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Rural Mobility Barriers

Rural Mobility Management
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Introduction

Mobility, as discussed in this report, focuses on how residents in rural areas move within their communities and throughout the region. Ensuring that the needs of rural areas are considered and addressed requires special attention to the unique issues and mobility barriers that they face.

Mobility can be broken into two broad categories: accessibility and connectivity. Accessibility is a measurement of the ease and convenience of reaching any given destination or service. The degree to which a destination is accessible depends on how efficiently and safely it can be reached by public transportation, bicycle, walking, or automobile. Connectivity, or continuity, is a measurement of the general consistency of mode specific facilities, such as bike paths, sidewalks, and other transportation services. The degree to which a transportation system is connected depends on the existence and maintenance of facilities and services connecting all destinations in an area[1]. For example, an area has poor connectivity if sidewalks are uneven or broken, or if the sidewalks are not continuous: they start, end and start again further down the road.

Mobility Challenges and Barriers

There are many barriers to public transportation in rural areas, yet the need for transportation options is there, in many cases for different reasons than in urban areas. The following is a discussion of connectivity and access, bicycles and pedestrians, vanpools and carpools, public transportation services, demand response services, coverage vs. frequency, “first and last mile,” public transportation service demand threshold, and funding, and the challenges and barriers that can hinder them or affect their effectiveness in rural areas.

Connectivity and Access

City and county planning departments don’t necessarily coordinate with each other to ensure that trails, paths, and routes connect across jurisdictional boundaries. Even within some city or county boundaries, bicycle and pedestrian routes can end abruptly without sufficient signage, direction or opportunity for the user to reconnect to the route where it continues.

Vehicle speeds can deter bicyclists and pedestrians from using certain facilities. Attempts to improve driver sight distances by straightening roadways or clearing trees, if not coupled with measures to slow vehicle speeds, such as widened shoulders, barriers, signage or striping, can make the roadway more dangerous for bicycles and pedestrians. Speeds can also be a problem when rural highways enter rural communities where bicyclists and pedestrians are likely to be present. Drivers

[1] http://www.sacog.org/rucs/wiki/index.php/Expanding_Travel_Choices_for_Rural_Mobility

may not be aware that they are entering a segment of shared roadway and can be surprised by walkers and cyclists crossing the street.

Bicycles and Pedestrians

In some rural communities, sidewalks are neither desired nor needed. Traffic volumes on small town roads may allow pedestrians and automobiles to share the right-of-way. Limiting sidewalks may stem from a desire to preserve the rural character of a local road network. In some instances, non-paved paths can serve as pedestrian and bicycle right-of-way along rural roads.

Walking and biking typically make up only a small fraction of commute and errand trips in rural areas, likely due to longer distances between destinations. Walking or biking to school is an important part of healthy lifestyle for children. In rural areas, distance is usually more of a factor than traffic, fear of crime, or lack of infrastructure, such as sidewalks.

Rural roads are not typically used by cyclists in large numbers for commuting or errands. Nevertheless, bicyclists and pedestrians will use rural roads as connections between destinations. At certain times of the year, rural roads can experience a lot of use by recreational cyclists. Problems for utility and recreational users arise when bicycle and pedestrian traffic is relegated to narrow or unpaved shoulders along roads with high speed traffic and high truck volumes.

Shoulder conditions can also be a challenge for bicycles and pedestrians. In an effort to conserve resources, local agencies often limit re-paving to the part of the right-of-way used by automobiles. This can result in damaged pavement left along the shoulder and frequently causes a lip between the shoulder and roadway that can be dangerous to cyclists. Unpaved, gravel shoulders can be used by pedestrians, but make riding bicycles more difficult[2].

Vanpools and Carpools

In response to rising gas prices, many commuters have re-evaluated carpooling or vanpooling as options for work trips. In rural areas, workers who don't have a car need other modes of transportation to get to and from work. Ridesharing can provide such an alternative by matching people interested in carpooling, vanpooling or bicycling based on home and work (or school) locations and schedules.

