Transit Technology Review, Evaluation and Acquisition Plan

BATA Board Presentation

February 11, 2021

Why develop a Technology Road Map?

- **Fulfilling Millage Promises:** Adding new user-friendly technology is one of the top improvements the community asked for as part of BATA's last millage approval in 2017.

- **Aging Technology:** BATA's technology has started to become antiquated and is having trouble meeting the current needs of the community and positioning to adapt to future growth.

- **Timeline and Budget and Integration:** Acquiring new technology takes planning and establishing a 5-year road map helps prioritize and provide direction to meet BATA's technology goals. Selecting technologies that integrate and allow future growth with a new facility on the horizon.

Agenda

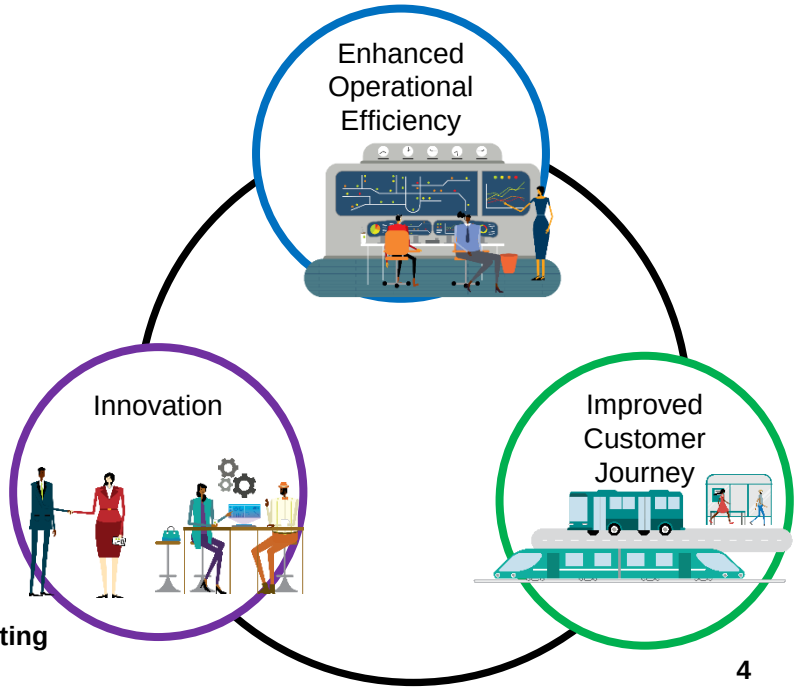
- Purpose / Objectives
- Project Methodology
- Current State
- Priority Projects and Benefits
- Future Projects
- Next Steps

Purpose / Objectives

Why: Technology is a means to help **Operations Staff** perform their roles more efficiently, as well as to improve the **customer experience**

Objectives:

- **Present:** Understand how technology today is used to perform different business functions.
- **Future:** Present to stakeholders how technology could change based on future business functions needs.
- **Innovation:** Brainstorm with stakeholders on future innovations.



Project Methodology

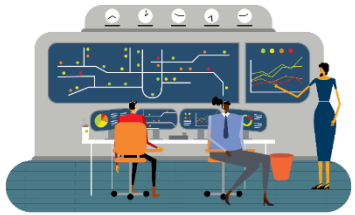
Task 1: Existing Conditions Review and Needs Assessment

