

# Transit Asset Management Plan

Federal Transit Administration  
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# **DELAWARE TRANSIT CORPORATION**

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## **EXECUTIVE SUMMARY**

In October 2016 the Federal Transit Administration (FTA) published its Final Rule on the Federal requirements for the development of Transit Asset Management (TAM) plans by all transit agencies that receive federal funding. As a recipient of federal funds, the Delaware Transit Corporation (DTC), also known as DART, is required to prepare a TAM plan. The TAM Plan involves an inventory and assessment of all assets used in the provision of public transportation. The term “asset” refers to physical equipment including rolling stock, equipment and facilities. The goal of asset management is to ensure that an agency’s assets are maintained and operated in a consistent State of Good Repair. The TAM Plan will be a living document that provides performance goals, implementation and investment prioritization strategies that will provide DTC with tools to continue to manage its assets at optimal efficiency, reducing maintenance and life-cycle costs, informing capital investment decisions, and minimizing risk.

## **TAM Plan Responsibility**

Per FTA requirements, DTC has designated the Deputy Chief Operating Officer, Support Services as the “Accountable Executive” who is responsible for the development and implementation of the TAM Plan. DTC’s Accountable Executive is supported by the TAM Team, composed of representatives of the following departments:

- Facilities and Capital Projects
- Maintenance
- Fleet and Contracts
- Operations
- Finance
- Risk Management

## **TAM Plan Requirements**

The TAM Final Rule defined two categories of providers, Tier 1 and Tier 2; each having different reporting requirements. A Tier 1 agency is defined as an agency operating over 100 vehicles in peak revenue service or operating rail service. A Tier 2 is an agency operating 100 vehicles or less during revenue service and no rail operations. Based on the criteria DTC is a Tier 1 agency that has the following reporting requirements:

1. Capital Asset Inventory
2. Condition Assessment of Assets
3. Description of Decision Support Tools
4. List of Prioritized Investments
5. Transit Asset Management and State of Good Repair Policy
6. TAM Plan Implementation Strategy
7. List if Key Annual Activities supporting the TAM Plan
8. Identification of Resources Needed to support TAM Plan
9. Evaluation Plan

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## Inventory of Capital Assets

The TAM Plan includes an inventory of all assets that owned or operated by DTC. The assets are defined in three categories; rolling stock, equipment, and facilities.

- Rolling Stock – DTC has 517 revenue vehicles; of these, 233 are fixed-route buses and 284 are paratransit buses.
- Equipment – DTC's non-revenue vehicles and support equipment consist of 93 non-revenue service vehicles, and 9 pieces of service support equipment.
- Facilities – DTC has 41 facilities, including administration, operations, and maintenance facilities; passenger facilities; parking structures; and park and rides.

## Condition Assessment

Rolling stock and equipment are tracked and managed using DTC's equipment management software FleetFocus MS and Cognos, following the guidelines established in DTC's Fleet Maintenance Plan. Under DTC's Facility Maintenance Plan, facilities are subject to daily, monthly, semi and/or annual assessments. Staff also performed a facility review for this TAM Plan. The following is a summary of DTC's condition assessment:

The condition of rolling stock is measured as the percentage of vehicles at or beyond the FTA-defined Useful Life Benchmark (ULB). Only 1.2% of DTC's revenue fleet is at or beyond its ULB, with an average vehicle age for fixed-route and paratransit vehicles of 6.95 and 2.58 years, respectively.

The condition of equipment is measured as the percentage of vehicles at or beyond their defined ULB. 20% of DTC's non-revenue fleet and support equipment is at or beyond its ULB.

Facilities conditions are measured using FTA's TERM condition rating scale for State of Good Repair. The TERM scale is a rating of 1 to 5, where 1 is poor, and 5 is excellent. Any facility with a rating of 3 or greater is considered operating in a State of Good Repair. Overall, DTC's State of Good Repair rating for all facilities is 3.87.

## Decision Support Tools and Investment Prioritization

DTC uses a range of decision support tools for asset lifecycle management and investment planning, including both electronic software and written policy manuals. The decision support tools are also key annual activities for performing lifecycle management. One of the primary purposes of maintaining a state of good repair is risk mitigation. Throughout each asset's lifecycle DTC monitors the asset for unsafe and inaccessible conditions. When DTC encounters and identifies an unacceptable safety risk associated with an asset, the asset is ranked with higher investment prioritization in the Delaware Department of Transportation (DelDOT) six-year Capital Transportation Program.

## TAM Plan and State of Good Repair Policy

To effectively manage and maintain its capital assets in a continual state of good repair DTC has developed and overall approach to asset management and funding. Accordingly, DTC has identified six policy actions to success that include; promoting a culture supporting asset management, employ best practice principles, prioritize safety critical assets, utilize state-of-the-art technology, set performance goals and cost-effective decision making. To support the TAM Plan policy DTC has developed state of good repair goals that account for the full life cycle of an asset.

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## **Implementation Strategy, Identification of Resources, Annual Activities, and Evaluation Plan**

The implementation of the TAM Plan provides a strategic approach to managing the preservation of fleet and facilities to optimize the useful life and performance of these assets. DTC has developed a framework for incorporating asset management procedures into its fleet and facilities maintenance plans. The implementation process will ensure assets are maintained in a state of good repair and enhance operations by providing safe, reliable service. The TAM Plan implementation approach will be reviewed on annual basis and revised as needed. Additional input will occur as part of the quarterly TAM Team meetings.

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# DELAWARE TRANSIT CORPORATION

## 1 INTRODUCTION

In 2016, the Federal Transit Administration (FTA) issued a Final Rule requiring that all transit agencies that receive Federal financial assistance complete a Transit Asset Management (TAM) Plan. The TAM is a business management model that prioritizes funding based on the condition of transit assets. The FTA TAM Final Rule requires reporting on the physical condition of assets used in the operation of the public transportation system. It combines the components of available funding, overhaul and replacement actions, and performance measures with the outcome of operating assets within the parameters of a state of good repair (SGR). The TAM Plan covers a four-year “horizon period”. This initial TAM Plan, due October 1, 2018, will provide a description of how Delaware Transit Corporation (DTC) will assess and monitor the condition of DTC’s assets, and prioritize future investments. DTC will continue to assess and amend the TAM Plan, as needed, over the four-year horizon.

### 1.1 OVERVIEW OF DELAWARE TRANSIT CORPORATION

The history of multi-modal public transport in Delaware dates to the late 1800s when the Wilmington City Railroad Company operated horse-drawn trolleys in the City of Wilmington. The Delaware Coach Company operated trackless trolleys from 1938 until 1958 when the trolleys were replaced by buses. Delaware Coach operated until the late 1960s. Other privately-owned services operated in different areas of the State. In 1969 the Delaware General Assembly created the Delaware Authority for Regional Transit, DART, to assume these bus operations.

In 1971, Delaware Department of Transportation (DelDOT) became the governing agency of DART, providing service in the greater Wilmington region. In 1990, DelDOT under the Delaware Transit Authority, began operating public transit services in the Dover, DE and resort areas. Finally, in 1995 DTC was formed to provide statewide public transit services and is the public transit division of DelDOT and operated under the name of “DART First State”.

