Chapter 5: Numbers, Numbers, Numbers: Results from Other Communities

- *Which Numbers to Use*
- *Where to Get Your Own Numbers*
- *What You Can Do With the Numbers*
- *Where Our Numbers Come From*
- *Overall Rural Transportation Systems Characteristics*
- *Characteristics of Different Service Types*
- *Performance Measures for the Most Cost-Effective Systems*

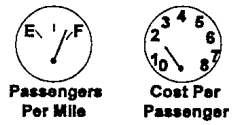
This page left intentionally blank.

If you got this far, you must really be interested in the details, right? So this chapter provides lots of numbers which do show in great detail what other rural transportation systems are achieving in their communities. (See Appendix D, also, for further details). At this point, you should also consider exploring these numbers through the Rural Transportation Services computer program, which will give you a much greater ability to obtain information that is closely tailored to your community than you will get from the summary tables (even though there are lots of them) printed in this report.

You can use these numbers to get a feel for average and exemplary results in communities like your own. This will help you decide how to proceed: for those persons now operating transportation services, to stay on the same course or to change directions; for those who are designing new systems, what kinds of services work in other communities.

WHICH NUMBERS TO USE

Facts and figures will help you understand a) What kinds of results other transportation systems usually achieve, b) What the best of the others can possibly achieve, and c) Where your services rank in terms of these other operations. For each system, the most important service measures will be its own and the most important question will be "Are we doing better now than we did last year?" Still, information about what others usually achieve and what a few can sometimes achieve will help you make fundamental decisions such as "Do we keep doing what we've been doing or do we change our approach?"



Numbers are important in answering these questions — your numbers and those of others. The most powerful numbers for service assessments are those known as "performance measures" or "performance indicators." The next few pages explain the basics of performance measures for rural transit operations.[1] If you are familiar with these concepts, you can skip the explanations and proceed directly to the section on what to do with the numbers.

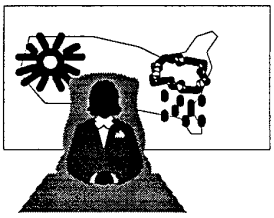
Using Performance Indicators to Assess Existing Services and Service Options

Performance indicators are highly useful in assessing transportation services. Ranges of typical performance, such as those shown previously in this chapter, can be used as guides for system managers and planners for their assessments of current or potential operations. More importantly, performance measures help to evaluate progress towards the goals and objectives set for your transit system.

1. If you need further information about performance measures, see Jon E. Burkhardt, et. al., *Comprehensive Financial Management Guidelines for Rural and Small Urban Transportation Providers*, prepared by Ecosometrics, Incorporated for the Multi-State Technical Assistance Program, September 1992.

Remember that diverse factors influence performance. There are two kinds of influential factors: controllable and noncontrollable. Controllable factors are those influenced by the decisions, policies, and actions of the transportation system's governing board, managers, and employees. Noncontrollable factors include elements which are not under the control or influence of transportation systems, including the physical, economic, and social environment of the service area.

Performance measures normally take one of three forms: cost or resource efficiency, service effectiveness, and cost effectiveness. Cost effectiveness is the most important measure and is a function of both resource efficiency and service effectiveness. The three measures are defined as follows:



- **Cost Efficiency**: The amount of public transportation services produced for the community in relation to the resources expended. This measure addresses the question, *How many resources were expended per unit of public transportation service?* Units of service produced are measured in terms of service outputs such as vehicle hours or vehicle miles. Resources expended include labor, capital, materials, and services. The smaller the amount of resources expended to produce a unit of service, the greater the resource efficiency of the public transportation service.

  Primary cost efficiency measures include **total operating cost per vehicle service hour** and **total operating cost per vehicle service mile.** Total operating cost is defined as the cost of operating a transit system including all labor, materials, and services necessary for operations, maintenance, and administration but excluding capital cost. Vehicle service hours and miles are the hours and miles that transportation vehicles are in passenger service or available (with a driver) for service.

- **Service Effectiveness**: The consumption of public transportation service in relation to the amount of service available. This addresses the question, *How much public transportation service was consumed (or revenue received), at an established price, in relation to the amount of service available?* The more service consumption (or passenger revenue) in relation to service output (vehicle miles and hours), the higher the level of service effectiveness.

Primary service effectiveness measures include **Passengers per vehicle service hour** and **Passengers per vehicle service mile.** Passengers are defined as the number of boarding passengers, revenue producing or not, carried by the transportation system. Other primary measures are **Passenger revenue per vehicle service hour** and **Passenger revenue per vehicle service mile.** Passenger revenue is defined as the passenger fares and payments received from contract passenger services.

- **Cost Effectiveness:** The consumption of public transportation services in relation to the resources expended. This concept addresses the question, *How many resources were expended per unit of consumption or how much consumption revenue was received per unit of resource expended?* Consumption is measured by passenger boardings, passenger trips or passenger miles. Consumption revenue is measured in terms of dollars. Resources expended to produce service are normally measured in terms of dollars. The smaller the dollars of resources expended in relation to the service consumed or the greater the consumption revenue received in relation to the dollars expended, the more cost-effective the service.

  Primary cost effectiveness measures include **Passenger revenue plus local contributions as a percent of total operating cost, Passenger revenue as a percent of total operating cost,** and **Total operating cost per passenger.** Local contributions are defined as the sum of revenues provided by local government and any local private contributions to support the operations and services of the public transportation system.

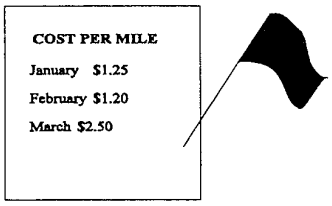
- **Service Quality**: The relationship of service delivery and customer expectations. This concept addresses the question, *Does the delivery of public transportation service meet or exceed customer expectations?* Service quality is defined as passengers, clients, and the public perceive it. Service quality has many dimensions and the importance of any single attribute differs among people. However, the attributes of quality include at least accessibility, availability, reliability, safety, and comfort.

Indicators Requiring Attention

Sooner or later in a system's operation, the system manager, the Board of Directors, or other interested parties will want to apply qualitative judgements to the quantitative measurements. From the manager's point of view, the questions "How do I know if I'm doing a good job?" and "How do I know if I'm in trouble?" are significant issues to be addressed.

