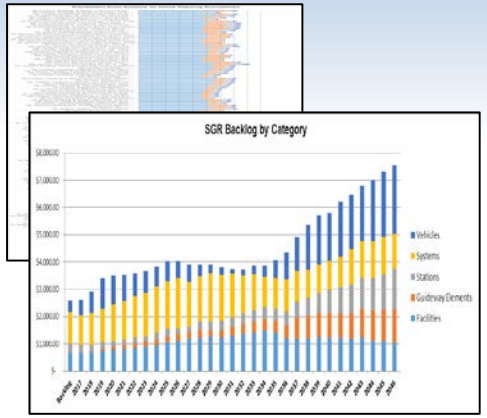

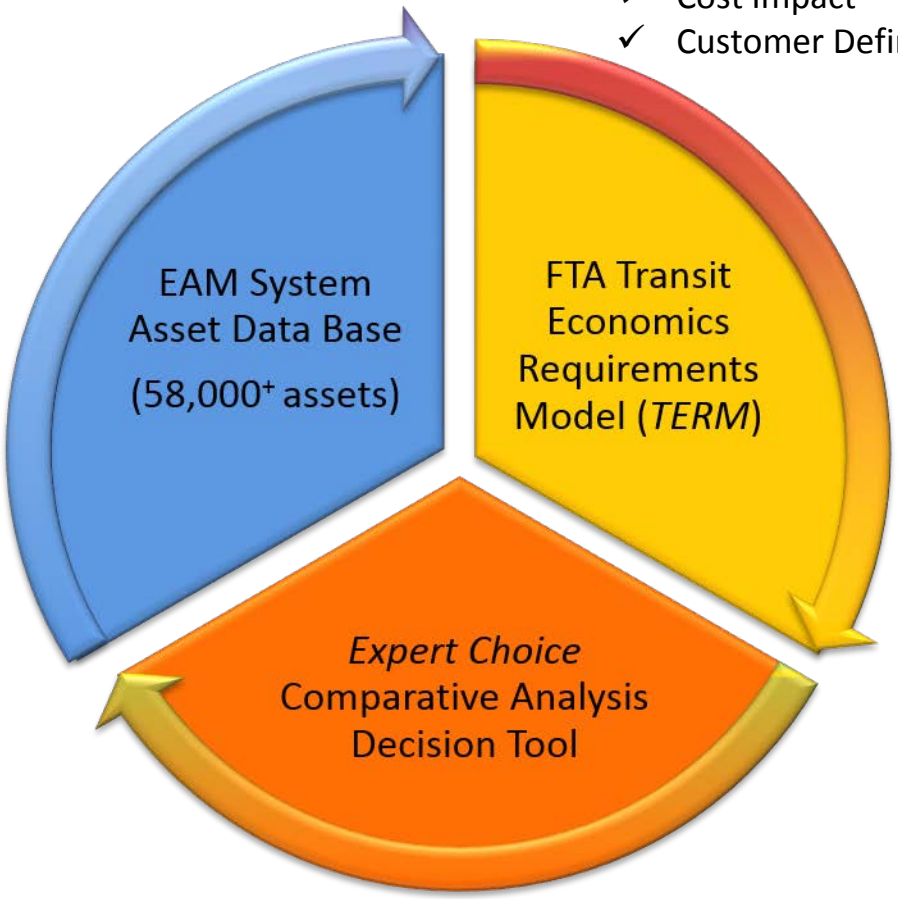

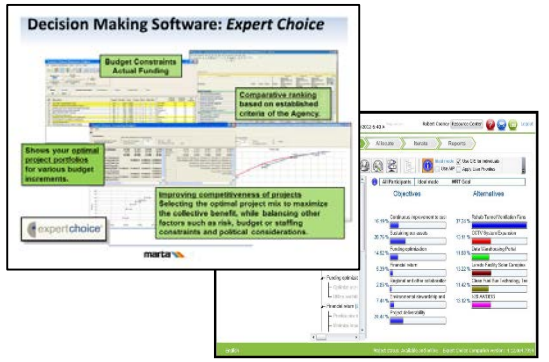

- ✓ Customer Impact
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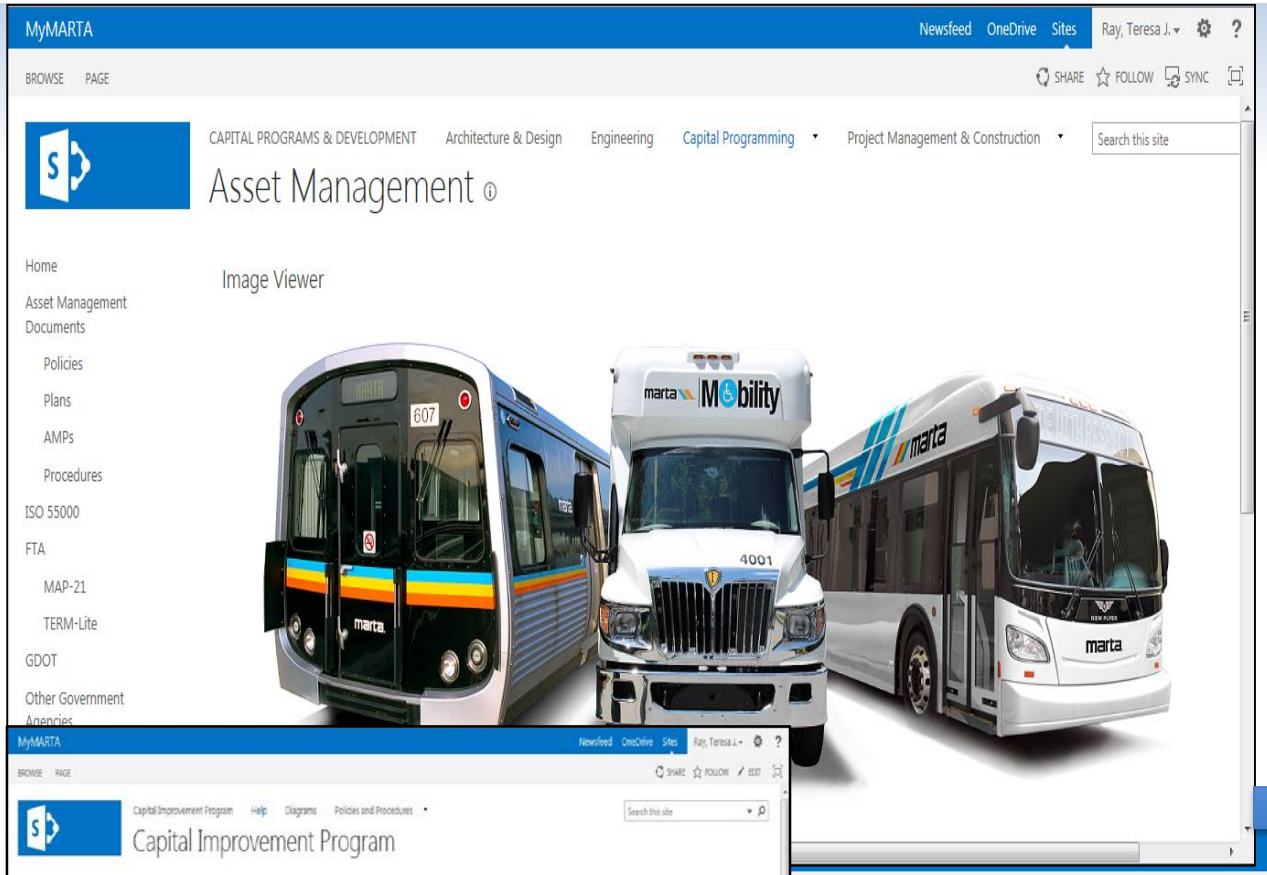
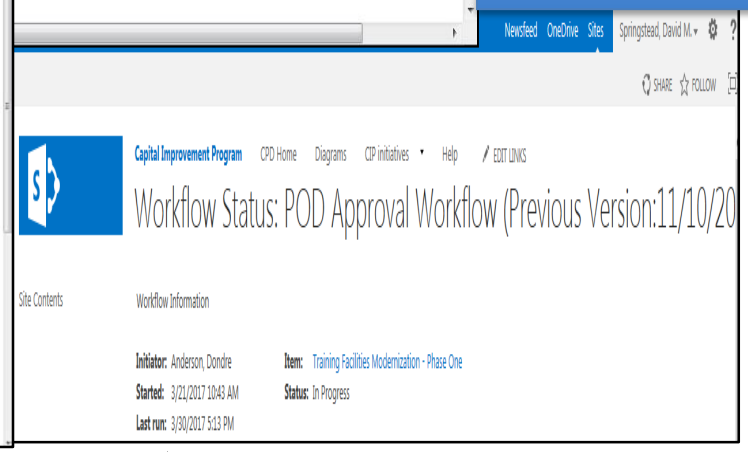
Website


MyMARTA
Newsfeed OneDrive Sites
Ray, Teresa J.
BROWSE PAGE
SHARE FOLLOW SYNC
CAPITAL PROGRAMS & DEVELOPMENT
Architecture & Design
Engineering
Capital Programming
Project Management & Construction
Search this site
Asset Management
Home
Asset Management Documents
Policies
Plans
AMPs
Procedures
ISO 55000
FTA
MAP-21
TERM-Lite
GDOT
Other Government Agencies
Image Viewer
marta Mobility
4001
607
marta

marta
METROPOLITAN ATLANTA RAPID TRANSIT AUTHORITY
FY2018
BUDGET CALL PACKAGE
breeze

MyMARTA
Capital Improvement Program
Help
Diagrams
Policies and Procedures
Capital Improvement Program
DEPARTMENT OF CAPITAL PROGRAMS & DEVELOPMENT
FUNCTIONS & RESPONSIBILITIES
S.T.A.M.P
Strategic Transit Asset Management Plan
marta


Newsfeed OneDrive Sites
Springstead, David M.
SHARE FOLLOW
Capital Improvement Program
CPD Home
Diagrams
CIP Initiatives
Help
EDIT LINKS
Workflow Status: POD Approval Workflow (Previous Version:11/10/20
Site Contents
Workflow Information
Initiator: Anderson, Dondre
Started: 3/21/2017 10:43 AM
Last run: 3/30/2017 5:13 PM
Item: Training Facilities Modernization - Phase One
Status: In Progress

David M. Springstead
AGM of Capital Programs & Development
dspringstead@itsmarta.com

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

Question 1:

How is your agency linking TAM to strategic decision-making?

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

Question 2:

How did you develop your targets? What about regional targets?

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

Question 3:

How did you communicate to stakeholders the new TAM requirements & the changes that need to occur to meet the deadline?

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

Question 4:

Does your agency have legacy tools that perform a similar function as the TAM? How are you integrating them into your TAM development?

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

Question 5:

How do you plan to deliver on your TAM plan?

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

Question 6:

How did you determine or acquire a decision support tool (DST) and decide on your requirements?

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

Question 7:

Did your agency identify staff whose job is solely TAM Rule compliance? Where do they live on the org chart?

CONNECTING PERFORMANCE MEASURES, TARGETS AND BUSINESS STRATEGIES

Questions?

TRANSIT ASSET MANAGEMENT

THANK YOU!