Federal Highway Administration
Operations

Current Program Activities

As of

December 2004

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Current Program Activities Report

This report has been updated and summarizes recent activity of selected programs within the Office of Operations. The revisions reflect program titles that are consistent throughout the Office of Operations. For additional information about these or other activities, contact the program manager noted in each section. Additionally, more information may be available on the Office of Operations' web site: http://www.ops.fhwa.dot.gov. This report will be updated quarterly.

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Operations Program Activities

I. NON-RECURRING CONGESTION

A. Traffic Incident Management (TIM): Program Manager**,** Dave Helman (david.helman@fhwa.dot.gov)

TIM Self-Assessment – The purpose of the Traffic Incident Management Self Assessment (TIM SA) is to provide a formal process for State and local transportation, public safety and private sector partners to collaboratively assess their traffic incident management programs and identify opportunities for improvement. At a national level the TIM SA helps the FHWA and its transportation and public safety partners identify national program initiatives to improve the practice of traffic incident management. Each of the top 75 urban areas assess their programs on a biennial basis with half of the urban areas reassessed in even years and half in odd years. National summary results are published each year, but individual urban results are not published. The National Summary reports for the FY 2004 TIM SA will be published in January 2005.

1. **National Traffic Incident Management Coalition (NTIMC)** – The coalition, facilitated through AASHTO, and made up of representatives of a number of transportation, public safety and private sector organizations, held its initial meeting on June 23, 2004, in Washington, DC. NTIMC members have adopted a Coalition mission and scope and formed task forces to outline Coalition organization and leadership, a Coalition Action Plan for the next 12 to 18 months, a Coalition Research Agenda, and a coordinated calendar of events of member associations that are related to traffic incident management or emergency transportation operations. The NTIMC has also developed a one-pager on traffic incident management "Key to Success" and a brochure on the NTIMC.

2. **TIMTOW -** The Towing and Recovery Association of America (TRAA) has prepared a Traffic Incident Management Handbook for the industry. Industry members who are active in traffic incident management programs around the country wrote the document. A panel of national traffic incident management experts also reviewed it. The purpose of the document is to facilitate the understanding of traffic incident management programs within the industry and to describe how industry members should involve themselves in local programs. The document has been distributed to the 37,000 member companies of TRAA. As a follow-up activity, TRAA is revising its three level National Driver Certification Program materials to incorporate material in the TIMTOW document.

3. **TRAA National Drivers Certification** – The Towing and Recovery Association of America (TRAA), with assistance from FHWA developed a three-level National Driver Certification Program (NDCP) in the mid 1990s. Nearly 10,000 tow operators have been certified by TRAA, but this represents only about 5% of the industry nationwide. FHWA, in cooperation with TRAA and the International Association of Chiefs of Police (IACP) is undertaking an effort to increase awareness of the value of

certification and the numbers of certified drivers, particularly among those who respond to traffic incidents. This effort will involve the creation and distribution of an outreach package to the towing and recovery and law enforcement communities and the development of a TIMTOW Awareness and Operations Train-the-Trainer effort for the towing and recovery industry.

4. **TIM Performance Measures** – Eleven FHWA Division Offices have agreed to participate in an Operations Focus States initiative on Traffic Incident Management (TIM) Performance Measurement. The Texas Transportation Institute has been commissioned to develop a TIM Performance Measure White Paper exploring the programmatic and technical issues in multi-agency program performance measurement. The purpose of the Focus States initiative is to identify appropriate measures of performance for TIM programs, identify who is now collecting and archiving data, and explore issues in fusing data from disparate public safety and transportation databases to form a more complete picture of traffic incident management activities. The initial outcome goal of this effort is for five of the states to begin using at least one of the TIM performance measures developed in this process, using currently available data. Achieving the short-term goal of the subject effort will establish a strong foundation for moving forward to develop more robust measures that all participants at an incident scene will consider germane.

5. **CAD FOT (Computer Aided Dispatch Field Operational Test) -** This FOT provides for the creation of teams in two states (Utah and Washington) to provide integration of data among transportation management and public safety CAD system databases to make rapid exchange of unambiguous incident-related information possible. This data integration will facilitate quicker and more appropriate response by secondary responders and provide better traffic and incident –related information to public safety agencies. The teams consist of a transportation agency and its systems integrator and a public safety agency and its CAD vendor. The Cooperative Agreements have been executed work is currently underway. The FOT is due to be completed by December 2005.

