



Transit Asset Management Plan

EXECUTIVE SUMMARY DRAFT |
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Executive Summary

Introduction

In July 2016, the Federal Transit Administration (FTA) published the Transit Asset Management (TAM) Final Rule [49 CFR Part 625]. Recipients and sub-recipients of federal funds that own, operate, or manage capital assets used for providing public transportation must develop and implement TAM plans. The plans must include an asset inventory and condition assessment, an asset management policy, and a prioritized list of investments to support the State of Good Repair (SGR) of the agency's capital assets, among others.

The Orange County Transportation Authority (OCTA) serves as the multimodal transportation agency and provides most of the public transportation services for Orange County, CA. The agency operates 53 fixed bus routes which include local routes, community routes, limited-stop routes, and Metrolink rail feeder routes. These routes reflect a balancing of service levels in response to the coronavirus pandemic. OCTA also operates paratransit services throughout the county. The agency has 502 vehicles available for fixed-route revenue service, 248 vehicles for paratransit services¹, and 188 non-revenue vehicles to support maintenance, operations, and administrative functions. OCTA also operates and maintains five maintenance and operating bases, two park-and-ride facilities, and five multimodal transportation centers. These facility and station assets are comprised of 54 buildings and structures totaling over 500,000 square feet. While the agency's assets predominantly support bus and paratransit service today, the OC Streetcar is scheduled to begin operations in 2024. The future OC Streetcar assets will be included in TAM plans after that system becomes operational. OCTA provides funding for the Metrolink commuter rail service; however, the assets for this service are reported by the operator, Southern California Regional Rail Authority.

Various departments within OCTA combine to track and monitor the state of good repair of these assets and to plan for the capital replacement of assets when they have reached the end of their useful life. Three processes stand out in terms of influencing OCTA's TAM plan development: the Comprehensive Business Plan (CBP), the 20-year fleet outlook, and the facility condition assessment process.

The TAM plan, in combination with the above listed processes, is used to develop the 20-year list of prioritized transit capital needs and will be updated at least every four years per federal requirements. It is important to note that the TAM plan is a long-term planning document and

¹ OCTA 20-Year Fleet Outlook, FY2022-41, Revised 10-28-2021

is less useful for the annual budgeting process since it is normally updated only every four years. The document can inform the budget process; however, there may be new needs that emerge between updates which need to be addressed.

The first-generation TAM plan for the OCTA was completed in August 2018. This is the first major update to the first-generation TAM plan and serves as the 2022 TAM plan.

TAM Plan Update Approach and Considerations

A primary objective of this TAM plan update is to document the various interdependent business processes, activities, and tools needed to manage the agency's transit assets to ensure safe, reliable, and high-quality service over the long-term. Another objective is to effectively integrate the new TAM requirements into the agency's current practices. The following steps have been taken as part of developing the TAM plan update:

- Review of the latest TAM federal guidance and best practices
- Interviews with senior staff to assess current practices at OCTA
- Updating of the TAM policy
- Updating of OCTA's planning level asset inventory
- Procurement of consultant contracts to assist with: (a) preparation of Facility Condition Assessments (FCAs), and (b) preparation of the TAM plan update
- Application the FTA Transit Economics Requirements Model (TERM Lite) to estimate the 20-year transit capital needs

A recent assessment of current OCTA TAM practices indicated the following:

OCTA has made significant strides in asset management maturity since it developed its first TAM Plan in 2018. OCTA's target setting and NTD reporting processes are well established.

The CBP, which is updated every two years, has established links with the TAM Plan, but further steps should be taken to improve alignment between the two.

The CBP assumes grants will meet the future higher zero-emission vehicle replacement costs. This is important to understand as OCTA better aligns the TAM plan with the CBP.

Revenue and non-revenue vehicle asset data is robust and well tracked within Ellipse. Facilities data is currently tracked at the primary level (building level), and some assets (e.g., systems assets) are not in Ellipse. OCTA does not mine lifecycle cost for decision making purposes given system constraints and limitations.

OCTA is in the process of implementing INFOR as the new Enterprise Asset Management (EAM) system. INFOR EAM will replace Ellipse and is expected to produce many improvements over the current system. However, it is not scheduled to go live until 2023 and hence was not leveraged in the development of this TAM Plan update.

OCTA uses a “sinking fund” to incrementally save for future anticipated capital and maintenance expenditures. This funding mechanism has allowed OCTA to budget for capital purchases and has allowed OCTA to minimize its capital replacement backlog. For the time being the sinking fund assumes all compressed natural gas (CNG) buses are replaced with CNG-cost buses, but not with the higher priced zero-emission buses (ZEB) required under California regulations.

