Memorandum

TO: Mary Ameen, NJ Highway Authority
John Baniak, I-95 Corridor Coalition
Michael Eadicicco, I-95 Corridor Coalition
Noreen Hazelton, Contract Manager
Al Karoly, I-95 Corridor Coalition
Dan Smyser, Pennsylvania DOT
Bill Stoeckert, Connecticut DOT
Steve Capecci, ATAF
Kevin Holland, Maryland Motor Truck Association
Nick Owens, SAIC
Joe Peters, Joint Program Office
Chris Hill, Castle Rock Consultants
Shelly Feese, Castle Rock Consultants

FROM: Michael Williams

CC: Marygrace Parker, NYSTA
Dave Barry, NPTC
Mark Flak, SAIC

DATE: April 13, 1999

RE: Strategic Plan for the FleetForward Evaluation

Enclosed please find the **Final Strategic Plan for the FleetForward Evaluation.** This document **surnmarizes the overall approach to the evaluation** as well as documents the goals, objectives, and planned measures of effectiveness.

I would like to thank those of you that provided me with comments on the draft document. I discussed each of the comments and the related adjustments with Marygrace Parker. Based on our discussion, **the draft report has been** revised to reflect these comments, as determined appropriate.

The next step for the evaluation will be to develop detailed test plans. Once these plans have been accepted, the data collection activities will begin in coordination with the ATAF's deployment activities.

If you have any questions, please contact me at 617-354-0167 or mtw@camsys.com or you can contact Marygrace Parker.

Strategic Plan for the FleetForward Evaluation

technical memorandum

prepared for

I-95 Corridor **Coalition**
U.S. DOT ITS Program Assessment Support Contract

prepared by

Cambridge Systematics, Inc.

in association with

Science Applications International Corporation

April 1999

technical memorandum

Strategic Plan for the FleetForward Evaluation

prepared for

I-95 Corridor Coalition
U.S. DOT ITS Program Assessment Support Contract

prepared by

Cambridge Systematics, Inc.
150 CambridgePark Drive, Suite 4000
Cambridge, Massachusetts 02140

in association with

Science Applications International Corporation

April 1999

Table of Contents

List of Tables

List of Figures

Executive Summary

The purpose of the evaluation strategic plan is to outline the approach for the FleetForward evaluation. It defines the specific components of the evaluation, including the general data collection activities. Further, it presents the goals, objectives, and planned measures of effectiveness, which reflect the most recent project modifications, based on the amended deployment schedule; a more complete architecture; and new guidance from the I-95 Corridor Coalition advisory committee.

The I-95 Corridor, which extends from Maine to Virginia, dominates freight movement in the Northeast and suffers from severe congestion. Therefore, it is. an ideal corridor to test the use of information technology to move goods more efficiently and safely. As a result, the I-95 Corridor Coalition is undertaking FleetForward, an operational test of an Advanced Traveler Information System (ATIS) for commercial vehicle operators. The FleetForward operational test will couple real-time traffic information with motor carriers' routing and dispatch decisions.

FleetForward is based on two principal sources of traffic information. The first data source is the set of ATIS systems that SmartRoute Systems has deployed or is deploying in the regions surrounding Boston, New York, Philadelphia, and Washington DC. The second data source is the Information Exchange Network (IEN) of the I-95 Corridor Coalition. This is a regionally based information system that facilitates the centralization and dissemination of real-time traffic information. FleetForward will use the data provided by both the IEN and SmartRoute Systems to provide motor carriers with information on congestion, incidents, and highway construction and maintenance activities. In addition, the information provided by these two data sources is being customized to meet the needs of commercial vehicle operators.

The overall FleetFomard concept consists of data collection, data fusion, and data distribution. Data collection occurs as various transportation agencies (e.g., TRANSCOM, and SmartRoute Systems) collect and exchange traffic-related information. Data fusion consists of filtering and packaging incident, construction, and congestion information for distribution to motor carriers. Data distribution involves the dissemination by various means to motor carriers. As part of this operational test, an evaluation is being conducted for the I-95 Corridor Coalition by Cambridge Systematics, Inc., in association with Science Applications International Corporation ***(SAIC). The Technical Memorandum 1: Phase I Data Collection and Analysis, Phase II Preliminary Architecture,*** prepared by the American Trucking Associations Foundation (ATM), in December 1998, provides a complete project description and schedule.

