



Transit Asset Management Plan



San Joaquin Regional Transit District
July 2018



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Transit Asset Management Plan

San Joaquin Regional Transit District

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Introduction

Established in 1963, the San Joaquin Regional Transit District (RTD) provides regional public transit services for the Stockton Metropolitan Area (SMA) and San Joaquin County as a whole. The services include Intercity, Interregional, Paratransit, and Rural Transit. A five-member board of directors and the Chief Executive Officer oversee RTD and nearly 200 staff are responsible for the operations and management of RTD's services.

The Metropolitan Planning Organization (MPO) for the region is the San Joaquin Council of Governments (SJCOG). RTD and the other partner agencies coordinate all planning and programming with SJCOG. Incorporated into its annual work program, SJCOG acknowledges the federal requirements of maintaining transit equipment and infrastructure in a state of good repair (SGR) and highlights its intentions of coordinating with the transit providers and incorporating their Transit Asset Management (TAM) plans into the Regional Transportation Plan (RTP). The primary ways this shall be accomplished are through close interaction and coordination with SJCOG and active participation in the Interagency Transit Committee. An example of the Interagency Transit Committee's RTP planning and programming efforts is the annual review of RTD's Short Range Transit Plan.

Purpose and Objectives

The National Transit Asset Management System Final Rule requires that all agencies receiving federal financial assistance under 49 U.S.C. Chapter 53 who own, operate, or manage capital assets used in the provision of public transportation create a TAM plan.

In order to carry out its mission statement—to provide a safe, reliable, and efficient transportation system for the region—RTD has put in place comprehensive and integrated policies and procedures for its ongoing operations and maintenance practices. The TAM plan also supports its mission statement by ensuring that RTD's assets are in a state of good repair—defined as a condition sufficient for them to operate at a full level of performance. It aims to reposition RTD from a "find and fix" maintenance and management approach to a "predict and prevent" approach which reduces cost and improves safety and reliability.

To ensure that its TAM plan is effective, RTD aims to accomplish the following:

- Ensure that its asset management vision and direction is in line with existing policies and strategic planning process.
- Develop future policies and procedures to best support TAM.
- Link RTD's main business processes (including performance management, risk management, and budget processes) with asset management strategies and its performance objectives and goals.
- Coordinate across departments to better work toward a common goal.
- Provide specific accountabilities regarding scope and timing for implementation activities.
- Advance maturity of asset management practices.
- Establish asset management strategies that help to focus management and business processes on RTD's vision and mission.



RTD believes that asset management is a cornerstone for effective performance management and intends to leverage TAM-related data to improve investment decision making and to improve reliability, safety, cost management, and customer service. Through asset management, RTD can more effectively use available funds to improve the physical condition and performance of their system, which in turn, has the potential to increase ridership.

RTD Transit Asset Management

RTD is committed to the safe operations and maintenance of the physical assets used for its programs and services. It currently has in place a responsive approach to the planning, procurement, and maintenance of these assets. RTD's FY 2017–18 Strategic Plan was modified to integrate the adoption of the TAM Plan and asset management into its six agency-wide goals and initiatives. As a result, RTD has begun modifying its policies and practices through the creation of the asset management plan to not only ensure compliance with the legislation, but also to mature into a "predict and prevent" approach to asset management.

This includes strict adherence to the transit industry's best practices and compliance with all local, state, and federal requirements. In keeping with the Federal Transit Administration (FTA) directives of maintaining all transit assets in a state of good repair (SGR) and the supporting TAM legislation that requires agencies to establish asset management performance measures and targets and develop a TAM Plan, this effort will also complement RTD's existing 10-year capital planning practices with the intention of highlighting new, replacement, and specific RTD TAM capital projects.

Based on existing fleet size and planned expansion, RTD falls under the Tier I designation—which is defined as a transit agency that "owns, operates, or manages either (1) one hundred and one (101) or more vehicles in revenue service during peak regular service or in any one non-fixed route mode, or (2) rail transit"—and will proceed with TAM compliance as such.

This plan is established by a cross-functional team of managers and will be updated annually (or more frequently as needed). It includes input from leaders from all affected departments and is approved based on RTD's established accountability structures.

Achieving TAM and SGR Compliance

Beginning in early 2017, RTD's Deputy Chief Executive Officer formed an 11-member team that represented the Facilities, Finance, Capital Planning and Grants, Maintenance, and Information Technology Service divisions of the agency to develop the TAM Plan. Using recommended FTA TAM-related guidance, the team held regular meetings to examine existing policies and practices related to the management of RTD assets, which included short and long-term planning, resource allocation and prioritization, procurement, and salvage policy. In addition, staff performed an asset inventory.

The following TAM Plan is a culmination of the group's efforts in compliance with the TAM Plan Tier I provider elements (as provided by the FTA):

1. **Asset Inventory:** the existing asset inventory of vehicles and facilities
2. **Condition Assessment:** the base condition assessment of the vehicles and facilities. This section also includes annual performance measures and targets.
3. **Decision Support Tools:** description of decision support tool(s) assisting in prioritization of capital investments
4. **Investment Prioritization:** prioritized list of investments

5. **TAM and SGR Policy**
6. **Implementation Strategy**
7. **List of Annual Activities:** List of key annual activities to be undertaken during plan horizon period.
8. **Identification of Resources:** Summary of funding and provision of other resources RTD needs to carry out in the TAM Plan
9. **Evaluation Plan:** Plan that outlines how the TAM Plan will be monitored, updated, and evaluated for continuous asset management improvement.

1. Inventory of Existing Capital Assets

The asset inventory component identifies all critical assets, their location, and important attributes. As a part of its regular National Transit Data Base (NTD) submittal, RTD compiled and submitted a report of its existing revenue vehicles (Form A-30), service vehicles (Form A-35), and facilities (Form A-15) in October of 2017 (see Appendix A–C).

1.1 RTD Revenue Vehicle Fleet

The completed revenue vehicle inventory presented RTD’s total directly-operated fleet of 77 buses. The fleet information was captured across the NTD’s 27 data fields, including the TAM-specific useful life benchmark (ULB) field, and the vehicles grouped into 13 sub-fleet categories per RTD’s assigned Revenue Vehicle Inventory (RVID) number.



In addition to RTD’s directly-operated fleet, RTD-owned vehicles are also operated and maintained, on behalf of RTD, through a Purchase Transportation (PT) contract with a private provider. This fleet consists of 54 buses, including 21-foot to 29-foot cutaway buses, 40-foot standard buses, and 45-foot over-the-road commuter coaches. Incorporated into RTD’s PT contract are comprehensive provisions for monitoring the maintenance performed on this fleet. Both the directly-operated and PT revenue vehicles are included in RTD’s capital planning and programming efforts.



FINDINGS

As a result of the TAM Plan asset inventory work, the RTD TAM Team found a ULB disparity between the PT and directly-operated fleet. There was a large number of PT vehicles that had exceeded their ULB, which resulted in RTD modifying the priority of these vehicles in the capital plan and advancing their replacement (see Section 4.1 Prioritized TAM Projects During Plan Period).

In addition, the vehicle maintenance and inventory software system used by RTD has become antiquated and is no longer supported by the original vendor. Because of this finding, RTD has added a replacement system project into its capital program that will upgrade inventory and fleet maintenance monitoring capacity. This system can also support RTD's Facilities Department's inventory and will help RTD adhere to the new TAM standards.

1.2 RTD Service Vehicle Fleet

The service vehicle submittal (Form A-35) records data across 13 data fields, including agency ID, fleet name, vehicle type, primary mode served, total vehicles in a category, manufacturer, model, year built, cost, ownership, miles, agency capital responsibility to vehicle, RTD-established ULB, and remaining useful life.



FINDINGS

RTD establishes a ULB for service vehicles as part of its maintenance policy, which is set at a ULB of 5 years. The TAM asset inventory effort also revealed a pattern for the 41 vehicles that RTD uses in support of its services.

By looking exclusively at ULB, there is a disproportionately higher number of service vehicles surpassing their ULB than revenue vehicles. Upon further

analysis of additional information such as existing mileage, duty cycle, and vehicle condition, it became apparent that ULB by itself does not provide an accurate representation of remaining vehicle useful life of service vehicles for maintenance and capital planning purposes. This is largely due to the quality of RTD's vehicle maintenance program, which has extended the vehicles' remaining useful life. The assessment criteria for service vehicles were adjusted to account for these variables (further discussed in Section 2.4).

1.3 RTD Facilities

The Form A-15 lists RTD-owned facilities that are used for the administration, operations, and maintenance of its services as well as its bus transfer centers. The NTD submittal recorded data for RTD's four facilities across 19 data fields (e.g., name, address, preliminary condition assessment, primary mode served, facility type, year constructed, square footage, and agency capital responsibility for upkeep of the facility). Below is a brief description of RTD's facilities:

- The **Downtown Transit Center (DTC)** is a 34,000-square foot facility that is used as an administrative facility housing the majority of RTD's executive management, finance, human resources, planning, service development, marketing, customer service, and procurement staff. The DTC also serves as the largest bus transfer center in RTD's system. Subcomponents of the DTC include a passenger concourse, a lobby with public restrooms, an information center, fare vending machines, electronic route arrival/departure displays, 20 bus bays, a satellite police station, a driver break room, and RTD's boardroom.

- RTD's **Regional Transportation Center** (RTC) is the newest of its facilities, with approximately 134,000 square feet to accommodate the full operation, dispatch, and maintenance of its directly operated services. This includes a full driver break room, training facilities, meeting space, and administrative office space. The maintenance area consists of a wash rack, onsite fueling, a parts room, storage space, and 18 various-sized maintenance bays to accommodate all vehicle types (e.g. cutaways, articulated vehicles, etc.). The RTC is designed to store a maximum fleet of over 250 vehicles and includes paved parking for service vehicles and employee parking.
- The oldest of RTD's facilities is the **County Transportation Center** (CTC), which accommodates the full operation, dispatch, and maintenance of RTD's PT contract services. The 68,000-square foot facility includes a phone reservation center, dispatch control center, meeting and training rooms, and administrative office space. The maintenance area includes nine bus bays, a parts room, a storeroom, storage for up to 70 vehicles, and employee parking.
- The **Hammer Triangle Station** (HTS) is a 7,900-square foot bus transfer center that serves as a central hub for the northern Stockton Metropolitan Area (SMA), providing connection between local and regional routes. The HTS subcomponents include a covered passenger waiting area, five boarding locations throughout the station, and a small driver break area with restrooms.



The TAM asset inventory effort was especially helpful for RTD's Facilities Department as it required staff to consider the most optimal aggregate levels of facility subcomponents to inventory and track. The FTA TAM guidance suggested agencies consider reporting on subcomponents of \$50,000 or more in value (for facilities). However, RTD has chosen instead to use a more stringent aggregate. RTD's subcomponent measure will vary by facility to capture the most comprehensive depiction of condition and ongoing maintenance needs regardless of dollar value. For example, to ensure that the numerous subcomponents found within a facility restroom are in a state of good repair (e.g. flooring, sinks, doors, etc.), staff will give sufficient weighting and replacement consideration to the majority of these subcomponents. The exception to this rule is that the subcomponent must be able to be costed out and/or still be under warranty even though it is less than \$50,000 in value. This comprehensive approach to maintaining facility condition assessments will allow RTD to better manage these assets by using valuable asset inventory data.

In order to shift to this comprehensive inventory and assessment approach to facilities on an ongoing basis, staff would need an advanced asset management software system to input and track the data accordingly. Given that the Maintenance department is in need

of a new upgraded inventory and maintenance software system (see Section 1.1), RTD will be pursuing a single shared software system between the Maintenance and Facilities departments which would be especially useful in TAM reporting. Pursuing a single asset management system would provide agency-wide efficiencies; there may also be potential to integrate it with other RTD software systems.

2. Condition Assessment (Baseline)

A condition assessment is the process of inspecting an asset, quantifying the condition of that asset, and producing useable data to measure the condition and performance of the asset. This process involves regular inspections that evaluate an asset's visual and physical conditions and addresses risk, ensures that the asset can meet its service requirements, and provides information from which assets can be managed across their lifecycle. This helps RTD create evaluation criteria and a grading basis for all of its equipment.

To create a baseline conditions assessment for all assets, RTD staff began in February 2018. Whenever possible, departments leveraged existing asset management activities (e.g., previously established PMI as outlined in the Vehicle Maintenance Plan) to create the baseline conditions assessment.

2.1. Revenue Vehicles

In order to establish a baseline condition assessment for the revenue service fleet, RTD's Operations Superintendent—Maintenance developed a review and assessment process that included three evaluation criteria focus areas:

1. A comprehensive visual inspection
2. The age of each vehicle relative to the remaining ULB
3. The duty cycle or miles accrued on each vehicle

In addition, the assessment criteria take in to account the diversity of RTD's fleet which is currently comprised of the following:

- 12 year/500,000 mile vehicles
- 7 year/200,000 mile vehicles
- 7 year/75,000 mile vehicles
- 5 year/100,000 mile vehicles

The base condition assessment began with visual inspections and uses existing preventative maintenance inspection protocols. The visual inspection focused on 11 primary areas that accounted for passenger and operator safety, ensured preventative maintenance practices were being followed, and considered passenger experience. Staff was charged with evaluating these primary areas for both revenue and service vehicles as identified below in Table 1.

Table 1. RTD Revenue Service Vehicle Assessment

No.	Primary Area	Assessment Criteria
1	Body: Exterior	Visible rust, damage, function, condition of glass, panels, bumpers, mirrors, door seals, & emergency exits
2	Body: Interior	Condition & operation seats, panels, flooring, doors, handrails, and gear shift selector
3	Frame/Structure	Visible cracks, rust, wear, condition of frame, sub frame, king pins
4	ADA Amenities	Function/condition wheelchair lift/ramp, kneeler, stop request, stop announcement display/speaker, passenger counter
5	Engine	Oil analysis, noise, condition/function coolant system, air intake, looms, engine mounts, belts & pulleys, hoses
6	Drivetrain	Transmission fluid analysis, condition/function differential, shift quality, universal joint/driveshaft
7	Electrical	Function/condition exterior & interior lighting, dash gauges, wiring, destination sign, camera system, AVL system, radio & antenna
8	A/C & Heat	Leaks/function heating & A/C system
9	Safety Systems	Function/condition fire suppression, horn, emergency exit window release, doors, and roof hatch release
10	Suspension/Steering	Condition/function/play springs, shocks, struts, suspension leveling, tie rods, torque rods
11	Brake/Tires/Wheels	Tire condition & tread depth, axle nuts, brake/shift interlock, emergency brakes, drums, disks, hub oil, air compressor, air system, air brake lines, air dryer

RTD maintenance staff were also directed to score each primary area based on a rating scale intended to assess condition, account for general wear and tear and the age of a vehicle/component part. Table 2 provides the rating guide and associated scoring applied to each of the primary areas for vehicles. A completed visual inspection form can be found in Appendix E.

Table 2. RTD Vehicle Primary Area Rating Guide

Score	Rating	Description
1	Poor	In need of immediate repair or replacement; Item is a safety hazard & may have critically damaged component(s)
2	Marginal	Increasing # of defective/deteriorated component(s) & maintenance needs
3	Adequate	Some moderately defective/deteriorated component(s)
4	Good	Some slight defective/deteriorated component(s)
5	New/Excellent	New asset; no visible defects

Upon completion of the visual inspections, each vehicle score was tabulated and the corresponding age and remaining ULB of each vehicle was recorded, along with vehicle miles accrued at the time of inspection. The inspection scores, ULB, and miles were then given a score that represented one of five vehicle condition and capital replacement priority tiers created by staff to ensure SGR standards and TAM compliance are maintained.

The vehicle condition assessment criteria and corresponding scores for a 12-year vehicle are presented below in Table 3, 7-year/200,000-mile vehicle scores in Table 4, 7-year/75,000-mile vehicle scores in Table 5, and 5-year vehicle scores in Table 6.

Table 3. RTD 12-Year Revenue Service Vehicle Condition Assessment Criteria

Visual Inspection Criteria 1		ULB (Age of Vehicles) Criteria 2		Vehicle Miles Accrued Criteria 3	
Score	Tier Value	Years	Tier Value	Miles	Tier Value
45-55	4	1-4	4	0-100,000	4
34-44	3	5-8	3	100,001-200,000	3
23-33	2	9-11	2	200,001-350,000	2
12-22	1	12-14	1	350,001-450,000	1
0 11	0	>14	0	>450,001	0

Table 4. RTD 7-Yr/200,000 Mile Revenue Service Vehicle Condition Assessment Criteria

Visual Inspection Criteria 1		ULB (Age of Vehicles) Criteria 2		Vehicle Miles Accrued Criteria 3	
Score	Tier Value	Years	Tier Value	Miles	Tier Value
45-55	4	1-2	4	0-50,000	4
34-44	3	3-4	3	50,001-100,000	3
23-33	2	5-6	2	100,001-150,000	2
12-22	1	7	1	150,001-200,000	1
0 11	0	>7	0	>200,001	0

Table 5. RTD 7-Yr/75,000 Mile Revenue Service Vehicle Condition Assessment Criteria

Visual Inspection Criteria 1		ULB (Age of Vehicles) Criteria 2		Vehicle Miles Accrued Criteria 3	
Score	Tier Value	Years	Tier Value	Miles	Tier Value
45-55	4	1-2	4	0-15,000	4
34-44	3	3-4	3	15,001-35,000	3
23-33	2	5-6	2	35,001-55,000	2
12-22	1	7	1	55,001-75,000	1
0 11	0	>7	0	>75,001	0

Table 6. RTD 5-Year Service and Revenue Service Vehicle Condition Assessment Criteria

Visual Inspection Criteria 1		ULB (Age of Vehicles) Criteria 2		Vehicle Miles Accrued Criteria 3	
Score	Tier Value	Years	Tier Value	Miles	Tier Value
45-55	4	1	4	0-25,000	4
34-44	3	2	3	25,001-50,000	3
23-33	2	3-4	2	50,001-75,000	2
12-22	1	5	1	75,001-100,000	1
0 11	0	>5	0	>100,001	0

The tier values for each of the three assessment criteria were tabulated to arrive at a final base condition score for each vehicle as presented below in Table 7.

Table 7. RTD 2018 Base Condition Assessment Vehicle Scoring

Base Condition Scoring	
Condition	Tier Value Score
Excellent	11-13
Good	8-10
Fair	5-7
Poor	2-4
Failing	0 1

2.2. Revenue Vehicle 2018 Assessment Scores

RTD staff was able to complete the fleetwide base condition assessment in May of 2018. A summary of RTD's 2018 base condition assessment for the revenue vehicle fleet can be found below in Table 8. Those vehicles that received poor or failing condition assessment scores have been incorporated into the list of prioritized TAM projects for replacement or extended ULB in Section 4.1 of this Plan. The results from the complete revenue vehicle base condition assessment can be found in Appendix F.

