**MAINTENANCE - MAINTENANCE - MAINTENANCE - MAINTENANCE**

**MAINTENANCE PLAN**

**A Template for Transit Systems and Agencies**

**Developed by: WISCONSIN DEPARTMENT OF TRANSPORTATION (WISDOT)**

**LAST UPDATED: JANUARY 23, 2015**

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**HOW TO USE THIS TEMPLATE**

The following document is structured as a template which outlines the required elements of the Transit Agency Maintenance Plan. Transit Agencies should complete the text highlighted in yellow to personalize their own Transit Agency Maintenance Plan.

Several documents are required to be submitted as appendices to the Transit Agency Maintenance Plan. **Red bolded and underlined text** will indicate when further documentation must be attached as an appendix.

It is critical that any changes made to the Maintenance Plan be documented in the Activity Log, especially when new assets are added. Other changes might include revisions, addendums and updates to Appendix documents.

***Note: If a subrecipient contracts out for transit service and a vehicle funded with federal dollars is being leased to the contractor, the subrecipient must ensure that the service contractor meets all Maintenance Requirements. Both the subrecipient and the service contractor must hold copies of the Maintenance Plan on file.***

**Complete the text highlighted in yellow and attach the appropriate documentation requested in red bolded text to personalize the Maintenance Plan. Transit Systems and Agencies are encouraged to make any necessary revisions to this document so that it reflects maintenance activities practiced by the Transit System or Agency.**

**MAINTENANCE PLAN**

|  |  |
| --- | --- |
| **Prepared by:** | Insert Name and Affiliation |
| **Prepared for:** | Insert Subrecipient Name |
| **Service Area:** | Insert Area Served by Subrecipient |
| **Date Adopted:** | Insert Date |
| **Last Revised:** | Insert Date |

|  |
| --- |
|  |
| **Who is the main contact responsible for implementing and updating this plan?** |
| **Title:** | Click to insert text. |
| **Name:** | Click to insert text. |
| **Address:** | Click to insert text. |
| **Phone:** | Click to insert text. |
| **Email:** | Click to insert text.  |

**ACTIVITY LOG**

**Maintenance Plan**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Activity****(Review/Update/Addendum/Adoption/Distribution)** | **Concerned Person****(Signature)** | **Remarks** |
| Insert Date | Click to insert text. | Click to insert text. | Click to insert text. |
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**EXECUTIVE SUMMARY**

As a subrecipient of Federal Transit Administration (FTA) funding, **SUBRECIPIENT** must develop – and adhere to – a written maintenance plan. Maintenance plans can address vehicles, facilities (and substantial facility components), and other substantial assets and/or “other equipment”.

**SUBRECIPIENT** will submit a current and updated maintenance plan at the time of application. Once a plan has been submitted, **SUBRECIPIENT** is required to resubmit a plan only if substantial changes have been made to the plan since the previous submission (e.g. the acquisition of new assets and/or vehicle types).

By adopting this Transit Agency Maintenance Plan, **SUBRECIPIENT** agrees the following information is consistent with, and supports all required elements outlined in **Table 1.** Furthermore, **SUBRECIPIENT** agrees to thoroughly read the contents of any technical assistance resources and personalize such documentation as needed.

|  |  |
| --- | --- |
| 1. Mission Statement
 | [ ]  |
| 1. Maintenance Procedures
 | [ ]  |
| * 1. *Maintenance Oversight*
 | [ ]  |
| * 1. *Maintenance Procedures for Vehicles*
 | [ ]  |
| * 1. *Maintenance Procedures for Accessibility Equipment*
 | [ ]  |
| * 1. *System to Identify and Recode Maintenance and Repair Activities*
 | [ ]  |
| * 1. *Authorizing and Controlling Maintenance Activities and Costs*
 | [ ]  |
| * 1. *Quality Control for Assets Maintained by a Service Contractor*
 | [ ]  |
| * 1. *Warranty Recovery*
 | [ ]  |
| 1. Asset Inventory of State and/or Federally Funded Assets
 | [ ]  |
|  | [ ]  |
| 1. Maintenance Records
 | [ ]  |
| 1. Maintenance Schedules and Forms
 | [ ]  |
| **Table 1: Elements Required in the Transit Agency Maintenance Plan** |  |