The FleetForward evaluation is dependent on effective communication among the key participants. Therefore, guidelines have been recommended to ensure that the evaluation activities are completed efficiently and effectively. The prirnary goal of this project is to improve the operational efficiency of the participating motor carriers and that this improvement in efficiency, or lack there of, is the stimulus for accomplishing all of the other goals. If the test proves that providing useful and reliable real-time traffic data does

increase the efficiency of motor carrier operations then FleetForward will grow and expand. This growth will stimulate increased usage of the information, and will illustrate the industry's acceptance of the service. As the private sector increases its overall efficiency, the public sector's goals will begin to be addressed. Therefore, the evaluation will focus primarily on measuring the change in the efficiency of motor carrier operations.

The evaluation activities have been divided into the three components detailed below:

- **Impact on Operations –** The FleetForward system is predicted to impact the operations of private and public sector stakeholders.

- **Access to Useful and Reliable Real-Time Data –** The major mission of FleetForward is to distribute reliable, accurate, and useful data to motor carriers at the roadside. The evaluation will look at this component to determine if the system is meeting this goal. It will look at key characteristics, such as, the ability of a carrier to access the data seven days per week, 24 hours per day; the system's ability to correctly describe the roadway conditions; and, the amount of unscheduled down time in the service provided.

- **Effectiveness of the Public/Private Partnership –** Much emphasis has been placed on the topic of public/private partnerships (PPP) over the last decade. This project provides an opportunity to analyze a PPP. The partnership consists of private industry representatives including the motor carrier industry, software developers, and traffic reporting companies. These representatives are working with a variety of state and **local** agencies. The goal is to successfully develop and deploy the FleetForward program, by efficiently using the strengths of each partner. As part of the evaluation, the PPP created for FleetForward will be reviewed.

There are several different activities that will be undertaken to support the evaluation of FleetForward. They primarily will consist of interviews conducted with key stakeholders. These stakeholders include the motor carriers participating in the deployment, the actual deployers (ATAF and SmartRoute Systems), the public agencies that potentially are affected by FleetForward (traffic operations centers), and the public/private partnership members. These interviews will collect qualitative information and quantitative data where available and applicable. In addition to interviews, the evaluation activities will include the review of key documents and materials, and data processing activities. The key documents will include material describing the PPP and various progress reports- The information and data collected will be reviewed and analyzed to begin documenting the affects of FleetForward.

The evaluation team, lead by Cambridge Systematics, will make use of the available resources, as necessary. In addition to the data collected through the activities defined above, the resources that will be used to complete this evaluation consist of the evaluation team, the ATAF, the I-95 Corridor Coalition, and the FHWA. These resources will be used to ensure that the evaluation meets the needs of the stakeholders.

This strategic plan outlines the key components and considerations necessary to conduct the FleetForward evaluation. The next step is to develop detailed work plans for the three evaluation components defined in this plan. The individual evaluation test plans will be developed for each component. Upon approval of these test plans, data collection and analysis will begin, as appropriate, as the operational test advances.

1.0 Introduction

The purpose of the evaluation strategic plan is to outline the approach for the FleetForward evaluation. It defines the specific components of the evaluation, including the general data collection activities. This document follows the technical memorandum submitted to the I-95 Corridor Coalition on March 20, 1998, which provided a description of the FleetForward project, presented its goals and objectives, and documented other related programs within the I-95 Corridor Coalition states. Since this document was prepared, the FleetForward project has continued to be developed. There have been modifications to the schedule as well as shifts in the project architecture and deployment. The most recent description of the project and its schedule is provided in the Technical ***Memorandum 1:* Phase *1 Data Collection and Analysis, Phase II Prelimina y Architecture,*** prepared by the American Trucking Associations Foundation (ATAF), in December 1998.

In response to these project modifications, the I-95 Corridor Coalition advisory committee **and** the evaluation team have revised the goals and objectives of the evaluation. The revisions are based on the amended deployment schedule; a more complete architecture; and new guidance from the I-95 Corridor Coalition advisory committee. The goals and objectives presented in this strategic plan supersede those previously presented in the March 20, 1998 technical memorandum.

This evaluation plan is organized as follows:

- **Overview of FleetForward** – Section 2.0 briefly describes the FleetForward project. It reflects the changes that have occurred in the project and its schedule since its inception.