Table 8. RTD 2018 Revenue Vehicle Base Condition Assessment Scores

Year	Make/Model	Total Base Vehicle Score	Assessment Condition	Quantity
2017	Glaval Titan II	12	Excellent	22
2016	Proterra/Catalyst	12	Excellent	10
2013	Nova/LFS-60	12	Excellent	6
2013	Gillig/Diesel Electric	10	Good	21
2012	Proterra/Ecoride	10	Good	2
2012	Gillig/Hybrid Electric	9	Good	6
2011	Gillig/Hybrid Electric	8	Good	2
2010	Gillig/Hybrid Electric	8	Good	8
2006	Ford Cutaway	7	Fair	2
2009	Gillig/Low Floor Hybrid	6	Fair	3
2006	Ford Aerotech 220	7	Fair	1
2006	Ford Aerotech 220	1	Poor	8
2006	Ford Cutaway	1	Poor	8
2006	Ford Van	6	Fair	1
2005	Ford Cutaway	6	Fair	2
2006	Gillig/Hybrid Electric	5	Fair	19
2007	Gillig/Hybrid Electric	3	Poor	2
2007	Gillig/Hybrid Electric	5	Fair	4
2003	Dodge Van	5	Fair	2
2002	Ford Cutaway	3	Poor	1
2003	Ford Cutaway	1	Failing	2
2008	MCI/D4500	4	Poor	1
2001	MCI/D4500	0	Failing	15
Total				138

2.3. Service Vehicles

The methodology used to perform the baseline condition assessment for RTD's service vehicles (which includes service trucks, staff pool vehicles, and other non-revenue vehicles) was the same as that used for revenue vehicles (see Tables 1 and 2). RTD staff

rotated the entire fleet through the visual inspection portion of the assessment as part of its regular preventative maintenance inspection program. Given that this fleet is comprised entirely of vehicles with an identified 5 year/100,000 miles life cycle, RTD applied the criteria provided in Table 6 for the ULB and miles portion of the assessment.

2.4. Service Vehicle 2018 Assessment Scores

In Table 9 below is a summary of RTD's base condition assessment for the service vehicle fleet. Because ULB by itself does not provide an accurate representation of the vehicle's useful life (see 1.2), RTD adjusted the evaluation criteria, offsetting condition scores that disproportionally impacted service vehicles, which better reflects the quality of RTD's maintenance program. For the service vehicle fleet, 6 of the 41 vehicles were rated as failing and 7 rated as being in poor condition. However, the majority of the fleet is operating within the fair to excellent range (21 in total). The complete base condition assessment for the service vehicle fleet can be found in Appendix G.

Table 9. RTD 2018 Service Vehicle Base Condition Assessment Scores

Year	Make/Model	Total Base Vehicle Score	Base Condition	Quantity
2017	Dodge Van	12	Excellent	1
2017	Ford Transit (350)	8	Good	1
2017	Ford Escape 4WD	12	Excellent	2
2017	Ford Focus	12	Excellent	6
2014	Ford Truck (F250)	9	Good	2
2014	Ford Truck (C-Max)	7	Fair	1
2014	Ford Truck (C-Max)	8-9	Good	6
2014	Hybrid Nissan Pathfinder	9	Good	2
2014	Hybrid Nissan Pathfinder	7	Fair	1
2013	Ford Truck (F150)	6	Fair	2
2013	Ford Transit Connect	6	Fair	1
2011	Ford Truck (F350)	5	Fair	1
2010	Ford Focus	1	Failing	1
2009	Ford Truck (Ranger)	4	Poor	1
2008	Ford Truck (F550)	4	Poor	1
2007	Chrysler Sedan	4	Poor	1
2006	Dodge Truck (Ram)	2	Poor	1
2006	Dodge Van	2	Poor	1
2006	Eldorado Aerotech	0	Failing	1
2005	Ford Truck (Ranger)	2	Poor	1
2005	Ford Truck (F350)	1	Failing	1
2003	Ford Truck (F550)	3	Poor	1
1999	Ford Truck (350)	0	Failing	1
1999	Ford Truck (350)	2	Poor	1
Total				38

2.5. Inactive Vehicles

During the preparation of this TAM Plan and as part of RTD's fleet management, older vehicles were rotated out of the active fleet as replacement vehicles were introduced into revenue service. As these vehicles are prepared for disposal following RTD's Sale of Surplus Equipment and Scrap Items as outlined in the Procurement Manual, the Maintenance Department designates them as inactive, discontinues maintenance, and

stores them while the salvage process begins. The Finance Department, however, does not change the designation of these vehicles from active to inactive but instead maintains the vehicle capital asset records unchanged until an inactive vehicle is disposed. Table 10 provides a listing of the 22 vehicles designated inactive during the TAM Plan development.

Table 10. RTD Inactive Revenue Vehicles

Vehicle ID	Year	Make/Model
801	2008	Ford Type II Cutaway
802	2008	Ford Type II Cutaway
803	2008	Ford Type II Cutaway
804	2008	Ford Type II Cutaway
806	2008	Ford Type II Cutaway
807	2008	Ford Type II Cutaway
808	2008	Ford Type II Cutaway
809	2008	Ford Type II Cutaway
810	2008	Ford Type II Cutaway
811	2008	Ford Type II Cutaway
812	2008	Ford Type II Cutaway
4001	2004	Gillig/Hybrid
4002	2004	Gillig/Hybrid
4003	2003	Gillig/Hybrid
4004	2004	Gillig/Hybrid
6201	2007	Gillig/Hybrid
6202	2007	Gillig/Hybrid
6203	2007	Gillig/Hybrid
6206	2007	Gillig/Hybrid
6207	2007	Gillig/Hybrid
6305	2006	Gillig/Hybrid
601	2006	Aerotech 220
Total		22

2.6. Facilities

For its facilities, RTD has chosen, after clarification from FTA staff, to perform a comprehensive baseline condition assessment of one facility each year during the TAM Plan period (2018–2022). The first facility baseline condition assessment conducted by staff for this Plan was for the DTC, which took place between February and May of 2018. Staff identified the components and associated subcomponents of the DTC from their inspection program and selected those that ensure safe and efficient facility operations.

In many cases, the value of these subcomponents is less than \$50,000. The facilities staff visually assess each component and subcomponents using the inventory and criteria outlined in the RTD Facility Maintenance Plan.

ASSESSMENT CRITERIA AND METHOD USED

The assessment criteria chosen for RTD's facilities uses the Transit Economics Replacement Model (TERM) to capture the DTC ratings. The following scoring guide (Table 11) was used for the DTC and each of its identified subcomponents.

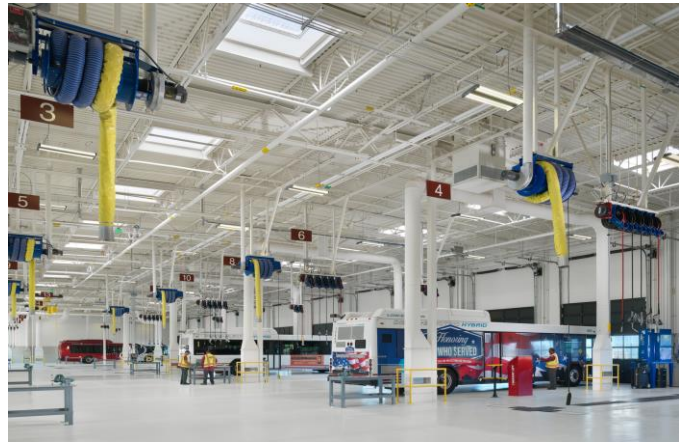


Table 11. RTD TERM Facilities Assessment Scoring

Condition	Rating	Description
Excellent	5.0 to 4.8	New asset; no visible defects.
Good	4.7 to 4.0	Asset showing minimal signs of wear; some slightly defective or deteriorated component(s).
Adequate	3.9 to 3.0	Asset has reached its mid-life (condition 3.5); some moderately defective or deteriorated component(s).
Marginal	2.9 to 2.0	Asset reaching or just past the end of its use life; increasing number of defective or deteriorated component(s) and increasing maintenance needs.
Poor	1.9 to 1.0	Asset is past its useful life and is in need of immediate repair or replacement may have critically damaged component(s).

The score and ratings given to each component and subcomponent took into consideration general wear and tear, the age of the facility subcomponent/parts, and other important variables (i.e. associated components, ownership, warranty, etc.).

2.7. Facility 2018 Assessment Scores—DTC

In Table 12 below is a summary of the 2018 DTC base condition component and subcomponent assessment ratings. Staff identified 17 primary components and 112 associated subcomponents for the DTC, which were each assessed and scored. The completed DTC facility inspection results and component photographs can be found in Appendix H.

Table 12. Downtown Transit Center Baseline Condition Ratings

Exterior Loading Platform No On Site Parking	Subcomponent Total	Rating
	8	4.8
Landscaping or Street Scape		Rating
	3	4.5
Exterior Façade		Rating
	15	4.0
Exterior Lighting		Rating
	2	4.5
Lobby & Breezeway		Rating
	11	4.4
Office Finishes		Rating
	7	4.0
Windows		Rating
	3	4.5
Doors and Hardware		Rating
	3	4.6
Interior Lighting		Rating
	6	4.5
HVAC		Rating
	7	4.2
Fire Protection		Rating
	5	4.4
Security System		Rating
	5	4.5
Restrooms/Plumbing		Rating
	13	4.2
Kitchen/Break Areas		Rating
	11	4.1
Equipment Rooms IT, Mechanical, Electrical		Rating
	4	4.4
Wellness Rooms		Rating
	2	
Roof		Rating
	7	4.6
DTC Totals		Rating
	112	4.4

2.8. Annual Performance Measures and Targets

In September of 2017, RTD's TAM Team compiled and submitted, along with its regular National Transit Database (NTD) submittal, its first preliminary reporting of TAM performance measure targets on the A-90 form (see Appendix D). The eight fields of data captured performance targets and measures for revenue and service vehicles in RTD's fleet for the current year of 2017. RTD had not established formal performance measures at that time. However, the ULB illustration on this form and the A-30 Form proved helpful for RTD's capital planning and prioritization of fleet replacement (See Section 4.1 Prioritized TAM Project During Plan Period).

As part of this Plan, RTD has incorporated the FTA's SGR performance measures for vehicles and introduced their own annual performance targets into the TAM Plan, which are found below in Table 13.

Table 13. RTD Revenue and Service Vehicles Performance Measures and Targets

Asset Class	Performance Measure	Definition	Annual Target
All revenue vehicles	Age	% of RTD's revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	No more than 10% of revenue vehicle fleet shall exceed ULB
Service vehicles	Age	% of RTD's service vehicles that have met or exceeded their ULB	No more than 20% of service vehicle fleet shall exceed ULB

Table 14 below presents RTD's adopted SGR performance measures and annual target to be applied to all RTD facilities.

Table 14. RTD Facility Performance Measures and Targets

Asset Class	Performance Measure	Definition	Annual Target
All buildings or structures	Condition	% of RTD facilities with a condition rating below 3.0 on TERM Scale	No facility shall fall below a TERM score of 3.0

3. Decision Support Tools

RTD currently uses several data sets to aid in the analysis of capital need and prioritization, including Finance Department asset data contained within OneSolution, Maintenance Department fleet maintenance and inventory records contained within its existing 4i Spear licensed software system, and manual data captured and reviewed by Facilities Department staff. Staff uses this data for forecasting, capital planning, and budget preparation.

An additional analytic process that RTD uses for its project prioritization occurs as part of the region's capital needs coordination with the MPO. Staff's collaboration with SJCOG has historically required current TAM Team members to organize and prioritize assets internally prior to creating the report.

This plan introduced another analytic tool, a tiered assessment methodology used in the condition assessment effort. The vehicle assessment scoring described in Section 2.1 included a color coding associated with five tiers. As seen below in Table 13, the same color coding is associated with a corresponding capital replacement priority scale. The newest and highest scoring vehicles fall in Tier 1 and 2 (new and low). However, as wear on the vehicle occurs, vehicle miles continue to accrue, and the remaining ULB diminishes, the replacement priority increases to moderate (capital planning and procurement necessary) or to high (procurement needing to be underway or complete).

Table 15. RTD Capital Replacement Priority Scoring

RTD Capital Replacement Priority		
Tier 1	New	Replacement not needed
Tier 2	Low	Replacement not needed
Tier 3	Moderate	Capital planning and procurement needed
Tier 4	High	Procurement needed to be underway
Tier 5	Highest	Procurement needed to be underway or complete

RTD anticipates that once a new asset management software system is in place it will integrate with existing software systems currently in place and allow the agency to more efficiently monitor the age, condition, and replacement status of vehicles, equipment, and facility components and subcomponents.

4. Investment Prioritization

4.1. Prioritized TAM Projects During Plan Period

RTD, as part of the TAM Plan effort, has incorporated plan findings into current operations and future capital planning and programing. Table 14 is a summary of the TAM projects included in RTD's Regional Capital Assessment Management Projections (Appendix I). This table is a tool to highlight all TAM-specific projects scheduled to take place within the TAM Plan time horizon (FY 2018 to FY 2022). This project list includes new capital projects to improve RTD's system, accounts for maintenance of existing RTD assets in a state of good repair, estimates funding, assumes linkage to applicable STIP/TIP, and features enhancements to improve upon existing RTD assets.

Table 16. RTD TAM Capital Plan Project List

Project	Description	Est. Time Frame	Projected Cost	Funding	Priority	Ranking
MCI Bus Fleet Replacement Campaign	Replace the oldest over-the-road coaches	FY 18 – 20	\$10,000,000	Secured	Highest	1
Hopper Bus Fleet Replacement Campaign	Replace the cutaway vehicles at the end or past ULB	FY 17 – 18	\$3,500,000	Secured	Highest	2
CTC Renovations	Parking lot resurfacing, shop flooring, restrooms, etc.	FY 18 – 19	\$80,000	Secured	High	3
CAD/AVL Replacement Project	Replace CAD/AVL for Hopper	FY 17 – 18	\$384,000	Secured	High	4
Electric Bus Conversion/Bus Replacement	RTD has committed to a complete conversion of its bus fleet used on Metro, SMA, and BRT services	To be completed by FY 24 – 25.	Yet to be finalized	Partially secured	High/Moderate	5
Union Transfer Station Facility	Construct RTD's second passenger transfer facility	FY 17 – 19	\$8,000,000	Secured	New	6
DTC Roof Replacement	Replace roofing material	FY 18	\$138,000	Secured	Moderate	7
Hopper Vehicle ULB Extension	Extend ULB on four former vehicles	FY 19	\$200,000	Awaiting funding	Moderate	8
Commuter Vehicle ULB Extension	Extend ULB on three commuter vehicles	FY 19	\$900,000	Awaiting funding	Moderate	9
MOD Pilot Program	Introduce on-demand fixed route service	FY 19	\$450,000	Secured	Moderate	10
BRT Fare Vending Machine Replacement	Replace original units with upgrade units	FY 18	\$850,000	Secured	Moderate	11
TAM and Inventory System	Procure an integrated software system for vehicles & facilities for TAM compliance	FY 18 – 19	\$350,000	Secured	New	12
Solar PV Panel Project	Install Solar PV Panels at RTC & DTC	FY 19 – 20	\$3,400,000	Secured	New	13
Solar System Road Map Phase I	System-wide planning & program campaign identifying present & future electrical needs for solar	To be completed	\$100,000	Partially secured	New	14
Fleet-wide Farebox Replacement Campaign	Replace & upgrade fareboxes fleetwide			Not yet identified	Low	15

5. TAM and SGR Policy

TRANSIT ASSET MANAGEMENT AND STATE OF GOOD REPAIR POLICY SAN JOAQUIN REGIONAL TRANSIT DISTRICT

San Joaquin Regional Transit District (RTD) aims to provide a safe, reliable, and efficient transportation system for the region. In order to fulfill its vision to be the transportation service of choice for the residents it serves, RTD is establishing the Transit Asset Management (TAM) and State of Good Repair (SGR) Policy to guide its resource allocation.

Not only is RTD committed to a responsive approach to asset management, but it is also committed to continuously improving the process by developing a proactive approach to managing its assets. Through its procurement, management, and maintenance policies and practices, RTD approaches TAM and SGR as a responsible transit provider, maintaining compliance with existing regulations and requirements while pursuing increased efficiency and innovation. As RTD implements strategies to become a better asset manager, it aims to coordinate across departments to better work toward common goals.

A. Policy Goals

RTD aims to manage its assets strategically by using integrated and systematic data collection, storage, analysis, and reporting standards so that it can make asset management decisions which emphasize cost-effectively maintaining and, when possible, extending the useful life of equipment, fleet, and facilities. In addition, RTD will follow transit industry maintenance best practice standards in the preventative and ongoing maintenance of its capital assets.

- RTD is committed to asset management and will facilitate the establishment of a culture that values asset management and makes it a priority.
- As asset management practices mature, RTD plans to embed asset management responsibilities and accountabilities into its strategic planning activities
- RTD's executive leadership will provide direction in building a culture favorable to embedding asset management into ongoing capital planning, operations, and maintenance activities.
- RTD is committed to making decisions according to criteria established by the agency and borne out in data.

B. Accountability/Responsibility

RTD has developed and will maintain an internal, cross-functional staff-led TAM Team with representatives from RTD's procurement, finance, grants and capital planning, IT, maintenance, and facilities departments. The TAM Team will participate in the following:

- Comprehensive capital planning efforts.
- NTD data gathering and presentation of TAM-related data.
- TAM project and management efforts.
- RTD's annual budget preparation.

C. RTD's TAM Policy

RTD's staff-led TAM Team will work across departments to ensure that TAM policy is integrated into RTD's capital asset decision-making and actions, including the following:

- RTD staff will bring the final 2018–2022 TAM Plan before the RTD Board of Directors; future TAM-related items will also be brought before the Board for approval.
- TAM Team Leads will coordinate closely with the San Joaquin Council of Governments (SJCOC), specifically with regards to the ongoing regional capital planning efforts, to ensure that TAM-

related capital projects and corresponding TAM prioritization are so noted in future 10-year capital plans.

- Based on findings from last year's NTD A-15 form, RTD will include facility components (and subcomponents within the structure), even when the replacement costs of such components/subcomponents are below \$50,000 in value (FTA guidance suggests \$50,000 and above).
- RTD and its staff will adhere to its TAM Plan and the provisions set forth, including future revisions and modifications.
- RTD, having established this initial TAM policy, intends on revisiting and modifying the policy on an on-going basis.

The FTA TAM Rule specifies standards for measuring the condition of capital assets and SGR performance measures for those assets, which RTD is committing to follow as set forth in this TAM Policy. The requirements for an asset to be considered able to operate at a full level of performance include:

- The asset must be able to perform its designed function
- The use of the asset does not pose an identified unacceptable safety risk
- The lifecycle investment needs of the asset have been met or recovered, including all scheduled maintenance, rehabilitation, and replacements.

