



## Fixed Assets and State of Good Repair

Auditor General Report No. 2019–001

**December 5, 2019 Meeting**

Fieldwork Completed August 30, 2019

Report Issued November 21, 2019

## EXECUTIVE SUMMARY

### Background

The FTA in 2016 required transit operators to develop a Transit Asset Management (TAM) plan, including capital asset inventories and condition assessments, decision support tools, and investment prioritization. The goal of a TAM program is to ensure that an agency's assets are operated safely, reliably, consistently and in a measurable State of Good Repair (SGR).

VTA completed an initial TAM Plan in 2017, prepared an Asset Management Policy in 2018 and engaged a consultant to develop its TAM operational procedures in 2019.

VTA's Board of Directors approved this Fixed Asset and State of Good Repair project as part of the Auditor General's (AG) FY 2019 Work Plan. The AG's Office completed this project between April and August 2019.

The review was performed in accordance with the Standards for Consulting Services issued by the American Institute of Certified Public Accountants. The report is prepared for use by VTA's Board of Directors, Governance & Audit Committee, and management. Recommendations for improvement are presented for management's consideration, and management is responsible for the effective implementation of corrective action plans.

We would like to thank those who assisted us throughout this review. Questions may be addressed to Corey Saunders, Auditor General, at [Auditor.GeneralOffice@VTA.org](mailto:Auditor.GeneralOffice@VTA.org).

### Objectives and Scope

- Obtain an understanding of VTA's Transit Asset Management (TAM) Plan, TAM Program and Asset Management Policy
- Review the processes used to inventory capital assets, prepare a SGR estimate, determine asset condition, comply with FTA reporting requirements, link to capital budget estimated needs and manage VTA-wide data gathering and reporting.
- Assess the design and operating effectiveness of internal controls
- Test compliance with VTA's policy; FTA's Circular 5300-1 and Final Rule published in 49 CFR, Parts 625 and 630; and CalTrans' State of Good Repair Program Guidelines
- Identify opportunities for process and control improvements, including revenue enhancement, efficiency gains or cost savings

### Overall Rating (See Appendix A for definitions)

	Report Rating	Number of Observations by Risk Rating		
		High	Medium	Low
<b>Fixed Assets and State of Good Repair</b>	<b>Low</b>	<b>0</b>	<b>1</b>	<b>3</b>

### Summary and Review Highlights

The Transit Asset Management (TAM) Plan documents VTA's efforts to identify and manage activities related to maintaining thousands of physical assets, such as rolling stock, maintenance facilities, and stations, in a State of Good Repair, and to provide safe and reliable public transit service.

The TAM Plan and supporting "TERM Lite" schedules estimate capital needs and long-term replacement costs to maintain a SGR. These estimates will vary depending upon the time horizon for funding; and future events, such as the opening of the BART to Silicon Valley extension or move to electrification and autonomous vehicles.

VTA's estimate of SGR "backlog" (or funding gap) is based upon a 5 year "unconstrained" estimate of all capital needs and is estimated at \$250 million. The funding constraints represent an operational and financial risk to VTA. See Appendix B for a summary of the unconstrained capital needs and asset condition by category.

An overall rating of *Low* was assigned to help management understand our assessment of the overall design of VTA's Transit Asset Management program and State of Good Repair.

We based our overall rating on four observations:

1. Enhance internal processes and collaboration by VTA Divisions to maintain the Transit Asset Management plan.
2. Update the Asset Management Policy to reflect current or best practices.
3. Finalize the selection and planning for an Enterprise Asset Management System, to reduce reliance on excel spreadsheets to track capital assets.
4. Perform visual asset inspections for vehicles, systems and guideway elements, similar to those done for facilities.

## DETAILED OBSERVATIONS

### 1. ASSET MANAGEMENT COORDINATION

**Observation:** The maintenance of the Transit Asset Management plan requires ongoing support and collaboration from all VTA Divisions.

**Recommendation:** VTA should continue its focus on State of Good Repair, by enhancing its internal processes and collaboration.

#### **Management's Action Plan**

#### **Observation Risk Rating: Medium**

**1.1** The maintenance of a Transit Asset Management (TAM) plan requires ongoing updates of capital asset inventories, condition assessments, decision support tools, budget prioritization and reporting to FTA. These responsibilities span across all of VTA's Divisions.