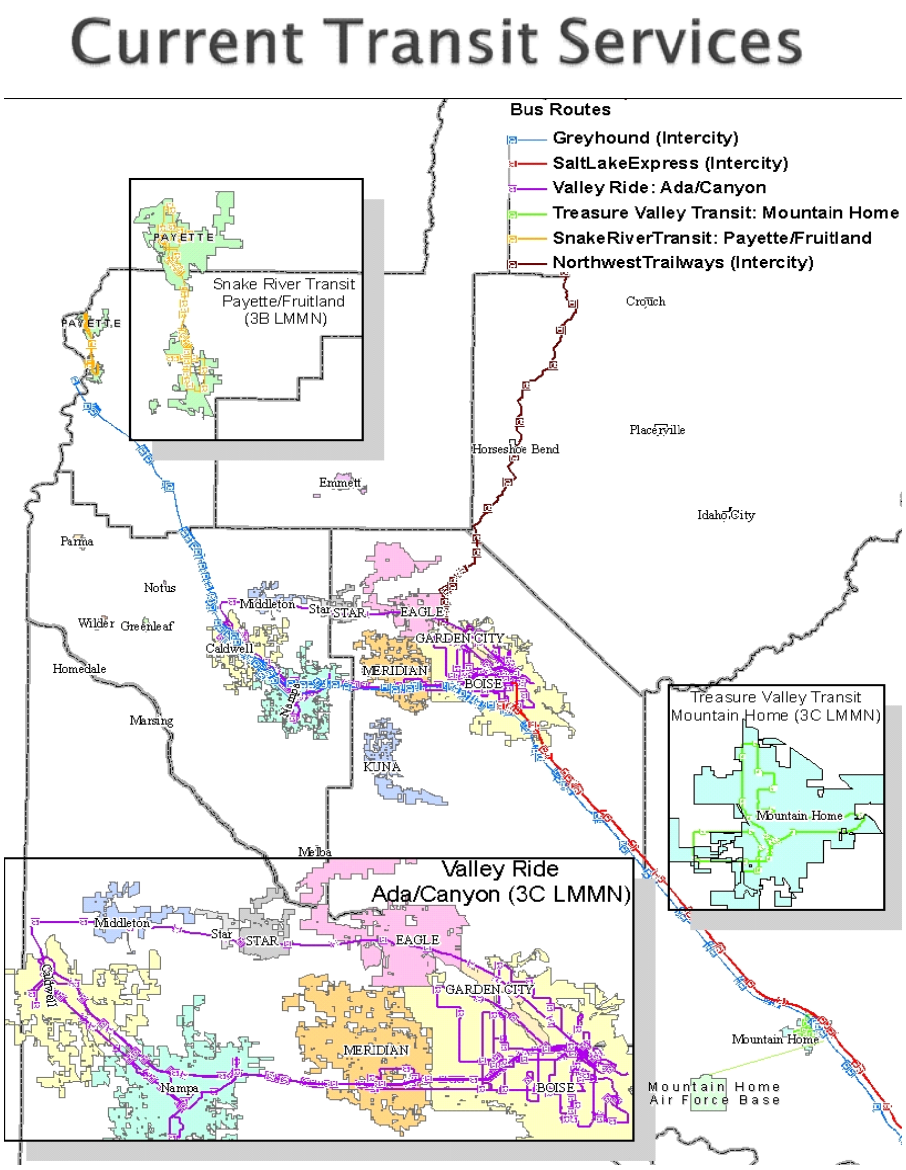
Public Transportation

Public transportation is typically thought of in an urban context. The densest U.S. cities such as New York and Chicago are thought of as ideal locations for effective

[2] http://www.sacog.org/rucs/wiki/index.php/Expanding_Travel_Choices_for_Rural_Mobility

public transportation systems. However, the need for public transportation services is not limited to these large cities. Several different types of public transportation services are available in southwest Idaho (Figure 1), though many of the rural areas are not currently served.

Figure 1.



Low-income workers who cannot afford a vehicle often rely on public transportation and ridesharing to access their jobs. Ensuring that workers have access to employment not only helps the local economy but can also link areas with labor shortages to communities with labor surpluses. Older residents rely on public transportation after they give up driving. Whether going to a medical appointment

or to the grocery store, seniors need reliable transportation options to get on with their daily lives. Providing adequate service to seniors allows them to maintain good health by receiving routine care, retain their independence, and connect with family and friends.