- Stakeholder Workshop
- Technology Inventory
- Needs & Gaps

Task 2: Industry Scan

- Mainstream Transit Technologies
- Emerging Technologies

Summary Presentation



Task 3: Options Analysis and Implementation Plan

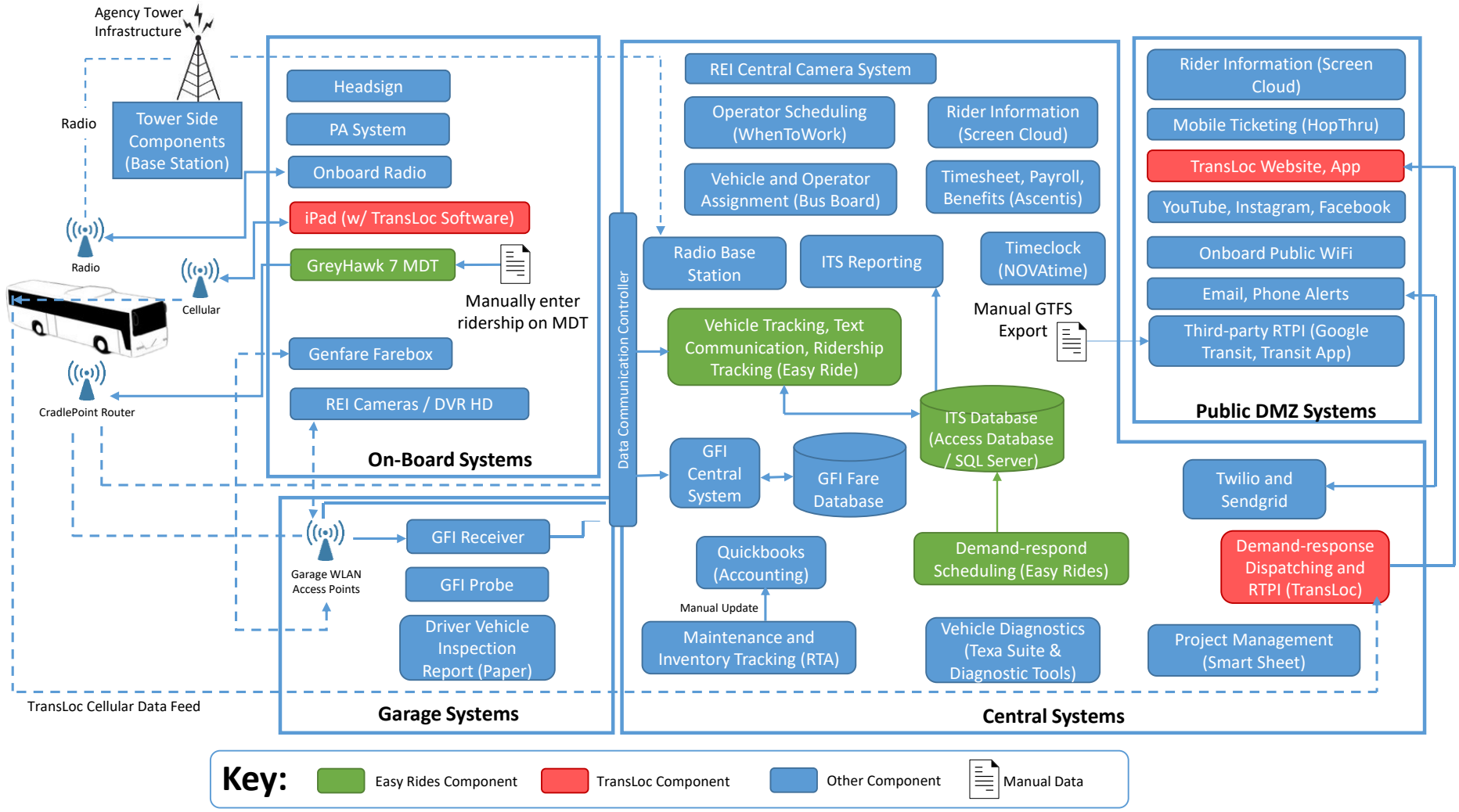
- Map Technologies to Needs
- Future Vision Options Workshop
- Project Timelines