VTA's Asset Management Policy recognizes the collaboration and Division support that is required, and identifies the roles and responsibilities of major activities.

We noted that the TAM Program has experienced challenges with receiving timely and accurate data and responses from Divisions. Divisions have appointed SGR liaisons in some cases, but their role and participation is varied and their time is constrained by other responsibilities.

Also, the TAM Program has not developed training materials or process flow overviews to guide staff members. There are occasional meetings to focus on data, reporting, operational needs or VTA's policy for SGR.

**1.1** VTA should continue its focus on State of Good Repair and the TAM Plan, which is designed to help ensure that its assets are managed and operated safely, continue to enhance reliably, consistently and in a measurable fashion.

To accomplish the VTA's Asset Management goals, the TAM Program and Divisions should continue and increase their collaboration.

Enhanced steps could include:

- Development and dissemination of training materials or process flow overviews
- Recurring Asset Management Workgroup meetings to focus on data, reporting, operational needs, new technology, or VTA's policy for SGR.
- Appointment of Division liaisons, and consideration of the time requirements.
- Incorporation of new procedures resulting from the consultant's current study.

**1.1** Management agrees and the following actions will be implemented:

- The Finance & Administration Director and Deputy General Manager will issue a memorandum requesting appointment and re-confirmation of VTA TAM Working Group representatives.
- Recurring VTA TAM working group meetings will be established and scheduled to be held on a quarterly basis.
- Instructions will be developed and distributed on TAM reporting requirements for asset owners.

**Responsible Party:** Grants & Allocations

#### **Target Date:**

- Appointment and Reconfirmation of TAM Working Group Members – February 2020
- Establishment of TAM Working Group Schedule – March 2020
- Development and distribution of TAM reporting requirements – April 2020

## 2. ASSET MANAGEMENT POLICY

**Observation:** VTA has an Asset Management Policy. We noted areas where it could be updated to reflect current or best practices.

**Recommendation:** VTA should update its Asset Management Policy to support the TAM Program's goals.

### Management's Action Plan

### Observation Risk Rating: Low

**2.1** The VTA TAM Program staff prepared an Asset Management Plan in March 2018. The Policy incorporates many of the FTA required elements. We reviewed the Policy, observed actual VTA activities and compared other transit properties' policies for best practices.

We noted that the Asset Management Policy:

- Defines the purpose of a Risk Register. However, one has not yet been developed or used.
- Does not refer to technology systems or the responsibility for managing them, such as the "TERM Lite" schedules currently used to store all SGR data, or a future Enterprise Asset Management System.
- Does not refer to compliance requirements, FTA Circulars or CalTrans guidance.
- Does not refer to annual TAM performance and asset condition reporting requirements to FTA, through the National Transit Database.
- States that the lead responsibility for the TAM plan rests with the Planning and Programming Division, which was largely combined into the new Finance and Administration Division as a result of the March 2019 reorganization.

**2.1** VTA should update and enhance its Policy to help achieve its asset management goals and reduce operational inefficiencies.

VTA should also implement the Risk Register, as defined in the Policy. The FTA's Transit Asset Management Guide (2016) describes the importance of risk management as a component of asset assessments.

Risks could include safety factors, statutory non-compliance, criticality to service delivery, extraordinary maintenance requirements, or high operating performance impacts of asset failures.

**2.1** Management agrees and the following actions will be implemented:

- Update TAM policy to incorporate current organizational structure and relevant information.
- Implement a risk register, subject to budget availability

**Responsible Party:** Grants & Allocations

### **Target Date:**

- Update TAM Policy – March 2020
- Implement Risk Register – October 2021

### 3. ENTERPRISE ASSET MANAGEMENT SYSTEM

**Observation:** VTA uses a series of excel spreadsheets to track capital assets for SGR.

**Recommendation:** VTA should finalize its plan for the acquisition of an EAM system.

**Management's Action Plan**

**Observation Risk Rating: Low**

**3.1** VTA uses "TERM Lite" analysis tool (an access database and excel schedules) created by the FTA to manage data for the 2,660 individual capital assets that have been catalogued. This includes asset condition assessments, build date, replacement costs, estimated useful life and more. These TERM Lite schedules do not include the performance measures required to be reported annually to FTA, or specific information about any asset failures or manufacturer warranties.