OCTA continues to use an assumed bus life of 18 years for forecasting purposes and is examining the costs and benefits associated with extending bus useful life to this level. However, questions remain as there is limited empirical data for vehicles having completed the full 18 years, and even less so with ZEBs.

Key Findings and Implementation Steps

Key findings of the plan include:

- OCTA’s revenue vehicles are in a state of good repair
- OCTA’s facilities are in good condition overall
- Major reinvestment needs coincide with the switch to zero-emission buses in 2034 and 2040
- The SGR backlog is expected to grow over the next twenty years given the incremental costs associated with zero-emission buses and infrastructure

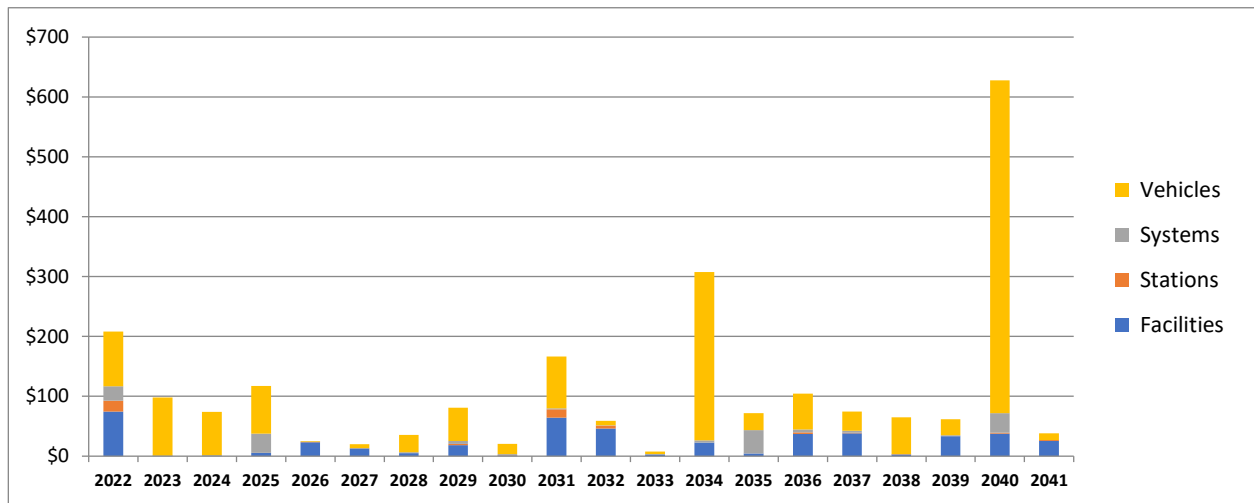
To develop a prioritized list of the OCTA’s 20-year transit capital needs, the study team applied the FTA Transit Economics Requirements Model (TERM Lite), described further in Chapter 4. The valuation of OCTA’s existing transit asset inventory is estimated at approximately \$957 million (in 2021 dollars). Revenue vehicles represent the largest share of asset holdings (68 percent). Facilities – including bus maintenance and administrative facilities – constitute the second largest share of OCTA’s asset holdings (23 percent). The remaining nine percent of assets consists primarily of support systems including fare collection, communications, and

information technology systems along with minor investments in passenger station related assets.

Backlog is deferred reinvestment in asset rehabilitation, replacement, and annual capital maintenance. Virtually all transit agencies carry some backlog from year to year. OCTA’s current SGR backlog is estimated to be approximately \$114 million, or 11.9 percent of the total value of OCTA transit assets. OCTA’s facilities and revenue vehicles are in a state of good repair overall.

From a needs perspective, OCTA’s 20-year unconstrained capital projection is shown below in Figure ES-1, segmented by asset category. Needs are shown in year of expenditure dollars (\$YOE). Revenue vehicle replacement costs, mainly replacement and rehab of the bus fleets, dominate the forecast. The numbers reflect the switch to zero-emission vehicles, including two major spikes in 2034 and 2040. 2040 also corresponds to the first year where California regulations require 100 percent of revenue vehicle purchases be zero-emissions.