DTC’s mission is “to design and provide the highest quality public transportation services that satisfy the needs of the customer and community”. DTC aspires to be a premier transportation organization with accessible facilities and interconnected services incorporating state-of-the-art technologies. A well-trained workforce, clear communication, and beneficial working partnerships enable DTC to meet customer needs in an affordable, safe, and efficient manner.

With an annual systemwide ridership of over 9.6 million trips, DTC operates statewide fixed-route and paratransit bus services including seasonal resort service, with over 70 bus routes and 500



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buses. Service operates seven days a week with a number of varying service spans and headways. DTC also contracts with the Southeastern Pennsylvania Transportation Authority (SEPTA) for commuter rail services in New Castle County, DE.

DTC is continually motivated to provide a public transit system that offers reliable, safe, accessible, and convenient service through safe vehicles and facilities through an ongoing commitment to preserving and continual improvement in the quality and quantity of transit service.

## 1.2 TAM REQUIREMENTS

When the FTA TAM Final Rule went into effect on October 1, 2016, the rule amended US Code of Federal Regulations (CFR) Title 49, Parts 625 and 630 relating to TAM and the National Transit Database (NTD). The amended regulations have different TAM Plan requirements depending on the size of the transit provider. The rule defined two categories of providers, Tier 1 and Tier 2. Based on the criteria DTC is a Tier 1 agency.

FTA defines a Tier 1 agency as:

1. Operates, or manages either 101 or more vehicles in revenue service during peak regular service or in any one non-fixed-route mode and/or,
2. Operates rail transit

This TAM Plan will outline how DTC's systematic process for assessing, monitoring, and reporting on the physical condition of the assets meets the goals of the SGR. DTC accomplishes this by using a defined maintenance approach, preservation, repair, and rehabilitation actions that will attain a continuous SGR for the life of the asset.

As noted in the prior section, DTC, as a Tier 1 provider, is required to complete and submit with the initial TAM Plan the nine elements as identified in the FTA Final Rule. These elements of Tier 1 TAM Plan include:

1. Capital asset inventory
2. Condition assessment of assets
3. Description of decision-support tools used to estimate capital needs, and prioritize investments
4. Project-based prioritization of investments
5. TAM and SGR Policy
6. TAM Plan implementation strategy
7. Description of key activities to support TAM over four-year horizon period
8. Identification of resources needed to support TAM Plan
9. Outline/approach of how the plan will be evaluated and updated

## 1.3 TAM PLAN APPROACH

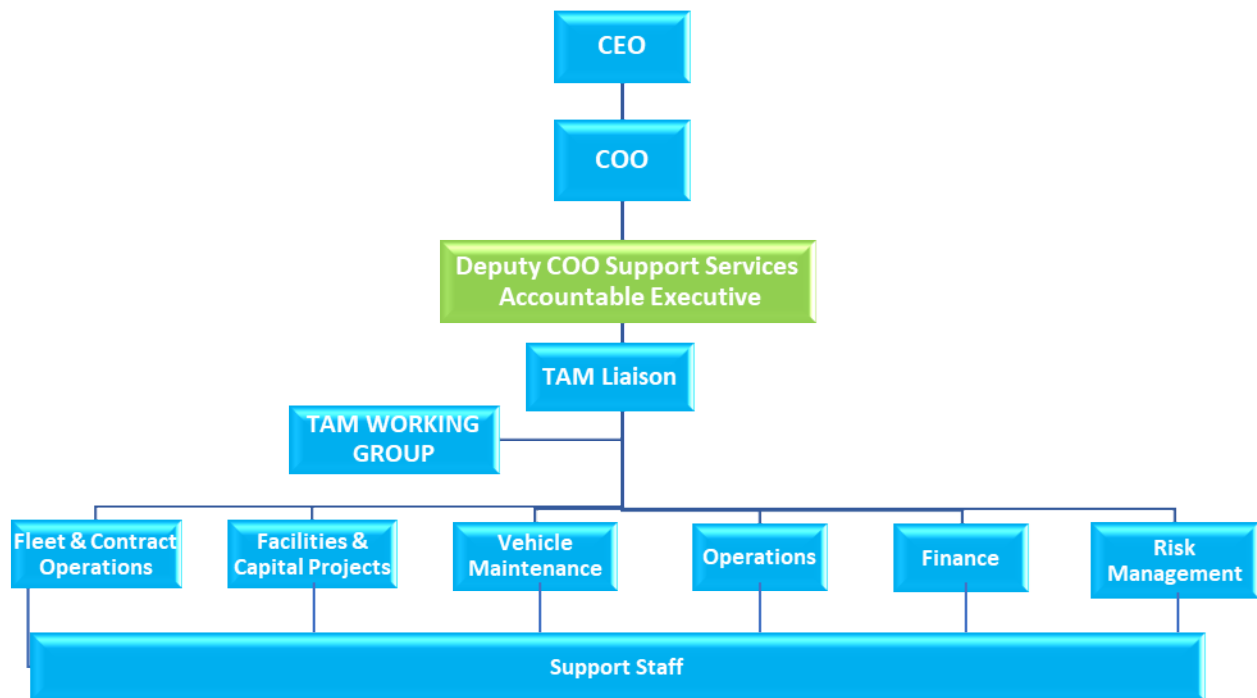
Meeting the goals and expectations of the TAM Plan cannot be accomplished by one sole individual; rather a core group of key staff representatives will ensure a smooth implementation of the Plan and its continued evaluation. Accordingly, DTC has developed a TAM Plan hierarchy. **Figure 1** illustrates the DTC's TAM Team that will be responsible for the implementation of the TAM Plan. It is important to note that

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the hierarchy is not all-inclusive since many individuals will support the TAM Plan effort. DTC support staff, operators, mechanics, and DTC customers play an important role in the success of the TAM Plan.

Per FTA requirements, each TAM reporting agency is required to identify and designate the person who will be responsible for the implementation of the TAM Plan, known as the agency’s “Accountable Executive”. DTC’s Accountable Executive will be the Deputy Chief Operating Officer for Support Services. The Accountable Executive will set annual performance goals and TAM Plan updates. These goals and updates shall be approved by DTC’s Executive Director. As shown in Figure 1, the Accountable Executive will also be supported by a team of key representatives responsible for day-to-day operations, asset management, and planning for DTC’s current asset upgrade and future expansion needs. DTC’s TAM Team were key to the development of this initial TAM Plan.

**FIGURE 1: DTC TAM TEAM**



This TAM Plan sets forth DTC’s approach for agency-wide objectives and strategies for compliance with FTA’s Final Rule requirements.

## 2 INVENTORY OF CAPITAL ASSETS

### 2.1 DTC ASSET INVENTORY

The following is a summary of the capital assets for which DTC has direct capital responsibility. These assets are owned and operated by DTC and are comprised of DTC’s rolling stock, equipment, and facilities and are therefore included in this TAM Plan. DTC’s assets are inventoried and tracked using spreadsheet reports generated by DTC staff. DTC also utilizes Equipment Management System (EMS) software

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FleetFocus M5 for tracking maintenance activities and Cognos, a locally derived performance management database, to track the preventative maintenance reports.

DTC assets are classified into three asset categories: rolling stock, equipment and facilities.

1. **Rolling Stock** – DTC-owned and operated vehicles for the purpose of revenue service in the provision of providing fixed-route and paratransit public transportation.

