Public Transportation Maintenance Knowledge and Resource-Sharing Project (Regional Maintenance Project)

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The main objective of this study was to develop and recommend facility-sharing approaches for a regional public transportation maintenance operation to support the implementation of a regional pilot project. During the reporting period, the main objective of this study was executed through three major process steps bulleted in Task II Part 2 Report – Summary of Activities. Those process steps were: Internet searches, site visits, and site assessments for various locations. Each of these process steps are expanded upon throughout this activity report and it should be noted that it is not the intention of the investigators to support any particular program or organization.

The general purpose of a regional maintenance facility is to provide preventive maintenance, repair, rebuild, or modify various rural transit vehicles. The regional maintenance facility should be a maintenance garage with a large capacity to service various vehicle types efficiently and effectively. The surrounding grounds and parking storage should maintain proper security deterrents to minimize vehicle theft and damage. The regional maintenance center (RMC) should employ a staff of highly competent and knowledgeable technicians/mechanics capable of performing routine and non-routine maintenance and repairs as stated above. The RMC should strive to become an authorized warranty repair center for the various vehicle manufacturers they service and provide a loaner vehicle program for rural transit providers.

TxDOT Public Transportation Coordinator Visit

Research investigators visited Mr. Lynn Castle, Public Transportation Coordinator (PTC) of Texas Department of Transportation Lubbock District office on August 2, 2007. Mr. Castle is responsible for 11 rural transit agencies in the Lubbock District. As the PTC for Lubbock District, Mr. Castle handles all procurement, invoice reviews, and maintenance plan reviews for his transit agencies.

Discussed at this meeting was the above-mentioned general purpose and description of a regional maintenance center (RMC). Advantages and disadvantages of Lubbock, Texas having such a facility as an RMC were discussed and ideas exchanged with Mr. Castle. One advantage is the Lubbock area attracts several rural transit agencies due to the extensive medical community and services offered to disabled and elderly persons. As these agencies service these riders, wait time at a clinic or hospital could be used. For example, the transit vehicle could undertake preventive maintenance at the Lubbock RMC, or if time is constrained an alternate transit vehicle could be available at the RMC for regular scheduled visits while the transit vehicle is dropped off. Another advantage or feature of an RMC could be its usage as a training school for CDL drivers or mechanics. For instance, a short program could be developed to show drivers how to do proper Preventive Maintenance (PM) pre-trip and post-trip checks.

Disadvantages of a Lubbock RMC discussed were the possibility of local garages losing business and the complications of a cost structure that supported all parties involved. Reese Technology Center was discussed as an unsatisfactory option due to the distance for rural providers located in the Panhandle area of Texas who frequent Lubbock.
Public Transportation Maintenance Facilities Appropriate for Regionally-Coordinated Maintenance Program

In consultation with Texas Department of Transportation (TxDOT), researchers have identified three transit agencies that might be candidates for regionally-coordinated maintenance programs in Texas (Waco Transit, Lubbock-Citibus, Longview Transit). Besides these three, other transit agencies were interviewed in order to discern their potential to become an RMC. Figure 1 on the following page displays the names and locations of all transit providers investigated as potential RMCs. Also mentioned for each possible site is data from the National Transit Database. The National Transit Database (NTD) is a national database for statistics on the transit industry. NTD collects data from recipients of Federal Transit Administration (FTA) Urbanized Area Formula Program (Section 5307) and Non-urbanized Area Formula Program (Section 5311) only. The data consist of selected financial and operating data for public transportation characteristics (National Transit Database, 2007).

Waco, Texas

Waco Transit (Heart of Texas Rural Transit District, HTRTD) provides public transportation to Waco and seven other counties: Bosque, Falls, Freestone, Hill, Leon, Limestone, and McLennan. They offer fixed route and para-transit services. Waco Transit’s maintenance facility is about 29,000 square feet. For the year 2006, Waco Transit had a service radius of 58 square miles for a service population of 117,241 and accumulated 3,651,550 passenger miles (National Transit Database, 2007). For fiscal year 2006 Section 5311 ridership, Waco Transit serviced District 9 with 60 vehicles and had 81,949 trips for a total of 858,743 miles (Public Transportation Division - Planning & Analysis Integrated Database (PLAID), July 2007).