- **Evaluation Guidelines** – Section 3.0 defines the basic procedures that will be followed throughout this evaluation, including the interaction between the evaluation team, the I-95 Corridor Coalition and the ATAF.

- **Evaluation Goals and Objectives** - Section 4.0 presents the goals, objectives, and planned measures of effectiveness, as well as includes descriptions of the three major components of this evaluation.

- **Evaluation Activities** – Section 5.0 introduces the general activities that will be undertaken to address each of the evaluation components identified in Section 4.0.

- **Resources –** Section 6.0 identifies the key participants in the evaluation, including their roles. This section also reviews the evaluation team's resources.

- **Next Steps** – Section 7.0 outlines the key steps to be completed following the submission of this strategic plan.

2.0 Overview of FleetForward

This section provides a brief description of the FleetForward operational test, including the documentation of key changes that have occurred throughout the project to date regarding the schedule and system architecture.

The I-95 Corridor, which extends from Maine to Virginia, dominates freight movement in the Northeast and suffers from severe congestion. Therefore, it is an ideal corridor to test the use of information technology to move goods more efficiently and safely. As a result, the I-95 Corridor Coalition is undertaking FleetForward, an operational test of an Advanced Traveler Information System (ATIS) for commercial vehicle operators. The FleetForward operational test will couple real-time traffic information with motor carriers' routing and dispatch decisions.

FleetForward is based on two principal sources of traffic information:

1. The first data source is the set of ATIS systems that SmartRoute Systems has deployed or is deploying in the regions surrounding Boston, New York, Philadelphia, and Washington DC. These systems provide daily traffic information for the metropolitan areas, with specific emphasis on the AM and PM peak commuter periods.

2. The second data source is the Information Exchange Network (IEN) of the I-95 Corridor Coalition. This is a regionally-based information system that facilitates the centralization and dissemination of real-time traffic information. It contains exception-based data, such as construction schedules, road closures, and major incidents, that impact traffic flows in a particular area.. The database is maintained by the public agencies in the Corridor that are responsible for traffic operations. Traffic operations centers are key contributors.

FleetForward will use the data provided by both the IEN and SmartRoute Systems to provide motor carriers with information on congestion, incidents, and highway construction and maintenance activities. In addition, the information provided by these two data sources is being customized to meet the needs of commercial vehicle operators. For instance, SmartRoute Systems has historically provided traffic information to commuters during peak periods. Commercial vehicles typically avoid peak-period congestion if possible and operate during the lower congestion periods, such as late at night or midday. For the FleetForward test SmartRoute Systems plans to provide traffic information 24 hours a day Monday through Friday, and 20 hours a day on weekends. In addition, the information required by motor carriers for routing decisions is more complex than that required by commuters. Commuters typically travel from a suburban area to an urban area. Some trucks pass through an entire metropolitan area, while others make numerous local deliveries. The information provided by FleetForward will allow motor carriers to better meet the needs of their customers. The shippers and receivers that are served by the motor carrier industry are becoming increasingly dependent on reliable, predictable transportation service. This is critical for minimizing inventory costs and operating "just-in-time" systems. Dispatchers are expected to be able to better predict pickup and

delivery times and to better manage their fleets. These expectations can be addressed through FleetForward by providing the necessary information that allows the dispatchers to respond dynamically to changes in the highway and traffic conditions.

Figure 2.1 shows the FleetForward architecture. Data will be gathered from the IEN and the various SmarTraveler systems, processed by the FleetForward system, and then distributed through two different mechanisms to the motor carriers. These consist of the World Wide Web and carrier routing and dispatching software. There will be a FleetForward World Wide Web page that motor carriers will be able to log onto to access available information for a given highway link or route. The second mechanism is to build the traffic information into the PC Miler routing software. These two mechanisms provide the traffic information to the carriers' dispatchers. The dispatchers then evaluate the data and their current operations and communicate the appropriate instructions to their drivers.