DTC does not operate any third-party-owned assets. All DTC revenue service vehicles are ADA-compliant and the fleet consists of:

- 40' and 45' MCI over the road coach commuter buses
- 29', 35', and 40' Gillig Low-Floor diesel and hybrid fixed-route buses.
- 25' Elkhart and C&E diesel and propane paratransit buses



Each vehicle is assigned a unique ID number for tracking and preventative maintenance purposes. The unique ID number identifies the assets purchase/acceptance group, service type, and operating division.

DTC owns four Hyundai Rotem commuter rail cars (#'s 735, 736, 871 and 872) purchased in 2013 under agreement with SEPTA. However, DTC does not operate, maintain, or store the rail cars. At the time of this writing DTC is not a grantee that operates passenger rail service; SEPTA service on the Wilmington/Newark Line is contracted through SEPTA. Therefore, DTC does not have any associated rail infrastructure in its asset portfolio. Accordingly, DTC does not have any direct capital responsibility and so the rail cars will not be included in this TAM Plan.



2. **Equipment** – DTC-owned and operated non-revenue service vehicles, regardless of value, and support equipment as a single or group of same items valued at more than \$50,000.

DTC operates non-revenue vehicles for maintenance support, street supervision, staff travel, and delivery and recovery of materials. Equipment includes items that are used in the operation and support of public transportation.

3. **Facilities** – any DTC-owned structure or facility equipment in use for the provision of public transportation.



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As a statewide public transportation service provider DTC is responsible for the following structures: seven operations and maintenance (O&M) facilities, two administration facilities, two parking structures, three passenger rail facilities, thirteen park and rides, and three transit hubs.

The DTC facilities inventory includes three types of facilities: administrative, maintenance, and passenger and parking facilities.



- *Administrative Facilities – Offices*  
For facilities administrative activities, human resources, civil rights, technology, operations, engineering, finance, scheduling, planning, marketing, and safety/security to support the overall management activities for the provision of public transportation.
- *Operation and Maintenance Facilities* – support activities for the operation, maintenance, and storage of bus-only rolling stock used for the provision of public transportation. Maintenance facilities are capable of preventative, minor, and major maintenance activities. Offices for operations, maintenance, and dispatch supervision; and operator/mechanic breakrooms. O&M facilities include separate on-site bus wash facilities.
- *Passenger Facilities/Parking* – Passenger rail stations that provide passenger waiting areas and parking for rail service activities. DTC also has transit centers and transit hubs that provide covered waiting areas and enhanced passenger amenities to support bus services. Also included are parking structures and park and rides.

DTC does use one third-party owned passenger rail facility, Joe Biden Amtrak Station, which is owned by the National Railroad Passenger Corporation. DTC does not have direct capital responsibility for the rail station. However, DTC does have direct capital responsibility for the adjacent parking structure. The parking structure is included in the asset inventory and facility assessment.

**Table 1** and **Table 2** provides a summary of the capital assets that DTC owns, operates, and for which it has direct capital responsibility.

**TABLE 1: DTC ROLLING STOCK AND EQUIPMENT INVENTORY**

Asset Category	Asset Type	Operating Division	Asset Class	Quantity
<b>Rolling Stock</b>	Revenue Fleet	Monroe Street, Dover, Mid-County, Georgetown	25' Cutaway Bus	284
		Dover, Georgetown, Resort	29' Low Floor Bus	61
		Monroe Street	35' Low Floor Hybrid Bus	8

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Asset Category	Asset Type	Operating Division	Asset Class	Quantity
		Monroe Street, Mid-County, Resort	40' Low Floor Bus	129
		Monroe Street	40' Low Floor Hybrid Bus	20
		Monroe, Dover, Resort	40' Commuter Bus	4
		Monroe Street, Dover, Resort	45' Commuter Bus	11
<b>Equipment</b>	Non-Revenue Fleet	All	Autos, SUV's, Trucks	93
	Maintenance Equipment	All	Trailers, Forklifts, Scrubbers	9
	Fare Collection	All	Fareboxes	517
	Security/Security	All	Site Security Cameras	284
	Communications	All	Telecommunications/ITMS	2,591
			CAD/AVL, radios	
			Bus Video Surveillance	

CAD: Computer Aided Dispatching; AVL: Automated Vehicle Location

**TABLE 2: DTC FACILITY INVENTORY**

Asset Category	Asset Type	Asset Class	Year Operating	Quantity
<b>Facility</b>	Administration	Beech Street	2006	1
	Administration	Dover	2001	1
	Operations & Maintenance	Monroe Street	1974, 2004	3
	Operations	Beech Street	2006, 2018	2
	Operations & Maintenance	Mid-County	2005	4
	Operations & Maintenance	Dover	2001	2
	Operations & Maintenance	Georgetown	1999	3
	Operations & Maintenance	Resort	1990	3
<b>Passenger Facilities</b>	Rail Station	Claymont	1990	1
	Rail Station	Fairplay	2000	1
	Rail Station	Newark	1997	1
	Transit Center	Dover	2011	1
	Transit Center	Lewes	2017	1
	Transit Hub	Newark	2008	1
<b>Parking</b>	Garage	Amtrak Station	2004	1
	Garage	Christina Crescent	2008	1
	Park and Rides	Multiple Sites	-	13



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DTC's Resort O&M facility was a seasonal facility operating from May to September of each year, but in September 2018 DTC began operating limited year-round service from this facility. Maintenance activities

are limited to minor daily check repairs. Regular preventative maintenance activities occur at DTC's Georgetown facility. A new O&M facility at the Lewes Transit Center is under construction at the site of the Lewes Park and Ride. When complete the Lewes Transit Center will support operation,



maintenance and storage of DTC transit service year-round. In addition to the new passenger facilities already in use, the site will also include a visitors/customer center with public restrooms. When the site is fully operational DTC will reclassify the asset to reflect the fact that it includes two facilities, an O&M facility and a passenger facility. Additional facility expansion is anticipated in Sussex County, DE with the development of the new Georgetown Transit hub in FY20 which will be classified as a passenger facility. The site is currently a bus stop location. Both facilities will be included in future TAM Plan amendments.

### 2.2 ASSET CONDITION TRACKING

As each asset is procured and accepted DTC assigns a specific asset identification number, and data is collected from the manufacturer on the asset's useful life, preventative maintenance schedule, and warranty information. This data is then entered in DTC's equipment management software programs, Fleet Focus M5 and Cognos. Some of the facility assets included in the inventory are currently under construction or renovation. All facility updates, when complete, will be included in future TAM Plan amendments.

## 3 CONDITION ASSESSMENT

### 3.1 ROLLING STOCK AND EQUIPMENT

Rolling stock asset condition data is collected through DTC's EMS FleetFocus M5 (**Table 3**). The EMS software provides an array of valuable information used to calculate the condition of an asset. Rolling stock asset data is organized by bus identification number and bus division. For the TAM Plan, vehicle condition was calculated in terms of the percentage of assets that are at or exceed the FTA's Useful Life Benchmark (ULB). Recent data for each vehicle was organized by bus series, age, mileage, and miles between road calls, and replacement costs were downloaded. The mileage attributes, although not a useful life measure, are representative of the asset tracking and preventative maintenance procedures that DTC uses to ensure assets are maintained in a SGR.

