

## **MAINTENANCE**

April 17, 2007

TO: Community Transportation Systems

FROM: NCDOT/PTD

SUBJECT: Maintenance Plan

Recipients must keep Federally-funded equipment and facilities in good operating order.

Recipients must have a written maintenance plan. The maintenance plan should identify the goals and objectives of a maintenance program, which may include vehicle life, frequency of road calls, maintenance costs compared to total operating costs, etc. The maintenance program should also establish the means by which such goals and objectives will be obtained.

At a minimum, the plan should designate the specific goals and objectives of the program for preventive maintenance inspections, servicing, washing, defect reporting, maintenance-related mechanical failures, warranty recovery, vehicle service life, and vehicle records. The program must address the particular maintenance cycles for each capital item.

Recipients must have records showing when periodic maintenance inspections have been conducted on vehicles and equipment. Include information showing that the periodic maintenance program meets at least minimum requirements of the manufacturer.

Maintenance of ADA elements may be incorporated in the regular maintenance plan or addressed separately. At a minimum, the grantee must demonstrate that such features as lifts, elevators, ramps, securement devices, signage, and communications equipment are maintained and operational. The recipient is required to develop a system of maintenance checks for lifts on non-rail vehicles to ensure proper operation. Additionally, a recipient is required to remove an accessible van with an inoperable lift from service before the next day, unless no spare vehicles are available to replace that vehicle. When a vehicle with an inoperable lift is operated, the vehicle must not be in service for more than five days.

Recipients must keep written maintenance plans and checklist systems, as well as maintenance records for accessible equipment.

Recipients are required to maintain systems for recording warranty claims and enforcement of such claims. Recipients should have written warranty recovery procedures. The warranty recovery system should include warranty records and annual summaries of warranty claims submitted.

Federally funded equipment needs to be maintained whether operated directly by a recipient or by a third-party contractor. When a recipient has contracted out a portion of its operation, a maintenance plan for Federally-funded equipment should be in existence and be treated similarly to a recipient-operated service. In those cases, the third-party contractor must have in place a system to monitor the maintenance of federally funded equipment.

## PREVENTIVE MAINTENANCE STANDARDS

All vehicles, wheelchair lifts and associated equipment, system owned or operating under contract with the system, is placed on a comprehensive preventive maintenance program for the purpose of *increasing safety and reducing operational costs*.

### **The Preventive Maintenance Plan should consist of:**

- Making preventive maintenance arrangements
- Conducting a Pre/Post-Trip Inspection course for driver
- Completing a corresponding inspection checklist
- Utilizing Asset WORKS Fleet Management Program to document, schedule and track equipment maintenance
- Maintaining maintenance record on file for each vehicle
- Completing statistical reporting
- Reporting common problems
- Utilizing manufacturers Preventive Maintenance Guidelines Manual
- Keeping all maintenance records for the life of the vehicle to include three (3) years after disposition

\*Note: The Preventive Maintenance Program has been developed for the purpose of safety, reliability and vehicle use longevity. The guidelines are not designed to interfere with or violate the Manufacturer's Warranty Maintenance Schedule.

## **MAINTENANCE RECORDS**

*Name of transit system* will retain all records pertaining to maintenance, service, warranty and other documents as required for vehicles, wheelchair lifts and associated equipment. The records will be maintained for at least the life of the vehicle which includes three (3) years after the vehicle's disposal.

### **Maintenance Records Include:**

- AssetWORKS Fleet Management Program documentation
  - Documents showing vehicle identity
  - Documents showing vehicle, wheelchair lift and associated equipment completed maintenance and inspection dates
  - Documents showing mileage
  - Documents identifying the contractor that provides non-owned vehicles
  - Documents showing maintenance contractors' names and addresses
  - Vehicle Accident Reports
  - A copy of the document notifying NCDOT of a fatal accident by the close of business or the end of the working day
  - A copy of the document notifying NCDOT within 24 hours of a fatal death that occurs within 30 days as a result of an accident
  - Documents that report to NCDOT within 48 hours all accidents/incidents
  - Documents showing completion of the driver's daily Pre/Post-Trip Inspection Checklists\*
- \* **maintain the previous (5) years** (Ref: 49 CFR 18.42)

## ANNUAL PTMS INSPECTION

Form must be completed and maintained with vehicle maintenance records.