|  |  |  |
| --- | --- | --- |
| Click to insert text. |  | Insert Date |
| ***Executive Director of Service Contractor (if applicable)*** |  | ***Date Signed*** |
| Click to insert text. |  | Insert Date |
| ***Executive Director of Subrecipient*** |  | ***Date Signed*** |
| Click to insert text. |  | Insert Date |
| ***State DOT Reviewer Name and Title*** |  | ***Date Signed*** |

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**Section 1: Mission Statement**

**Section 2: Maintenance Procedures**

*2(a) Maintenance Oversight*

*2(b) Maintenance Procedures for Vehicles*

*2(c) Maintenance Procedures for Accessibility Equipment*

*2(d) System to Identify and Record Maintenance and Repair Activities*

*2(e) Authorizing and Controlling Maintenance Activities and Costs*

*2(f) Quality Control for Assets Maintained by a Service Contractor*

*2(g) Warranty Recoveries*

**Section 3: Asset Inventory**

**Section 4: Maintenance Records**

**Section 6: Maintenance Schedules and Forms**

**APPENDIX A: Maintenance Staff Roster and Responsibilities**

**APPENDIX B: Asset Inventory**

**APPENDIX C: Proof of Insurance**

**APPENDIX D: Maintenance Logs and Records**

**APPENDIX E: Maintenance Schedules and Inspection Forms**

1. **MISSION STATEMENT**

The mission of the **SUBRECIPIENT / TRANSIT AGENCY** maintenance program is to ensure the cleanliness, comfort, cost-effective operation, durability, reliability, and safety of all vehicles, equipment, and facilities in our transit system. As such, **SUBRECIPIENT / TRANSIT AGENCY** is dedicated to properly maintaining our assets. Our maintenance program adheres to manufacturer minimum maintenance requirements for all such assets, and we comply with all applicable federal and state maintenance requirements.

1. **MAINTENANCE PROCEDURES**

***2(a) Maintenance Oversight***

The **SUBRECIPIENT / TRANSIT AGENCY** fleet manager has the overall responsibility for maintenance of our transit assets. The fleet manager’s specific responsibilities include:

* Managing the timely completion of all vehicle, facility, and equipment inspections and ensuring that all substantial program assets receive timely and cost effective preventative maintenance and (when necessary) repair
* Overseeing all record-keeping and warranty recovery for program assets
* Tracking regulatory and maintenance standard changes
* Analyzing fleet maintenance data to ensure that individual vehicles are performing reliably and cost-effectively
* Updating this plan as appropriate to reflect changes in **SUBRECIPIENT / TRANSIT AGENCY** asset inventory

The current fleet manager of **SUBRECIPIENT / TRANSIT AGENCY** is:

|  |  |
| --- | --- |
| Title: | Click to insert text. |
| Name: | Click to insert text. |
| Address: | Click to insert text. |
| Phone: | Click to insert text. |
| Email: | Click to insert text.  |

**ACTION REQUIRED:**

**Include a roster of all maintenance staff and their specific maintenance responsibilities as APPENDIX A.**

***2(b) Maintenance Procedures for Vehicles***

**SUBRECIPIENT / TRANSIT AGENCY** adheres to manufacturer-specified preventative maintenance (PM) schedules and procedures for all transit vehicles OR adheres to PM schedules agreed upon by SUBRECIPIENT/TRANSIT AGENCY and ADOT. PM schedules should account for local geographic and weather conditions. All agencies must include the approved maintenance schedules for all categories of vehicles in fleet and list them here.