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**TABLE 3: DTC ROLLING STOCK CONDITION ASSESSMENT**

Asset Type	Asset Series	Quantity	Average Age	Average Miles	Average Miles between Road Calls	Replacement Cost	Asset ULB	Percent at or Exceeding ULB
Fixed-Route	100	38	9.6	289,960	7,495	\$23,863,500	14	1.2%
	200	74	10.0	382,982	7,578	\$40,980,500		
	300	22	8.0	124,290	66,986	\$12,818,300		
	400	74	4.0	164,951	16,251	\$45,140,000		
	600	10	2.2	137,311	49,928	\$5,850,000		
	900	15	7.9	337,481	23,659	\$9,237,800		
	<b>All Fixed-Route Series</b>	<b>233</b>	<b>6.95</b>	<b>239,946</b>	<b>28,649</b>	<b>\$137,890,100</b>		
Paratransit	1300	9	5.0	156,463	53,555	\$963,900	10	
	1400	53	4.0	151,716	57,267	\$5,962,500		
	1500	17	3.0	91,325	45,576	\$2,009,400		
	1600	89	2.0	78,890	47,831	\$11,036,000		
	1700	61	1.1	53,396	36,423	\$7,910,500		
	1800	55	0.4	17,223	17,223	\$7,252,630		
	<b>All Paratransit</b>	<b>284</b>	<b>2.58</b>	<b>91,502</b>	<b>42,979</b>	<b>\$35,134,930</b>		

The current condition of DTC equipment is defined using the percentage of assets that meet or exceed their ULB. The ULB is determined by the FTA and various industry reports and standards. The equipment category includes non-revenue support vehicles, maintenance support equipment, IT/Communications, fare collection, and safety/security. IT/Communications assets include all telecommunications, radio communications, CAD/AVL, automated passenger counting/announcements, and computer hardware/software technology supporting information technology and communications. Fare collection represents all hardware, software for supporting on-board fare collections and processing fare data. and processing. The equipment assets included non-revenue vehicles and maintenance support equipment such as trailers, forklifts and scrubbers which are maintained and tracked by a third-party provider. However, all the assets are operated and stored by DTC.

**TABLE 4: DTC EQUIPMENT CONDITION ASSESSMENT**

Asset Type	Asset Series	Quantity	Average Age	Average Miles	Average Miles between Road Calls	Replacement Cost	Asset ULB	Percent at or Exceeding ULB
<b>Non-Revenue Vehicles</b>	1-109	93	5.2	48,131	47,131	\$3,225,975	8-10	20%
<b>Maintenance Support (trailers, forklifts)</b>	N/A	9	8.5	N/A	N/A	\$281,400	12	
<b>Safety/Security</b>	N/A	284	5.5	N/A	N/A	\$1,300,000	10	
<b>IT/Communications</b>	N/A	2,591	6.5	N/A	N/A	\$18,671,756	10-14	
<b>Fare Collection</b>	N/A	517	6.5	N/A	N/A	\$3,831,398	12-14	

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Overall, the average age of DTC's rolling stock is 7.86 years for over-the-road coach bus (BR), 6.95 years for bus (BU) and only 2.58 years for cutaway bus (CU). This is low when compared to FTA's useful life benchmark. The low averages reflect the effectiveness of DTC's prioritized vehicle replacement program. The results of DTC's strong preventative maintenance and life cycle program are shown in the average vehicle and road call mileage. Vehicle equipment systems that include Computer Aided Dispatching / Automated Vehicle Location (CAD/AVL), farebox, radios, and video surveillance are replaced with each vehicle replacement, so that age corresponds to each of the fixed-route bus and paratransit series. Of the 93 non-revenue vehicles, 29 are beyond their useful life. The replacement of these non-revenue vehicles has been programmed in the current DelDOT Capital Transportation Program (CTP), FY19 to FY24.

### 3.2 FACILITIES

Under DTC's facility maintenance plan items such as conveyances, fire systems, HVAC, equipment, plumbing, etc., are subject to daily, monthly, semi and/or annual assessments. In addition, in the preparation of the 2018 TAM, DTC staff conducted a site review of DTC facilities using the Transit Economic Requirement Model (TERM) to rate the facilities. The TERM model is an analysis tool designed to help transit agencies with estimating transit capital investment needs. The TERM scale is a rating of 1 to 5, where 1 is poor, and 5 is excellent. All assets with a value lower than 2.9 are not considered to be operating in a SGR. When performing the facility assessment staff conducted a visual inspection of the facilities. Staff members are also aware of historical records for each of the facilities. A rating score value was assigned by qualified personnel.

TABLE 5: FTA TERM SCALE AND CONDITION CRITERIA

Rating		Condition	Description
State of Good Repair	5	Excellent	No visible defects, new or near new condition
	4	Good	Good condition, minor wear
	3	Adequate	Moderate deterioration, minor refurbishment or small repairs
Out of Repair	2	Marginal	Defective or deteriorated, significant or multiple repairs needed
	1	Poor	Critically damaged or in need of immediate repair, safety concern, overhaul or replacement

The following items are relevant to the condition assessment of DTC facilities:

- The new Newark Rail passenger facility is under construction and is adjacent to the existing Newark Rail passenger facility. Due to the ongoing construction customers are using a temporary parking and boarding location. Since the temporary conditions and access impede an assessment of the current passenger facility, no assessment was performed as part of this TAM Plan submittal. This new passenger rail facility will be assessed in future TAM Plan amendments.

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- DTC paratransit operations, maintenance, and storage are currently located at the Monroe Street facility but are being relocated to the new paratransit facilities at the Beech Street facility. Both locations were included in the assessment, since during the transition, activities are occurring at both facilities. Future TAM Plan submittals will reflect these facility changes.
- The Lewes Transit Center is currently a park and ride facility, but once ongoing construction is complete it will become an operations and maintenance facility with a passenger facility. When complete, the Lewes facility will replace the operations and maintenance activities at the existing Resort location.



For each facility, staff reviewed assessed both the interior and exterior. Mechanical and maintenance support items such as vehicle lifts, compressors, fare collection vault, fueling, bus wash, etc. were included in the assessment. At facilities with more than one building a separate TERM-scale rating was prepared for each building, then an average for the site was calculated and included in the table below. For example, the Mid-County O&M facility consists of four separate buildings: operations offices and maintenance, refueling and fare collection, bus wash, and maintenance. The reviewers assessed each individual facility, prepared a rating for each, and averaged them to develop single rating score for the overall site.

**Table 6** provides a summary of the facility assessment results for each facility as and the overall condition rating for DTC's facilities.

**TABLE 6: DTC FACILITY ASSESSMENT**

Asset Type	Asset Name	SGR Rating
Operations & Maintenance	Monroe Street	3.70
Administration, Operations & Maintenance	Beech Street	4.49
Operations & Maintenance	Mid-County	3.80
Administration, Operations & Maintenance	Dover	3.74
Operations & Maintenance	Georgetown	3.67
Operations & Maintenance, Parking	Resort	3.25
Passenger Facility	Claymont Rail	3.50
Passenger Facility	Fairplay Rail	3.59
Passenger Facility	Newark Rail	N/A
Passenger Facility	Dover Transit Center	4.43
Passenger Facility	Lewes Transit Center	4.90
Passenger Facility	Newark Transit Hub	3.57
Parking Facility	Christiana Crescent	4.00
Parking Facility	Amtrak Station	3.68
Park and Rides	13 Park and Rides	3.82
<b>Overall State of Good Repair Rating</b>		<b>3.87</b>

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## 4 DECISION SUPPORT TOOLS

### 4.1 DTC'S APPROACH TO ASSET MANAGEMENT

One of the primary purposes of maintaining a SGR is risk mitigation. This management philosophy applies risk mitigation strategies (policies and procedures) throughout the asset's lifecycle, both from a maintenance perspective (breakdowns) and a safety and accessibility perspective (accidents/ADA requirements).