Task 4: Costs and Staffing Estimates

- Capital & Operations Costs
- Project Resourcing
- Additional Considerations

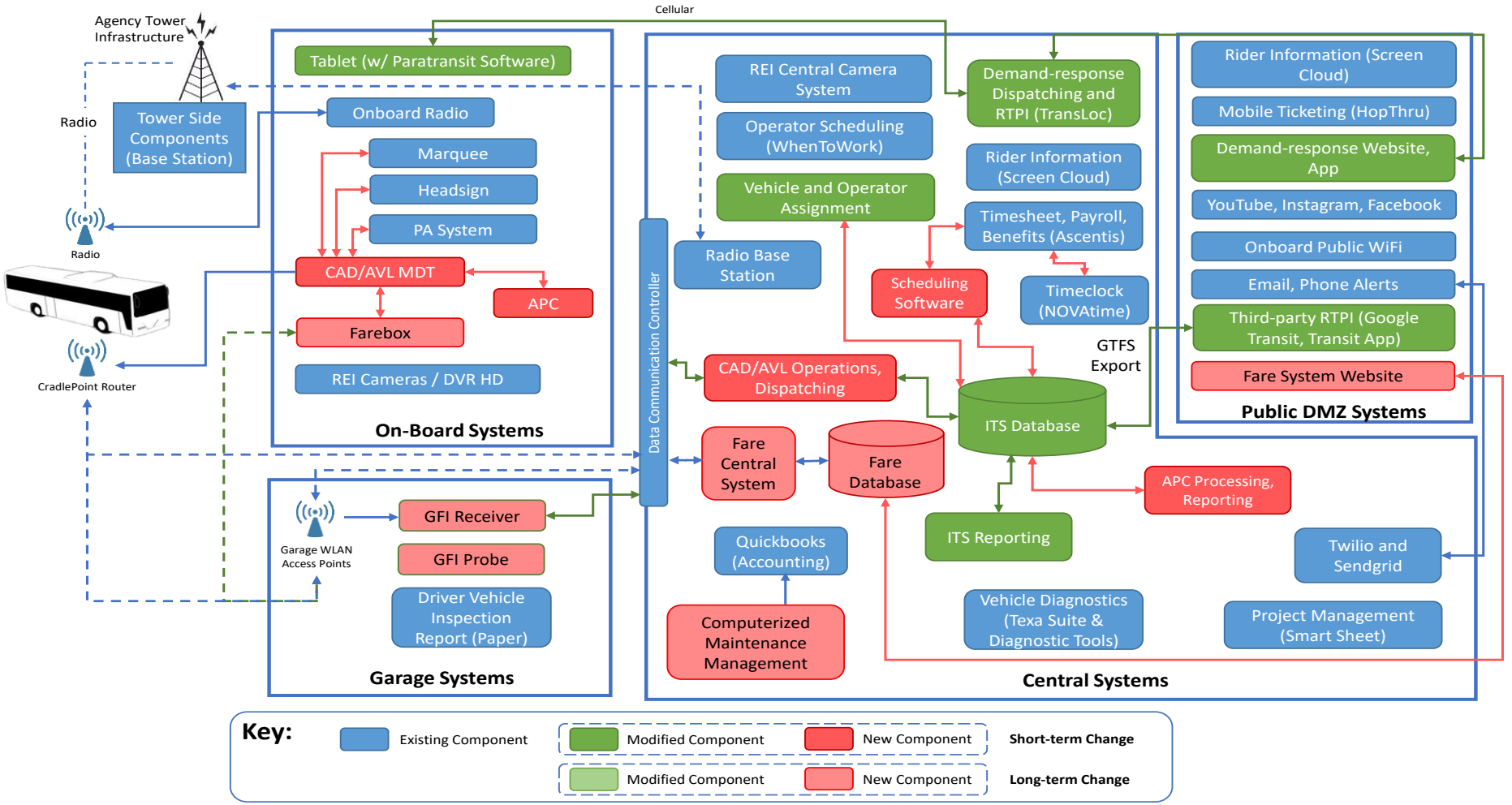
Existing State

High-level Current-state Transit Technology Roadmap



Proposed Future Projects

High-level Future-state Transit Technology Roadmap: Modified and New Systems



Priority Projects & Benefits

- **Project A: Fixed Route CAD/AVL (Computer Aided Dispatch and Automotive Vehicle Location)**
  - BATA's current system is rudimentary and provides basic functionality. Features like real-time tracking, fixed route integration and enhanced functionality can be incorporated into BATA's current on-board system.
  - Ridership reporting data is rudimentary and time consuming to compile.
  - <u>Benefits:</u>
  - Install new on-board computer or tablet with user-friendly functionality that will be the central point of interface and control between central systems and on-board components.
  - Improved data and voice communications between on-board and central systems.
  - Turn by turn navigation instructions and graphical detour and service disruption information.
  - Provide real-time vehicle tracking information to staff and customers and supply real-time data information to third parties for the development of arrival time predictions.
  - Enhanced reporting capabilities include NTD reporting which is required if BATA receives the "Small Urban" transit system designation.
  - Additional capabilities include: Visual on-board signage to show next stop information, Audio Automated Vehicle Announcements (AVA) and more.

Priority Projects & Benefits

- **Project B: Demand Response / On-Demand / Specialized Paratransit CAD/AVL (Computer Aided Dispatch and Automotive Vehicle Location)**
  - BATA's current demand-response scheduling software has reached the end of its useful life. It does not provide the functionality to expand into on-demand transportation or provide growth for paratransit service.
  - Reporting is rudimentary and delayed.
  - The TransLoc Link On-Demand pilot has shown what a fully functional technology solution can do in terms of efficiency, data and functionality.

  - <u>Benefits:</u>
  - Real-time vehicle tracking.
  - Vehicle routing (scheduling) in real time.
  - Service provider management and paratransit capabilities.
  - Online and app booking functionality.

Priority Projects & Benefits