There are three "most crucial" performance measures:

- cost per passenger,
- passengers per hour (or per mile), and
- cost per hour (or per mile).

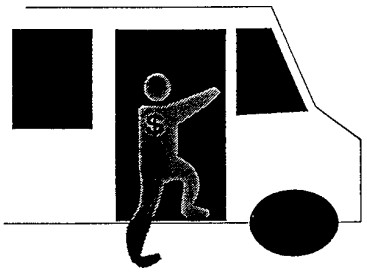


Of these, the first is the most important because it describes how much service is actually being consumed in terms of the dollar value of the resources required to produce those services.

The best means for transportation operators to address their qualitative performance is to carefully track these three measures over time. If costs per passenger or per hour (or per mile) rise drastically and permanently, this is an indicator of real problems. If the passengers per hour (or per mile) indicator falls dramatically and permanently, this is an indicator of real problems. (Short-term seasonal cycles should not be a cause of major concern). After tracking these measures for several years, a transportation operation should be able to establish its own internal standards of performance.

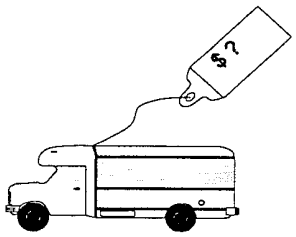
A second means of assessing relative performance is to compare your system's performance with the performance of other systems. Such comparisons are fraught with difficulty, as your system's quantitative performance will be significantly influenced by your system's own goals and objectives, which may or may not be anything like another system's goals and objectives. Differences in terrain, weather, local economic conditions, and service policies can also significantly influence the relative performance of different systems. With these caveats in mind, "typical" ranges of experience are worth considering in the following areas:

- **Cost effectiveness** answers the question **How much does it cost to carry one passenger?** The obvious measure is the performance indicator **operating cost per passenger.** The typical range of costs per passenger for rural area demand-responsive systems is from about $1.50 to almost $10.00, with an average of less than $6.00. The demand-responsive only services tend to be more expensive than the other demand-responsive operations.



- **Service effectiveness** answers the question **How many passengers ride for every unit of service provided?** It is recommended that the performance indicator **passengers per revenue hour** be used instead of passengers per service mile because the speed of service varies greatly with the type of service provided. The typical range of passengers per vehicle service hour for rural area demand-responsive system is from about 0.7 to 13, with systems offering demand-response plus fixed-route plus other services showing both the highest and the lowest figures. The average is almost 6.5 passengers per revenue hour.

- **Cost efficiency** answers the question **How much does it cost to produce a unit of service?** It is suggested that the performance indicator **operating cost per hour** be used because the largest proportion of costs (i.e., wages and salaries) are paid on an hourly basis. The typical range of operating costs per vehicle service hour for rural area demand-responsive systems is from $4 to $50, with $26 as about the average. Demand-responsive only systems tend to be a bit lower; the demand-response plus fixed-route plus other services tend to be a bit higher.

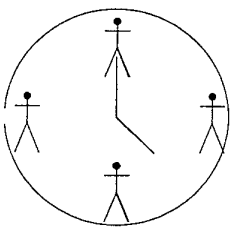


These figures are discussed in detail later in this chapter, which also discusses performance measures for the less common types of service.

Generally speaking, if a system's performance indicators fall within the range of one standard deviation from the norm, there are no large causes for concern (unless performance this year is dramatically worse than last year, as discussed above). If performance is outside these ranges, then the system's manager should spend some time and effort learning why this is so. There may be valid reasons for the variations (such as unusual goals or objectives), in which case operations would continue as before. On the other hand, the manager may not find appropriate reasons for the difference: in this case, the manager should strongly consider changing operating policies and procedures to bring the system back within the range of "typical" operations.

WHERE TO GET YOUR OWN NUMBERS

To measure and assess performance, you need to (1) keep records of how resources are spent, (2) record the intermediate results of transforming those resources into service (like miles and hours of service), and (3) record the results of delivering the service (like numbers of trips). Performance evaluation uses many forms of nonfinancial information as well as financial information.



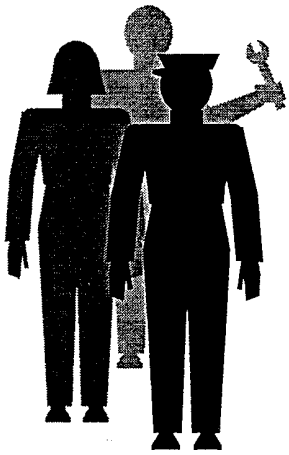
Information Needed

You will need the following kinds of data and statistics:

- **Resource inputs:** Resources expended in providing transportation service. They include labor, capital, materials, services, and other measurable items. Inputs may be classified either as financial or nonfinancial.
- **Service outputs:** Nonfinancial operating results of resource expenditures. They may be expressed as service quantity outputs such as miles or hours of service or service statistics such as accidents, road calls, or delays for use in assessing quality performance.
- **Public consumption statistics:** The actual results of service outputs considering the price or fare structure. Such information can be expressed in either financial or nonfinancial terms. For example, the number of passenger boardings is nonfinancial; passenger revenue is financial.

Resource efficiency performance measures are expressed as resource inputs in relation to service outputs (e.g., labor cost per service hour). Service effectiveness performance measures are expressed as public consumption statistics in relation to service outputs (e.g., passenger boardings per vehicle service mile). Cost effectiveness performance measures are expressed as resource inputs in terms of public consumption statistics (e.g., cost per passenger boarding).

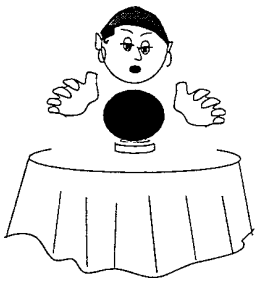
Sources of Data for Evaluation



Data and statistics used for formulating performance measures may be found throughout the transit organization. Availability and quality of data and statistics is a function of management policies, procedures used in collecting and assimilating the information, and a structured reporting system. Management must establish policies which encourage and motivate employees to measure performance. A reporting system must be structured and in place to easily accept data and statistics collected from work processes. Poor data collection techniques will inevitably lead to unreliable statistics and, subsequently, misleading performance measures. The most important data and statistics and their most probable sources follow.

