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An Evaluation Toolkit for Florida's Commuter Assistance Programs (CAP): A Companion to the 1999 CAP Evaluation Manual

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The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the State of Florida Department of Transportation. This document was prepared in cooperation with the State of Florida Department of Transportation.

CHAPTER ONE INTRODUCTION

The Florida Commuter Assistance Program (CAP) is an important and integral part of the Florida Department of Transportation's (FDOT) program to meet transportation needs in the State of Florida. Specifically, the development of a statewide network of CAP offices was completed to offer travel choices to Florida's commuters. According to the official FDOT procedures the Florida Commuter Assistance Program is described as:

"Coordinated use of existing transportation resources can provide a responsive, low cost, alternative for alleviating urban highway congestion, improving air quality and reducing the need for costly highway improvements. The commuter assistance program focuses on the single occupant commuter trip which is the greatest cause of peak hour highway congestion. A coordinated effort to provide alternatives to these commuters using existing or low cost resources, can be beneficial to the development of public transit statewide, the attainment of the Department's program objectives for meeting the transportation needs of the disadvantaged, and the Department's priority efforts to relieve traffic congestion, improve air quality, and to assure energy conservation."

As part of their efforts to ensure that Florida's transportation needs are addressed, the FDOT has specific program requirements for each FDOT District Office and each CAP office. These requirements include establishing specific and achievable program objectives, a listing of tasks to undertake and key activities to perform, reporting on each projects performance including written reports, and measurable goals and objectives with milestones to determine progress in stated emphasis areas. All of these requirements are intended to provide the Department with a tool to evaluate how well CAP offices are meeting FDOT priority efforts to relieve traffic congestion, improve air quality, and to assure energy conservation.

This manual is a companion piece to the *Commuter Assistance Program Evaluation Manual* that was developed to assist Florida's Commuter Assistance Programs (CAP) in their efforts to measure and evaluate their performance. While the *CAP Evaluation Manual* provides a detailed description of how to devise conduct, analyze, and report an evaluation, this manual is intended to provide a basic understanding of how a CAP can meet the minimum evaluation requirements of the Florida department of Transportation. The complexity of the evaluation, and the performance measures selected, are at the discretion of the CAP office and the FDOT District Office that funds them.

This manual is divided into two parts. The first part describes the performance measures that are required and/or available to evaluate CAP program efforts, including how to obtain the data necessary to measure CAP performance. Where appropriate, guidance is provided on how to calculate performance. The second part provides the basics on how to evaluate, including how to select performance measures, and how to conduct the evaluation. The appendix includes a sample survey the CAP program can sue to obtain all necessary survey data to address the FDOT required and optional performance measures.

CHAPTER TWO PERFORMANCE MEASURES

Introduction

There are a variety of performance measures that can be used by a Commuter Assistance Program (CAP) to assess program progress and effectiveness. For Florida CAPs, performance measures can be divided into three broad categories:

- required performance measures
- optional performance measures; and
- other performance measures.

As the name suggests, required performance measures are those that the Florida Department of Transportation (FDOT) Central Office has mandated that all CAP offices in Florida must track and report on at least an annual basis. District optional performance measures are those that FDOT has determined are appropriate for some of the CAP programs and, at CAP and FDOT District option, can be reported to show progress and/or performance. Other performance measures are those that can help a CAP illustrate the effectiveness of their programs in meeting program or regional objectives.

Required Performance Measures

The FDOT required performance measures are:

- RP1. Number of commuters requesting assistance
- RP2. Number of commuters switching modes
- RP3. Number of vans in service (where applicable)
- RP4. Number of vehicle trips eliminated
- RP5. Vehicle miles eliminated
- RP6. Employer contacts
- RP7. Parking spots saved/parking needs reduced
- RP8. Commuter costs saved
- RP9. Major accomplishments

For the purposes of evaluation, the data collection requirements can be divided into two distinct categories: those data elements collected by CAP staff, and those requiring surveys. To compile the information required to evaluate the program, a survey of database members is necessary.