- **Project C: Automated Planning & Scheduling System (NOTE: Project C may be able to be integrated into Projects A & B depending on the vendor).**
  - BATA currently has no fixed route planning or scheduling software solution.
  - Routes are developed manually and involve multiple processes.
  - <u>Benefits:</u>
  - Route design software for stops, stations, timing points, and other location data.
  - Improves payroll process (integrated planned work time, via interface with payroll system). Can also help automate scheduling and bid management.
  - Automated generation of GTFS files with automatic schedule updates to Transit App, Google Maps and Apple Maps.
  - Enhanced data functionality that can build on census and other data for future route planning and adjustments.

Priority Projects & Benefits

- **Project D: Automatic Passenger Counting System**
  - BATA currently tracks ridership and passenger traffic manually.
  - Current process for tracking ridership is time consuming, adds another driver function and delays real-time ridership data collection.
  - <u>Benefits:</u>
  - Provides consistent up to date ridership data.
  - Reduces manual work to collect ridership data.
  - Supports NTD reporting.

Priority Projects & Benefits

- **Project E: Fare System (Farebox & Central Fare System Replacement)**
  - BATA's current fare system is reaching the end of its useful life and will eventually not be supported by the current vendor.
  - The current fare software is old and difficult to navigate and program allowing for liming reporting and functionality.
  - Maintenance and repair of the mechanical fare box components is time consuming and can interrupt service delivery.

  - <u>Benefits:</u>
  - Reduced required maintenance.
  - Better data reporting.
  - Automated farebox issue logging.
  - Self-serve reload web-portal for riders to purchase fare or renew fare passes.
  - Supporting all fare types on-board.

Priority Projects & Benefits

- **Project F: Computerized Maintenance Management System (CMMS)**
  - BATA has a basic maintenance tracking and management system that functions but could more to improve efficiency and connectivity.
  - Benefits:
  - Mileage and fuel use tracking.
  - Inventory tracking and automatic purchase order generation.
  - User-friendly system allowing for in-field use for management of in-service dispatch and robust reporting capabilities.
  - Asset/facilities management.
  - Integrated maintenance and finance management for purchase order processing.

