To: **Chairman Skinner and the VRE Operations Board**

From: **Rich Dalton**

Date: **December 18, 2020**

Re: **VRE's Transit Asset Management Plan Update for 2020**

VRE's Transit Asset Management (TAM) Plan, completed in September 2018, allows VRE to better monitor and manage its assets, particularly rolling stock and facilities. Additional benefits of the plan, which is required by the Federal Transit Administration (FTA), include improved safety, increased reliability and performance, and more efficient operations.

The intent of VRE's TAM Plan and associated Lifecycle Maintenance (LCM) plan, is to minimize the total cost of ownership of an asset while maximizing its performance. TAM integrates activities across VRE departments to optimize resource allocation and to support decision-making.

The attached TAM update provides background on VRE's LCM plans and details the additional steps taken to improve the management of assets since VRE's September 2019 report.

TRANSIT ASSET MANAGEMENT

2019-2020 ACHIEVEMENTS

LCM Plans

> Developed VRE's first Rolling Stock Lifecycle Management Plan in October 2019, based on a comprehensive review of VRE's previous Rolling Stock Long Range Lifecycle Maintenance Action Plan, updated and adapted to follow FTA guidance on Lifecycle Management Plan development and content

> Developed VRE's first Facilities Lifecycle Management Plan in January 2020 following FTA guidance

Parking Facility Inventory

> Conducted system-wide field inventory of passenger parking spaces at all surface parking locations (VRE and 3rd party-owned)

> Resolved data discrepancy issues and created "single source" repository of information

Data Support Systems

> Completed updates to improve Internet Tool functionality

> Customized, demonstrated, and launched new field data collection applications using ArcGIS Online

Reporting
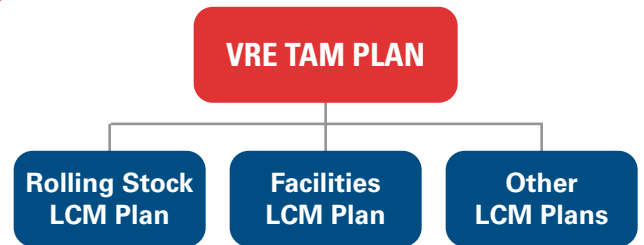
> Updated DRPT's asset inventory database and submitted annual TransAM After-Action Report (January 2020)

> Prepared FY 2020 NTD Asset Inventory Module forms, including the annual Narrative Report and performance targets for FY 2021 (October 2020)

LIFECYCLE MANAGEMENT (LCM) PLANS

Following VRE's completion in 2018 of its first FTA compliant Transit Asset Management (TAM) Plan, VRE sought to implement asset management best practices by engaging its consultant partner to develop Lifecycle Management (LCM) Plans for its Rolling Stock and Facilities asset classes. These plans represent a coordinated approach to implementing VRE's TAM Plan

VRE TAM PLAN

| Rolling Stock LCM Plan | Facilities LCM Plan | Other LCM Plans |

goal at the asset class level. VRE based LCM plan content on FTA guidance and used the same basic outline for each document. In the future, VRE may wish to develop additional LCM plans addressing its equipment and limited infrastructure assets. Each of VRE's LCM plans is planned to be updated every four years in the year following TAM Plan update.

Rolling Stock LCM Plan (October 2019)

The Rolling Stock LCM Plan builds upon VRE's already formalized asset management program by documenting existing business procedures, system and component useful life assumptions, vehicle history, and other aspects of the maintenance program. This LCM plan is being used to assist VRE in maintaining its fleet in a State of Good Repair (SGR) and in a cost-effective manner throughout their useful life. The plan covers all lifecycle phases: (1) Procurement, (2) Operation, (3) Maintenance, (4) Overhaul, and (5) Retirement and Disposal. This LCM plan was completed in October 2019.

