White Paper:

Transit Vehicles for Small Urban and Rural Public Transportation Systems in Texas

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Texas Transportation Institute
The Texas A&M University System • College Station, Texas 77843

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PURPOSE OF WHITE PAPER

This white paper examines the impacts that vehicle types and fleet vehicle requirements have on regional service coordination. "Fitting the Fleet" is a term used to describe the appropriate mix of different vehicle types operating in a fleet to meet service and customer needs efficiently.

"Fitting the Fleet" means choosing an appropriate mix of vehicle types to meet service requirements and customer needs.

INTRODUCTION AND BACKGROUND

Vehicles used by small urban and rural providers generally include: small cutaway buses and the transit van. In Texas, the cutaway bus is the most commonly used vehicle by small urban and rural providers. A photograph of a typical cutaway bus used in rural transportation appears in Figure 1.

Figure 1. Typical Small Type II Cutaway Bus

Vehicle Types

Small buses carry 16-24 passengers, medium buses carry 25-35 passengers, and large buses carry more than 35 passengers. A study by Community Transportation Association of America (CTAA) compared the use of different vehicles used in rural transportation. As seen in Figure 2, rural transit operators mostly use vans and small buses (54 percent use vans and 23 percent use small cutaway buses). In comparison, medium buses (25 to 35 passengers) account for 9 percent, and large buses (more than 35 passengers) for 4 percent of the rural fleet. The median fleet size was 9 vehicles.[1] (See Figure 2.)

[1] CTAA: Status of Rural Public Transportation, April 2001. Available on the FHWA Website at http://www.fhwa.dot.gov/policy/2002cpr/ch2c.htm#2-21

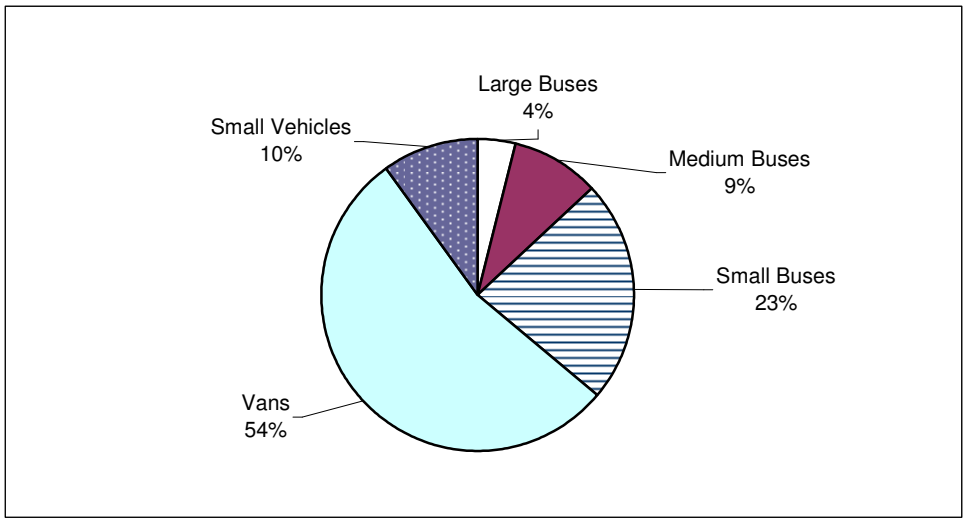

Figure 2. Fleet Composition of Rural Transit Operators

There are approximately 3,673 private and non-profit agencies that receive FTA Section 5310 funding for special public transportation services to persons with disabilities and the elderly. Vans account for approximately 75 percent of the national fleet, small buses for 13 percent, and large buses and automobiles for 12 percent. Approximately 75 percent of the vehicles purchased in FY 2000 were wheelchair accessible. (See Figure 3.)[2]