The facility was constructed in 2005, and can be expanded if necessary by adding two walls and a roof. The service capacity is a fleet of about 125 large vehicles working three full shifts. Currently the facility services 42 vehicles that are either 35-foot buses or 28-foot vans and has a service capacity for up to a 60-foot vehicle. There are nine technicians working with a training program under development. Waco Transit conducts engine repair and transmission replacement, small component rebuild, air conditioning repair, fare box repair, and others. The facility out-sources engine rebuilds, valve work, transmission rebuilds, frame work, and vehicle painting. The repair/maintenance records are kept on a work order system with plans to utilize CCG FASTER in the near future (John Hendrickson, Personal Communication, September 4, 2007). The FASTER product is an off-the-shelf package with a flexible design to support different needs. It is built for asset management, parts management, work order management, fuel management and operations cost tracking. CCG FASTER’s services include implementation services, training and educational opportunities, technical support, and additional support services (Faster Fleet Management Software & Services by CCG Systems, Inc., 2007). Waco Transit is an ideal candidate for an RMC due to its natural pairing with primary customers, their established maintenance facility, and mechanical expertise.
Lubbock, Texas

Citibus is a Section 5307 grantee and provides public transportation through three service types: fixed routes, a paratransit system and special services. According to the National Transit Database (2007) for the year 2006, Citibus serviced a 64-square mile radius for a service population of 199,564 and recorded 10,230,918 annual passenger miles. Citibus maintenance facility was built in 1932 and last remodeled in 1981. The maintenance facility is about 20,000 square feet. Citibus services 28 paratransit vans, 64 buses, four cars, three service trucks, seven supervisors vans, and four trolleys with ten mechanics. A training program (apprentice program) is provided for mechanics. Citibus’ major repairs are for air conditioning and brake systems. Citibus uses a preventive maintenance program and maintains documentations through ‘iMaint’ software. (John L. Wilson and Pat Peters, Personal Communication, September 6, 2007).

The City of Lubbock attracts many rural transit providers such as CapTrans in Crosbyton, SPARTAN in Levelland, West Texas Opportunities, Inc. in Lamesa and Panhandle Community Services, Inc. in Amarillo, making it a centralized hub. All of these providers are in West Texas. Citibus also has an established maintenance facility with room for parking and service expansion, mechanical expertise and shares mechanical resources with other agencies as needed. Currently Citibus has a service capacity of 200 vehicles (John L. Wilson and Pat Peters, Personal Communication, September 6, 2007). For these reasons, Citibus is an ideal candidate to become an RMC in the near future.

Longview, Texas

Longview Transit provides public transportation for the City of Longview and offers fixed route and demand response service for individuals with medically authorized special needs. The maintenance facility is about 8,355 square feet and contains the Longview Transit’s administrative operations. The facility was constructed in 1938 and was renovated in January 2003. Longview Transit has a total fleet of 11 vehicles (seven are powered by propane gas). The goal is to have a fleet that runs on environment-friendly alternate fuels. Therefore, new bus purchases will be ultra-low sulfur diesel. Currently, the vehicle service capacity is four. Longview Transit wants to expand the facility in order to increase service capacity to between eight to ten vehicles. The facility serves 29-foot buses which include International and Ford brands and has the capacity to serve 40-foot transit buses. There are three mechanics working at the facility and a training program is provided. All types of minor and major repairs are performed at the facility; however, due to a limited availability of funds the major repairs are limited. Longview Transit keeps repair and maintenance records through Microsoft Excel but currently is searching for other maintenance software (Godfrey Offoegbu, Personal Communication, August 4, 2007). Longview Transit could become a candidate for an RMC due to its north-eastern location but might need to expand and take steps to ensure adequate mechanical expertise would be available.