Figure ES-1. Investment Expenditures by Asset Category (Millions of \$YOE)

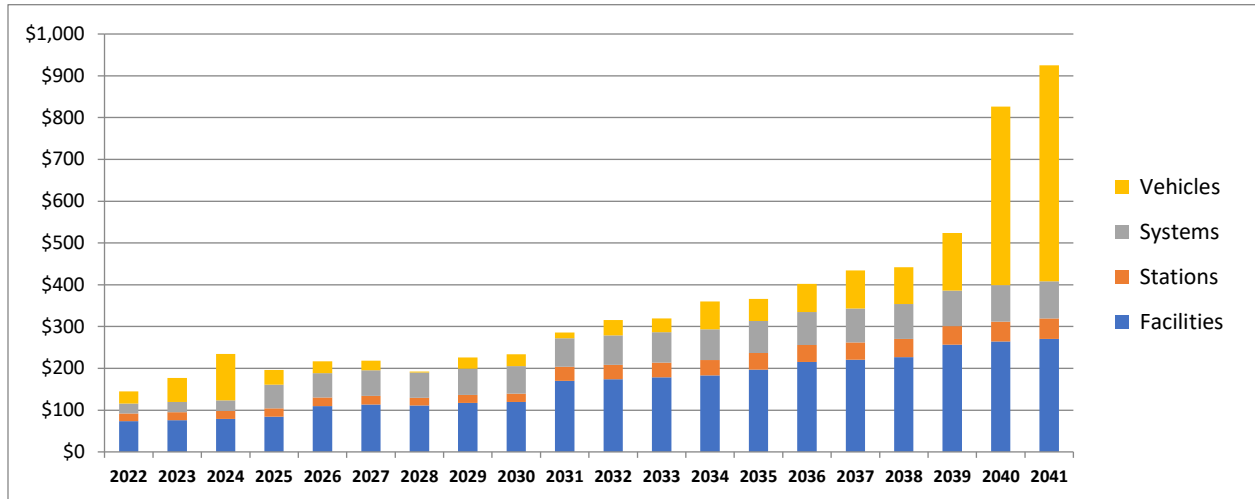


TERM Lite incorporates revenue forecast estimates from OCTA’s CBP to establish a 20-year constrained budget. The constrained capital needs for each year of the TAM plan horizon, as well as the resulting backlog, year-over-year, can be determined by computing the expected capital needs over a 20-year period. The projected backlog is shown in Exhibit ES-2, below.

OCTA’s expected capital funding is insufficient to fully control the size of the backlog, resulting in long-term backlog growth. The primary driver of this backlog growth is the significantly higher cost of transitioning the revenue fleet to zero emission technology, leading to increased competition across all asset types for limited capital funds. This effect drives up the size of the

investment backlog for all asset types (not just the zero emission buses themselves). The impact of this increased competition for expected funding capacity becomes more apparent in the later years of the forecast, as the bus fleet reaches a 100 percent zero-emission fleet.

Figure ES-2. Constrained Scenario: SGR Backlog Projection for 2022 to 2041 (Millions of \$YOE)



Looking forward, the CBP identifies constrained investment assumptions and priorities for Bus and other OCTA modal programs. OCTA’s bus capital priorities over the next three fiscal years (FY 2023-2025) include, in decreasing order, the following asset implementation investments:

- Large Bus Replacement: \$164.9 million
- Vehicle Modifications: \$33.6 million
- Facility Modifications: \$20.1 million
- Small Bus Replacement: \$17.7 million
- Support Equipment: \$11 million

OCTA’s largest capital cost is tied to revenue vehicles, hence it is critical to keep the 20-year fleet outlook updated on a regular basis. Currently, OCTA intends to extend the regular purchase of CNG buses into the next several years – the last purchase is expected in 2025. The State of California mandates 100 percent zero-emission bus purchases by 2040. Current plans call for the bulk of OCTA zero-emission buses to phase in starting in 2034, and zero-emission demand response vehicles begin phasing in 2027 and 2029. Accurate future costs of ZEBs are highly uncertain at this time given status of ZEB markets, changing technologies, and the cost of future power. However, OCTA has plans to initiate a study to quantify the life cycle costs of ZEBs to gain a better understanding of major cost drivers and potential cost mitigation strategies.

From an asset management planning perspective, OCTA is investing in the transition to a new Enterprise Asset Management System, INFOR, to replace the Ellipse system. Moving forward, INFOR is expected to have much greater data mining capabilities for current assets, and to include the OC Streetcar assets as well.

A major activity over the next several years is going to be the development of a robust OC Streetcar asset inventory, complete with detailed acquisition and installation costs, loading the information into INFOR, in preparation for the next TAM plan update.