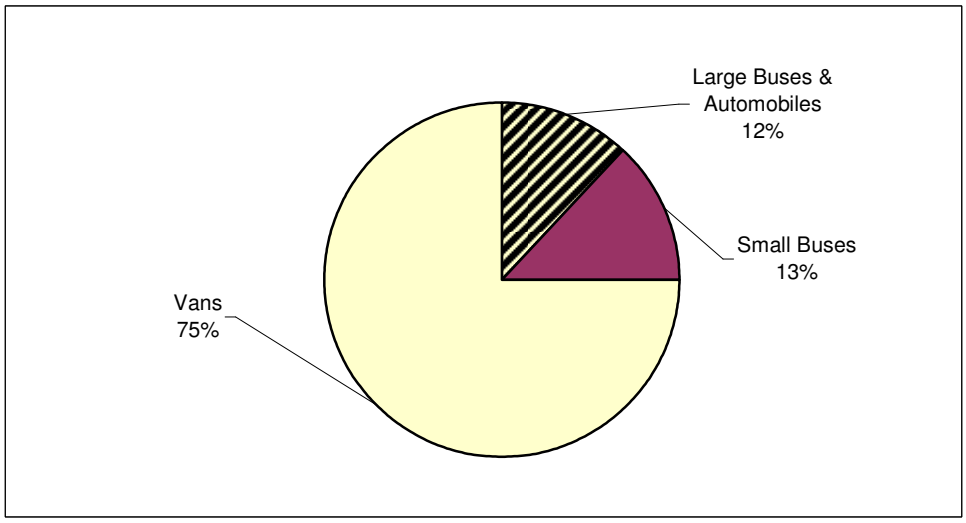

Figure 3. Fleet Composition of Special Service Operators

[2] ibid

Figure 4. Typical Transit Van

Figure 5. Typical Ramped Mini van

Federal Requirements

The Americans with Disabilities Act (ADA) has had a significant impact on transit vehicle size and configuration for small urban and rural providers. ADA was signed into law by President Bush in 1990 and governs both public and private entities, mandating accessibility for individuals with disabilities. The Federal Transit Administration (FTA) issued regulations for transportation providers in both public and private sectors.[3]

[3] 49 CFR Section 37.105 —TRANSPORTATION SERVICES FOR INDIVIDUALS WITH DISABILITIES (ADA). http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title49/49cfr37_main_02.tpl

Providers that operate a fixed route service must use ADA equipped buses and provide complementary paratransit service. These regulations (49 CFR Parts 27, 37 and 38) state that, while state and local governments may delegate the performance of ADA functions to private entities, they must continue to fulfill their responsibilities to provide service to passengers. (It is important to note that the ADA requires paratransit only as a complement to fixed-route service.) There is no complementary paratransit requirement for demand-response systems serving the general public, such as dial-a-ride or route-deviation modes.

FTA requires all vehicles operating fixed-route services to be accessible. However, demand-response systems may operate a mix of accessible and non-accessible vehicles. These demand-response systems must offer an equivalent level of service to disabled and non-disabled patrons. The service characteristics used to establish equivalency of service are: response time, fares, service area, span of service, restrictions, or prioritization by trip purpose, availability of information, reservation system capacity, and service capacity. Most rural providers in Texas are demand-response providers.

Titles II and III contain the most noteworthy provisions pertaining to transportation providers. Both titles discuss transportation services for fixed-route and demand-response systems. Title II forbids discrimination in public services: including those offered by state and local government, public bus systems, and public rail systems. Title III covers public accommodations offering goods or services to the general public, including transportation services provided by privately owned bus and rail companies.

Most rural providers in Texas are demand-response providers and therefore must provide equivalency of service.

ADA also distinguishes between the types of services provided and the types of transportation providers. Under ADA, a public agency is any unit of local or state government or any agency or organization under contract with a local unit of government. This includes small urban and rural providers. Private agencies are those agencies whose main purpose is the transportation of passengers. Note that a private agency that provides public agency service under contract must meet public agency ADA requirements in delivery of that service.

