MOORHEAD

MATBUS Transit Asset Management Plan

Revised Date: October 2022

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 applicable 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 State of Minnesota, Department of Transportation (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 MnDOT capital 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, non-revenue vehicles 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.

MATBUS inspects all transit fleets purchased with federal funds every 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 exceeding their useful life, 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 rehabilitated, 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 or 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
Equipment: All revenue vehicles and all non-revenue service vehicles > $50,000	**10%** exceed Useful Life Benchmark	**90%**
Rolling Stock: All revenue vehicles	**10%** exceed Useful Life Benchmark	**90%**
Facilities: Maintenance, administrative, passenger	**10%** exceed Useful Life Benchmark	**90%**

Useful Life Benchmark for transit vehicles -- Table 2

Category	Typical Characteristics				FTA Minimum Life (Whichever comes first)		MATBUS Useful Life Benchmark (Whichever comes first)	
	Length	Approx. GVW	Seats	Average Cost 2017	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	**12**	**500,000**
Light and Medium-Duty Mid-Sized Bus Class 300 and 400	25 to 35 ft.	10,000 to 16,000	10 to 25	$79,000 to $206,000	5	150,000	**5**	**150,000**
Non-Revenue Automobile		10,000 to 20,000	3 to 12	$20,000 to $55,000	4	100,000	**10**	**150,000**
Revenue Automobile		<10,000	3 to 12	$20,000 to $55,000	4	100,000	**4**	**100,000**

Useful Life Benchmark for transit facilities -- Table 3

Category	Usage	Useful Life Benchmark (Years)
Garage-Operations-Admin. Facility – Metro Transit Garage (Jointly Owned with Fargo)	Administrative Offices/Storage/Wash/Dispatch/Training & Maintenance	**40**
Transfer Facility – Ground Transportation Center (Fargo Owned)	Administrative Offices/Restrooms/Passenger Seating/Dispatch	**40**

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 Equipment (non-revenue vehicles), Rolling Stock (revenue vehicles), and Facilities with a value exceeding $50,000. 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 ✧	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

✧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 complaint 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 as part of the TAM Plan shall maintain:

- Account executive approval and signature (See Exhibit A)
- Current list of Inventory in BlackCat
- Condition of assets in BlackCat
- Regular 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

Dan Mahli, 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.

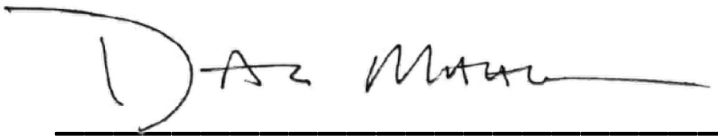
My agency has met the TAM Plan requirements by

☐ 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

9/29/2022

Date

Exhibit B

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 Clay 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 included in Exhibit A.

Local Conditions

Local conditions have a direct impact on the level of PM needed. City of Moorhead Metro Area Transit provides service throughout Clay 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:

    - Seat belt and securement extenders must be kept in vehicles at all times
    - Fire suppression systems are required in every new vehicle purchased
    - Pre-trip and post-trip inspections are required every time a vehicle is used
    - All vehicles must be stored inside the Metro Transit Garage
    - Vehicles are swapped out any time there is a biohazard on board the vehicle
    - All vehicles must be cleaned and vacuumed daily
    - Lift and ramps must be cycled regularly during pre-trip inspections
    - A complete list of requirements is located in the Facility and Equipment Maintenance Plan included as Exhibit D

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 and securements, video security systems, HVAC systems 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 City-vehicles as needed (i.e. post-accident, engine replacement). 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.

City of Moorhead has a joint powers agreement with the City of Fargo for preventative maintenance on revenue and non-revenue vehicle owned by the City of Moorhead.

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.

Exhibit C

City of Moorhead Asset Replacement Schedule

Fixed Route Vehicle Replacement Prioritization

Condition	Asset	Description	SerialNumber	Mileage	AcquireDate	Replacement Cost	Replacement Year	Vehicle Ordered	Notes
0	1020	2010 NEW FLYER LOW FLOOR	5FYD5KV14AB037431	405358	5/17/2010	$550,000	2023	No	Vehicle was in an accident that exceeded the vehicle value
2.8	2151	2015 NEW FLYER XD35	5FYD8KV00FB047525	294427	8/6/2015	$625,000.00	2027	No	
3.3	2161	2016 NEW FLYER XD35	5YD8KV0XFB048472	287656	1/12/2016	$645,000.00	2028	No	
3.3	2162	2016 NEW FLYER XD35	5YD8KV01FB048473	310035	1/12/2016	$645,000.00	2028	No	
3.3	2163	2016 NEW FLYER XD35	5YD8KV03FB048474	296600	1/12/2016	$665,000.00	2029	No	Local Share Availability - Replacement pushed out one year
3.3	2164	2016 NEW FLYER XD35	5YD8KV05FB048475	281351	1/13/2016	$665,000.00	2029	No	Local Share Availability - Replacement pushed out one year
3.8	2171	2016 NEW FLYER XD35	5FYD8KV01GB050547	247778	12/27/2016	$690,000.00	2030	No	Local Share Availability - Replacement pushed out one year
3.8	2172	2016 NEW FLYER XD35	5FYD8KV03GB050548	258322	12/27/2016	$690,000.00	2030	No	Local Share Availability - Replacement pushed out one year
4.2	2181	2018 NEW FLYER XD35	5FYD8KV07KC055495	177115	8/13/2018	$720,000.00	2031	No	Local Share Availability - Replacement pushed out one year
4.2	2182	2018 NEW FLYER XD35	5FYD8KV09KC055496	155750	8/13/2018	$720,000.00	2031	No	Local Share Availability - Replacement pushed out one year
4.5	2201	2019 NEW FLYER XD35	5FYD8KV02LB073877	119844	1/17/2020	$750,000.00	2032	No	
4.5	2202	2019 NEW FLYER XD35	5FYD8KV04LB073878	110667	1/17/2020	$750,000.00	2032	No	

Paratransit Vehicle Replacement Prioritization

Condition	Asset	Description	SerialNumber	Mileage	AcquireDate				Notes
2.0	1231	2015 FORD E 450	1FDEE4FL2FDA14406	198476	1/23/2015	$96,777.00	2022	Yes	
0.0	1232	2015 FORD E 450	1FDEE4FL2FDA14407	151073	1/23/2015	$96,777.00	2022	Yes	Vehicle was in an accident and repairs exceeded vehicle value
3.8	7181	2018 FORD E 450	1FDFE4FS2JDC01481	113982	5/2/2018	$140,000.00	2023	No	
4.0	7191	2020 FORD E 450	1FDFE4FS8KDC45910	71547	12/11/2019	$152,000.00	2024	No	

Senior Ride Vehicle Replacement Prioritization

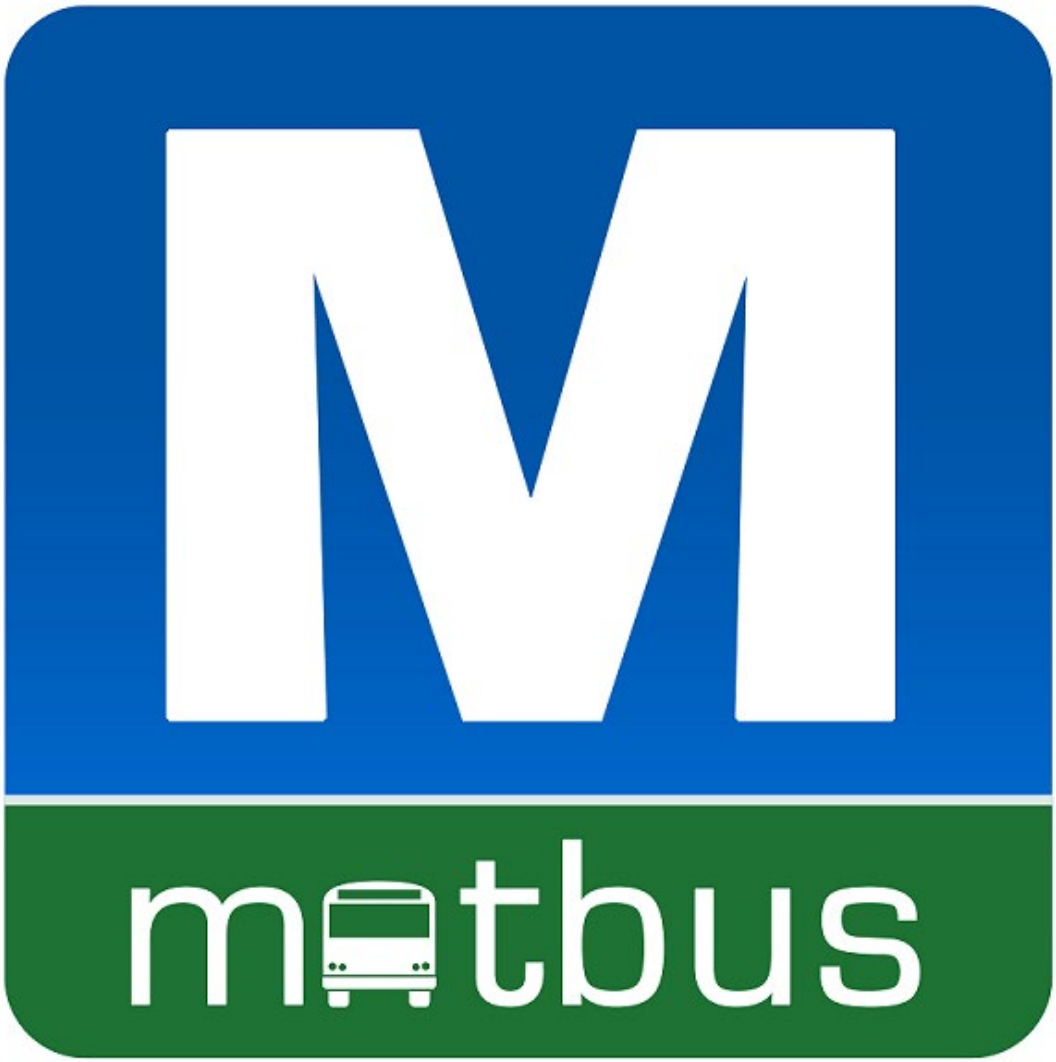
Condition	Asset	Description	SerialNumber	Mileage	AcquireDate				Notes
2.5	5181	2018 DODGE GRAND CARAVAN	2C4RDGBG2JR192169	56807	3/12/2018	$36,000.00	2022	No	
3.0	5191	2019 DODGE GRAND CARAVAN	2C4RDGCG3KR740325	54515	3/12/2019	$39,000.00	2023	No	
3.0	5192	2019 DODGE GRAND CARAVAN	2C4RDGCG6KR781712	57400	12/17/2019	$39,000.00	2023	No	
3.0	5193	2019 DODGE GRAND CARAVAN	2C4RDGCG8KR781713	49548	12/17/2019	$39,000.00	2023	No	

Exhibit D

Facility and Equipment Maintenance Plan

METROPOLITIAN AREA TRANSIT

FACILITY AND EQUIPMENT MAINTENANCE PLAN



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Revised January 2022

Section I: Maintenance Policies and Procedures

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Goal

Metro Area Transit's, Metro Transit Garage is responsible for assuring that buildings and vehicles are maintained in a reliable and safe condition, that all vehicles and buildings are clean and comfortable for our customers and that a sufficient number of vehicles are available to meet all peak service requirements. In addition, the maintenance department is responsible for purchasing the best available material and supplies at the lowest possible price and when needed, storing this material in an organized and secure manner.