D. RTD's SGR policy

RTD's TAM Team, especially those department representatives assigned to maintaining capital assets in a state of good repair, will work agency-wide to ensure that SGR policy is integrated into RTD's on-going and preventative maintenance practices including the following:

- RTD's Maintenance Department will modify its Vehicle Maintenance Plan to include reference to the TAM Plan and revisit it as changes related to TAM occur. This plan is updated regularly and approved by the CEO or designee.
- RTD's Facilities Department will modify its Facilities Maintenance Plan to include reference to the TAM Plan and revisit it as changes related to TAM occur. This plan is updated regularly and approved by the CEO or designee.
- RTD's maintenance records, vehicles, and terminals (maintenance facilities) will remain in compliance with all federal, state, and local safety standards and be subject to annual audit by the California Highway Patrol.
- RTD facilities will remain in compliance with all federal, state, and local safety standards and be subject to State of California, regional, and local annual safety and compliance audits.
- Facilities staff, including superintendent, supervisors, and technicians, will continue to participate in the San Joaquin County sponsored annual safety certification program.
- RTD will maintain and monitor the annual performance measure targets for vehicles and facilities established in this TAM Plan. Should these performance measure targets change, staff will maintain any new/revised targets.
- RTD's Safety Team Committee will continue to meet quarterly and include discussion items related to maintaining transit assets in an SGR for the safety of the general public and RTD employees.
- RTD and its staff will adhere to its TAM Plan and the provisions related to SGR policy set forth, including future revisions and modifications.
- RTD, having established this initial SGR policy, intends on revisiting and modifying the policy on an on-going basis.

6. Implementation Strategy

In the formation of the internal staff-led TAM team, much of the initial discussion and planning involved RTD's strategy to incorporate existing policies and practices into a new coordinated capital asset management approach. This strategic approach aimed for integration with RTD's Strategic Plan goals and existing asset management policy and practices. It also included assessing whether existing policy and practice required modification or if new policy and practice needed to be developed to meet the objectives of a new TAM Plan. The following principles reflect and serve as guidance as RTD implements the TAM Plan:

- Ensure continuity between departments and that all departments are aware of TAM priorities.
- Develop TAM implementation strategies during regular annual managers retreat which addresses strategic planning and performance management.
- Create SMART (smart, measurable, attainable, relevant, time-constrained) objectives
- Provide guidance and justification for investment decisions.
- Establish accountability and performance management expectations.
- Specify measurable objectives that are to be accomplished through the strategy to provide accountability and focus for capital planning and asset management.
- Consider regulations and other business requirements established by the federal government, state government, and other oversight agencies that may or may not support asset management goals.
- Evaluate how the implementation strategy aligns with RTD's strategic plan.

RTD was able to complete its vehicle and facility asset inventories as part of the NTD FY 2018 data submittal. At that time, the TAM Plan was in the beginning stages of development and did not include formally identified performance targets (only initial SGR performance targets were submitted at that time).

Since then, RTD has completed the TAM plan which includes specific performance targets that will be approved by RTD. In addition, base condition assessments for the fleet and one of four RTD facilities has also been included in this plan. RTD will perform a base condition assessment for each of the three remaining facilities over the TAM plan period which extends to 2022.

Portions of the TAM Plan have already begun being implemented. For example, with the discovery of the ULB disparity with some of the PT fleet (discussed in Section 1.1), staff prioritized the procurement of the oldest of these vehicles in RTD's capital plan and budget and expects to receive these vehicles through its procurement process. After adoption of the Plan, it is expected that incremental implementation will begin immediately.

The TAM Team will ensure the TAM Plan rollout is completed. For instance, Team members will begin preparing for the FY 2019-20 NTD data submittal in September.

7. List of Key Annual Activities

7.1. Key TAM Activities

RTD has several planned and programmed TAM-related activities that will occur on a monthly, quarterly, or annual basis. As the TAM Plan is implemented, RTD will modify existing activities to better address the various elements of the plan; new activities will most likely be added as the agency becomes more prolific with the plan actions. Below in

Table 17 are those currently planned or programmed TAM activities to occur during the TAM Plan period.

Table 17. TAM Key Activities

Report FY 2018 Asset Inventory Module (AIM) data to NTD	October 2017
Complete Compliant TAM Plan	July 2018
RTD Board approves TAM Plan	September 2018
Complete revised Vehicle Maintenance Plan	September 2018
Complete revised Facility Maintenance Plan	September 2018
Send SRTP & Capital Needs to SJCOG	October 2018
Report FY 2018 AIM data to NTD	October 2018
Submit TAM targets for FY2019 to NTD	October 2018
Complete revised Vehicle Maintenance Plan	September 2019
Complete revised Facility Maintenance Plan	September 2019
Report FY 2019 AIM data to NTD	October 2019
Submit TAM targets for FY 2020 to NTD	October 2019
Submit narrative report to NTD	October 2019
Submit updated Capital Needs data to SJCOG	November 2019
Complete revised Vehicle Maintenance Plan	September 2020
Complete revised Facility Maintenance Plan	September 2020
Report FY 2020 AIM data to NTD	October 2020
Submit TAM targets for FY 2021 to NTD	October 2020
Submit narrative report to NTD	October 2020
Submit updated Capital Needs data to SJCOG	November 2020
Complete updated TAM report	October 2022

8. Identification of Resources

RTD first recognized how much staff resources and time would be necessary to properly develop the TAM Plan when it assembled its internal staff-led TAM Team. As part of planning and developing the list of TAM key activities, RTD recognized how much staff resources and time will be needed on an on-going basis. This includes the following departmental resources to carry out the TAM Plan:

- TAM Team members will need to allocate time for the implementation of the TAM Plan (e.g., both for key and ongoing activities, budget or capital-related).
- Each department that has a TAM component must dedicate staff resources to support the TAM Plan implementation.

In addition, the TAM project list includes the acquisition of a new resource—integrated asset management software—to assist the Facilities, Finance, and Maintenance Departments in data logging and tracking.

RTD draws from several local, state, and federal funding resources in order to address capital needs. The following is a list of the resources used:

- 5307
- 5310
- 5311
- 5312
- 5339
- CMAQ
- Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)
- Low Carbon Transit Operations Program (LCTOP)
- Public Transportation Modernization, Improvement, and Service Enhancement Account Program (PTMISEA)
- Property Tax
- Sales Tax Measure K
- State Transit Assistance Fund (STA)
- Transit Intercity Rail Capital Program (TIRCP)
- Transportation Development Act (TDA)
- Zero-Emission Truck and Bus Pilot Commercial Deployment Project

9. Evaluation Plan

9.1 TAM Evaluation Plan

Provided below is an outline of how RTD intends to monitor and update its TAM Plan and to evaluate how the Plan will support the ongoing successful maintenance of RTD's transit assets:

1. The Operations Superintendent—Maintenance will continue to annually review and update RTD's Vehicle Maintenance Plan, including the new TAM provisions.
2. The Operations Superintendent—Facilities will continue to annually review and update RTD's Facility Maintenance Plan, including the new TAM provisions.
3. Grants and Capital Planning will continue to annually coordinate with the San Joaquin Council of Governments (SJCOG) on capital needs, TAM implementation, and TAM project prioritization.
4. TAM Team representatives will provide monthly TAM-specific project updates and prioritization as a part of RTD's Project Management meetings with Executive Team.
5. Staff TAM Team coordinates annually with NTD staff on TAM data as part of NTD submittal.
6. TAM Team Leaders annually coordinate with Finance staff on the capital planning portions of RTD's budget preparations.



Appendix A: RTD 2017 NTD Facilities Submittal (Form A-15)

Facility ID	Name	Section of Larger Facility?	Street	City	State	Zip	Lat	Long	Condition Assessment	Est. Date of Condition Assessment	Primary Mode	Secondary Mode	Private Mode	Facility Type	Year Built or Reconstructed as New	Square Feet	Parking Spaces	Transit Agency Capital Responsibility (%)	Notes
RTC	Regional Transportation Center	No	2849 E. Myrtle Street	Stockton	CA	95205			4	4/29/80	MB - Bus			Combined Administrative and Maintenance Facility (describe in Notes)	2015	134270		100	Dispatch, fueling, revenue collection, all maintenance, and admin offices for RTD at RTC.
CTC	County Transportation Center	No	120 N. Filbert	Stockton	CA	95205			3	9/2/2017	MB - Bus			Combined Administrative and Maintenance Facility (describe in Notes)	1959	68600		100	Dispatch, fueling, revenue collect., maintenance, and admin offices for PT at CTC. Actual build date unknown-120 N. Filbert annexed to City from County in 1959. City records begin as of annex date.
DTC	Downtown Transit Center	No	421 E. Weber Avenue	Stockton	CA	95202			4	9/2/2017	MB - Bus			Other, Administrative & Maintenance (describe in Notes)	2006	34000		100	Primary admin, ticket sales, major bus transfer, restrooms at DTC.
HTS	Hammer Triangle Station	No	7735 Lower Sacramento Street	Stockton	CA	95210			3	9/2/2017	MB - Bus			Bus Transfer Center	1995	7920		100	



Appendix B: RTD 2017 NTD Revenue Vehicle Submittal (Form A-30)

RV ID	Agency Fleet Id	Vehicle Type	Total Vehicles	Active Vehicles	Dedicated Fleet	No Capital Replacement Responsibility	Manufacturer	Describe Other Manufacturer	Model	Year Manufactured	Year Rebuilt	Fuel Type	Dual Fuel Type	Vehicle Length	Seating Capacity	Standing Capacity	Ownership Type	Funding Type	ADA Accessible Vehicles	Supports Another Mode/TOS	Emergency Contingency Vehicles	Useful Life Benchmark	Useful Life Remaining	Miles This Year	Avg Lifetime Miles per Active Vehicle	Status
328502		Bus (BU)	6	6	Yes		GIL - Gillig Corporation		G300102N4	2012		Hybrid Diesel	Hybrid Diesel - Electric Battery	40	37	30	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	6		0	12	9	139061	145649	Active
336972		Bus (BU)	2	2	Yes		PRO - Proterra Inc.		ECORIDE BE-35	2012		Electric Propulsion Power		35	33	32	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	2		0	12	9	37863	72984	Active
336971		Bus (BU)	20	20	Yes		GIL - Gillig Corporation		G300102N4	2013		Hybrid Diesel	Hybrid Diesel - Electric Battery	40	40	20	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	20		0	12	8	515611	103850	Active
336970		Articulated Bus (AB)	6	6	Yes		NOV - NOVA Bus Corporation		LFS ARTICULATE D	2014		Hybrid Diesel	Hybrid Diesel - Electric Battery	60	62	112	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	6		0	12	9	165679	78001	Active
15106		Bus (BU)	1	1	Yes		GIL - Gillig Corporation		G19D102N4	2004		Hybrid Diesel	Hybrid Diesel - Electric Battery	40	36	27	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	1		0	12	0	15045	278734	Active
25724		Bus (BU)	10	10	Yes		GIL - Gillig Corporation		G19B102N4	2006		Hybrid Diesel	Hybrid Diesel - Electric Battery	35	31	8	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	10		0	12	1	278120	316248	Active
52362		Bus (BU)	6	6	Yes		GIL - Gillig Corporation		G19D102N4	2006		Hybrid Diesel	Hybrid Diesel - Electric Battery	40	37	10	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	6		0	12	1	93720	267479	Active
34394		Bus (BU)	3	3	Yes		GIL - Gillig Corporation		G19D102N4	2008		Hybrid Diesel	Hybrid Diesel - Electric Battery	40	40	32	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	3		0	12	3	78116	219481	Active
44682		Bus (BU)	2	2	Yes		GIL - Gillig Corporation		G300102N4	2010		Hybrid Diesel	Hybrid Diesel - Electric Battery	40	40	29	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	2		0	12	7	50983	173433	Active
52363		Bus (BU)	8	8	Yes		GIL - Gillig Corporation		G300102N4	2010		Hybrid Diesel	Hybrid Diesel - Electric Battery	40	37	30	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	8		0	12	7	177855	178781	Active
350706		Bus (BU)	9	9	Yes		PRO - Proterra Inc.		CATALYST	2017		Electric Propulsion Power		40	37	30	Owned outright by public agency (OOPA)	Urbanized Area Formula Program (UA)	9		0	12	12	2507	1738.111111	Active



Appendix C: RTD 2017 NTD Service Vehicle Submittal (Form A-35)

ID	Agency Fleet ID	Fleet Name	Vehicle Type	Primary Mode	Year Manufactured	Estimated Cost	Useful Life Benchmark (Years)	Useful Life Remaining (Years)	Total Vehicles	Transit Agency Capital Responsibility (%)	Year Dollars of Estimated Cost	Secondary Modes(s)
FA001469	T106	FORD E350 XLSUPERDUTY	Trucks and other Rubber Tire Vehicles	MB - Bus	1999	33455.66	5	0	1	100	1999	N/A
FA001470	F101	FORD E350 XLTSPERDUT	Trucks and other Rubber Tire Vehicles	MB - Bus	1999	33455.67	5	0	1	100	1999	N/A
FA000501	M101	FORD F550	Trucks and other Rubber Tire Vehicles	MB - Bus	2003	26759.71	5	0	1	100	2003	N/A
FA000605	VM202	FORD RANGER RC	Trucks and other Rubber Tire Vehicles	MB - Bus	2005	11350.48	5	0	1	100	2005	N/A
FA000606	F104	FORD F350 TRUCK	Trucks and other Rubber Tire Vehicles	MB - Bus	2005	26211.4	5	0	1	100	2005	N/A
FA005013	A8	DODGE RAM TRUCK	Trucks and other Rubber Tire Vehicles	MB - Bus	2006	24930.84	5	0	1	100	2006	N/A
FA005452	A10	DODGE CARAVAN	Trucks and other Rubber Tire Vehicles	MB - Bus	2006	21269.63	5	0	1	100	2006	N/A
FA015361	609	ELDORADO AEROTECH	Trucks and other Rubber Tire Vehicles	MB - Bus	2006	55097.57	5	0	1	100	2006	N/A
FA015377A-C	F105	FORD F550 REG CAB	Trucks and other Rubber Tire Vehicles	MB - Bus	2008	41722.49	5	0	1	100	2008	N/A
FA007063	A2	CHRYSLER SEBRING	Automobiles	MB - Bus	2009	18197.03	5	0	1	100	2009	N/A
FA009038	M103	FORD RANGER	Trucks and other Rubber Tire Vehicles	MB - Bus	2009	13938.95	5	0	1	100	2009	N/A
FA009046	T10101	FORD FOCUS SEDAN	Automobiles	MB - Bus	2010	13998.9	5	0	1	100	2010	N/A
FA009048A-C	T10201	FORD FOCUS SEDAN	Automobiles	MB - Bus	2010	13998.9	5	0	1	100	2010	N/A
FA035775A	F106	FORD F350 TRUCK	Trucks and other Rubber Tire Vehicles	MB - Bus	2011	31230.47	5	0	1	100	2011	N/A



FA013169	F13103	FORD F150	Trucks and other Rubber Tire Vehicles	MB - Bus	2013	18619.94	5	1	1	100	2017	N/A
FA013168	F13104	FORD F150	Trucks and other Rubber Tire Vehicles	MB - Bus	2013	18619.94	5	1	1	100	2017	N/A
FA013170	F13105	FORD PICK UP	Trucks and other Rubber Tire Vehicles	MB - Bus	2013	23588.18	5	1	1	100	2017	N/A
FA013171	F13101	FORD F250	Trucks and other Rubber Tire Vehicles	MB - Bus	2014	29264.57	5	2	1	100	2017	N/A
FA013172	F13102	FORD F250	Trucks and other Rubber Tire Vehicles	MB - Bus	2014	29264.57	5	2	1	100	2017	N/A
FA012954	T14104	FORD C-MAX	Trucks and other Rubber Tire Vehicles	MB - Bus	2014	27077.81	5	2	1	100	2017	N/A
FA012955	T14101	FORD C-MAX	Trucks and other Rubber Tire Vehicles	MB - Bus	2014	27077.81	5	2	1	100	2017	N/A
FA012956	T14103	FORD C-MAX	Trucks and other Rubber Tire Vehicles	MB - Bus	2014	27077.81	5	2	1	100	2017	N/A
FA012957	O14104	FORD C-MAX	Trucks and other Rubber Tire Vehicles	MB - Bus	2014	27077.81	5	2	1	100	2017	N/A
FA012958	A14103	FORD C-MAX	Trucks and other Rubber Tire Vehicles	MB - Bus	2014	27077.81	5	2	1	100	2017	N/A
FA012959	A14104	FORD C-MAX	Trucks and other Rubber Tire Vehicles	MB - Bus	2014	27077.81	5	2	1	100	2017	N/A
FA012960	A14105	FORD C-MAX	Trucks and other Rubber Tire Vehicles	MB - Bus	2014	27077.81	5	2	1	100	2017	N/A
FA013353	M14102	NISSAN HYBRID	Automobiles	MB - Bus	2014	35435.98	5	2	1	100	2017	N/A
FA013354	T14102	NISSAN HYBRID	Automobiles	MB - Bus	2014	35435.98	5	2	1	100	2017	N/A



FA013355	A1401	NISSAN HYBRID	Automobiles	MB - Bus	2014	35435.98	5	2	1	100	2017	N/A
FA017638	T17101	FORD ESCAPE	Trucks and other Rubber Tire Vehicles	MB - Bus	2016	29161.21	5	4	1	100	2017	N/A
FA017704	T17101	DODGE CARAVAN	Trucks and other Rubber Tire Vehicles	MB - Bus	2017	22936.91	5	5	1	100	2017	N/A
FA017760	A17203	FORD ESCAPE SE 4WD SUV	Trucks and other Rubber Tire Vehicles	MB - Bus	2017	24633.19	5	5	1	100	2017	N/A
FA017818	A17102	FORD ESCAPE SE 4WD	Trucks and other Rubber Tire Vehicles	MB - Bus	2017	24633.19	5	5	1	100	2017	N/A
FA017819	A17104	FORD FOCUS	Automobiles	MB - Bus	2017	18063.3	5	5	1	100	2017	N/A
FA017820	T17201	FORD FOCUS	Automobiles	MB - Bus	2017	18063.3	5	5	1	100	2017	N/A
FA017821	F17101	FORD FOCUS	Automobiles	MB - Bus	2017	18063.3	5	5	1	100	2017	N/A
FA017882	T17202	FORD FOCUS	Automobiles	MB - Bus	2017	18063.3	5	5	1	100	2017	N/A
FA017883	A17103	FORD FOCUS	Automobiles	MB - Bus	2017	18063.3	5	5	1	100	2017	N/A
FA017884	T17102	FORD FOCUS	Automobiles	MB - Bus	2017	18063.3	5	5	1	100	2017	N/A




Appendix D: RTD 2017 NTD Performance Measures and Targets Submittal (Form A-90)

Section Number	Section Name	Performance Measure	2017 Target (%)	2017 Performance (%)	2017 Difference	2018 Target (%)	N/A
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	AB - Articulated Bus	0	0	0		No
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	AO - Automobile					Yes
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	BR - Over-the-road Bus	98	98	0		No
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	BU - Bus	1	1	0		No
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	CU - Cutaway					Yes
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	DB - Double Decker Bus					Yes
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	MV - Minivan					Yes
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	OR - Other					Yes
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	SB - School Bus					Yes
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	SV - Sports Utility Vehicle					Yes
1	Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	VN - Van	100	100	0		No
2	Equipment - Percent of service vehicles that have met or exceeded their useful life benchmark	Automobiles	25	25	0		No
2	Equipment - Percent of service vehicles that have met or exceeded their useful life benchmark	Trucks and other Rubber Tire Vehicles	40.74	40.74	0		No
2	Equipment - Percent of service vehicles that have met or exceeded their useful life benchmark	Steel Wheel Vehicles					Yes
3	Facility - Percent of facilities rated below 3 on the condition scale	Passenger / Parking Facilities	0	0	0		No
3	Facility - Percent of facilities rated below 3 on the condition scale	Administrative / Maintenance Facilities	0	0	0		No