Data and Statistics	Probable Sources
Dollars, labor hours	Accounting, payroll, financial management
Vehicle hours, vehicle service hours	Drivers, dispatchers, supervisors
Vehicle miles, vehicle service miles	Drivers, schedulers, dispatchers, service maintenance shop
Passenger boardings, passenger trips	Drivers, schedule checkers, surveys
Accidents, passenger injuries	Drivers, supervisors, safety, training
Complaints	Telephone information center, public relations supervisors, managers

WHAT YOU CAN DO WITH THE NUMBERS



Performance measures provide a basis for management decision-making. They provide a means by which management may periodically assess performance, measure progress toward the achievement of goals and objectives, and consider actions which may change the course of future events. Such actions may result in the modification of policies, procedures, and processes. Other actions might lead to operational changes, including increasing service or ending services.

When properly used, performance measures can also help to identify and diagnose specific problem areas. Data and statistics may be collected at the organizational, functional, work process, or job activity level to form performance measures that indicate satisfactory or unsatisfactory performance. It is important not only to assess the performance of the system and its internal functions, but also the external perceptions and expectations of passengers and the public. After all, the primary goal of any business is satisfied customers. Asking the public about transit is an appropriate way to measure performance.

Performance monitoring is one of the most significant tools available to the manager of a transportation system. Performance measures are the key to the question "What do I do now?", particularly when it appears

that a problem is at hand. Indicators of performance can suggest corrective actions such as

- increases or decreases in
  - services
    - hours and schedules
    - vehicle miles
    - routes
  - revenues
    - fares
    - contracts
    - grants
  - staff
    - operations
    - administration
- changes or modifications in
  - procedures
    - administration
    - monitoring/reporting
    - hiring
    - training
    - marketing/public relations

In fact, all activities under the control of the system's managers can be more intelligently addressed with the proper information regarding performance measures.

What a transportation system does with the results of the efficiency and effectiveness measurements collected in its evaluation process depends on many factors. The amount of funds available to make changes, level of funds already invested, and community political support all affect the manager's decision about what action to take. As shown in Table 5-1, there are four general categories of possible actions that can be taken: 1) preserve or maintain, 2) enhance or upgrade, 3) change or alter, or 4) replace or terminate the local project's current service. If your cost efficiency is high (low costs per unit of service) and your cost effectiveness is high (low costs per passenger), you can continue current policies and procedures without making major changes. If your cost efficiency is high but your cost effectiveness is low, you need to expand services while maintaining your unit cost levels. If your cost efficiency is low but your service effectiveness is high (for example, your costs per mile are high and your riders per mile are also high), you should try to maintain the same services but at lower costs, or provide more services for the same costs. If both your efficiency and effectiveness are low, you need to make major changes in your system design to provide more services and attract more passengers or local leaders may be tempted to discontinue the services. Table 5-1 presents these specific strategies for making changes based on your analysis of your own performance measures.

Table 5-1

USE OF PERFORMANCE MEASURES FOR STRATEGIC PLANNING

Cost Efficiency	*Service or Cost Effectiveness*	
	High	*Low*
	PRESERVE/MAINTAIN	**ENHANCE/UPGRADE**
High	Continue current operations at same level	Expand service while • unit costs; revenues • vehicle costs • labor productivity
	CHANGE/ALTER	**REPLACE**
Low	• Provide same service with fewer resources	Reconfigure system design
	• Provide more service for same level of resources	**TERMINATE**
		Discontinue services

WHERE OUR NUMBERS COME FROM

The numbers that describe the overall picture of the rural transportation services now being provided across the country come from two data sources: a special survey conducted for this project in which 197 randomly selected rural transportation operators provided detailed information on their services, finances, and operating characteristics (see Appendix C for more details), and a national inventory of Section 18 systems compiled by the Community Transportation Association of America (CTAA) in which 1,098 of the 1,196 Section 18-funded systems are represented. In this chapter, the national inventory is used to provide an overall perspective of rural transit operations; then, results from the special survey are used to identify systems that have particularly cost-effective or productive operations.

OVERALL RURAL TRANSPORTATION SYSTEMS CHARACTERISTICS

Where Are They?

Table 5-2 shows the distribution of Section 18-funded rural transportation systems in the United States. Twenty-one percent are in the Midwest (Illinois, Indiana, Michigan, Minnesota, and Ohio), almost 18 percent are in the Great Plains states (Iowa, Kansas, Missouri, and Nebraska), and 17 percent are in the Southeast region (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee).

Table 5-2

DISTRIBUTION OF SECTION 18-FUNDED SYSTEMS

Region	States Represented	Percent of All Systems
Region 1	New England	3.6
Region 2	New York, New Jersey, and the Territories	5.0
Region 3	Mid-Atlantic	5.6
Region 4	Southeast	17.1
Region 5	Midwest	21.1
Region 6	South Central	8.3
Region 7	Great Plains	17.7
Region 8	Rocky Mountains	9.8
Region 9	Arizona, California, Hawaii, Nevada, Guam and American Samoa	8.1
Region 10	Northwest	3.6

[1]In this section, all tables present data from the national inventory of 1,098 of 1,196 Section 18-funded rural transportation systems. These data are collected by the CTAA.

Types of Services Provided

As shown in Table 5-3, demand-responsive services predominate in rural areas. Thirty-four percent of all 1,098 services reporting were demand-responsive only, another 31 percent were demand-responsive and fixed route, and another 22 percent were demand-responsive and other service types (not fixed route). Fixed-route only systems accounted for only nine percent of those responding (partially because fixed route systems receiving Federal funding are to provide "complementary paratransit services," that is, demand-responsive operations, under the provisions of the Americans with Disabilities Act). Systems that were not fixed-route or demand-responsive, route or schedule-deviation systems, subscription, charter, or some combination of these, accounted for four percent of the total.

Table 5-3 shows a distinct regional focus to the types of services provided, with only Regions 8 and 9 mirroring the national distribution. Additional details of the distribution and other factors are shown in Appendix D.

Table 5-3

PREVALENCE OF SERVICE TYPES AMONG SECTION 18-FUNDED SYSTEMS

Service Types	Distribution
National Prevalence	***Percent of All Systems***
Demand-Responsive Only	34
Fixed-Route and Demand-Responsive	31
Demand-Responsive and Other	22
Fixed-Route Only	9
Regional Focus	***Regions***
Demand-Responsive Only	Regions 6,7
Fixed-Route and Demand-Responsive	Regions 1,10
Demand-Responsive and Other	Regions 4,5
Fixed-Route Only	Regions 2,3
Average Distribution (like the nation as a whole)	Regions 8,9

Overall Operational Results

Table 5-4 shows a variety of statistics for all Section 18 operations, including fleet size numbers of riders, annual budgets, trips per vehicle, budget per vehicle, and costs per trip. The influence of a number of large systems makes the mean (average) value significantly higher than the median values (the value in the middle of each range).