Performance measures requiring CAP staff to collect necessary data

To respond to the following required performance measures, the following data would be collected by CAP staff:

RP1 Number of commuters requesting assistance

This is the number of people that request assistance of some sort including:

- Carpool matchlist
- Vanpool matchlist or formation assistance
- Transit route and/or schedule information
- Telecommuting information
- Bicycle route and/or locker/rack information

The CAP offices would track the number of requests received and may want to track requests by type. The information would be reported as part of quarterly and annual progress reports.

RP3 Number of vans in service (where applicable)

This measure represents the actual number of commuter vans on the road and/or the number of vanpoolers. These numbers would be collected and reported by the CAP office.

RP6 Employer contacts

Report number of employer contacts by the following categories:

- Number contacted by letter/fax
- Number contacted by phone
- Number contacted in person
- Number of follow-up calls or visits

When reporting include the number of employees at each site. These figures will be tracked and collected by the CAP staff.

RP9 Major accomplishments

This performance measure is a listing of all major CAP programs and/or initiatives and the accomplishments of these projects/initiatives. These may include:

- New Transit Services Initiated/Improved
- Educational Program Initiated
- Transportation Planning Initiatives
- Guaranteed Ride Home Projects Initiated
- Other Implementation Activities

This information would be tracked and collected by CAP staff.

Performance measures requiring a survey to collect or calculate necessary data

The following performance measures cannot be reported unless a survey of database members is conducted. A sample survey that CAP offices can use to conduct the database survey is included as Appendix A.

RP2 Number of commuters switching modes

This is the number of people that actually use the information you provide to change from their SOV mode to carpooling, vanpooling, transit use, telecommuting, walking and/or bicycling.

This information can be gathered by doing sample survey of commuters assisted on a monthly basis by either phone or mail. Every month contact a random sample of the commuters assisted the previous month to see how many actually used the information provided. Extrapolate survey results to estimate total.

Another possibility is to use an annual survey that measures commute modes before and after joining the agency database.

It is recommended that actual data (rather than data modeled based on the number of commuters in the database and applying a fixed percentage) be used where available.

RP4 Number of vehicle trips eliminated

This performance measure is calculated by using follow-up survey data or actual data. To calculate, complete the following steps (Appendix B is a completed sample survey that was used to develop the example below that is highlighted in bold text--in this case a CAP customer who chose vanpooling):

1. If the answer to Question 8 is not 1, 2, or 3, then the total vehicle trips reduced is zero. Go on to the next survey.

Answer is 2 - continue

2. Calculate the *total trips reduced by carpooling after contacting the agency* by calculating the following:

$$\frac{(\text{Question 11} + \text{Question 15}) * ((\text{Question 12} + \text{Question 16}) - 1)}{(\text{Question 12} + \text{Question 16}) * (\text{Question 13} + \text{Question 14}) * 2 \text{ trips/day} * 49 \text{ weeks/year}}$$

$$\frac{(0 \text{ days/week} + 0 \text{ days/week}) * (0 \text{ trips/day} + 0 \text{ trips/day} - 1)}{(0 \text{ trips/day} + 0 \text{ trips/day}) * (0 \text{ months} + 0 \text{ months} = 0 \text{ years}) * 2 \text{ trips/day} * 49 \text{ weeks/year}} = 0$$

Questions 13 and 14 should be converted into years, UP TO 1 YEAR MAXIMUM, by dividing days by 245, weeks by 49, and months by 12. Since this is an annual measurement, IN NO CASE should the sum of Questions 13 and 14 be greater than 1.

3. Calculate the *total vehicle trips reduced by vanpooling after contacting the agency* by calculating the following:

$$\begin{aligned} & (\text{Question 19} + \text{Question 23}) * ((\text{Question 20} + \text{Question 24}) - 1) / \\ & (\text{Question 20} + \text{Question 24}) * (\text{Question 21} + \text{Question 22}) * \\ & 2 \text{ trips/day} * 49 \text{ weeks/year} \end{aligned}$$

$$\begin{aligned} & (5 \text{ days/week} + 0 \text{ days/week}) * (8 \text{ trips/day} + 0 \text{ trips/day} - 1 \text{ trip/day}) / \\ & (8 \text{ trips/day} + 0 \text{ trips/day}) * (8 \text{ months} = .67 \text{ years}) * \\ & 2 \text{ trips/day} * 49 \text{ weeks/year} = \\ & (35 / 8 \text{ days/week} * .67 \text{ years} * 2 \text{ trips/day} * 49 \text{ weeks} / \text{year}) = 287.3 \text{ trips} \end{aligned}$$