Appendix E: Sample Completed Revenue Vehicle Inspection Form

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 Revenue and Non-Revenue Vehicle Condition Inspection Assessment		
Inspection Date: <u>4.19.18</u>	Vehicle Number: <u>1702</u>	
Inspector (s) Name: <u>[Signature]</u>	Vehicle Make/Model/Year: <u>GLAVAL/TITAN II/2017</u>	
RTD Condition Rating Scale		
Rank	Category	Description
5.00	New/Excellent	New asset; no visible defects.
4.00	Good	Some slightly defective/deteriorated component(s).
3.00	Adequate	Some moderately defective/deteriorated component(s).
2.00	Marginal	Increasing # of defective/deteriorated component(s) & maintenance needs.
1.00	Poor	In need of immediate repair or replacement; Item is a safety hazard and may have critically damaged component(s).
Main Component	Sub-Component	Condition Rating Score
Mileage: Life to Date	<u>5891.0</u>	<u>5</u>
Age/In Service Date	<u>1.8.18</u>	<u>5</u>
Engine	Oil Analysis	<u>5</u>
	Noises	<u>5</u>
	Coolant System	<u>5</u>
	Electrical Looms (Condition/Securement)	<u>5</u>
	Air Intake System (Hoses/Clamps)	<u>5</u>
	Engine Mounts / Brackets / Hardware (Condition)	<u>5</u>
	Belts and Pulleys	<u>5</u>
	Hoses, Tubes, Lines (Leaks)	<u>5</u>
	Aftertreatment (Pipes/Clamps)	<u>5</u>
	Sub-Component Average Score	
Drivetrain	Transmission Fluid Analysis	<u>5</u>
	Differential Condition	<u>5</u>
	Shift Quality (noises)	<u>5</u>
	Reverse/Backup Alarm	<u>5</u>
	Universal Joint/Driveshaft (tight)	<u>5</u>
Sub-Component Average Score		<u>5</u>
Electrical	Exterior Lighting	<u>5</u>
	Interior Lighting	<u>5</u>
	Dash Gauges (function)	<u>5</u>
	Wiring Condition	<u>5</u>
	Destination Sign	<u>5</u>
	Camera System	<u>5</u>
	AVL System	<u>5</u>
	Charging System (Function/Condition)	<u>5</u>
	Radio and Antenna (Function)	<u>5</u>
	Sub-Component Average Score	
A/C & Heat	A/C System (Function/Leaks)	<u>5</u>
	Heating System (Function/Leaks)	<u>5</u>
Sub-Component Average Score		<u>5</u>
Frame/Structure	Frame (Rust/Cracks/Condition)	<u>5</u>
	King Pin (Condition/Wear)	<u>5</u>
	Sub frame (Condition)	<u>5</u>
Sub-Component Average Score		<u>5</u>

Main Component	Sub-Component	Condition Rating Score
Suspension/Steering	Steering System (Play/Leaks/Wear)	5
	Springs/Shocks (Condition/Function)	5
	Struts/Air Bellow(s) (Function/Condition)	5
	Suspension Leveling Valve(S) (Function)	5
	Radius/Torque Rods (Wear/Condition)	5
	Tie Rod Ends (Wear/Condition)	5
	Sub-Component Average Score	5
Safety Systems	Horn (Function)	5
	Fire Suppression System	5
	Emergency Exit Window Release Latch (Function)	5
	Roof Hatch/Emergency Exit	5
	Sub-Component Average Score	5
Brakes/Tires/Wheels	Tire Condition/Tread Depth	5
	Lug/Axle Nuts (Tight)	5
	Brake/Shift Interlock (Function/Air Leaks)	5
	Emergency Brake (Function)	5
	Brake Drums/Disks/Pad Lining (Condition/Wear)	5
	Front Hub Oil (Level/Leaks)	5
	Brake Chamber (Function)	5
	Air Compressor (Function)	5
	Air System (Function/Leaks)	5
	Air Brake Lines (Leaks/Function)	5
	Air Dryer (Leaks/Function)	5
	Sub-Component Average Score	5
Body: Interior	Seats (Condition/Loose)	5
	Grab Rail (Condition/Loose)	5
	Panels/Trim (Loose/Condition)	5
	Front/Rear Doors (Operation)	5
	Drivers Seat (Condition/Operation)	5
	Passenger Flooring (Condition)	5
	Passenger Handrail (Condition/Loose)	5
	Gear Shift Selector (Function)	5
	Sub-Component Average Score	5
Body: Exterior	Window Glass	5
	Body Panels (Condition/Broken/Rust)	5
	Bumpers & Trim (Loose/Damaged)	5
	Mirrors	5
	Windshield Wipers (Function)	5
	Reflectors	5
	Body Damage	5
	Passenger Bike Rack (Function/Damage)	5
	Door Rubber Seal (Condition)	5
	Roof Hatch/Emergency Exit	5
	Sub-Component Average Score	5
ADA Amenities	Wheelchair Lift/Ramp (Function/Condition)	5
	Kneeler (Function)	5
	Passenger Stop Request Cord/Bell (Function)	5
	Stop Announcement Speaker (Function)	5
	Stop Announcement Display (Function)	5
	Wheelchair Restraint System (Condition/Function)	5
	Passenger Counter (Function/Calibration)	5
	Sub-Component Average Score	5
Total Vehicle Condition Score		55

**Appendix F: 2018 Revenue Vehicle Base Condition Assessment**

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RTD REVENUE VEHICLES - TAM 2018 BASE CONDITION SCORING											
FAID	BUS NUMBER	YEAR	MAKE/MODEL	Visual Inspection Score	Weighted Inspection Score	Vehicle Age	ULB Weighted Score	Vehicle Miles	Weighted Miles Score	Total Base Vehicle Score	Base Condition
FA018330	1713	2017	Glaval Titan II	55	4	1	4	15,655	4	12	Excellent
FA018329	1716	2017	Glaval Titan II	55	4	1	4	12,540	4	12	Excellent
FA018322	1707	2017	Glaval Titan II	55	4	1	4	11,677	4	12	Excellent
FA018486	1722	2017	Glaval Titan II	55	4	1	4	10,536	4	12	Excellent
FA018323	1703	2017	Glaval Titan II	55	4	1	4	10,040	4	12	Excellent
FA018328	1708	2017	Glaval Titan II	55	4	1	4	10,009	4	12	Excellent
FA018327	1706	2017	Glaval Titan II	55	4	1	4	9,989	4	12	Excellent
FA018325	1710	2017	Glaval Titan II	55	4	1	4	9,488	4	12	Excellent
FA018481	1715	2017	Glaval Titan II	55	4	1	4	9,367	4	12	Excellent
FA018484	1720	2017	Glaval Titan II	55	4	1	4	8,940	4	12	Excellent
FA018326	1714	2017	Glaval Titan II	55	4	1	4	8,767	4	12	Excellent
FA018320	1704	2017	Glaval Titan II	55	4	1	4	8,626	4	12	Excellent
FA018331	1709	2017	Glaval Titan II	55	4	1	4	7,910	4	12	Excellent
FA018483	1719	2017	Glaval Titan II	55	4	1	4	7,713	4	12	Excellent
FA018478	1705	2017	Glaval Titan II	55	4	1	4	7,439	4	12	Excellent
FA018332	1718	2017	Glaval Titan II	55	4	1	4	6,476	4	12	Excellent
FA018482	1717	2017	Glaval Titan II	55	4	1	4	6,259	4	12	Excellent
FA018480	1712	2017	Glaval Titan II	55	4	1	4	6,226	4	12	Excellent
FA018324	1702	2017	Glaval Titan II	55	4	1	4	5,891	4	12	Excellent
FA018479	1711	2017	Glaval Titan II	55	4	1	4	3,563	4	12	Excellent
FA018321	1701	2017	Glaval Titan II	55	4	1	4	3,503	4	12	Excellent
FA018485	1721	2017	Glaval Titan II	55	4	1	4	1,577	4	12	Excellent
FA013157	16405	2016	PROTERRA/CATALYST	55	4	2	4	19661	4	12	Excellent
FA013156	16410	2016	PROTERRA/CATALYST	55	4	2	4	16543	4	12	Excellent
FA013153	16406	2016	PROTERRA/CATALYST	55	4	2	4	14699	4	12	Excellent
FA017223	16401	2016	PROTERRA/CATALYST	55	4	2	4	14506	4	12	Excellent
FA017631	16404	2016	PROTERRA/CATALYST	55	4	2	4	13446	4	12	Excellent
FA017713	16407	2016	PROTERRA/CATALYST	55	4	2	4	12578	4	12	Excellent
FA017630	16403	2016	PROTERRA/CATALYST	55	4	2	4	11359	4	12	Excellent
FA017714	16408	2016	PROTERRA/CATALYST	55	4	2	4	9220	4	12	Excellent
FA017224	16402	2016	PROTERRA/CATALYST	55	4	2	4	7569	4	12	Excellent
FA017834	16409	2016	PROTERRA/CATALYST	55	4	2	4	1736	4	12	Excellent
FA013267	14604	2013	NOVA/LFS-60	44	4	4	4	110,400	4	12	Excellent
FA013266	14603	2013	NOVA/LFS-60	44	4	4	4	109,130	4	12	Excellent
FA013264	14601	2013	NOVA/LFS-60	44	4	4	4	107,550	4	12	Excellent



FA013268	14605	2013	NOVA/LFS-60	44	4	4	4	103,177	4	12	Excellent
FA013265	14602	2013	NOVA/LFS-60	44	4	4	4	90,449	4	12	Excellent
FA013269	14606	2013	NOVA/LFS-60	44	4	4	4	78,107	4	12	Excellent
FA013146	13401	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	123,835	4	10	Good
FA013158	13413	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	122,947	4	10	Good
FA013154	13409	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	122,932	4	10	Good
FA013163	13418	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	122,705	4	10	Good
FA013159	13414	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	122,571	4	10	Good
FA013164	13419	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	119,028	4	10	Good
FA013148	13403	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	113,470	4	10	Good
FA013152	13407	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	111,759	4	10	Good
FA013161	13416	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	98,795	4	10	Good
FA013147	13402	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	133,370	3	9	Good
FA013162	13417	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	133,180	3	9	Good
FA013157	13412	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	132,873	3	9	Good
FA013156	13411	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	132,046	3	9	Good
FA013153	13408	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	131,293	3	9	Good
FA013149	13404	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	129,209	3	9	Good
FA013150	13405	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	129,122	3	9	Good
FA013165	13420	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	128,818	3	9	Good
FA013155	13410	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	128,595	3	9	Good
FA013160	13415	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	127,485	3	9	Good
FA013151	13406	2013	GILLIG/DIESL ELECTRIC	33	3	5	3	126,324	3	9	Good
FA013134	EV2	2012	PROTERA/ECORIDE	33	3	6	3	79,765	4	10	Good
FA013135	EV1	2012	PROTERA/ECORIDE	33	3	6	3	77,329	4	10	Good
FA012572	12006	2012	GILLIG/HYBRID ELECTRIC	33	3	6	3	172,879	3	9	Good
FA012569	12003	2012	GILLIG/HYBRID ELECTRIC	33	3	6	3	170,961	3	9	Good
FA012568	12002	2012	GILLIG/HYBRID ELECTRIC	33	3	6	3	163,400	3	9	Good
FA012567	12001	2012	GILLIG/HYBRID ELECTRIC	33	3	6	3	154,964	3	9	Good
FA012570	12004	2012	GILLIG/HYBRID ELECTRIC	33	3	6	3	153,960	3	9	Good
FA012571	12005	2012	GILLIG/HYBRID ELECTRIC	33	3	6	3	152,170	3	9	Good
FA036232	1007	2011	GILLIG/HYBRID ELECTRIC	22	2	7	3	193,056	3	8	Good
FA036231	1008	2011	GILLIG/HYBRID ELECTRIC	22	2	7	3	183,416	3	8	Good
FA035720	1402	2010	GILLIG/HYBRID ELECTRIC	22	2	8	3	191,771	3	8	Good
FA035718	1401	2010	GILLIG/HYBRID ELECTRIC	22	2	8	3	188,851	3	8	Good
FA035699	1001	2010	GILLIG/HYBRID ELECTRIC	22	2	8	3	204,219	3	8	Good
FA035705	1006	2010	GILLIG/HYBRID ELECTRIC	22	2	8	3	199,347	3	8	Good
FA035700	1002	2010	GILLIG/HYBRID ELECTRIC	22	2	8	3	198,907	3	8	Good
FA035702	1004	2010	GILLIG/HYBRID ELECTRIC	22	2	8	3	197,442	3	8	Good
FA035703	1005	2010	GILLIG/HYBRID ELECTRIC	22	2	8	3	196,650	3	8	Good
FA035701	1003	2010	GILLIG/HYBRID ELECTRIC	22	2	8	3	180,957	3	8	Good



FA009028	9401	2009	GILIG/LOW FLOOR HYBRID	22	2	9	2	241,368	3	7	Fair
FA009030	9403	2009	GILIG/LOW FLOOR HYBRID	22	2	9	2	210,275	3	7	Fair
FA009029	9402	2009	GILIG/LOW FLOOR HYBRID	22	2	9	2	263,930	2	6	Fair
FA015364	T205	2006	E350 FORD/VAN	11	1	12	2	113,936	4	7	Fair
FA015362	611	2006	AEROTECH 220	11	1	12	2	107,180	4	7	Fair
FA005400	608	2006	AEROTECH 220	11	1	12	0	189,086	0	1	Poor
FA015359	605	2006	AEROTECH 220	11	1	12	0	185,309	0	1	Poor
FA015357	603	2006	AEROTECH 220	11	1	12	0	173,579	0	1	Poor
FA015358	604	2006	AEROTECH 220	11	1	12	0	168,733	0	1	Poor
FA005399	610	2006	AEROTECH 220	11	1	12	0	165,513	0	1	Poor
FA005401	607	2006	AEROTECH 220	11	1	12	0	165,330	0	1	Poor
FA015360	606	2006	AEROTECH 220	11	1	12	0	157,593	0	1	Poor
FA015356	602	2006	AEROTECH 220	11	1	12	0	157,054	0	1	Poor
FA015365	T206	2006	E350 FORD/VAN	11	1	12	2	146,335	3	6	Fair
FA005072	6001	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	290,656	2	5	Fair
FA005074	6002	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	238,791	2	5	Fair
FA005077	6004	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	290,503	2	5	Fair
FA005421	6301	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	372,222	2	5	Fair
FA005425	6302	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	348,999	2	5	Fair
FA005696	6304	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	345,825	2	5	Fair
FA005818	6303	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	340,300	2	5	Fair
FA006099	6308	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	339,997	2	5	Fair
FA006100	6309	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	331,915	2	5	Fair
FA006097	6306	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	327,459	2	5	Fair
FA006101	6310	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	322,665	2	5	Fair
FA006098	6307	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	316,477	2	5	Fair
FA005102	6006	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	287,222	2	5	Fair
FA005076	6003	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	284,496	2	5	Fair
FA005105	6005	2006	GILLIG/HYBRID ELECTRIC	11	1	12	2	260,044	2	5	Fair
FA005103	6403	2006	GILLIG/HYBRID ELECTRIC	19	1	12	2	378,006	1	4	Fair
FA015369	6204	2007	GILLIG/HYBRID ELECTRIC	21	1	11	2	539,654	0	3	Poor
FA015370	6205	2007	GILLIG/HYBRID ELECTRIC	21	1	11	2	581,226	0	3	Poor
FA015374	6209	2007	GILLIG/HYBRID ELECTRIC	19	2	12	2	426,940	1	5	Fair
FA015376	6211	2007	GILLIG/HYBRID ELECTRIC	21	2	12	2	388,380	1	5	Fair
FA015375	6210	2007	GILLIG/HYBRID ELECTRIC	21	2	12	2	446,888	1	5	Fair
FA005106	6401	2006	GILLIG/HYBRID ELECTRIC	21	2	12	2	408,022	1	5	Fair
FA005101	6402	2006	GILLIG/HYBRID ELECTRIC	21	2	12	2	419,405	1	5	Fair
FA005104	6404	2006	GILLIG/HYBRID ELECTRIC	21	2	12	2	380,732	1	5	Fair
FA015373	6208	2007	GILLIG/HYBRID ELECTRIC	22	2	12	2	417,589	1	5	Fair
*	UCP 5	2005	Ford Type II Cutaway	11	1	13	1	82,088	4	6	Fair
*	UCP 6	2005	Ford Type II Cutaway	11	1	13	1	64,071	4	6	Fair
*	UCP 3	2002	Ford Type II Cutaway	11	1	16	0	63,764	2	3	Poor
*	UCP 8	2003	Ford Type II Cutaway	11	1	15	0	265,513	0	1	Failing
*	UCP 7	2003	Ford Type II Cutaway	11	1	15	0	256,097	0	1	Failing



FA007343	209	2003	DODGE	11	1	15	1	170,774	3	5	Fair
FA007341	207	2003	DODGE	11	1	15	1	143,559	3	5	Fair
FA008731	2046	2008	MCI/D4500	22	2	17	0	365,791	2	4	Poor
FA001326	2041	2001	MCI/D4500	11	0	17	0	784,929	0	0	Failing
FA001297	2029	2001	MCI/D4500	11	0	17	0	782,407	0	0	Failing
FA000484	2037	2001	MCI/D4500	11	0	17	0	777,714	0	0	Failing
FA000486	2035	2001	MCI/D4500	11	0	17	0	767,290	0	0	Failing
FA001318	2040	2001	MCI/D4500	11	0	17	0	754,699	0	0	Failing
FA001320	2042	2001	MCI/D4500	11	0	17	0	747,959	0	0	Failing
FA001298	2030	2001	MCI/D4500	11	0	17	0	745,464	0	0	Failing
FA000482	2034	2001	MCI/D4500	11	0	17	0	739,803	0	0	Failing
FA001321	2043	2001	MCI/D4500	11	0	17	0	739,121	0	0	Failing
FA001323	2045	2001	MCI/D4500	11	0	17	0	721,373	0	0	Failing
FA001300	2032	2001	MCI/D4500	11	0	17	0	687,804	0	0	Failing
FA001322	2044	2001	MCI/D4500	11	0	17	0	681,185	0	0	Failing
FA000483	2036	2001	MCI/D4500	11	0	17	0	654,580	0	0	Failing
FA001299	2031	2001	MCI/D4500	11	0	17	0	649,753	0	0	Failing
FA001301	2033	2001	MCI/D4500	11	0	17	0	594,538	0	0	Failing
Total Revenue Vehicles				138							