The following sections go into each factor in more detail, breaking out the operational results by service types.

Table 5-4

NATIONAL SUMMARY STATISTICS FOR RURAL TRANSPORTATION SYSTEMS FUNDED BY SECTION 18

Characteristics	Mean	Median
Fleet Size	11	6
Number of Riders	82,196	33,274
Annual Budget	$315,000	$153,500
Trips/Vehicle	7,875	5,385
Budget/Vehicle	$31,500	$25,000
Cost/Trip	$7.00	$4.62

At this point, we presume that you have already made at least a preliminary decision about which type of service you will be offering: demand-responsive, fixed-route, some combination, or other services. Therefore, Tables 5-5 through 5-10 show a large number of statistics which will give you an idea of the general ranges of performance typically expected from systems of one of the six distinct service types that we have identified.

These tables show the mean (average), median, typical high and low ranges (one standard deviation from the mean) and the number of systems that provided us with information for each of the ten statistics.

CHARACTERISTICS OF DIFFERENT SERVICE TYPES

Demand-Responsive Only Services

The demand-responsive only services tend to be among the smallest services in terms of numbers of vehicles, trips, and budgets. Their costs per trip are the highest, partially because their productivity (as measured, for example, by passengers per revenue hour) is the lowest.

Table 5-5

CHARACTERISTICS OF DEMAND-RESPONSIVE ONLY SERVICES

Characteristics	Mean	Median	Typical High	Typical Low	Valid Cases
Total Vehicles	6	4	16	1	52
Total Trips	30,963	18,677	79,653	1,920	54
Total Expenses	$150,929	$118,900	$299,470	$2,338	48
Total Rev Veh Miles	92,021	57,220	208,738	1,331	55
Total Rev Veh Hours	7,119	4,016	14,971	102	55
Cost per Trip	$6.09	$4.69	$10.17	$2.02	48
Cost per Mile	$2.36	$1.70	$4.49	$0.22	48
Cost per Hour	$25.80	$19.63	$47.93	$3.66	48
Passengers per Revenue Mile	0.49	0.33	0.92	0.05	54
Passengers per Revenue Hour	5.02	3.72	8.94	1.10	54

Fixed-Route Only Service

These services are relatively small in terms of numbers of vehicles, but not in terms of trips or budgets. Their costs per mile are relatively low, but their costs per hour are the highest. Because of the small number of cases in this group, figures from other fixed-route systems may vary from those reported here.

Table 5-6

CHARACTERISTICS OF FIXED-ROUTE ONLY SERVICES

Characteristics	Mean	Median	Typical High	Typical Low	Valid Cases
Total Vehicles	7	5	12	2	9
Total Trips	85,991	59,181	173,643	2,172	9
Total Expenses	$496,463	$228,792	$1,151,934	$6,070	8
Total Rev Vehicle Miles	188,871	120,990	388,183	21,768	9
Total Rev Vehicle Hours	11,667	8,721	22,423	911	9
Cost per Trip	$5.32	$2.80	$9.06	$1.59	8
Cost per Mile	$2.14	$1.69	$3.74	$0.53	8
Cost per Hour	$30.04	$24.59	$49.30	$10.78	8
Passengers per Revenue Mile	0.43	0.44	0.66	0.20	9
Passengers per Revenue Hour	6.45	6.33	9.96	2.95	9

Demand-Responsive and Fixed-Route and Other Services

These are some of the largest systems on average. Costs per trip are good, but costs per mile and per hour are higher than average. Passengers per revenue mile and per revenue hour are the highest of the six groups.

Table 5-7

CHARACTERISTICS OF DEMAND-RESPONSIVE AND FIXED-ROUTE AND OTHER SERVICES

Characteristics	Mean	Median	Typical High	Typical Low	Valid Cases
Total Vehicles	18	9	38	1	47
Total Trips	249,771	113,608	599,899	970	47
Total Expenses	$913,668	$531,564	$2,189,776	$7,221	43
Total Rev Veh Miles	414,848	248,000	943,087	3,000	48
Total Rev Veh Hours	36,052	22,772	81,806	300	48
Cost per Trip	$5.15	$4.01	$9.08	$1.23	43
Cost per Mile	$2.72	$2.05	$4.86	$0.61	43
Cost per Hour	$29.35	$26.69	$50.04	$9.08	43
Passengers per Revenue Mile	0.77	0.46	1.58	0.06	47
Passengers per Revenue Hour	7.79	5.55	15.17	0.41	47

Not Demand-Responsive or Fixed-Route Services

These systems tend to be smaller. They have low costs per trip, per hour, and per mile, but they also have relatively low passengers per mile and per hour.

Table 5-8

CHARACTERISTICS OF NOT DEMAND-RESPONSIVE OR FIXED-ROUTE SERVICES

Characteristics	Mean	Median	Typical High	Typical Low	Valid Cases
Total Vehicles	8	9	13	3	12
Total Trips	58,505	39,500	109,098	7,911	13
Total Expenses	$210,805	$154,526	$401,899	$19,710	11
Total Rev Vehicle Miles	203,375	104,664	420,408	800	13
Total Rev Vehicle Hours	14,767	7,963	28,969	564	13
Cost per Trip	$3.97	$3.22	$6.19	$1.75	11
Cost per Mile	$2.11	$1.98	$2.91	$1.30	11
Cost per Hour	$20.25	$22.92	$30.49	$10.01	11
Passengers per Revenue Mile	0.66	0.54	1.19	0.14	13
Passengers per Revenue Hour	5.44	5.88	8.57	2.30	13

Demand-Responsive and Other (not Fixed-Route) Services

These tend to be larger operations. They tend to have mid-range unit costs and productivities.