Objectives

In controlling the maintenance department's activities, the Fargo/Moorhead Transit Managers and the Fleet and Facilities Manager must ensure that the activity of the maintenance department supports transit service on a daily basis while seeking to:

- Meet the needs of our customers.
- Maximize vehicle reliability.
- Effectively manage operating costs (in both the fleet and building facility).
- Ensure our staff has the training and resources to accomplish these goals.
- Ensure facilities and equipment meets their useful lives.

The overall quality of a transit system's maintenance program, as reflected in the fleet size and equipment resources, technician skills and manpower levels, preventive maintenance procedures, and work control procedures, has cost Implications which are both significant in the short term and very substantial in the long run.

Definitions

To gain a clear understanding of Metro Area Transit expectations, it is vital that all employees understand the definition of commonplace terms. For this reason, certain terms are identified below.

Metro Area Transit (MAT)

This is the joint Fargo ND/Moorhead MN public transit system operating in the Metro area.

Metro Transit Garage (MTG)

Located at 650 23 Street North, Fargo, North Dakota this is the Administration office and Maintenance shop.

Ground Transportation Center (GTC)

Located at 502 Northern Pacific Avenue this is the main dispatch and transfer facility linking both Fargo and Moorhead routes.

First Transit

This is the company contracted to provide driver services.

HandiWheels

This company provides ADA rides with Vehicles provided by FTA funding.

Valley Senior Services

An organization that provides rides for senior citizens.

Preventive Maintenance (PM)

A scheduled Inspection and repair will be performed at set intervals. The objective of preventive maintenance is to extend the coach's useful life by lubricating, adjusting, and replacing worn-out components. Properly applied PM can also reduce road calls and lower operating costs.

Scheduled Repairs

A planned repair action performed to correct a known defect. Scheduled repairs include both Preventative Maintenance Services and deferred repairs noted on PMs.

Unscheduled Repairs

Unplanned repairs or service performed to get the coach back into service. Examples of unscheduled repairs include road calls, some driver write-ups, bus changes, and any other unplanned work.

FMIS

Is a Fleet Maintenance Information System. The current software we use if Faster Assets by CCG.

Road Calls

Route Interruption

This occurs when there is an interruption of a route with the result that a bus will miss their next scheduled stop. This may occur because of a mechanical malfunction or accident.

Bus Change Out

This occurs when a bus is replaced at a scheduled stop with no interruption of services. This may occur when a driver reports a non safety malfunction enabling a bus to continue until it can be replaced.

Commercial Drivers License (CDL)

Automotive Service Excellence (ASE)

This is a national certification program for technicians and parts personnel.

Repair Type (RTY)

A repair type is used in the Fleet management system to code labor repair costs and parts charges.

Personnel

To implement, maintain, and monitor MAT's comprehensive maintenance program requires numerous staff functions and personnel from both the City of Fargo and the City of Moorhead. Detailed below are the positions and staff functions that are most involved in the program.

Transit Director

Both Fargo and Moorhead Transit Departments each have a Transit Director that provides administrative oversight and direction. They oversee route operation and implementation, contracted driver services, dispatching activities, fare and revenue collection, along with budgetary activities.

Assistant Transit Director – Fleet and Facilities

This position provides managerial oversight of the Metro Transit Garage maintenance department. This position also provides managerial oversight for all transit facilities including the Metro Transit Garage, Ground Transportation Center and all bus shelters.

Inventory Purchasing Specialist

This position is responsible for the procurement of parts and supplies needed to support maintenance activities. This position also requires ASE certification or other appropriate certification and a CDL.

Technician III

Provides Shop Supervision and is responsible for the scheduling and maintenance activities at MTG. This position also requires ASE certification and a CDL.

Technician II

This position is responsible for the repair and maintenance activities performed. This position also requires ASE certification and a CDL.

Technician I

This position is responsible for more of the routine PM maintenance activities. This position requires a CDL.

Maintenance Attendant II

This position includes both vehicle maintenance personnel and building maintenance personnel performing both vehicle and building maintenance and cleaning activities respectfully. This position includes scheduling responsibilities and a CDL.

Maintenance Attendant I

This position is responsible for vehicle maintenance checks and cleaning activities on the transit busses.

Seasonal Part Time Personnel

During the school year up to two students are hired to perform routine PMs on the busses. These positions are on the evening shift for 20 hours per week.

FLEET MANAGEMENT SYSTEM

Overview

Metro Transit Garage utilizes a fleet management information system software to manage both vehicle and facility maintenance activities whereby repair work orders and PMs are created. This system also has Parts Inventory Management, Warranty Management and Billing capability. This system is a paperless system with real time labor tracking and inventory control.

Preventive Maintenance (PM)

Preventive maintenance is the cornerstone of any maintenance program because it will maximize the efficient use of resources, ensure the quality of the service provided, and protect the significant investment Metro Area Transit has in its capital equipment. The overall quality of the preventive maintenance program can be determined by such measures as the cost per mile or frequency of breakdowns.

Every maintenance employee should realize that the key to lowering operating cost is an effective preventive maintenance program. A well-balanced preventive maintenance program is far less costly in time and money than running the risk of breakdowns on vehicles and building equipment,

which if not done can incur extensive repair costs.

Adherence to a prescribed PM program is essential to obtain long life and top performance of the vehicles and building equipment. Added advantages are an evenly distributed work load level in the shop and reduced vehicle or building equipment out-of-service time.

Leadership

The success of the PM program depends on its leadership. The Maintenance Shop Supervisor is therefore directly accountable for the success or failure of the program. The Maintenance Shop Supervisor is required to schedule preventive maintenance inspections, perform post inspection quality checks and make recommendations for updates and changes to the preventive maintenance program to the Fleet & Facilities Manager in order to ensure compliance with manufacturers' specifications and address quality of service issues.

By performing regular quality spot checks and evaluating performance, the Maintenance Shop Supervisor can effectively direct the PM program.

Daily Pre-Trip Inspections

The first level of any preventive maintenance system is the daily pre-trip inspection. This inspection consists of a full functional inspection of the coach by the operator before the coach leaves the garage. This inspection includes checking of all exterior and interior lighting, the operation of the front and rear door, the windshield wiper and washer, wheelchair lifts and ramps, safety restraints and other safety related equipment, the horn, the tire and wheel condition and other visible defects such as a broken window. To help the operators perform the required daily pre-trip inspection, Metro Area Transit has developed a checklist for the operator to follow. Each operator is required to perform this pre-trip inspection. First Transit will have the responsibility of training drivers and monitoring compliance to ensure pre and post trip inspections are performed daily. Fargo and Moorhead Transit Managers along with the Fleet Services Manager shall provide First Transit with what is required for a Driver pre and post trip inspection.

Drivers Daily Reports

Forms on which the operators report defects should be left in the holder located in the Driver's locker room. If a defect has been reported, the mechanic should review the forms and separate the forms into two groups, one with defects, and the other without defects. The forms on which drivers report a defect should be entered into the notes on a repair order. The technician should strive to repair as many defects as possible with the overall goal of having the maximum number of safe and reliable coaches available for service for the next day. The mechanic should leave all the Daily Reports out for review by the Maintenance Shop Supervisor.

Preventative Maintenance Procedures

Metro Transit Garage has up to four levels of scheduled preventive maintenance inspection.

Busses	B, C, D, E
Para Vehicles	B, C, D, E
Support Vehicles	B, C
Building Equipment	A, B, C

PMs will always include an engine oil change. Not all vehicles receive all PMs.

The levels are hierarchical in that the higher levels reset the lower levels. For vehicles the intervals and specific checks may vary based on make and model and are based on manufacture recommendations and verified by oil analysis. The intervals are based on mileage which is recorded by the fuel system and downloaded into the Fleet Maintenance program on a daily basis. For building infrastructure and equipment the intervals are based on time and follows manufactures recommended intervals. Preventative Maintenance services are performed within a 10% variance of the service interval.

The maintenance supervisor runs a PM report and determines the scheduling of the vehicles and building equipment.

A repair order is issued for each inspection by either the Maintenance Supervisor or by the maintenance employee performing the inspection. In addition to listing the coach number, the date, and the odometer mileage, the repair order shows the parts used by the technicians to repair the coach. Attached to the repair order is the Preventive Maintenance Checklist which is included in the notes for the technician to complete.

For building PM repairs the unit number, date and parts used shall be entered in the work order.

Preventive Maintenance Checklists

In the fleet maintenance software there is a feature where by detailed task lists can be generated and loaded into the system so that when a PM is performed the appropriate task list will be loaded on the work order. These task lists can be printed for the technician and they also will be pasted into the note portion of the work order.

When a new vehicle or equipment is acquired the maintenance supervisor shall make a list of the recommended maintenance procedures outlined in the maintenance section of the repair manual. Using this information the maintenance supervisor shall develop the task list assigning each maintenance task to the appropriate PM. These may be expanded to include additional maintenance tasks to be performed based on repair frequencies, oil samples, or other such metrics that shows additional checks or maintenance procedures are required.

