Chapter XII

TRANSPORTATION
CONSULTANTS, INC.

CHAPTER XII

Service Monitoring and Performance Evaluation Plan

INTRODUCTION

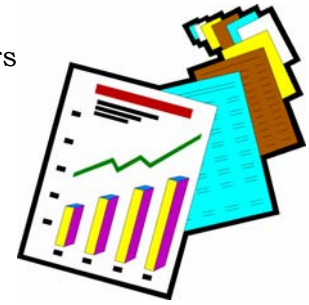
Monitoring of service should begin immediately. Data collection is essential to evaluate the service performance and to determine if changes should be made in the service delivery. This chapter provides information on data collection, data-bases, and standard reports which should be prepared. While RTS staff currently collects some of this information, detailed information such as passenger boardings and alightings by stop would greatly enhance the amount of analysis which could be performed for future service changes as well as defining stops that are appropriate for shelters or benches.

HOW DO YOU MEASURE SUCCESS?

How do you measure success? It can be very easy to measure the success of a transit agency's performance. Many times it comes down to two points:

Operating Effectiveness

Operating Efficiency



Measures of effectiveness can be tested with performance factors such as:

- Passenger-trips per mile
- Passenger-trips per hour
- Passenger-trips per capita

Measures of efficiency can be tested using the following measures:

- Cost per passenger-trip
- Cost per hour
- Cost per mile
- Cost per capita

LSC recommends that RTS develop a Transit Advisory Committee (TAC) made up of customers and prominent individuals in the community to develop performance standards using the measures stated above that will be used to "grade" the service. Performance standards should be realistic and obtainable. RTS staff could provide current data to the TAC as a reference point.

A monitoring and performance evaluation plan is essential to determine the efficiency and effectiveness of the service which is being recommended, since the recommended service is a radical departure from the demand-response service now being provided in Ridgecrest. Quarterly reports should be prepared by the RTS staff and presented to the TAC and the City Commission. Information contained in these reports should include productivity and costs.

Productivity measures for both flex-route and demand-response services should be reported for each month in the quarter. Productivity should be reported by route (service base), indicating the number of passengers per revenue-hour and passengers per revenue-mile. The actual productivity should be compared with the productivity standards which have been established.

Data to Be Collected

Data to be collected fall into three basic categories—ridership data, on-time performance, and financial.

Ridership

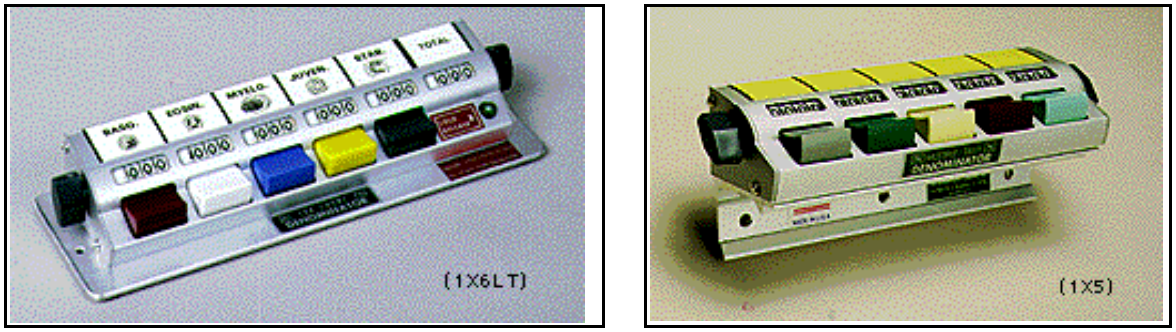
Passenger boarding data should be collected continually. There is a trade-off between data collection efforts and the value of information. It is just as easy to collect too much data as it is to collect insufficient data.

Passenger boardings should be recorded daily by route, fare category, and by trip. One goal all transit agencies should strive for is the implementation of Intelligent Transportation Systems, such as Mobile Data Terminals (MDT). Mobile Data Terminals include features such as recording each passenger by fare category as they board. This capability should be programmed into the

capability of the software as it is implemented. Mobile Data Terminals also allow both data and voice communication between operator and dispatcher. It is similar to having an alphanumeric pager on the dashboard. Successful agencies across the United States implementing MDTs include Central Ohio Transit Authority, Mountain Metro Transit in Colorado Springs, Tri-Met - Oregon, Milwaukee County Transit System, Ann Arbor Transportation Authority, and Montgomery County Transportation Authority.

Passenger boarding data can also be collected using tally boards on the buses. Two sample counters are shown in Figure XII-1. Sufficient buttons are required to record passengers in each fare category. A driver's log sheet should then be used to record the passenger counts at the end of each trip. The drivers do not need to calculate the number of passengers for that trip, but record the running total by fare category. As data are entered, the calculation of passengers on each trip can be made. An effective approach is to prepare the driver's log sheet for each of the driver's runs. This will provide preprinted route and trip information, and the driver will need only to record the date and the passenger count data.

