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**PUBLIC TRANSIT – HUMAN SERVICES
TRANSPORTATION COORDINATION PLAN FOR
GREENE, MIAMI, MONTGOMERY, AND
PORTIONS OF NORTHERN WARREN COUNTY,
OHIO**

***RECOMMENDED EVALUATION PROCESS
FOR COORDINATION ACTIVITIES***

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prepared for the

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by

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RECOMMENDED EVALUATION PROCESS FOR COORDINATION ACTIVITIES¹

OVERVIEW

The evaluation of transportation coordination activities in the Miami Valley region should focus on documenting and improving transportation services in the region. Components of the evaluation should include process evaluation measures and outcome evaluation measures. In the early years, evaluations should focus on the processes employed and how they might be improved; in later years, evaluations should focus on the results of transportation coordination activities and how they may be enhanced.

The coordination effort in the Miami Valley region needs to be continually examined

- to ensure that it is achieving the intended goals and
- to make improvements as necessary.

Specific evaluation efforts will be dependent upon the specifics of the recommended strategies (short-term, intermediate, and long-term) after review and approval by local stakeholders. Initial efforts should be focused on the short-term (six months to two years) strategies, since it is likely that the evaluation design will have to be adjusted after the initial coordination activities are underway. Future year evaluations may change somewhat as the coordination process matures, but no major changes to the evaluation process are expected.

PROCESS EVALUATION INDICATORS

The process evaluation will focus on fundamental measures of who is involved, how are they participating, and what has been accomplished. Process evaluation focuses on inputs, outputs, and efficiency measures. As defined by the Federal Transit Administration's (FTA's) United We Ride program, "inputs are resources that an organization takes in and then processes to produce the desired result. Resources are the human, organizational, community and financial capital needed to accomplish the work. . . . Outputs are activities, processes, events, tools, actions or technologies that are a deliberate part of implementing a program. Outputs are what are done with the resources, and they are intended to bring about the desired result." Efficiency measures indicate what levels of inputs are required to create the outputs.

¹ This memorandum was written by Jon Burkhardt of Westat who also edited this memorandum and supervised its production.

The fundamental questions addressed by program evaluations are

- What are the processes and activities?
- How can we improve the processes?
- How do the processes accomplish the goals of the project?

Process evaluation focuses on first two questions above.

Coordinated transportation service evaluation should focus on four factors:

- System characteristics: What are the characteristics of transportation services, including their processes and activities, in the region? What kinds of inputs are being invested?
- Performance measures: What outputs have been created by the coordination program's processes and activities? What is the relative efficiency with which these outputs are produced? How can the outputs and their efficiencies be increased?
- Service attributes: How do customers rate the coordinated transportation services? What insights can these customers offer for service improvements?
- Service assessments help determine how overall processes and activities influence the outcomes and results of the coordinated transportation program. These service assessments are rightfully a part of the long-term outcome evaluation, not the process evaluation.

So the fundamental questions to be asked in the process evaluation are

- What have we done?
- What did it cost us?
- Did we do it when we thought we would?
- What did we produce? and
- How can we do it better?

OUTCOME EVALUATION MEASURES

The FTA's United We Ride Logic Model and Measures describes program outcomes and results in the following terms:

“Outcomes are the positive changes in the community or state as a result of the indicators. Outcomes are the specific and measurable changes that will occur because of outputs and indicators. Changes may be in practice, policy, condition, action, service, operation, status, etc. Outcomes are a measurement of change in the short-term and should be designed to lead to long-term change (result). Most logic models measure short-term outcomes in a 4-6 year timeframe. Examples of

United We Ride outcomes include communities with coordinated transportation systems or simplified points of access.

“[Results include] the intended longer-term, macro change that will occur in community and states systems because of the inputs, outputs, indicators and outcomes. Most logic models measure results in a 7-10 year timeframe. United We Ride related outcomes focus on increased mobility and accessibility.”

Thus, the focus of outcome evaluation is on “changes to the real world.”

Real-world changes take a long time to occur. They revolve around the fundamental goals of the coordinated transportation program: **expanding and providing additional transportation services for special needs populations** in ways that increase person-centered transportation options that support consumer choice and community living for all persons. If successful, the region’s long-term transportation coordination program results will address the primary goals and objectives of the regional coordination plan.

REGIONAL GOALS, OBJECTIVES, AND POTENTIAL PROJECTS

Goals

The goals of the Miami Valley regional transportation coordination plan have been stated as follows:

- Adopt a regional perspective and approach
- Improve transportation services for all travelers
- Implement transportation improvements in stages
- Maximize
 - Stakeholder participation
 - Coordination of services
 - Eligibility for Federal and other funding
 - Overall cost-effectiveness of services
 - Economic benefits to the region.

Objectives

The objectives of the regional transportation coordination plan have been stated as follows:

1. Maintain and expand the transportation services network available to seniors, people with disabilities, and people with low incomes.