Fewer residents and riders in rural areas typically translate into less need for service under the conventional funding and planning system. Also, because rural routes are typically longer (more vehicle miles traveled) than urban routes, rural operators feel rising fuel prices especially hard.

Funding based solely on ridership and fare box recovery favors short urban trips while ignoring the high per passenger cost of providing rural service. Table 1 below provides an example of ridership and operating cost differences across rural, small urban, and urban transit from the Sacramento Region. However, the higher "unit" cost of public transportation in rural areas should not mask the need for it and funding decisions should be made accordingly.

Table 1: Average 2006/2007 Operating Cost and Ridership per Route for Urban, Small Urban and Rural Transit in the Sacramento Region*

	Rural	Small Urban	Urban	Rural Paratransit/ Dial-a-Ride	Urban Paratransit/ Dial-a-Ride
Passenger Trips/Year	7,568	103,923	257,086	23,520	763,195
Passengers/Vehicle Service Hour	3	9	30	3	3
Operating Cost/ Passenger	$ 29	$ 12	$ 5	$ 28	$ 18
Operating Cost/ Vehicle Service Hour	$ 72	$ 90	$ 114	$ 72	$ 114

*Based on average costs collected from six transit operators in the Sacramento Region during the 2006/2007 fiscal year.
http://www.sacog.org/rucs/wiki/index.php/Expanding_Travel_Choices_for_Rural_Mobility

Demand Response Services

For rural residents who cannot drive due to age or disability, demand response (also called Dial-A-Ride) service can provide essential mobility. Many local organizations, such as senior centers, offer "regular" trips to their members, but could also offer a demand response transportation service, where appointments must be made in advance to schedule a trip.

Advance scheduling can present a particular challenge. While medical appointments are usually made well in advance, sometimes users have needs that arise suddenly. Currently available Intelligent Transportation System (ITS) technologies would

enable demand response services to allow same-day reservations (space/time permitting).

Sometimes volunteer organizations try to fill in the gaps of transit service by providing their own "demand response" service using personal vehicles to offer rides to medical and social service appointments. However, volunteers should be trained on how to safely transport older individuals and persons with disabilities. Also, many of these volunteers are older individuals themselves. In addition, liability issues surrounding volunteer driving can be a major issue.

Coverage vs. Frequency

Because rural routes typically cover large areas, headways, or the time interval between vehicles moving in the same direction on a particular route, are often quite long in rural areas. Rural operators cannot easily increase service area or frequency without first attracting new passengers, but people are usually unwilling to switch to public transportation unless it is convenient. Although transit operators in all areas feel these pressures, they are especially relevant to rural operators because of the funding disparities discussed below.

"First and Last Mile"

The "first and last mile" refers to the distance from one's home to accessing public transportation (i.e., a bus stop) and the distance transit riders must travel to reach their final destination. In rural areas, traversing the first and the last mile can be difficult, if not dangerous, for pedestrians and bicyclists due to lack of sidewalks, high-speed rural roads and few public transportation access points.

Public Transportation Service Demand Threshold

When does a public transportation provider establish new service in a previously un-served or under-served rural area? Or when does the provider increase the frequency of service in small market areas? Public transportation managers tend to use some combination of analytic measures, rules of thumb, local knowledge of market forces, and political responsiveness to estimate the service level threshold to meet the growing needs for lifeline and commuter service.

The Transportation Research Board[3] has addressed the need for a sound analytical method for measuring rural public transportation service demand thresholds. Objective analysis is very useful for project justification in both local and regional funding decision making. Public transportation demand analysis needs to fit local data and local conditions. While analytically driven demand estimation techniques

[3] Transportation Research Board, TCRP B-36, "Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation", 2009 [Publication of interim report is pending.] http://144.171.11.40/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=1590

should not be considered in isolation of other information, they can give policy makers sound guidance as they allocate scarce financial resources.

