

Coordination of Transportation Resources: The Georgia Experience

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ABSTRACT

Coordination of public transportation services has been discussed by government administrators for years. It is increasingly apparent that the problems of mobility are not necessarily linked to a lack of vehicles or operating resources. Rather, it may be that more can be done with what is available to alleviate problems of mobility. Examined is the difference between coordinated and noncoordinated transportation systems. By using select counties in Georgia, the transportation services within the counties are reviewed and measured against state operating policy. Although the results must be considered tentative because of incomplete information from operations in noncoordinated counties, the clear indication is that coordinated systems make better use of resources and provide more economic and cost-effective transportation service.

Georgia, the largest state east of the Mississippi River, has a land area of 58,876 mi² and consists of 159 counties. The 1980 population was 5.5 million, of which 48 percent resided in the 10 urbanized areas and the other 52 percent lived in nonurbanized regions. The diversity between urbanized areas and nonurbanized areas is striking mostly because of the low population density of nonurbanized areas.

Georgia's geography is also diverse. Land formations vary greatly so that while the Appalachian Mountains in the north provide skiing in the winter, the Golden Islands to the south attract sunbathers all year long. This diverse topography combines with low-density development to provide a challenge for rural public transportation operations.

Transportation providers have faced up to the challenge of providing transportation opportunities in areas with diverse topography and population centers of varying sizes. In the past, lacking the availability of public transportation programs, social services have developed transportation programs oriented to agency clients. However, local governments are increasingly becoming aware of the need for public transportation services to address a broader population, and more transportation programs have been developed and implemented.

The benefits of coordination of transportation programs are apparent in rural areas. There are a multitude of publicly financed transportation programs in the rural areas, having purpose and scope so narrowly defined that the areas suffer a lack of mobility, despite the considerable public investment. Coordination of resources in these programs has the potential to alleviate the situation of need in the midst of plenty by putting into operation vehicles that otherwise are available for limited service of an exclusive clientele. The exclusiveness of these services, funded through categorical grants, has fostered a lack of coordination among agencies in an area. These agencies have stand-alone programs that, although publicly funded, are exclusionary in scope of service. Unlike other federal programs administered within the governmental process (e.g.,

roads, water quality, police), federal social service programs are commonly administered by private nonprofit agencies with largely parochial interests. Local governments have seldom required agencies to pool resources because the funding process has effectively bypassed any opportunity for their involvement. The direct federal-local agency link has removed the federally funded programs (mostly social service programs) from local governmental influence and at the same time from local government participation and support. It is this element of local government participation and support that has made coordinated public transportation programs in Georgia successful.

The Urban Mass Transportation Administration (UMTA) Section 16(b)(2) Program was the first federal initiative that allowed states to implement coordinated specialized public transportation programs. The Georgia Section 16(b)(2) Program took a unique approach to elderly and handicapped services. Recognizing the overabundance of uncoordinated, fragmented, and disorganized transportation programs for the elderly and handicapped already competing in rural areas, the Georgia Department of Transportation (GDOT) turned to the county governments to select a single Section 16(b)(2) recipient for their area. The operator, named through a county resolution, would be the single transportation operator for elderly and handicapped passengers of its own and other agencies.

By selecting a designated agency to provide coordinated elderly and handicapped service, the county assumed a role in the administration and operation of the program. Overall, this has worked to the program's advantage. Because many services are county-sponsored, the designated private, nonprofit operators typically have access to county garages, may purchase fuel at a reduced rate from county pumps, and receive a number of other benefits that would otherwise not be available. The county, in turn, receives the benefit of a broad-based transportation operation.

Because of county involvement in public transportation operations, a broader scope of county interest has developed. Georgia has a number of Section 16(b)(2) programs that have evolved into public transportation (Section 18) programs. If county

government involvement had not been present, the potential for developing a coordinated public transportation service would have been diminished. The counties' interests lie in (a) what they believe to be a public responsibility to provide mobility services for residents that need them, and (b) the economic impact of this mobility to the local area.