Other Facilities Considered for Public Transportation Maintenance Operations

Rural transit providers in Laredo and San Saba may be considered for possible regionally-coordinated maintenance operations due to their location. Initially, Levelland and Crosbyton were also identified as possible candidates; however, after further investigation researchers would not recommend these locations to become an RMC. Further detailed information on each rural transit provider is given below.
Laredo, Texas

Public transit in Laredo is provided by Laredo Municipal Transit System (LMTS), also known as El Metro, and offers fixed route and paratransit services within the City of Laredo. The maintenance facility is about 87,120 square feet with seven bays. The maintenance facility was constructed in 1980, remodeled in 1995, and currently has no room for expansion. For the year 2005, El Metro serviced a 79-square mile radius for a service population of 176,576 and accumulated 12,216,115 passenger miles (National Transit Database, 2007). El Metro currently services about 100 vehicles with 17 mechanics and a training program is provided. Major repairs performed are water leaks, engine overhaul, transmission, electrical, air conditioning, suspension, and brakes. El Metro keeps maintenance and repair records on RTA Fleet Management Software which is provided by Ron Turley Associates, Inc.. RTA Fleet Management Software handles bus and trucking company maintenance, facility and equipment scheduling maintenance, and preventive maintenance (Juan R. Vaquera, Personal Communication, August 21, 2007).

San Saba, Texas

Public transit in San Saba is provided by Hill Country Transit District (HCTD), also known as The HOP. The HOP serves seven counties: Coryell, Hamilton, Lampasas, Llano, Mason, Milam, and Mills and offers special transit service (STS) and fixed route service (FRS) for passengers with disabilities. The HOP does not have a maintenance facility. Therefore, all of the maintenance and repairs are out-sourced to vendors in various local towns (Tony Austin, Personal Communication, August 27, 2007). At the San Saba meeting, Killeen, Texas, was mentioned as a potential RMC location but further evaluation is needed (Mario Beruvides, Personal Communication, September 12, 2007). According to the National Transit Database (2007) for the 2006 fiscal year, The HOP serviced a 125-square mile radius for a service population of 188,325 and accumulated 1,864,067 passenger miles. For the 2006 year, section 5311 statistics show The HOP serviced within District 23 and had 47 vehicles which made 150,725 trips for a total of 707,991 miles (Public Transportation Division - PLAID, 2007).

Levelland, Texas

South Plains Area Rural Transportation Assistance Network (SPARTAN) is located in Levelland and services 11 counties in the area – Bailey, Cochran, Garza, Hockley, Lamb, Lubbock, Lynn, Mitchell, Scurry, Terry, and Yoakum. SPARTAN provides service for Title XIX recipients, elderly, handicapped, and the general public. SPARTAN does not have a maintenance facility and out-sources all maintenance to local garages or dealers. Therefore SPARTAN would be a potential benefactor to its natural paired RMC. It has 32 vehicles (10 of the vehicles run on propane gas) with three varying passenger limitations. SPARTAN clients often travel to Lubbock for medical and personal trips. Maintenance on their propane vans must be done by a certified propane mechanic. The closest such mechanic is 31 miles away in Lubbock. Major repairs are related to brakes and wheel issues (Roger Cardenas, Personal Communication, 2007). For section 5311 fiscal year 2006, SPARTAN serviced District 5 and made 96,773 trips for a total of 743,116 accumulated miles (Public Transportation Division - PLAID, 2007).
Crosbyton, Texas

Caprock Community Action Agency (CapTrans) provides rural public transportation to six counties: Crosby, Floyd, Dickens, Hale, Motley, and King. They are located in Crosbyton and offer fixed routes, dialysis routes, and paratransit services. CapTrans clients often travel to Lubbock for medical and personal trips. CapTrans outsources all maintenance and repair work to local garages within the counties and does not have a maintenance facility. Therefore CapTrans would be a potential benefactor to its natural paired RMC. According to fiscal 2006 year, for section 5311, CapTrans operates within District 5 and had 21 vehicles which made 70,064 trips and accumulated 413,838 miles (Public Transportation Division - PLAID, 2007). Executive Director of CapTrans, Claudia Cowley, stated they currently have 24 vehicles in service. The vehicle types are 6-passenger type2 cutaways, 15-passenger buses, 12-passenger buses, and 22-passenger buses (Claudia Crowley, Personal Communication, September 6, 2007).

Minimum Essential Specifications for a Regional Public Transportation Maintenance Facility

The essential specifications for a regional public transportation maintenance facility are crucial in ensuring all regional transportation maintenance facilities operate in a similar manner and enable rural transit agencies to reap the maximum benefit of utilizing an RMC. The specifications developed through this project are the minimum essential requirements for each regional transportation maintenance facility. This is a compilation of information collected from Task I and Task II Part 1 activities. Please refer to Task I and Task II Part 1 Activity Reports for details. These specifications are thorough but should not be considered inclusive.