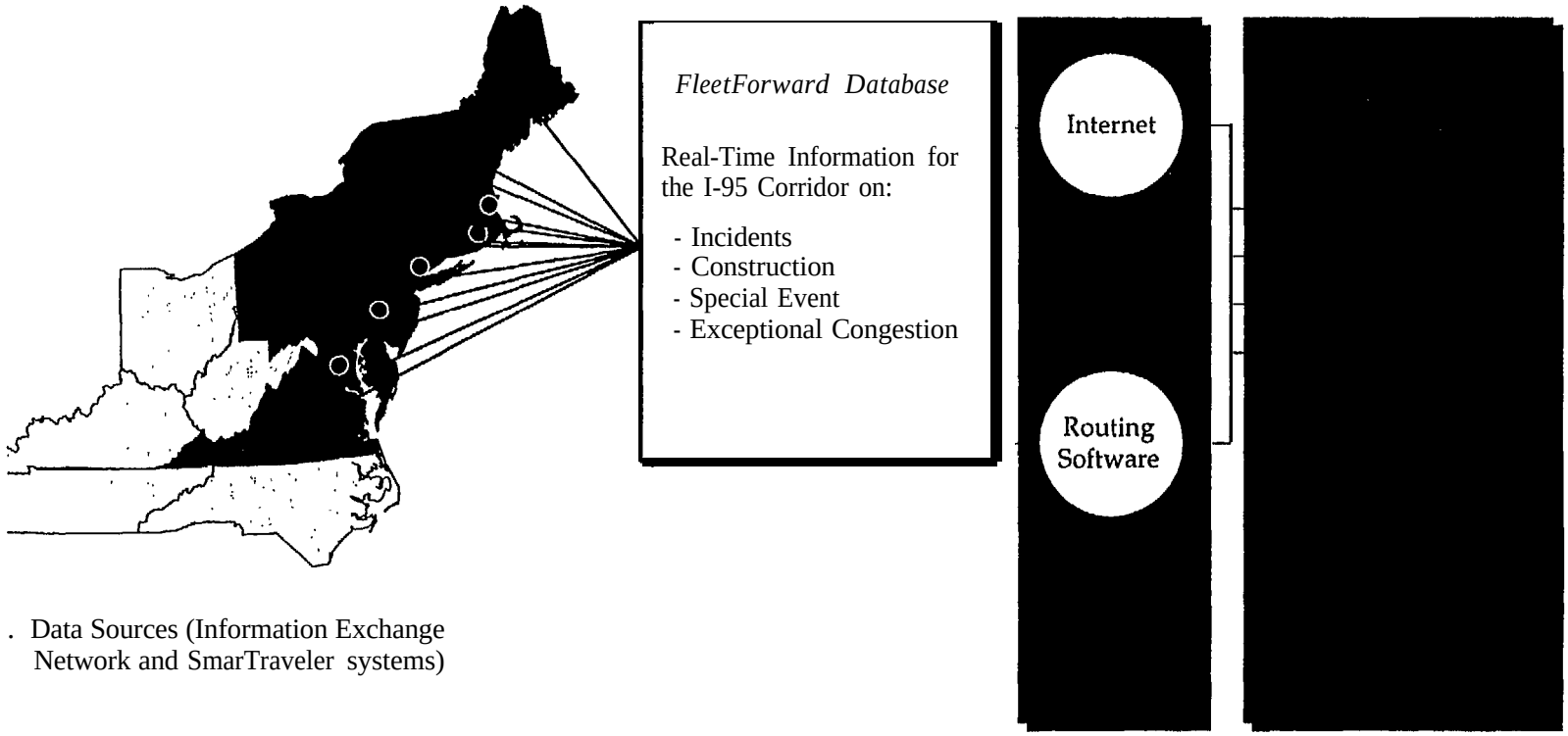
The overall FleetForward concept consists of data collection, data fusion, and data distribution. Data collection occurs as various transportation agencies (e.g., TRANSCOM, and SmartRoute Systems) collect and exchange traffic-related information. Data fusion consists of filtering and packaging incident, construction, and congestion information for distribution to motor carriers. Data distribution involves the dissemination by various means to motor carriers. As the data is reported, FleetForward processes the data and the new incident points are automatically added to the map. The distribution mechanisms can then provide up-to-date information on a given highway system. For example, if an incident is reported when it is identified, the FleetForward system will be able to distribute that information in a timely manner, allowing motor carriers to alter their travel routes as determined appropriate.

The FleetForward operational test consists of two main stages.[1] Stage 1, which has been completed, consisted of developing the deployment plan, collecting initial industry data, and developing the preliminary system architecture. This included establishing the public/private partnership; recruiting motor carriers and service providers to participate in the operational test; determining data and hardware/software requirements; and beginning deployment using existing information sources and dissemination technologies.

