



# Kansas RTAP Fact Sheet

A Service of The University of Kansas Transportation Center for Rural Transit Providers

## When Is Small *Too* Small?

By Anne Lowder and Pat Weaver

In today's high fuel-cost environment, it is sometimes tempting for rural transit agencies to replace a larger vehicle with a smaller vehicle like a ramp-equipped minivan. Smaller vehicles do generally have better fuel efficiency and cost less initially than some of the larger vehicles. As a transit manager, you may have wondered whether going to smaller vehicles in your fleet would make sense. As with any decision a manager makes, it's important to consider all the factors that should go into a vehicle-purchase decision. This article will review some of those selection factors, share some of the experiences of other transit agencies using ramp-equipped minivans in their operations, and make some recommendations on some of the steps you should take when you get ready to procure your next vehicle.

### Which smaller vehicles are available for transit?

The Kansas Coordinated Transit District Council (KCTDC) conducts a courtesy bid on behalf of transit agencies that procure under the Section 5310, 5311, 5316 or 5317 programs. One of the vehicle options is a ramp-equipped minivan, which includes several seating configurations. Minivan options range from a vehicle that carries six to seven ambulatory passengers and no wheelchair occupants, to a ramp-equipped vehicle that will transport two or three ambulatory passengers and up to two wheelchair occupants.

### What are the factors in choosing vehicle size?

Several primary considerations go into vehicle selection, such as vehicle capacity, durability, purchase price and operating costs. Secondary factors for some agencies may be the type of driver's license required for a vehicle, and different registration requirements for larger and smaller vehicles. Transit managers should consider the pros and cons of both primary and secondary considerations in the vehicle selection process.



**Capacity.** When preparing to purchase a new vehicle, first identify the capacity needs for your agency's services. In other words, how many people do you transport on a regular basis? If you miscalculate your current demand for services or if your demand for services increases, then you may be unable to meet the needs of your area. Of course, you could always buy more vehicles, but those come at a cost to your bottom line.

**Rider characteristics.** Another dimension to vehicle capacity is the general profile of the passengers

you transport; that is, how many ambulatory and non-ambulatory riders do you typically transport at the same time on a regular basis? For example, if you purchase a minivan without wheelchair access and then later you need an accessible vehicle, you have not correctly determined or forecasted capacity in your area, and you likely not be able to meet requirements to provide equivalent service to people with disabilities under the Americans with Disabilities Act (ADA).

**Accessibility and securement.** Decisions about capacity requirements of your fleet also dictate that you know the types of mobility devices your passengers use, both current and potential. Current Kansas courtesy bid specs require two wheelchair securement areas. However, mobility devices come in all sizes and shapes, including four-wheeled or three-wheeled powered chairs that are much larger than a standard manual chair.

It is unlikely that two powered chairs can fit forward-facing (another Americans with Disabilities Act requirement) in a ramp-equipped minivan. Lyle Martin, of Four County Mental Health Center, said "basically the chairs we transport are too large to accommodate two [in a minivan]. We really use the minivans for long trips and normally there is only one wheelchair occupant and two or three ambulatory occupants." Debbie Atkinson, OCCK, Inc., stated that one of her drivers is able to get two manual wheelchairs into a minivan but normally only one

powered chair. Atkinson said that having more than one powered chair secured in a minivan makes driving the van physically difficult. Both managers agreed that, for their typical use of a van (transporting one wheelchair occupant at a time), one chair fits nicely and meet the needs of their passengers as well as the agency's needs.

Securing two wheelchairs in a minivan generally requires that the front passenger seat be removed from the vehicle. In choosing your new vehicle, find out in advance how to remove the seat and how easy it is to remove if it will be done routinely. Also determine where the seat will be stored when not in the vehicle.

Atkinson said that the seats on her manual ramp-equipped minivans are relatively easy to remove. The seats unclip and roll out and are stored in their maintenance shop. One of her drivers prefers that the wheelchair occupant be secured in the front passenger area and he removes the front seat each time he drives, she said.

One manager of a Kansas transit agency recently shared that they dispatched a ramp-equipped minivan to pick up a passenger about 20 miles outside of town, but upon arrival, it became apparent that the customer's mobility device was too large for the van. The driver had to return to town to get a larger transit bus with a lift. While this can happen with any vehicle, it is important to know that securement flexibility is especially limited with a smaller vehicle like a minivan. It's prudent to put procedures in place to help identify any potential securement difficulties and how you will address them.

**Durability.** Durability is an important factor in the cost-effectiveness of a vehicle purchase.

One issue is wear and tear on the road. On what type and conditions of roads will that vehicle operate? Do you operate mainly in urban areas, with highway mileage, or are your operations more rural, in areas with a lot of gravel roads? Atkinson said she prefers using minivans instead of larger transit vehicles on country roads. The larger vehicles "shake and rattle" to distraction.