Other State Vehicle Procurement Requirements

Wisconsin

Providers in Wisconsin submit an application and vehicle request to the department. There are three types of vehicles most commonly used: the cutaway bus, ramped minivan (Caravan or Chevy Uplander) and the Crown Victoria for shared taxi. There are no requirements for alternative fuel, but new specifications will include a requirement for bi-fuel capability. Purchases are made through a state contract.[4] http://www.dot.wisconsin.gov/modes/bus.htm

Virginia

Virginia reports that all vehicles purchased by grantees must meet ADA requirements, but flexibility is given to the types of vehicles and includes various cutaways and vans. Providers may select from among approximately 10 vehicle types. Grantees in Virginia are allowed to add

[4] Conversation with Dave Lowe, Wisconsin DOT.

options to vehicles, but they must pay the full cost differential. Most providers buy vehicles using the state contract (a general services division type contract). The providers meet annually with the Department of Rail and Public Transportation to review available vehicles and make vehicle requests; and the Department negotiates with providers to select and specify the vehicle for procurement.[5] http://www.drpt.virginia.gov/grants/pt.aspx

Kansas

Kansas requires all grantee purchases to be ADA compliant. There are approximately 12 specifications available for providers to choose from that include various sized cutaway buses, vans, ramped minivans, and sedans. There is no alternative fuel requirement.[6] http://www.ksdot.org/burTransPlan/pubtrans/index.asp

Medicaid Vehicle Requirements

Nearly all of the vehicles used in the Medical Transportation Program (MTP) in Texas are contracted on a regional basis to both private for-profit and non-profit providers. Vehicle requirements for the MTP program are not specified in regulation. Rather, the vehicles are part of the performance conditions within the contract to provide services. Contractors are required to have the resources to provide the service in terms of drivers and vehicles. The requirement is geared to meet client-by-client transportation needs. For example, if an ADA lift equipped vehicle is needed to transport a client, then it must be provided. Alternatively, if a lift-equipped vehicle is not needed, then the contractor is not required to provide it.

TxDOT provides many helpful procurement documents on their website including a Best Practices Procurement Manual and vendors list.

VEHICLE PROCUREMENT

Public transportation grantees must comply with standard procurement and contracting practices in accordance with Federal Transit Administration (FTA) guidelines. (See http://www.fta.dot.gov/laws/circulars/leg_reg_4063.html.)

TxDOT provides many helpful procurement documents, forms, vehicle specifications and examples on the PTN transit vehicle procurement webpage: http://www.dot.state.tx.us/services/public_transportation/transit_procurement.htm. The site includes a *Best Practices Procurement Manual*. Additional resources for bus procurement are available from the APTA and CTAA websites.

When rural and small urban providers seek to purchase new vehicles there are three basic options:

- **Individual Purchase** – a grantee prepares specifications and goes out for bid individually
- **Group Purchase Agreement** – two or more grantees combine to procure vehicles. This is sometime referred to as piggy-back procurement.

[5] Conversation with Darrel Fease, Department of Rail and Public Transportation.
[6] Based on procurement manual and website information. http://www.ksdot.org/burTransPlan/pubtrans/index.asp

- **Cooperative Purchase** – grantees purchase through another agency such as the Texas Building Procurement Agency (http://www.tbpc.state.tx.us), or the Houston-Galveston Area Council (https://www.hgacbuy.org/default.html.)

Group and cooperative purchases may offer the benefit of lower cost procurement through increased buying power, and by taking advantage of purchasing experience and expertise. The FTA and TxDOT encourage the use of group and cooperative purchases when appropriate.

Impacts on Coordination

Transportation is not a "one-size-fits-all" service because transportation needs vary by passenger ability, geographic setting, and the community served. People with disabilities and the transportation disadvantaged who live in small rural regions of Texas face different challenges than do those living in larger urban areas. A provider described using the same vehicle for the entire fleet as: "ordering team uniforms, but only buying one size."

The vehicle fleet may impact operations, efficiency, and service delivery. A common constraint cited by small urban and rural providers was that operating large lift-equipped cutaway vehicles is less efficient than using smaller vans. Although there are advantages to using one type of vehicle, a "one-size-fits-all" approach to vehicle procurement may not be appropriate. Rural providers that may take long trips with few passengers may find the use of vans more efficient to use than larger type II cutaway buses. These providers believe that a smaller, more efficient vehicle is better suited for these types of long trips with few passengers.