Transportation services help the local economy by funneling the purchasing power to local businesses of those individuals receiving social security income, retirement income, and other public income funds. They also provide access to jobs, medical care, and other community programs. These public transportation services address the collective need for mobility in the county and have become a factor in the economic vitality of the area.

STUDY AREA

Compared in this paper are two types of public transportation systems currently operating in rural areas of Georgia: coordinated public transportation systems administered by GDOT with fiscal and operational responsibilities vested in the county, and noncoordinated systems administered by social service agencies with fiscal and operations responsibility vested in the social service agency. The

social service transportation programs represent activities ancillary to the main function of the social service agency, which is to provide social services to target population groups. The coordinated public transportation systems operate essentially as line functions of county governments and represent an area of public service.

The study included the selection of counties situated throughout Georgia that offered either coordinated or noncoordinated transportation services. A total of 10 rural counties were selected for the analysis, which were equally divided with five of the counties having coordinated transportation (Section 18) programs and five representing noncoordinated (social service programs) transportation. The selection criteria used attempted to balance the selection of counties geographically so that each group would have a mixture of topography. In the five counties that had coordinated programs, noncoordinated services were also available. However, it was believed that because the coordinated transportation programs were the dominant service in the area, it would not affect the results. In the counties with noncoordinated transportation service, there was no coordinated [Section 16(b)(2) or Section 18] transportation available. Both study groups have a predominant rural character with comparable density (66 coordinated group versus 61 noncoordinated group per mi²) and comparable topography.

Tables 1 and 2 present information that describes dominant features of the two groups. A detailed analysis was made of each county's program by comparing various performance indicators (see Tables 3 and 4). Figure 1 shows a map containing the study counties.

TABLE 1 Public Transportation Programs (coordinated)

County	Topography	Population 1980	1980 Land Area (mi ²)	No. of Operators	No. of Vehicles
Berrien	Flat	13,525	456	1	1
Clay	Flat	3,553	197	1	1
Forsyth	Mountainous	27,958	226	1	1
Greene	Rolling hills	11,391	390	1	2
Walker	Mountainous	56,470	446	1	5

TABLE 2 Social Service Programs (noncoordinated)

County	Topography	Population 1980	1980 Land Area (mi ²)	No. of Operators	No. of Vehicles
Baker	Flat	3,808	347	3	7
Coweta	Rolling hills	39,268	447	4	12
Emanuel	Rolling hills	20,795	688	6	18
Lowndes	Flat	67,972	507	3	22
Meriwether	Rolling hills	21,229	506	5	23

ANALYSIS

To compare the relative benefits of coordinated public transportation systems and noncoordinated social service transportation programs, it was necessary to access operations information for the selected systems. Historical data were researched and recorded for the two types of transportation systems. The operations information for the coordinated programs came from the Rural Management Information System reports submitted to GDOT by rural public transportation operators on a monthly basis. The most current year's information (fiscal year 1985) was utilized. The type of information derived from this source included number of vehicles, passenger trips, vehicle miles, and days of operations, as well as program costs. Total operating costs included both administrative costs and operating costs charged against each of the programs.

TABLE 3 Coordinated Public Transportation Programs

Performance Indicator	County				
	Berrien	Clay	Forsyth	Greene	Walker
No. of operators	1	1	1	1	1
No. of vehicles	1	1	2	2	5
Total no. of vehicle miles	36,601	31,503	46,791	73,851	102,373
No. of annual days of operation	268	262	244	252	275
Total cost (\$)	41,675	30,571	14,991	36,903	46,285
No. of passenger trips	13,856	13,039	15,684	19,353	34,820
No. of monthly days of operation	22	22	20	21	23
No. of miles per vehicle	36,601	31,503	23,396	36,926	20,475
Cost per mile (\$)	1.14	0.97	0.32	0.50	0.45
Cost per vehicle (\$)	41,675	30,571	7,496	18,452	9,257
Cost per trip (\$)	3.01	2.34	0.96	1.91	1.33
No. of passengers per mile	0.38	0.41	0.34	0.26	0.34
No. of passengers per vehicle	13,856	13,039	7,842	9,677	6,964

Note: Data are from the Georgia Department of Transportation, and are for fiscal year 1985.