Scope

This specification describes the minimum requirements for a regional transportation maintenance center (RMC). All RMCs shall meet or exceed all requirements listed herein.

Definition of RMC

RMC is defined as a centralized public transportation maintenance facility that:

- Provides preventive maintenance, preventive inspection, major component repair and replacement services to rural transit agencies that service within a radius rural transit agencies, counties and/or district of the maintenance facility.
- Provides maintenance and repair services beyond the scope a local garage would provide.
- Provides services to specialized transit vehicles and equipment including but not limited to wheelchair lifts, electric, propane and hybrid vehicles.
- Serves as technical information center and provides technical expertise to rural transit agencies and other transit providers.
- Acts as warranty recovery center for all parts and labor and possibly as a designated warranty center to work on authorized OEM parts.
- Provides loaner vehicles to rural transit agencies if necessary.
RMC Location

A regional maintenance center should be strategically located such that:

- Most rural transit would route in close proximity to the RMC on a regular basis to facilitate vehicle repair and maintenance.
- Maximum number of rural transit agencies could utilize and benefit from the facility.
- Minimize overlap in coverage area by each RMC.
- Maximize market and population service.

Building Requirements

1 Building Code
   All RMC facilities must comply with local, state and federal building codes including but not limited to fire safety, structural safety and health requirement.

2 Site Security
   Maintenance facilities should uphold at the minimum a basic site security including but not limited to visitor sign in, camera surveillance, secured parking for vehicles that require overnight service.

3 Physical Specification
   In consultation with TxDOT personnel, the square footage, number of bays, washing bays and types of building shall be determined by each regional RMC location and the number of rural transit vehicles serviced by the RMC. RMC should provide lobby or waiting area for rural transit vehicle operators while waiting for vehicle maintenance.

Service Requirements

1 Preventive Maintenance (PM)
   RMC shall provide PM to rural transit vehicle when requested. PM procedure should comply with TxDOT Maintenance Management and Safety Guide: Section 3 – Preventive Maintenance Inspections and Service, p 6.

2 Preventive Maintenance Inspection
   PM inspection on all components of a vehicle shall be performed on each rural transit vehicle once it has been brought in for maintenance and repair and once again before returning it to corresponding transit agency. PM inspection should comply with TxDOT Maintenance Management and Safety Guide: Section 3 – Preventive Maintenance Inspections and Services pp 4-5. RMC shall inform corresponding agency of any wear and tear, defective or broken part that requires attention noted during the inspection and potentially set an appointment to resolve the noted problem.

3 Safety Inspection
   In addition to State of Texas Safety Inspection as specified in TxDOT Maintenance Management and Safety Guide: Section 3 – Preventive Maintenance Inspections and Services pp 9-10, RMC should inspect auxiliary equipment to ensure all equipment is in working condition. Auxiliary equipment that should be inspected on all vehicles serviced includes fire extinguisher, seat belts, wheelchair restraint belts, overhead compartments etc.
4 Repair Services
All services performed by RMCs should comply with the OEM and any other manufacturer specifications. Repair and maintenance services an RMC shall provide include but are not limited to:

4.1 Drive Train
   4.1.1 Engine services including but not limited to major services such as repair and replace engine, replace water pumps and minor services such as filters and fluid change.
   4.1.2 Transmission services including but not limited to routine check on existing components, service on transmission, replace worn and broken parts, replace transmission with refurbished or new system.
   4.1.3 Differential services, usually performed in conjunction with brake service, including service, repair, and replace component part as required.

4.2 Diagnostic services including but not limited to emission testing, transmission electronic code checks and engine diagnostic.

4.3 Brake services including but not limited to pad replacement, turning or replacing brake drum, inspection and testing on pneumatic or hydraulic systems.

4.4 Tire-related repair including but not limited to repairing puncture, tire balancing and tire replacement.

4.5 Alignment and suspension services including but not limited to replacement of worn or broken suspension part, inspection of all steering assemblies, front-end alignment, replace and repair worn or broken parts.

4.6 Vehicle air conditioning system including service and replace damaged and worn components.

4.7 Special equipment services including but not limited to servicing and testing various types of wheelchair lifts and servicing propane, electric and hybrid vehicles.