The Maintenance Supervisor shall submit these Checklists to the Fleet & Facilities Manager for approval.

Upon approval the maintenance supervisor shall load the task list to the appropriate PM for the vehicle or equipment.

Repairs or Defects Noticed during a PM Service

Repairs or defects noted during the Preventative Maintenance Service, if minor in nature and cost shall be repaired while the vehicle is in the shop. For any safety related repairs they must be performed before the bus can be put back in service. For repairs requiring a lot of time and or cost the Shop Supervisor shall be notified so they can decide the appropriate course of action needed.

Repairs performed outside of the normal PM task lists shall have a separate RTY generated and appropriate documentation put in the notes. Major Items, such as the unit is getting very close to a brake job or an oil leak, should be reported to the Shop Supervisor who will decide when and how the defect will be repaired.

Maintenance Supervisor Tasks

At a minimum the Maintenance Supervisor should perform the following tasks:

- Review with the technician or attendant performing the inspection the findings of these checks and take appropriate corrective action.
- Review the PM reports because they are Indicators of how well the PM program and workforce are performing. Because of the direct contribution to the success of a PM program, the following should be evaluated.
- PM Schedule Due - A report that provides information on PM's due, overdue, or coming due. This report is normally run at 25% projected meter reading.
- PM completion report to determine if the PMs are completed within acceptable parameters.
- Repair order Repair History Report - This consists of a detailed history of the repairs performed on a vehicle. By using this report, changes in PM intervals or procedures can be modified to suit the present need.
- Road Call Summary - This consists of a detailed account, by equipment type, of all road calls. This report is used in evaluating the PM program. As the effectiveness of the program increases, road calls should decrease.
- After receiving the meter exception report make the needed corrections.

Basic consideration should be given to:

1. Were PM's performed in a timely manner?

2. What are the major causes of road calls?

3. What are the major causes of building system failures?

If road calls or equipment can be attributed to deficiencies in either PM Intervals, work procedures, carelessness, etc., appropriate corrective action should be taken. This could be one single act or a combination of changes such as modification of the PM checklist or PM Interval, changes in procedures, increased training, etc., to resolve the Issues.

Work Order Procedures

Drivers Daily Inspection

For most work orders for a repair activity to be initiated is in response to a defect reported by the driver on their daily inspection form. The technician creates the work order in the Fleet Management system and generates the code the RTY for both the repair and labor. The technician then logs onto the repair and enters into the notes the drivers request for repair and what the technician has determined to be the cause.

If a defect is reported by a driver, and the technician cannot repair the bus, the bus should be held if an adequate number of buses are available for service. At no time should a bus with a safety-related defect, such as those involving, brakes, steering and lights, knowingly be placed in service. For those safety related repairs the vehicle shall be put out of service until such time as the repair is completed. The maintenance department will not allow a bus with a potential safety defect or a defect which may cause harm to other components leave the shop until the defect is repaired. If the defect is very minor in nature and the maintenance department is short on buses, the bus may be placed in route service until the defect is repaired. This defect should be stated in the notes that the repair should be deferred. The repair order notes shall state whether the

coach can be used in route service or if it must be held until the repair is made. The Shop supervisor shall review all notes and defer the repair till it can be scheduled into the shop.

Road Calls and Change Outs

Another way a repair order is initiated is in response to when the shop is requested to take a bus out to change out another bus. The person taking the call must determine if it the route is interrupted and if the Shop Truck might also be needed. If this is the case on the RTY generated on the work order it must be noted that it is a route interruption. If a replacement bus is requested to meet the bus at a scheduled stop or transfer point this is a bus Change Out and must be coded accordingly. An accident is first started as a Road Call.

Building Repairs

A building repair form shall be utilized to report any repairs noted or equipment defects found. These forms shall be turned into the Maintenance Supervisor. The Maintenance Supervisor will evaluate the repair or maintenance task and generate and work order or defer the repair based on his assessment. The repair forms shall be located so as to be available to all personnel at MTG.

Warranty Repairs

The Faster software system can track and notify staff when a RTY is made on vehicles or equipment that has warranty or on part installed on a particular vehicle. The shop supervisor needs to enter the warranty parameters on vehicles and parts staff will enter the warranty parameters on parts that exceed $ 500.00 or is a major component of a vehicle that is installed on a vehicle the parts staff will enter the appropriate warranty parameters.

The Parts Specialist shall be responsible for filing the warranty claim and follow up of the warranty claim. A spreadsheet shall be used to track warranty claims.

The Shop Supervisor shall notify the Parts Specialist when a RTY triggers a warranty notification and assist the Parts Specialist in processing the warranty claim.

Technician III Responsibilities

The Maintenance Shop Supervisor shall if possible generate the work order and schedule the unit into the shop and assign the technician who will perform the repair. After the repair is completed the Shop supervisor shall review the work order when it is put in finished (F) status. For all work orders the Shop Supervisor will put in the notes that it has been reviewed and then close all work orders under $10,000. Concerning work orders encompassing a major commitment of time the Shop Supervisor shall periodically check the work order making sure it is being filled out correctly.

Technicians and Maintenance Attendants Responsibilities

The technicians and attendants when necessary shall generate the work order. The correct meter reading shall be entered and choosing Y when entering the meter reading is necessary so the system will update the meter in the system. The appropriate RTY should be entered for the repair and the notes updated reflecting the repair needed. If applicable the operators request shall be included in the notes. The technician ID number shall also be entered with the repair RTY so the technician will have that in their assigned window box in the technician workstation applet. The technician shall then log onto the work order through the technician workstation and log out when quitting work on that unit. If the repair is completed the technician shall choose yes when prompted by the program. If the repair is not completed the technician shall choose no when prompted.

When the repair is completed the status of the work order needs to be updated to Ready for Use and the work order notes completed and time stamped.

Parts Responsibilities

When parts or material is supplied to the vehicle or equipment they shall be charged out on the work order with the appropriate RTY selected. When the Technician puts the work order in R status then the parts personnel must review and put in the notes that all parts and material have been charged out on the work order and that it is ready for final review. The parts person must then update the status to Finished.

List of Work Order Statuses

The following two Work Order Status will accrue downtime.

A Active – in this status the vehicle is in the shop being worked on.
When in this status the vehicle or equipment is accruing downtime

V Sent to Vendor for Repair – When in this status the vehicle is delivered to a vendor for repair. This status will accrue downtime.

The following Work Order Status will not accrue downtime.

R Ready for Use – The vehicle or equipment can be used safely. This status lets the parts personnel know that they need to review the Work Order and make sure all charges are entered onto the Work Order. Technicians will change status to R when vehicle or equipment is released for use.

F Finished –This status lets the Shop Supervisor know that parts has reviewed and made sure all charges are on the work order and it is ready to be closed.

C Closed – This Status is when the work order has had its final review and been closed.

P PM Waiting for Shop – This status means that a work order is generated and scheduled for the shop.

I Ready for Use Waiting for Invoice – This Status means that we are waiting for an invoice or paperwork from the vendor before it can be closed.

D DVR Requested - When a hard drive from the camera system is requested a work order shall be created and put in D status.

It is critical that the appropriate status is on the work order because this enables other staff to check if a vehicle is ready to be used by utilizing the City of Fargo intranet to inquire on a specific vehicle or equipment.

Work Scheduling

Scheduling of work Involves looking ahead and making decisions on what you are going to do. Keep in mind that:

- Equipment is not just scheduled into the shop; equipment is scheduled through a shop.
- Effective work scheduling allows you to act rather than react.

- The Shop Supervisor shall assign expected completion times to repair tasks.
- Scheduled Items are manageable Items - time, materials, tools, equipment and labor.
- The work schedule represents a series of repairs to be performed with emphasis on maximizing productivity and minimizing cost, while optimizing the number of operational buses.

Quality Control

For maintenance operation to be effective, the quality of inspection and repair must take the highest of priorities. Everyone associated with the organization must understand what real quality means, emphasizing that quality is the absolute goal.

Quality is defined as meeting and exceeding the expectation of our customers. Every employee must seek quality in each task they perform and hold quality as a personal responsibility. Each repair or service action must consistently meet the established standards, which our customers expect from Metro Area Transit. The only performance acceptable is zero comebacks.

The only performance measurement is the cost of quality. The true cost of not providing quality is the cost of road calls, missed runs, lost customers, etc.

The Maintenance Shop Supervisor has the responsibility to physically check the work of all assigned employees, inspecting not less than 25 percent of their work and 100 percent of all rework. All work not meeting the quality control standards must be corrected before the vehicle is released for service.

Maximum productivity at Metro Transit Garage is achieved when the Maintenance Shop Supervisor: Has a work schedule plan in place that includes unscheduled and scheduled repairs. This schedule must be flexible enough to handle the unexpected such as road calls yet not allow unexpected work to dictate the schedule.

- Plan the schedule according to the labor hours required to complete a repair rather than the number of technicians available.
- Insure that each employee has the tools, qualifications, and a work bay to perform and complete repairs.
- Ensure that parts and components for a repair are in stock before bringing in a vehicle for a scheduled repair.
- Usually about 15 percent of the labor hours will be allocated for the “unexpected”.
- Regularly perform Quality Assurance (QA) checks to ensure that repairs are completed properly. Repairs requiring overtime, and safety sensitive items are always checked. Random checks of PMs for each technician to verify that the PM is correctly performed.
- Follow-up periodically (halfway through the job and at the estimated completion time) to ensure that the technician has not encountered problems, and has done a quality repair in optimum time.
- Once a scheduled PM is started do not return bus to revenue service till PM is completed unless in case of an emergency.
- Utilize experience to assign the best worker to a task.
- Examine the daily schedule on a regular basis and make adjustments as needed.
- Delegate time on the work floor to guide and assist the technicians and attendants.

Scheduling Work Hours

Scheduled hours will be determined by the employee's immediate supervisor and/or department head. Employees will be informed of their daily schedule of hours of work, including any changes that are considered necessary or desirable by the department. When possible, schedule changes will be communicated with at least a seven (7) calendar day notice. Seasonal flexible scheduling must have prior approval by the department head.