Priority Projects & Benefits

- **Project G: Fleet Yard Asset Management**
  - BATA has a basic manual fleet tracking system for vehicle management, but it can be hard to find and navigate the vehicle resources needed for daily operation.
  - Driver vehicle inspections are currently done manually using paper forms.
  - In the new HQ facility buses will be parked indoors in a lane formation, which will make timing and tracking of vehicle assets even more essential.
  - <u>Benefits:</u>
  - Support tracking of all BATA assets.
  - Supports Transit Asset Management (TAM) reporting.
  - Provides data to optimize maintenance operations and maximize vehicle availability.
  - Automated vehicle inspection reports will create a lean digital process to retain required maintenance documents.
  - Schedule periodic maintenance, create and process work orders and track warrant.
  - Yard management.
  - Track parts inventories using technologies such as barcode enabled workstations.

Proposed Future Projects

Project Recommendations - Timelines

Projects	Yea1 (2021)				Year 2 (2022)				Year 3 (2023)				Year 4 (2024)				Year 5 (2025)				Year 6 (2026)			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project A: Fixed Route CAD/AVL	Planning	Planning	Procurement	Procurement	Procurement	Procurement	Implementation	Implementation	Implementation	Implementation	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M
Project B: Demand Response CAD/AVL	Planning	Procurement	Implementation	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M
Project C: Automated Planning & Scheduling System											Planning	Procurement	Procurement	Implementation	Implementation	Implementation	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M
Project D: Automatic Passenger Counter		Planning				Procurement			Implementation	Implementation	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M	O&M
Project E: Fare System (Farebox & Central System Replacement)																	Planning	Procurement	Procurement	Implementation	Implementation	Implementation	Implementation	Implementation
Project F: CMMS														Planning	Procurement	Procurement	Implementation	Implementation	Implementation	O&M	O&M	O&M	O&M	O&M
Project G: Asset Management																					Planning	Procurement	Implementation	Implementation

Stage
Planning
Procurement
Implementation
O&M

NOTE: Years represented are calendar based – not fiscal based.

Proposed Future Projects

Project Recommendations – Improvement Areas & Costs

Project / Capital Expense Item	Improves Operations	Improves Customer Experience	2021 Expense	2022 Expense	2023 Expense	2024 Expense	2025 Expense	Total Budget (5 years)
Project A: Fixed Route CAD/AVL	√	√	$2,579,150					
Project B: Demand Response CAD/AVL	√	√	$284,000					
Project C: Automated Planning & Scheduling System	√			$300,000				
Project D: Automatic Passenger Counter	√				$228,000			
Project E: Fare System (Farebox & Central System Replacement)	√	√				$1,350,000		
Project F: CMMS	√						$450,000	
Project G: Asset Management	√						$150,000	
Total Expense			**$ 2,863,150**	**$300,000**	**$228,000**	**$1,350,000**	**$600,000**	**$5,341,150**

- All project capital expenses are conservative estimates and include full system features and functionality. Project costs can be potentially lowered by adjusting project scope and through a competitive bidding RFP process.

Technology Funding Secured

Technology Funding Plan - 02.09.21

Funding Source	2021 Secured Funding	2022 Funding	2023 Funding	2024 Funding	2025 Funding	Total
FTA - IMI Technology Grant	$302,624					**$302,624**
MDOT Rural Task Force & Small Urban Funds	$263,159					**$263,159**
Future RTF / Small Urban Funds		$131,840	$105,625	$142,698	$56,250	**$436,413**
Operating Surplus / Capital Funds / Additional CARES ACT Funds						**$0**
Total Funding	**$565,783**	**$131,840**	**$105,625**	**$142,698**	**$56,250**	**$1,002,196**

- **Additional funding needed to complete Projects A & B is potentially $2.3 million.**
- **Funding recommendation will be developed by Finance Oversight Team and be brought to the full board for consideration.**

Next Steps

- **Q&A**
- **Plan to take action based on the Finance Oversight Team recommendation at the Feb. 25, 2021 BATA Board meeting.**