Throughout each asset's lifecycle DTC monitors the asset for unsafe and inaccessible conditions. However, identifying an opportunity to improve the safety of an asset does not necessarily indicate an unsafe condition. When DTC encounters and identifies an unacceptable safety risk associated with an asset, the asset is ranked with higher investment prioritization, to the extent practicable. DTC's risk management philosophy is the proactive approach of identifying future projects and ranking preventative projects with better return on investment higher in the investment prioritization risk.

### 4.2 DECISION SUPPORT TOOLS

DTC uses a range of decision support tools for asset lifecycle management and investment planning, including both electronic software and written policy manuals. Each written policy manual and software program complements each other as they contribute to asset management throughout the lifecycle, from planning and procurement to disposal. These tools provide a record of conditions and maintenance history that inform decisions about investments, including project selection and prioritization. A description of the decision support tools is presented below in **Table 7**.

**TABLE 7: DECISION SUPPORT TOOLS**

DOCUMENT	DESCRIPTION
<b>MAINTENANCE PLANS AND PROGRAMS</b>	
Facility Maintenance Plan	DTC maintains a Preventative Maintenance Schedule for its facilities. Elements are inspected and serviced monthly or quarterly, depending on type.
DTC Vehicle Maintenance Plan	The DTC Vehicle Maintenance Plan provides basic guidance through the service life of all DTC-owned and operated vehicles. The Plan includes the following elements:
	<u>Preventative Maintenance Program</u> . DTC's structured preventative maintenance program is based on manufacturer's recommendations and specific vehicle operating conditions. Preventative Maintenance Inspections are scheduled based on usage or days since previous inspection, and vehicle type.
	<u>Vehicle Acceptance Inspection</u> . All vehicles will be audited again the purchase specifications, prior to release for service.
	<u>CAD/AVL</u> . This system is tested by the operator before each bus enters operational service.
	<u>Oil Analysis Program</u> . Oil analysis is intended to prevent catastrophic failures by early detection of unusual engine or transmission component wear.

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DOCUMENT	DESCRIPTION
	<u>Daily Service Activities and Inspections</u> . These activities and inspections are recorded in the equipment management software.
	<u>Unscheduled Vehicle Maintenance</u> . All maintenance performed outside of the schedule, programmed or preventative maintenance cycle is considered reactive. The intent of the DTC Vehicle Maintenance Plan is to minimize this type of maintenance. All problems and subsequent repairs are document in the equipment management system software.
<b>SOFTWARE</b>	
FleetFocus M5	This fleet management software is used to track vehicle and equipment maintenance functions.
Cognos	An asset management software tool.
Primavera Unifier	A lifecycle management software program used in the development of the DeIDOT CTP.
<b>OTHER RESOURCES</b>	
Procurement Manual	The Procurement Manual lists all FTA purchasing policies, contract bidding requirements and regulation, asset purchasing procedures, and asset disposal procedure.
TAM Plan	DTC's Transit Asset Management Plan is a document containing a business model that uses the condition of assets (facility, rolling stock, and equipment) used in the provision of public transportation to help guide the optimal prioritization of funding to keep the agency's transit system in a SGR. The TAM Plan also contains information relate to data collection and reporting requirements for the following: asset inventory portfolio, asset condition assessment, decision support tools, and a plan for implementation.

## 5 INVESTMENT PRIORITIZATION

This section describes DTC's process for project investment prioritization. This process optimizes how funds are spent and allocated in order to maintain DTC's assets in a SGR. As noted in the introduction of this TAM Plan, DTC is an operating division of DeIDOT and both capital and operating funds are provided by DeIDOT. The DTC capital and operating budgets are set annually. The capital budget is based on DeIDOT's longer term 6-year CTP. Each year DeIDOT develops a 6-year CTP that identifies and prioritizes anticipated capital investments. The current CTP is for FY19 to FY24, and it includes the 4-year horizon period for this initial TAM Plan. All requested projects in the CTP must conform with the requirements of the Moving Ahead for Progress in the 21st Century Act (MAP-21), particularly the creation of a performance-based transportation program, and the Fixing America's Surface Transportation (FAST) Act, which reauthorized the surface transportation programs through Fiscal Year 2020.

To support the development of the CTP, the Governor appoints a 9-person member advisory panel of community and business leaders, known as the Council on Transportation. The role of the Council on Transportation is to provide oversight, project prioritization, and CTP approval.



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The project prioritization process was initially adopted in 1998. Since that time the process has been modified to improve the scoring process, to document the selection process, and facilitate the comparison of projects. The criteria for the DelDOT project prioritization process are based on the following:

- DTC's and DelDOT's Mission Statement, Vision and Goals
- Provisions from TITLE 29 CHAPTER 84 § 8419 of the Delaware Code
- Provisions from MAP-21 and the FAST Act
- Delaware's Long-Range Transportation Plan

The prioritization process considers the criteria listed below in **Table 8**. These criteria are in order of importance related to the goals and vision of DTC.

**TABLE 8: CTP PRIORITIZATION CRITERIA**

CRITERIA	PRIORITY WEIGHTING	DESCRIPTION
Safety	33%	The ability of the transportation system to allow people and goods to move freely, without harm.
System Operating Effectiveness	24.8%	The ability of the transportation system to efficiently move people, goods and services without excessive delay or inconvenience.
Multi-Modal Mobility	15.6%	The ability of a project to provide efficient movement of people and goods between destinations by motor vehicle, pedestrian, bicycle and transit modes.
Economic Development	7.9%	The ability of a project to facilitate or support business development and employment.
Economic Justice	7.2%	The assessment of the project on the transportation system as it relates to existing communities and population centers.
Environmental Impacts	6.5%	The effect of the transportation system on energy use and the natural environment.
System Preservation	5%	Fix It First/SGR addresses the improvement of the physical condition of existing transportation assets.

The process begins with a review of the asset condition assessment. Based on the results of the assessment inventory and the condition assessment, capital funding needs are identified. These projects are requested through DelDOT's Primavera Unifier lifecycle management software. Once the Primavera project initiation process is complete, a project number is assigned, and project cost estimates are prepared.

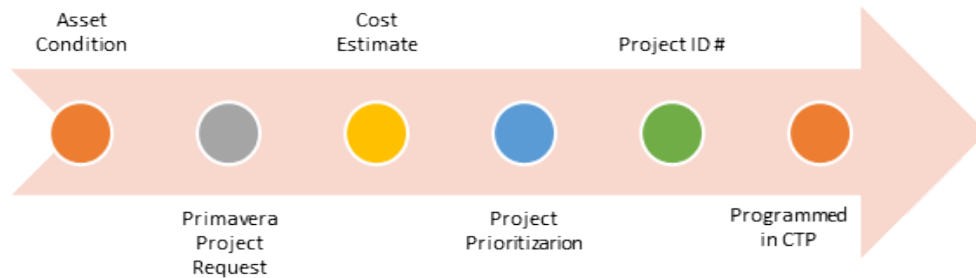
Next is the prioritization process, an iterative process following the established prioritization process and criteria which considers available funding and timing.