Overtime

Overtime is to be applied to specific situations when a long-term increase in staff is not warranted to handle a short-range requirement. Specific situations that may require overtime are inclement weather, emergencies or a major campaign involving the Fleet.

Examine the need for overtime and evaluate whether other options exist. Overtime is to be kept to a minimum. Determine the time necessary to complete the task and get a commitment on the estimated time of completion from the technician and note on time card the reason for overtime.

Note: After options are evaluated and it is determined that overtime will be required, the Shop Supervisor shall notify the Fleet & Facilities Manager for approval if a large amount of overtime is required. When necessary in order to ensure the fleet operation the Shop Supervisor or on call technician can make the determination and then notify the Fleet & Facilities Manager.

Certifications

Parts Personnel

ASE (Automotive Service Excellence) certification or other approved certification must be achieved by the completion of the employees first year of employment and maintained.

A Class B Commercial drivers license with passenger endorsement must be achieved within the first six months of employment and kept current. Notice will be sent to the employee one month before their expiration and the employee will have 5 days to complete this task.

Technician II

ASE (Automotive Service Excellence) certification or other approved certification must be achieved by the completion of the employees first year of employment and maintained.

A Class B Commercial driver's license with passenger endorsement must be achieved within the first six months of employment and kept current. Notice will be sent to the employee one month before their expiration and the employee will have 5 days to complete this task.

Minnesota DOT certification must be achieved by the completion of the employees first year of employment and maintained. The technician will be required to attend training if needed.

Maintenance Attendant II and Technician I

A Class B Commercial driver's license with passenger endorsement must be achieved within the first six months of employment and kept current. Notice will be sent to the employee one month before their expiration and the employee will have 5 days to complete this task.

Vehicles

All transit revenue vehicles have a DOT inspection on a yearly basis and have the appropriate

certification affixed to the vehicle.

ADA Vehicles and Equipment

Vehicles

All transit revenue vehicles that carry ADA customers in Minnesota shall be inspected by the appropriate staff from Minnesota and have the STS certification affixed to the vehicle

ADA Vehicles and Building Equipment

All ADA equipment installed in a vehicle shall have in the Preventive Maintenance Checklist, detailed maintenance and inspection tasks that shall be completed for each PM performed according to the manufactures recommended maintenance procedures.

Building Facilities

All ADA equipment installed in transit facilities will be given a unit number and entered into the Fleet Maintenance Software Program and assigned an appropriate PM schedule. They shall have in the Preventive Maintenance Checklist, detailed maintenance and inspection tasks that shall be completed for each PM performed according to the manufactures recommended maintenance procedures.

Shop Operations

Safety techniques are required to assure that repairs are performed safely without undue risk to personnel, property, facilities, or the public. Everyone should monitor their work to preclude violation of proven and established repair methods. To assist employees in this process, MAT has developed a set of safety rules

A maintenance person can be severely injured at work. It is the responsibility of the Maintenance Shop Supervisor and all employees within the maintenance department to ensure that every possible safety precaution has been followed.

General Work Procedures

Whenever a repair is completed and before it is parked the vehicle must be fueled.

Consider the hazard of the job and insist on appropriate protective gear such as gloves, safety glasses, respirator, etc. Use only approved types of work shoes.

Before a major component is lifted, check to be sure the lifting device is fastened securely. Be sure the item to be lifted does not exceed the capacity of the lifting device.

Exercise caution when power tools are in use.

When compressed air is used to clean a component, only an approved safety nozzle should be used.

Exercise caution when cleaning agents are used. Be sure the work area is adequately ventilated and protective gloves, goggles or face shield, respirator, and apron are used as required.

Exercise caution when welding or using a cutting torch in order to prevent fires and injuries to

other personnel.

Make sure work areas are clean and orderly.

Verify that technicians have appropriate tools for each job and that approved repair procedures are used.

Note: Proper service and repair is important to the safe, reliable operation of vehicles. This manual cannot advise on all conceivable ways of performing repairs or of the possible hazardous consequences. Therefore, no such evaluation is intended or implied.

Tire General Guidelines

- Tires, rims, lock rings and wheel nuts should be frequently inspected in service.
- Recapped tires shall not be used as front tires on any vehicles. Tires with unusual bulges or loose tread shall not be used on the front of any vehicle.
- Wear your safety glasses when inflating and deflating tires or grinding, buffing, and hammering on rims.

Changing Tires

- Before attempting to loosen wheel nuts, note wheel and rim condition. Remove the valve core to deflate any tire with a **damaged rim** before taking wheel nuts off.
- A damaged rim may not be noticed on a rear tire until the tire is off the bus. In cases like this, turn the wheel so the damaged area faces away from you, then remove the valve core from the backside of the tire.
- All wheels that are installed must be torqued to recommended specifications.
- Wheel nut follow-ups must be made whenever a tire is changed so the wheel nuts will be retightened within two days or 500 miles.
- Vehicles must always be blocked or set so that they cannot be moved while a tire is changed.
- Never bull or fight a tire. Use proper tools to avoid muscle strains.
- Never inflate a tire that has been run flat prior to inspecting it for cuts or damage.
- Dual Wheels - the inside tire must always be installed so the valve stem is easily accessible.
- Before assembly, wheels should be thoroughly cleaned and inspected. Worn, cracked or bent rims must not be used.
- Bent rims will not fit properly and should not be reused.
- Never try to straighten a bent or distorted lock ring.
- Inflate until both bead rings make full contact with rim; then allow the air to escape.
- Do not over inflate a tire.
- Write the Work Order number on the tire and mark it if it needs to be recapped.

Moving Vehicles

- Buses and miscellaneous vehicles are not to be moved except by those specifically authorized to do this work.
- Maximum speed while towing any vehicle: 15 miles per hour or slower if necessary to meet traffic conditions.
- Maximum towing speed making a right or left turn: four miles per hour.
- Use a sign stating “Not in Service” whenever a bus is operated on a public thoroughfare and not in service.

- No bus, truck or car shall be moved until a look around is taken to see that no one is working on the vehicle.
- **When backing, if possible always use a spotter.** If no spotter is available beep the horn loudly; then wait a few seconds before starting and moving the bus. Air pressure must be 80 PSI prior to moving vehicle. If unsure exit the vehicle and do a walk around.
- A complete safety stop must be made before a vehicle is moved by or through any door, post, wall, or other object which may obstruct your view. A warning signal shall be given before moving forward. Make sure garage doors are fully open before driving through.
- When driving company-owned vehicles on a street or highway, obey all rules of the road.
- Do not carry passengers unless the conduct of the Company's business demands it.
- No buses are to be pushed with any vehicle other than those vehicles designed for pushing buses. At no time should you push a bus with another bus. If it is necessary to tow a vehicle with one end raised, axle must be chained to body. This is necessary since air pressure will be exhausted from bellows at the raised end. The weight of the axle hanging on the deflated bellows may damage bellows or shock absorbers.
- Only authorized personnel shall drive vehicles over pits or onto hoists.
- Whenever a driver leaves his/her vehicle, the engine must be stopped, the gears in neutral, the switches off, and then hand brake set. If it is necessary to leave the engine running to make repairs, the gears must be in neutral and the hand brake set.
- Before starting any vehicle, make sure shift is in neutral and the hand brake is set.
- State law requires all buses to stop at all railroad crossings, except those marked exempt.

Working in Vehicles

- No one shall work under a vehicle or on the motor of a vehicle without taking the necessary precautions to prevent the engine from being started and the vehicle from being accidentally moved.
- Disconnect the battery cables when working on the engine, transmission, starter, generator, or other parts when injury may occur if the engine is turned over.
- Engine exhaust pipes must be connected to the exhaust ventilating system when engine tune-ups or checks are made. No bus engine shall be run in the shops or garage for extended time periods without the exhaust system being connected except when building up air pressure to move bus out.
- Apply battery cable guard when batteries are disconnected but not removed (short piece of rubber hose over cable ends).
- Never use a torch or flame to thaw out frozen air tanks or lines. Use an electric heat gun or allow bus to stand inside and thaw itself out.

Building and Grounds Operations

MAT has made a significant investment of public funds in a maintenance and administrative offices located at 650 23 Street North (MTG) and at 502 NP Avenue North (GTC) that is capable of supporting the daily operation of the transit system. The Metro Transit Garage was completed and commenced operations January 1, 2007.

MTG located at 1221 650 23 Street North built in 2006 has a maintenance area that is divided into a bus storage area, wash bay area, and a 6 bay maintenance shop and office complex and driver staging area. Like many transit systems in a northern climate, MTG stores a majority of its buses indoors. The bus fueling area and washing portion of the building was built so that when the buses are finished cleaning and fueling they can be parked without having to leave the building. The main service area of the Maintenance Shop has a drive through feature that enables the buses to be driven right to the parking area.

The building was designed with many energy and conservation measures built in. Some of these include a bus wash system that recycles water, a sprinkler system that stores and uses rain runoff to supply water, an underground storm water runoff collection system under the parking lot to save space, a roof structure designed to accept the weight of photoelectric cells for future use, energy efficient floor heat, fast operating overhead doors to conserve heat in the winter, and xeriscaping landscape designed to be low maintenance and not needing a lot of water which was designed by the Forestry Department.

GTC located at 502 NP Avenue North is the main hub and transfer point for the transit system. The GTC opened in 1984, and is the primary transfer point for MAT routes, dispatch center, etc. The GTC offers a climate controlled environment, seating, restrooms, vending, and other amenities. In 2003, a major renovation of the GTC was completed. In 1985, the GTC won a prestigious Design Award from the American Institute of Architects. It was awarded for “function and strength” and “beautification of the entire community.”

Housekeeping

MTG’s and GTC's building maintenance staff are responsible for keeping the public areas, grounds, shop, bus storage area, and wash bay safe and clean. Even though every employee is expected to keep their work area safe and clean it is imperative that unsafe conditions be addressed immediately. If necessary the Building Attendant shall notify the Fleet & Facilities Manager or the Transit Director if there is a tendency for a certain area to be a continual problem. The service crew should clean the area around the fuel pumps and wash bay area daily and the technicians shall clean up their work area after completing repairs on a coach.

The Building Maintenance staff are also responsible to ensure the contracted cleaning crew or any contractor performing work is doing an adequate job and if necessary contact them to correct any areas of concern.