6. **IIMS (Integrated Incident Management System) -** The IIMS is a project in New York City (NYC) to send pictures and incident information from a first responder on-the-scene to secondary responders (NYC Department of Transportation and Department of Sanitation). The information is provided directly to off-site supervisors enabling them to make faster and more accurate response of their resources without having to travel to the incident scene first. The project has been expanded citywide using CMAQ funds. An evaluation report of the initial deployment of IIMS has been completed.

7. **"Managing Traffic Incidents and Roadway Emergencies", National Highway Institute (NHI) Course No. 133048 –** This workshop addresses many on-scene operations and communications issues as well as organizational issues. It will continue to be presented to mid and upper level transportation, public safety and private sector partners. The course is now available from NHI.

8. **Model Procedures Guide -** The Model Procedures Guide for Highway Incidents was prepared under the auspices of the National Fire Service Incident Management System. The Guide addresses on-scene incident command and control protocols (Incident Command) for traffic incidents and introduces an Incident Command System (ICS) position for Traffic Control. The Guide has been completed and is available for purchase from Fire Protection Publications.

9. **NHI Course 133101 - Using the Incident Command System (ICS) at Highway Incidents –** This new course is being developed by NHI targeted primarily to transportation responders. It will deal with Incident Command (ICS) at highway incidents and describe what ICS is, its structure, and how it is used at highway incidents. The course will also contain two scenarios for class participants. ICS material presented will be based on the National Incident Management System (NIMS – Department of Homeland Security) and will also reference the Model Procedures Guide for Highway Incidents. Development of this course began in September and the course should be available in mid-2005.

10. **Simplified Guide to Incident Command Systems for Transportation Professionals –** The purpose of this Guide is to explain the Incident Command System (ICS) and its use at highway incidents under both Single Command and Unified Command structures. The materials will be based on the National Incident Management System (NIMS – Department of Homeland Security) and will also reference the Model Procedures Guide for Highway Incidents. Development of this Guide began in October and should be completed in mid-2005.

11. **TIM Program Case Studies** - This study will investigate and document the various types of Traffic Incident Management program institutional structures in about 12 locations. The final crosscutting case studies report will discuss how the programs were formed, what events or decisions lead to their formation, how they are sustained (institutionally, technically and financially), successes and failures (lessons learned), changes made since inception to support or strengthen the programs and recommendations on program structure needed to support multi-agency programs to effectively manage and resolve traffic incidents. The study is expected to be completed in the spring of 2005. This effort will lay the foundation for a follow up effort to begin later in FY 05 to develop a TIM Program Model that will outline successful approaches and structures for various types of regional or statewide TIM programs.

12. **Non-Blinding Emergency Vehicle Warning Light Systems –** This study, begun in October 2003, investigates the effect of various emergency warning light systems on driver comprehension and behavior and on the safety of on-scene emergency responders. This study is being conducted under a cooperative agreement with the United States Fire Administration (DHS/FEMA). It is scheduled to be completed by August 31, 2005.

13. **Traffic Control Training for Emergency Responders** – The FHWA is partnering with the United States Fire Administration (DHS/FEMA) through the International Fire

Service Training association (IFSTA) to develop effective technical guidance and training in traffic control at highway incidents in accordance with the Manual on Uniform Traffic Control Devices. This guidance and training will also clarify incident command procedures as described in the new Model Procedures Guide for Highway Incidents that was produced by the National Fire Service Incident Management System Consortium.

B. Work Zone Management: Program Manager, Scott Battles (Scott.Battles@fhwa.dot.gov)

1. **Work Zone Self-Assessment -** As part of the Congestion Vital Few Goal for FHWA, a comprehensive work zone self-assessment tool was developed and delivered to all 52 FHWA Division Offices. The self-assessment tool was designed to assist State departments of transportation (DOTs) in evaluating the state-of-their-practice and determining areas for future focus. Each State completed the self-assessment in early 2003 and updated their scores in 2004. Reports on the National results, including information on overall average scores and potential areas for improvement, are available at http://www.ops.fhwa.dot.gov/wz/decision-support/self-assess.htm. Individual state results are not available. The Self-Assessment process has resulted in increased awareness of and communication on work zone issues and has provided valuable insight as to what DOTs do to reduce the incidence of delay and crashes associated with work zones. This information will be used to refine outreach, research, and deployment strategies underlying the FHWA work zone program.