FORD E-350

|  |  |
| --- | --- |
| Interval | Associated service |
| 3,000 | Standard vehicle inspection 1 |
|  | Engine oil and filter service |
| 6,000 | Extended vehicle inspection 2 |
| 30,000 | Transmission fluid and filter service |
| 36,000 | Fuel filter service |
| 100,000 | Tune up |
|  | Spark plug service |
|  | Cooling system service |
|  |  |

Ford Transit Connect

|  |  |
| --- | --- |
| Interval | Associated service |
| 7,500 | Standard vehicle inspection 1 |
| 10,000 | Extended vehicle inspection 2 |
|  | Engine oil and filter service  |
| 25,000 | Fuel filter service |
| 50,000 | Transaxle fluid and filter service |
| 100,000 | Tune up |
|  | Spark plug service |
| 150,000 | Cooling system service |
|  |  |

Braun Entervan

|  |  |
| --- | --- |
| Interval | Associated service |
| 5,000 | Standard vehicle inspection 1 |
| 10,000 | Extended vehicle inspection 2 |
|  | Engine oil and filter change |
|  | Fuel filter service |
| 30,000 | Transmission fluid and filter service |
| 100,000 | Cooling system service/ replace water temperature regulator |
|  | Inspect and adjust valve lash as necessary |
|  |  |

**SUBRECIPIENT / TRANSIT AGENCY** uses schedules that apply for the area in which the vehicle is being used as well as recommendations from manufacturer-specified intervals or those agreed upon by agency and ADOT. PM services are performed within 500 miles (plus or minus) and within three weeks (plus or minus) of specified intervals.

**SUBRECIPIENT / TRANSIT AGENCY** performs daily pre-trip and post-trip inspections on every transit vehicle in service. Drivers perform these inspections using vehicle-specific checklists that reflect industry best practices.

**SUBRECIPIENT / TRANSIT AGENCY** also conducts periodic engine oil analyses on each fleet vehicle. Analyses on each vehicle are scheduled based on mileage or hours of operation. The purpose of these analyses is early identification of unusual engine wear, thereby helping to prevent catastrophic engine failures. Oil analysis is conducted by:

|  |  |  |  |
| --- | --- | --- | --- |
| Name: | Click to insert text. | Phone: | Click to insert text. |
| Address: | Click to insert text. | Email: | Click to insert text.  |

Finally, in addition to standard PM, daily inspections, and periodic oil analyses, we also subject each vehicle to an annual comprehensive inspection. Inspections and routine services are recorded and kept on file for at least 3 years.

**SUBRECIPIENT / TRANSIT AGENCY** performs all scheduled vehicle maintenance and inspections at:

|  |  |
| --- | --- |
| Facility Title: | Click to insert text. |
| Owner Name: | Click to insert text. |
| Address: | Click to insert text. |
| Phone: | Click to insert text. |
| Email: | Click to insert text.  |

We normally allocate substantial mechanical repairs and engine rebuilds to:

|  |  |
| --- | --- |
| Facility Title: | Click to insert text. |
| Owner Name: | Click to insert text. |
| Address: | Click to insert text. |
| Phone: | Click to insert text. |
| Email: | Click to insert text.  |

***2(c) Maintenance Procedures for Accessibility Equipment***

**SUBRECIPIENT / TRANSIT AGENCY** adheres to manufacturer-specified preventative maintenance (PM) schedules and procedures for all wheelchair lifts and other accessibility equipment installed on transit vehicles.

Wheelchair lift schedules are based on operation cycles and time intervals. We perform PM services within the following allowances:

|  |  |
| --- | --- |
| **Specified Maintenance Interval** | **Allowances** |
| Two weeks/160 cycles | +/- 2 days/20 cycles |
| Three months/950 cycles | +/- 10 days/50 cycles |
| Annual/3800 cycles | +/- 21 days/200 cycles |

Additionally, we perform daily lift inspections regardless of the number of cycles from the prior day of operation.

In order to comply with requirements under the ADA, we take the following actions once a vehicle lift becomes inoperable:

1. We remove the vehicle from service before the start of our next service day
2. We do not resume using the vehicle until the lift is fully repaired
3. Unless we have an ADA-compliant replacement vehicle available, we resume using the vehicle – with a repaired or replaced lift – within three service days
4. If the lift becomes inoperable on a fixed route, we promptly provide alternative transportation to individuals with disabilities who are unable to use the vehicle because its lift does not work

**SUBRECIPIENT / TRANSIT AGENCY** subjects wheelchair tie-downs and occupant restraints to daily pre-trip inspections. We take care to keep all components clean, and to prevent contamination of belt webbing from oil, gases, polishes, and chemicals. Additionally, we replace these components whenever they show any signs of excessive wear or damage, or have been in use during a vehicle impact.

