

# **MOORHEAD**

## **MATBUS Transit Asset Management Plan**



### **Transit Development Plan**

#### *Amendment 1*

**Original Date: November 2016**

**Amended Date: October 2018**

## **Introduction**

### **Purpose**

Transit asset management (TAM) is a strategic and systematic process through which an organization procures, operates, maintains, rehabilitates, and replaces transit assets to manage their performance, risks, and costs over their lifecycle to provide safe, cost-effective, and reliable service to current and future customers.

MATBUS's TAM plan will be reviewed and updated every four years.

### **Audience**

The primary intended audience for this document is agencies with 100 revenue vehicles or less. They are able to choose whether or not to participate in a group plan or a separate TAM plan they have created. Moorhead MATBUS has chosen a separate TAM Plan.

The Metropolitan Planning Organization's (MPO) role in the TAM process is to develop annual targets in cooperation with the MnDOT while the responsibility for follow-through of the TAM Plan lies with the public transit agency. MPOs may establish new TAM targets when they update their Transportation Improvement Plan (TIP) and Metropolitan Transportation Plan (MTP) on their four-year cycle. This process is documented in an agreement between the public transit agency, MPO, and MnDOT in the Memo of Agreement on Performance Based Planning.

### **Background**

The National Transit Asset Management System Final Rule (49 U.S.C. 625) requires that all agencies who receive federal financial assistance under 49 U.S.C. Chapter 53 and own, operate, or manage capital assets used in the provision of public transportation create a TAM plan. Agencies are required to fulfill this requirement through an individual or group plan. Group plans are designed to collect TAM information about groups (typically smaller subrecipients of 5311 or 5310 grant programs) that do not have a direct financial relationship with FTA.

### **Definition**

Asset management addresses the following two concepts:

1. Customer Level of Service – Asset management can affect levels of service by improving on-time performance and vehicle cleanliness, by reducing missed trips, by reducing downtime and late or slow service, and service shutdowns. It can also improve safety, security, and risk management. Asset management provides accountability and communicates performance and asset condition.
2. Lifecycle Management – The core of asset management is understanding and minimizing the total cost of ownership of an asset while still maximizing its performance. Transit asset management integrates activities in a transit agency to optimize resource allocations by providing quality information and well-defined business objectives to support decision making within and between classes of assets.

State of Good repair (SOGR) – Is defined as the condition at which a capital asset is able to operate at a “full level of performance”, that is, the asset can perform its designed function and does not pose unacceptable safety risk to users.

## **Asset Inventory**

The asset inventory defines the assets used by MATBUS in the plan. The inventory will include all assets the transit agencies own, as well as third party assets used in the provision of public transportation, broken into these categories: Equipment (non-revenue vehicles), Rolling Stock (revenue vehicles), and Facilities.

MATBUS will monitor these assets through two software programs. The FASTER TAM system will not only track the categories of equipment, rolling stock and facilities but will also track any maintenance performed on the capital assets. Transit agencies are expected to update maintenance performed on their assets in the FASTER system on a regular basis. This maintenance tracking documents specific activities and maintenance projects to maintain a state of good repair.

The second tracking software program will be through the MnDOT BlackCat system. This program will maintain a current list of assets along with all required NTD reporting data for asset inventories and condition assessments. Data collected includes manufacturer, year, mileage, vehicle length, seating capacity, etc. Transit agencies are required to update this data regularly but, at a minimum, annually with the grant application process.

These programs will enable the state to group assets together and report a summary of inventory and condition of inventory at a state level. In addition they will provide the ability to report on individual transit agency fleets, equipment and facilities.

MATBUS will report all rolling stock, equipment valued at \$50,000 or greater, and all facilities for which they have direct capital responsibility.

## **Condition Assessment**

Facilities - MATBUS will submit TERM scale-based condition assessments annually to the NTD. MATBUS inspects all facilities every other year to assess the condition of our facilities. MATBUS will manage their facility asset through a Facility Maintenance Plan, Asset Management Plan and conduct regular facility inspections.

Rolling stock and non-revenue service vehicles (equipment) – MATBUS submits the age relative to the Useful Life Benchmark (ULB) as the performance measure annually to the NTD.

Useful Life Benchmark is not the same as Useful Life which represents FTA's minimum life for vehicle funding replacement.

The ULB is reported by fleet and is defined by type and age of vehicle. Depending on the differences in operating environments of group plan participants, agencies are allowed to customize ULBs for different fleets within the same class of vehicles or may choose to default to the MnDOT determined ULB.