2. **Work Zone Safety and Mobility Final Rule for 23 CFR 630, Subpart J** –FHWA published the final rule in the Federal Register on September 9, 2004. The rule has a compliance date of October 12, 2007. FHWA is developing materials that will assist transportation professionals implement the rule. Materials under development include an Implementation guide, Communication and Outreach Strategies guide, a Transportation Management Planning guide, a Work Zone Impacts Assessment guide, and an enhanced work zone training course. These support materials will be available in 2005.

3. **ITS and Work Zones Crosscutting Study -** Using ITS in work zones can help ease traveler frustration, manage congestion, and prevent crashes. This study looks to educate maintenance and construction engineers and public sector managers about work zone ITS technologies and how they can be used to address work zone mobility and safety challenges. A study report, brochure, and four case studies present information on six work zone ITS applications used in states, including information on why the systems were selected, design and operational characteristics, issues/lessons learned, and the benefits derived from using the systems. The main study report also profiles other ITS-related work zone products, systems and techniques. The documents can be obtained at the work zone website at http://www.ops.fhwa.dot.gov/wz/its/index.htm. FHWA is currently finalizing an implementation guide that will provide information to practitioners on the considerations for selecting and implementing a work zone ITS application.

4. **Full Closures for Work Zones Case Study -** The purpose of this study is to raise awareness among construction engineers and managers of the applications and benefits of full road closure during rehabilitation and construction activities. Full road closures remove the worker-traffic interaction. This allows full access to the entire roadway section on which work will be performed and potentially improves efficiency and safety, and shortens the duration of work. Six field applications were researched, and project descriptions, rationale for using full closure, benefits, and lessons learned for each site was developed as part of the cross-cutting study. Information on the full road closure applications was gathered from site visits, interviews, and project related publications. A study report and brochure describing the findings have been published and are available via the work zone website http://www.fhwa.dot.gov/workzones. Three case study documents that provide greater detail on three of the six sites studied will be available in Spring 2005.

5. **Making Work Zones Work Better Workshop Series –** This series of workshops was conducted to foster peer exchange and introduce the community of practitioners to new strategies and technologies for mitigating work zone impacts. In total, 20 workshops were held in 19 states and brought nearly 2500 transportation practitioners together to discuss strategic and tactical approaches to improving work zone mobility and safety. The series, a partnership activity among FHWA headquarters and field offices and state DOTs, highlighted the use of strategies such as ITS, full road closure, innovative contracting, and other promising work zone technologies and practices. Commentary from the workshops was captured to identify opportunities where FHWA could support broadly applicable improvements to work zone operations. With the initial series of workshops complete, support for future workshops in interested states has transferred to the Resource Center's Operations Technical Services Team.

6. **Assessment of Work Zone ITS Effectiveness** - FHWA is conducting a study to collect and evaluate data from six WZ ITS deployments to gather some quantifiable results of the effectiveness of ITS applications in work zones. Measures include elements of delay, queue length, and safety. Vehicle throughput and the delivery of information on work zones to travelers are also being considered. Data have been collected at three sites to date. Data collection will continue into the 2005 construction season.

7. **QuickZone** – An Excel-based user-friendly software tool to assess queues and delay in work zones. Through alternative analysis, the best staging/phasing plan and mitigation strategies can be identified to minimize user delay and queuing in work zones. Version 1.0 is available through McTrans and PCTrans. Version 2.0 will be available in December 2004 pending completion of final beta testing and resulting modifications. Version 2.0 includes a graphical user interface for network development, an enhanced cost analysis tool, and two-way, one-lane operations modeling.