Facilities LCM Plan (January 2020)

The Facilities LCM Plan documents VRE's existing business procedures while using component- and subcomponent-level condition ratings, useful life assumptions, and monthly facility safety inspection findings to inform program processes. This LCM plan is being used to assist VRE in maintaining facility assets in an SGR and in a cost-effective manner. The plan covers all lifecycle phases, with terminology adapted for this asset class: (1) Procurement, (2) Operation, (3) Maintenance, (4) Rehabilitation, and (5) Retirement/Disposal/Decommissioning. This LCM plan was completed in January 2020.
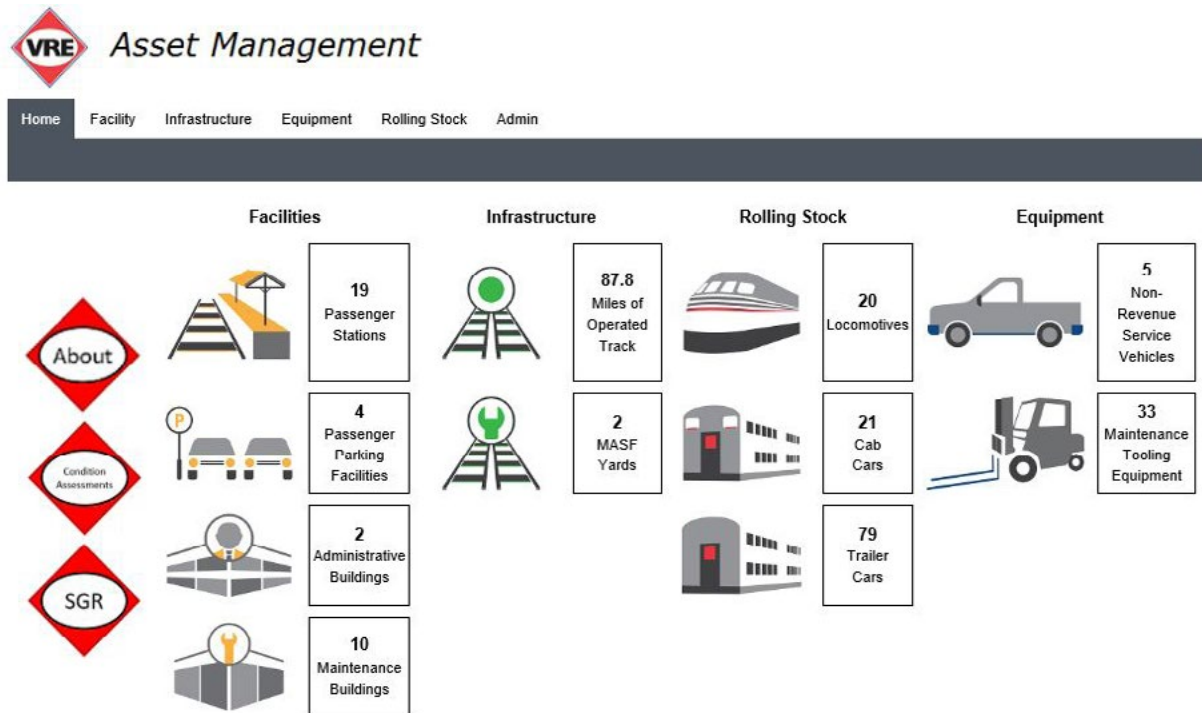
PASSENGER PARKING FACILITY INVENTORY

VRE documents and reports parking facility inventory data to many sources, including NTD's Asset Inventory Module (AIM), DRPT's TransAM system, its TAM and LCM Plans, internal-use audit spreadsheets, etc. In order to develop a single data source and to validate the current parking facility inventory, VRE's consultant partner conducted a physical field inventory of all VRE-utilized passenger parking facilities (surface parking only), including parking space counts, light poles, bike racks, benches, and shelters, et. al. A new data collection tool was piloted, ArcGIS Online Collector, to improve data collection efficiency and add enhanced collection abilities (discussed further in Data Support Systems). VRE's consultant partner prepared an "After-Action Report", including the final parking facility inventory spreadsheet, digitized parking location maps, and ArcGIS output files, which was finalized in November 2020.

DATA SUPPORT SYSTEMS

VRE utilizes two primary data support systems in the implementation of its asset management program: the VRE Asset Management Internet Tool (launched in 2017) and new ArcGIS Online software applications; ArcGIS Collector and ArcGIS Survey123 (piloted in 2020).
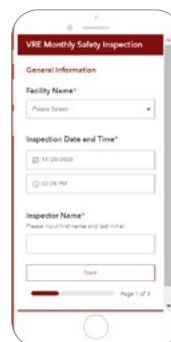
VRE Asset Management Internet Tool

As part of its asset management program, VRE's consultant partner previously developed an internet-based tool that houses VRE's asset inventory data and facilitates the completion of facility condition assessments, monthly safety inspections, and communication cabinet assessments. The internet tool was planned as part of a multi-phase effort, and initial functionality of the internet tool was deployed in 2017. This year's efforts toward ongoing maintenance and enhancement of the tool focused heavily on preparing for the next round of facility condition assessments, removing bugs and adding functionality to streamline data collection and tabulation of overall condition ratings as required by FTA.