Preventive Maintenance

MTG and GTC have key systems and structures entered into the same Fleet Maintenance software that manages the vehicles. The main difference is that the PM intervals are determined by time rather than miles.

The Shop Supervisor shall run the PM due report and create the work orders and verify that maintenance tasks are completed in a timely manner.

The procedures and guidelines concerning preventative maintenance procedures, work orders, work procedures, safety and parts support that are in place for vehicles also are in place for building structures and equipment.

Once a quarter a walk through inspection must be completed and documented using the task list that has been complied.

Building System Failures

For any system failure that occurs that affects operations the maintenance employee shall notify the Shop Supervisor and the Fleet & Facilities Manager to help determine appropriate corrective action to be taken.

If it is determined a contractor need to be called in to correct a system failure the Maintenance employee will contact the contractor and will coordinate the repair.

Fueling System

A monthly inspection **must be completed** on the fueling system and its components. This shall be documented using the approved checklists by the State of North Dakota. The fuel leak detection equipment must also be verified as operational.

Vehicle Servicing and Cleaning Operations

One of the critical factors the riding public requires is a clean bus. MTG recognizes this fact and therefore is committed to having the cleanest fleet possible in light of financial constraints.

The exterior cleanliness of coaches is also an important indication to non-riders that the transit service is worthy of their support. A clean interior indicates to transit users that the system cares about them. All maintenance employees must thoroughly understand the importance of a controlled program of interior, exterior and undercarriage cleaning. This is a vital function, which, through cooperation and pride, will produce a clean bus.

A clean undercarriage and engine compartment will greatly assist the mechanic's ability to see and correct defects in the early stages, thereby preventing major failures on the street that would adversely affect reliability and the public's confidence.

MTG Maintenance Staff

Fleet & Facilities Manager – 1 Full Time
Parts Inventory Purchasing Specialist – 1 Full Time
Equipment Technician III – 2 Full Time
Equipment Technician II – 4 Full Time
Equipment Technician I – 2 Full Time
Maintenance Attendant II – 5 Full Time
Maintenance Attendant I – 2 Part Time
Technician Intern Position

Daily Servicing

MTG has established the following daily servicing and cleaning schedule for buses used on route, which includes at a minimum the following:

- Walk-around inspection
- Refueling
- Engine oil, transmission and coolant check (record any abnormal fuel and oil consumption)
- Check for any low or flat tires
- Interior cleaning, i.e. sweeping, dusting, moping, windows, etc.
- Visual interior inspection of the body, seats, floor, etc., for damage

Checking Oil Level

To prevent false oil level readings and prevent over filling the engine crankcase with engine oil, the oil level will be checked after the bus has been allowed to set for a minimum of five minutes. Oil should be added to the crankcase if low, but not to exceed the "full" mark on the dipstick.

Exterior Washing

To maintain a clean exterior appearance MTG has purchased and installed an automatic bus washer. It is often not necessary during certain parts of the year that the busses be washed daily. It will be up to the Maintenance II employee in charge of the scheduling to make the determination whether or not the complete fleet needs to be washed or not.

Interior Cleaning

MTG has established the policy of performing a major interior cleaning on each bus according to a rotational schedule in order to not have the bus down for a major cleaning. MTG defines that a major interior cleaning component consists of the ceilings, bulkheads, complete floor scrubbing, and lighting panels. The Maintenance Attendant II is charged with the responsibility of keeping a schedule of which bus and when each major interior cleaning was performed, directing when each bus will receive a major cleaning, and ordering the supplies necessary to perform this cleaning. If a major interior cleaning cannot be performed on schedule, the Service person must advise the Shop Supervisor. The Shop Supervisor shall conduct spot checks ensuring the cleanliness of the bus.

Fueling

In order to prevent buses from running out of fuel by being missed the employee fueling must indicate on the fuel schedule who filled the bus and how much fuel was added. At the end of the shift this employee must verify that each bus that was operated was fully fueled and submit that sheet to the Shop Supervisor.

Facility/Shop Safety Guidelines

Material Safety Data Sheets (MSDS)

It is the responsibility of the Shop Supervisor to ensure that the Material Safety Data Sheets are up to date and when any new chemical comes into the shop that the appropriate markings are in place and a MSDS is provided and filed in the MSDS book. The Shop Supervisor shall make sure all employees know where the Material Safety Data Sheets are located. They shall be located in a highly visible place in the shop.

Battery Safety

- Make sure that the battery handles are secure before attempting to lift it. If the battery is too bulky for one to lift and carry, get help or use a battery cart.
- Do not wear rings or wristwatches when working around batteries.
- Safety glasses must be worn when working with batteries. Safety shields must be worn when pouring acid or melting lead.
- Avoid getting battery corrosion or acid on the skin or in the eyes. Acid burns should be flushed immediately with water. After flushing, baking soda (sodium bicarbonate) should be placed on the affected area of the skin.
- When battery solutions are being mixed, it is very important that the acid be poured into the water and not the water into the acid.
- Open flames or smoking shall not be permitted in the battery charging area unless proper precautions are taken.
- No one except authorized personnel shall be allowed to connect or disconnect a battery on charge.

- Batteries with loose or broken posts must not be used.
- When removing or installing a battery, make sure all switches in the vehicle are off. Take care not to cross wires. Disconnect the ground wires first when removing a battery and connect the ground wires last when installing a battery.
- Never check a battery by arcing across posts with pliers or steel prods.
- When using jumper cables to start a vehicle, make sure of the polarity of both batteries. (Positive to positive, negative to negative)

Pressurized liquid or Gas

- When testing or working with diesel engine fuel injectors, keep fingers and hands away from oil steam and spray tip. The high velocity could penetrate the skin and cause blood poisoning.
- Compressed air shall never be directed toward the body or clothing. 40 PSI can and will kill if circumstances are right.
- When blowing off dirt from material, always direct the force of air in such a manner as to avoid blowing the dirt on fellow workmen. If this is unavoidable, warn the men away from the immediate vicinity.
- Air hose valves shall be turned off at the feeder line connection when air is not being used.
- Horseplay with compressed air is prohibited.
- If it is necessary to test tanks, cans, radiators, or other similar parts for leaks with compressed air, the pressure used must be of known, low, safe pressure with an air gauge and a properly adjusted reducer or safety valve in the air line.
- Always make sure that the main air valve is closed before disconnecting air tools or air hose on tools.
- Proper OSHA approved air hose fittings should be used on all hose ends.
- Persons cleaning engines, bus chassis, or parts with pressurized cleaning sprays must wear safety glasses, boots and appropriate clothing.

Handling Acids and Caustics

- Don’t store acids or caustics in glass or other containers near heat or steam pipes, or in direct sunlight. Expansion in the containers due to the heat may cause a fire or explosion.
- Rubber gloves, aprons, boots, and a face shield shall be worn when handling acids or caustics.
- Drums or containers should be emptied by gravity only.
- Acid or caustic carboys should not be moved unless they are secured and wired.
- Never pour water on top of a concentrated acid. The acid should be added to water in small quantities.
- When acid gets on any part of the body, including the eyes, flush immediately with plenty of water.

Handling Gas Cylinders

- Compressed gas cylinders should be stored on end on a smooth floor and chained or fastened firmly against a wall post or other solid objects.
- Do not store cylinders in or near a heavy traffic area.
- Gas cylinders must be rolled, not dragged, on the bottom edge when moved.

Handling Volatile Petroleum Products

- The use of gasoline or naphtha for cleaning parts is prohibited.
- Smoking is prohibited in shops, around vehicles, near gas pumps, can, tanks, or when near anyone pouring or working with gas or inflammable materials.
- Never fuel a vehicle when the motor is running.
- Only approved safety cans are to be used for handling, storing, or transporting gasoline, kerosene, or diesel fuel.
- Clean up spilled gasoline quickly. If gas gets into the drainage system, notify the Fire Department so sewers can be flushed. Gasoline vapors collect in low spots such as pits, sumps and basements. Care should be taken to keep these areas ventilated when vapors are present.
- Always keep alcohol, grease, gas and oil in fireproof rooms except for a small working supply.
- When dispensing inflammable liquids with a transfer pump or faucet from drum to a bus or car, use a ground wire and clamps to ground the drum to the vehicle being filled to prevent a static discharge from occurring.
- Always keep the metal fuel nozzles of the hose in contact with the tank while the fuel is flowing to prevent any static discharge from ignition vapors.

Housekeeping

All employees are expected to help maintain a clean and safe environment to work in.

- Walks, aisles and stairways shall be kept clean and clear of debris at all times. If it is necessary to construct a passageway, barricades shall be erected. Access to firefighting equipment and electrical panels must be clear.
- Nails should never be left protruding from boards or walls where they may cause personal Injury. They should be bent flat or removed entirely.
- Tools, pieces of equipment, scrap and refuse shall be removed from the floor immediately after completion of work.
- Keep tools in chests, drawers, cabinets or on convenient racks when not in use. Hooks on racks or in cabinets should be inspected frequently and replaced as they become unsafe.
- Stored material should be piled securely and equally so the piles are not top heavy. Materials should not project into aisles. Floors and storage racks must not be overloaded.
- Industrial towels and oil absorbent compound should be used to soak up and wipe oil, grease or other slippery areas on the floor. Dirty towels must be deposited in metal containers provided.
- Employees must wipe up all spillage immediately to prevent falls and slips.
- Lighting - poor vision can cause nasty accidents. Replace all non - working bulb immediately.
- Stairways and aisle ways must be well lighted.
- Each employee is responsible for the neatness and orderliness of his/her immediate work area.
- Lockers should be inspected periodically to insure cleanliness and to guard against accumulation of combustible articles.
- Mud should be removed from sidewalk and driveways as soon as possible.
- Report loose flooring, smooth step edges, loose hand rails and holes to your supervisor

as you notice them.

Sanitation and Hygiene (Employee Cooperation)

- Drinking fountains - Do not touch lips to any part of the fountain
- Do not spit on walls or floors.
- Wash hands, arms and face with soap and water before eating or going home. Take frequent baths.
- Help keep locker, washroom, toilet and other service equipment clean and sanitary.
- Put refuse in proper containers which are provided.
- Clean and pick up after yourself in the lunch room.