TABLE 4 Noncoordinated Social Service Transportation Programs

Performance Indicator	County				
	Baker	Coweta	Emanuel	Lowndes	Meriwether
No. of operators	3	4	6	3	5
No. of vehicles	7	12	18	22	23
Total no. of vehicle miles	39,495	115,057	184,964	249,208	387,819
No. of annual days of operation	102	175	169	146	152
Total cost (\$)	28,672	78,899	76,295	145,820	164,527
No. of passenger trips	NA	NA	NA	NA	NA
No. of monthly days of operation	9	15	14	12	13
No. of miles per vehicle	5,642	9,588	10,276	11,328	16,862
Cost per mile (\$)	0.73	0.69	0.41	0.59	0.42
Cost per vehicle (\$)	4,096	6,575	4,239	6,628	7,153
Cost per trip	NA	NA	NA	NA	NA
No. of passengers per mile	NA	NA	NA	NA	NA
No. of passengers per vehicle	NA	NA	NA	NA	NA

Note: Data are from the Georgia Department of Human Resources, and are for fiscal year 1984. NA = not available.

For comparison, information on the noncoordinated systems was provided by the Georgia Department of Human Resources, which oversees social service programs in Georgia. Summary reports by social service agencies on an annual basis; the most current data available were for fiscal year 1984. A review of the data revealed that information on key areas was missing, such as passenger trips. In addition, discrepancies were noticed in the summaries, particularly in the area of operating costs. Consequently, use of the social service transportation information

was limited to number of operating agencies in each county, total vehicles, vehicle miles, and days of operation, as well as total operating cost.

Three different types of analyses were completed. The first type took into consideration service comparisons that contrasted the utilization and availability of transportation services provided by the two types of operations. In the second type of analysis, performance indicators were evaluated, which gave a relative appraisal on how well service was being operated. In the third type of analysis, the service operations were compared with the criteria

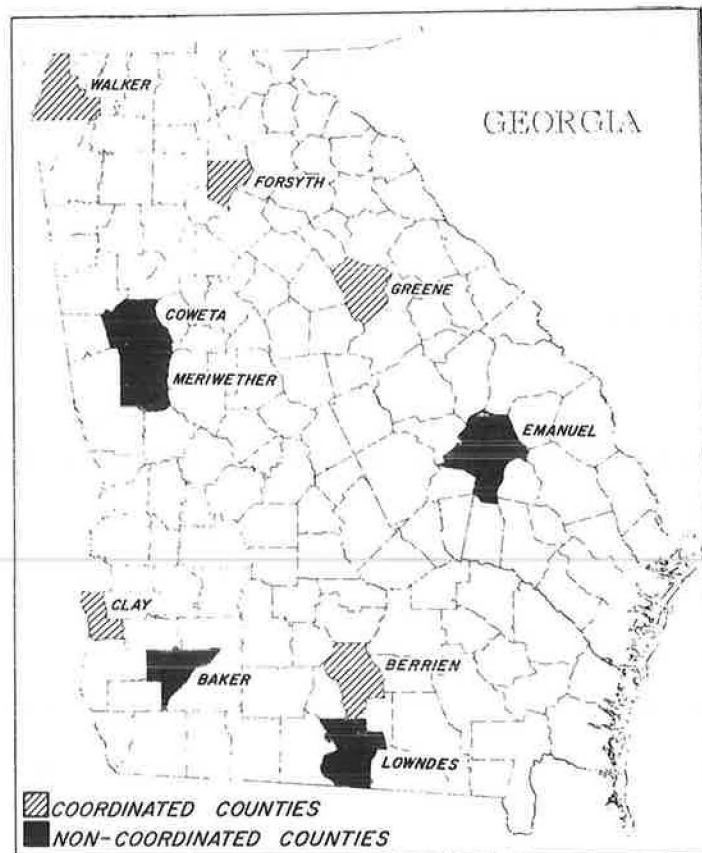


FIGURE 1 Map of coordinated and noncoordinated study counties in Georgia.

in the GDOT service policy, which serves as a benchmark of operations service levels for public transportation programs.