Asset information is received by the TAM Program from all VTA divisions in varying different formats. This process is inefficient and results in communications and data accuracy challenges.

An Enterprise Asset Management (EAM) system would provide additional functionality, be subject to VTA's IT and backup standards and improve operational efficiency.

An EAM system has been discussed over the last two years, and a consultant was engaged to document functional specifications and assess system options, including an upgrade to the existing SAP system or a separate bolt-on application. However, the EAM system selection has been finalized, a cost estimate has not been approved or funded, and an RFP (if necessary) has not been drafted.

**3.1.** VTA should finalize its planning for the acquisition and implementation of an EAM system.

VTA should finalize the EAM system functional criteria, project scope and internal budget with ROI, draft an RFP (if necessary) and create a timeline for procurement and implementation.

VTA has engaged a consultant to help develop the operational procedures for its TAM program. The outcome of this effort may also help inform the functionality desired by users in a new technology application.

Depending upon the final system selection (SAP vs another package), there will likely be a gap between the expected functional fit of the new software and user's expected functionality to meet operating needs and FTA requirements.

VTA's Technology Group should develop a plan to fill this functional gap, as well as engage the user groups and provide training. These steps are intended to enhance the utilization of any new technology and reduce less efficient work-arounds or under-utilization of the system's functional by the business users.

**3.1** Management agrees and the following actions will be implemented:

- A six year ERP/SAP/EAM technology roadmap has been developed

**Responsible Party:** Technology

**Target Date(s):** Done

- VTA will finalize criteria / scope / budget based on available capital funding

**Responsible Party:** Technology / Grants

**Target Date(s):** September 2021

- VTA will request off-cycle budget funding approval to further develop PM requirements and use best practices to fill functional gaps.

**Responsible Party:** Technology / Operations

**Target Date(s):** March 2021

#### 4. ASSET CONDITION

**Observation:** VTA performs visual asset inspections for facilities, but not vehicles, systems or guideway elements.

**Recommendation:** VTA should perform sampling or rotational inspections of all asset types.

**Management's Action Plan**

**Observation Risk Rating: Low**

**4.1 a).** Asset condition assessment involves regular inspections of assets to evaluate their visual and physical conditions, performance characteristics, and risks and impacts of failure.

VTA has performed condition assessments for its facilities, using an outside consultant. The results are ranked under FTA guidelines. However, condition assessments and visual inspections are currently not performed for other asset types, including vehicles, systems and guideway equipment. The TERM Lite application will calculate a condition rating, but it is based solely upon historical cost and average useful life data.

b). The condition assessments are required to be reported to FTA, under the National Transit Database (NTD) reporting system. Reporting includes items such as Transit Asset Performance Measure Targets, Transit Way Mileage, and Service Vehicle Inventory.

VTA had incorrectly reported one statistic in its October 2018 NTD reporting, related to the percent of rolling stock revenue vehicles that have met or exceeded their useful life benchmark. The 2019 Target Percentages were incorrectly entered for certain categories of vehicles. The error had no impact on FTA funding or assessment of VTA.

**4.1. a).** Condition assessments and trend analysis can provide a prioritized asset replacement plan, help create capital project budgets, and minimize costly asset failures.

VTA should perform visual asset inspections of its rolling stock, guideway equipment and other assets, for State of Good Repair purposes.

Such inspections would provide a more realistic basis for the asset condition rating, compared to the current TERM Lite historical data calculations.

The visual inspection on non-facilities assets are not FTA required, however, best practices at other transit agencies include developing a sampling or rotational strategy, which could collect data on:

- Maintenance and repairs
- In service data
- Estimate useful life
- Original cost
- Priority
- Condition
- Failure or warranty trends

b). VTA should correct the Target Performance Measures in its next NTD filing in October 2019.

**4.1** Management agrees and the following actions will be implemented:

- VTA will implement (FTA compliant) condition assessments and instruction on other asset types as FTA develops guidance for those asset types.
- VTA will develop a process for documentation and analysis of the currently collected condition assessment data for our facilities, guideway elements, stations, systems, and vehicles.