ArcGIS Applications

VRE's consultant partner piloted the use of ESRI's ArcGIS data collection tools. ArcGIS Collector was used for VRE's passenger parking facility inventory, and ArcGIS Survey123 was tested for viability in future Monthly Safety Inspections. Each tool allows for customization based on VRE's specific needs, and includes live field testing, demonstrations with VRE personnel, and troubleshooting. ArcGIS data collection tools have several highly desirable features, among them:

> Ease of use on mobile devices

> Can function without internet access

> Have ability to attach photos in the field

> Have built-in analytics

> Are updated regularly by ESRI

> Are cost efficient

Given these and other factors, VRE has determined to use ArcGIS Survey123 as the preferred implementation approach for conducting station monthly safety inspections moving forward. Either or both tools may also be considered for future data collection efforts.

TransAM ANNUAL UPDATE (JANUARY 2020)

VRE is required to report assets to the Virginia Department of Rail and Public Transportation (DRPT) via its TransAM reporting system. VRE's goal is to provide consistency between data it inputs into NTD reporting modules and the TransAM database, as well as to maintain the ability to apply for state funding toward capital assets. For the second consecutive year, VRE's consultant partner completed the following tasks:

> Reviewed previous inventory system export files

> Evaluated existing data and recommended database updates

> Worked with VRE's CFO and Comptroller to identify data needs

> Synchronized data entries with NTD, where applicable

> Coordinated database updates for approval by VRE

> Performed data entry updates by the January 31, 2020 deadline

> Provided VRE with an "After-Action Report" summarizing all activities, decision points, and making recommendation for future update efforts

NTD ASSET INVENTORY MODULE UPDATE (OCTOBER 2020)

VRE utilized its consultant partner support to prepare annual submission materials for NTD's Asset Inventory Module. This included five forms related to VRE's asset inventory, one form related to performance targets for each asset class, and an annual Narrative Report. While much of the data remain unchanged from the previous year, the A-15 Facilities form was updated to reflect new parking space counts derived from physical inventory. Submittal materials were prepared in October 2020 for input and upload by October 31, 2020.

COMING SOON

Asset inventory updates through DRPT's TransAM database *(January 2021)*

FTA Triennial Review support *(February 2021)*

Condition assessments to determine FTA TERM ratings at the subcomponent level for all VRE facilities, including stations, passenger parking, administrative, and maintenance facilities *(Summer/Fall 2021)*. Previous assessments completed in *2017/2018*

Internet tool upgrades, including those targeted at managing ongoing facility maintenance, implementation of ArcGIS Survey123 for monthly safety inspections, and identification of data integration opportunities between ArcGIS and the Internet Tool *(ongoing)*

YEARLY MILESTONES

2017
> Share initial targets with planning partners (July)

> Report optional FY17 Asset Inventory Module (AIM) data and FY18 performance targets to NTD (October)

> Perform first round of facility condition assessments per FTA guidance (Summer/Fall)

2018
> Complete first required compliant TAM Plan and share with planning partners (October)

> Submit first required FY18 AIM data and FY19 performance targets to NTD (October)

2019
> Submit asset inventory data to DRPT via TransAM (January)

> Submit FY19 AIM data, FY20 performance targets, and first required narrative report to NTD (October)

> Complete Rolling Stock Lifecycle Management (LCM) Plan in alignment with TAM Plan

2020
> Submit asset inventory data to DRPT via TransAM (January)

> Submit FY20 AIM data, FY21 performance targets, and narrative report to NTD (October)

> Complete Facilities LCM Plan in alignment with TAM Plan

2021
> Submit asset inventory data to DRPT via TransAM (January)

> Submit FY21 AIM data, FY22 performance targets, and narrative report to NTD (October)

> Perform second round of facility condition assessments per FTA guidance (Summer/Fall)

2022
> Submit asset inventory data to DRPT via TransAM (January)

> Submit FY22 AIM data, FY23 performance targets, and narrative report to NTD (October)

> Complete first updated TAM Plan and share with planning partners

> Complete quadrennial updates thereafter

2023
> Submit asset inventory data to DRPT via TransAM (January)

> Submit FY23 AIM data, FY24 performance targets, and narrative report to NTD (October)

> Complete first updated LCM Plans

> Complete quadrennial updates thereafter