MATBUS inspects all transit fleets purchased with federal funds every other year. Transit agencies must assign a condition to each of their rolling stock assets. This process is completed at a minimum, annually with the grant application process. Each transit agency is required to manage their vehicle assets through a Fleet Maintenance Plan, Asset Management Plan, and conduct a pre or post vehicle inspections with every trip provided.

### **Decision Support Tools**

Various reports can be requested through both the FASTER and BlackCat systems. These reports can provide information on asset conditions, asset expenditure forecasts, asset maintenance history, assets over age, maintenance costs, delinquent maintenance by assets, etc. that will aid in making asset replacement decisions.

In addition to reports available through the FASTER and BlackCat systems that may be used to interpret data and condition assessment, each transit agency submits a 3 – 5 Year Operational and Capital Plan. This Plan reviews their current economic situation and forecasts their future position based on current and expected expenses and revenues while taking into account any predicted trends in their local communities. These 3-5 Year Plans allow both the agency and MnDOT to more accurately plan future capital assets replacement costs.

These tools will help inform and guide the transit agencies and MnDOT on investment prioritization and possible funding decisions, as well as annual target setting. It is vital that transit agencies record accurate and timely data regarding their inventory and conditions in order to make well-informed and appropriate decisions.

Along with reports, 3-5 Year Plans, and ULB, transit agencies will need to take into consideration all available funding sources (Federal, State, and Local) when developing their decisions to determine which and when assets should be replaced or rehabbed, or expansion projects implemented.

### **Investment Prioritization**

There are several factors MATBUS will consider when setting investment priorities including information gained from the asset inventories, condition assessments, safety and accessibility, weather resiliency, grant committee recommendations, and anticipated project funding.

When ranking the list of projects MATBUS may find it necessary to balance many tradeoffs when determining the optimal priorities for Moorhead. Some of the considerations include tradeoffs between asset condition and costs of projects, balancing funding and needs among diverse participants, balancing of projects or funds among asset categories and classes, and the ability to impact condition of varying assets with available funding.

## **Annual Target Setting**

While plans are completed every four years, targets are set annually. There is no penalty for not meeting the annual targets. MATBUS has uploaded public transit approved TAM targets and Useful Life Benchmarks through a TAM report in the BlackCat reporting system.

Useful Life (UL) – is defined as the expected lifetime of property, or the acceptable period of use in service. UL is defined in terms of years or mileage. This is the threshold that needs to be met before the asset can be requested to be replaced. Once an asset has met UL and no longer has FTA interest (\$5,000), the asset becomes ownership of the public transit agency.

Useful Life Benchmark (ULB) - is defined as the expected lifecycle of a capital asset for a particular public transit agency's operating environment. Transit agencies are able to set their own ULB taking into account its local environment to include weather resiliency, local geography, frequency of service, passenger load, etc. ULB cannot be less than UL.

## City of Moorhead MATBUS State of Good Repair Transit Asset Management Performance Targets

The City of Moorhead, MN, operating jointly with the City of Fargo as MATBUS, has established State of Good Repair (SGR) transit performance targets for MATBUS operations as follows:

**Performance Management for all Assets -- Table 1**

Assets	Performance Measure	
	TAM Target; No More Than	TAM System Target to Meet
<i>Equipment: All revenue and non-revenue service vehicles &amp; equipment assets &gt;\$20,000</i>	<b>10% exceed Useful Life Benchmark</b>	<b>90%</b>
<i>Rolling Stock: All revenue vehicles</i>	<b>10% exceed Useful Life Benchmark</b>	<b>90%</b>
<i>Facilities: Maintenance, administrative, passenger</i>	<b>10% exceed Useful Life Benchmark</b>	<b>90%</b>

**Useful Life Benchmark for transit vehicles -- Table 2**

Category	Typical Characteristics				FTA Minimum Life		MATBUS Useful Life Benchmark	
	Length	Approx. GVW	Seats	Average Cost 2017	(Whichever comes first)		(Whichever comes first)	
					Years	Miles	Years	Miles
Heavy-Duty Large Bus Class 700	35 to 60 ft.	33,000 to 40,000	27 to 40	\$471,000 - 524,000	12	500,000	<b>14</b>	<b>500,000</b>
Light-Duty Mid-Sized Bus Class 400	25 to 35 ft.	10,000 to 16,000	16 to 25	\$79,000 to \$206,000	5	150,000	<b>6</b>	<b>150,000</b>
Non-Revenue Automobile		10,000 to 20,000	3 to 12	\$20,000 to \$55,000	4	100,000	<b>10</b>	<b>150,000</b>
Revenue Automobile		<10,000	3 to 12	\$20,000 to \$55,000	4	100,000	<b>4</b>	<b>100,000</b>