Questions 21 and 22 should be converted into years, UP TO 1 YEAR MAXIMUM, by dividing days by 245, weeks by 49, and months by 12. Since this is an annual measurement, IN NO CASE should the sum of Questions 21 and 22 be greater than 1.

4. Calculate the *total vehicle trips reduced through transit use after contacting the agency* by calculating the following:

$$\begin{aligned} & (\text{Question 27} + \text{Question 30}) * (\text{Question 28} + \text{Question 29}) * \\ & 2 \text{ trips/day} * 49 \text{ weeks/year} \end{aligned}$$

$$\begin{aligned} & (0 \text{ days/week} + 0 \text{ days/week}) * (0 \text{ months} + 0 \text{ months}) * \\ & 2 \text{ trips/day} * 49 \text{ weeks/year} = 0 \text{ trips} \end{aligned}$$

Questions 28 and 29 should be converted into years, UP TO 1 YEAR MAXIMUM, by dividing days by 245, weeks by 49, and months by 12. Since this is an annual measurement, IN NO CASE should the sum of Questions 28 and 29 be greater than 1.

5. Calculate the *total vehicle trips reduced through increase in other means* by calculating the following:

$$(\text{Question 34} + \text{Question 37}) * (\text{Question 35} + \text{Question 36})$$

$$\begin{aligned} & (0 \text{ days/week} + 0 \text{ days/week}) * (0 \text{ months} + 0 \text{ months}) * \\ & 2 \text{ trips/day} * 49 \text{ weeks/year} = 0 \text{ trips} \end{aligned}$$

Questions 35 and 36 should be converted into years, UP TO 1 YEAR MAXIMUM, by dividing days by 245, weeks by 49, and months by 12. Since this is an annual measurement, IN NO CASE should the sum of Questions 35 and 36 be greater than 1.

6. Sum the results of Steps 3 through 5 to determine the total number of trips reduced after contact with the agency.

Sum = 287.3 trips

To calculate the trips reduced for the entire database:

7. Calculate:

(Sum of the vehicle trips reduced for all the surveys) * (size of rideshare database / number of surveys completed with members of the rideshare database).

RP5 Vehicle miles eliminated

This performance measure is calculated by using follow-up survey data. To calculate, complete the following steps (refer to Appendix B for the sample completed survey that was used to develop the example):

1. Determine the vehicle trips reduced for *each survey* as described above. (remember that this should be 0 if the answer to Question 8 is not 1, 2, or 3)

Answer is 2 - continue

2. Multiply the result from Step 1 by Question 2 *for each survey*.

287.3 trips * 10 miles = 2873 miles

To calculate VMT reduced for the entire database:

3. Calculate:
$$\frac{(\text{Sum of the vehicle miles reduced for all the surveys}) * (\text{size of rideshare database})}{\text{number of surveys completed with members of the rideshare database}}.$$

RP7 Parking spots saved/parking needs reduced

This is a performance measure that is calculated by determining the number of people using alternative modes at each employment site. It can also be calculated by taking the number of vehicle trips reduced from a database survey and dividing by 2 trips per day and 245 working days per year.

RP8 Commuter costs saved

This performance measure is calculated by multiplying vehicle miles eliminated by the average cost per mile (AAA uses \$.448 per mile, the federal government and State of Florida use \$.29 per mile).

District Optional Performance Measures

The FDOT defined District optional performance measures are:

- OP1. Gasoline saved
- OP2. Emissions reduced
- OP3. Information materials distributed
- OP4. Special events
- OP5. Media/community relations

For the purposes of evaluation, the data collection requirements can be divided into two distinct categories: those data elements collected by CAP staff, and those requiring surveys. To compile the information required to evaluate the program, a survey of database members is necessary.