In addition to the project prioritization process, DelDOT/DTC follows established performance-based measures for system preservation projects, such as vehicle and equipment replacement and facility maintenance. System preservation projects are identified as SGR in the DelDOT CTP. Prioritized projects

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are identified with a numeric value, ranking measured against all DelDOT project requests. **Figure 2** highlights the investment priority process used by DTC.

**FIGURE 2: DELDOT INVESTMENT PRIORITIZATION PROCESS**



To support the development of projects and their inclusion in the CTP, DTC develops a ranked list of prioritized projects consistent with the CTP ranking process. The selected projects improve, expand, or preserve the capital assets for which DTC is responsible. The investment prioritization process results in a list of programmed projects that DTC has determined will meet its SGR goals for the TAM Plan horizon period.

In the preparation of an investment prioritization list, DTC takes into consideration the anticipated funding levels from all funding sources that will be available during the TAM Plan horizon period. Because the amount of funding available is limited, the number of requests that can be programmed in the CTP is constrained.

Once a draft CTP is prepared a series of public meetings are held to solicit public comments on the program. Public comments are reviewed by the Council on Transportation and a revised draft is prepared. During this process DelDOT coordinates with the two metropolitan planning organizations (MPO) in Delaware, Wilmington Area Planning Council (WILMAPCO), and the Dover/Kent MPO in order to incorporate the MPOs' priorities. The Council on Transportation then votes on the final CTP and it is presented to the Governor for approval.

**Table 9** below lists the DTC projects in the current CTP and their priority.

**TABLE 9: DTC PROJECTS IN THE CURRENT CTP**

PROJECT	DIVISION	ASSET CLASS	PRIORITY	FY19	FY20	FY21	FY22	FY23
Fixed-route Vehicle Replacement/Expansion	NCC, Kent, Sussex	Rolling Stock	SGR	✓	✓	✓	✓	✓
Paratransit Vehicle Replacement	NCC, Kent, Sussex	Rolling Stock	SGR	✓	✓	✓	✓	✓



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PROJECT	DIVISION	ASSET CLASS	PRIORITY	FY19	FY20	FY21	FY22	FY23
Support Vehicle Replacement/Expansion	NCC, Kent, Sussex	Equipment	SGR	✓	✓	✓	✓	✓
NCC Transit Center	NCC	Facilities	42	✓	✓	✓		
Newark Regional Transportation Center	NCC	Facilities	36	✓	✓	✓		
Lewes Transit Center Phase II	Sussex	Facilities	75	✓				
Beech Street Renovations	NCC	Facilities	SGR	✓	✓			
Dover Facility Renovations	Kent	Facilities	SGR	✓	✓			
Monroe Street Upgrades	NCC	Facilities	SGR					✓
Georgetown Transit Hub	Sussex	Facilities	SGR		✓			
Fare Technology Upgrades	NCC, Kent, Sussex	Equipment	SGR	✓	✓			
Claymont Regional Transportation Center	NCC	Facilities	98	✓	✓	✓		

As noted previously, DTC sets a high priority on maintaining all its assets in a SGR. Consequently, DTC has prioritized the programmed vehicle replacement/expansion and facility upgrades to meet the SGR goals. During the four-year horizon period DTC will be replacing two of its existing passenger facilities, Newark and Claymont, and adding an additional O&M facility, Lewes Transit Center, to support DTC's Sussex and



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seasonal resort services. Both the Newark Regional Transportation Center and the Lewes Transit Center are currently under construction.

## **6 TRANSIT ASSET MANAGEMENT AND STATE OF GOOD REPAIR POLICIES**

### **6.1 DTC TRANSIT ASSET MANAGEMENT POLICY**

Delaware Transit Corporation aspires to be a premier transportation organization providing the highest quality public transportation services to satisfy the needs of the customer and community. To effectively maintain and manage its capital assets in a SGR, DTC has established an overall approach to asset management that optimizes costs and funding. This plan complies with the FTA TAM Plan guidelines established in FTA's 2016 Final Rule.

DTC understands that the key to meeting the goals and objectives of maintaining a SGR is not a single action, but rather a collective approach that includes staff, technology, vision, and fiscal best practices. This approach provides the foundation for better management practices that will enhance service reliability and maintenance efficiency which will result in cost savings. In addition to established performance metrics the TAM Plan policy will provide structure and accountability for the Plan's implementation; all of which will be used to assess DTC's success. The policy applies the following actions:

1. Implement a strategic process that promotes a culture for supporting asset management in the process of acquiring, operating, preserving and replacing its transit assets in support of DTC's mission statement
2. Employ best practice principles that support the timely implementation of projects and programs to maintain assets in a SGR
3. Prioritize safety-critical assets to ensure they are maintained in a SGR
4. Utilize state-of-the-art technology and a data-driven set of activities to evaluate assets, and minimize costs and performance of DTC assets over their entire lifecycle
5. Set performance goals and continuously monitor progress in achieving those goals
6. Support cost-effective decision-making for asset preservation and acquisition for investment priorities in DelDOT's 6-year CTP

### **6.2 DTC STATE OF GOOD REPAIR POLICY**

FTA requires that an agency's TAM Plan establishes SGR performance measures and targets for the overall condition of each asset class. An asset is in a SGR when the following objective standards have been achieved:

1. The asset operates at a high level of performance in its current condition
2. The asset can operate at its original equipment manufacturer design functions
3. The operation of the asset does not pose any known unacceptable potential safety risks
4. The asset does not deny accessibility
5. The assets life cycle investments have been met or recovered

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As a Tier 1 provider, DTC will report on the SGR measures for each asset category as follows:

- Rolling Stock (Revenue Vehicles) – Percent of vehicles that have either met or exceeded their default FTA-defined ULB
- Equipment (Support Vehicles, Vehicle Equipment) – Percent of assets that have either met or exceeded their ULB
- Facilities (Buildings and Structures) - Percent of facilities rated below 3 on FTA’s TERM rating scale

DTC has developed its SGR goals to account for the full life cycle of the asset: maintenance, preservation, rehabilitation, and replacement of all capital assets. This approach allows DTC to forecast the costs of maintaining and improving future capital assets at all stages of the life cycle. Currently, DTC will focus on NTD reporting requirements, but understands there are other key performance indicators for assessing the conditions of capital assets and measures for effectively monitoring operation efficiencies. DTC will evaluate the implementation of those measures for inclusion in future iterations of the TAM Plan.

DTC has been diligent in maintaining a program to prioritize procurement and replacement, so the actual percentage is well below the target. In future TAM Plan reporting of its SGR performance measures, DTC will prepare an annual condition assessment of all applicable assets based on the rating criteria.