Table 5-9

CHARACTERISTICS OF DEMAND-RESPONSIVE AND OTHER (NOT FIXED-ROUTE) SERVICES

Characteristics	Mean	Median	Typical High	Typical Low	Valid Cases
Total Vehicles	18	12	33	2	59
Total Trips	104,450	61,603	242,238	4,656	61
Total Expenses	$516,304	$317,793	$1,590,926	$12,681	57
Total Rev. Vehicle Miles	400,899	211,461	1,015,104	3,380	61
Total Rev. Vehicle Hours	32,491	17,383	83,715	258	61
Cost per Trip	$5.65	$4.85	$9.68	$1.63	57
Cost per Mile	$2.02	$1.51	$3.74	$0.29	57
Cost per Hour	$26.05	$19.88	$46.80	$5.29	57
Passengers per Revenue Mile	0.47	0.30	1.05	0.05	61
Passengers per Revenue Hour	6.29	4.32	13.59	0.60	61

Fixed-Route and Others (Not Demand-Responsive) Services

This small group of systems is in the mid-range in the size, unit cost, and productivity categories. Again, because of the small number of respondents in this category, these figures may not exactly represent other systems in the fixed-route and other services category.

Table 5-10

CHARACTERISTICS OF FIXED ROUTE AND OTHERS (NOT DEMAND-RESPONSIVE) SERVICES

Characteristics	Mean	Median	Typical High	Typical Low	Valid Cases
Total Vehicles	8	8	11	5	5
Total Trips	85,929	43,469	189,268	24,000	5
Total Expenses	$313,895	$294,245	$537,967	$89,822	5
Total Rev Vehicle Miles	162,466	99,451	304,750	20,182	5
Total Rev Vehicle Hours	44,346	6,456	113,550	3,500	5
Cost per Trip	$5.04	$4.03	$7.91	$2.16	5
Cost per Mile	$2.35	$1.81	$3.62	$1.07	5
Cost per Hour	$22.70	$25.57	$39.61	$5.80	5
Passengers per Revenue Mile	0.65	0.48	1.19	0.10	5
Passengers per Revenue Hour	5.19	6.86	8.91	1.47	5

Summary Measures

Table 5-11 shows effectiveness and productivity measures for the six types of service for comparison purposes. Again, we see that the lowest unit cost figures were reported by the non demand-responsive and non fixed-route services. The highest productivity measures were reported by those systems that provided combinations of demand-responsive, fixed-route, and other services.

Table 5-11

EFFECTIVENESS AND EFFICIENCY MEASURES FOR RURAL TRANSPORTATION SYSTEMS FUNDED BY SECTION 18

	Demand-Responsive	Fixed-Route	DR & FR & Other	Not DR or FR	DR & Others	FR & Others
Effectiveness Measures						
Cost per Trip						
Mean	$6.09	$5.32	$5.15	$3.97	$5.65	$5.04
Median	$4.69	$2.80	$4.01	$3.22	$4.85	$4.03
St. Dev.	$2.00	$3.00	$3.93	$2.22	$4.02	$2.88
Cost per Mile						
Mean	$2.36	$2.14	$2.72	$2.11	$2.02	$2.35
Median	$1.70	$1.69	$2.05	$1.98	$1.51	$1.81
St. Dev.	$2.14	$1.57	$2.12	$0.81	$1.72	$1.27
Cost per Hour						
Mean	$25.80	$30.04	$29.35	$20.25	$26.05	$22.70
Median	$19.63	$24.59	$26.69	$22.92	$19.88	$22.70
St. Dev.	$22.24	$18.71	$20.48	$10.24	$20.76	$16.90
Productivity Measures						
Passengers per RVM						
Mean	0.49	0.43	0.77	0.66	0.47	0.65
Median	0.33	0.44	0.46	0.54	0.30	0.48
St. Dev.	3.95	3.51	7.39	3.09	7.30	3.72
Passengers per RVH						
Mean	5.02	6.45	7.79	5.44	6.29	5.19
Median	3.72	6.33	5.55	5.88	4.32	6.86
St. Dev.	3.95	3.51	7.39	3.09	7.30	3.72
Numbers of Systems Reporting	55	9	48	13	61	5

PERFORMANCE MEASURES FOR THE MOST COST-EFFECTIVE SYSTEMS

You've seen the results that most systems usually achieve; now it's time to look at the best systems. Tables 5-12 through 5-22 list the most effective and efficient of the 192 Section 18-funded systems that reported in-depth data for this project. The systems are listed according to service type.

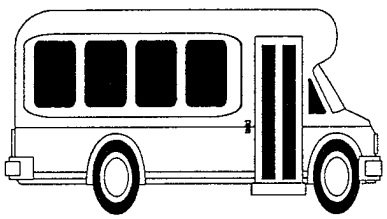
When we first looked at these numbers, we noticed a pattern in the reports: operations that were transit only reported different levels of performance from systems that were multipurpose agencies in which transportation was one of several functions. We think that some of these differences reflect differing accounting and reporting practices, but that some of the differences reflect differing operating procedures. There are often large cost differences: multipurpose agencies can usually spread administrative and office costs among various operating programs and departments; they are also more likely to use volunteer labor. Therefore, we think that the best way to present information on the top performers is to provide separate tables for transportation-only agencies and for multipurpose agencies. In the materials that follow, transportation-only agencies are described in Tables 5-12 through 5-17 and multipurpose agencies are described in Tables 5-18 through 5-22 (Note: There is no Table 5-23 because there were no fixed-route and other systems run by multipurpose agencies.)

Among the transportation-only systems, the systems reporting the most effective and productive services tended to be those that provided fixed-route and demand-responsive and other services, too. The best systems of this type were often significantly more productive than the best systems of the other service types. The best of these systems were reporting

- costs per trip of less than $1.00,
- costs per mile of less than $0.60,
- costs per hour of about $6.00,
- about 2 passengers per revenue vehicle hours, and
- over 20 passengers per revenue vehicle hour.

Among the multipurpose agency systems, the systems reporting the most effective and productive services tended to be those that provided demand-responsive only or demand-responsive and other services, too. Some of the best were reporting

- costs per trip of less than $1.30,
- costs per mile around $0.90,
- costs per hour in the $7 range,
- over 2 passengers per vehicle mile, and
- almost 30 passengers per vehicle hour.



It should be readily apparent that these "best practices" figures are 1) extremely good, 2) worth emulating, and 3) hard to emulate. These top performers have obviously

- made concerted efforts to keep their costs as low as possible, and
- have employed special strategies to attract as many passengers as possible.