Tools and Equipment

It is impossible to do the job correctly without correct tools. MTG recognizes this important fact and has therefore equipped the maintenance department with most of the specialty tools and equipment necessary to maintain the fleet. A program is in place at MTG for replacing worn shop equipment and expanding and upgrading existing shop equipment as necessary.

It is the responsibility of all employees to properly maintain shop tools and to return them clean and in good working condition to their assigned place in the tool room.

Tool Replacement

If a technician's tool breaks or is worn out, MTG will replace such tool with another tool of like kind.

Guidelines for Safety and Use of Shop Tools

All shop employees are expected to become familiar with the Facility Safety Guidelines and as far as possible to adopt such safety practices as are required.

All safety hazards are to be brought to the Shop Supervisor's attention as soon as they become known.

When adhered to, these shop safety rules may enable you to avoid potential short or long-term disability connected with shop work and contributes to the productive and efficient operation of our shop.

The primary purpose of this part of the manual is to prevent accidents to employees and the public in general. Experience has shown that accidents can, and will be, avoided when these rules are intelligently followed. Therefore, each employee is required to know, in detail, all general safety rules, which pertain directly to his/her work.

Personal Protection Equipment and Rules

- Shop personnel and visitors must wear safety glasses whenever the operation and condition of work is such that an eye injury could result. This includes:
- All work with machines, hand tools and power tools (cutting, chipping, scraping, grinding or hammering).
- Everyone working in the vicinity of the above operations.

- All work with compressed air or when near someone working with compressed air (blowing off material, inflating tires, etc.).

Face Shields

- Face shields must be worn for all grinding; wire wheel and cutoff wheel operations, even though these machines are equipped with shields and guards. A face shield must also be worn by the battery repair person when pouring acid or working with molten lead.

Welding Goggles and Helmets

- Welding goggles with proper lenses that filter out the injurious radiant energy that is produced by oxyacetylene welding and cutting must be worn by the welder, his/her helper and anyone who may be watching the operation. Welding helmet must be worn when doing any arc welding or heavy gas cutting.
- Do not watch any welding or cutting without the proper shaded goggles or helmet.

Foot Protection

- Strong, well-soled, safety work shoes should be worn by all employees who do mechanical work, except those employees with substantial reasons for not doing as verified by a doctor.
- Employees will not be permitted to work with shoes which have worn-out soles or of such construction or material that they are not suited for the work being done.
- Welders shall not wear low cut shoes.

Hand Protection

- Maintenance employees must wear proper gloves when handling hot, jagged or sharp materials, wood, or acid.
- Maintenance employees are encouraged not to wear rings, watches, or other jewelry that may be caught on other objects while at work.
- If you wear gloves around moving machinery, use extreme caution.
- Do not perform repair or adjustment work on electrical machinery until you know the power is off and the control has a “Danger” sign bearing your name on it. Only the person placing a “Danger” tag or lock shall remove it.
- When handling steel cables or other wire ropes, always wear leather palmed gloves to avoid injuries from broken strands.
- Rubber gloves should be used by employees cleaning parts with cleaning solvents. (Solvents wash the protective skin oils away.)
- Gauntlet gloves shall be worn by welders when arc welding or cutting.

Respiratory Protection

- Employees shall wear a cartridge type respirator when spray painting, fine sanding, grinding, sandblasting or when working in the same area of someone doing this work.

Clothing and Other Protection

- Loose or torn clothing, neckties, dangling sleeves, gloves, suspenders or unbuttoned jumpers must not be worn when working around moving parts. Sleeves of all clothing shall be rolled up or kept buttoned.
- All employees shall be suitably clothed for their work.

- Grease or oil soaked clothing should not be worn. This is not only for appearance but also for safety. Hang such clothing in ventilated lockers and clean them frequently.

Hand Tools

General

- All tools should have proper sized, tight fitting handles which are free of splinters. Tools with cracked, missing, or loose handles should not be used. Taping or wiring of handles in not allowed.
- Pointed or sharp tools when in transit, or not in use, must be kept in tool boxes or holders which fully protect the edges or points.
- Do not use dull tools; keep them sharp.
- Never strike or pull sharp tools toward your body.
- Never apply excessive force in such a manner that would cause you Injury if the resistance suddenly let loose.
- Employees should report all unsafe tools or lack of proper tools to the Shop Supervisor.

Shock tools

- Metal cold chisels, drifts, punches, hammers, wedges and sledge hammers.
- If heads are mushroomed, do not use - have them redressed or safe-ended.
- Do not attempt to re-temper or re-harden heat-treated tools.
- When swinging a sledge hammer or ax, make sure you have a clear circle in which to swing. Warn nearby workers not to get in the way. Do not wear gloves when swinging a sledge hammer or an ax.
- A man holding a tool which is to be pounded on by other tools must use proper holding tongs or other devices to keep himself clear and safe.
- Copper or lead hammers must be used when striking tempered pins, castings or tools. Never strike two hardened tools together.
- Whenever possible, hold a chisel in the hollow of the hand with the palm up. If the hammer glances, it will strike the soft palm instead of the knuckles.
- When chipping or shearing with a chisel, warn others in your area to wear their safety glasses.

Brittle Tools

- Files and drills - must not be hammered on, bent, or used as a pry.
- Do not clean a file or a drill by striking it against a steel or hard object. Use a file card or wire brush to remove the metal shavings.

Pliers and Wrenches

- Use the correct wrench for the bolt or nut being worked on and make sure you have secure footing and a firm hold on the wrench before applying pressure.

- When using an adjustable wrench, pull when the adjustable jaw faces you. Push when the fixed jaw faces you. This insures proper locking of the wrench onto the pipe or nut.
- Do not use wrenches or pliers as hammers.

Screwdrivers

- Do not use a screwdriver as a punch wedge, pinch bar or pry bar.
- Do not use screwdrivers with rounded or bent tips.
- When doing electrical work use properly insulated screwdrivers.
- Do not apply a screwdriver to objects held in your hand.
- Always use the proper sized screwdriver for the screw or bolt being removed.

Proper Tool Maintenance

- Shock tools - All edges of the striking heads of hammers and chisels and pins should be either dressed or safe-ended to prevent mushrooming.

Machines and Equipment

General Rules

- Workers must wear safety glasses or face shields at all times when operating a machine.
- Never use hands to shift belts in motion.
- All shafting, wheels, gears, belts and other moving parts of the machine for which guards have been provided must be kept guarded while the machine is operated. Never operate a machine from which the guard has been removed.
- Never start a machine until it is certain the piece to be worked on is firmly secured and everything is clear.
- Machines must never be operated by anyone except those who are assigned to it and are properly authorized.
- All types of Chucks are to be fully tightened and **MAKE SURE CHUCK WRENCH IS REMOVED**.
- Feeds, cuts, and speed must never exceed safe working rates established by the Manufacturer.

Grinders and Buffers

- Clearance between wheel and work rest should not exceed 1/8 Inch. Do not try to change a work rest when the wheel is in motion.
- The Shop Supervisor shall make periodic inspections of grinder wheels, rests, guards, and glass shields.
- Never grind on the flat side of wheel, and always take special care to avoid striking the side of the wheel with a heavy object.
- Never buff a piece of material from the lower half of the wheel because the piece may catch and pull your hands into the wheel.

Presses and Shearing Machines

- Press operators must use a stick or tool provided for the purpose of disengaging stuck work. Do not use fingers.
- Hammers and dies must be in good condition and properly fastened before using machine.
- Always place a substantial timber under the hammer, shear or punch when changing dies or making repairs. In all cases, block the treadle to prevent accidental tripping.

Drill Press

- Oversized bits should not be ground down to fit smaller chucks. A proper adapter should be used.
- Smaller pieces of work must be clamped down to prevent their movement.

Portable Power Tools

- Extension cords and air hoses must be kept clear of aisles and walkway as much as possible.
- All portable tools must have a safety switch on them, which cuts off power If tool is dropped.
- Do not remove manufacturer's guards.
- Use drill stops to prevent the drill from penetrating beyond depth needed or into wires or conduit.
- All electrical tools must have a ground wire which must be connected to a ground when the tool is in use.
- Chuck keys or adjusting wrenches must not be attached to electrical or air operated power tools. They must be attached to the electric cord or air hose 18 inches or more away from the tool.
- No fumes, automatic cutouts, switches or other devices should be inserted in a grounding line.
- The continuity of the grounding circuit should be checked periodically.

Ladders

- Always make sure that both side rails of a ladder have secure footing. If there is danger of slipping, or if you have to climb fairly high, securely fasten the ladder or have someone hold it for you.
- Ladders should always be placed in position at the proper angle. The base of the ladder should be out 1/4 of the vertical distance to the point of support, unless braced, fastened, or held to prevent slipping.
- Do not place a ladder in front of a door which opens toward the ladder unless the door is opened, locked or guarded.
- Always face the ladder when ascending or descending. Take each step in order with both hands on the side rails. If materials need to be handled, use a rope.
- Do not use ladders with cracked rails or broken or missing rungs. Withdraw the ladder from service and mark as dangerous, do not use; repair or scrap it.
- Do not paint ladders except for small inspection color code.
- Do not climb on shelving or supplies to get something. Use a ladder.

Scaffolds

- Thoroughly inspect each scaffold component before using it to make certain there are no bad welds, boards, etc., which could impair its strength.
- Do not overload scaffolds.
- Make sure scaffold legs rest on a firm foundation. Use base plates when necessary. Keep scaffolding level.
- Planking should have at least 12 inches overlap. Cleats should be used to prevent planking from slipping. Toe boards and guardrails should be used to prevent material and employees from falling.
- Area below scaffolding must be roped off and kept clear. Warning signs should be used.

- When a plank is used as a scaffold between two ladders or other elevated structure, the plank should be level and securely locked to prevent creeping.
- A rolling tower or scaffold must have brakes, which lock the caster wheels as well as the swivel.
- When moving a rolling tower make sure that sufficient help is used to assure proper direction and to prevent tipping.

Power Scaffolds

- Before operating lift, thoroughly read the operators manual so you understand the controls and functions of the machine.
- Make sure you unplug unit from electrical power before moving lift.
- Inspect unit before using to ensure there are no loose or broken parts and no fluid leaks.
- When lifting material do not exceed the lift capacity of the machine.
- When done using plug charger back into power supply.