Figure XII-1
Manual Passenger Boarding Counters



Twice each year, a full boarding and alighting count should be completed. If passenger boardings are counted using the MDTs and integrated with Automatic Vehicle Location (AVL), the data can be recorded automatically. If it must be done manually, this is a more intense effort and will require the use of additional personnel. Passenger counts are recorded for passengers boarding and alighting by stop for a full day. This information records the passenger activity at individual

stops and is useful to determine if stops are appropriately placed and what amenities should be provided. If a stop has little or no activity, it would not warrant a bench or shelter, and may not even be appropriate as a designated stop. Data collection forms should be prepared for each route showing the stops and providing space to record the passenger counts. An example used for an existing system is provided. Similar sheets should be prepared in advance for the boarding and alighting data collection.

Time: _____ am / pm

Breckenridge Route

# of carryover passengers: _____

ID	Bus Stop	ON	OFF	W/CH ON	W/CH OFF
34	Frisco Station				
46	Summit Boulevard @ School Road				
89	Main St @ 6th				
94	Granite Street				
50	Ophir Mountain Village				
21	County Commons				
95	Hwy 9 @ Farmer's Korner				
74	Hwy 9 @ Tiger Run				
97	Hwy 9 @ Vienna Townhomes				
13	Hwy 9 @ Breckenridge Rec. Ctr				
18	Park Ave. @ City Market				
6	Park Ave. @ 4 O'Clock Road				
110	Breckenridge Station				
110	Breckenridge Station				
108	Park Ave. @ River Mountain Lodge				
18	Park Ave. @ City Market				
98	Hwy 9 @ Breck Inn				
97	Hwy 9 @ Vienna Townhomes				
74	Hwy 9 @ Tiger Run				
95	Hwy 9 @ Farmer's Korner				
50	Ophir Mountain Village				
21	County Commons				
109	Summit Co Comm. Ctr				
94	Granite Street				
89	Main St @ 6th				
46	Summit Boulevard @ School Road				
34	Frisco Station				

EXTRAS

Finally, an onboard passenger survey should be conducted periodically. We recommend that a survey be conducted six months after service changes have been implemented. Following that, passenger surveys should be conducted at least every two years. Survey instruments with questions appropriate for RTS should collect information about passenger demographics, trip characteristics, and perceptions of the transit service.

Special attention should be paid to monitoring efforts in the months before and throughout the six months immediately after any major service or fare change. The data collected during this period are crucial for the before-and-after evaluations. These data should be compared to the forecast number of passengers, revenues collected, and costs incurred, determining whether the change produced the desired results. Furthermore, these data can be used to calculate local elasticity values for future planning purposes. Elasticity is defined as the percentage change in the dependent variable (ridership or revenues) resulting from a percentage change in the independent variable (fares or headways).

Guest of Springs Transit:

Please take a few minutes to complete this survey during your bus ride today. Your answers and suggestions will help us improve service. You may receive more than one survey form.

Thank you!

Springs Transit

1. Where did you come from before you got on this bus: (*check only one*)

☐ Home ☐ School/College ☐ Shopping/Errands
☐ Work ☐ Doctor/Dentist ☐ Social Visit/Recreation
☐ Other (please specify) _____

2. How did you get to this bus? *(check only one)*

☐ Walking ___ blocks ☐ Having someone drive me ☐ Bicycle
☐ Driving myself ☐ Transfer from _____ Bus
☐ Other _____ (please specify)

3. Where did you board this bus?

Address/cross streets _____

3a. How long did you wait for this bus? _____ (# of minutes)

4. Where are you going to now? (*check only one*)

☐ Home ☐ School/College ☐ Shopping/Errands
☐ Work ☐ Doctor/Dentist ☐ Social Visit/Recreation
☐ Other (please specify) _____

5. Where will you get off this bus?

Address/cross streets _____

6. How will you get from this bus to the place that you are going?

(check any that apply)

☐ Walking ___ blocks ☐ Having someone drive me ☐ Bicycle
☐ Driving myself ☐ Transfer to _____ Bus
☐ Other _____ (please specify)

7. Was a vehicle available for you to use on this trip instead of taking the bus?

☐ Yes ☐ No

8. What is the zip code of your primary residence? _____

9. What is the average amount of time you spend on the bus for this part of your trip?

_____ (# of minutes)

10. How many transfers will this trip require for you to get to your destination?

☐ None ☐ One ☐ Two or more

11. Have you previously filled out this survey?

☐ Yes ☐ No

If Yes, please stop here. If No, please continue and complete all questions.