Such techniques and strategies were discussed in depth in the previous chapter, which presented the results of site visits to some of these and other high-performance systems. Note that contact information for these high performance operators (as well as about 92% of all Section 18-funded rural public transportation providers) is found in Appendix E of this report; you may wish to contact these operators directly to find out how they achieved the performance statistics they reported.

It should be noted that **not many systems will be able to achieve the levels of performance reported here.** Aside from the fact that some of these systems may be using unique accounting and reporting methods, they may also have unique circumstances and opportunities. Some of these factors may become apparent when you review the characteristics of these systems through the Rural Transportation Services computer program (see Appendix A).

Your own system may show average performance on some indicators and better than average on others. The figures in Tables 5-12 through 5-22 should be seen as goals that might be achieved one day. Mean and median figures for the performance measures were shown in Tables 5-5 through 5-11; achieving these levels of performance may be more realistic as short-term goals for many systems. You might want to go back again to Chapter 4 to review information on the procedures and strategies used by some systems to enhance their performance.

Table 5-12

EFFECTIVENESS AND EFFICIENCY MEASURES
PURE DEMAND-RESPONSIVE SYSTEMS
TOP TRANSPORTATION ONLY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Peach County Transit	GA	$2.23
	2	City Cab Service	WI	$2.39
	3	Habersham County Transit	GA	$2.48
	4	Kimball Co. Handi-bus	NE	$2.48
	5	Pulaski County Transit	GA	$3.02
Cost per Mile	1	City Cab Service	WI	$0.72
	2	Peach County Transit	GA	$0.82
	3	Pulaski County Transit	GA	$1.05
	4	Scottsbluff Handi-bus Service	NE	$1.10
	5	Yellow Cab Company	WI	$1.58
Cost per Hour	1	City Cab Service	WI	$9.92
	2	Scottsbluff Handi-bus Service	NE	$11.94
	3	Peach County Transit	GA	$11.97
	4	Pulaski County Transit	GA	$12.88
	5	Habersham County Transit	GA	$14.29

Productivity measures

Passengers per RVM	1	Habersham County Transit	GA	2.25
	2	Ripley Co. Transit Service	MO	1.33
	3	Kimball Co. Handi-bus	NE	1 12
	4	Liberty County Coa	MT	1.01
	5	City Of Belding Dial-a-Ride	MI	0.86
Passengers per RVH	1	Ripley Co. Transit Service	MO	13.33
	2	Kimball Co. Handi-bus	NE	11.11
	3	City Of Belding Dial-a-Ride	MI	8.88
	4	Ionia Dial-a-ride	MI	8.00
	5	City Of Shafter Dial-a-ride	CA	6.26

Number of systems reporting = 23

Table 5-13

EFFECTIVENESS AND EFFICIENCY MEASURES
PURE FIXED-ROUTE SYSTEMS
TOP TRANSPORTATION ONLY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	City of Kingston - Citibus	NY	$2.57
	2	Dufast Transit	PA	$2.69
	3	Tomtran	NY	$5.43
	4	City Of Roswell	NM	$10.23
	5			
Cost per Mile	1	Dufast Transit	PA	$1.69
	2	City of Kingston - Citibus	NY	$2.28
	3	Tomtran	NY	$2.35
	4	City Of Roswell	NM	$4.49
	5			
Cost per Hour	1	Dufast Transit	PA	$24.59
	2	City of Kingston - Citibus	NY	$30.73
	3	City Of Roswell	NM	$53.88
	4	Tomtran	NY	$55.62
	5			

Productivity measures

Passengers per RVM	1	City of Kingston - Citibus	NY	0.89
	2	Dufast Transit	PA	0.63
	3	City Of Roswell	NM	0.44
	4	Tomtran	NY	0.43
	5			
Passengers per RVH	1	City of Kingston - Citibus	NY	11.97
	2	Tomtran	NY	10.24
	3	Dufast Transit	PA	9.14
	4	City Of Roswell	NM	5.27
	5			

Number of systems reporting = 4

Table 5-14

EFFECTIVENESS AND EFFICIENCY MEASURES
FIXED-ROUTE AND DEMAND-RESPONSIVE SYSTEMS
TOP TRANSPORTATION ONLY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Venango County Transportation	PA	$0.83
	2	Blacksburg Transit	VA	$0.90
	3	Baldwin Rural Area Transportation	AL	$0.99
	4	Park City Transit	UT	$1.05
	5	Appalcart	NC	$1.20
Cost per Mile	1	Venango County Transportation	PA	$0.20
	2	Baldwin Rural Area Transportation	AL	$0.45
	3	Grant Co. Handi Bus	NE	$0.56
	4	Pilot Club Of Starkville	MS	$0.85
	5	County Of Lebanon Transit Authority	PA	$0.91
Cost per Hour	1	Pearce-Sunsities Transportation Dep	AZ	$1.25
	2	Venango County Transportation	PA	$4.90
	3	Pilot Club Of Starkville	MS	$6.15
	4	Baldwin Rural Area Transportation	AL	$6.42
	5	Grant Co. Handi Bus	NE	$7.61

Productivity measures

Passengers per RVM	1	Blacksburg Transit	VA	3.06
	2	Park City Transit	UT	2.26
	3	The Durango Lift	CO	1.95
	4	Batavia Bus Service	NY	1.80
	5	Wilson Transit System	NC	1.78
Passengers per RVH	1	Blacksburg Transit	VA	25.18
	2	Park City Transit	UT	24.63
	3	Wilson Transit System	NC	21.66
	4	The Durango Lift	CO	19.64
	5	Arcata And Mad River Transit System	CA	15.05

Number of systems reporting = 41

Table 5-15

EFFECTIVENESS AND EFFICIENCY MEASURES
NON FIXED-ROUTE, NON DEMAND-RESPONSIVE SYSTEMS
TOP TRANSPORTATION ONLY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Merrill Transit System	WI	$2.67
	2	Valley County Transit	MT	$3.34
	3	Northwestern Connecticut Transit Distric	CT	$4.19
	4	Muskogee County Transit	OK	$6.26
	5	Potomac Valley Transit Authority	WV	$6.66
Cost per Mile	1	Show Bus (Meadows Mennonite Home)	IL	$0.91
	2	Potomac Valley Transit Authority	WV	$1.30
	3	Muskogee County Transit	OK	$2.15
	4	Northwestern Connecticut Transit Distric	CT	$2.47
	5	Merrill Transit System	WI	$2.73
Cost per Hour	1	Potomac Valley Transit Authority	WV	$24.84
	2	Northwestern Connecticut Transit Distric	CT	$26.49
	3	Merrill Transit System	WI	$28.01
	4	Valley County Transit	MT	$29.54
	5	Muskogee County Transit	OK	$34.41