8. **Advanced Work Zone Management and Design Course –** A new work zone course (#380072A) is being developed to add to the existing courses offered through the National Highway Institute. It will provide learners with broad skills and knowledge of

technical and non-technical aspects of work zone traffic control practices. The course will include principles of planning, design, project management, and contract techniques. It is designed for those that have an understanding of principles of engineering judgment and studies, have management or design experience in work zone traffic control, and have an understanding of the MUTCD. The course is intended to be available in the summer of 2005.

C. Road Weather Management: Program Manager, Paul Pisano (Paul.Pisano@fhwa.dot.gov)

1. **Best Practices CD on Road Weather Management -** The CD captures a variety of traffic, emergency, and maintenance management practices that alleviate the impacts of weather. The best practices were obtained through interviews with state and local practitioners. Each of the documented practices includes information on the applications, results, lessons learned and contacts for further information. A copy of the CD can be requested via the ITS Cooperative Deployment Network (ICDN) at http://www.nawgits.com/fhwa/rw_mgt_cd_req.html

2. **Maintenance Decision Support System (MDSS) -** The MDSS is a decision support tool for winter maintenance managers. It fuses relevant road weather forecasts, maintenance practices, and maintenance resource data into a "one-stop shop," providing recommended winter maintenance actions. FHWA released Version 3.0 of the MDSS software in Fall 2004, and it is available from the National Center for Atmospheric Research at www.rap.ucar.edu/projects/rdwx_mdss/. The system was demonstrated in Iowa in coordination with the Iowa DOT and Iowa State University in early 2003 and again in the 2003-2004 winter. A smaller scale demonstration is taking place in Colorado over the 2004-2005 winter.

3. **Fundamentals of Road Weather Management, NHI course No. 137030A**. - A one-day course is being developed to introduce transportation decisions makers to the basics behind road weather information systems and the ways that they can be applied to address a host of weather-related problems. Topics include a review of road weather problems, meteorology for the non-meteorologist, technology resources and implementations, and case studies. The course will be pilot tested in the Spring 2005 and available in the Summer 2005.

4. **Weather Responsive Traffic Management** – 21st Century Operations embraces the concept that transportation managers can improve traffic flow, even under adverse weather. Several efforts are underway to see this concept become a reality. This includes:
   a) Documenting the ways in which weather information is currently incorporated into freeway and arterial management systems, and how the information is used. This project will be completed in the Winter 2004.
   b) Determining which variables in traffic simulation models are most sensitive to changes in weather. This project is complete, and a report is available.

c) Collecting empirical data of vehicle performance to fully understand changes in speed, flow and density under a variety of weather conditions. The projected completion date of this project is Fall 2005.

5. **Surface Transportation Weather Research – The Highway Environment.** In 2003 the FHWA commissioned the National Academy of Science to convene a panel of transportation and weather experts to explore the research needs that would alleviate the impacts of weather on the surface transportation system. The Board on Atmospheric Science and Climate conducted the effort, in coordination with the Transportation Research Board. Their report, which presents a surface transportation research plan, was released in March 2004. A one-page flyer describing this report has been published and is available.

6. **FHWA-NOAA Partnering** – Based on the results of the National Academy effort, as well as a previous report that documented weather requirements of road users, FHWA is building its partnership with the National Oceanic and Atmospheric Administration (NOAA). An FHWA-NOAA Partnering Plan has been drafted to define near- and long-term initiatives, and work is underway to begin conducting some of the most promising near-term projects (e.g., a training CD on making the most of National Weather Service products, proof-of-concept of collecting road weather data from a vehicle). Work is also underway to establish a Memorandum of Understanding between FHWA and NOAA, which will serve as an umbrella under which this work will be conducted.

7. ***Clarus*** – Clarus is the name of a new ITS initiative which goes by the more formal title of "Nationwide Surface Transportation Weather Observing and Forecasting System." The objectives of the initiative are to develop and demonstrate an integrated surface transportation weather observing, forecasting and data management system, and to establish a partnership to deploy such a system nationwide. The resulting products from such a system consist of more timely, accurate and relevant information that will be made available to all transportation managers and users to alleviate the affects of adverse weather (e.g., fatalities, injuries and delays). Additional information about the initiative can be found at: www.clarusinitiative.org.