Service Comparisons

Several key areas were studied to determine the relative advantages of the two types of transportation systems. Level of vehicle utilization and number of vehicle miles were used as measures of service effectiveness. Operating cost was investigated as an indication of service cost efficiency, and condition of vehicles was considered an important marketing tool because reliability of service is important in rural areas.

Vehicle Utilization

The coordinated programs had a higher level of vehicle utilization, as measured in days of service; they operated 244 to 275 days per year, or an average of 20 to 23 days per month. The noncoordinated providers exhibited lower average utilization, ranging between 102 and 175 days of service per year, or between 9 and 12 service days per month.

On the average, the coordinated programs had 43 percent higher utilization annually and 42 percent higher utilization monthly than the noncoordinated programs. Number of service days would indicate that there was a corresponding level of service availability, service delivery, and resource utilization. In the coordinated counties, the level of vehicle utilization is in the requirements of the GDOT service policy, which stipulates 240 days annually. The coordinated programs meet this criterion and therefore demonstrate a comparatively higher level of service effectiveness in rural operations.

Vehicle Miles

During fiscal year 1985, the five coordinated operators logged a total of 291,119 vehicle miles of operation with the 11-vehicle fleet. This number represents an annual average of 26,465 miles per vehicle. In fiscal year 1984, the noncoordinated human service programs reported a combined total of 976,543 vehicle miles for the 82-vehicle fleet, for an average of 11,909 miles per vehicle. Coordinated transportation programs provided a level of vehicle miles of service per vehicle that was 122 percent higher than that of noncoordinated programs. This again reflects the findings from the vehicle utilization analysis: coordinated programs have a comparatively higher level of service effectiveness.

Operating Cost

Coordinated transportation providers reported a total system operating cost ranging from \$14,991 to \$46,285. These costs are based on actual monthly reimbursements and audited figures provided by each of the transportation programs. The reason for the variance in transportation costs from county to county is attributable in part to the type of equipment being operated; van operations are not as expensive as minibus vehicles. The average cost per vehicle for the five-county coordinated region was \$15,493.

Transportation costs of the noncoordinated program ranged from \$28,672 (a county with 3 agencies and 7 vehicles) to \$164,527 (a county with 5 agencies and 23 vehicles). Total operating costs appear

low, considering the number of vehicles that are operated by each of the agencies. If all five noncoordinated counties are combined, the average cost per vehicle is \$6,027. The transportation costs of the noncoordinated counties appear to fall below the average operating costs for vans nationwide and may not be accurate. The figures for the noncoordinated programs are not audited and are collected annually from the social service providers.

Insurance Cost

An area of importance to any transportation operator, and one that significantly affects operating costs, is insurance. Section 45-9-42 of the Official Code of Georgia, Annotated, allows all private, non-profit agencies that contract with the state Department of Human Resources to carry insurance provided under a state policy. In 1985 for vans costing approximately \$13,500, the vehicle insurance cost was \$307.00 per year with a \$250.00 deductible. One stipulation is that the state retain title to the vehicle. For subsequent years, the insurance cost is calculated at a rate of \$1.60 per \$100.00 value of the vehicle plus \$100.00 for liability. This arrangement guarantees a lower insurance cost as the vehicle ages.

The coordinated public transportation providers, on the other hand, purchase insurance coverage from commercial vendors at a significantly higher cost per vehicle. This affects operating cost of the coordinated systems in which the average cost of insurance is \$1,200 per vehicle unless the county is successful in securing a fleet rate. It has become more difficult to secure a fleet rate on public transportation vehicles.

Passenger Trips

The five coordinated operators listed totals ranging from 13,039 to 34,820 passenger trips during the study period for an average of 19,350 per county. Passenger trip counts for the noncoordinated transportation providers were not available for comparison.