Date: \_\_\_\_\_

Vehicle: \_\_\_\_\_

Wheelchair Lift Cycle Reading: \_\_\_\_\_

Odometer Reading: \_\_\_\_\_

Inspector: \_\_\_\_\_

### Inspection Key

For Each Item

OK =OK

"X" = Adjusted

"0"= Repairs Are Necessary

For Each "0" Give an Explanation

### Body

\_\_\_ Check windshield and other glass for cracks/damage

\_\_\_ Check wheels for cracks/damage

\_\_\_ Interior and exterior **d**ecals, signs, numbers (ex: railroad crossing, no turn on red, etc...)

\_\_\_ Body damage

\_\_\_ Destination signs for proper operation (Front, Rear, Back)

\_\_\_ General physical condition of the vehicle

\_\_\_ System name completely spelled out and condition

\_\_\_ Sign identifying the vehicle as "Available for Public Use" if required

## ONBOARD SAFETY EQUIPMENT

The following items have been placed in all vehicles:

**Seat Belts** - An adjustable driver's restraining belt that complies with FMVSS 209 (Seat Belt Assemblies) and FMVSS 210 (Seat Belt Anchorages) regulations

**Fire Extinguisher** - Include a fully-charged dry chemical or carbon dioxide fire extinguisher that has at least a 1A:BC rating and bears the Underwriter's Laboratory, Inc. label. The extinguisher should be accessible and must be securely mounted in a visible place or a clearly marked compartment.

**Red Reflector** - Vehicles should be equipped with three (3) portable red reflector warning devices in compliance with North Carolina Statutes. The triangle case must be mounted to the vehicle.

**Web Cutter** – Must be visible and easily accessible by the vehicle driver.

**Bloodborne Pathogen Kit** – Kit includes disposable gloves for your hands, disinfectant spray for decontamination of any spill, paper towels for clean up, absorbent powder for clean up, approved bags & containers for proper disposal, dust pan, brush and tongs for handling sharps items, mouth and nose mask and disinfectant towelettes for immediate hand cleaning)

**First Aid Kit** – Kit should consist of the following items:

Bandage Compress	Sting, Kill Swabs
Gauze Pads	Instant Cold Pack
Triangular Bandages	Sterile Buffered Isotonic Eyewash Kit
Gauze Bandages	Adhesive Bandages
Triple Antibiotic Ointment	Adhesive Tape
CPR Micro-shield Rescue Breather & Gloves	Disposable Gloves
Rescue Blanket	Burn Spray
Alcohol Wipes	Scissors

### Optional On-board Safety Response Equipment

- 5 Emergency Notification Cards
- 1 pry bar
- 1 flashlight and a set of extra batteries
- 1 set of jumper cables
- 1 spare tire plus appropriate jack and lug wrench
- 1 camera (with film that is replaced with new film every six months)

**Preventive  
Maintenance Plan  
(SAMPLE 1)**



## **SYSTEM NAME**

Preventive maintenance is a term used to describe the performance of regularly scheduled maintenance procedures of a vehicle to prevent the possibility of malfunctions. It is [SYSTEM NAME] policy to follow that minimum required maintenance set forth by the manufacturer standards. All preventative maintenance will be reported/completed in a timely manner.

## **MAINTENANCE**

Each [SYSTEM NAME] vehicle is assigned a number by the Coordinator of Transportation which is affixed to each vehicle in a visible location (driver side front under the headlight, on the cover for the gas tank and the back passenger side above the brake light. The phone number and facility name is put on the vehicles when purchased.

Every transit driver is responsible for ensuring that periodic maintenance is performed on the vehicle assigned to him/her at [SYSTEM NAME]. The transit driver will indicate on the Pre-Trip Inspection Form when the vehicle is within 500 miles of the next scheduled service.

All requests for service and maintenance must be given to the Coordinator. Repairs are posted on the Maintenance Repair form. A copy of the form must be taken with the vehicle to the maintenance provider and a copy of the form is filed with the coordinator and posted in the Vehicle Maintenance Log.

In the event of a mechanical failure while the vehicle is in service, the driver will call the Coordinator to report the need for service. The coordinator will contact the maintenance provider during normal business hours or the wrecker service at other times.

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**Preventative Maintenance (PM) Schedule**

POST ASSETWORKS PM CHECKLIST HERE

## DAILY INSPECTION

Pre/Post-trip inspections are crucial to the success of [SYSTEM NAME] Preventative Maintenance Program. Each driver will inspect his or her vehicle before leaving the parking area by completing the Pre-Trip Vehicle Inspection Form. The completed checklist must be submitted to the Coordinator at the end of the driver's shift so that necessary maintenance can be noted and scheduled accordingly. Drivers must sign each checklist for each vehicle used that day.