**Useful Life Benchmark for transit facilities -- Table 3**

Category	Usage	Useful Life Benchmark (Years)
Garage-Operations-Admin. Facility – Metro Transit Garage	Administrative Offices/Storage/Wash/Dispatch/Training & Maintenance	<b>40</b>
Transfer Facility – Ground Transportation Center	Administrative Offices/Restrooms/Passenger Seating/Dispatch	<b>40</b>
Shelters	Structure/Seating	<b>20</b>

## Asset Condition Rating and Remaining Useful Life:

Per the FTA, "it is expected that all assets used in the provision of public transit will be included in the TAM Plan asset inventory. This includes (with the exception of equipment) assets that are owned by a third party or shared resources. The inventory must include all service vehicles, and any other owned equipment assets over \$50,000 in acquisition value. Agencies only need to include condition assessment for assets for which they have direct capital responsibility."

**ASSET CONDITION MEASUREMENT EXAMPLE- Table 1**  
**Asset Criteria and Scoring System – vehicles and facilities**

Asset Rating Score	Asset Age	Asset Condition	Asset Performance	Level of Maintenance	Asset Condition Rating	
	Percent of Useful Life Remaining	(Quality, Required Maintenance)	(Reliability, Ambience, Safety)	Level of PM and CM <sup>◇</sup>	Rating	Scoring range
5	Asset new or nearly new	Asset new or like new; no visible defects	Asset meets or exceeds all performance and reliability metrics, industry standards	Only routine PM needed.	Excellent	4.8 to 5.0
4	Asset just under new or nearly new	Asset showing minimal signs of wear; some slight defects or deterioration	Asset generally meets performance and reliability metrics, industry standards	Good working order; requires infrequent CM (more than 6 months between repairs)	Good	4.0 to 4.7
3	Asset nearing or at its midlife point	Some moderately defective or deteriorated components	Occasional performance and reliability issues; may be sub-standard in some areas	Requires frequent minor CM or infrequent > 6 mos. major CMs	Adequate	3.0 to 3.9
2	Asset nearing or at end of its useful life	Increasing number of defects; deteriorating components; growing maintenance needs	Performance and reliability problems becoming more serious; sub-standard elements	Requires frequent CM (less than 6 months between repairs)	Marginal	2.0 to 2.9
1	Asset is past useful life	Asset in need of replacement; may have critically damaged components	Frequent performance and reliability problems; does not meet industry standards	Continued use present excessive CM costs and potential service interruption	Poor	1.0 to 1.9
0	Asset non-operable	Asset non-operable	Asset non-operable	Asset non-operable	Asset non-operable	

In SGR >2.5

SGR 2.5

Not in SGR <2.5

<sup>◇</sup>PM- preventative maintenance and CM – corrective maintenance (repairs)

## NTD Reporting

MATBUS will report inventory and condition data to NTD as part of the A-90 report.

Agencies that submit traditional financial and operating data directly to NTD should also submit TAM asset inventory and condition data directly to NTD, reports A-15 and A-30. MATBUS will complete all TAM-related NTD reporting forms independently.

Data that is reported to NTD includes basic TAM information including; Agency profile, asset inventory and facility condition assessment.

In addition to the A-90 data report of SGR performance targets and current assessment of condition and performance there's a Narrative reporting requirement. This report provides any necessary description of condition changes in the transit system and may comment on progress towards meeting the targets.

## Performance Measures

The Performance measures as identified in 49 CFR 625.43 are below.

Asset Category	Performance Measure	Performance Target
Rolling Stock	Age	10% of revenue vehicles within any particular asset class that have met or exceeded their ULB
Equipment	Age	10% of non-revenue vehicles that have met or exceeded their ULB
Facilities	Condition	0% of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirement Model Scale

## Oversight

FTA oversight is completed through the Triennial and State Management Reviews. Moorhead will certify that they are compliant with FTA rules and regulations via the certification and assurance process which occurs annually as part of the grant application process.

The records will include the City Manager's signature for an approval of TAM plan.