Productivity measures

Passengers per RVM	1	Valley County Transit	MT	1.10
	2	Merrill Transit System	WI	1.02
	3	Northwestern Connecticut Transit Distric	CT	0.59
	4	Muskogee County Transit	OK	0.34
	5	Winnebago Rural Transportation Syst	NE	0.33
Passengers per RVH	1	Merrill Transit System	WI	10.47
	2	Valley County Transit	MT	8.86
	3	Northwestern Connecticut Transit Distric	CT	6.32
	4	Winnebago Rural Transportation Syste	NE	6.25
	5	Muskogee County Transit	OK	5.50

Number of systems reporting = 7

Table 5-16

EFFECTIVENESS AND EFFICIENCY MEASURES
DEMAND-RESPONSIVE AND MISC. (NON FIXED-ROUTE)
TOP TRANSPORTATION ONLY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Cart, Inc.	ID	$1.03
	2	Ottumwa Transit Authority	IA	$1.35
	3	Murray Transportation System	GA	$1.80
	4	Real	TX	$2.07
	5	Cullman Area Rural Transportation Syst	AL	$2.12
Cost per Mile	1	Craven County Department of Transport	NC	$0.59
	2	Kerr Area Regional Transportation Auth	NC	$0.62
	3	Regional Transit Authority	IA	$0.63
	4	Real	TX	$0.67
	5	Cart, Inc.	ID	$0.72
Cost per Hour	1	Murray Transportation System	GA	$5.10
	2	Regional Transit Authority	IA	$5.90
	3	Craven County Department of Transport	NC	$7.01
	4	Kerr Area Regional Transportation Auth	NC	$8.17
	5	City Of Cottonwood	AZ	$11.11

Productivity measures

Passengers per RVM	1	Ottumwa Transit Authority	IO	1.18
	2	Elder Care	ND	0.74
	3	Alma Dial-a-Ride	MI	0.72
	4	Cart, Inc.	ID	0.70
	5	Cullman Area Rural Transportation Syst	AL	0.69
Passengers per RVH	1	Ottumwa Transit Authority	IO	17.36
	2	Elder Care	ND	15.90
	3	Cart, Inc.	ID	15.78
	4	Cullman Area Rural Transportation Syst	AL	15.61
	5	Alma Dial-a-Ride	MI	10.17

Number of systems reporting = 36

Table 5-17

EFFECTIVENESS AND EFFICIENCY MEASURES
FIXED-ROUTE AND MISC. (NON DEMAND-RESPONSIVE)
TOP TRANSPORTATION ONLY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Key West Port And Transit Authority	FL	$2.51
	2	City Of Bath	ME	$3.73
	3	Farmville Area Bus	VA	$4.03
	4	New Castle Community Transit	IN	$4.98
	5	Berkeley County Transportation System	SC	$9.94
Cost per Mile	1	Berkeley County Transp. System	SC	$0.83
	2	Farmville Area Bus	VA	$1.76
	3	City Of Bath	ME	$1.81
	4	New Castle Community Transit	IN	$3.48
	5	Key West Port And Transit Authority	FL	$3.85
Cost per Hour	1	Key West Port And Transit Authority	FL	$4.09
	2	Berkeley County Transportation System	SC	$8.19
	3	City Of Bath	ME	$25.57
	4	Farmville Area Bus	VA	$30.09
	5	New Castle Community Transit	IN	$45.58

Productivity measures

Passengers per RVM	1	Key West Port And Transit Authority	FL	1.54
	2	New Castle Community Transit	IN	0.70
	3	City Of Bath	ME	0.48
	4	Farmville Area Bus	VA	0.44
	5	Berkeley County Transportation System	SC	0.08
Passengers per RVH	1	New Castle Community Transit	IN	9.15
	2	Farmville Area Bus	VA	7.46
	3	City Of Bath	ME	6.86
	4	Key West Port And Transit Authority	FL	1.63
	5	Berkeley County Transportation System	SC	0.82

Number of systems reporting = 5

Table 5-18

EFFECTIVENESS AND EFFICIENCY MEASURES
PURE DEMAND-RESPONSIVE SYSTEMS
TOP MULTIPURPOSE AGENCY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Minneola District Hospital	KS	$1.07
	2	Big Horn Enterprises, Inc. - T A C	WY	$1.24
	3	Mid America Nutrition Program	KS	$1.30
	4	Region XII Council of Governments	IA	$1.97
	5	Lion's Club of Wakeeney	KS	$2.16
Cost per Mile	1	Mid America Nutrition Program	KS	$0.47
	2	Madison Volunteer Rural Transportation	AL	$0.75
	3	Big Horn Enterprises, Inc. - T A C	WY	$0.88
	4	Region XII Council of Governments	IA	$0.91
	5	Prairie County Council On Aging	IL	$0.98
Cost per Hour	1	Lion's Club of Wakeeney	KS	$8.03
	2	Chase County Senior Services	NE	$9.48
	3	Oregon Housing And Associated Servic	OR	$10.31
	4	Big Horn Enterprises, Inc. - T A C	WY	$11.56
	5	Reno County Department Of Aging	KS	$12.12

Productivity measures

Passengers per RVM	1	Minneola District Hospital	KS	1.65
	2	Assumption Council On Aging	LA	1.33
	3	Lion's Club of Wakeeney	KS	0.80
	4	Big Horn Enterprises, Inc. - T A C	WY	0.71
	5	Jefferson Davis Council On Aging	LA	0.64
Passengers per RVH	1	Minneola District Hospital	KS	21.62
	2	Assumption Council On Aging	LA	17.47
	3	Big Horn Enterprises, Inc. - T A C	WY	9.29
	4	City Of Soledad	CA	7.64
	5	Region XII Council of Governments	IA	7.46