Stage 2 consists of finalizing the architecture, recruiting additional motor carriers, and deploying the complete system. This includes further development and testing of data fusion and packaging procedures and of information delivery channels. It also includes deploying a fully operational FleetForward system, within the pilot's parameters, to the

[1] The FleetForward operational test originally consisted of three phases. These phases distinguished between the planning, testing, and deploying activities. In addition, the testing phase (Phase II) prioritized use of the IEN. However, due to the Limited number of data records in this database, the architecture has been modified and is now based on the SmarTraveler system operated and maintained by SmartRoute Systems. The deployment of this metropolitan traffic data was originally planned for Phase III. In addition, the I-95 Corridor Coalition has requested that some level of service be deployed as soon as possible. These two factors resulted in the combination of the original Phase II and III activities into Stage 2 described above. Therefore, as the project currently exists, there are no references to phases.

Figure 2.1 FleetForward Information Flow



. Data Sources (Information Exchange Network and SmarTraveler systems)

Source: American Trucking Associations' Foundation, March 1999.

participating motor carriers and determining the potential carrier acceptance of the service. The current deployment schedule is to have two carriers using PC Miler up and running in April 1999. Carriers using the FleetForward web site should be up and running in May 1999. It is anticipated that a total of 36 motor carriers will be recruited to participate in the FleetForward pilot test.

As part of this operational test, an evaluation is being conducted for the I-95 Corridor Coalition by Cambridge Systematics, Inc., in association with Science Applications International Corporation (SAIC). This effort will be supported by the collection of pre- and post-FleetForward motor carrier data. The evaluation team and the ATAF will coordinate to ensure that the data collected is objective and complete.

3.0 Evaluation Guidelines

The FleetForward evaluation is dependent on effective communication among the key participants. The evaluation team proposes the following guidelines to ensure the evaluation activities are completed efficiently and effectively.

1. There should be close coordination among the I-95 Corridor Coalition, the ATAF, and the evaluation team. It is important to have open lines of communication among these bodies to ensure that the evaluation provides the stakeholders with useful results.

2. The evaluation team will assist the ATAF with its data collection activities. This will include reviewing of the ATAF's planned data collection tools; supporting the interview process; and auditing parts of the quantitative data collected by the ATAF to ensure objectivity. This close coordination will ensure that all necessary data is collected. This is a critical component of the evaluation given that the ATAF will be collecting large amounts of the data that will be used to evaluate the impact of the operational test on the efficiency of motor carriers.

3. All qualitative and quantitative interview guides prepared by the evaluation team and the ATAF will be distributed to the I-95 Corridor Coalition to ensure that the Coalition understands how the evaluation is being conducted.

4. Data collected from individual stakeholders/participants will be reported in an aggregated form to ensure confidentiality. It is standard practice to provide confidentiality to interviewees. This helps ensure that the responses given are accurate and honest. In addition, some of the data collected from the participating motor carriers could be considered competitive.

5. It should be recognized that the FleetForward test will continue to evolve as it is developed and deployed. The evaluation team will remain flexible in its approach to ensure that future modifications to the program can be incorporated into the evaluation, when appropriate, within the existing resources. It is also recognized that once "before" and "after" conditions have been defined, it is important to maintain consistency to ensure the data compatibility in the "before" and "after" data sets.

4.0 Evaluation Goals and Objectives

This section provides a description of the goals, objectives, and planned measures of effectiveness of the FleetForward evaluation. In addition, the goals have been organized into three evaluation components which will be the foundation of the evaluation activities.

The I-95 Corridor Coalition, the evaluation team, the ATAF, and SmartRoute Systems met in New York City in October 1998 to discuss the progress of the FleetForward project and the evaluation effort. Those stakeholders in attendance agreed that the primary goal of this project is to improve the operational efficiency of the participating motor carriers and that this improvement in efficiency, or lack there of, is the stimulus for accomplishing all of the other goals. If the test proves that providing useful and reliable real-time traffic data does increase the efficiency of motor carrier operations then FleetForward will grow and expand. This growth will stimulate increased usage of the information, and will illustrate the industry's acceptance of the service. As the private sector increases its overall efficiency, the public sector's goals will begin to be addressed. For example, the removal of commercial vehicles from congested areas improves the recovery time, which in turn reduces the number of secondary accidents. This system also allows the public sector agencies to make better use of the traffic data they already collect.