Condition of Vehicles

Vehicles in the coordinated programs fall under GDOT's vehicle (capital disposition) policy. As a means of maintaining the operations quality and safety performance, the policy establishes guides for vehicle replacement. The condition of vehicles (vans) with 5 years or 100,000 miles is evaluated to determine if replacement or rehabilitation is needed. All vehicles under the coordinated program are inspected quarterly by the GDOT district offices for safety, operability, and mechanical soundness. The condition of brakes, tires, and operation of lights, horn, and windshield wipers are some of the 26 items inspected. Required inspection and a review of scheduled routine service records such as oil change and tune-up are also performed as a part of the quarterly review. Repairs needed are recorded and a follow-up inspection is made to ensure that the vehicles have been repaired and are in safe and proper operating condition. The current coordinated rural public transportation fleet consists of mostly late-year models (see Table 5). The noncoordinated social service transportation fleet is a mixed fleet with 18 percent classified as surplus and backup (see Table 6). Replacement of vehicles is easier in the coordinated programs because these programs have

TABLE 5 Summary of Coordinated Fleet in the Study Area

Year of Model	Type	Number
1978	Minibus	1
1979	Minibus	1
1980	Minibus	1
1982	Van	2
1983	Van	4
1985	Van	2

Note: Average age = 2.9 yr; age range = 1 to 7 yr.

TABLE 6 Summary of Noncoordinated Fleet in the Study Area

Year of Model	Type	Number
1968	Bus	1
1973	Minibus	2
1974	Minibus	2
1975	Bus, minibus, van	12
1978	Minibus, van	7
1979	Bus, minibus, van	8
1980	Bus, minibus, van	13
1981	Bus, minibus, van	10
1982	Bus, minibus, van	6
1983	Minibus, van	20
1984	Van	1

Note: Average age = 5.4 yr; age range = 2 to 17 yr.

fewer vehicles and a positive vehicle replacement program, whereas the noncoordinated programs have no policy for replacing aged or inoperable vehicles. The age of noncoordinated program vehicles ranges from 2 to 17 years. In addition, most of these vehicles are serviced by local garage facilities because they have no access to county garages. Therefore, all of these vehicles have varying maintenance standards. No vehicle inspection is performed by a state oversight agency, so the safety and serviceability of noncoordinated vehicles is an agency responsibility.

The condition of vehicles is important to the reliability of service. In rural areas, a vehicle breakdown results in delays with groups of people stranded in remote areas. The condition of vehicles is directly linked to service reliability, service attractiveness, and passenger confidence.

Performance Indicators

An evaluation of the data reported for both types of transportation providers was done and performance indicators were developed and compared. Select performance indicators were used to compare the efficiency and effectiveness of the two types of systems. By necessity, these were limited because the lack of data for noncoordinated programs restricted what could be done. The indicators selected included the following:

- Number of miles per vehicle (indication of effectiveness),
- Cost per mile (indication of efficiency),
- Cost per vehicle (indication of efficiency),
- Cost per trip (indication of efficiency), and
- Number of passengers per mile (indication of effectiveness).

Number of miles per vehicle for coordinated programs registered a high level of performance. Performance (in number of miles per vehicle) of pro-

grams in the coordinated counties combined exceeded performance of the noncoordinated counties' programs by 95,205 miles, or 177 percent. Because the data for the noncoordinated systems were not audited and only reported once a year, it remains unclear whether cost figures of social service agencies were reliable.

The noncoordinated programs did not report number of passenger trips; therefore the number of passengers per mile, number of passengers per vehicle, and cost per trip calculations could not be made. The information given in Table 7 was reported for both coordinated and noncoordinated programs.

TABLE 7 Comparison of Average Performance Measurements

Indicator	Coordinated	Noncoordinated
No. of miles per vehicle	26,465	11,909
Cost per mile (\$)	0.59	0.51
Cost per vehicle (\$)	15,493	6,027
Cost per trip (\$)	1.76	NA
No. of passengers per mile	0.35	NA

Note: NA = not available.