2. Make information about that system available easily at both the county and regional level so that the public and advocates have a customer-friendly resource(s) to match travel needs with available options.
3. Actively coordinate among and between transit, human service agencies, and private providers to reduce gaps and overlaps in service.
4. Actively coordinate among and between transit, human service agencies, and private providers to reduce the costs involved in providing specialized transportation and reinvest savings in providing more service to seniors, people with disabilities, low income individuals, and the general public.

Potential Coordinated Action Plan “Projects”

The following projects have been suggested as key specific efforts in the implementation of the Miami Valley coordinated transportation services Action Plan:

- Provide coordinated travel information.
- Support existing service providers who provide services in accordance with the coordinated transportation plan by, for example,
 - Assistance in acquiring vehicles
 - Providing administrative and non-operating assistance
 - Offering maintenance services to smaller operators.
- Connect the major public transit services in the region with each other.
- Execute agency coordination agreements.
- Offer taxi subsidy options for some Project Mobility trips.
- Evaluate expanded use of the private sector.
- Provide community-oriented volunteer transportation services.
- Offer vanpools for work and other trips.
- Expand current public transportation services.
- Broker transportation operations.
- Provide additional local funding support for transportation.
- Offer multi-county transportation services.
- Coordinate transportation services on a regional basis.

INITIAL DATA COLLECTION EFFORTS

While it may not be realistic to expect major changes in these factors in the near term, a highly important near-term activity is **the collection of baseline data** measuring current levels of activity and achievement in each of these factors. To have the ability to show long-term changes, we need to know the status of current activities in each of these

areas. Information presented to MVRPC in the *Transportation Providers, Purchasers, Costs, Origins, and Destinations* memorandum of April 2008 should be used as the initial baseline for these data.

Performance evaluation requires data and statistics be formulated to result in meaningful performance measures. To ensure appropriate formulations, it is useful to categorize the data and statistics as follows:

- **Resource inputs:** Resources expended in addressing the goals, objectives, and projects intended to improve transportation services. 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.

Changes on a regional basis can be assessed by considering four fundamental types of measures can are commonly used in assessing transportation services:

- System characteristics,
- Performance measures,
- Service attributes, and
- Service assessments.

System characteristics include descriptions of the resource inputs required for service: funds, personnel, vehicles, etc. A fundamental result of coordination activities is expected to be an increase in the supply of transportation services available to seniors, persons with disabilities, low income populations, and the general public. This is often accompanied by a reduction in the number of agencies that are directly involved in providing trips to riders.

Performance measures typically apply ratios of inputs and outputs to measure factors such as resource efficiency, service effectiveness, and cost effectiveness. To formulate resource efficiency performance measures, resource inputs are expressed in relation to service outputs (e.g., labor cost per service hour). To formulate service effectiveness performance measures, public consumption statistics are used with service outputs (e.g., passenger boardings per vehicle service mile). To formulate cost effectiveness performance measures, resource inputs are used with public consumption statistics (e.g., cost per passenger boarding). Again, the assistance and resources applied

through coordination are expected to improve efficiency, effectiveness, and cost effectiveness within particular communities.

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. Using these statistics, one can get a good feel for how services are operating compared to their prior performance and compared to services in similar communities.

The **service attributes** include measures of quality — from both the system and the rider perspectives — such as acceptability, accessibility, adaptability, affordability, and availability. Changes in these quality attributes can be measured through customer surveys.

The **service assessments** (again collected through customer surveys) reflect the outcomes of the services, or how the services influence the lives of those who use them. Taken together, the service assessments and service attributes can be used to express changes in customer satisfaction with the services consumed. Again, we would expect to find a noticeable improvement in measures of customer satisfaction due to the resources applied to the coordinated transportation program.

Primary Information Needs

Information that should be included in the ongoing evaluation will include:

- A list of transportation providers participating and not participating in the coordinated services.
- Basic transportation system performance data, including:
 - **all costs** associated with providing the services,
 - data on the amounts of services being provided:
 - **miles of service** and
 - **hours of service**, and
 - the results of the services provided
 - **number of passengers** and
 - **funds collected** from fares and contracts.

Key measures of service efficiency, service effectiveness, and cost effectiveness should be used to compare trends in the operation of the coordinated services over time. These data should be gathered as part of a coordinated reporting and record keeping system. These data are very important for future planning. A crucial issue in determining the cost-effectiveness of transportation services in the Miami Valley region is to ensure full cost accounting for all resources expended, including all administrative and operating costs.

Using Performance Measures

The best means for transportation operators to address their qualitative performance is to carefully track the three “most crucial” measures over time. If costs per passenger or per hour (or per mile) decline significantly and permanently, this is an indicator of successful coordination activities. 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, overall standards of performance should be established on a regional basis.