We asked OCK, Inc., and Four County Mental Health about the durability of their larger and smaller vehicles. Both agencies agree that ramp-equipped minivans hold up well with few problems. Toshio Sharp, maintenance supervisor for Four County Mental Health, said: "Maintenance problems mainly center on the automatic ramp operations." He explained that the lift is not the problem as much as the safety sensors equipped on the door that tell the automatic ramp not to operate because the door is not open.

OCK, Inc. has manually-operated ramps on their minivans. Atkinson's experience is that a manual ramp is more durable than an automated ramp when the vehicle is used by more than one driver. An automated ramp seems to work better if just one driver is assigned that vehicle to work with the ramp's quirks.

An automated ramp will need a certain amount of additional maintenance after so many cycles compared to



*While the ramp and interior look spacious, it is important to know that securement flexibility is especially limited with a smaller vehicle like a minivan. Put procedures in place to help identify any potential securement difficulties and how you will address them.*

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a manual lift. Automated lifts have built-in safety features that need to be maintained, such as door sensors and ramp-leveling sensors. Four County Mental Health has had difficulties with their automated ramp not retracting because it did not completely extend at deployment. Uneven terrain is generally the reason an automated ramp does not fully extend. When one of ramps malfunctions, maintenance staff have to go out and maintain the lift in the field, Sharp said.

**Vehicle costs.** The three primary considerations in determining cost of the vehicle are purchase price, operating costs, and durability—which affects maintenance costs and how many miles it can be driven

before it has to be replaced. While it's tempting to consider purchase price alone in a vehicle purchase, operating costs and durability are just as important.

Generally, a ramp-equipped minivan costs about \$10,000 less than a larger capacity body-on-chassis lift-equipped vehicle, depending on the options you choose. And certainly, fuel cost per mile is lower for ramp-equipped minivans. The manufacturer specs on the 2009 Dodge Caravan with a 3.8 liter V-6 engine, for instance, has an estimated EPA city/highway fuel economy of 16/23. The heavier and higher the capacity of the vehicle, the more it will cost to operate. Maintenance costs per year on the ramp-equipped minivans will vary significantly by how they are driven.

In *Useful Life of Transit Buses and Vans* (2007), durability and longevity of the minivans compared to body-on-chassis vehicles was not significantly different; both were listed with a useful life of four to five years. The factor that seemed to be most important in whether the vehicles lasted a little longer was the presence of higher-capacity truck axles with dual rear wheels, higher capacity springs and other suspension components, a somewhat heavier-duty frame, and a slightly wider body. These features support higher passenger capacities and some additional durability as compared to vehicles that may only last four years.

The FTA standard for replacement of ramp-equipped minivans is four years or 100,000 miles, which is an average of 20,000 miles per year.

Martin cited costs on two of their automated ramp-equipped minivans over a three-year period. One was at 127,000 miles with total maintenance cost of approximately \$14,000. The second minivan had 134,000 miles with a total maintenance cost of about \$13,000. Comparably, a lift vehicle with 127,000 miles had a total maintenance cost of \$20,000.

A larger vehicle had an overall higher maintenance cost, but the minivans can have more down-time in maintenance for repairs. Atkinson notes that her minivans have the lower floor and don't seem as streamlined as

previous vehicles, increasing fuel cost, but the overall cost is still lower than for larger transit lift vehicles.

**Driver's license and vehicle registration requirements.** A commercial drivers license (CDL) is usually not required for the ramp-equipped minivans because they typically transport fewer than 16 people. A CDL is required based on rated vehicle capacity, regardless of the number of passengers actually transported. While not expensive, some agencies do consider CDL requirements in the purchase decision.

Another difference between the larger vehicles and ramp-equipped minivans is the requirement for vehicles with a capacity of eight or more transporting passengers to meet the safety provisions of the Federal Motor Carrier Safety Act (i.e., driver physicals, logs, etc.) The smaller vehicles do not fall under this provision.

## Conclusion

Considering price alone in purchasing a vehicle doesn't necessarily lead to the best, or even the most cost-effective, choice. Over time, salaries and overhead will be a far more significant factor in your budget. The right vehicle to provide the necessary service for your clientele is essential to meeting the needs of your community. Do your homework: Read the specs carefully and read the vendor literature. In addition, make sure that you take the opportunity at vendor exhibits at statewide meetings to get on the vehicles, talk to managers of other agencies who operate services similar to yours, and talk to KDOT staff. In the end, you're more likely to procure a vehicle that meets the needs of your agency and your community.

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