Hand Trucks

- Keep load as low and up front as possible.
- Make sure that the load is secure and does not obstruct vision.
- Never walk backwards with a hand truck.
- On an incline, keep the hand truck ahead of you when going down and behind you when going up.

Hoists/Lifting Devices

- Defective ropes, chains, hooks or any other defective parts of the hoists must be promptly reported to the Shop Supervisor.
- Defective slings and hoisting appliances must not be used.
- All hoists/lifting devices shall have annual inspections completed by certified inspections.

Jacks

- Defective jacks are not to be used. Unsafe jacks must be reported to the Shop Supervisor for repairs.
- When using a jack, always grip the handle firmly and keep your body and head clear of the handle.
- Remove all handles from jacks when not in use.
- When raising any part of a vehicle with jacks, secure the vehicle against movement with blocks or stands and hand brake. When more than one jack is used, the lift should be made evenly.
- Jacks, handles, crowbars and blocking must be returned to their proper storage place as soon as they have served their purpose.
- Defective (splintered or rounded) blocking shall not be used.
- When maintaining a load in a raised position, relieve the strain on the jacks by safe blocking or jack stands.
- When a person is working under a vehicle that is blocked up, technicians working on top of the vehicle must not work in a manner that may jar the vehicle off the blocks.

Cautions

- Do not attempt to work under vehicle without first blocking body or placing vehicle over a pit. With air bags deflated, there is not sufficient clearance under vehicle for a man on a creeper. When blocking body, place blocks under jack pads provided at front and at rear lower radius rod brackets, jack pads are shown in Coach Maintenance Manual.

Chains, Ropes, Cables, Slings and Hooks

- Never overload, twist, kink, or drag a chain, rope, cable or sling.
- Never cross or fasten a chain or rope over sharp corners.
- Never apply sudden loads to any chain or rope.
- Never hammer a chain or hook into place.
- Never use a chain at small angles or allow a load to rest on the chain for long periods of time.
- Don't carry a load on the point of the hook.
- Never use a chain with stretched or stiff links. Don't take chances when a chain or cable looks unsafe, send it out for inspection or replace it.
- Never carry an unbalanced load.
- Chains shall be inspected annually and tagged showing
- Maximum load capacity and date of last inspection.
- Bolts shall not be used to shorten or join chains. All chains shall have hooks and eyes.
- Wire rope should be lubricated at regular intervals to prevent rust and excessive wear.

Welding. Heating or Cutting Operations

- No persons except those properly qualified shall use the gas or arc welding outfits.
- Approved welding goggles, gloves and other safety equipment must be used. Clothing should be grease and oil free and be fastened at the neck, wrists and ankles. Low cut shoes shall not be worn. If necessary put on welding leathers.
- All gas welding equipment must have safe hoses with "safety" valves located on the tank to prevent possible flashback.
- Bystanders shall not be permitted to watch welding and cutting without protective equipment.
- Whenever welding at an elevated height, take precautions to prevent hot material or sparks from falling on people or on flammable material.
- Whenever possible, barriers shall be used when arc welding is done to protect other workers from the glare.
- Hot material must be marked "hot" or allowed to cool before being left unguarded.
- Care must be taken when heating or burning pipes or tubes. The ends of the pipes must be directed away from fellow employees.
- Proper ventilation must be secured when brazing, soldering, cutting, or welding on any material or metals which produce harmful gases. Fumes of hot metal or acid should always be avoided as much as possible.
- Extreme caution must be exercised when electric welding to avoid accidental grounding of the electrode. When the arc welder is not in use, the main switch should be off.
- When welding is done in a confined place, an attendant shall be stationed at the arc welder switch.
- Welding in pits shall be permitted only when proper precautions are taken.
- Do not weld within 50 feet of a person working with inflammable fluids such as gas and

alcohol.
- Always have a fire extinguisher close at hand when welding or cutting.
- Never work completely alone. Make sure someone is close at hand to help if necessary.
- Never weld, cut, or heat a container, tank or pipe which has held gasoline or other flammable liquids.

Inventory Control Procedures

Responsibilities of the Parts Inventory Purchasing Specialist

- The Parts Inventory Purchasing Specialist is responsible, at a minimum, for verifying monthly that the following routine work tasks associated with the storeroom are performed:
- Ordering new stock.
- Assisting the mechanics in finding the stock.
- Receiving stock and placing the stock in the correct location in the storeroom.
- Expediting Coach Down parts required to return vehicles to service.
- Storeroom is clean and free of litter.
- That the monthly inventory is completed.
- That appropriate purchasing guidelines are followed and invoices are processed correctly.
- That the billing is reviewed by the Fleet & Facilities Manager and submitted to the Auditors for processing.
- Ensure that all purchasing policies have been adhered too.
- Run the appropriate reports in the software system in order to evaluate inventory control procedures.
- Responsible for processing warranty claims.

Issuance of Stock and Supplies

The Parts Inventory Purchasing Specialist shall enter the stock supplied to the technician directly onto the work order. The technician shall give parts the work order number when ordering parts. If Parts Personnel are not present the technician who removes the part from the storeroom shall scan the part and enter it onto the work order. If the barcode reader is inoperative, the technician should record all issuance of stock from the storeroom on the parts sign-out sheet and record it with both the parts number, work order number and unit number. The Shop Supervisor should review all repair orders to ensure all parts used for repairs are recorded on the appropriate repair order and strive to identify trends on the usage of a given part. If a trend is identified, the Shop Supervisor should determine the reason why the usage pattern for given item has changed and communicate that to Parts personnel so inventory can be increased or decreased. If the Parts personnel determines that usage for a particular item is changing they shall communicate that with the Shop Supervisor and discuss appropriate action.

Processing Packing Slips and Invoices

All packing slips and invoices will be dated and initialed and then compared to the delivery order. The packing slip should then be compared to the original order. Any variance should be noted on the packing slip or invoice. After verifying that the order is correct the person shall circle their initials. The circled initials and will signify that the order is correct unless otherwise noted. On both the Packing slips and invoices the person receiving the stock enters stock into inventory or applies it to a work shall write stock **(STK)** for receivables going into inventory and for items going on a work order the work order number should be written on the packing slip or invoice. When entry is

completed the word stock **(STK)** or the work order number shall be circled indicating that the receivables are completely entered into the inventory or applied to a work order. Packing slips shall be stored alphabetically by vendor and once the corresponding invoice has been received, the packing slip should be attached to the invoice.

For processing the invoice into the accounting system the account number that the invoice will be paid from must be written on the invoice and the requisition number, blanket PO number or PO number shall also be indicated on the invoice. After the person enters the invoice into the AS400 accounting system they shall initial and date the invoice by the account number. Invoices shall then be sent to the auditing department for their processing. The auditing department will issue a PO which will have to be received on in order for a check to be cut and sent to the vendor.

Purchasing cards issued to staff are to be used **exclusively** unless the vendor charges a fee to process the transaction. Invoices from purchase card purchases are to be processed the same way as other invoices processed through the AS400 system.

Processing Sublets

Sublets are invoices for work performed by vendors and typically include labor and parts. When these are received they are submitted to the shop supervisor for review and approval. When the Shop Supervisor has approved the sublet it shall be initialed and dated then turned in to the parts department to be scanned and attached to the work order. The sublet invoice can then be processed in the same manner as other invoices.

Concerning most flat tire sublets they do not need to be scanned onto the work order, only if tires are purchased.

Housekeeping

For obvious safety and health reasons, the parts personnel shall keep the storeroom clean. Empty boxes and beverage containers should be removed from the shelves. Used packing material should be placed in the appropriate dumpster daily. We encourage recycling. The storeroom should be swept at least once a week.

Immediately after unpacking goods and material and placing these items in their assigned locations, the person receiving the material or goods should dispose of all packing material in either the dumpster, garbage can, or recycle bin.

Ordering Stock

The parts order recommendation should be run daily to determine needed receivables to order.

This report lists all parts, by vendor, that might need to be ordered. The report bases the need to reorder on the in-stock quantity being less than or equal to the Reorder Level set on the part. If the part is already on order or backorder in FASTER, the quantity on order and the quantity on backorder display in the report for your information. The QTY NEEDED column shows the recommended quantity of this part to order to bring the in-stock quantity up to the High Level set on the part. The report lists all stock parts in "A" status, even if no vendor is associated with the part. The information includes the date the part was last issued, the number of issues year-to-date, and an alternate part number if one is set up in FASTER.

Vendors Conduct on Premises

Vendors should schedule their stops so not to interfere with maintenance operations.

Under no circumstances shall the vendor go through inventory to determine order quantities. It is the responsibility of parts personnel to determine parts to order and quantity.

Vendors are allowed to assist in stocking large orders or when a change in vendor has resulted in a large quantity of stock to be changed out like filters.

Ordering Fuel and Other Bulk Fluids

When the level of fuel in the fuel tanks falls below an established point, the parts personnel will contact the parts department at Central Garage, which will then secure quotes or purchase on contract. This is so deliveries to both MTG and Central Garage will be coordinated as much as possible.

Concerning the bulk fluids, Parts personnel will contact vendor for delivery and coordinate that with building maintenance personnel to assist and monitor delivery.

Receiving and Handling of Chemicals/Gas

It is imperative that all drums and pails of chemicals should be handled in a prudent and safe manner. All chemicals, whether in 55 gallon drums or five gallon pail should not be accepted and/or received unless the drums are properly placarded with all Federal and State required warning labels and a Material Safety Data Sheet is on file. All questions concerning warning labels should be directed to the vendor of the product. All maintenance employees should be taught how to use the product before it is issued from the storeroom.

It is the responsibility of the employee that orders or brings a new chemical into the shop that it is accompanied by a Material Safety Data Sheet.

Receiving Stock

The primary function of the storeroom is to store goods in a safe and secure manner until they are needed. The procedures for receiving goods and material are designed to insure both the accuracy of the inventory records and that the goods are stored in a secure and safe manner.

Inspection of Material

All incoming material must be visually inspected by the person receiving the material prior to placing the material in stock. All damage or visible flaws should be reported to the shipper immediately. Parts personnel should contact the vendor and report the damages to determine how the situation will be resolved.

Location of Material

Prior to ordering new stock a location for the item should be determined in the storeroom. If an item is received and a location has not been assigned, the Maintenance Supervisor should determine the best possible location. The newly assigned location for the item should be noted in the computer.