In this initial TAM Plan, DTC will use FTA ULB measures for transit assets and rolling stock. Targets for revenue/non-revenue vehicles are expressed as a percentage of the assets that are at or the ULB. Targets for equipment are expressed as a percentage of the assets that are at or beyond the ULB. Facility targets are based on the overall condition score in terms of a percentage of facilities failing to meet the target score. **Table 10** and **Table 11** below identify DTC’s performance targets:

**TABLE 10: DTC ASSET PERFORMANCE TARGETS - ROLLING STOCK AND EQUIPMENT**

ASSET CLASS	ASSET USE	DTC UL	FTA ULB	TARGET PERCENTAGE	RATIONALE
Rolling Stock - Revenue Vehicles					
Commuter Rail Car (RP)	Rail	-	39	<10%	DTC’s policy is to replace at end of UL. Less than 10% is acceptable.
Over-the-Road Bus (BR)	Commuter	12	14	<10%	
40ft/30ft Buses (BU)	Fixed-route	12	14	<10%	
Cutaway Bus (CU)	Paratransit	5	10	<10%	
Equipment - Non-Revenue Vehicles					
Car (AO)	Support Services	8	8	<20%	With current funding levels DTC will meet target goal within 4 years.
SUV (SV)	Support Services	8	8		
Truck/Van (VN)	Support Services	10	8		

**TABLE 11: DTC ASSET PERFORMANCE TARGETS - FACILITIES**

ASSET CLASS	CONDITION BENCHMARK	TARGET PERCENTAGE	RATIONALE
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ASSET CLASS	CONDITION BENCHMARK	TARGET PERCENTAGE	RATIONALE
Facilities	3.0	20%	With DTC's Facility Preventative Maintenance plan goals, a 20% target is reasonable

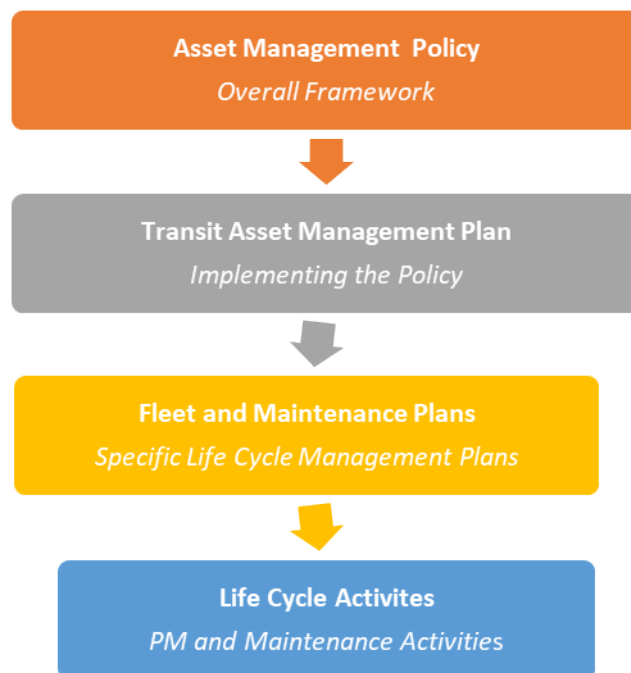
## 7 IMPLEMENTATION STRATEGY

DTC's TAM Plan implementation program incorporates asset management principles and practices that set the foundation for continued improvement and investment throughout the lifecycle of rolling stock, equipment, and facility assets. The implementation of a TAM Plan provides a strategic approach to managing the preservation of fleet and facilities to optimize the useful life and performance of these assets. The TAM Plan also serves to reduce safety risks and minimize the total cost of ownership. The strategy uses the objectives and performance targets set in the SGR performance goals in Section 6.2. The SGR performance targets are:

- Rolling Stock – Percentage of revenue vehicles that have either met or exceeded their useful life per FTA-defined ULB
- Equipment – Percentage of non-revenue and support equipment over \$50,000 that have either met or exceeded their useful life per FTA-defined ULB
- Facilities – The FTA TERM-scale rating of facilities

The implementation process will ensure assets are maintained in a SGR and enhance operations by providing safe, reliable service as shown in Figure 3 below.

**FIGURE 3: DTC IMPLEMENTATION STRATEGY FRAMEWORK**



## DELAWARE TRANSIT CORPORATION

DTC has developed a framework for incorporating asset management procedures into its fleet and facilities maintenance plans. The maintenance plans are used as the base to support the activities included in implementation of the TAM Plan. Both the fleet and facility maintenance plans provide direction on asset management, maintenance programs, and budgets. Key elements included in the current maintenance plans to be used in implementation of the TAM Plan include the following:

- Asset inventory and condition
- Tracking procedures
- Performance goals
- Preventative maintenance strategy
- Reporting procedures
- Staff training
- Maintenance program structure
- Capital Transportation Program budgets
- State of good repair needs
- Procure/Accept/Replace procedures

Asset lifecycle management is an ever-changing environment with advances in technology, and changes in regulation, funding availability, and asset management best practices. Therefore, the TAM Plan will be considered a “living document” to be reviewed and revised, as necessary, on an annual basis. The TAM Plan implementation approach will also be reviewed on an annual basis and revised as needed. Additional input will occur as part of the quarterly TAM Team meetings.



## 8 LIST OF KEY ANNUAL ACTIVITIES

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The key annual activities that DTC will perform to support the TAM Plan and asset lifecycle management over the four-year TAM horizon period are described in Section 4, Decision Support Tools. DTC has detailed plans and schedules for asset maintenance and inspection. Listed in Table 7, these plans and

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schedules cover facilities, vehicles, and equipment. All proactive preventative maintenance activities and inspections have specified schedules. The inspections, repairs, and maintenance activities are documented in FleetFocus M5 and Cognos software programs to ensure adherence to DTC's SGR and Transit Asset Management policies and maintenance procedures. The records will be monitored to evaluate the effectiveness of the plans and activities. The goal of this thorough preventative maintenance program is to be proactive, to maintain the agency vehicles and other assets in a SGR, minimizing unexpected repairs, and reducing overall maintenance costs. Unscheduled (reactive) maintenance is documented and the root causes are identified and addressed to eliminate or reduce the likelihood of recurrence. The mission statement of the maintenance department is to meet service demand with safe, efficient, clean, and well-maintained buses every day, at every location.

DTC's TAM Team will also provide oversight to ensure DTC staff is continuing to be engaged in the annual activities supporting DTC's asset lifecycle plan. Key members of the TAM Team will also meet quarterly to review and monitor activities to measure DTC's SGR performance goals status.

## 9 IDENTIFICATION OF RESOURCES

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The long-term health and effectiveness of an agency is dependent on its ability to manage its assets. To accomplish this the agency must identify the appropriate resources needed to effectively implement the TAM Plan. Establishing a structure for the implementation and ongoing management of the TAM Plan is critical to its overall success. DTC has established an organizational structure that brings together the appropriate personnel and provides effective technology to implement the TAM Plan.

As shown in Section 1.3 of this report, DTC has developed a TAM Team that includes personnel who are responsible for administrative, operational, and maintenance activities at the agency. These stakeholders are important to ensuring the consistent implementation of asset management practices agency-wide. As required by the FTA, DTC has identified an "Accountable Executive" who is responsible for the overall execution of the TAM Plan and SGR policies. DTC has appointed the Deputy Chief Operating Officer, Support Services to fill that role. This person will be supported by the TAM Team, composed of representatives of the following departments:

- Facilities and Capital Projects
- Maintenance
- Fleet and Contracts
- Operations
- Finance
- Risk Management

Implementation of the TAM Plan will require coordination between the various divisions, departments, and the staff who actually perform the TAM-related functions (tracking asset conditions, reviewing performance measures, and prioritizing investments). To provide technical support, the TAM Team will convene a "TAM Working Group" that will serve as an advisory resource to the TAM Team for setting standards, technical issues, performance and risk tracking, and prioritizing needs. The Accountable Executive will also designate a "TAM Liaison" who, under the direction of the Accountable Executive, will



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lead the day-to-day asset management responsibilities. The TAM Liaison will also be a resource for coordination with the TAM Working Group.