## MATBUS's as part of the TAM Plan shall maintain

- Account executive assigned (See Exhibit A)
- Current list of Inventory in BlackCat
- Condition of assets in BlackCat
- Regularly data entry of performed and scheduled preventive maintenance in the FASTER Fleet Management system or other maintenance tracking system
- Project prioritization included in Agency 3 -5 Year Plan



### **MPO role in TAM Plan**

- Develop targets for each performance measure annually in cooperation with the MnDOT and the public transit agency
- Coordinate with MnDOT and the public transit agency on the establishment of targets to ensure consistency to the maximum extent practicable

### **MNDOT role in TAM Plan**

- Prepare and implement the state sponsor group TAM plan
- Update the state sponsor group TAM plan at least every four years.
- Gather data on the condition and performance of the state's capital assets
- Share asset-related data, as requested, with the MPOs and public transit agencies
- Regularly share information related to the state TAM Plan with the MPOs and public transit agencies

Exhibit A

Christina Volkens, City Manager, confirm that I am the Accountable Executive for City of Moorhead Metro Area Transit (MATBUS).

I certify that my transit agency is in compliance with the TAM Rule.

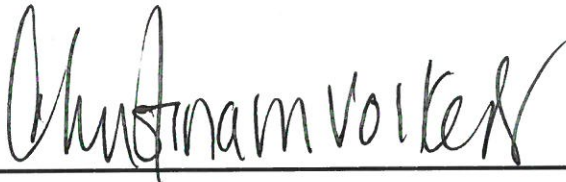
My agency has met the TAM Plan requirements by

Participating in a Group Plan sponsored by MnDOT or NDDOT

Completing our own TAM Plan and keeping it up-to-date. I have provided an updated copy of our TAM Plan to *the State of Minnesota Department of Transportation.*

We confirm that we are implementing the TAM plan at our property.

Signed,



Accountable Executive



Date (Annually)

*City of Moorhead Metro Area Transit*

**ASSET MANAGEMENT PLAN**

**Mission Statement**

City of Moorhead Metro Area Transit's mission is to effectively and efficiently provide safe, clean, and reliable vehicles for use by its customers and operators, and to maintain transit vehicles, facilities and equipment in such condition as to operate at a full level of performance.

**Graduated Preventative Maintenance Program**

The emphasis of City of Moorhead Metro Area Transit System's maintenance program is preventive rather than reactive maintenance. A strong preventive maintenance program effectively reduces overall maintenance costs, increases reliability and performance and reduces the high cost of unpredictable repairs caused by reactive maintenance. City of Moorhead Metro Area Transit uses a graduated preventative maintenance program (PM) that is based on the manufacturer's recommendations and modified based on our experience and the local conditions we deal with in urban Cass County. Solid PM practices maximize useful life, are cost efficient over the life of the vehicle, facility and equipment, and ensures that our assets remain in safe operating condition.

City of Moorhead Metro Area Transit has an aggressive preventive maintenance program that schedules vehicle inspections based on a variety of categories. The PM schedule established is based upon usage and vehicle type. The schedule is progressive. Vehicles are inspected based on mileage and time. In addition, each vehicle receives an annual comprehensive inspection.

City of Moorhead Metro Area Transit conducts regular facility maintenance condition assessments. These inspections include components such as roof, shell, interior, plumbing, HVAC, fire protection, electrical, equipment and site inspections.

City of Moorhead Metro Area Transit's staff continually review our maintenance practices to identify potential improvements to the program. This assures optimum benefits from the scheduled inspections.

**On-time vehicle inspection variance**

The allowable variance with all preventive maintenance vehicle inspections is a minus 500 miles to a plus 500 miles. Any inspection completed within this parameter is considered on time. Sample inspection sheets are attached.

*(Please attach all pre/post inspection sheets along with any other inspections sheets utilized by your agency. Also include facility inspection sheets. Add these to back of your plan.)*

### **Local Conditions**

Local conditions have a direct impact on the level of PM needed. City of Moorhead Metro Area Transit provides service throughout Cass County urban area. The following conditions are considered when developing a PM program for a vehicle or group of vehicles:

- Service Design
  - Urban Service – Fixed route and complimentary paratransit/demand service. Due to the frequency of the stops and traffic congestion in the urban area, vehicles used for this service require a higher level of PM
  - Rural Area – Infrequent stops in a long distance corridor
- Topography and Weather – Salt and gravel from the winter roads may cause premature wear on certain parts of the vehicles. Those parts are inspected more frequently than the manufacturer recommends. Buildup of snow and ice may cause additional cleaning of vehicles.
- Local Policies:
  - The City of Moorhead Metro Area Transit requires that all vehicles be equipped with seating for 14 including the driver
  - Seat belt and securement extenders must be kept in vehicle at all times
  - Fire suppression systems are required in every vehicle
  - Pre and post trips are required every time a vehicle is used
  - All vehicles must be stored in the Metro Transit Garage
  - Vehicles are swapped out any time there is a biohazard on board the vehicle
  - Cleanliness – All vehicles must be cleaned and vacuumed daily
  - Lift and ramp usage – cycle lifts regularly during pre-trip inspections
  - A complete list of requirements is located in the attached Vehicle and Facility Maintenance Plan

### **Authorize, Direct, and Control Maintenance Activities and Costs**

The Fleet and Facilities Manager is responsible for developing the PM schedule for each vehicle fleet, and facility and ensuring that all PM activities are completed in a timely manner and consistent with the manufacturer's recommendations.