GDOT Service Policy for Coordinated Operations

To provide direction and guidance for improved service delivery and operating cost-effectiveness, GDOT has implemented a service policy for all rural public transportation (coordinated) operators. Each of the rural public transportation programs funded under the UMTA Section 18 Program is evaluated annually in a certification process to assess system performance relative to service policy guides. The annual certification of coordinated programs results in an overall rating of certified, conditionally certified, or not certified. The annual certification is conducted by the GDOT staff, and certification is a condition for approval of annual funding applications. Four major certification categories are reviewed to determine conformance with applicable federal and state program requirements. The categories reviewed include

- Recipient's understanding of Section 18 Program requirements,
- Marketing,
- Technical assistance, and
- Administrative and operational responsibilities.

This review process allows each of the public transportation operators to assess performance and identify improvements for continued system operations. The service policy was created with coordination as a major goal and includes operation performance criteria to evaluate coordination. Four examples of these criteria are as follows.

1. Service should be complementary and not duplicate any other service.
2. Monthly ridership should be 500 passenger trips per vehicle.
3. Level of vehicle utilization should be 120 hours per month.
4. Number of monthly vehicle miles should be 1,000 miles per active vehicle.

Based on these four service policy criteria, analysis of the two types of programs (coordinated versus noncoordinated) indicates the following:

• Service for the coordinated programs was not duplicated whereas the noncoordinated service may have been duplicative.

• All of the coordinated transportation systems met the criterion target of 500 passenger trips per month per active vehicle. However, because number of passenger trips was not available for the noncoordinated systems, a comparison of both types of systems could not be made.

• All of the coordinated programs met the standard of 1,000 miles per month per active vehicle. Only one of the noncoordinated counties satisfied this criterion.

Coordinated Social Service Programs

In 1984, the Georgia Department of Human Resources initiated two demonstration transportation programs in the state that provide coordinated social service transportation operations. One of the demonstration programs was a single-county operation whereas the other demonstration program consisted of a five-county regional service. These two demonstrations combined transportation services for aging, child development, community service block grant, mental retardation, mental health, Head Start, UMTA Section 16(b)(2), and other community programs.

Because the intention of this paper is to compare the differences between coordinated public transportation programs and noncoordinated social service transportation systems, only a limited comparison was made with the coordinated social service transportation providers.

A review of the operations information indicated that the social service coordinated systems met some of the service criteria (see Table 8). This would indicate that social service transportation can

TABLE 8 Comparison of Service Policy Criteria with Coordinated Social Service Programs

Monthly Service Criteria	GDOT Monthly Service Policy Standard	Single County	Five-County Area
No. of trips	500	720	219
No. of miles	1,000	1,342	1,167
Passengers/mile	0.50	0.53	0.19

achieve a more efficient program operation through coordination.

CONCLUSION

A review of available data from select rural counties in Georgia indicates that coordinated transportation systems provide more efficient and effective service than those that are not coordinated. Coordinated systems have better equipment inventory and have access to county maintenance facilities and supplies, which contribute greatly to better operations. Unlike noncoordinated systems operated by social service agencies, transportation is the primary service provided by the public transportation (coordinated) programs. In noncoordinated operations, transportation is an ancillary function only necessary for the delivery of agency programs. Therefore the noncoordinated transportation service is limited and exclusionary.

In cases in which social service transportation program operations are coordinated, operations performance approaches the efficiency and effectiveness of public transportation programs. Otherwise, noncoordinated systems do not compare well with the operations of coordinated systems.

A major factor in the success of the coordinated systems in Georgia is the involvement of the local government. As county operations, these systems have increased stability through county financial and operational support. In addition, the coordinated systems benefit greatly from the state DOT policy on service standard requirements and regular vehicle inspections. This policy encourages the continued improvement of service delivery for rural public transportation programs.

Some caution must be exercised with the conclusion. Data for the noncoordinated systems are weak, and therefore only broad comparisons are possible. However, the clear indication is that coordinated systems work better, provide better service, and have a broader base of support than do noncoordinated programs. For state and local governments interested in increasing program effectiveness, coordination is a viable solution.

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