Performance measures requiring CAP staff to collect necessary data

To respond to the following District Optional performance measures, the following data would be collected by CAP staff:

OP3 Information materials distributed

This performance measure details the number and type of informational materials distributed by the CAP. Informational materials may include but are not limited to:

- Brochures
- Information Packets
- Posters
- Surveys

OP4 Special events

This performance measure reports the number and type of special events conducted by the CAP staff to promote and/or encourage commute alternative use. Special events may include but are not limited to:

- Transportation Days
- Commuter Fairs
- Special Promotions

This information would be collected and tracked by CAP staff.

OP5 Media/community relations

This performance measure tracks CAP staff efforts in informing the media and general public about CAP activities and programs. Categories may include but are not limited to:

- Number of PSAs aired
- Number of newspaper articles
- Number of news stories
- Number of magazine articles

This information would be collected and tracked by CAP staff.

Performance measures requiring a survey to collect or calculate necessary data

The following performance measures cannot be reported unless a survey of database members is conducted. A sample survey that CAP offices can use to conduct the database survey is included as Appendix A.

OP1 Gasoline saved

This performance measure is calculated by multiplying vehicle miles eliminated by the average miles per gallon figure from EPA. For April, 1997, average fuel consumption is 0.04 gallons/mile (i.e., 25 MPG).

OP2 Emissions reduction

This performance measure is calculated by multiplying vehicle miles eliminated by the emission factors for the CAP service area. Emission factors are available from Department of Environmental Regulation and are available for Hydrocarbons (HC), carbon monoxide (CO), and nitrogen oxide (NO). In April, 1997 the average passenger car emissions were estimated at::

- * 2.2 grams/mile of HC
- * 19.1 grams/mile of CO
- * 2.3 grams/mile of NO

Grams are converted to pounds by multiplying the results of this calculation by .0022.

Other Performance Measures

Other performance measures have been developed to allow a CAP the flexibility to tailor an evaluation program that closely matches program goals and objectives. They have also been developed to measure CAP effects on markets and groups, like employers and the general public, that directly or indirectly are influenced by CAP efforts. While none of these other performance measures are required, they can be used to develop a more complete profile of direct and indirect effects of CAP program activities on commuter mode choice. For example, the performance measures in this section can be used to determine if advertising campaigns influenced members of the general public to try carpooling without ever contacting the CAP office for assistance. To assist the CAP in selecting appropriate measures from this section, some of the FDOT required and optional performance measures have been repeated under appropriate goals. This provides the CAP with a mechanism to find some performance measures that can help develop a complete picture of CAP efforts.

CONDUCTING THE EVALUATION

The CAP office should meet with their local FDOT District representative to select which performance measures will be used to evaluate the program. At a minimum, all required performance measures must be included. At CAP and/or FDOT option, performance measures taken from the optional performance measures section and from the other performance measures section may be included.

Selecting Performance Measures

When selecting performance measures, the CAP and FDOT District offices should consider:

- * What performance measures can be used to monitor progress in achieving stated program goals and objectives?
- * What performance measures can be used to improve program performance or customer service?
- * What performance measures help highlight program accomplishments?
- * What CAP programs are important and are not measured through the required performance measures?
- * What new initiatives or programs have been added since the last evaluation that should be measured?
- * Does the available evaluation budget allow us to conduct other surveys besides the database survey? (See Chapter Six of the *CAP Evaluation Manual* for budget considerations).

Assistance in selecting appropriate performance measures, and in developing survey questions to collect the data needed to assess performance is available from the TDM Clearinghouse located at the Center for Urban Transportation Research (CUTR) at the University of South Florida.

Conducting the Surveys

1. Using the statistics section of the *CAP Evaluation Manual*, determine a satisfactory sample size. Usually this will require between 200 and 400 interviews, depending on the confidence interval that you and your evaluator require.
2. Randomly select that number of names from your database. You may wish to select an additional 50% to 75% so that you can complete the required number of interviews without re-sampling your database.