Receiving Goods and Material

Before unloading any delivery truck, check the goods for visible damage such as a crushed or torn box. If the goods have been damaged, do not accept the shipment. After the goods have been inspected for visible damage and unloaded from the delivery truck, the shipping manifest should be signed. No shipment should be accepted freight collect without prior authorization.

The first task is to identify the box or crate in which the packing slip is located. After the packing slip is found, it should be dated immediately and compared to the Purchase Order related to the material listed on the packing slip. The quantity delivered, the date, and the packing slip number should be noted on the Purchase Order form. If any item was placed on back order, this fact should be clearly noted of the Purchase Order form. If the vendor delivered a quantity in excess of the quantity ordered, this fact should be immediately made known to the parts department who will determine if the overage will be accepted.

After the packing slip has been compared to the quantity shipped, the person receiving the shipment will note on the package or box the stock location and the MTG part number for each item. After all the boxes have been marked with the stock location, the person receiving the shipment will place the stock/material in its assigned location.

Receiving Gases

All gases such as Freon, oxygen or acetylene should be in the correct cylinders designed for the gas. Immediately after receiving the gas cylinders, the cylinders should be placed in their assigned storage location. **THERE IS NO EXCEPTION TO THIS POLICY**.

At no time should a free standing gas cylinder be left in the shop or storeroom area. Extreme care should be used in the handling of all gas cylinders. All questions about the handling of gas cylinders should be referred to the Shop Supervisor.

Storage of Flammable Liquids

All flammable liquids should be immediately placed in their assigned location after being received. All flammable liquids should be stored in either a room designed for the storage of flammable liquids or in a flammable liquids storage cabinet.

Whenever receiving a new chemical or product, the person receiving the product should check the label to determine if the item is flammable. If it is flammable, the Shop Supervisor should be advised.

Minimum and Maximum Inventory Levels

Every stock Item costing more than $5.00 or high usage level will have an accurate minimum and maximum inventory level which must reflect the actual usage of the part. The minimum inventory level for any item will reflect the largest quantity issued during the average lead-time for the item plus a minimal amount for safety which should never exceed 15 percent of the quantity used. Lead-time is the time between the date the Item is ordered and the date it is received. The maximum inventory level should be no more than a 60-day usage unless the item has an extremely long lead-time

Accident Procedures

METRO AREA TRANSIT & CITY OF FARGO
AFTER CRASH PROCEDURES

1. **Initial Report**: A crash is reported by the driver via radio or cell phone to the GTC dispatcher, Paratransit Reservationist or the driver's supervisor. The GTC dispatcher or Paratransit reservationists must complete the initial report and email it to the Transit – Accident Notification email group. The report is located at: T:/transit/dispatch/accident/GTC Dispatch Vehicle Crash Reporting Procedures.xlt

2. **Vehicle Replacement:** The Maintenance Technician talks with the Transit Supervisor on the scene to determine if a replacement bus is needed or if the bus can be driven.

3. **Post-Accident Drug and Alcohol Testing**: The Transit Supervisor determines if a post-accident drug and alcohol test is required.

4. **Documenting Damage:** When bus or Paratransit van returns to the garage, the Technician takes pictures. Information is written on a whiteboard and included in the picture:
    a. Date of incident
    b. License plate number
    c. Unit number
    d. Time pictures were taken
    e. Short description of damage
    f. Scan in the Driver Vehicle Inspection Report (DVIR)
    g. Send pictures and DVIR to the Transit Accident Notification email group.
    h. Technician is to open a work order.

5. **Unreported Damage:** If the Technician discovers "unreported damage":
    a. Pictures are to be taken per #3 above, and sent to Jordan Smith (Fleet & Facilities Manager), Lori Van Beek (Moorhead Transit Manager), Julie Bommelman (Fargo Transit Director), the driver's supervisor and Michael Wirtz (Parts Inventory Purchasing Specialist). The email subject line should include "unreported damage".
    b. If there is no official accident discovered, the paperwork does not go through Theresa Smith at Central Garage or the insurance company.
    c. If the driver is determined to have caused the damage, a vehicle crash report is to be completed and normal procedures followed.
    d. The driver's supervisor may request to see the DVR to determine cause. The DVIR should be checked to see if the damage was reported on the pre-trip or post-trip inspection.
    e. The transit facility security footage should also be reviewed to see if the damage was caused by a Technician. The Fleet & Facilities Manager will notify the Transit Director/Manager of the time the vehicle was fueled and moved into position within the garage for reviewing footage.

6. **Digital Video Recording:**
    a. If there is an incident report, rather than vehicle crash report, and injuries are probable, the DVR should be pulled.
    b. The DVR should be pulled from the bus so video footage of the crash can be saved for the insurance company. The Fleet & Facilities Manager or Transit

Director/Manager will determine and make the request to the Technicians to pull the DVR.

7. **Reporting to Insurance:**
    a. If an injury is involved, administrative staff shall contact insurance immediately.
    b. If no injury is involved, Theresa Smith from Fargo Central Garage or Ann Henne from the City of Moorhead Finance Department will notify the insurance company following their regular procedures.

8. **Documentation:** The Driver turns in the vehicle crash report (filled out correctly and completely and checked over by their supervisor) to their supervisor, who will scan in the report and send out an email to the Transit Accident Notification email group. The subject of the email shall include:
    a. Date of accident
    b. Unit number
    c. Driver name

9. **Police Report**:
    a. Initial police report (pink copy) provided to the driver or supervisor at the scene is to be scanned in and emailed to the Transit Accident Notification group.
    b. The secondary or full police report is to be requested by Theresa Smith or Ann Henne and emailed to the Fleet & Facilities Manager, Transit Director/Manager and driver's supervisor.

10. **Repair Estimates:**
    a. Fleet & Facilities Manager obtains a repair estimate and files it with the accident documentation.
    b. The repair estimate is emailed to Theresa Smith or Ann Henne, and driver's supervisor.

11. **Insurance Reporting:**
    a. Theresa Smith and Ann Henne send the repair estimate to the insurance company, depending on the cost for the repairs.
    b. If damage is under $1,000 deductible and the other driver is determined to have caused the crash, insurance will be notified and they will determine if they will subrogate the claim. A claim number should be assigned.
    c. If there is an injury involved, the accident should always be reported to insurance.
    d. The insurance adjusters send a final conclusion letter with the amount paid. The check goes to the Finance Department. Both insurance and finance need to send a copy to Fargo staff (Fleet & Facilities Manager, Theresa Smith, Transit Director, Shop Supervisor) and Moorhead's Transit Manager. This will help with closing the work order.
    e. If insurance does not subrogate the claim under $1,000, Theresa Smith or Ann Henne will need to determine if they will request payment from the other party's insurance.
    f. If there is a question of who is at fault, contact the Transit Director/Manager or Fleet & Facilities Manager for a determination. They may confer with the police department or truck regulatory to obtain more details.
    g. Theresa Smith or Ann Henne will follow the claim until settled and payment received. Payment will be made based on the repair estimate and revenue will be paid by insurance directly to the applicable City.

12. Repairing Damaged Equipment:

a. If the bus cannot be driven, the repair will be made as soon as possible.
b. If the bus can be driven, especially in winter where damage often reoccurs, the repairs will be made during low demand in the summer.
c. The decision to repair or not will be made on a case-by-case basis.

13. <u>Tracking Repairs on Work Order:</u>

a. When the repair estimate is created by Glenn's Auto Body, they will identify what bus parts are needed. The Parts Inventory Purchasing Specialist will provide the costs for those parts to be included on the estimate.
b. The Parts Inventory Purchasing Specialist will order bus parts when the Fleet & Facilities Manager notifies him that the bus repair has been scheduled.
c. The final invoice for repair will not include bus parts, as the City directly purchases these.
d. If after the repair is underway, it is determined that other parts are needed, and the final invoice is over the original estimate, the insurance company should be contacted for payment of the extra work needed.
e. The Parts Inventory Purchasing Specialist will order one parts order per estimate in order to track the repairs.
f. The final repair bill will not match the estimate for transit, because the hourly rate for labor is slightly lower than the estimate and the parts provided by the City are not included. The lower labor rate is to cover the City's wages for ordering parts, inventorying parts, delivering parts to the repair shop, etc.
g. The final letter of resolution from insurance company is to be attached to the work order.
h. Some repair work will be done in-house, such as lights and bumpers. These parts and labor should not be reflected in the final invoice.
i. A $500 threshold is determined to be the amount that the final invoice is over the repair estimate in order to contact the insurance company for an adjusted payment.

Oversight of Lessees

Overview

Both the City of Fargo and Moorhead have provided FTA funded vehicles to other agencies providing rides to special groups like senior and ADA patrons. As the direct recipient of funds we are responsible for ensuring those FTA funded vehicles are properly maintained which enable them to operate throughout their lifecycle in a safe and efficient manner.

Metro Transit Garage personnel will provide the oversight of these vehicles in these ways.

1. For busses that are one ton and above or any vehicle with ADA equipment MTG will directly perform the maintenance and repair activities. These vehicles will be entered into the fleet maintenance program and set up with PM schedules and task lists that mirror similar vehicles already entered into the fleet maintenance software. Concerning unscheduled repairs, the Metro Transit Maintenance personnel will directly perform the repair or in case it can't be performed at MTG they will coordinate getting the repair with an outside vendor. For work performed at outside vendors, MTG personnel will ensure the repair is completed and enter information into the maintenance software.

2. For vehicles less than one ton without ADA equipment MTG maintenance personnel will enter into the fleet maintenance system all repairs completed by outside vendors. The MTG maintenance supervisor will monitor and run the PM report and notify the proper personnel when scheduled maintenance is due. MTG personnel will ensure the repair is completed and enter information into the maintenance software. On a quarterly basis these vehicles will be inspected by MTG personnel to ensure compliance.

3. For vehicles fueled at a City of Fargo fueling site the meter reading will be updated daily. For vehicles not fueled at a city of Fargo fueling site, the meter reading must be provided to MTG personnel and updated on a weekly basis.

4. MTG personnel will provide cleaning services at a rate set in the written agreement with the other parties. Vehicles shall be cleaned once a week unless MTG personnel deem it not necessary.