***2(d) System to Identify and Record Maintenance and Repair Activities***

We track maintenance and repair activities for each vehicle in our fleet using **INSERT MANAGEMENT SYSTEM**.

**SUBRECIPIENT / TRANSIT AGENCY** fleet manager uses this management system to establish a PM schedule, review open and closed work orders, and monitor fleet expenses and vehicle performance (by tracking individual vehicle expenses, road call rates, etc.) Maintenance staff use the management system to document performed maintenance, and to generate work orders for unscheduled and/or outside maintenance or repair.

Each work order identifies all specific maintenance and/or repair activities performed on the date(s) identified. It also indicates the equipment’s mileage, service time, and/or cycles as appropriate.

***2(e) Authorizing and Controlling Maintenance Activities and Costs***

The **SUBRECIPIENT / TRANSIT AGENCY** fleet manager is responsible for establishing the PM schedule for each type of vehicle we operate, and for ensuring that all PM activities are completed timely and consistent with manufacturers’ recommendations. Both the manager and maintenance staff are responsible for reviewing PM and repair activities regularly, to ensure that review and decisions are made at a proper level of responsibility.

Each day the manager reviews our PM tracking report to identify which vehicles are due for preventative maintenance. The identified vehicles are removed from service and scheduled for work.

The manager then assigns the work to a maintenance technician who completes the appropriate PM inspection form and performs the required PM. The technician reviews the appropriate standard maintenance instructions as necessary, and is required to follow those instructions through completion. The technician may perform very minor repairs (i.e. light bulb replacements, securing of fasteners, etc.) during the PM services as well.

Technicians may identify other needed repairs, known as “write-ups,” during the PM inspection. In addition, drivers may report vehicle problems that require repair. The manager and/or the lead technician will review the write-up and driver report. Subject to their approval, repairs are then scheduled into one of our service bays, assigned to a mechanic, and completed before the bus returns to service. We issue separate work orders for this type of repair.

Specialized vehicle components such as wheelchair lifts and fare collection systems are subject to separate inspection forms and maintenance schedules. However, maintenance and repair work on these components is still subject to fleet manager oversight. The manager or the lead technician is charged with scheduling the subject vehicle into one of our service bays and assigning the work to a mechanic.

In addition to overseeing maintenance activities, the **SUBRECIPIENT / TRANSIT AGENCY** fleet manager tracks maintenance repair costs, on both individual vehicles and the entire fleet. These costs are tracked against our annual maintenance budget, equipment replacement costs, and remaining equipment life. This approach improves productivity, reduces costs and optimizes resource allocations.

***2(f) Quality Control for Assets Maintained by a Service Contractor***

Choose one of the scenarios identified below:

1. **SUBRECIPIENT** does not contract out routine vehicle maintenance to a service contractor at this time. If and when we elect to do so, we will require the contractor to maintain the vehicles in accordance with this plan. To ensure compliance, we will approve all contractor forms, require the contractor to submit all work orders for preventative maintenance and repairs to our fleet manager, and conduct annual physical inspections of all vehicles maintained by the contractor.
2. **SUBRECIPIENT** vehicles are maintained by a service contractor and thus **SUBRECIPIENT** provides the appropriate oversight of the contractor to ensure preventative maintenance and repairs are completed. Appropriate oversight of the contractor includes:
* Quarterly review of the work performed by the contractor(s). This is done by reviewing maintenance logs and records. These documents should be kept on file for at least 3 years.
* A periodic physical inspection of the vehicles maintained by the contractor(s). A best practice is for the physical inspection to be completed on at least annually. Documentation of the review and checklists used for inspection should be kept on file for at least 3 years.
* Semi-annual meetings between **SUBRECIPIENT** and the contractor to discuss maintenance related issues, topics, and concerns. Documentation, including the date, location and attendees of the meeting should be recorded and kept on file. Minutes of the meeting should also be recorded and distributed to all attendees.

