

Transportation Coordination Toolkit

November 2005

Coordinated Maintenance Programs

Topic: Coordinated Maintenance Programs

Target Audience: State Agencies, Human Service Agency Transportation Providers, Section 5310 Agencies, Section 5307 and 5311 Public Transit Systems

Goal: To present the benefits of a coordinated maintenance program.

Issue: Why Coordinate?

- Coordination does not have to be limited to vehicle and trip sharing. Maintenance costs, for example, can be reduced or contained through coordination. Just as important, the quality of the service can be increased when conducted cooperatively with an established maintenance program. A good maintenance program can greatly improve system safety and reliability through regular and standardized maintenance practices. Vehicle downtime can be minimized. Coordination can solve the problem of local vendors not interested in warranty work as well as those not experienced with public transit vehicles. It can also offer “loaner vehicles” that are appropriate to public transit agencies. And finally, a coordinated maintenance program can help ensure that State and Federal guidelines are met.

How you go about establishing this program, however, is your choice. A coordinated maintenance program can provide,

- Standardized procedures and practices,
- Compliance with all applicable regulatory requirements, and
- An effective maintenance and quality assurance program.

This last point is particularly important as it can be a critical factor in your Risk Management Plan (see the brief on Insurance).

Issue: Who Can Coordinate?

There is no size requirement for a system that wants to coordinate maintenance services. If you are a large system with a sound, quality maintenance program, offering your services to smaller systems can be a “win-win”, generating revenue for your system and offering cost savings to the other. Smaller systems also benefit from not having to shop around for maintenance services or developing lengthy proposals.

There is also no requirement that ***all*** maintenance services must be coordinated. Systems or agencies may wish to coordinate only vehicle inspections or heavy vehicle repairs or body work, etc. The amount and type of work which is coordinated will depend

upon the existing maintenance resources and staffing of the system or agency.

An example of a system which offers its maintenance services to other coordination partners is Dakota Area Resources and Transportation for Seniors (DARTS). DARTS offers their Vehicle Maintenance System (VMS) to other non-profit transportation systems to “decrease vehicle operating costs, reduce vehicle downtime, and improve vehicle safety for riders whether they be young or old, healthy or frail, mobile or wheelchair dependent. DARTS VMS will allow nonprofits to expand the reach of public dollars and better serve their clients -- a true social return to the community that furthers the mission of DARTS.”

Issue: Reducing or Containing Costs

Regardless of the size of a transportation agency, reducing and/or containing costs is especially important in this day of dwindling resources. Every one wants to get more for less. Coordination of maintenance services can help achieve that, providing better service for the same or lower cost.

Issue: Service Quality and System Safety and Reliability

Reliable, safe, and well-maintained vehicles and equipment can be the hallmark of a transportation system and speak volumes about the service that is provided. Organizations often include program goals such as safe, efficient, and reliable service as part of their mission statement or goals and objectives. The organization’s maintenance program is one tool used to meet these goals.

The technology used for record keeping is also changing. Maintenance managers are required to keep much more detailed records. Taking advantage of an established, well-organized maintenance program can help you solve these problems and save money.

Issue: Elements of a Preventative Maintenance Plan and Program

Whether your agency/organization performs its own maintenance or whether it contracts maintenance work to a coordination partner or private vendor, it should have a preventative maintenance plan or ensure that its provider has an adequate one.

Preventative maintenance (PM) is an essential element of every effective maintenance program, as it helps to ensure maximum vehicle reliability, safety and longevity. It entails performing regularly scheduled maintenance procedures in order to minimize malfunctions, rather than simply making repairs when something goes wrong. It also involves performing necessary repairs promptly to prevent further damage and maintain vehicle safety. While PM may be more expensive in the short-run, it will likely result in the lowest overall life-cycle costs when all vehicle-related expenses are considered.

Replacement Versus Repair

“If it ain’t broke, don’t fix it!” is a time-honored cliché and if we could always predict the exact point of any component failure, it would be a reasonable way to operate. However, without such predictability, it makes sense to replace or rebuild certain components prior to

failure (whenever there is the data or experience to justify doing so without incurring extraordinary costs).

While this routine replacement concept can be applied to a wide variety of components, it does require that you gain experience with your particular vehicles in your unique environment.

Routine replacement is typically applied to those components where little if any diagnostic aid is available, other than visual inspection. These include items such as:

- fluids (except windshield washer and coolant)
- hoses
- belts
- wiper blades

Monitor Suppliers

Tracking your suppliers' performance (price, quality and reliability) is another essential element of a successful preventative maintenance program. For instance, the quality of your fuel can have a significant impact on the service and repair level required for various parts of your engine, including the electronic controls, fuel injection and catalytic converter.

One area that requires close monitoring is the performance of rebuilt and after-market parts. Rebuilt parts, such as alternators and pumps, may offer up-front cost savings. However, such parts may have a shorter operational life than new parts. By monitoring the life of rebuilt parts, you can determine whether true savings are realized, or whether total cost is actually greater, once you factor in the cost of another rebuilt unit and the labor associated with multiple replacements.

