

HOW TO IMPLEMENT A **Fleet Preventive Maintenance Program**



Incorporating a regular PM program is essential for today's fleet managers. Be proactive in scheduling vehicle service before a breakdown occurs and keep good records to avoid negligent entrustment issues.

New Jersey City University's fleet of vans are serviced regularly to avoid often-costly reactive maintenance.

AT A GLANCE

An effective PM program should consist of the following:

- Checklist of PM service tasks performed.
- PM service interval or frequency to perform tasks.
- Driver written-up inspections and/or complaints.
- An automotive facility with trained professional automotive technicians — either in-house or outsourced.
- Scheduling and recordkeeping, either manual or electronic.

By Patrick Bartole, CAFM

Preventive maintenance (PM) consists of scheduled servicing, inspections, and vehicle repairs to prevent potential problems and maximize vehicle availability. Preventive maintenance is used to proactively avoid or reduce vehicle breakdowns and is based on time, mileage, engine hours, or gallons of fuel used. Preventive maintenance actions include vehicle inspection, lubrication, adjustment, cleaning, testing, repair, and/or worn parts replacement.

Why be Concerned with Preventive Maintenance?

To maximize the availability of vehicles, PM services must be performed on a scheduled basis. If preventive maintenance is not performed regularly, vehicle life span will be greatly reduced.

Some vehicles may be prone to excessive breakdowns requiring expensive repairs, causing a vehicle to be out of service when least expected and possibly when needed most. Vehicles may become unsafe due to lack of PM. Proper maintenance will also help prevent litigation from negligence.

Preventive maintenance is as important as driver safety programs. If a vehicle becomes unsafe due to lack of maintenance or repair, the fleet manager can be held liable for negligent entrustment. As defined, liability is premised upon providing an employee with a dangerous tool or instrument, such as a vehicle, while knowing, or having reason to know, that use of the vehicle creates unreasonable risk or harm to others. Simply stated, the vehicle must be safe to operate. Should the brakes fail causing a serious crash or

fatality, the vehicle is impounded by authorities for investigation.

Should the investigation determine that bad brakes or other vehicle malfunctions contributed to the accident, the authorities can seek a court order to obtain vehicle maintenance records. If your operation fails to practice preventive maintenance under these circumstances, you could be prosecuted for a negligent act, which you failed to prevent.

Preventive Maintenance Methods

Vehicle maintenance and repairs can be performed in one of two methods:

- **Proactive:** scheduled preventive maintenance.
- **Reactive:** unscheduled breakdown maintenance.

A scheduled vehicle service consists of preventive maintenance, scheduled component repairs, and driver inspection. Unscheduled breakdown maintenance is most often due to lack of preventive maintenance. Reactive maintenance can be costly and should be minimized by a proactive preventive maintenance program. The object is to have the majority of vehicle maintenance and repairs scheduled rather than unscheduled.

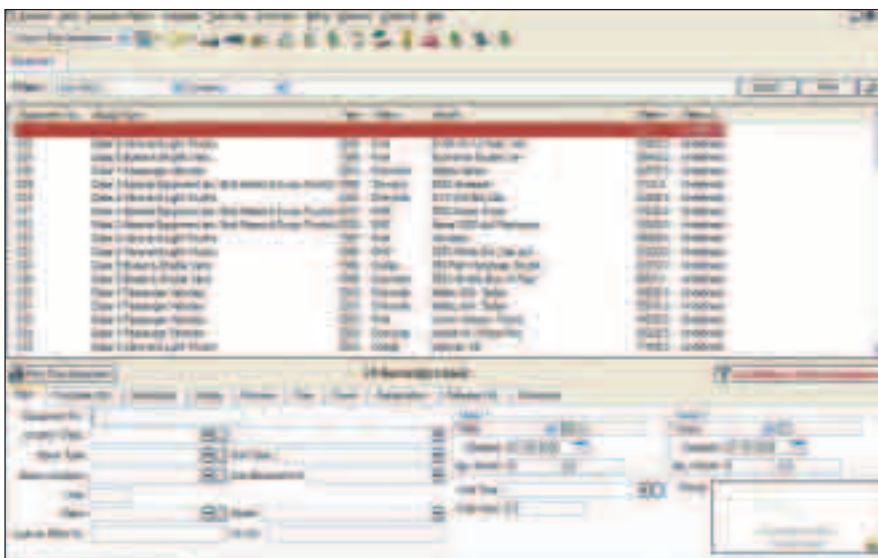
Developing an Effective PM Program

An effective PM program should consist of the following:

- Checklist of PM service tasks performed.
- PM service interval or frequency to perform tasks.
- Driver written-up inspections and/or complaints.
- An automotive facility with trained professional automotive technicians — either in-house or outsourced.
- Scheduling and recordkeeping, either manual or electronic.

Developing a PM Service Checklist

An effective PM program should include a task list of both preventive maintenance and safety items.



New Jersey City University's fleet uses an online fleet management software tool to track vehicle maintenance records.

The following should be addressed during a routine preventive maintenance service: engine oil and filter changes; transmission fluid; fuel system; cooling system; engine and transmission mounts; drive shafts or CV joints; belts and hoses; tune-ups; electrical system components; braking system; steering and suspension system; tires, wheels, and rims; exhaust system; undercarriage and frame; exterior and interior lights; body, glass, and mirrors; windshield wiper system; horn; seatbelts and seat structures; fluid leaks; and auxiliary systems.

Driver is First Line of Defense

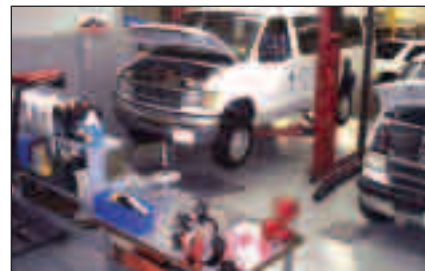
The vehicle operator is the first line of defense against unexpected breakdowns and repairs. It is important that the driver communicate vehicle problems immediately to fleet management. This allows the vehicle operator to participate in the PM program, proactively reducing breakdowns. The following vehicle systems should be monitored by the driver:

- Vehicle safety items (e.g., tires, wipers, horn, brakes, steering, etc.).
- Vehicle drivability items (e.g., misfire, rough idle, etc.).

- Vehicle body (e.g., glass, body damage, cleanliness, etc.).
- Vehicle miscellaneous repair items (heater, radio, etc.).

The vehicle operator must be held accountable for inspecting these items. The PM program depends on the driver for continued success. Should the vehicle operator fail to inspect the vehicle prior to, during, and after a trip, a potential problem may go unnoticed causing a breakdown or unsafe condition.

Training and accountability are important. The vehicle operator must be trained on proper inspection procedures and be held responsible for failure to inspect and report vehicle problems. This requires the support of each department and senior management. As a team effort, the PM program can be a great success.



To avoid unexpected breakdowns and downtime, implement a regular preventive maintenance fleet program.

Effective PM programs include task lists of both safety items and preventive maintenance.

Vehicle PM Checklist (6 Months/3,000 Miles)

- Change engine oil and filter.
- Grease front end and check for wear.
- Grease and lube door, hood, and trunk hinges.
- Check under vehicle for fluid leaks.
- Check undercarriage and suspension for wear.
- Check engine and transmission mounts.
- Check drive shafts, u-joints, and/or CV joints for wear.
- Check exhaust system for wear.
- Check tires for wear, rotate and set tire pressure to specs.
- Check front brake pads, brake rotors, and brake hoses for wear.
- Check/service battery and cables.
- Check all drive belts and replace if worn.
- Check radiator, thermostat, and all hoses.
- Replace air filter element.
- Add fuel system treatment to fuel tank.
- Check heating and air conditioning system operation.
- Check all vehicle fluid levels.
- Check all seatbelts for proper operation.
- Check all vehicle accessories for proper operation.
- Check all vehicle lights and replace worn bulbs.
- Check body, glass, and mirrors.
- Replace wiper blades and check for proper operation.
- Clean and degrease engine.
- Road test vehicle for proper operation.

The PM service is only as good as the person performing it; shortcuts must never be taken. The technician must proactively service each vehicle to reduce breakdowns and repairs.