Appendix G: 2018 Service Vehicle Base Condition Assessment

RTD SERVICE VEHICLES - TAM 2018 BASE CONDITION SCORING											
FAID	VEHICLE NUMBER	YEAR	MAKE/MODEL	Visual Inspection Score	Weighted Inspection Score	Vehicle Age	ULB Weighted Score	Vehicle Miles	Weighted Miles Score	Total Base Vehicle Score	Base Condition
FA001469	T106	1999	FORD E350 XLSUPERDUTY	11	0	19	0	74,923	2	2	Poor
FA001470	F101	1999	FORD E350 XLTSUPERDUT	11	0	19	0	192,035	0	0	Failing
FA000501	M101	2003	FORD F550 2003	11	0	15	0	40,437	3	3	Poor
FA000605	M202	2005	FORD RANGER RC	15	1	13	0	77,000	1	2	Poor
FA000606	F104	2005	FORD F350 TRUCK	11	0	13	0	89,889	1	1	Failing
FA005013	A8	2006	DODGE RAM TRUCK FLEET	11	0	12	0	74,382	2	2	Poor
FA005452	A10	2006	DODGE CARAVAN	11	0	12	0	56,520	2	2	Poor
FA015361	609	2006	ELDORADO AEROTECH	11	0	12	0	105,946	0	0	Failing
FA007063	A2	2007	CHRYSLER SEBRING 2007	11	1	11	0	39,517	3	4	Poor
FA015377A-C	F105	2008	FORD F550 REG CAB	11	1	10	0	36,838	3	4	Poor
FA009038	M103	2009	FORD RANGER	22	1	9	0	42,977	3	4	Poor
FA009046	T10101	2010	FORD FOCUS SEDAN	22	1	8	0	107,302	0	1	Failing
FA035775A	F106	2011	FORD F350 TRUCK	33	2	7	0	33,657	3	5	Fair
FA013169	F13103	2013	FORD F150	33	2	5	1	47,116	3	6	Fair
FA013168	F13104	2013	FORD F150	33	2	5	1	36,125	3	6	Fair
FA013170	F13105	2013	FORD TRANSIT CONNECT	33	2	5	1	33,123	3	6	Fair
FA013171	F13101	2014	FORD F250	44	3	4	2	17,877	4	9	Good
FA013172	F13102	2014	FORD F250	44	3	4	2	20,770	4	9	Good
FA012954	T-14104	2014	FORD C-MAX	44	3	4	2	36,009	3	8	Good
FA012955	T-14101	2014	FORD C-MAX	44	3	4	2	63,922	2	7	Fair
FA012956	T-14103	2014	FORD C-MAX	44	3	4	2	36,394	3	8	Good
FA012957	O-14104	2014	FORD C-MAX	44	3	4	2	18,685	4	9	Good
FA012958	A14103	2014	FORD C-MAX	44	3	4	2	18,536	4	9	Good
FA012959	A-14104	2014	FORD C-MAX	44	3	4	2	45,744	3	8	Good
FA012960	A14105	2014	FORD C-MAX	44	3	4	2	14,724	4	9	Good
FA013353	M14102	2014	HYBRID NISSAN PATHFINDER	44	3	4	2	33,548	3	8	Good
FA013354	T14102	2014	HYBRID NISSAN PATHFINDER	44	3	4	2	16,894	4	9	Good
FA013355	A1401	2014	HYBRID NISSAN PATHFINDER	44	3	4	2	62,201	2	7	Fair
FA017704	A17101	2017	DODGE CARAVAN	55	4	1	4	2,941	4	12	Excellent
FA017638	T17101	2017	Ford Transit 350	11	0	1	4	3,604	4	8	Good
FA017760	A17203	2017	FORD ESCAPE SE 4WD SUV	55	4	1	4	8,724	4	12	Excellent
FA017818	A17102	2017	FORD ESCAPE SE 4WD	55	4	1	4	2,941	4	12	Excellent
FA017819	A17104	2017	FORD FOCUS	55	4	1	4	3,004	4	12	Excellent
FA017820	T17201	2017	FORD FOCUS	55	4	1	4	11,874	4	12	Excellent
FA017821	F17101	2017	FORD FOCUS	55	4	1	4	2,077	4	12	Excellent
FA017882	T17202	2017	FORD FOCUS	55	4	1	4	6,329	4	12	Excellent
FA017883	A17103	2017	FORD FOCUS	55	4	1	4	16,676	4	12	Excellent
FA017884	T17102	2017	FORD FOCUS	55	4	1	4	10,780	4	12	Excellent
Total Service Vehicles 38											

**Appendix H: DTC Facility Inspection & Component Photos**

Page 1 of 6



Prepared by	Date
Operations Superintendent-Facilities	5/15/18

Property Name	Address	County	RTD Owned/Occupied	Date Built
Downtown Transit Center - DTC	421 E. Weber Street	San Joaquin	31,878	1870 only corner façades remain
Contact	Building Sq Ft	Land Sq Ft	Leased to 3rd Party	Date Remodel
Darla Smith	34,000	1.78 acres	2,122	2007 complete structural /interior
Loading Platform - No On Site Parking		Comments	Status	Rating
Pavement Condition		Concrete		4.5
Adequate Number of Spaces		No spaces assigned or needed	NA	0
Handicapped Spaces/Signage		No spaces assigned or needed	NA	0
Other Signage		Code of Conduct and Do Not Enter	Budgeted FY19	3.0
Grating & Curbs		RTD property line ends at the building	City Owned	0
Painted Isles		Crosswalks & Directional signage	Budgeted FY19	2.9
Adequate Lighting		LED under canopy and pole w/ 4 heads	Replaced 2017	5.0
Parking Lot		Parking area for RTD vehicles only	No stripping	4.5
Walkway		City Owned		0
Security Controls		Police presense		0
Controlled Access		No		0
Cameras		Partial replacement 2018		4.5
Bus platform signage		Adequate and accurate		4.8
Electrical Cabinets		Locked and graffitti free		4.5
Rating Average				4.2
Landscaping or Street Scape		Comments	Status	Rating
Sidewalks & Curbs		Concrete	City Owned	0
Benches/ Seating		Street and Loading Area		4.5
Outdoor Railings		Wroght iron where present		4.5
Irrigation		Planters only		4.5
Rain Drains/Grates		Direct to storm drain		0
Rating Average				4.5
Exterior Façade		Comments	Status	Rating

Entrance, Walk &/or Stairs	Concrete		4.0
Handicap Entrance	Compliant		4.5
Entrance Doors	2 automatic from the street & 1 automatic interior		4.0
Storefronts	Presnet with shatter proof film		4.5
Building Signage/Numerals	Present, compliant		4.5
Painting	In progress	Completion FY18	4.0
Brickwork	Facade not structural		4.5
Tile - Sutter Street	Facade not structural	Scheduled repair FY19	3.0
Metal Awnings	Painted 2017		4.5
Overhangs and Cornices	Paint in progress	Completion FY18	4.3
Windows	No visible defects		4.5
Caulking	N. side 2nd flr recaulked 2017		4.0
Framing and Joints	No visible defects		4.0
Parapet	Interior roof line resurfaced 2017		4.5
Fire Service Connections	Secure and compliant		4.5
Rating Average			4.2
Exterior Lighting	Comments	Status	Rating
Street lighting	Decorative	City Owned	0
Building under canopy lighting	Recessed can lights	replacement scheduled FY 19	4.5
Building lighting	Wall paks	replacement scheduled FY 19	4.5
Rating Average			4.5
Lobby & Breezway	Comments	Status	Rating
Vestibule - Heat Supplied	Present & adequate	Controls to be updated FY 19	4.2
Security Windows	Customer Service Center - Bullet Proof		4.7
Interior Wall Finishes - Paint, Fabric, Stone	Smooth drywall and carpet	Touch up paint needed	4.2
Lighting	Adequate		4.5
Power Outlets	Secured no public access		4.5
Elevator	Adequate & compliant		4.5
Elevator Signs	Present & compliant		4.5
Elevator Call Buttons	Present & compliant, 1st flr, card reader access only to 2nd flr		4.5

Flooring - Type	Ceramic Tile - no visible cracks		4.5
Walk off mats	Temporary rugs during rainy season		4.2
Ceiling - Type	T-bar - no visible damage		4.5
Communications System		NA	0
Rating Average			4.4
Office Finishes	Comments	Status	Rating
Carpet -	Carpet tile		4.0
Walls	Smooth wall painted		3.5
Baseboard	Rubber		3.5
Ceiling	T-bar - no visible damage		4.5
Ceiling Tiles	No visible damage		4.5
Grid	No visible damage		4.5
HVAC diffusers	Present & adequate	Need cleaning	3.5
Rating Average			4.0
Windows	Comments	Status	Rating
Type of Windows	Dual Pane		4.5
Energy Efficiency	Reflective film - partial locations		4.5
Type of Window Treatments	Metal mini blinds where present		4.5
Rating Average			4.5
Doors and Hardware	Comments	Status	Rating
Type of Doors	Solid Wood, some with windows		4.5
Hardware	Security cores		4.8
Card Readers, etc.	Present at secure (non-public) access areas		4.5
Rating Average			4.6
Interior Lighting	Comments	Status	Rating
Types	Recessed tubes and can lights		4.5
Adequate Lighting Throughout	Adequate		4.5
Energy Efficiency	Adequate	Researching LED conversaiion	4.5
Motion Activated	Adequate & Compliant		4.5
Emergency Lighting - battery back up	Adequate & Compliant		4.5
Exit Lighting	Adequate & Compliant		4.5
Rating Average			4.5
HVAC	Comments	Status	Rating

Flooring - Type	Ceramic Tile - no visible cracks		4.5
Walk off mats	Temporary rugs during rainy season		4.2
Ceiling - Type	T-bar - no visible damage		4.5
Communications System		NA	0
Rating Average			4.4
Office Finishes	Comments	Status	Rating
Carpet -	Carpet tile		4.0
Walls	Smooth wall painted		3.5
Baseboard	Rubber		3.5
Ceiling	T-bar - no visible damage		4.5
Ceiling Tiles	No visible damage		4.5
Grid	No visible damage		4.5
HVAC diffusers	Present & adequate	Need cleaning	3.5
Rating Average			4.0
Windows	Comments	Status	Rating
Type of Windows	Dual Pane		4.5
Energy Efficiency	Reflective film - partial locations		4.5
Type of Window Treatments	Metal mini blinds where present		4.5
Rating Average			4.5
Doors and Hardware	Comments	Status	Rating
Type of Doors	Solid Wood, some with windows		4.5
Hardware	Security cores		4.8
Card Readers, etc.	Present at secure (non-public) access areas		4.5
Rating Average			4.6
Interior Lighting	Comments	Status	Rating
Types	Recessed tubes and can lights		4.5
Adequate Lighting Throughout	Adequate		4.5
Energy Efficiency	Adequate	Researching LED conversaiion	4.5
Motion Activated	Adequate & Compliant		4.5
Emergency Lighting - battery back up	Adequate & Compliant		4.5
Exit Lighting	Adequate & Compliant		4.5
Rating Average			4.5
HVAC	Comments	Status	Rating



Toilets	Porcelain		4.0
Floor Type	Ceramic Tile		4.5
Wall Type	Ceramic Tile		4.5
Partitions	Stainless Steel		3.0
Rating Average			4.2
Kitchen/Break Areas	Comments	Status	Rating
Condition of Countertops	Corrian		4.5
Power Outlets Available	Adequate		4.5
GFI	Present and Compliant		4.5
Refrigerators w/icemakers	Adequate (2)		4.0
Refrigerators w/o icemakers (2)	Adequate		4.0
Vending Machines	N/A		N/A
Ice Maker	Adequate		4.0
Microwaves	Adequate		4.0
Garbage Disposal	Adequate		4.0
Type of Floor Finishes	VCT		4.0
Type of Wall Finishes	Smooth finish painted		4.0
Table & Chairs	Adequate		4.0
Rating Average			4.1
Equipment Rooms - IT, Mechanical, Electrical	Comments	Status	Rating
Secured Door	Card Reader access		4.5
UPS Unit	Present in server room		4.3
Cooling	Dedicated unit		4.3
Electrical Panel Boxes	Labeled appropriately		4.3
Rating Average			4.4
Wellness Rooms	Comments	Status	Rating
Mechanical Gym Equipment	Functioning Properly		4.5
Mirrors	Present & intact		4.5
Rating Average			4.5
Roof	Comments	Status	Rating
Type	PVC		5.0
Condition of Flashing	PVC overlay		5.0
Metal Coping	Adequate		4.5
Drains	Adequate		4.5

Interior Drainage to Storm	Adequate		4.5
Roof Top Equipment	On skids		4.5
Walkpads	Adequate		4.5
Rating Average			4.6

Component Photos



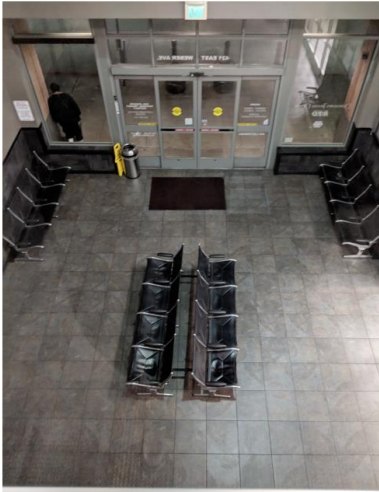
Downtown Transit Center 421 E. Weber Street Facing (north facing building front)



Rear of Building (south facing)



Building Side (west facing-California Street)



Building Interior (1st floor Breezeway)



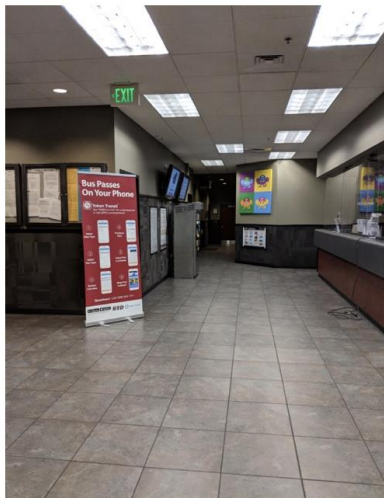
Interior Passenger Lobby (1st floor)



Interior Hallway & water fountain (1st floor west facing)



Women's Restroom (1st floor)



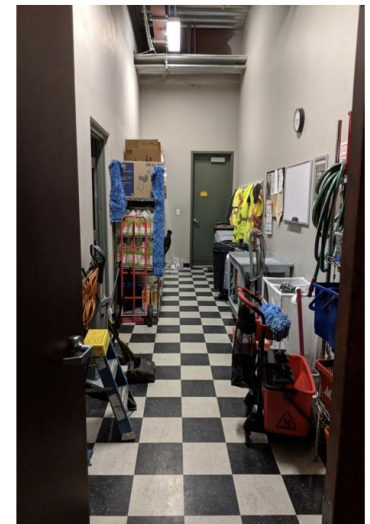
Interior Passenger Lobby (1st floor west facing)



DJTC Fire Riser (1st floor)



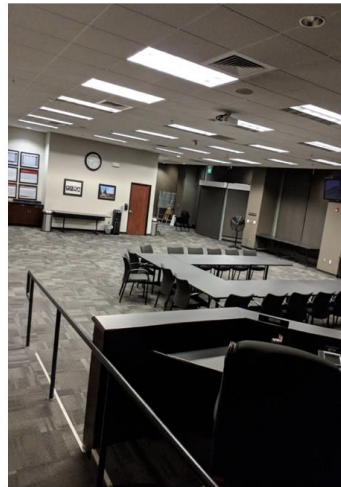
Men's Restroom (1st floor)



Custodial Closet/Hallway (1st floor)



Public Meeting & Board Room (1st floor west facing)



Public Meeting & Board Room (1st floor east facing)



DTC Operator Breakroom (1st floor)



DTC Operator-Women's Restroom (1st floor)



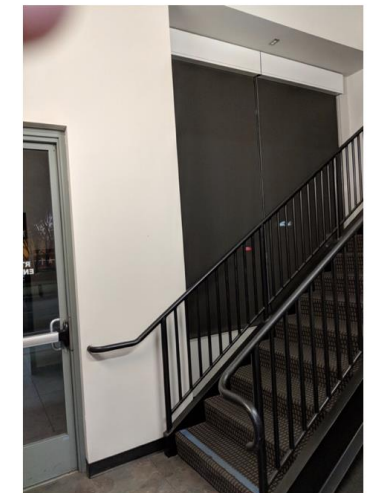
Small Meeting Area (1st floor off Board Room)



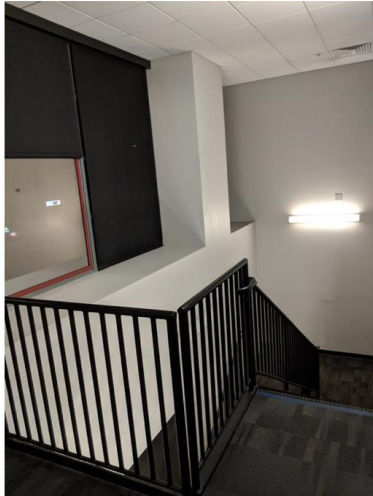
Restroom (1st floor off Board Room)



DTC Operator-Men's Restroom (1st floor)



Emergency Center Stairwell (1st floor)



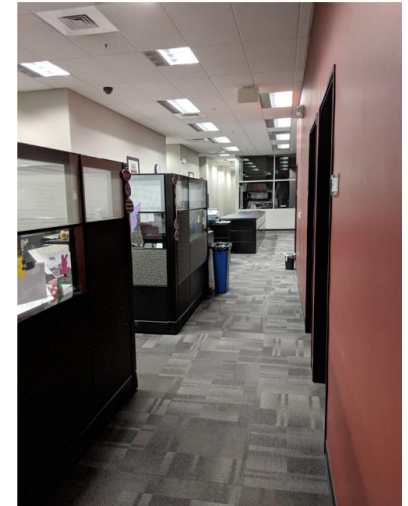
Emergency Center Stairwell Landing (2nd floor)



Employee Elevator (2nd floor Entrance)



Employee East Breakroom (2nd floor)



Administrative Offices (2nd floor east facing)



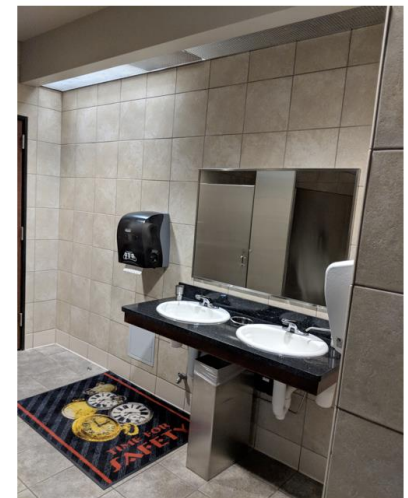
Administrative Staff Level Lobby (2nd floor)



Conference Room (2nd floor)