Number of systems reporting = 30

Table 5-19

EFFECTIVENESS AND EFFICIENCY MEASURES
PURE FIXED-ROUTE SYSTEMS
TOP MULTIPURPOSE AGENCY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Northwest Community College	WY	$1.44
	2	Laredo-Webb County Community Action	TX	$2.80
	3	Chautauqua County Council On Aging	KS	$5.58
	4	Town Of South Padre Island	TX	$9.06
	5	Clay County Development Corp.	WV	$10.90
Cost per Mile	1	Chautauqua County Council On Aging	KS	$0.56
	2	Northwest Community College	WY	$0.70
	3	Laredo-Webb County Community Action	TX	$1.00
	4	Clay County Development Corp.	WV	$1.52
	5	Town Of South Padre Island	TX	$4.90
Cost per Hour	1	Chautauqua County Council On Aging	KS	$6.63
	2	Northwest Community College	WY	$11.50
	3	Laredo-Webb County Community Action	TX	$19.61
	4	Clay County Development Corp.	WV	$19.94
	5	Town Of South Padre Island	TX	$51.17

Productivity measures

Passengers per RVM	1	Town Of South Padre Island	TX	0.54
	2	Northwest Community College	WY	0.48
	3	Laredo-Webb County Community Action	TX	0.36
	4	M.C.R.C. Rehabilitation Center	IL	0.32
	5	Clay County Development Corp.	WV	0.14
Passengers per RVH	1	Northwest Community College	WY	8.00
	2	Laredo-Webb County Community Action	TX	7.01
	3	Town Of South Padre Island	TX	5.65
	4	City Of Roswell	NM	5.27
	5	M.C.R.C. Rehabilitation Center	IL	4.25

Number of systems reporting = 7

Table 5-20

EFFECTIVENESS AND EFFICIENCY MEASURES
FIXED-ROUTE AND DEMAND-RESPONSIVE SYSTEMS
TOP MULTIPURPOSE AGENCY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Henry Transit	GA	$3.18
	2	South Big Horn Seniors	WY	$3.33
	3	Town of Jackson	WY	$3.96
	4	Manatee County Community Service	FL	$4.79
	5	Mississippi Valley State University Mass	MS	$5.77
Cost per Mile	1	Garfield County Council on Aging	MT	$1.23
	2	Mississippi Valley State University Mass	MS	$1.82
	3	Town of Jackson	WY	$1.83
	4	Manatee County Community Service	FL	$2.62
	5	South Big Horn Seniors	WY	$5.86
Cost per Hour	1	Mississippi Valley State University Mass	MS	$5.91
	2	Garfield County Council on Aging	MT	$7.91
	3	South Big Horn Seniors	WY	$13.29
	4	Henry Transit	GA	$20.39
	5	Town of Jackson	WY	$36.07

Productivity measures

Passengers per RVM	1	City Of Corvallis	OR	3.80
	2	Henry Transit	GA	2.00
	3	South Big Horn Seniors	WY	1.76
	4	Manatee County Community Service	FL	0.55
	5	Town of Jackson	WY	0.46
Passengers per RVH	1	City Of Corvallis	OR	35.59
	2	Town of Jackson	WY	9.10
	3	Manatee County Community Service	FL	8.87
	4	Henry Transit	GA	6.41
	5	South Big Horn Seniors	WY	3.99

Number of systems reporting = 8

Table 5-21

EFFECTIVENESS AND EFFICIENCY MEASURES NON FIXED-ROUTE, NON DEMAND-RESPONSIVE SYSTEMS TOP MULTIPURPOSE AGENCY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Child Development	WY	$1.47
	2	Pinedale Preschool	WY	$1.50
	3	City Of Nevada	MO	$2.69
	4	Township Of West Milford	NJ	$3.11
	5			
Cost per Mile	1	Township Of West Milford	NJ	$1.54
	2	City Of Nevada	MO	$1.80
	3	Child Development	WY	$1.80
	4	Pinedale Preschool	WY	$2.70
	5			
Cost per Hour	1	Pinedale Preschool	WY	$2.16
	2	Child Development	WY	$12.86
	3	City Of Nevada	MO	$13.24
	4	Township Of West Milford	NJ	$21.00
	5			

Productivity measures

Passengers per RVM	1	Pinedale Preschool	WY	1.80
	2	Child Development	WY	1.23
	3	City Of Nevada	MO	0.67
	4	Township Of West Milford	NJ	0.49
	5	Big Lakes Develop. Center, Inc.	KS	0.07
Passengers per RVH	1	Child Development	WY	8.77
	2	Township Of West Milford	NJ	6.75
	3	City Of Nevada	MO	4.92
	4	Pinedale Preschool	WY	1.44
	5	Big Lakes Develop. Center, Inc.	KS	0.95

Number of systems reporting = 5

Table 5-22

EFFECTIVENESS AND EFFICIENCY MEASURES DEMAND-RESPONSIVE AND MISC. (NON FIXED-ROUTE) TOP MULTIPURPOSE AGENCY PERFORMERS

Effectiveness Measures

		Agency	State	
Cost per Trip	1	Carbon County Senior Services	WY	$0.94
	2	City Of Cottonwood	AZ	$2.16
	3	Rolling Plains Management Corp.	TX	$2.18
	4	Ten Sleep Seniors	WY	$2.72
	5	City Of Ogallala	NE	$2.83
Cost per Mile	1	Central Florida Regional Planning	FL	$0.66
	2	City Of Cottonwood	AZ	$0.75
	3	Douglas County (Viking Heartland Expr	MN	$0.81
	4	Northwest Tenn Human Resource Agen	TN	$0.93
	5	Tri-County Community Council	FL	$0.97
Cost per Hour	1	Douglas County (Viking Heartland Expr	MN	$4.12
	2	Central Florida Regional Planning C	FL	$6.80
	3	Northwest Tenn Human Resource Agen	TN	$6.91
	4	City Of Cottonwood	AZ	$11.11
	5	Tri-County Community Council	FL	$12.73

Productivity measures

Passengers per RVM	1	Northwest Alabama Council Of Local G	AL	3.50
	2	City Of Ogallala	NE	2.71
	3	Carbon County Senior Services	WY	2.15
	4	City Of Hutchinson	MN	0.63
	5	Ten Sleep Seniors	WY	0.55
Passengers per RVH	1	Northwest Alabama Council Of Local G	AL	37.10
	2	City Of Ogallala	NE	35.51
	3	Carbon County Senior Services	WY	28.10
	4	Rolling Plains Management Corp.	TX	7.53
	5	Ten Sleep Seniors	WY	7.30

Number of systems reporting = 30