You should also be aware that in many cases involving heavy-duty items, such as starters and compressors, a trade-in (core) unit is required. This "core" generally is not used in your rebuilt unit; instead, it goes on to become the rebuilt product for another operation.

Like rebuilt parts, after-market parts (i.e. parts built by a company other than the original equipment manufacturer - (OEM)) may offer an up-front cost savings. They may claim to be built to the same or superior specifications as the OEM part, but only through monitoring can you determine whether the part's life is truly comparable.

Through experience you will gain the background necessary to make informed decisions in the future. Good maintenance records and purchasing documentation are essential and must be addressed when you first begin operation, or introduce a new type of vehicle into service.

Documentation

Another key to any successful maintenance program is up-to-date, accurate record keeping. While documentation is necessary for purposes of budget and control, good records will also enable you to optimize your PM program by providing:

- the database to enable you to establish proper intervals for routine maintenance and servicing;
- information on repetitive failures to establish repair or replacement intervals, and on the performance of

rebuilt/after-market parts and consumables suppliers;

- early warning of impending problems through tell-tale signs, such as increased oil consumption;
- back-up information for warranty claims (particularly marginal claims near the end of the warranty period where supporting documentation can often be the “clincher” in claim payment);
- information that can later be used in the selection and procurement of new vehicles. Does a particular type of vehicle require more frequent repairs or have recurring repairs on the transmission, engine or body? Does a certain brand of vehicle or component type require more frequent repairs? When compiling this information, your agency should involve your mechanics in vehicle specifications and selection.
- backup information for any litigation or lawsuits that might result from an accident in which your agency’s vehicle or driver was involved in; and
- documentation of any personnel related patterns (e.g. more frequent tire or brake replacement on one driver’s vehicle versus fleet average).

In situations where maintenance is contracted to a third party or coordination partner, good documentation is key to minimizing disputes. Under this scenario, management should make the extra effort to review repair bills and develop/maintain the database required for adjustments to the preventative maintenance program. Maintenance is never “out of sight, out of mind” to the smart operator.

Maintenance Program Monitoring

Once your maintenance program is in place or you have contracted maintenance work to a coordination partner agency or transit system, you will want to monitor vehicle performance and maintenance cost information to ensure that your or your partner agency/system’s program is working. Performance measures which are commonly used to monitor maintenance programs are listed below:

- ❑ Maintenance cost per vehicle mile;
- ❑ Maintenance labor cost per vehicle mile;
- ❑ Maintenance cost per vehicle; and
- ❑ Number of roadcalls per 100,000 miles.

Monthly “vehicle availability reports” may also be prepared to monitor maintenance programs. A vehicle availability report shows the percent of the vehicle fleet that was available and ready for service during the month. In other words, it is measuring how much “down time” there was for the fleet. This information provides a transportation coordinator or director

with a summary from which he or she can quickly determine whether or not a problem in fleet availability exists or is developing.

Issue: State and Federal Regulation Compliance

Federal and State guidelines (e.g., 49 CFR Part 18, “The Common Rule”; Section 5310; Section 5311; Section 5307; Federal Motor Carrier Safety Administration; Minnesota Office of Freight and Commercial Vehicle Operations) require that vehicles be operated in a safe and sound manner and typically require a structured maintenance program. Taking advantage of a program that already meets these requirements is not only smart, but saves you time and money and can provide you with standardized forms and reports to aid you in your recordkeeping.

Issue: Next Steps

If your system has maintenance services that can be of benefit to other systems,

1. Develop a description of the services you can offer and add this information to your brochure and website.
2. Include any information such as awards, citations from Motor Carrier or FTA audits, etc.
3. Develop a rate structure based on your fully allocated maintenance costs (other FTA systems will need this information). These costs will include, at a minimum, parts, labor, and overhead. To ensure you are capturing all of your maintenance costs, use the MnDOT Section 5311 budget spreadsheet or one of

the spreadsheets referenced in the Toolkit brief on Fully Allocated Costs and provided as part of the Toolkit Resources.

4. With your legal advisor, develop a contract or agreement outlining the your agency’s requirements, any stipulations to the service, etc., such as labor and parts costs, downtime, insurance, liability, etc.
5. Network with other systems to determine your opportunities and their needs.

If your system is looking for maintenance services,

1. Pull together all of your maintenance information, including forms, samples of records, lists of State and Federal requirements, past maintenance agreements or RFPs, etc.
2. Network with other systems to determine what services they offer that can meet your needs.
3. Interview all prospective systems to determine which program best meets your needs.
4. Have your legal advisor review any agreements or contracts you enter into prior to contract execution.