Therefore, the evaluation will focus primarily on measuring the change in the efficiency of motor carrier operations.[1] Table 4.1 lists the project goals and their corresponding evaluation component and defines the evaluation team's anticipated level of effort for evaluating each goal. Percentages are used to approximate the split of resources.

The following further details the three evaluation components.

- Impact on Operations – The FleetForward system is predicted to impact the operations of private and public sector stakeholders.

  - The primary goal of FleetForward is to improve the efficiency of motor carrier operators. The private sector will be evaluated to measure the change in individual operational efficiencies. What are the travel time savings? What are the savings on fuel consumption? Are there improvements in on-time delivery or reductions in missed delivery penalties?

[1] The original allocation of the evaluation team's effort showed a much larger commitment of resources to the public sector goals. This was based on the fact that the ATAF would be collecting a significant amount of the private sector data as part of its own evaluation efforts. However, to better reflect the importance of the private sector component, the resources for the independent FleetForward evaluation have since been re-allocated, based on guidance from the I-95 Corridor Coalition.

Table 4.1 Goals and Priorities for Fleet Forward Evaluation

Evaluation Component	Sector	Goal area	Percent
Impact on Operations			80
	Private	G1. To improve operational efficiency of motor carriers	65
	Public	G2. To increase the efficiency of the overall highway system	10
	Private	G3. To gain motor carrier acceptance of the highway and traffic information service	5
Access to Useful and Reliable Real-Time Data			**10**
	Private	G4. To develop usage of traffic data	5
	Public	G5. To make better use of available traffic data	5
Effectiveness of the Public Private Partnership			10
	Public/ Private	G6. To use a public/private partnership arrangement to facilitate the development and deployment of FleetForward	10

- A secondary goal of the evaluation will look at the public sector benefits, **specifically** the changes **in** traffic operations, that result from the increase in operational efficiencies of the participating motor carriers. These changes will most likely be comprised of perceived changes anticipated by the managers of the traffic operations centers. Are recovery times expected to decrease? Are secondary accidents expected to **be** prevented or reduced?

- **Access to Useful and Reliable Real-Time Data –** The major mission of FleetForward is to distribute reliable, accurate, and useful data to motor carriers at the roadside. The evaluation will look at this component to determine if the system is meeting this goal. It will look at key characteristics, such as, the ability of a carrier to access the data seven days per week, 24 hours per day; the system's ability to correctly describe the roadway conditions; and, the amount of unscheduled down time in the service provided.

  - The private sector perspective will be revealed by its overall acceptance and satisfaction with the system. Is the service reliable (e.g., servers on-line)? Is the data accessible? Is it easily incorporated into their operations?
  - The public sector evaluation focuses on the ability of public agencies to make better use of the data they already collect. For example, the test will make use of exception data, such as that stored in the IEN. If this data is determined to be useful to the motor carrier industry through this pilot, then the public agencies are validating the usefulness of their data collection activities.

- **Effectiveness of the Public/Private Partnership** – Much emphasis has been placed on the topic of public/private partnerships (PPP) over the last decade. This project provides an opportunity to analyze a PPP. The partnership consists of private industry representatives including the motor carrier industry, software developers, and traffic reporting companies. These representatives are working with a variety of state and local agencies. The goal is to successfully develop and deploy the FleetForward program, by efficiently using the strengths of each partner. As part of the evaluation, the PPP created for FleetForward will be reviewed.

  - PPPs are created because a project is considered mutually beneficial to multiple parties from both the public and private sectors. This component will document the reasons that the FleetForward PPP was formed and what the various partners brought to the partnership.
  - The lessons learned throughout the FleetForward test will be documented. How did the partnership communicate? Were the anticipated contributions from each partner realized? What were the benefits?
  - The overall measure of the effectiveness of the PPP will be the verification of the successful deployment of FleetForward. The role of the PPP is to deploy the FleetForward system in the most efficient manner so as to ensure the best chance for success. Therefore, the evaluation will focus on the way in which the partners worked together to accomplish the development and deployment activities.