Determine PM Intervals

Check the vehicle owner's manual for the manufacturer's recommended PM intervals. However, note that PM service intervals depend upon vehicle operating conditions during either "normal" or "severe" duty. Most fleets operate under what is considered severe duty, including:

- Towing a trailer or using a camper or car-top carrier.
- Extensive idling and/or low-speed driving (such as inner-city driving or stop-and-go traffic).
- Vehicles used for commercial applications such as deliveries, taxi, livery, or patrol car.
- Vehicles used by multiple drivers such as fleet or motor pool operations.
- Vehicles operated in off-road or dusty conditions.

Technology Eases Scheduling

Preventive maintenance can be scheduled manually or by using a fleet management software (automated computer system).

Manual systems can be tedious and time-consuming to manage, especially for larger fleets. These days, technology is affordable even for the smallest fleet. Computerized systems are a more efficient method for gathering timely reports on all aspects of fleet management. Reports can be generated faster and more accurately, allowing the fleet manager to make timely proactive decisions.

Affordable software systems can be purchased from reputable companies specializing in fleet management software. When it comes to hardware, most companies have an information technology department that can supply fleet management with the appropriate computers or an IT expert can be hired.

Regardless of which scheduling method chosen, it is important to purchase a system that can be customized to your specific application requirements. Depending on those fleet operating requirements, the system should enable you to create customized preventive maintenance schedules, create and track work orders, track fuel usage, record detailed maintenance histories and tire logs, track accident and claims, manage inventory, and monitor labor, invoicing, and stock reports.

Who Performs PM Service?

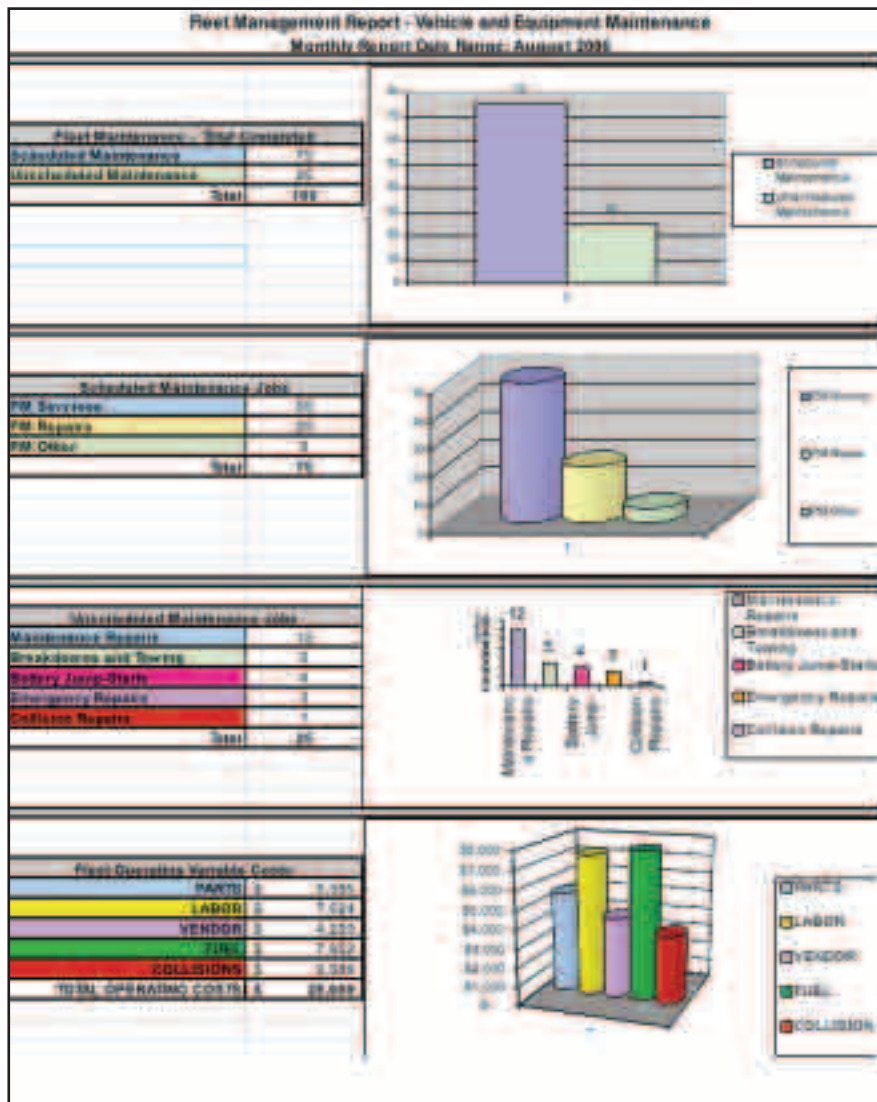
Preventive maintenance can be performed by either an in-house certified automotive technician or outsourced to a local automotive service center specializing in fleet preventive maintenance with certified technicians using state-of-the-art equipment.