D. Special Events Traffic Management: Program Manager, Laurie Radow (laurel.radow@fhwa.dot.gov)

1. **Case Studies Report -** "Watching It All Come Together: Case Studies Report on Special Event Planning and Management." This Public Technology, Inc. (PTI) study offers local jurisdictions a number of useful strategies currently used for planned special events across the country. Published in the fall of 2004, the publication is currently being promoted at conferences. The publication (FHWA Publication # FHWA-HOP-04-029) is available through FHWA and through PTI.

2. **Handbook and Outreach Material -** This technical reference, brochure, fact sheet and technical presentation will provide recommended guidance to assist practitioners that

may be involved in, or responsible for, the planning and coordination for all planned special events within a region or specific individual events. This activity is being developed in cooperation with the TMC Pooled-Fund Study and its members to gather, compile, and develop these products. The electronic versions of these products were posted on the web, distributed, and promoted in the summer of 2004. Preparation of a CD version of the handbook and the accompanying documents is underway and availability is expected by early 2005.

3. **NHI training course -** The development of a one-day overview course and two-day workshop on managing travel for planned special events was initiated in the fall of 2003. This course will be developed and available for presentation in the spring of 2005.

4. **National Conference -** FHWA, AASHTO, TRB, ITE, ITS America, APTA, APWA, the National Main Street Center and other key national interests will host the December 1-3, 2004 national conference on planned special events in New Orleans, LA. The purpose of this conference will be to raise the awareness as to the importance and need to improve how public agencies plan, coordinate, proactively manage travel, and control traffic for planned special events. This conference will focus on lessons learned and how public agencies can improve the planning, coordination, and proactive management of travel for one specific event or for all planned special events with in a region.

II. RECURRING CONGESTION

A. Arterial Management: Program Manager, Pam Crenshaw (Pam.Crenshaw@fhwa.dot.gov)

1. **Case Studies For Regional Traffic Signal Timing -** Numerous areas throughout the country are benefiting from traffic signal coordination within its own communities and increasingly across jurisdictional boundaries into neighboring communities. Experience shows that interconnecting traffic signals and optimizing the traffic signal timing can result in travel time reductions ranging from 8-25 percent along a corridor or arterial. The most important factor in achieving coordination across jurisdictional boundaries is cooperation and communication among agencies. The greatest achievement of cross-jurisdictional coordination of traffic signal timing is when it is performed for a region. There are State DOTs, MPOs, and other transportation organizations that have in the past or are currently developing regional traffic signal timing programs. The intent of this document is to show case studies of the successes and struggles of theses programs and to provide FHWA Office of Operations with case studies of regional traffic signal timing programs that can be provided to client agencies and transportation partners as a model, guide, or framework for establishing a successful program. Completed. Expected availability February 2005.

2. **Traffic Signal Timing On A Shoestring -** This effort will explore and document the minimal amount of data collection and optimization that should be performed in a signal retiming project to acquire some appreciable benefits. This is aimed at

jurisdiction or municipalities that cannot afford to perform full- blown data collection and analysis studies. Expected completion February 2005, available for distribution by late April 2005.

3. **Assessment of the State-of-the-Practice In Low Cost Traffic Engineering Improvements (Primer)** - This effort assessed the low cost strategies and programs being utilized by local agencies to manage their arterials. This included considering traffic signalization, signal hardware and software, signing, markings, and geometric design and construction. Outreach efforts in conjunction with this document will be the issuance of supporting guidance documents to help jurisdictions keep their signals re-timed on a cyclical basis, and the minimal amount of data collection and optimization that should be performed in a signal retiming project to acquire some appreciable benefits. This document will be distributed with the **Traffic Signal Timing On A Shoestring,** expected availability April 2005.

4. **ITS in Small Communities Workshop** - This workshop will help small communities consider all of the various ITS Systems and how to apply them to address their particular needs. This will encourage the deployment of ITS in rural areas that are critical to the nationwide network. This course will be completed by April 2005.