## PRE-TRIP INSPECTION

### Under the Hood

Check for problems under the hood at the beginning of your inspection before starting the engine. It is easier and safer when the engine is cool.

Check the oil, radiator and battery fluid levels. If low, make a note of it on your inspection checklist. If any fluids are below the safe level, see the coordinator for assistance.

Also, check hoses for cracks or possible leaks and belts for any visible damage. Report any wear on the checklist, as soon as it begins to show.

### Vehicle Interior

Since you will need to leave the vehicle compartment while the vehicle is running, it is a good idea to put chocks behind the wheels before starting the motor.

Begin while seated behind the steering wheel.

First, put on the parking brake.

Then, turn on the ignition.

Check the oil pressure, fuel and alternator gauges.

If the oil pressure light stays on or the gauge shows the oil pressure to be dangerously low, turn the motor off until the problem can be corrected. Alert the coordinator and document on your pre-trip inspection form.

If the alternator or generator light stays on, the battery may not be charging. To guard against the possibility of becoming stranded along the route by a dead battery, have the problem located and corrected right away.

Check the windshield wipers to make sure they are working and not worn or stripped.

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### Vehicle Exterior

Turn on all exterior lights. With the vehicle in park and the emergency brake still on, begin the exterior check from the front of the vehicle.

During the exterior inspection, be sure to note and report any evidence of fresh damage to the vehicle. Reporting such damage now may save you a lengthy and difficult explanation or report later. Space is provided for you on the Daily Vehicle Inspection Checklist to note and describe any exterior damage.

Check the headlights, signal lights, emergency flashers and clearance lights to make sure they are working. (You may need a co-worker's assistance).

Check the left front tire for any signs of road damage or under-inflation.

Check the air pressure with an air pressure gauge.

Take care to maintain your tires at the recommended pressure.

A soft tire is very susceptible to severe road damage.

An over-inflated tire causes a bumpier and less comfortable ride, especially for elderly or disabled passengers.

Check the condition of the side marker light.

Move to the back of the vehicle and inspect the rear left tire or duals for obvious damage.

Check the air pressure with an air pressure gauge.

While at the back of the vehicle, check the tail lights, the brake lights, turn signal lights, emergency flashers and any other clearance lights, reflectors or signs. (This will require assistance).

Make sure they are free of mud and dirt buildup.

Carry a rag with you to clean any dirty lights, which may be hard to see even after dark.

Check the right rear tire. If there are any other lights or outside signs for your boarding doors or lifts, make sure they are in place and clean.

Next, look under the vehicle. Make sure there are no foreign or unfamiliar objects hanging down or wedged underneath.

Also, check to see if there are any puddles or vehicle fluids under the vehicle. If the vehicle is leaking fluid, report it to your supervisor.

Move to the front of the vehicle and examine the right front tire in the same manner as the left tire and check the condition of the side marker light.

Adjust each of your mirrors so that you can see what you need to see from your normal driving position. When you are adjusting your mirrors, keep in mind what you want to be able to see within your safety zone.

Test your horn to make sure it works.

Turn the steering wheel gently to make sure it is not loose.

Push on the brake pedal. If the tension feels spongy or soft, note this on your checklist. Your brakes may need to be adjusted.

Check the blower fan to see if it works so you'll be able to use the heater, defroster or air conditioner.

Check the interior lights. If any lights are not working, note this on your checklist.

Note on your checklist anything in the interior of the vehicle that needs attention.

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## **Safety Equipment**

Check your emergency equipment to make sure it is in the right location and in working order.

Emergency equipment should include:

- A properly charged fire extinguisher
- Warning devices such as cones, triangles, flares
- A first aid kit
- Extra fuses
- A flashlight with fresh batteries
- Blood Borne Pathogens Kits

Look around the inside of your vehicle to make sure it is clean. Clear out trash, debris or loose items. Trash or debris left in the vehicle can be tossed about by careless passengers and can cause slips, falls and fires. A clean vehicle presents a professional image.

Check any special accessibility equipment if your vehicle is so equipped.

Examine tie downs for signs of damage or excessive wear. Make sure they can be properly secured to the floor.

Check all lifts and ramps by operating them through one complete cycle. Make sure they are functioning properly. (You may have to move the vehicle to ensure proper clearance while performing this part of the inspection.)

Make sure all doors and emergency exits are functional and unobstructed.