The constraints cited by both small urban and rural providers in Texas included:[7]

- a single style vehicle does not complement various vehicle trip characteristics and usage
- cutaway buses are more costly to operate than vans
- cutaway vehicles are more costly to purchase
- cutaway buses are not suited for long trips with few passengers, a common trip type for remote/rural providers
- increased demand has forced providers to extend the life of an already aging fleet, which becomes costly to maintain
- ADA equipment adds weight to vehicles (batteries), maintenance, and specialized training for drivers and is needed for less than 25% of trips
- cutaway buses are not suited to rural road conditions that may include narrow and unpaved roads, and cattle guards
- the increased operating cost incurred by using a less efficient vehicle has an impact on future funding due to the performance-based allocation formula
- providers lack vehicle procurement expertise when making purchases
- passengers in a region experience confusion from inconsistent vehicle markings and logos
- a poor image is presented to public when large buses carry few passengers.

[7] The constraints were compiled from "Barriers and Constraints' submitted to TxDOT by planning regions and from regional planning meetings. Regional "Barriers and Constraints" are available at http://www.regionalserviceplanning.org/clearinghouse/barriers_constraints/

Impacts on Service

Many rural transit agencies rely on outside sources for maintenance and repairs. If a vehicle is under warranty, the provider is dependent on taking the vehicle to a specific location (sometimes outside their region) to fix the problem. This can result in long wait times to repair a bus and return it to service. Cutaways use a combination of multiple separately manufactured components. Conflicts may arise in determining which manufacturer warrantee is responsible for fixing a problem.

There are several ways that a providers fleet composition can affect service. Including:

- maintenance cost and down time for maintenance
- operating cost and lower fuel efficiency (affects operating cost performance measure)
- purchase cost (high purchase cost reduces ability to buy more vehicles, requires longer operating life leading to increased operating cost)

Lessons from a For-Profit Provider

A private for-profit provider explained that purchasing 100% ADA compliant vehicles for their fleet would be inefficient and too costly to sustain.[8] The private provider recognized that less than 25% of their clients require a lift. As an example of the savings, this private provider can purchase a one-year-old 2006 ADA Freestar van for $25,000. If they were to purchase this vehicle new, it would cost 50% more ($37,500). The same vehicle not ADA equipped would be $11,000. This allows the private provider to purchase non-lift vehicles at a ratio greater than two-to-one over the ADA vehicles purchased, and three-to-one compared to the purchase a new cutaway ADA equipped vehicle. The private provider is able to put more vehicles in service at a lower capital and operating cost.

One private provider mixes their fleet with non-ADA vehicles and replaces vehicle sooner to maintain reduce operating costs.

Because of a higher initial acquisition costs, some rural non-profit providers must maintain vehicles far longer than private providers. Keeping vehicles longer result is higher maintenance costs for rural providers over private providers. By purchasing an $11,000 vehicle, it is cheaper for the private provider to replace the vehicle in three years rather than pay for maintenance costs to keep aging equipment on the road. For-profit private providers believe mixing vehicle types and replacing vehicles sooner reduces operating costs, thereby keeping a competitive cost advantage over non-profit providers with older fleets.

Vans as Transit Vehicles

FTA continues to fund a large number of vans every year. However, the National Highway Traffic Safety Administration (NHTSA) has issued multiple warnings on the use of vans for transit. It is important to consider senior safety when using vans, as seniors are as vulnerable as children in many cases. Converted passenger vans have been banned from use specifically for

[8] Conversation and e-mail with James Sasser with Irving Holdings, Inc. Irving Holdings is the Medicaid Transportation Service Area Provider for North Central Texas.