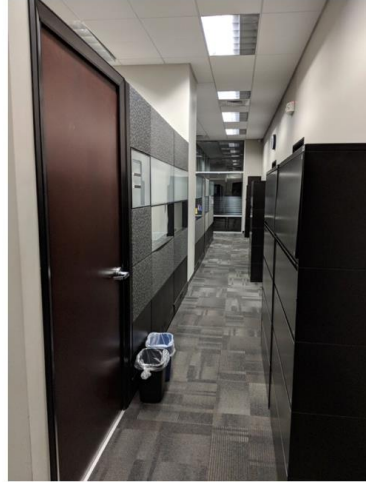
Women's Restroom-East side of Bldg. (2nd floor)



Men's Restroom-East side of Bldg. (2nd floor)



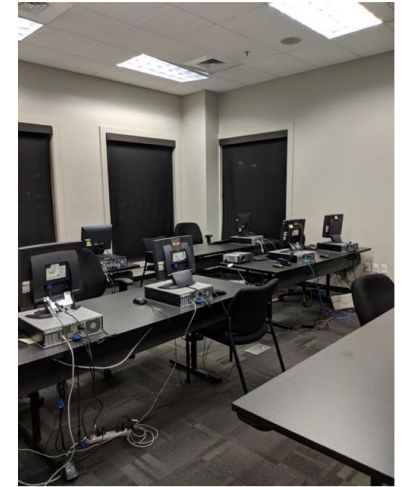
Employee Wellness Room (2nd floor)



Administrative Offices (2nd floor west facing)



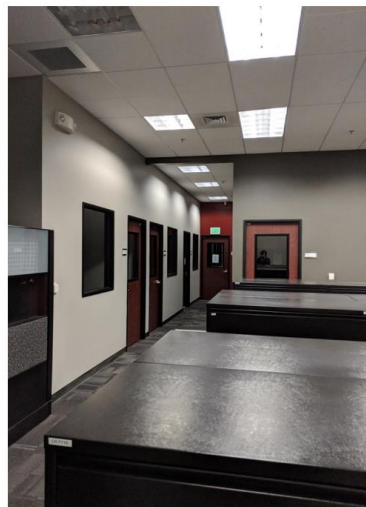
Employee West Breakroom (2nd floor)



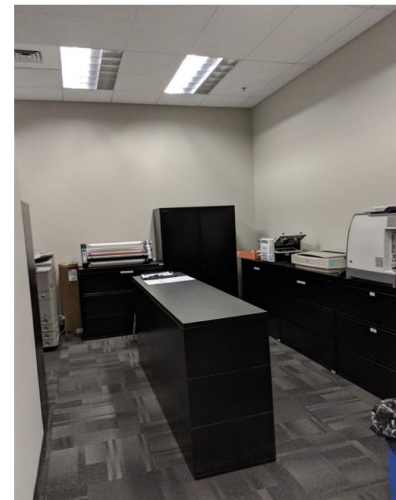
Training Room (2nd floor)



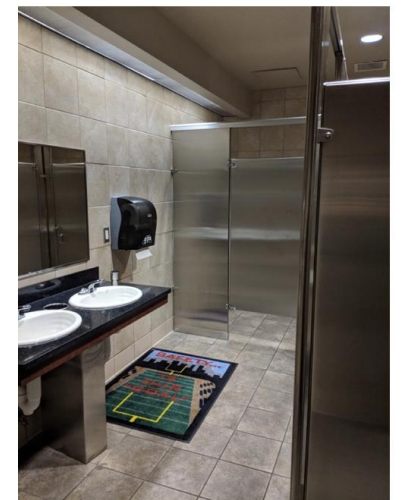
Administrative Offices (2nd Floor northwest facing)



Administrative Offices (2nd Floor southwest facing)



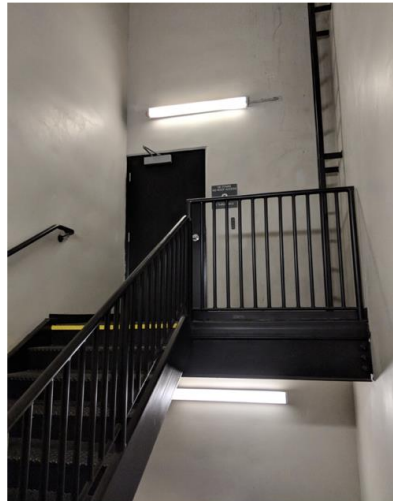
Copy & Supply Room (2nd floor)



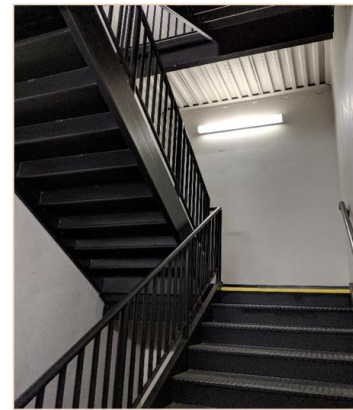
Women's West Restroom (2nd floor)



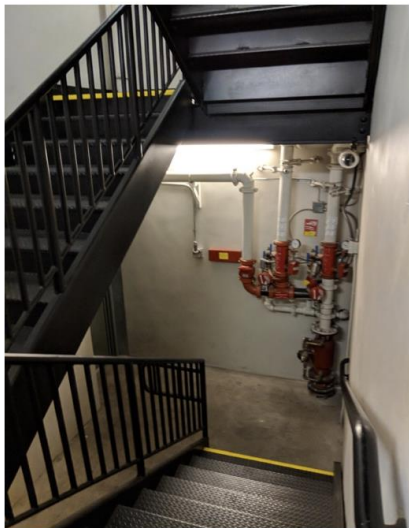
Men's West Restroom (2nd floor)



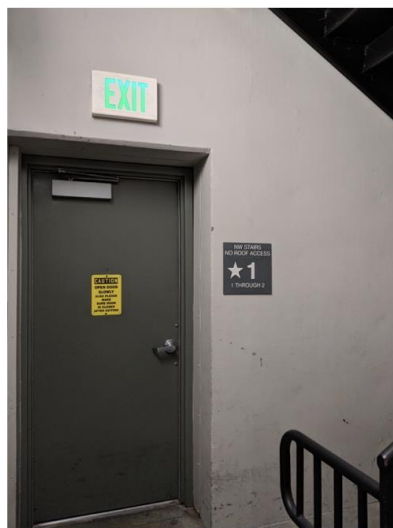
Emergency Stairwell-East (2nd floor)



Emergency Stairwell-West (Between 1st & 2nd floor)



Emergency Stairwell-East (1st floor)



Emergency Stairwell-West (1st floor)



Roof (middle, west facing)



Roof (Northeast corner, west facing)



Roof (middle, east facing)



Roof (west end, east facing)

Appendix I: RTD's Regional Capital Asset Management Projections

Page 1 of 2

Fixed Route Fleet Management Plan

[illegible]

Project Cost Assumptions:

All buses besides commuter, cutaway, or non-revenue will be replaced with 40' Electric buses. Cost estimate for electric buses is \$1,000,000 estimate ea. (including options and taxes) through FY 23-24. Then a 10% decrease due to maturity of the technology/b is estimated for FY 24-25 through FY 27-28

Electric Bus Expansion estimated to be approx. 1% increase per year beginning in FY18-19 (1 bus per year) and 5 buses for each of the three expected BRT corridor additions.

60' Nova articulated buses to be replaced with 60' electric buses in FY 25-26 and have a \$1,000,000 cost estimate.

29' Glaval Cutaways (Gasoline) will be replaced in with 29' electric buses estimated to cost \$150,000 (current cost of gas is \$135,000). Cost for replacement in FY25 is expected to be flat due to cost decreases in technology/batteries.

On Demand Van Replacement estimated to be \$65,000 per vehicle

Bus Charging Equipment is estimated to be \$100,000 per bus. Current fast chargers that accommodate up to 6 buses cost approx. \$600,000 with installation. Overnight Charging equipment for '29 estimated at \$50,000 per bus.

Funding Assumptions:

Secured and programmed funds for specific projects listed

Expected formula funds listed

Discretionary funds such as CMAQ are not listed

Print date:
9/13/2018

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RTD TAM Management Plan - Other Capital Projects (2018-2023)

Project Description	Projected Useful Life, if Vehicle	Funding Sources		Notes	Project Number	FY 17-18 Actual	FY 18-19 Budgeted	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
		Source	Amount									
Fare Revenue and Dispatch Equipment/Software		See Funding Below			1			3,000,000				
Solar Energy Project					2		10,000,000			10,000,000		
MLK and Downtown Miner BRT Expansion					3	15,188,776						
IT Modernization, Automation, Software					4	357,035	1,000,000	1,030,000	1,060,900	1,092,727	1,125,509	1,159,274
Facility and Maintenance Equipment					5	177,701	183,032	188,523	194,178	200,004	206,004	212,184
Safety and Security					6	200,000	206,000	212,180	218,545	225,102	231,855	238,810
Passenger Stations and Amenities					7	969,200	200,000	206,000	212,180	218,545	225,102	231,855
BRT Expansion (Desired Service Expansion)					8			7,000,000		7,000,000		
Parts Over \$500					9	375,000	375,000	375,000	375,000	375,000	375,000	375,000
Tire Lease					10	375,000	375,000	375,000	375,000	375,000	375,000	375,000
RTC Improvement: Land and Pavement					11		3,500,000	2,000,000				
RTC Expansion: Administration Building					12							
Totals			0			17,642,712	15,839,032	14,386,703	2,435,803	19,486,378	2,538,469	2,592,123
												74,921,221

Revenue Projections

Project Description	Revenue Source	Project Number	FY 17-18 Actual	FY 18-19 Budgeted	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Fare Revenue and Dispatch Equipment/Software		1							
Solar Energy Project	CMAQ (Programmed)	2		3,375,000					
MLK and Downtown Miner BRT Expansion	CMAQ/TIRCP/MK/STA (Fully Funded)	3	15,188,776						
IT Modernization, Automation, Software		4							
Facility and Maintenance Equipment		5							
Safety and Security	1% of 5307 Estimate	6	52,000	52,930	53,951	54,991	56,051	57,132	58,233
Passenger Stations and Amenities	Measure K Programming	7			120,000		90,000	160,000	
BRT Expansion (Desired Service Expansion)		8							
Parts Over \$500	5307	9	300,000	300,000	300,000	300,000	300,000	300,000	300,000
Tire Lease	5307	10	300,000	300,000	300,000	300,000	300,000	300,000	300,000
RTC Improvement		11							
RTC Expansion		12							
	STA Revenues (25% of estimate for any capital project)		458,111	1,107,782	1,150,249	1,194,344	1,240,055	1,287,671	1,337,034
		12							
			16,298,887	5,135,712	1,924,200	1,849,335	1,986,106	2,104,802	1,995,267
Surplus (Deficit)			(1,343,825)	(10,703,320)	(12,462,503)	(586,468)	(17,500,272)	(433,667)	(596,856)
									(43,626,912)

Project Cost Assumptions

IT Modernization, Automation, Software: Technology will play a larger role in providing efficient transit services. Estimated at \$1,000,000/yr. beginning in FY19 and increasing 3%

Fare Revenue and Dispatch Equipment/Software: Upgrades to Fare Technology and Operational Software at \$3,000,000, every 5 years

Facility and Maintenance Equipment: Based upon RTSP Figures and 3% annual increase

Passenger Stations and Amenities: FY18 based upon RTSP figures. Estimate is \$200,000/yr. with 3% escalation beginning in FY19

Safety and Security: \$200,000/yr. estimate with 3% escalation beginning in FY18

BRT Expansion (Desired Service Expansion) is estimated to cost \$7,000,000 per corridor addition based upon average cost of existing BRT lines. MLK is expected to cost over \$7,000,000 due to the Union Transfer Station and Midtown

Corridor will be approx. \$3,000,000

Parts Over \$500 is estimated to cost \$375,000 per year based on current costs. No increase due to expected savings introducing electric buses in the fleet.

Tire Lease is estimated to be \$300,000 per year

Appendix J: Vehicle Maintenance Plan



Vehicle Maintenance Plan – August 2018

Introduction

RTD, as a Federal Transit Administration (FTA) grantee, has acquired a number of vehicles that administers, operates, and maintains transit services. Providing adequate maintenance for these vehicles is an ongoing process with a substantial cost. RTD relies on FTA funding to perform these duties; as a result, this Vehicle Maintenance Plan was developed to comply with FTA requirements for continued support. In addition, the Vehicle Maintenance Plan helps staff to meet RTD's Strategic Goals.

Purpose

This plan establishes the vehicle maintenance program implemented by staff to ensure that San Joaquin Regional Transit District (RTD) vehicle assets remain in a state of good repair and reach their optimal life expectancy. The plan describes the Maintenance Department's responsibilities to perform preventive maintenance and non-routine repair services on all RTD vehicles. It also provides descriptions of responsible parties, definitions of maintenance categories, procedures, as well as record-keeping necessary to keep RTD vehicles and systems in a state of good repair. In addition, this plan specifically describes the "system of periodic inspections and preventive maintenance to be performed at certain defined intervals" as required by FTA C 5010.1D and is in keeping with RTD's Transit Asset Management (TAM) efforts and TAM Plan as required by FTA 49 CFR parts 625 and 630.

Responsibility

RTD Maintenance Department staff members are responsible for all vehicle maintenance, inspections, and repairs. It is staffed with the following positions:

- **Chief Operations Officer** is responsible for the overall operations of the Division.
- **Operations Superintendent—Maintenance** is responsible for day-to-day operations of the Maintenance department and is responsible for all documentation relating to the vehicles, including warranty claims and inspection tracking.
- **Maintenance Supervisor** is responsible for assigning duties and oversight of mechanics, utility workers, and contractors within their assigned shift.
- **Mechanic** is responsible for the assigned duties from the shift supervisor or shift lead. These duties are related to maintenance of RTD vehicles. These positions include Mechanic A, Mechanic B, Mechanic C, Electronics Tech A, and Electronics Tech C.
- **Utility Workers** are responsible for the assigned duties from the shift supervisor or shift lead. These duties are related to the daily servicing and detailing of RTD-owned equipment.

Definitions

- **Contracted Maintenance:** Maintenance (scheduled or unscheduled) performed by contractors or vendors on revenue and non-revenue vehicles according to the RTD Vehicle Maintenance Plan, policies and procedures.

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- **Daily Servicing:** As each bus returns from service, utility workers will perform the following daily service requirements: fueling; checking and servicing engine oil, transmission fluid, and coolant; cleaning bus interior; cleaning exterior of bus by driving through full bus wash system; parking bus in the assigned parking stall for the next day's service; and reporting any discrepancies found during the cleaning process to the Maintenance Supervisor.
- **Unscheduled Maintenance:** These services are of a non-preventive nature and usually denote a situation that requires an unexpected and unscheduled repair (e.g., wheelchair lift not working, engine or transmission diagnostic code, farebox not working, etc.).
- **Contingency Fleet:** Buses that are inactive because they have reached the end of their minimum useful service life or due to the reduction of operational service requirements. They are placed in an inactive contingency fleet in preparation for emergencies. They may also be used for potential service expansion, fuel shortages, or loaned to another transit agency for emergency-response evacuation.
- **Preventive Maintenance Inspection (PMIs):** A part of scheduled maintenance, preventive maintenance inspections aim to minimize road calls between inspections. Maintenance service may include (but is not limited to) engine oil and filter change, transmission oil and filter change, differential oil change, air conditioning system inspection and or service, wheelchair lift/ramp inspection and or service, chassis and body lubrication, bumper to bumper safety inspection, exhaust system back pressure test and recording, exhaust opacity test and recording (a Clean Air requirement), road test to verify the serviceability of the bus, inspection of all electrical equipment (including video cameras, farebox, destination signs, and radios), and the inspection of wearable items and or systems.
- **State of Good Repair (SGR):** The FTA, as part of its Transit Asset Management initiative, defines the state of good repair as "the condition in which a capital asset is able to operate at a full level of performance."
- **Scheduled Preventive Maintenance:** The service schedules are predetermined by the Maintenance Department based on the maintenance needs of the equipment, and as recommended by the equipment manufacturer(s).
- **Transit Asset Management (TAM):** Per FTA 49 U.S.C. 5326(a)(3), "Transit asset management is a strategic and systematic process of operating, maintaining, and improving public transportation capital assets effectively through the life cycle of such assets."

Procedures

In order to ensure that RTD's vehicle assets remain in a state of good repair and reach their optimal life expectancy, both scheduled and unscheduled maintenance is necessary. The goal of a well-run preventive maintenance program is to have limited "in service" failures (e.g., road calls, bus exchanges, and field repairs) between preventive maintenance inspections. Both scheduled and unscheduled maintenance aim to extend the life of the vehicle and increase the miles between "in service" failures by reviewing the condition of the equipment and modifying the process to reflect the most efficient and effective maintenance possible. The mileage goal of this maintenance program is 10,000 miles between road calls. The national average is 6,000

miles between road calls. In order to increase the mileage between road calls, RTD aims to increase the amount of inspections performed each year.

1. **Scheduled Preventive Maintenance:** A well-defined and prudently managed preventive maintenance program is the cornerstone of every successful fleet operation. Through our scheduled preventive maintenance program, RTD vehicles are serviced and maintained by maintenance staff or contracted vendors in accordance with the preventive maintenance inspection checklist. Regular maintenance is performed to ensure that all RTD assets are in optimal operating condition.
 - a. **Inspections** represent a key component of maintenance. These inspections routinely evaluate the condition of RTD assets. Deficiencies found during the inspections are corrected immediately or scheduled for repair based on the nature of the task being performed.

Employees perform those tasks that are within RTD's resources and its personnel's scope of training. All other scheduled preventive maintenance is contracted with professionals who specialize in that specific area of expertise, such as our non-revenue vehicles. These vehicles require specialized training and equipment from the manufacturer of the vehicles.

- i. **Preventive Maintenance Inspections (PMIs):** The total number of preventive maintenance inspections (PMIs) needed to support each of RTD's revenue fleets were determined by the following: The PM interval miles for that subfleet divided by the number of annual miles each subfleet traveled.

$$\frac{\text{PM interval miles for subfleet}}{\text{The number of annual miles each subfleet traveled}} = \text{PMI needed to support each of RTD's revenue fleet}$$

The Maintenance Department must budget work hours for number of PMIs determined by this equation.

The mileage indicator (shown below), and the results of an oil analysis can affect our Preventive Maintenance due dates.

Service	Annual Mileage	PM Interval	Needed PMIs
SMA	1,013,938	6,000	169
BRT I	259,512	6,000	43
BRT II	156,123	6,000	26
BRT III	219,293	6,000	37
Metro Hopper	249,870	5,000	50
County Hopper	434,529	5,000	87
Interregional	556,467	6,000	93
Inter-City	144,973	6,000	24
UCP	130,040	5,000	26

All Contingency Fleet vehicles will be scheduled for a PMI based on the [Contingency Fleet Procedure](#) located on Sharepoint under the Maintenance Department's Procedures folder.

Buses in the contingency fleet are subject to a 6,000-mile preventive maintenance schedule for the vehicles. Periodic vehicle "start-ups" will occur between normal preventive maintenance inspections so that the fleet remains ready for service at all times. RTD will maintain all records associated with these buses. At a minimum, the heavy-duty diesel fleet will have a visual inspection and start up at every 45 days with a full PM at 90 days.