Funding

Providing sufficient public transportation service with very limited resources is a challenge for all public transportation operators in this region. Over time, the methods of paying for operations have changed and the range of funding sources has declined, placing more emphasis on local sources. The difference in operating costs for rural vs. urban transit services identified in Table 1 creates a number of challenges for rural transportation services. It may be difficult to justify the funding to provide sufficient rural service despite the valuable role it plays for individuals without convenient access to daily services or automobiles.

Opportunities

Vehicle Sharing

Small non-profit organizations often have a need for service vehicles but are unable to compete with larger non-profits for Section 5310 vehicles. However, many organizations have found creative solutions to this problem. For example, in one model of vehicle sharing, a larger agency applies for a Section 5310 grant, and the small organization pays the 20% matching requirement. Then, the larger agency gives the small agency a well-maintained used vehicle and keeps the new vehicle for itself. Once the new vehicle has reached the end of its grant life, the larger agency signs the title over to the agency that supplied the original matching funds. The net result for the small non-profit agency is that it receives one well-maintained used vehicle and, several years later, a second used vehicle in exchange for its initial 20% match funds. Such vehicle pools have been used to great success by the Council on Aging and Human Services in Colfax, Washington[4].

School Bus Transit

Coordinated service between the local school district and public transportation provider can benefit both students and the general public. Allowing both students and the general public to ride on school buses provides benefits to all users without having to pay for separate services. In Mason County, Washington, the Mason County Transportation Authority pays the local school district to allow general public

[4] TRB Guidebook for Change and Innovation at Rural and Small Urban Transit Systems. “Vehicle Pool: Sharing Paratransit Vehicles in the Community.” Pp. II-15-16. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_70a.pdf

passengers to ride after school buses.[5] The program has been operational, and successful, for several years.

Coordinated Mobility

Most transportation modes experience economies of scale: increased demand can lead to improved services. Strategies that give automobile owners an incentive to use other modes for some of their trips can result in a positive cycle of improved service and further increases in demand for alternatives[6]. There are many strategies and approaches to help make rural mobility more complete[7]. Many of them center around better coordination of resources and existing services:

- Coordinate multiple partners/agencies in providing public transportation services
    - Bring together staff from:
        - Public transportation providers
        - Departments of human and social services
        - Departments of health and mental health
        - Area agencies on aging
        - Vocational and developmental disabilities departments
        - Departments of employment
        - Departments of education
        - Local business representatives
        - Nonprofit organizations, such as the Red Cross and faith-based organizations

- Coordinate with private non-profit and for-profit organizations to provide transportation to medical appointments, jobs, social engagements, etc.
- Coordinate with other counties to provide inter-regional transportation
- Allow general public to use "demand response" services when feasible
- Encourage vanpools or carpools for workers sharing commutes
- Develop a comprehensive list of available transit services from public, private for-profit, and private non-profit agencies and make it readily available to users
- Provide information to local non-profits about grants available for transportation services

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[5] TRB Guidebook for Change and Innovation at Rural and Small Urban Transit Systems. "School Buses Providing Public Transit Service." Pp. II-28-30. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_70a.pdf

[6] http://www.vtpi.org/tdm/tdm87.htm

[7] Successful Coordinated Transportation Services in Rural Communities. *Transportation Research Record: Journal of the Transportation Research Board.* Volume 1903/2005, page 54. ISSN 0361-1981.

- Develop strategies that focus on improving the acceptability, accessibility, adaptability, affordability, and availability of transportation services
    - Days and hours of service
    - Service areas
    - Different kinds of people and trip purposes served
    - Accessibility of vehicles in the fleet for persons with special needs
    - Passenger assistance and customer service training for drivers and dispatchers
    - Kinds and degree of public information concerning services
    - Kinds and amounts of funding available to help pay the costs of specific trips

Conclusion

This report has explored mobility and transportation barriers residents in rural areas face within their communities and throughout the region. The barriers are interrelated, from low population density and long distances, to lack of funding, few transportation service providers, and limited public transportation and mobility infrastructure. Many of the strategies and approaches to overcome the barriers to rural mobility point to the importance of collaboration and coordination among the stakeholders, including government agencies, public and private transportation providers, non-profit organizations and advocacy groups.