Throughout the PM and repair process the tasks performed are reviewed by the Fleet and Facilities Manager and staff.

This constant review is designed to ensure that review and decisions are made at the proper level of management.

Regularly the PM tracking report is printed and reviewed to identify which vehicles or facility component are due or coming due for Preventative/Preservation Maintenance. The identified vehicles are removed from service and scheduled for work.

Work orders are created and appointments are made to complete the identified work.

City of Moorhead Metro Area Transit maintains PM inspection process data for specific vehicle component systems such as wheelchair lifts, video security systems, HVAC systems, wheel chair securements and fare collection systems.

These component systems each have their own PM schedules, forms, and tracking reports. A shop supervisor is charged with the task to review the tracking reports and generates the work orders to perform the tasks.

Other needed repairs may be identified during the PM inspection. These are referred to as "PM write ups". In addition, drivers may report vehicle problems.

The Supervisor reviews the PM write-ups and driver reports. The repairs are then scheduled into the repair shop and completed before the vehicle returns to service. A separate work order may be issued for this type of repair.

### **Identify, Track, and Record Maintenance Activities and Costs**

City of Moorhead Metro Area Transit uses a system of manual and computerized forms and reports to schedule and perform preventative/preservation maintenance (PM) and repairs to its fleet of vehicles or facilities. These documents include:

- Work orders
- Service orders
- Purchase orders
- Parts requests
- PM Tracking report
- PM Inspection forms

After a vehicle or facility is identified as needing PM, a work order is prepared that describes the work to be done, the account codes to be charged, and instructions as to which level of PM is to be performed. All the PM labor and costs are captured under the PM code on the work order. When there is a PM write-up, a new work order or multiple work orders are then generated listing those repairs. All repair labor and parts are charged to the work orders under the specific coding applicable to the individual repairs.

The required parts and supplies are charged to the work order updated to the PM Tracking Report to show when the PM was completed.

If a repair is determined to be covered under the warranty, the appropriate coding will be identified on the work order. A warranty claim is submitted to the applicable manufacturer/vendor. (See warranty Recovery Program section of this plan for more details).

### **Process to oversee work done by contractors**

City of Moorhead Metro Area Transit intermittently contracts with a private company for repair and/or maintenance of vehicles as needed (post-accident, engine replacement) owned by City of Moorhead Metro Area Transit. The contractor is required to maintain the vehicles in accordance with our plan. To ensure compliance, City of Moorhead Metro Area Transit requires the contractor to submit all work

orders for preventative maintenance and repairs. In addition, Maintenance Department staff oversees and conducts a physical inspection of all Transit agency vehicles maintained by the private company.

### **Warranty Recovery System**

City of Moorhead Metro Area Transit operates a warranty recovery program to ensure that cost of parts and repairs on warranty-covered items are recovered.

- **Failed Components**  
Authorization for warranty return and labor claims, if applicable, are obtained from the manufacturer or vendor. Information is supplied to the vendor on the circumstances of the failure, if known. The item is then returned to the vendor warranty department for repair or replacement. City of Moorhead Metro Area Transit retains copy of the warranty claim form for tracking purposes.
- **Receipt from manufacturer/vendor**  
When a unit is received at City of Moorhead Metro Area Transit, it is entered into the inventory system via an Inventory Adjustment form that is coded as a warranty replacement. A Journal Voucher form is completed and forwarded to the Accounting Department to make the necessary accounting adjustments. Labor credit if received is applied to the appropriate cost center via a credit entry applied to the work order used when the defective part was removed.

### **Cost Analysis Tool**

City of Moorhead Metro Area Transit uses a life cycle cost analysis tool as part of its decision-making process when establishing and making changes to preventative maintenance intervals. Factors included in the decision-making include useful life benchmark; age (for vehicles both mileage and age of vehicle), maintenance cost, and available funding. This enables our agency to analyze the cost effects of alternative practices over the life of the asset.

### **Additional References**

This asset management policy is additional to the most recently approved data and policy requirements of the State approved City of Moorhead Metro Area Transit's Fleet and Facility Maintenance Policies.