Teach in-house technicians the importance of performing thorough preventive maintenance service. The PM service is only as good as the person performing it; shortcuts must never be taken. The technician must proactively service each vehicle to reduce breakdowns and repairs.

If your fleet operation outsources preventive maintenance, use a local vendor specializing in maintaining fleet vehicles. It is a good idea to meet with the service manager to discuss the following PM service issues:

- Expectations.
- Requirements.
- Scheduled intervals.

Supply the vendor with your PM checklist. Most shops focus on breakdown maintenance, not preventive maintenance. Communicate your exact expectations to the maintenance facility using your own PM program. Request the fleet discount on both parts and



A monthly Microsoft Excel report tracks PM activity and cost, including job totals, both scheduled and unscheduled, work performed, and variable operating costs.

labor. In addition, make sure whoever services your vehicles uses the factory-recommended fluids and lubricants detailed in the vehicle owner's manual.

Maintain Vehicle Service Records

Maintaining vehicle service records is an important part of any fleet operation. A hard copy file of each individual fleet vehicle owned must be kept even if the information is stored electronically. The file consists of detailed vehicle data and a listing of all service work performed, including:

- Date of PM service or repair.
- Description of work performed.
- Vehicle odometer reading.
- Work order number and/or invoice number.

- Service center (if outsourced).
- Name of automotive technician.
- Parts and labor costs.

In addition, recordkeeping is proof that maintenance and repairs were performed. This is extremely important should a problem arise, such as a collision. Drivers are quick to blame a collision on vehicle safety. To avoid negligence, operating a safe fleet requires preventive maintenance and recordkeeping.

Track Preventive Maintenance

It is important to track maintenance activity, "scheduled versus unscheduled." For scheduled maintenance, track the number of PM services and repairs including driver write-ups and other proactively scheduled non-PM work.

For unscheduled maintenance, track the number of repairs, breakdowns, jumpstarts, tows, emergency repairs, and collision repairs.

The majority of maintenance jobs should be scheduled PM. Tracking and comparing scheduled and unscheduled maintenance provides a detailed report on the success of a preventive maintenance program.

Not all unscheduled maintenance can be avoided; for example, drivers may accidentally leave on the interior lights, causing a dead battery. Nevertheless, by analyzing breakdown maintenance, PM frequency can be adjusted and the PM task list can be modified to best suit a fleet's requirements.

Monitor the Cost of PM

Since maintenance and repair cost are considered a variable operating expense, fleet managers should track parts, labor, vendor, fuel, and collisions. These costs should be monitored and analyzed routinely to determine which vehicles cost the most. This enables proactive decisions regarding vehicle efficiency and replacement. A properly maintained vehicle provides the lowest operating cost. If the vehicle is running poorly, it is prone to costly breakdowns, higher fuel cost, and driver write-ups.

Assemble Detailed Report

Using data collected from tracking preventive maintenance activity and cost, assemble a detailed report using an Excel spreadsheet. The report should be generated on a monthly basis and submitted to senior management for review. Outline the total number of completed vehicle jobs, both scheduled and unscheduled. Provide detailed information on the type of scheduled and unscheduled work performed. Also include fleet variable operating cost items. ⁶²



ABOUT THE AUTHOR: Patrick Bartole, CAFM, is fleet management supervisor at the Department of Facilities and Construction Management for New Jersey City University. He can be reached at pbartole@njcu.edu.