**Responsible Party:** Grants & Allocations

**Target Date:** October 2021

- VTA is developing a Facility and Fleet Management Plan that will address asset replacement priorities and inform capital budget requests.

**Responsible Party:** Operations

**Target Date:** May 2020

## APPENDIX A — RATING DEFINITIONS

Observation Risk Rating Definitions	
Rating	Definition
Low	Process improvements exist but are not an immediate priority for VTA. Taking advantage of these opportunities would be considered best practice for VTA.
Medium	Process improvement opportunities exist to help VTA meet or improve its goals, meet or improve its internal control structure, and further protect its brand or public perception. This opportunity should be considered in the near term.
High	Significant process improvement opportunities exist to help VTA meet or improve its goals, meet or improve its internal control structure, and further protect its brand or public perception. This opportunity should be addressed immediately.

Report Rating Definitions	
Rating	Explanation
Low	Adequate internal controls are in place and operating effectively. Few, if any, improvements in the internal control structure are required. Observation should be limited to only low risk observations identified or moderate observations which are not pervasive in nature.
Medium	Certain internal controls are either: <ul style="list-style-type: none"> <li>• Not in place or are not operating effectively, which in the aggregate, represent a significant lack of control in one or more of the areas within the scope of the review.</li> <li>• Several moderate control weaknesses in one process, or a combination of high and moderate weaknesses which collectively are not pervasive.</li> </ul>
High	Fundamental internal controls are not in place or operating effectively for substantial areas within the scope of the review. Systemic business risks exist which have the potential to create situations that could significantly impact the control environment. <ul style="list-style-type: none"> <li>• Significant/several control weaknesses (breakdown) in the overall control environment in the part of the business or the process being reviewed.</li> <li>• Significant non-compliance with laws and regulations.</li> <li>• High risk observations which are pervasive in nature.</li> </ul>



## APPENDIX B — STATE OF GOOD REPAIR STATISTICS (UNAUDITED)

SOURCE: “TERM LITE” SCHEDULES AS OF JUNE 30, 2019 AND MANAGEMENT REPORTS

Asset Category	5 Year Unconstrained Capital Need (000s)	Historical Average VTA Funding (000s)	State of Good Repair “Backlog” (000s)
Facilities	\$254,172		
Guideway Elements	\$116,367		
Stations	\$93,961		
Systems	\$126,834		
Vehicles	\$158,920		
<b>Total</b>	<b>\$750,254</b>	<b>\$500,000</b>	<b>\$250,000</b>

Note 1. “Unconstrained” assumes replacement of all assets exceeding useful life, warranty or projected failure parameters.

Note 2. VTA Historical Funding is an estimate of actual capital expenditures over last five years (of \$80 to \$100 million per year).

Note 3. Capital Need does NOT represent summary of budget requests.

Note 4. Capital need is based upon current VTA operations, fleet and strategy. If those were to change significantly, the capital need may increase or decrease correspondingly.

Asset Category	Replacement Value (000s)	Condition Assessment (*)	Condition Assessment Rating
Facilities	\$642,525	3.43	Adequate
Guideway Elements	\$1,523,572	3.88	Adequate
Stations	\$725,368	3.42	Adequate
Systems	\$559,395	3.05	Adequate
Vehicles	\$760,394	3.32	Adequate
<b>Total</b>	<b>\$4,211,254</b>	<b>Average</b>	<b>3.52</b>
			<b>Adequate</b>

Note 1. This chart presents the condition of VTA’s assets as of the report date, and the cost of replacing and rehabilitating them, as they exist today. Neither VTA’s near-term investment program nor potential technology changes are reflected in these numbers.

Note 2. Replacement Value represents a snapshot of the total estimated replacement cost for ALL assets owned and operated by VTA, over an estimated 45 year time horizon. The total amount is NOT expected to be funded short-term or mid-term.

Note 3. Asset Condition scale is 1 (Poor) to 5 (Excellent), in accordance with FTA guidelines.

(\*) Ratings were calculated on a weighted average cost basis, rather than on an individual asset basis, which might yield different results.





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