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# Technology in Rural Transportation

## “Simple Solution” #3

ENTERPRISE

United States Department of Transportation  
Federal Highway Administration  
Federal Transit Administration

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### Coordinated Rural Transit Services



#### Introduction

This application was identified as a promising rural Intelligent Transportation Systems (ITS) solution under a project sponsored by the Federal Highway Administration (FHWA) and the ENTERPRISE program. This summary describes the solution as well as opportunities for expansion into the broader context of rural ITS.

#### Technology Overview

Numerous rural residents either do not drive or do not have access to vehicles and therefore rely on the mobility services offered by transit operations. This simple solution combines and coordinates the services of several

local agencies to offer a more efficient and effective public transit service using the combined fleets of various operators.

### ***Real-world Example - Multi-Service Provider Dynamic Dispatching System***

**Overall goal:** To combine the separate transportation operations of a variety of providers in order to provide a more cost-effective and higher level of service to users.

**Technical approach:** Various agencies, including a child development center, a counselling service, two senior centers, a youth home, and a nursing home originally combined their individual vehicle fleets and operations to form a single transit organization. A central dispatching center was created to handle requests for transportation from the clients of all these agencies. The center uses the "Rides Unlimited" dispatching system. The organization has 12 vehicles, and Automatic Vehicle Location (AVL) equipment is fitted to all but two of these vehicles.

**Current status:** The system has been operational for over six years. At the present time, the center now provides dispatching services for approximately 20 agencies.

**Location / geographic scope:** The Sweetwater County Transit Authority serves the rural county of Sweetwater, Wyoming. The county is roughly the size of Vermont.

**Agencies involved:** Sweetwater County Transit Authority, Wyoming.

**Cost information:** The system used in Sweetwater County originally cost around \$15,000 for software supporting three workstations. The authority now runs seven workstations. The computers required to run the software are 486 PCs with upgraded memory. Various other comparable systems are on the market for around \$10,000 to \$15,000. However, the transit authority stressed that their biggest single cost was in training operators to utilize the software. They invested in a total of six weeks of on-site training and start-up support at a cost of approximately \$15,000. Subsequent technical support is performed remotely by a technician dialing into the system via the PCAnywhere program.

Transit Authority income comes from contracts with agencies, various grants, Federal subsidy, state subsidy, fares, and donations, in decreasing order of magnitude.

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**Have goals been achieved?** Ridership has increased by five times since the organizations joined forces to form a single transit authority using the centralized dispatching system.

**Solution timeline:** The Transit Authority hopes to install a communications backbone and also to equip all vehicles with mobile data terminals in order to log rides and streamline payment for services using magnetic stripe cards. They also intend to increase provision of same day service. At present around 14 percent of trips are provided on the same day they are requested.

### **Further Description of Application**

#### ***Additional technologies may include:***

The use of cellular technology could be utilized to accomplish the same results, however, constant communication with the driver regarding location could be distracting and expensive.

**Potential additional uses for this technology may include:**

Vans or small buses that regularly travel into specific neighborhoods could also perform deliveries for local businesses.

**Benefits of Application**

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|                   | <b>Benefits to travelers / the community</b>  | <b>Benefits to business / industry</b>    | <b>Benefits to the public sector</b>  |
|-------------------|---|---|---|
| Direct benefits   | Increased mobility and access to community services and businesses for seniors, younger travelers, and any citizens without access to a vehicle | Increased sales and enlarged service area | Decrease in operating costs and increase in efficiency of mobility services |
| Indirect benefits | Improved quality of life and vitality in rural towns and communities  |   |   |

**Step One:** This solution is ideally suited to an area which has existing transit and mobility services which could be streamlined. A new organization may need to be established so as to minimize the likelihood of local service providers perceiving the initiative as diminishing their control over their own operations. A key challenge to successfully implementing this solution may be the related institutional issues. Other institutional issues should be explored such as insurance requirements and liability limitations.

**Step Two:** The existing services offered by those agencies that have agreed to join forces should be inventoried and assessed to ensure that a joint system will, at a minimum, meet existing levels of service and in order to quantify where existing services will be enhanced through implementing the system. This last exercise may be vital in gaining any funding from other sources to establish the multi-service provider system.

**Step Three:** A system which meets the needs of the various service providers should be specified, taking into account the available funding, and commercially available products should be assessed against these requirements. Should no suitable product already exist, then a custom-built system should be considered, again bearing in mind the available resources.

**Step Four:** A suitable dynamic dispatching system should be procured, installed, and tested to ensure that it meets the needs of all agencies involved. Due to the critical nature of some of these mobility operations, for example, transporting seniors to medical care facilities, a changeover strategy should be implemented such that users do not experience any loss of service during the transition to the new system.

**Step Five:** Once it has been determined that the new system operates to the satisfaction of all participants, full permanent operation can commence.

### **Potential Implementation Issues**

This type of multi-agency system may be most effective in areas with a large elderly population, communities in which health care providers are long distances away from the majority of residents, or communities with numerous active agencies providing some form of ride assistance to non-driving members. A high level of cooperation and coordination among mobility service providers will be required for such a system to be a success.

### **Solution's Contribution to Broader Rural ITS Developments**

This solution will contribute to rural ITS developments as follows:

**Personal Mobility Management** - This solution will play a key role in establishing a mobility management infrastructure and will increase mobility for various types of rural residents.

**Automatic Payment** - Components of this solution will also be a critical part of any infrastructure that exists to allow for automatic payment for services or products.

**Economic Development/Community Enrichment** - This solution will improve the "livability" of communities that support non-driving residents. Also, by reducing the number of vehicle trips, community parking and congestion problems may be alleviated.

### **The Technology in Rural Transportation: "Simple Solutions" Project**

This project was performed within the ENTERPRISE pooled-fund study program, and aimed to identify and describe proven, cost-effective, "low-tech" solutions for rural transportation-related problems or needs. "Simple solutions" studied within the project focussed on practical applications of technologies, which could serve as precursors to future applications of more advanced systems, or intelligent transportation systems (ITS).

More than fifty solutions were initially identified and documented. Of these, fourteen solutions were documented and analyzed in detail. The transportation technology applications were also categorized according to the seven Critical Program Areas (CPAs) defined within the U.S. Department of Transportation's Advanced Rural Transportation Systems Program. It is hoped to utilize the information gathered within this study to perform outreach to local level transportation professionals to introduce them to ITS and its potential benefits.

For More Information: A full report on this study is available from the FHWA R&T Report Center, telephone no. 308-577-0818. Title: Technology in Rural transportation: "Simple Solutions." Publication No. FHWA-RD-97-108. This research was conducted by Castle Rock Consultants, Eagan, Minnesota For more information, contact Paul Pisano of FHWA, HSR-30, 703/285-2498 For more information about ENTERPRISE contact Bill Legg, Washington State DOT, 206-543-3332.