Head Start transportation due to safety concerns. The Government Accounting Office (GAO) released a report on Head Start transportation in July 2006 that stated:

> *"Transit agencies are facing difficulties addressing dual goals: meeting the mobility needs of multiple populations including Head Start children, people with disabilities, and older adults while addressing federal safety requirements. While the federal government has encouraged human service and transit agencies to use one type of vehicle to more efficiently transport multiple populations, there has been limited federal guidance on simultaneously achieving both efficient mobility and safety goals. Specifically, few transit agencies use the alternative vehicle because, while it meets Head Start safety requirements, it does not comply with ADA requirements and consequently is not practical for transporting older adults and people with disabilities."* [9]

Using vans within the fleet mix is a viable option when taken in context with the provider's services and passengers, but safety and cost must also be considered. Lifetime cost considerations include:

- the driver cost is relatively the same for either size (van or cutaway bus)
- the provider will have to buy insurance and operate two smaller vehicles that have the same capacity as one large vehicle
- keeping parts on hand for two types of vehicles instead of one
- larger vehicles tend to last longer (approximately 7 years for small cutaway, 3-4 years for van)
- depreciation on smaller vehicles is as great or greater than the large one

RECOMMENDATIONS

Based on the review of fleets at small urban and rural systems in Texas, two broad areas should be addressed:

- existing fleets/fleet maintenance
- new vehicle purchases

Table 1 on the following page presents how these areas can be addressed. The table is organized to list a specific constraint within that area, a recommended action, and the type of action to be taken (i.e., a policy action, an agreement, or action in the form of a project).

For existing fleets it is important to support vehicle maintenance as a means to extend vehicle service life. For new vehicle purchases it is important to allow flexibility to providers to properly "fit-the-fleet" to meet regional service and passenger needs. Additionally, providers should consider using joint and cooperative purchases.

[9] Government Accounting Office Briefing: GAO-06-767R Head Start Transportation.

Table 1. Recommended Actions – Overcoming Barriers and Constraints

Area to be Addressed	Issue/Barrier/Constraint/ Specifics	Recommendation	Type of Action
Existing Fleets	Fleet maintenance and operating efficiency	Use a Vehicle Task Force to reach out to the industry (manufacturers and conversion companies) to address maintenance concerns. • identify maintenance assets • share maintenance and mechanics pool agreements • provide a "traveling" mechanic program • prepare regional training to address maintenance issues and training co-operatives • conduct regional maintenance workshops involving conversion/manufacturing companies and mechanics	Project(s)
New vehicle purchases	Fleet mix that complements services and passenger needs	Vehicle Task Force: • keeping updated vehicles specifications for purchase of more types of vehicles, including vans. • continue monitoring vehicle markets • provide information on vehicle life cycle costs to providers • help transit agencies develop strategies to fund replacements and expand their fleets • encourage joint and cooperative procurement	Project(s)
ADA Requirements	Requiring all vehicles to be lift equipped	TxDOT: Continue with waiver process Transit Agencies: Use local funds to purchase non-ADA vehicles (any size, any type)	Policy

Helpful Links

Provided below are a few helpful links to websites with specific information on buses.

- TxDOT - PTN Division Transit Vehicle Procurement:
- http://www.dot.state.tx.us/services/public_transportation/transit_procurement.htm
- FTA third party Contracting Requirements http://www.fta.dot.gov/laws/circulars/leg_reg_4063.html.)
- FTA Third Party Procurement Helpline http://www.fta.dot.gov/printer_friendly/grants_financing_6036.html
- Texas Building Procurement Agency (http://www.tbpc.state.tx.us)
- Houston-Galveston Area Council (https://www.hgacbuy.org/default.html.)
- The Altoona Bus Research and Testing Center - Bus Data Base: http://www.vss.psu.edu/BTRC.htm
- Environmental Protection Agency On-road vehicles and Engines http://www.epa.gov/otaq/hwy.htm
- Environmental Protection Agency SmartWay Transport Partnership http://www.epa.gov/smartway/

Coming Soon

The FTA Office of Mobility and Innovation has initiated the Advanced Small Transit Vehicle (ASTV) study. A possible deliverable from the FTA would be a "white book" (summary of best procurement practices or standard procurement guidelines, including technical specifications) or published functional specifications for a vehicle.