5 Warranty Recovery Service
RMC shall recover the warranty on all defective parts on behalf of rural transit agencies. RMC shall strive to be the designated warranty center, i.e. authorized by vehicle manufacturer to repair and replace faulty parts using original parts and authorized labors.

6 Road Call Services
RMC should have a minimum of one road call vehicle in the facility to dispatch when a vehicle breaks down.

   6.1 RMC shall establish an operating procedure for utilizing a road call vehicle, addressing the responsibilities of the RMC and rural transit agencies when utilizing a road call vehicle, risk and cost sharing.

   6.2 The mechanic dispatched should be able to diagnose the cause of breakdown and assess the situation. Depending on the severity of the breakdown, the mechanic should
      6.2.1 Perform the repair if the repair job requires less than 30 minutes
      6.2.2 Dispatch for a replacement vehicle and a wrecker vehicle if the repair requires more than 30 minutes.

7 Wrecker Services
RMC shall establish an operating procedure that includes but is not limited to conditions to utilize a wrecker, procedure to utilize a wrecker, detailing the responsibilities each party involves when utilizing a wrecker vehicle. If RMC does not own a wrecker, RMC shall sub-
contract the towing services to local towing/wrecker service provider at the lowest rate possible.

8 Loaner Vehicle Service
Depending on the geographical location and services provided, RMC shall provide loaner vehicles to rural transit agencies on a limited basis while the rural transit vehicle requires a prolonged period of time for repair. In consultation with TxDOT, RMC shall decide if a loaner vehicle program is needed and if so establish a program which includes but is not limited to the operating procedures, conditions when a loaner vehicle is required, any charge(s) imposed on rural transit agencies for loaner vehicle, certification required to operate a loaner vehicle, responsibilities of RMC and rural transit agencies on the loaner vehicle, risk and cost sharing pertinent to the loaner vehicle.

General Requirements

1 Workplace Safety
RMC should comply with all OSHA rules and regulations pertinent to a vehicle maintenance facility. A comprehensive safety and health program should be recognized, implemented, and enforced in the maintenance workplace to prevent accidents where possible.

2 Equipment
RMC should have equipment that can support the services listed in “Service Requirements” section of this report.

3 Computer Software – RMC should have software that enables RMC to
- Record the details of rural transit agencies that RMC services including but not limited to the number of rural transit vehicles owned by each agency, the age of each vehicle, the history of maintenance and repair on each vehicle and the next date for preventive maintenance.
- Detailed documentation on every maintenance and repair work per vehicle.
- Track the warranty recovery process.
- Track the inventory including but not limited to parts, vehicles, equipment and machinery.
- Schedule and track the work order within the RMC.

4 Personnel
RMC should maintain adequate technical and administrative personnel to cover technical assistance questions and answers for rural transit agencies or other transit providers, perform routine and non-routine maintenance and repair, ensure efficiencies in handling vehicle loaner program, road call assistance, warranty tracking and processing, and wrecker services.

5 Mechanics
5.1 Classification: Mechanics should be classified based on skill level, years of experience, and demonstrated competence.
5.2 Certification: Mechanics that operate special machinery or perform maintenance and repair of special equipment should obtain proper certifications pertinent to the work performed.
6 Training
6.1 Proper training should be provided to all mechanics prior to operating any machinery, repairing and performing maintenance on vehicles. Mechanics training on maintenance should comply with TxDOT Maintenance Management and Safety Guide: Section 3 – Preventive Maintenance Inspections and Service, Maintenance Training, p 10.
6.2 RMC should conduct quarterly or bi-annual maintenance roundtable sessions to keep mechanics and decision-makers abreast of issues related to transit vehicle maintenance.
   6.2.1 Discussion topics should include frequently encountered problems in maintenance and repairs, latest technologies and techniques in maintenance and repairs, benefits of PM.
   6.2.2 Special issues, events and any governmental policy changes could be addressed during roundtable session. This includes inviting guest speaker from TxDOT etc.
   6.2.3 The typical duration of roundtable session is half day to full day.
   6.2.4 Attendance of all mechanics and directors of rural transit agencies (decision makers) should be mandatory.

Hazardous Waste Disposal
RMC shall remove all hazardous waste generated in maintenance and repair process and dispose of all waste in strict accordance with all federal, state, and local applicable rules, regulations, codes, laws, ordinances, statutes etc.