Fleets Requiring Special Attention: Fleets within these services (e.g., IRS, SMA, SMA/IC, DAR, MH/DAR) may need special attention at earlier intervals: Vehicle equipped with a compressed natural gas (CNG) engine, engines equipped with a particulate filter after-treatment device, or oil sample analysis indicating a need for an earlier engine inspection interval.

The following is a list of the fleets, the services, and the PMI intervals scheduled based upon manufacturers' recommendation:

Revenue Vehicles		
Vehicle Type	Service	PMI Interval
2001 MCI COACH	IRS	6,000 mile
2006 GILLIG LOW FLOOR	SMA/IC	6,000 mile
2006 ELDORADO AEROTECH Coach	DAR	5,000 mile
2008 MCI COACH	IRS	6,000 mile
2009 GILLIG LOW FLOOR	SMA	6,000 mile
2010 GILLIG LOW FLOOR	SMA	6,000 mile
2011 GILLIG LOW FLOOR	SMA	6,000 mile
2012 GILLIG LOW FLOOR	SMA	6,000 mile
2012 PROTERRA LOW FLOOR	SMA	6,000 mile
2013 GILLIG LOW FLOOR	SMA	6,000 mile
2014 NOVA ARTICULATED	SMA	6,000 mile
2016 PROTERRA LOW FLOOR	SMA/BRT	6,000 mile
2017 GLAVAL TITAN II LF	HOPPER	5,000 mile
2018 PROTERRA LOW FLOOR	BRT	6,000 mile
2018 GILLIG LOW FLOOR	IRS	6,000 mile

Non-Revenue Vehicles	
Vehicle Type	PMI Interval
1999 FORD E-350	5,000 mile
2003 FORD F-550	5,000 mile
2005 FORD F-350	5,000 mile
2005 FORD RANGER	5,000 mile
2006 DODGE CARAVAN	5,000 mile

2006 DODGE RAM 1500	5,000 mile
2007 CHRYSLER SEBRING	5,000 mile
2008 FORD F-550	5,000 mile
2009 FORD RANGER	5,000 mile
2010 FORD FOCUS	5,000 mile
2011 FORD F-350	5,000 mile
2013 FORD TRANSIT	5,000 mile
2014 FORD C-MAX	5,000 mile
2014 NISSAN PATHFINDER	5,000 mile
2017 FORD FOCUS	5,000 mile
2016 FORD T350 TRANSIT	5,000 mile
2017 CHRYSLER CARAVAN	5,000 mile

ii. **A-Inspection (Brake/Safety)**

The Maintenance Department operates the brake/safety pit inspection five days a week.

- Minor defects found during this inspection are repaired on the equipment.
- Defects that are time intensive and safety-related are assigned a separate work order; this vehicle is held out of service until the repairs are completed. These repairs are then assigned or scheduled by the shift supervisor. Adherence and quality inspections will be performed upon the return of the vehicle using the brake/safety inspection. Contracted County Services will be monitored weekly by performing follow-up inspections after the contractor has performed a PM and/or brake/safety inspection.

b. **Repair and Maintenance**

The preventive maintenance defect repair work is as critical to the success of a preventive maintenance program as the inspection process itself. The quality of the repair work is the key to meeting the goal of 10,000 miles between service equipment failures. The hours required to accomplish defect repair work generated by the PMI program will average two hours of repair work for each PMI program work hour. After the PMI defect repairs are complete, the bus interior is detailed.

c. **Special Projects/Campaigns**

RTD has developed a process to identify and evaluate the continuing need for special projects and maintenance campaigns to repair, modify, refine, engineer, and implement processes and repairs to systems that have proven to be undependable and problematic. One such example is the MCI fleet engine replacement program. Others may include manufacturer recalls or modifications.

2. **Unscheduled Maintenance:** The Maintenance staff performs unscheduled maintenance inspections and service of vehicles based on work orders generated by supervisors or lead mechanics. In addition, maintenance can be dictated by observation or newly available data in the form of technical bulletins, manufacturer notifications, recall notifications, etc.

a. Requests

- i. **Driver's Defects** are usually minor repair requests. These are defects found during the operator's pre-trip, normal in-service operation and/or post-trip inspections. These defects do not affect the ability of the bus to complete their assigned run. Operators will note the defect on a card provided and turn it into the Control Center. Maintenance will collect these cards periodically throughout each shift and assign work orders to each defect. The work orders are then assigned to mechanics for repair. Examples of these requests may include: interior lights that are not working, squeaks or rattles, loose seats, destination sign lights that are not working, etc.
The Maintenance Department assigns personnel to perform tasks based upon the urgency and type of service required. When possible, similar non-emergency tasks are deferred, scheduled, and performed together to increase efficiency.
- ii. **Verbal Notice:** The Maintenance Department encourages verbal requests for emergencies, urgent repairs, and minor defects. Work orders are created upon notification of all verbal requests.
- iii. **E-mailed Requests:** Written (usually in the form of an email) requests for unscheduled maintenance as determined by RTD staff.
- iv. **Field Repairs:** Minor unscheduled defects that are repaired while the bus is in service will not cause route delay (e.g., repairing a jammed farebox trim unit).
- v. **Road Call Repairs:** These services are non-preventive and usually denote a mechanical failure of a bus while in revenue service. This causes a delay in service and necessitates removing the bus from service until repairs are made. Road calls or other vehicle breakdowns will be handled in the most expedient manner possible. Employees responding to these calls will leave the gate within ten minutes of the call. Each road call will be tracked in the electronic maintenance management system and reviewed by the Operations Superintendent—Maintenance at the end of each month. The review will identify and correct any deficiencies found in the process. Examples of these deficiencies may include the wheelchair lift not working, engine or transmission trouble code, farebox not working, etc.

3. Contracted Maintenance: Staff use the formal contract or purchase order process to request the following services as needed:**a. Contracted Services (Ongoing Contracts)**

- MV Contract for County Services.
 - Oversight of PM program to be completed once a week.
 - Oversight of the brake and safety inspections to be completed once a week.
- Tire lease and service.
- Towing.
- Uniforms.
- Shop supplies and cleaning supplies.
- Fasteners.
- Bus batteries.

b. Regularly Contracted Services

- Glass repair and replacement
- Upholstery repair and replacement

4. **Maintenance Prioritization:** The Maintenance Department assigns personnel to perform the required task(s) based upon the urgency and type of service required. The Department performs maintenance and repairs as required in response to verbal requests, written and e-mailed requests, road calls and scheduled preventive maintenance or inspections. The system works when all areas of the agency work together to meet the goals and vision. All procedural details will be addressed more specifically in the department's procedures and work instructions.

California Air Resources Board (CARB) Impacts

CARB rulings have a direct impact on the maintenance of our fleet. RTD must monitor our fleet and follow the Bus Fleet Rule to ensure compliance with CARB regulations. This is accomplished by regularly attending the local meetings, subscribing to the CARB website for notices, and staying in contact with our statewide counterparts.

Training

The transit industry has become the testing ground for many new ideas. Regulation changes and electronic system integration in the industry make it necessary to provide comprehensive training programs to ensure our mechanics are effective. Yet training requires more than a few hours a year at a vendor's location. It is essential that as transit agencies, we develop our own mechanics and technicians. Historically, RTD has had difficulty attracting and recruiting well-trained and experienced transit vehicle mechanics. Entry-level staff require extensive training and thus few qualified mechanics and technicians are available. The solution to this problem is to develop high-quality mechanics internally through an apprenticeship program; this is the only way that RTD can ensure that we have quality mechanics who are truly in step with technological advancements. RTD has a State of California approved apprenticeship program that provides on-the-job training, and in-residence instruction with our educational partner San Joaquin Delta College. Also, we bring in manufacturer vendors to do specialized training when necessary. In order to ensure our success in this technologically advanced industry, we must train more mechanics and utility workers.

Comparison of Maintenance Efficiency with Peers

RTD monitors the NTD website for efficiency comparisons with other agencies. RTD also uses the APTA and ABBG group associations to compare efficiency standards. We recognize the importance of performance indicators and we use these indicators to maintain an efficient operation. The Operations Superintendent—Maintenance monitors spending according to the budget and uses these comparisons to maximize our efficiency and effectiveness.

Incorporation into RTD's TAM Plan

RTD developed a TAM Plan, which was approved by the RTD Board on September 15, 2018. The TAM Plan consists of the RTD's commitment to maintain its vehicle capital assets in a state of good repair and the vehicle maintenance procedures identified in this Plan are in keeping



Vehicle Maintenance Plan – August 2018

with the TAM Plan. Also included in the TAM Plan is a baseline condition assessment of the RTD's inventoried vehicles, the decision support tools used in developing the process of operating, maintaining, and improving these vehicle capital assets through their life cycle, and a prioritization of future vehicle capital investments.

Documentation

RTD uses Spear 4i software by Spear/Hanson Technologies, Inc. in its record-keeping system (Attachment D) to ensure a documented institutional record of maintenance activity. The information management system is designed to maintain accuracy and order, and represents a complete inventory of RTD's equipment assets. RTD's complete documentation system is not medium-specific, as record-keeping media may change with improvements in material and supply management technology. It contains the following foundational elements:

- Preventive Maintenance Inspection Checklist(s): documenting inspections, repairs and other maintenance activities including warranty service.
- Acquisition documents necessary for maintenance, including originals or copies of warranties, service contracts and agreements, purchase requisitions and orders, sales receipts, etc.
- Work orders completed by the technician(s).
- Complete and verifiable asset inventory with current custody documentation.
- A budget-tracking database to reconcile and support asset acquisition documentation.

References/Related Documents

FTA C5010.1D, [Grant Management Guidelines](#)
FTA C9030.1E, [Urbanized Area Formula Program](#)

**Appendix A: Sample A-Inspection (Brake/Safety) Checklist**

Time Stamp _____

San Joaquin RTD - Metro
A-INSPECTION
MONDAY

MECHANIC'S SIGNATURE _____ DATE _____

✓ OK

X REPAIR REQUIRED

O ADJUSTMENT MADE

- | | | | |
|------------------|---------------------|--------------------|-----------------------|
| 1 LIGHTS INSIDE | 5 BRAKE INTERLOCK | 10 ENGINE OIL LEAK | 15 BRAKE SHOE CONTACT |
| 2 BACK UP ALARM | 6 WCL | 11 TRANS OIL LEAK | 16 SCHEDULE RELINE |
| 3 LIGHTS OUTSIDE | 7 REAR DOOR S. EDGE | 12 FAN DRIVE LEAK | 17 SLACK ADJUSTER |
| 4 AIR LEAK | 8 A/C FILTER | 13 FUEL LEAK | 18 OTHER |
| A- APPLIED | 9 COOLANT LEAK | 14 RIDE HEIGHT | 19 DOWN BUS |
| B- STATIC | | | |

BUS #	INSP	DEFECT	DESCRIPTION	W/O#	SUP/Leak
1401					
1402					
4001					
4002					
6001					
6002					
6003					
6004					
6005					
6006					
1001					
1002					
12001					
609					

12/17/2009

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**Appendix B: Sample Preventive Maintenance Checklist****Gillig PMI****B**BUS# _____
W/O # _____
DATE : _____
MECHANIC# _____**6,000 MILE PREVENTIVE
MAINTENANCE INSPECTION
GILLIG
PHANTOM & LOW FLOOR**

	CURRENT
MILEAGE READING	
MILES BETWEEN P.M.I	

✓ = O.K.	O = ADJUSTMENT MADE	R = REPLACED	X = REPAIR
----------	---------------------	--------------	------------

ROAD TEST	COACH INTERIOR
STEAM CLEAN: ENGINE, TRANS, UNDERCARRIAGE, BATTERIES, HYD COOLER, RADIATOR, & CHARGE AIR COOLER; IF NOT PREVIOUSLY DONE.	OK: DASH INDICATOR LIGHTS WITH TEST SWITCH, INCLUDING WAIT TO START ON HYBRID BUSES.
ROAD TEST ON PRESCRIBED COURSE, NOTIFY YOUR SUPERVISOR UPON DEPARTURE & ARRIVAL FROM ROAD TEST.	OK: ABS, CK, & STOP ENGINE LIGHTS SHOULD ILLUMINATE MOMENTARILY WHEN ENGINE IS STARTED. IF LIGHTS DO NOT ILLUMINATE, LOG AS DEFECT CK: CAMERA SYSTEM INDICATOR LIGHTS, GREEN ONLY ON = GOOD.
CK: RETARDER/AUX BRAKE APPLIED (regeneration) OPERATION & LIGHT.	PUMP AIR DOWN TO 40 psi, CHECK WARNING LIGHT & PARKING BRAKE SELF APPLICATION.
CK: ALL INSTRUMENT OPERATION. CK: REAR OBJECT DETECTION SYS.	CK: FAST IDLE OP WITH ACCELERATOR & BRAKE INTERLOCK.
CK: STEERING ACTION, PULLING, & FOR SHIMMY.	CK: AIR COMPRESSOR CUT IN; MIN 85-psi, & CUT OUT; MAX 130-psi.
CK: BRAKE PERFORMANCE, PULLING.	CK: AIR BUILD UP TIME, FROM 85-psi TO 100-psi IN 40-sec @ HI RPM.
COACH EXTERIOR	CK: FOR APPLIED SERVICE BRAKE AIR LEAKS 3-lbs MAX LOSS PER 1-min.
CK: HI-LO BEAM, TURN SIGNALS, 4-WAY FLASHERS & BEEPER, CLEARANCE, TAIL, LIC PLATE, BACK-UP LIGHTS & ALARM. CK: YIELD SIGN IF EQUIPPED.	CK: PARKING BRAKE CONTROLS, KNOB & PIN FOR CRACKS, OPERATION, & DASH INDICATOR LIGHT. CK: VALVE FOR LEAKS.
CK: ALL LIGHT & REFLECTOR LENS FOR CONDITION, CRACKS, & MOISTURE.	CK: STEERING WHEEL COND, FOR EXCESSIVE WHEEL LASH, & VERTICAL MOVEMENT. CK: COLUMN SECUREMENT & BOOT COND. CK: TILT/TELE OPERATION. LUBE STEERING SHAFT & U-JOINTS.
CK: WIPER BLADE CONDITION, ARM SECUREMENT, & SPRAY NOZZLE COND. CK: WASHER FLUID LEVEL & ADJUST IF NEEDED.	CK: ALL DRIVER CONTROL SWITCHES, LTS, MIRRORS, VISOR, & TRASH CAN. CK: RADIO, P.A., HANDSET, & FAREBOX CONTROLS, OP, & MOUNTING.
CK: COACH OUTSIDE MIRRORS CONDITION & SECUREMENT.	CK: DRIVER'S DASH, SIDE, & OVERHEAD CONSOLES FOR LABELING, LIGHTING, CRACKS, & SECUREMENT. CK: FOR MISSING OR LOOSE SCREWS. CK: DRIVERS WINDOW TRACK & LOCK ASSY.
CK: COACH OUTSIDE NUMBERS, LOGOS, WHEELCHAIR LIFT, BATTERY DISCONNECT, CHP NUMBERS, & DO NOT PASS STICKER LOCATIONS & CONDITION. CK: FOR LOOSE OR DAMAGED FENDER SKIRTS.	CK: KNEELING & (FRONT RAMP OPERATION ON LOW FLOOR) WARNING LIGHTS, & ALARMS. CK: THROTTLE & BRAKE INTERLOCK OPERATION.
CK: FRONT & REAR BUMPER SECUREMENT, ALIGNMENT, & CONDITION.	CK: DRIVER'S SEAT & SEATBELT OPERATION & COND. CK: SEAT ALARM IF EQUIPPED. LUBE SLIDE TRACK.
CK: BIKE RACK FOR DAMAGE, ACTUATE ALL LATCHES, HANDLES, & BRACKETS FOR LOCKING & SMOOTH OPERATION. CK: BIKE RACK DEPLOYED SWITCH & DASH LIGHT OPERATION.	CK: W/S WIPER, WASHER, & INTERMITTENT OP & ARM ADJUSTMENT.
COMPLETE BODY INSPECTION SHEET. CK: ALL GLASS FROM OUTSIDE.	CK: WINDSHIELD CONDITION FROM INSIDE.
CK: HUBODOMETER FOR LEGIBILITY, ACCURACY, MOISTURE, & SHIELD.	CK: THROTTLE & BRAKE PEDALS FOR DEBRIS & FUNCTION, & LUBE.
CK: TIRE PRESSURE & CORRECT TO 115 PSI FRONT, 110 PSI REAR.	CK: FIRE EXTINGUISHER & FIRE SUPPRESSION SYSTEM PIN, SEAL, & DATE.
CK: FRONT HUB OIL LEVEL, ADJUST IF NEEDED, (BSW-140)	CK: ROADSIDE WARNING DEVICES/TRIANGLES. (3 PER SET OR SEALED BOX) CK: VEHICLE REGISTRATION SLIP.
CK: LUG & AXLE NUT COND. CK: FOR MISSING STUDS & OIL LEAKS.	CK: BODILY FLUID & STOP LEAK KITS FOR CONTENTS OR SEALED.
CK: ALL ACCESS DOOR LATCHES, HINGES, & PROPS FOR COND & LUBE.	CK: DRIVERS BARRIER/SCHEDULE RACK CONDITION & SECUREMENT.
CK: FIBERGLASS REAR ACCESS PANELS FOR MISSING SCREWS & RIVETS.	CK: DESTINATION SIGN OPERATION & ELECT CONNECTION. CLEAN SIDE SIGN GLASS.
CK: BODY PANELS FOR CRACKS & BUCKLING.	CK: DOME LIGHTS OPERATION. CK: DOME LIGHT ASSY FOR SECUREMENT.
CK: FUEL CAP & FILLER NECK FOR LEAKS.	CK: FRONT DOOR OPERATION, COND, (LOWFLOOR INTERLOCK & RELEASE) & EMERG AIR RELEASE VALVE & GLASS. CK: DOOR MOTOR & COMP, CONTROL RODS, ARMS, LOCK NUTS, & BRGS.
REMOVE & CLEAN BATTERY TERMINALS. CK: BATTERIES, HOLD DOWNS, TRAYS, & SLIDES FOR DAMAGE, LEAKS, & CORROSION. LUBE LOCKS & SLIDES. CK: VANNER & BATTERY DISCONNECT SWITCH OPERATION & COND. CK: ALL CABLES, ENDS, & CONNECTIONS MOUNTING & CONDITION.	CK: MICRO SWITCHES RELAYS & ALL ELECT WIRING. LUBE DOOR ROD ENDS, ROLLERS, & BRGS.
TAKE HYDROMETER READINGS OF EACH CELL & RECORD HI-LO READINGS ADD WATER IF NEEDED AFTER READINGS, OR NOTE MAT/FREE EYE COLOR. BATTERY 1 (FRONT/ UPPER) BATTERY 2 (REAR/LOWER) HI _____ LO _____ CLR _____ HI _____ LO _____ CLR _____	CK: REAR DOOR OPERATION, COND, INTERLOCK, EMERG AIR RELEASE & GLASS, GREEN LIGHT, & TOUCH BAR OP. CK: SENSITIVE EDGE & DRUNK ALARM SWITCHES FOR OP. CK: REAR DOOR MOTOR & COMP, CONTROL RODS, ARMS, LOCK NUTS, & BRGS. CK: MICRO SWITCHES, RELAYS, & ALL ELECT WIRING. LUBE DOOR ROD ENDS, ROLLERS, & BRGS.
LOAD TEST BATTERIES TO 600 AMPS FOR 15 sec. MIN 9.6 VOLTS.	CK: ROOF HATCHES OP, COND, & DECALS. CK: CAMERA COVERS & LENSES.
CK: CHARGING VOLTAGE (28.0 VOLTS +/- 1 VOLT) @ FAST IDLE WITH HEADLIGHTS, MARKER LIGHTS, & DOME LIGHTS "ON".	
ON LOW FLOOR, CK: AIR LINES, SHUTOFF VALVES, & FITTINGS FOR LEAKS. DRAIN AIR TANKS & CK FOR CONTAMINATION.	