# PRE/POST-TRIP INSPECTION WORKSHEET

Date: \_\_\_\_\_

Vehicle: \_\_\_\_\_

Mileage: \_\_\_\_\_ Maintenance Due Date: \_\_\_\_\_ Wheelchair Lift Cycles: \_\_\_\_\_

## UNDERHOOD

- Oil level
- Oil added \_\_\_\_\_ quarts
- Radiator level
- Battery level
- Windshield washer fluid level
- Engine/hoses/belts

## SAFETY EQUIPMENT

- Fire extinguisher
- Web cutter
- Emergency Triangles
- First Aid Kit
- Back-up alarm
- Rear door buzzer (LTV only)
- Bloodborne Pathogen Kit

## EXTERIOR

- Tires
- Turn signals
- Headlights
- Tail/brakes lights
- Windshield wipers
- Fresh body damage
- Cleanliness
- Cycle lift

## INTERIOR

- Brakes
- Steering
- Transmission
- Mirrors
- Gauge/instruments
- Controls (equipment)
- Radio (two-way)
- Damage/cleanliness

## CAMERA EQUIPMENT

- Panic Light (Solid Green)
- Camera Lenses (No Moisture/Water and Clean)

## ACCESSIBILITY EQUIPMENT

- Fully operable wheelchair lift
- Wheelchair lift ramp
- Proper number of belts/securement devices
- Belts/securement devices in good condition

**POST-TRIP INSPECTION: PERFORMED AT THE END OF THE TRIP/DAY...** Check interior for damage, personal items and to assure vehicle is clean. Check exterior for damage which has occurred during your trip, windows and tires (flat, leak, damage). Record any problems detected while vehicle was in service. For example: fluid leaks, nose or operational issues with the engine or transmission. Also record any fluids which were added.

\*\*\*\*Immediately notify **Dispatch** of any vehicle emergency or maintenance issue.

Notes: \_\_\_\_\_

Inspector Signature: \_\_\_\_\_

Management Comments: \_\_\_\_\_

Management Signature: \_\_\_\_\_



# **Preventive Maintenance Plan**

**(SAMPLE 2: Vehicles Operated by Contractor  
or Services Outsourced)**

## PREVENTATIVE MAINTENANCE POLICY

Preventive maintenance is a term used to describe the performance of regularly scheduled maintenance procedures of [SYSTEM NAME] vehicles to prevent the possibility of malfunctions.

[NAME OF CONTRACTOR] will maintain all [SYSTEM NAME] vehicles and wheelchair lifts in the best possible operational condition. This will be accomplished by adhering to and/or exceeding the manufacturer's recommended minimum maintenance requirements.

## MAINTENANCE SCHEDULE

Each [SYSTEM NAME] vehicle is assigned a number by the Public Transportation Director, which is affixed to each vehicle in a visible location along with the phone number of the [SYSTEM NAME] office.

### **Preventative Vehicle Maintenance Schedule**

All vehicles will have a preventative maintenance service and inspection at established intervals. (See attachment 1, Vehicle Preventative Maintenance Service Schedule)

### **Wheel Chairlift Preventative Maintenance Schedule**

All wheelchair lifts will have a preventative maintenance service and inspection at established intervals. (See attachment 2, Wheelchair Lift Preventative Maintenance Service Schedule)

### **Unscheduled Vehicle Maintenance**

First Transit will ensure all maintenance is performed to meet manufacturer's specification. (See attachment 3, Vehicle/Wheelchair Lift Maintenance Request)

## DAILY INSPECTION

Pre/Post-Trip inspections are crucial to the success of the [SYSTEM NAME] Preventative Maintenance Program. Each driver will inspect his or her vehicle before leaving the [SYSTEM NAME] depot by completing the Pre-Trip Vehicle Inspection Form. The completed checklist must be submitted to the Lead Driver at the end of the driver's shift so that necessary maintenance can be noted and scheduled accordingly. At the end of each driver's assigned shift, the driver must also complete a Post-trip Inspection Sheet, found on the back of the Pre-trip Inspection Sheet. Drivers must sign each Pre-trip and Post-trip checklist for each vehicle used that day. The Lead Driver will review each Pre-trip and Post-Trip inspection sheets daily, schedule any required or necessary maintenance, and sign off on each sheet. (See attachment 4, Pre/Post-Trip Checklist)

## MANAGEMENT REVIEWS

There must be an effective mechanism to monitor and document the contractor's maintenance activities. An acceptable program would consist of periodic written reports on maintenance activities submitted by the contractor to the grantee, supplemented by periodic inspections by the grantee. The grantee must provide oversight in order to verify the contractor's compliance with FTA and NCDOT regulations and policies.