Investment prioritization of capital asset resources to maintain a SGR will be through the DelDOT 6-year CTP. The TAM Team will use the available resources of the investment prioritization process for the CTP as outlined in Section 5 of this report

DTC will continue to utilize FleetFocus M5 maintenance tracking and Cognos asset database development resource software for management of asset lifecycle activities and Primavera Unifier for investment prioritization.

The ability to manage DTC's assets efficiently depends on not just DTC staff, but external stakeholders as well. Elected officials, supporting MPOs, and customers can be great resources. DTC would not exist if not for the customers, who rely on DTC to provide equipment and operators to get them to/from their destinations safely and efficiently.

## 10 EVALUATION PLAN

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This TAM Plan is a "living document" that will be reviewed on an annual basis, updated, and incorporated into DTC's capital and budget planning and reporting processes. Beginning with this 2018 Plan, the TAM data shall serve as a baseline measure of asset performance management. As more data is collected, additional monitoring categories and goals will be included to support condition and reliability-based decision-making. This plan identifies DTC's priorities for future improvements to its asset management program and assets with special focus on risk and life-cycle costs.

DTC's TAM Policy (see Section 6.1) and this TAM Plan set goals, objectives, strategies, and performance measures for continually improving how DTC manages its assets. An annual review of progress and performance measures will be used to evaluate the need to revise the TAM Plan. As part this review process, DTC will identify areas for improvement, and if, appropriate, shape the refinement of the objectives, strategies, and implementation plan for future iterations of this TAM Plan. This annual review does not preclude a mid-year review of performance reporting and interim adjustments to TAM objectives. Key members of the TAM Team will also meet quarterly to review and monitor activities to measure DTC's SGR performance goals status.

As stated in the DTC SGR Policy, DTC has developed its SGR goals to account for the full life cycle of the asset: maintenance, preservation, rehabilitation, and replacement of all capital assets. This approach allows DTC to forecast the costs of maintaining and improving future capital assets at all stages of the life cycle. Currently, DTC will focus on NTD reporting requirements, but understands there are other key performance indicators for assessing the conditions of capital assets and measures for effectively monitoring operation efficiencies. DTC will evaluate the implementation of those measures for inclusion in future iterations of the TAM Plan.

Executive management, (especially the Accountable Executive) will play a strong role in shaping objectives and performance targets in the TAM Plan. Revisions to the TAM Plan will be reviewed and approved by DTC Executive Management to ensure alignment with other strategic planning documents.

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DTC will strive to promote better asset performance, reduce risk, and lower agency costs with each revision of the TAM Plan. This effort will support DTC in achieving its mission “to design and provide the highest quality public transportation services that satisfy the needs of the customer and community”.



# **DELAWARE TRANSIT CORPORATION**

## **APPENDIX A: ABBREVIATIONS AND ACRONYMS**

**ADA:** Americans with Disabilities Act of 1990

**BU:** Fixed-Route Bus

**BR:** Over-the-Road Commuter Bus

**CAD/AVL:** Computer Aided Dispatching/Automated Vehicle Location System

**CFR:** Code of Federal Regulations

**CTP:** Capital Transportation Program

**CU:** Cutaway Bus

**DART:** Delaware Authority for Regional Transit

**DeIDOT:** Delaware Department of Transportation

**DTC:** Delaware Transit Corporation

**EMS:** Equipment Management System

**FAST:** Fixing America's Surface Transportation Act

**FTA:** Federal Transit Administration

**MAP-21:** Moving Ahead for Progress in the 21st Century Act

**MPO:** Metropolitan Planning Organization

**NTD:** National Transit Database

**O&M:** Operations and Maintenance

**SEPTA:** Southeastern Pennsylvania Transportation Authority

**SGR:** State of Good Repair

**TAM:** Transit Asset Management

**TERM:** Transit Economic Requirements Model

**ULB:** Useful Life Benchmark

**WILMAPCO:** Wilmington Area Planning Council

# DELAWARE TRANSIT CORPORATION

## APPENDIX B: DEFINITIONS

**Accountable Executive:** a single, identifiable person who has ultimate responsibility for carrying out the safety management system of a public transportation agency, responsibility for carrying out transit asset management practices; and control or direction over the human and capital resources needed to develop and maintain both the agency's public transportation agency safety plan and transit asset management plan.

**Asset Category:** a grouping of asset classes, including a grouping of equipment, a group of rolling stock, a grouping on infrastructure, and a grouping of facilities.

**Asset Class:** a subgroup of capital assets within an asset category. For example, buses, trolleys, and cutaway vans are all asset classes within the rolling stock asset category.

**Asset Inventory:** a register of capital assets, and information about those assets.

**Capital Asset:** a unit of rolling stock, a facility, a unit of equipment, or an element of infrastructure used for providing public transportation.

**Cognos:** a business intelligence and performance management software that allows users to configure a database specific to an agency's needs for data tracking, analysis and reporting.

**Decision Support Tool:** an analytic process or methodology: (1) to help prioritize projects to improve and maintain the state of good repair of capital assets within a public transportation system, based on available condition data and objective criteria, or (2) to assess financial needs for asset investments over time.

**Facility:** a building or structure that is used in providing public transportation.

**Horizon Period:** the fixed period of time within which a transit provider will evaluate the performance of its TAM Plan. FTA standard horizon period is four years.

**Key Asset Management Activities:** a list of activities that a transit provider determines are critical to achieving its TAM goals.

**Rolling Stock:** a revenue vehicle used in providing public transportation, including vehicles used for carrying passengers on fare-free services.

**Non-Revenue Service Vehicle.** A unit of equipment that is used primarily either to support maintenance or repair work for a public transportation system or for delivery of materials, equipment, or tools.

**State of Good Repair (SGR):** condition in which a capital asset is able to safely operate at a full level of performance.

**TERM Scale:** The five-category rating system used in the FTA's Transit Economic Requirements Model (TERM) to describe the condition of an asset, where 5 is excellent condition and 1 is poor condition.

**Tier I Transit Provider:** An entity that receives Federal financial assistance under 49 U.S.C. Chapter 53, either directly from FTA or as a sub recipient, that owns, operates, or manages either (1) one hundred and

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one (101) or more vehicles in revenue service during peak regular service across all fixed-route modes or in any one non- fixed-route mode, or (2) rail transit.

**Transit Asset Management (TAM):** the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation.

**Transit Asset Management Plan (TAM Plan):** a plan that includes the following: capital asset inventory; condition of inventoried assets; TAM performance measures, targets, and prioritization of investments aligned with the agency's TAM and SGR policy, strategic goals and objectives; as well as the strategies, activities, and resources required for delivering this Plan (including decision support tools and processes); and other agency-wide approaches to continually improve TAM practices.

**Useful Life:** Either the expected life cycle of a capital asset or the acceptable period of use in service determined by FTA. It generally defines the minimum eligibility for retirement, replacement, or disposal of an asset.

**Useful Life Benchmark (ULB):** The expected life cycle or the acceptable period of use in service for a capital asset, as determined by a transit provider, or the default benchmark provided by FTA. The ULB is the realistic expectation for when an asset would be disposed or replaced based on operating environment and procurement timelines.

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