Best Practices

St. Cloud Metropolitan Transit Commission

The St. Cloud Metropolitan Transit Commission provides vehicle maintenance and storage facilities to the Tri-CAP Connection for its Section 5311 fleet. The agreement stipulates the number and size of vehicles to be housed and the fee per month per vehicle as well as when the fee is to be paid. The rental fee includes all utilities and public

liability and property damage insurance covering the leased premises, the building, and other improvements. St. Cloud also provides routine and occasional major vehicle maintenance services for Tri-CAP at an hourly rate. Tri-CAP communicates directly to the St. Cloud's Maintenance Manager regarding vehicle maintenance needs. The Maintenance Manager also serves as maintenance "consultant" in instances where outside, subcontract specialty (e.g. major engine, transmission, body, etc.) work is required. St. Cloud provides monthly, unless requested more often by Tri-CAP, printed invoice work orders, maintenance history, and any other vehicle maintenance information generated by St. Cloud's computerized maintenance record keeping program. In addition to the vehicle maintenance service per hour rate, there is a vehicle parts inventory mark-up rate for parts purchased with St. Cloud's funds and stored in its premises, a shop supplies/materials per hour fee for full Preventative Maintenance (PM) activities (not applicable to non PM, repair activities and mini PM [oil change] activities), and an exterior bus washing charge of per automatic bus washer or hand pressure washer activity.

There is nothing within this agreement preventing Tri-CAP from procuring vehicle maintenance services from an outside maintenance vendor. In the event outside maintenance services are obtained, complete vehicle repair invoices from outside vendors shall be copied and provided to St. Cloud's Maintenance Manager.

This coordinated arrangement has been in place since 1997. Tri-CAP estimates that it pays about 60% of what it would pay for maintenance on the market. and

about a third of storage fee costs.

For further information, contact Tony Kellen, Director of Operations, St Cloud MTC, 665 Franklin Ave NE, St Cloud MN 56304, or Office 320-251-1499 Ext 103, or via e-mail tkellen@stcloudmtc.com, or Linda Elfstrand, Director, Tri-CAP Connection at (320) 202-7824, x217, or Linda.elfstrand@tricap.org.

Dakota Area Resources and Transportation for Seniors (DARTS)

DARTS, the Section 5311 operator for Dakota County, Minnesota, offers a variety of services to other nonprofit organizations, including DARTS' many innovations in transportation services such as planning and operations consulting, driver training, vehicle maintenance, and support services. See DARTS current [brochure](#) detailing DARTS' ride service and specialized transit solutions.

DARTS VMS program provides a state-of-art garage ready to serve your organization's vehicle needs, offering service for vehicle engines, wheelchair lift repair, brake and tire replacement, and much more.

DARTS received top honors at the [Yale National Business Plan Competition for Nonprofits](#). Out of 20 finalists, the DARTS business plan for DARTS VMS (Vehicle Maintenance Services) was one of four grand-prize winners.

For more information about DARTS programs, see their website at <http://www.darts1.org>.

Illinois Department of Transportation (IDOT) - REGIONAL MAINTENANCE

CENTER PROGRAM

IDOT created the Regional Maintenance Center Program in response to obstacles transit agencies were experiencing, such as

- *Small agencies being unfairly taken advantage of by local repair centers,*
- *Repairs not getting properly diagnosed and fixed correctly the first or second or third time,*
- *Local vendors not interested in warranty work,*
- *Vendors with no in-depth knowledge of paratransit vehicles.*

The goals of the program were to have

- *The state's paratransit fleet operate under the highest possible safety and maintenance standards, and*
- *Every part of the state within 60 miles of a RMC.*

Two Centers were established initially; a third center has been added. Non-routine maintenance is provided to agencies within a 60 mile radius of the center. Other assistance provided includes:

- *Toll free help line,*
- *Email help line,*
- *In Springfield, a loaner vehicle for agencies to use while theirs is in being repaired,*
- *Warranty claim assistance, and*
- *Quality service performed correctly the first time at a reasonable cost*

The top five maintenance repairs over the history of the program are

1. *Wheelchair lifts,*

2. *Brakes,*
3. *Electrical and interlocks,*
4. *Air Conditioning, and*
5. *Transmissions.*

Obstacles that have been encountered include (solutions provided in parentheses):

- *Legal authority for RMC to work in non-RMC vehicles (RMC's persevered with the necessary authorities and this did not become a barrier to coordination),*
- *Use of federally-funded facilities and equipment for either non-federally funded agency vehicles or vehicles purchased and used by other federal programs (expenses and revenues are all tracked separately; facility must be primarily used for the purpose for which it was built, i.e. transit purposes),*
- *Insurance on loaner vehicle (agency using the loaner vehicle must show proof of insurance),*
- *Union mechanics working on non-agency vehicles (project was promoted as way to provide assistance to agencies without the necessary expertise), and*
- *Excessive use of loaner vehicle by an agency (continues to be an issue on a case by case basis, but has not proven to be a barrier to coordination).*

All of the above obstacles have been worked through and have not been a barrier to coordination.

Both Section 5310 and 5311 systems are tremendously supportive of this program, which has continued to grow from its inception. A total of 32 agencies

participated in 2003; 44 in 2004. A third center has been added, and the program has received the 2002 APTA Innovation Award and the 2002 National RTAP Outstanding Achievement Award.

For more information, contact David Spacek, Illinois DOT, Division of Public Transportation, 310 South Michigan, Room 1608, Chicago, Illinois 60604; 312-793-2154 or spacekDT@nt.dot.state.il.us.