It is not the intention of the investigators to use this specification or enforce this specification on any public transit agency. This specification may not be sold for profit or monetary gain. Research investigators do not assume any liability when this specification is used in the procurement process by any other entity.

Feasibility of Regional Maintenance Centers under a Variety of Scenarios
To the researchers’ knowledge, the State of Illinois has successfully operated the premier regionally-coordinated maintenance centers for several years. Their RMCs share maintenance facilities and resources with their existing urban mass transit system. This may not be possible for several of the potential Texas locations mentioned earlier due to building age, fleet size or other reasons. There are three important factors to consider when investigating the feasibility of regional maintenance centers: new construction, remodeling/renovating, or sharing facilities. Each scenario is briefly discussed below.

New Construction

Constructing a new facility can be costly and requires proper planning and forethought. According to Maintenance Design Group (2007), typical new construction costs for an acre can range from 2 million to 3 million dollars. Maintenance Design Group (MDG) is a leading consulting firm whose specialty is assisting with the planning and design of transit, public works, utility, school, and governmental operating and maintenance facilities. (Maintenance Design Group, 2007). To properly design a facility from start to finish, MDG recommends a comprehensive and detailed plan be devised and followed with all interested parties from the beginning of the project. In Table 1 on the following page are the four phases of a properly designed facility according to MDG.
Table 1. Four Phases of Facility Design (Maintenance Design Group, 2007).

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<th>Pre-Design/ Programming</th>
<th>Preliminary Design/ Design Development</th>
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<td>Maintenance methods</td>
<td>Master plan</td>
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<td>Space needs</td>
<td>Site layout</td>
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<td>Functional relationships</td>
<td>Parking configuration</td>
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<td>Staffing projections</td>
<td>Facility layout</td>
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<td>Fleet growth</td>
<td>Workstation locations</td>
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<td>Key design issues</td>
<td>Materials selection</td>
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<td>Design criteria</td>
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3. Conceptual Design/ Schematic Design
- Equipment selection
- Equipment layout
- Utility requirements
- Color selection
- Plan review

4. Final Design/ Construction Documents
- Plan preview
- Signage and graphics

Other items to be considered from the beginning stages of facility design are parking space and overall facility size. According to MDG, (2007) the typical site should consist of one-half dedicated to agency vehicle parking and circulation, one-fourth devoted to building area, and the remaining one-fourth to employee parking. Also, they mentioned that one acre of land is usually required for the parking of 100 cars. The design of the parking space is important as well. A straight parking space (90-degree parking) uses 20 to 30 percent less space than angle parking. Finally, MDG (2007) stresses that when building a facility, planners should take into consideration all building codes, fire codes, American with Disabilities Act (ADA), Clean Air Act Amendments (CAAA) of 1990, Occupational Safety and Health Administration (OSHA), Clean Water Act, and Environmental Protection Agency (EPA) requirements.

Retrofitting/ Renovating

If new construction of a maintenance facility is not an option then renovation, remodeling, or retrofitting an existing building should be considered. Researchers use these three terms interchangeably and consider them synonymous. In making the decision between renovating or building a new facility, Maintenance Design Group (2007) suggests asking whether the existing facility:

- Needs more space.
- Has outdated building systems and components.
- Has inefficient layout.
- Has changing service area and service needs.
- Is experiencing changes in rolling stock that demand changes in facility.
- Faces federal, state, and local mandates that force upgrades.
- Is adaptable to accommodate new fueling systems.

Maintenance Design Group (2007) has designed a list of questions for clients to thoroughly explore in the first phase of the design process to choose between retrofitting or new construction:
Can the existing site, together with available adjacent property, accommodate expansion?

Which site is best located within the service area?

Are existing structures worth saving?

Is there an alternative or better use for the existing site?

Are you aware there may be hidden costs in renovation (lead paint, asbestos, bringing structures up to code, out-dated building systems)?

Will the sale of the existing site cause a need for costly environmental remediation?

Is there a financial benefit from selling the existing property?

After careful consideration and taking into account key points and questions considered above, the planners of a maintenance facility will be in a better position to decide between building new or retrofitting an existing building to accommodate future needs.