If you have a random number generator, do the following:

- a. Assign a random number between and 1 and the total size of your database to each database member. (Microsoft Excel has a random number function)
- b. Interview each database member whose assigned number is lower than or equal to your desired sample size

If you do not have a random number generator, do the following:

- a. Calculate the *interval ratio* by dividing the size of your database by the desired size of the sample you wish to obtain. Round this number to the next *lower* integer value and subtract 1.
- b. Randomly select a starting point in the database by randomly picking a number between 1 and your interval ratio. Begin with that record. Select that database member for interviewing. Then skip the number of members equal to your interval ratio.

If you wanted a sample size of 400 from a database of 2000 members, you would calculate your interval ratio as $2000/400 = 5 - 1 = 4$. Then you randomly select a number between 1 and 4 to start (say, 2) and then you go on to skip database members 3, 4, 5, and 6 and select 7, then select 12, 17, 22, 27 and so on.

3. Complete the survey included in Appendix A with each of the selected members until you have reached your desired sample size.

Assistance in determining appropriate sample size, sampling methods, and survey design considerations is available from the TDM Clearinghouse at CUTR. Also refer to the *CAP Evaluation Manual* for more detailed information on these topics.

APPENDIX A

SAMPLE DATABASE MEMBER SURVEY

CAP Evaluation Rideshare Database Survey

Good evening. My name is _____. I am calling on behalf of the Florida Department of Transportation. This evening we are conducting a short survey on commuting in the *(Insert area name here)* area. We are not attempting to sell you anything, we are only interested in your opinions.

(Ask to speak to person named on sample sheet - repeat intro if necessary)

1. How many days per week do you commute to work?
_____ (if 0 TERMINATE)

2. And about how far is your commute to work, in miles? _____

3. And at about what time do you usually leave home to go to work?
 1. Before 6 AM
 2. 6 AM – 9 AM
 3. after 9 AM

4. And at about what time do you usually leave work to go home?
 1. Before 3 PM
 2. 3 PM – 7 PM
 3. after 7 PM

5. Have you ever heard of *(Insert name of ridesharing organization here)* ?

1- Yes	2 - No (Go to END)	9- Don't Know/Refused
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6. Have you ever contacted *(Insert name of ridesharing organization here)* for carpool or vanpool information, or not?

1- Yes	2- No (Go to END)	9- Don't Know/refused
--------	-------------------	-----------------------

7. Did *(Insert name of ridesharing organization here)* provide you with carpool, vanpool, or transit information or assistance, or not?

1- Yes	2 - No (Go to END)	9- Don't Know/refused
--------	--------------------	-----------------------

8. To what extent did the information or assistance provided by *(Insert name of ridesharing organization here)* influence the way you commute to work? Did it:
 1. Have a great deal of influence
 2. Have a moderate influence
 3. Have a slight influence
 4. or have no influence at all

9. Did you ever carpool *after* you received the information, or not?
1- Yes 2 - No (Skip to Q. 17) 9- Don't Know/refused

10. Are you still carpooling to work?
1- Yes 2 - No (Skip to Q. 14) 9- Don't Know/refused

11. About how many days per week are you carpooling?
_____ (Enter 0 if question is skipped)

12. About how many people are usually in your carpool, including the driver?
_____ (Enter 0 if question is skipped)

13. About how long have you been carpooling?
_____ Days _____ Weeks _____ Months _____ Years

[SKIP TO Q. 17]

14. About how long were you in your carpool?
_____ Days _____ Weeks _____ Months _____ Years

15. How many days per week were you carpooling?
_____ (Enter 0 if question is skipped)

16. About how many people were usually in your carpool, including the driver?
_____ (Enter 0 if question is skipped)

17. Did you ever vanpool to work *after* you received the information, or not?
1- Yes 2 - No (Skip to Q. 25) 9- Don't Know/refused

18. Are you still vanpooling to work?
1- Yes 2 - No (Skip to Q.22) 9- Don't Know/refused

19. About how many days per week are you vanpooling?
_____ (Enter 0 if question is skipped)

20. About how many people are usually in your vanpool, including the driver?
_____ (Enter 0 if question is skipped)

21. About how long have you been vanpooling?
_____ Days _____ Weeks _____ Months _____ Years

[SKIP TO Q. 25]