Table 4.2 expands the goals defined in Table 4.1 to include objectives and planned measures of effectiveness. Many of the planned measures of effectiveness are dependent on the operations of the participating motor carriers. The recruitment process currently is underway by the ATAF. Once the necessary number of participants have been secured, the planned measures of effectiveness will be finalized based on the tracking systems that the motor carriers already have in place, as well as those that can be implemented without significant disruption to normal operations- It should therefore be noted that in many cases the private sector data collected for a given measure only will represent a subset of the participating motor carriers, and in many cases the evaluation of those measures will be more qualitative than quantitative. The evaluation team and the ATAF recognize that the supporting data for some of those planned measures will be difficult to collect. **However**, by using the data that is available, this is the **best** way for the evaluation team to conduct quantitative analyses which will be used in parallel with the qualitative analyses.

To evaluate whether FleetForward increases the efficiency of the overall highway system (Goal 2), the planned measures of effectiveness will focus on the perceptions of the key public sector representatives that are responsible for the corridor's traffic operations. For example, a traffic operations manager located in a traffic operations center will be interviewed and asked to estimate the potential impact on regional traffic flows that would result from the diversion of some percent of commercial vehicles caused by the utilization of the FleetForward system. This impact will be characterized as "perceived" because the anticipated level of deployment is not expected to create a large enough change in traffic patterns to be directly measurable.

The final set of measures of effectiveness will be used to determine if the objectives and goals of FleetForward have been met. The data collection activities necessary to complete these measures are outlined in Section 5.0.

Table 4.2 FleetForward Goals, Objectives, and Planned Measures of Effectiveness

Goal/Objective	Planned Measures of Effectiveness
G1. Improve operational efficiency of motor carriers	
Improve customer satisfaction	• On-time delivery • Carrier provides accurate ETA
Reduce operating costs	• Late delivery penalties • Fuel consumption • Vehicle maintenance costs • Employee turnover (driver retention) • Turn time (transit time)
Increase Revenues	• Equipment utilization • Driver utilization
Improve safety from the standpoint of motor carriers	• Effect of FleetForward on the number of accidents involving motor carriers
G2. Increase the efficiency of the overall highway system	
Reduce congestion	• Perceived impact of FleetForward based on public sector interviews
Improve highway safety	• Perceived impact of FleetForward based on public sector interviews
Increase highway capacity	• Perceived impact of FleetForward based on public sector interviews
Improve highway service to the traveling public	• Perceptions of public agency operations managers regarding their traffic management capabilities
Improve highway service to motor carriers	• Perceptions of motor carriers on the use and value of the service
G3. Gain motor carrier acceptance of the highway and traffic information service	
Motor carriers become willing to use new traffic information products and services	• Perspective of motor carriers on traffic information pre- and post-FleetForward • Incorporation of FleetForward information into routing decisions

Table 4.2 FleetForward Goals, Objectives, and Planned Measures of Effectiveness (continued)

Goal/Objective	Planned Measures of Effectiveness
G4. Develop motor carrier usage of highway and traffic information	
Increase the awareness and use of free traffic information by motor carriers in the I-95 Corridor (including SmarTraveler and the IEN)	• Carrier perceptions of the availability, utility, and value of traffic information before and after the deployment of FleetForward. • Number of inquiries of available free highway and traffic info in the I-95 Corridor
Provide one-stop shopping to motor carriers for basic (i.e., free) traffic-related information	• Ability of FleetForward to coordinate regional and metropolitan highway and traffic information into a single source and distribute it to motor carriers
G5. Make better use of available highway and traffic information	
Leverage the IEN to meet the needs of motor carriers	• Define and document the use of the IEN in the FleetForward test • Compare FleetForward's use of the data to previous uses
Increase the use of metropolitan traffic data	• Define and document the use of the SmarTraveler information by motor carriers in the FleetForward test • Compare FleetForward's use of the data to previous uses of the data
G6. Use a public-private partnership to facilitate the development and deployment of the FleetForward	
Develop a cooperative team that draws on the strengths of each member	• Perspective of the public-private partnership representatives • Compare the overall FleetForward stated work plan to the actual deployment • Analyze of the various public-private partnership interactions

5.0 Evaluation Activities

The data collection and evaluation activities necessary to support the evaluation will be described in detail in the specific evaluation test plans. This section presents a general list of the types of activities that will be undertaken to support the key evaluation components outlined in Section 4.0.

The FleetForward project anticipates recruiting 36 motor carriers to test the system. Data will be collected pre- and post-deployment of the FleetForward system to measure the impacts on their operations. However, given the size of the I-95 Corridor, it is unlikely that their use of highway and traffic information will result in directly measurable public sector benefits. Therefore, the impact of the program on the overall highway system will be measured qualitatively based on discussions with key highway operations representatives (e.g., traffic operations centers). The proof-of-concept component of the evaluation will be addressed by documenting the accessibility of the information through the FleetForward architecture. Finally, the effectiveness of the established public/private partnership will be measured based on the fulfillment of the projects goals and interviews with representative partners.