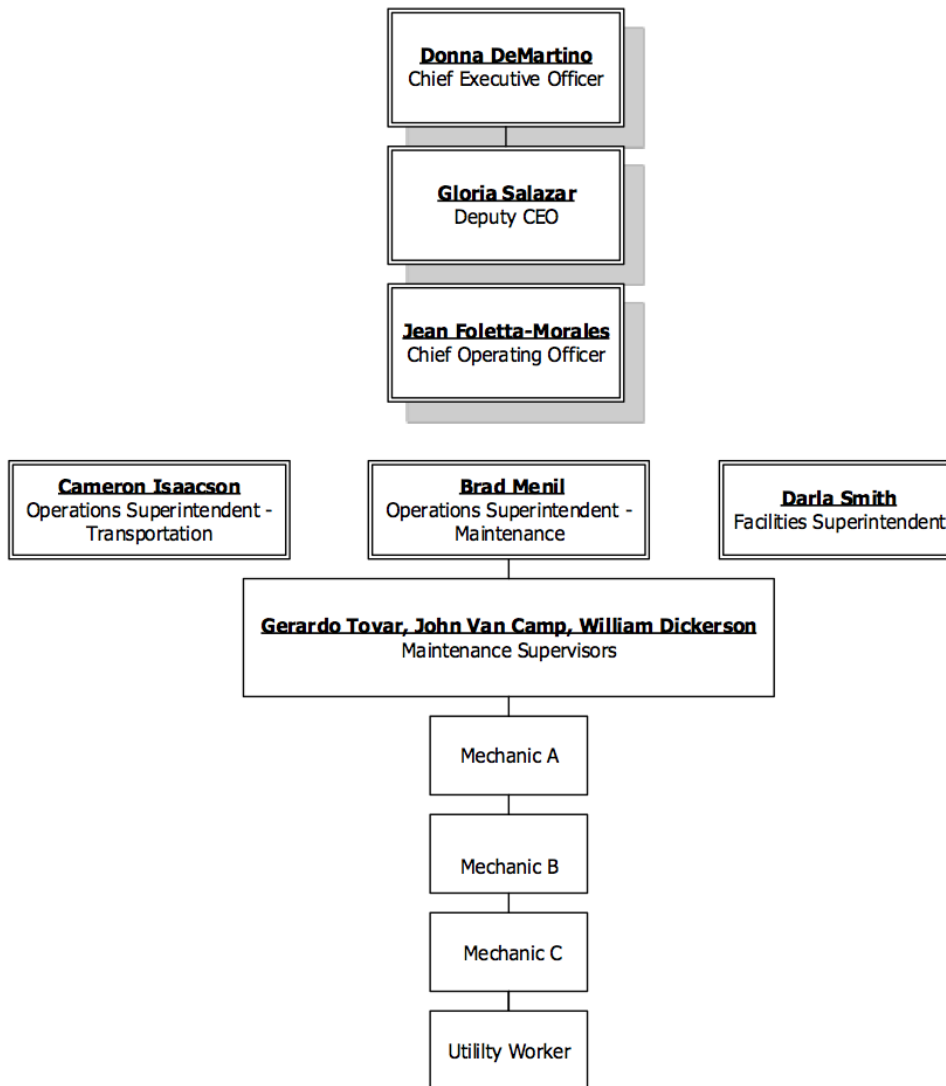
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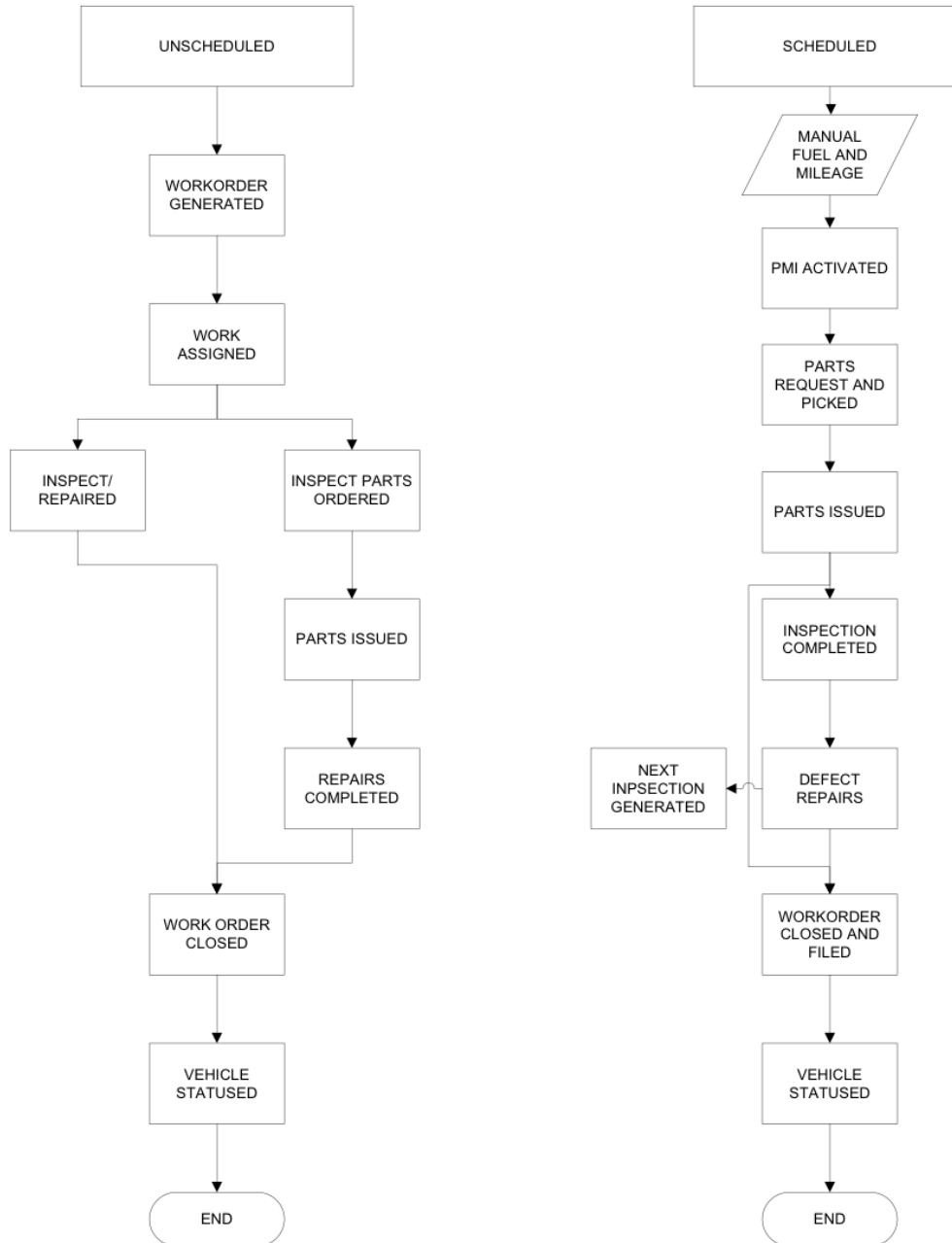
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Appendix C: Organization Chart—Maintenance



Appendix D: Spear 4i Flow Chart



Appendix K: Facilities Maintenance Plan



Facilities Maintenance Plan – August 2018

Introduction

The San Joaquin Regional Transit District (RTD), as a Federal Transit Administration (FTA) grantee, has acquired facilities in order to administer, operate, and maintain transit services. Providing adequate maintenance for these facilities is an ongoing process with a substantial cost. RTD relies on FTA funding and other funding sources to perform these duties; as a result, this Facilities Maintenance Plan was developed to comply with FTA requirements—including State of Good Repair (SGR) and Transit Asset Management (TAM) requirements—for continued support. In addition, the Facilities Maintenance Plan helps employees meet RTD's strategic goals.

Purpose

This plan established the facilities maintenance program implemented by staff to ensure that RTD facilities remain in a state of good repair and reach their optimal life expectancy. The plan describes the Facilities Department's responsibilities to perform preventative maintenance, non-routine repair services, and replacement services on all RTD facilities. It also provides descriptions of responsible parties, maintenance categories, requests, procedures, and the necessary recordkeeping to keep RTD facilities and systems in a good state of repair. In addition, this plan specifically describes the "system of periodic inspections and preventive maintenance" to be performed at defined intervals as required by FTA C 5010.1D and is in keeping with RTD's Transit Asset Management (TAM) efforts and TAM Plan as required by FTA 49 CFR parts 625 and 630.

Responsibility

The Facilities Department staff are responsible for all facilities and facility-related equipment maintenance, inspections, and repairs.

Responsibilities are as follows:

- **Chief Operations Officer** is responsible for overall operations of the department.
- **Operations Superintendent—Facilities** is responsible for day-to-day operations of the Facilities Department, contract oversight as required, and all documentation relating to the various facilities, including warranty claims and inspection tracking.
- **Facilities Supervisor** is responsible for assigning duties and oversight of Facilities Technicians, Utility Workers, Custodians, and Contractors.
- **Facilities Technicians** are responsible for maintenance, inspections, and repair duties. This position includes Facility Technician A, B, and C.
- **Utility Workers** are responsible for bus stop maintenance/cleaning and assisting Facilities Technicians as needed.
- **Custodians** are responsible for maintaining cleanliness at all RTD facilities.

RTD Facilities

The Downtown Transit Center (DTC)

421 East Weber Avenue, Stockton, California

This two-story facility, constructed in 2006, consists of approximately 30,484 square feet. The facility houses RTD's Administrative staff, a boardroom, and public amenities. This location also

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includes a passenger boarding area, which consists of 29 bus stops. RTD leases part of the first floor (2,816 square feet of commercial rental space on the southeast corner) to Gleason's Ice Cream.

The Regional Transportation Center (RTC)

2849 East Myrtle Street, Stockton, California

This operations and fuel/wash complex, constructed in 2014-2015, consists of 136,310 square feet of building space. The facility houses RTD's Operations staff, including Transportation, Bus Maintenance, Facilities, IT, and space for other departments as needed (e.g. Service Development, Police, and Human Resources). The fuel wash equipment and maintenance facility is used by staff to maintain the Metro fleet parked on site and the County fleet parked nearby at 120 North Filbert Street.

The County Transportation Center (CTC)

120 North Filbert Street, Stockton, California

RTD purchased this facility in 2004 to provide a larger base of operations for RTD's county-wide transportation and maintenance operations. This facility houses RTD's Purchased Transportation (PT) contracted County and Metro operations and vehicles.

The Hammer Triangle Station (HTS)

7735 Lower Sacramento Road, Stockton, California

This bus transfer station, purchased by RTD in 2011, is a 7,900-square foot bus transfer center that serves as a central hub. The HTS includes a covered passenger waiting area, five boarding locations throughout the station, and has a small driver break area with restrooms.

RTD Bus Stops

RTD maintains approximately 1,000 standard bus stops and 49 Bus Rapid Transit shelters in San Joaquin County as well as numerous commuter bus stops for additional service to and from adjacent counties.

Vacant Lot

1710 East Fremont Street, Stockton, California

Parcel retained after sale of larger property, fate of development to be determined.

Facility Maintenance Categories

Preventative maintenance service: The Facilities Department determines the service schedules based on the maintenance needs of the equipment and as recommended by the equipment manufacturers, authorized service representatives, and internal determination (based on usage).

Non-routine or emergency repair service: These unexpected and unscheduled repair services are of a non-preventative nature.

- Examples: Discovered hazards, security breaches, vandalism, premature equipment failure, disasters, and mandates.

Non-critical service: These services are usually the result of RTD's need to alter a workspace, elements within a workspace, or the amenities present at bus stops.

Hazardous material/waste control: Routine maintenance inspections and repair of material handling systems based on the needs of staff and regulatory agency requirements.

Maintenance Request Process

The Facilities Department dispatches staff to perform tasks based upon the urgency and type of service required. When possible, similar non-emergency tasks are deferred, scheduled, and accomplished together to increase efficiency.

- **Verbal requests:** The Facilities Department encourages verbal requests for emergency or urgent repairs. However, for the purpose of documenting and maintaining records, staff asks that all verbal requests be followed up with an email.
- **Written/e-mailed requests:** Email (usually sent via SugarCRM) requests for unscheduled improvements or maintenance as needed by RTD staff.
- **Discovered maintenance:** Facilities staff routinely learns of needed repairs or maintenance due to deficiencies found during the inspections or while completing various tasks. Facilities staff inputs discovered maintenance tasks into the Spear 4i or SugarCRM work order system and, if possible, combines discovered task work with other verbal or written maintenance requests.
- **Scheduled Maintenance:** Work orders for scheduled maintenance may be generated by RTD's licensed Spear/Hansen Technologies, Inc. 4i maintenance software system. These come in the form of pre-scheduled preventative maintenance inspection forms and allow the Facilities Department to maintain equipment in a state of good repair and to meet other RTD needs.
- **Contracted Maintenance:** Staff uses the formal third-party contract or purchase order process to solicit and ensure the following services are performed as needed:
 1. Contracted Services (Ongoing Contracts)
Landscaping, pest control, elevator maintenance and repair, capital project engineering.
 2. Routinely Contracted Services
Lock and key services, fuel island equipment maintenance and repair, disposal of biohazard waste, laboratory testing (hazardous waste compliance), hazardous waste removal, fire protection system inspections.
 3. Occasionally Contracted Services
Capital project construction, air compressor maintenance and repairs, HVAC system major repairs, emergency generator maintenance and repairs, electrical and plumbing system repairs, roll-up door and gate repairs, fire extinguisher re-certification, security and camera system repairs, bus vacuum system repairs, bus wash repairs, underground storage tank/fuel system repairs.

Maintenance Prioritization

The Facilities Department prioritizes all work according to several factors:

- Safety
 - Security
 - Impact on critical functions
 - Funding
 - Work force availability
 - Task duration
 - Required maintenance intervals
 - Material availability
 - Directives
 - TAM Plan Initiatives
 - RTD's strategic goals
-
- **Unscheduled Maintenance:** The Facilities Department schedules all tasks. When scheduling is impossible, staff will evaluate the work and determine if RTD staff members are available, or if contracting is the most efficient method of completing the task.
 - **Scheduled Maintenance:** The Facilities Department staff will prioritize and complete all regulatory required maintenance, pre-scheduled preventative maintenance, and non-emergency maintenance. When RTD staff determines that a need for extra help exists, staff will evaluate the situation and contract out the work if it serves the best interest of RTD.
 - **Contracted Maintenance:** Contractors or vendors will accomplish all tasks the Facilities staff are unable to complete (as funding allows), and all tasks that require licenses or skills not required of staff members. Staff will contract work when it is in the best interest of RTD.

Recordkeeping

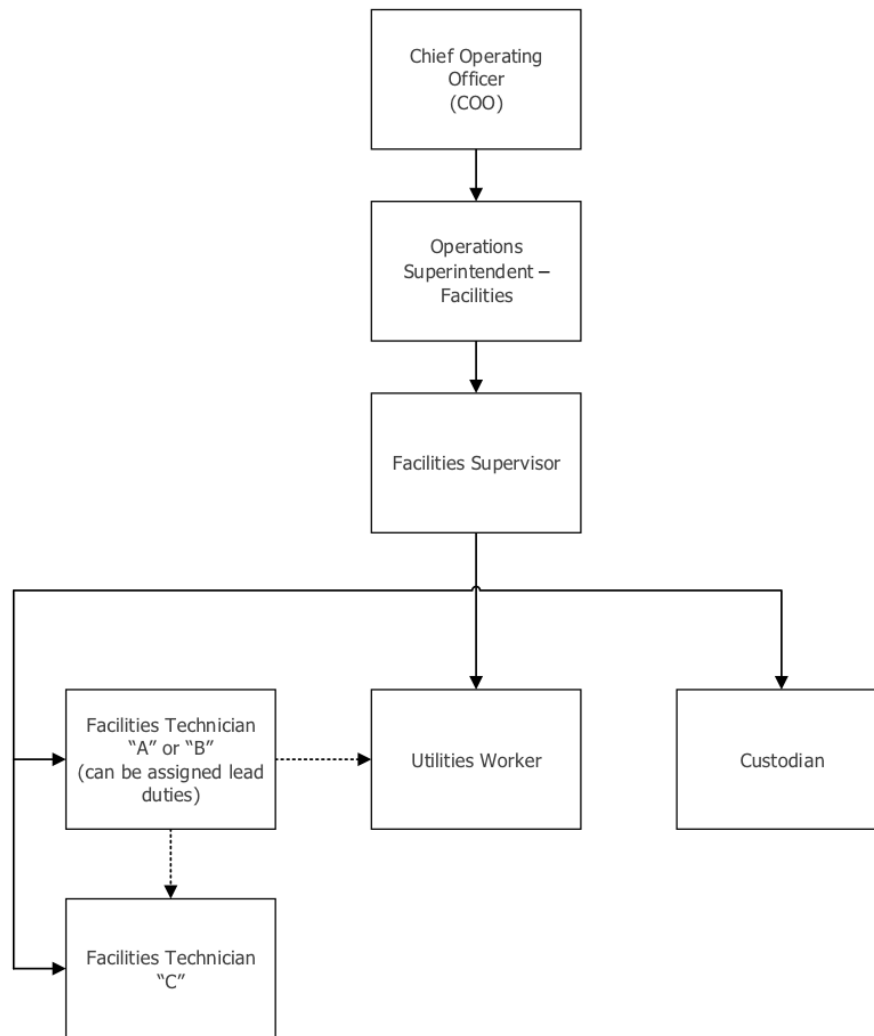
The RTD Facilities Department uses Spear 4i software to input and track the preventative maintenance schedule. This system generates preventative maintenance inspection (PMI) schedules and forms according to a preset schedule. Staff members also use the SugarCRM system for non-PMI work orders as needed. Staff records PMI work order task details in Spear at the completion of a task. The Spear and SugarCRM systems are part of RTD's plan to ensure a documented record of maintenance activity is in place. In addition to electronic record retention, staff maintains hard copy records of all PMI work orders and supplemental documentation in accordance with RTD's Record Retention Policy.



Appendix A: San Joaquin RTD Equipment PMI Checklist

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Appendix B: Organizational Chart—Facilities



Appendix C: Work Order Process