22. About how long were you in your vanpool?
_____ Days _____ Weeks _____ Months _____ Years
23. How many days per week were you vanpooling?
_____ (Enter 0 if question is skipped)
24. About how many people were usually in your vanpool, including the driver?
_____ (Enter 0 if question is skipped)
25. Did you ever ride the bus to work *after* you received the information, or not?
1- Yes 2 - No (Skip to q. 33) 9- Don't Know/refused
(Skip to Q. 31)
26. Are you still riding the bus to work?
1- Yes 2 - No (Skip to Q.29) 9- Don't Know/refused
27. About how many days per week are you riding the bus to work?
_____ (Enter 0 if question is skipped)
28. About how long have you been riding the bus to work?
_____ Days _____ Weeks _____ Months _____ Years
- [SKIP TO Q. 31]
29. About how long were you riding the bus to work?
_____ Days _____ Weeks _____ Months _____ Years
30. About how many days per week were you riding the bus to work?
_____ (Enter 0 if question is skipped)
31. Is there any other way you used to get to work since you received the information?
1- Yes 2 - No (Go to END) 9- Don't Know/refused
32. And how were you getting to work? (Specify _____)
33. And are you still getting to work by (INSERT ANSWER TO Q. 32)?
1- Yes 2 - No (Skip to Q.34) 9- Don't Know/refused
34. About how many days per week are you (INSERT ANSWER TO Q. 32)?
_____ (Enter 0 if question is skipped)

35. About how long have you been (INSERT ANSWER TO Q. 32)?

_____ Days _____ Weeks _____ Months _____ Years

[GO TO END]

36. About how long were you getting to work by (INSERT ANSWER TO Q. 32)?

_____ Days _____ Weeks _____ Months _____ Years

37. About how many days per week were you getting to work by (INSERT ANSWER TO Q. 32)?

_____ (Enter 0 if question is skipped)

END Thank you very much for your cooperation in this survey. Good night.

APPENDIX B

Sample Completed Rideshare Database Survey

9. Did you ever carpool *after* you received the information, or not?
1- Yes 2 - No (Skip to Q. 17) 9- Don't Know/refused

10. Are you still carpooling to work?
1- Yes 2 - No (Skip to Q. 14) 9- Don't Know/refused

11. About how many days per week are you carpooling?
__ 0 __ (Enter 0 if question is skipped) (**skipped**)

12. About how many people are usually in your carpool, including the driver?
__ 0 __ (Enter 0 if question is skipped) (**skipped**)

13. About how long have you been carpooling?
_____ Days _____ Weeks _____ Months _____ Years

[SKIP TO Q. 17]

14. About how long were you in your carpool?
_____ Days _____ Weeks _____ Months _____ Years

15. How many days per week were you carpooling?
__ 0 __ (Enter 0 if question is skipped) (**skipped**)

16. About how many people were usually in your carpool, including the driver?
__ 0 __ (Enter 0 if question is skipped) (**skipped**)

17. Did you ever vanpool to work *after* you received the information, or not?
1- Yes 2 - No (Skip to Q. 25) 9- Don't Know/refused

18. Are you still vanpooling to work?
1- Yes 2 - No (Skip to Q.22) 9- Don't Know/refused

19. About how many days per week are you vanpooling?
__ 5 __ (Enter 0 if question is skipped)

20. About how many people are usually in your vanpool, including the driver?
__ 8 __ (Enter 0 if question is skipped)

21. About how long have you been vanpooling?
_____ Days _____ Weeks __ 8 __ Months _____ Years

[SKIP TO Q. 25]

[GO TO END]

36. About how long were you getting to work by (INSERT ANSWER TO Q. 32)?
_____ Days _____ Weeks _____ Months _____ Years

37. About how many days per week were you getting to work by (INSERT ANSWER TO Q. 32)?
__0__ (Enter 0 if question is skipped) (skipped)

END Thank you very much for your cooperation in this survey. Good night.