Sharing a Facility

New construction and renovation can be costly options to facility design and planning, making facility sharing a feasible option. The Springfield Regional Maintenance Center in Springfield, Illinois shares facilities with their urban mass transit district. The Springfield RMC takes full advantage of an established maintenance garage, highly qualified mechanics and technicians, and public awareness and familiarity due to the urban system name. In order to keep financials separate, a formal contract was developed between the RMC and the urban system. Proper reporting of expenses, revenues, labor rates, parts profit, etc. are included in their agreement (David Spacek, Personal Communication, May 18, 2007). It would be recommended that such an agreement be in place before (formal or informal) sharing of resources starts.

Preliminary Findings from Site Assessment Forms (SAF)

A Site Assessment Form (SAF) was developed by the investigators to assist in determining a rural public transportation maintenance provider’s ability to become an RMC. Researchers conducted initial site assessments for Citibus, SPARTAN, and Cap-Trans service providers on September 6, 2007 at the TxDOT Lubbock District office. The finalized site assessment form (SAF) will be included in Task IV, Final Report.

Citibus Initial SAF Findings

Researchers Pelin Altintas and Cheng-Chu Chiu-Wei conducted the assessment with Pat Peters, Director of Maintenance, and John Wilson, General Manager, representing Citibus. Also present were Mario Beruvides, Professor, and Lynn Castle, TxDOT Lubbock District PTC. Background information on Citibus was discussed earlier in this report. Major assessment findings are that Citibus maintains a fully equipped maintenance facility, has a centralized location in the city, mechanical manpower, inventory control procedures, and expansion potential. Additionally, Lubbock is a frequently visited location for many rural transit providers. The expansion capabilities include buying the building next door for demolition and closing a side street for increased space. By adding shifts, the service capacity can expand from 100 vehicles to 200 vehicles without additional space. Citibus also plans to become a paperless workplace by end of 2007 and invest in hyper electric buses (John L. Wilson and Pat Peters, Personal Communication, September 6, 2007). The initial result of the site assessment is Citibus would be an ideal candidate to become an RMC.
SPARTAN Initial SAF Findings

SPARTAN site assessment was conducted by researchers Ean-Harn Ng and Siva Chaivichitmalakul with SPARTAN Division Director, Roger Cardenas, and Transit Supervisor, Brian Baker representing SPARTAN. Background information was provided and discussed earlier in this report. Major assessment findings are SPARTAN does not perform any in-house maintenance. Both the Division Director and Transit Supervisor do not think SPARTAN could or should be an RMC for several reasons. First, SPARTAN is located in Levelland, which is a small town and does not have any hub-city activities. Secondly, skill levels of mechanics in Levelland might not be adequate for an RMC. Thirdly, SPARTAN once performed preventive maintenance and repairs for their vehicles. Due to the sparsely located agency offices and vehicles, the mechanics spent more time traveling than performing repair and maintenance (Roger Cardenas and Brian Baker, Personal Communication, September 6, 2007). The result of this initial site assessment is SPARTAN is not an ideal place nor ideal agency, and has no desire to become an RMC.

CapTrans Initial SAF Findings

Researcher Natalie Waters conducted the site assessment with Claudia Cowley, Executive Director, representing CapTrans. Also present was Alfredo Gonzales, PTC for Odessa District and observing was Eduardo Cordero, graduate student. Background information on CapTrans was discussed and can be found earlier in this report. Major assessment findings are that CapTrans does not perform any in-house maintenance and is located in Crosbytown, a small town. The majority of the rural provider’s trips are taken to Plainview and Lubbock for personal and mainly medical reasons. Finally, Ms. Cowley and Mr. Gonzales were very enthusiastic about the prospect of an RMC in West Texas and would definitely utilize such a facility if available (Claudia Cowley, Personal Communication, September 9, 2007). The initial site assessment result for CapTrans is that CapTrans is not an ideal location and does not have the desire to become an RMC.

Researchers intend to conduct additional site assessments and have planned upcoming visits to Longview, TX, Midland, TX, and to the Springfield, Illinois RMC, and they intend to continue to revise this form based upon feedback. All agencies had positive feedback and thought the initial SAF was comprehensible and not time consuming to complete. The finalized version of the SAF will be included in Task IV, Final Report.

This research is on-going and any pertinent future information and findings related to the objective of this portion of the study will be included in Task IV, Final Report.
References


Texas Department of Transportation, Public Transportation Division - Planning & Analysis Integrated Database (PLAID), July 2007