There are several different activities that will be undertaken to support the evaluation of FleetForward. They primarily will consist of interviews conducted with key stakeholders. These stakeholders include the motor carriers participating in the deployment, the actual deployers (ATAF and SmartRoute Systems), the public agencies that potentially are affected by FleetForward (traffic operations centers), and the public/private partnership members. These interviews will collect qualitative information and quantitative data where available and applicable. The following lists the specific interview activities.

- Interviews will be conducted with the participating motor carriers by the ATAF and the evaluation team. Data collected only by the ATAF will be audited by the evaluation team to ensure that the findings are defendable, objective and accurate.

- The motor carrier interviews will be conducted both pre-and post-FleetForward. A key component of the pre-test interviews will be to identify key factors that can be monitored and measured in the same way by each of the 36 participating motor carriers. It is anticipated that many of the measures of effectiveness data will not be collected from all 36 participants. Each interview will represent a case study. Data items collected from multiple carriers will be aggregated to assist in the development and support of the conclusions.

- Interviews will be conducted by the evaluation team with public agencies involved with traffic operations centers, etc., to document the perceived benefits of eliminating trucks from congested roadways. These interviews will be based on the findings of the motor carrier interviews. That is, if 10 percent of the motor carriers report avoiding a congested urban area, what impact would that have on the traffic flows if the sample

was expanded to the truck population? It is anticipated that the findings from this will all be perceived, as the deployment of FleetForward on a limited basis (36 motor carriers) will not be significant enough to measure a significant change in metropolitan traffic patterns.

- Interviews will be conducted by the evaluation team with the participants of the public/private partnership to document how it has worked for the FleetForward program. The interviews with SmartRoute Systems will also cover the performance of its system.

In addition to interviews, the evaluation activities will include the review of key documents and materials, and data processing activities. The key documents will include material describing the PPP and various progress reports. The information and data collected will be reviewed and analyzed to begin documenting the affects of FleetForward.

6.0 Available Resources

The evaluation team, lead by Cambridge Systematics, will make use of the available resources, as necessary. In addition to the data collected through the activities defined in Section 5.0, the resources that will be used to complete this evaluation consist of the evaluation team, the ATAF, the I-95 Corridor Coalition, and the FHWA. These resources will be used to ensure that the evaluation meets the needs of the stakeholders. The roles of these resources are described below:

- **Evaluation** team. The evaluation team is the primary entity responsible for conducting and documenting an evaluation of the FleetForward test. It will make use of the available expertise and industry contacts of the other resources defined below.

- **ATAF.** The ATAF plays three key roles important to the evaluation effort. First, as the architect of this project, it is a key participant in the development and deployment activities, including being part of the PPP Second, the ATAF is the focal point for access to the motor carriers participating is this test. Third, the ATAF is responsible for documenting the impact of FleetForward on the operations of the participating motor carriers.

- **I-95 Corridor Coalition.** The I-95 Corridor Coalition *is the* client for which the evaluation is being conducted. As such, it has an overview role. In addition, it can provide the evaluation team with access to key public sector contacts, such as traffic operations managers.

- **FHWA.** The FHWA has an interest in the success of ITS operational tests. It plays an important role as a clearing house of national information on similar programs and tests that may be of use for this test.

Table 6.1 shows the remaining level of effort for Cambridge Systematics, as of February 1, 1999. These hours will be disaggregated to the three evaluation test plans once they are developed.

Table 6.1 Evaluation Staff Resources, Cambridge Systematics

Staff Category	Total
Senior Analyst	32
Mid-Level Analyst	384
Analyst	32
TOTAL HOURS	448

7.0 Next Steps

This strategic plan outlines the key components and considerations necessary to conduct the FleetForward evaluation. The next step is to develop detailed work plans for the three evaluation components defined in this plan. The individual evaluation test plans will be developed for each component. Where this document presents the general overview of the evaluation efforts, the next deliverable will consist of detailed scopes of work for each of the evaluation components, including schedules and levels of effort. Upon approval of these test plans, data collection and analysis will begin, as appropriate, as the operational test advances.