***2(g) Warranty Recoveries***

The fleet manager aggressively pursues warranty recovery when appropriate to ensure that equipment manufacturers bear the costs to repair defects and premature component failures, not **SUBRECIPIENT / TRANSIT AGENCY** or the FTA.

While vehicles remain under warranty, the fleet manager of **SUBRECIPIENT / TRANSIT AGENCY** reviews the warranty terms before authorizing any substantial repairs or parts replacements. Additionally, the fleet manager periodically consults the following online sources to assess whether any fleet vehicles or vehicle components are subject to recalls:

* [www.epa.gov/otaq/recall.htm](http://www.epa.gov/otaq/recall.htm) (light-duty emission-related recalls)
* [www.recalls.gov/nhtsa.html](http://www.recalls.gov/nhtsa.html) (all other vehicle-related recalls)

Upon determining that a vehicle requires repairs while still under warranty, the fleet manager:

1. Initiates a warranty claim in writing with a local dealership or the manufacturer as appropriate
2. Adds a copy of the claim to the vehicle’s maintenance record
3. Authorizes performance of the warranted work in-house, or delivery of the vehicle to an authorized repair business, whichever the manufacturer specifies
4. Adds warranty repairs to the vehicle’s maintenance record; and
5. Ensures that repair records and failed parts for in-house warranty work are retained as required to ensure manufacturer reimbursement.
6. **ASSET INVENTORY**

The asset inventory process is the approach **SUBRECIPIENT / TRANSIT AGENCY** takes in maintaining a register of the assets it owns or is responsible for maintaining. An asset inventory is the first step in organizing and managing asset information. **The asset inventory should be updated whenever a new grant application is submitted to State DOT.**

**ACTION REQUIRED:**

**Transit agencies should attach an asset inventory as APPENDIX B. An asset inventory might include:**

* **Year/Make/Model**
* **Vehicle Identification Number or Equipment Description**
* **Condition of Vehicle or Equipment**
* **Remaining Useful Life**
* **Location**
* **Vested Title if the Asset is a Vehicle**
* **Acquistion Date**
* **Disposition Action**
* **Replacement Cost of Asset**
1. **Maintenance Records**

**SUBRECIPIENT / TRANSIT AGENCY** is committed to record keeping as both an important part of maintenance compliance and an essential tool for ensuring that service schedules have been implemented. It helps to identify early warning signs of impending problems in equipment, and provides back-up information for warranty claims. Maintenance records include all completed work order forms, service receipts, inspection forms, warranty recovery requests, etc.

**SUBRECIPIENT / TRANSIT AGENCY** holds its maintenance records on file at **INSERT LOCATION** and uses **INSERT RECORD KEEPING SYSTEM** to organize maintenance records.

**ACTION REQUIRED:**

**Transit agencies should attach sample maintenance logs/records as APPENDIX D. Please note, agencies will be required to produce maintenance logs/records from the previous 3 years during on-site compliance reviews.**

1. **Maintenance Schedules and Forms**

**SUBRECIPIENT / TRANSIT AGENCY** utilizes maintenance schedules to identify all specific preventative maintenance actions – and intervals between these actions – for an asset or group of assets.

Maintenance schedules for vehicles normally are established by the manufacturer and provided in the owner’s manual. However when a manufacturer’s maintenance requirements are not kept on file, **SUBRECIPIENT / TRANSIT AGENCY** will contact a local dealership or the original vendor to obtain this information.

**ACTION REQUIRED:**

**Transit agencies should attach samples of the following documents as APPENDIX E:**

* **Appendix E.1 - Preventative maintenance schedules and forms**
* **Appendix E.2 - Pre-trip/ Post-trip Inspection Forms and Damage Chart**
* **Appendix E.3 - Annual inspection forms**
* **Appendix E.4 - Invoices/Receipts Documenting Preventative Maintenance Expenses (Purchase Orders, Parts Orders, Service Requests)**