A second means of assessing relative performance is to compare the Miami Valley’s performance with that of the performance of other communities. Such comparisons are fraught with difficulty, as local quantitative performance will be significantly influenced by a local community’s own goals and objectives, which may or may not be anything like another community’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, it is possible to suggest some performance measures that are worth considering:

- **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**.
- **Service effectiveness** answers the question, “**How many passengers ride for every unit of service provided?**” It is recommended that the performance indicator **passengers per hour** be used instead of passengers per service mile because the speed of service can vary greatly with the type of service provided. Passengers per mile may be an easier statistic to collect, however.
- **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. **Operating cost per mile** is also useful for some analyses.

Using these measures, system operators can monitor their performance. They can do this by comparing their statistics to those of other operators, and by measuring changes in their own performance over time. Generally, the latter method is preferable because comparisons with other systems may be difficult because of differences in goals, objectives, procedures, and the accuracy of data collection.

The major statistics that should be followed over time are those that pertain to efficiency and effectiveness of the transportation services. While many statistics could be used, the most important ones are the following:

- **efficiency:**
 - cost per trip
 - cost per hour of operation
 - cost per mile of operation.

- **effectiveness:**
 - number of passenger trips per vehicle mile
 - number of passenger trips per vehicle hour.

(Among the many other factors that could be considered in addition to these are **system productivity**, defined as the number of annual passengers divided by the population of the service area, and **subsidy level**, defined as the amount of governmental funds used on an annual basis divided by the annual number of passenger trips.)

The measures used should be used to compare trends in the operation of the system over time. If costs are increasing at a greater rate than the rate of inflation, or if numbers of passenger trips per unit of service are declining, then corrective actions will need to be taken. If costs are relatively stable and the numbers of trips per mile or per hour are increasing, then there are many reasons to be happy with the overall operations and management of coordinated transportation services in the region.

More Detailed Measures

By using more detailed measures of performance, it is possible to obtain more detailed insights into a program's operations, both its strengths and weaknesses. Knowing both strengths and weaknesses will suggest significant areas of improvement. Some of these more detailed measures would include the following:

- **Changes over time:** Total passengers, hours, costs, and revenues for specific months and years over several years= time, and the percent changes from the previous time periods.

- **Performance within components:** If a service has fixed routes, which of the routes are the most and least cost-effective should be examined, using the kinds of statistics mentioned above and comparing changes over time. If there are different

categories of fares, each fare category should be tracked (and perhaps broken down by route and time of year and other factors).

- **Performance within activities or functional cost centers:** For example, maintenance costs per hour and per mile should be examined to determine if there are problems with the level of maintenance being performed (or perhaps there is a problem with the ways in which certain operators are driving).
- **Performance for specific components:** Some operations track certain kinds of information for each particular vehicle in use, including the miles per gallon for each vehicle, the total operating costs for each vehicle, the repair and maintenance costs, and the current depreciated value of each vehicle.

An extremely comprehensive performance monitoring system would track the following kinds of measures for specific time periods and for specific routes or service types:

- **operations:**
 - numbers of vehicles in service
 - numbers of hours of service
 - numbers of miles of service
 - revenue vehicle miles per vehicle
 - revenue vehicle hours per vehicle
 - passengers per vehicle.
- **costs:**
 - total system cost per passenger trip
 - cost per total hours of operation
 - cost per total miles of operation
 - cost per revenue vehicle hour of operation
 - cost per revenue vehicle mile of operation.
- **component costs**
 - maintenance cost per revenue vehicle hour of operation
 - maintenance cost per revenue vehicle mile of operation
 - administrative cost per revenue vehicle hour of operation
 - administrative cost per revenue vehicle mile of operation.
- **ridership:**
 - number of passenger trips per total vehicle miles
 - number of passenger trips per total vehicle hours
 - number of passenger trips per revenue vehicle mile

- number of passenger trips per revenue vehicle hour.
- **effectiveness:**
 - number of passenger trips per total vehicle miles
 - number of passenger trips per total vehicle hours
 - number of passenger trips per revenue vehicle mile
 - number of passenger trips per revenue vehicle hour
 - number of passenger trips per total service area population.
- **financing:**
 - passenger revenues divided by total system costs
 - passenger revenues divided by revenue vehicle miles
 - passenger revenues divided by revenue vehicle hours
 - total government subsidy divided by the number of passenger trips
 - total system costs divided by total service area population
 - number of passenger trips per total vehicle hours.

Some operators are currently using performance monitoring systems that are as comprehensive as that described above.

EVALUATION SCHEDULE

Comprehensive data collection and reporting efforts should be undertaken every 12 months, if not more frequently. Partners in the coordinated transportation service effort should be encouraged to keep financial and performance records on a daily basis and to report them (at least to their own supervisors) on a monthly basis. This will make the annual reporting process much easier. The Miami Valley Regional Planning Commission could play a large role in developing the appropriate data collection and reporting procedures for transportation providers and purchasers in the region.

CONCLUSION

A comprehensive coordinated transportation evaluation system will help to track performance and provide alternatives and options to improve service performance. Regular monitoring is crucial for making intelligent decisions and creating more cost-effective performance. The records used for regular reporting can also help document the successful use of public funds and to create advocates for coordinated transportation services in the community.