12. I usually ride the bus ____?_____ days a week. (*check only one*)

☐ One Day ☐ Four Days ☐ Less than Once a Month
☐ Two Days ☐ Five Days ☐ One -Three Days/Month
☐ Three Days ☐ Six Days ☐ This is my first time

13. What is the most important reason you ride the bus? (*check only one*)

☐ Family doesn't have a car ☐ Someone else uses car
☐ Parking is a problem ☐ I don't drive ☐ Traffic is bad
☐ Bus is economical ☐ Bus is convenient ☐ Weather conditions
☐ Other (please specify) _____

14. How do you RATE your present bus service? (*check answers below for each part*)

	Poor	*Fair*	*Good*	*Very Good*	*Don't Know*
Comfort	☐	☐	☐	☐	☐
Service Frequency	☐	☐	☐	☐	☐
Condition of Buses	☐	☐	☐	☐	☐
Transfer Convenience	☐	☐	☐	☐	☐
Schedules	☐	☐	☐	☐	☐
Driver Courtesy	☐	☐	☐	☐	☐
Bus Routes/Area Served	☐	☐	☐	☐	☐
Safety	☐	☐	☐	☐	☐
Convenience	☐	☐	☐	☐	☐
Evening Service	☐	☐	☐	☐	☐
Fares	☐	☐	☐	☐	☐
Overall Service Quality	☐	☐	☐	☐	☐

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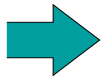

15. Are you a licensed driver and able to drive? ☐ Yes ☐ No

16. How many vehicles in operating condition does your household have?
☐ None ☐ One ☐ Two ☐ Three or more

17. Sex: ☐ Female ☐ Male

18. Age in Years _____

19. The combined Total Annual Income of all members of my household is:
- ☐ Less than $10,000 per year
- ☐ $10,000 - $25,000 per year
- ☐ $25,000 - $35,000 per year
- ☐ $35,000 - $45,000 per year
- ☐ $45,000 - $55,000 per year
- ☐ More than $55,000 per year

20. For what purpose do you MOST OFTEN ride the bus? (*check only one*)
- ☐ Personal Business/Errands
- ☐ Recreation
- ☐ School/College
- ☐ Shopping
- ☐ Work
- ☐ Other (please specify) _____

21. What is your occupation?
- ☐ Homemaker
- ☐ Laborer
- ☐ Managerial/Professional
- ☐ Production/Craft/Repair/Machine Operator
- ☐ Retired
- ☐ Sales
- ☐ Service Worker
- ☐ College Student
- ☐ Secondary Student
- ☐ Technical/Administration
- ☐ Unemployed
- ☐ Other (please specify) _____

22. What is your ethnicity?
- ☐ American Indian/Alaskan Native
- ☐ Black/African American
- ☐ Pacific Islander
- ☐ Other (please specify) _____
- ☐ Asian
- ☐ Hispanic/Latino
- ☐ White

23. Number of persons over 15 years of age in your household? _____

23a. Of these, how many are employed full-time? _____ **part-time?** _____

24. What is your primary language? _____

25. How did you first learn about Springs Transit? (*check only one*)
- ☐ Bus stop sign
- ☐ Saw bus
- ☐ Friend/coworker
- ☐ Other _____
- ☐ Family member
- ☐ Advertisement
- ☐ Saw bus guide

26. How did you pay for this trip?
- ☐ Cash
- ☐ Transfer
- ☐ Pass
- ☐ Other _____

27. What are your suggestions to improve the Springs Transit service or any other comments?

You can receive a FREE 30-day bus pass!

28. Would you be willing to complete a one-day travel diary?
☐ Yes ☐ No

If yes, fill out the information below and you may be contacted to participate!

Name: _____

Address: _____

Phone: _____

SPRINGS TRANSIT

THANK YOU!!

On-Time Performance

A vital component of any successful transit service is its ability to provide transit service on time. On time for transit is generally defined as having the bus arrive no later than five minutes after the posted time for the stop on the schedule for fixed-route service. This on-time performance definition can sometimes prove to be difficult in a flexible-route service since one never knows how much the vehicle will have to flex off-route when developing a schedule. For transit systems that use the flex-route type of service, it may be advisable to define on time as on time or 10 minutes after the scheduled time.

Once RTS has decided on the definition of on time, a goal should be set stating the acceptable percentage of on-time trips per month. For instance, a goal could be made that states RTS will strive to maintain an on-time performance ratio of 90 percent. This means that 90 percent of the time, RTS buses will be on time. The importance of an on-time performance goal is to assure that the routes and schedules are properly constructed. It is also an effective marketing tool that assures transit riders that they can rely on the bus being on time. If the service routes are unable to meet this goal, then it will be necessary to research why this goal cannot be met. Many times, schedule and route adjustments can be made that will rectify the situation.

There are several methods of gathering data to assure that RTS is meeting its on-time performance goal. One method is to conduct daily time checks where RTS supervisory staff will select a scheduled stop along a bus route and record the time the bus arrives and departs at the stop. With the Transfer Station recommended to be located at City Hall where the RTS administrative staff is located, time checks could easily be performed. Another method would be to add Automated Vehicle Locators (AVL) on each bus. The AVL uses the Global Satellite Positioning System (GPS) to allow dispatch to know where each vehicle is located. A computer software package allows for each bus with AVL to be displayed on a computer monitor and can also record timed stops.

Financial Data

RTS does a very commendable job of gathering financial data. Developing financial performance goals is a key to assuring the community that RTS is being operated

in an efficient manner. Key performance measures to be established by RTS would be monthly reports on:

- Cost per passenger-trip
- Cost per hour
- Cost per mile
- Cost per capita

Goals should be set for each measure. It is recommended that RTS staff use national averages established by the National Transit Data base for rural or small urban area transit systems to establish the goals and to compare the efficiency of RTS service.