5. **Small Communities Handbook and Video** - This handbook was developed to deliver traffic management strategies related to small communities and rural region's traffic management systems. Within the handbook, systems that apply various ITS components for ATMS and ATIS to appropriate categories of traffic and network characteristics are covered. Other topics covered are, integrated and isolated traffic signals, small traffic signal systems, traffic management systems for seasonal and episodic events, and the communication systems that maybe applicable for incident, emergency and disaster management. This video provides visual information and highlights the progressive and innovative practices documented in the Small Communities Traffic Management Benefits Study. A range of small communities of various sizes and populations are highlighted in order to capture the unique aspects of each. The Handbook is being distributed with the **ITS in Small Communities Workshop** as part of the course material. The video will be available by April 2005.

6. **Data Collection/ Management Techniques and Procedures** - This initiative will develop a methodology for getting quality data from a "short count", or partial count and determining the critical intersections for traffic counts. Also the current technology will be assessed and compiled into a data management guideline. Expected Completion May 2005.

7. **Traffic Detector Handbook Course CD Rom** - This CD course will be designed to provide general visual information and knowledge about traffic detectors and will follow the Handbook. This video will instruct traffic engineering practitioner, technicians and repair personnel in the theory, application and current evolution of traffic detectors, also the process of installing, repairing and replacing inductive loop detectors. Expected Completion Spring 2005

8. **Traffic Control Systems Handbook -** The Traffic Control Systems Handbook is in the process of a comprehensive revision to reflect the changes in technology and it's associated standards, the state of the practice, and recent FHWA requirements. This updated version will continue to help users understand the basic elements of traffic control systems and serve as a basic reference for the practicing traffic engineer. Draft handbook by December 2003. Expected completion is February 2005. Available on the EDL by late March 2005.

9. **Communications for Traffic Control Systems Handbook -** The Communications for Traffic Control Systems Handbook has been updated to reflect the significant changes in communication technology that has occurred since the last update in 1993. The updated handbook is a reference manual to assist practitioners with addressing the various technology issues associated with the development of a communication system to support traffic operations. Completed, available on the EDL.

10. **Develop Traffic Signal Design Course NHI #133028 -** This course provides participants with skills to evaluate the process by which signal control projects are developed, designed, implemented, maintained and operated. This course addresses the application of the manual of Uniform Traffic Control Devices to intersection displays, as well as signal timing, computerized traffic signal systems, control strategies, integrated systems, traffic control simulation and optimization software. Completed. Available for scheduling by late February 2005.

B. Corridor Traffic Management: Program Manager, John Harding (John.Harding@fhwa.dot.gov)

Integrated Corridor Management involves the coordination of transportation management techniques between networks in a corridor that together can collectively address congestion and improve overall corridor performance. Transportation corridors are usually characterized by a system of heavily traveled parallel transportation networks that link major activity centers. Each of the networks provides an alternative means of mobility between origins and destinations throughout the corridor. Each of the networks is usually operated in isolation except for pseudo coordination at facility junctions. This lack of coordinated operations between networks prevents effective use of the combination of these networks to address day-to-day congestion and congestion caused by work zones, incidents, weather, and special events. A coordinated effort between networks along a corridor can effectively manage the total capacity of a corridor and increase corridor trip reliability.

1. **Integrated Corridor Management Program Phase 1: Foundational Research –** The initiative is embarking on it first phase; conducting foundational research. Phase one of the ICM initiative will undertake activities to develop a Generic ICM Concept of Operations, study what is needed to delineate the boarders of an ICM, develop and with stakeholders select definitions for a corridor and Integrated Corridor Management, develop initial information that will help assess what is needed to implement corridor

management, and identify the institutional, operational, and technical integration issues that need to be addressed. The foundational research will culminate in an ICM development feasibility analysis. The feasibility analysis will assess whether the identified integration issues represent practitioner's needs and if these issues can be addressed given the resources allocated to the initiative. The assessment will determine if the initiative should move to Phase 2, the development phase.

2. **Integrated Corridor Management Stakeholder Working Group –** To support phase 1 activities and subsequent phases of the program, an initial group of stakeholders will review the initiative and be asked to review phase 1 research results. A December meeting will be held to discuss the visions, initial definitions for corridor and Integrated Corridor Management, and DOT's draft program plan. During Phase 1 of the initiative, stakeholder involvement will be solicited through 3 stakeholder meetings and 2 stakeholder workshops. The stakeholder meetings will be used to generate discussion and comment of detailed issues from a select group of stakeholder representatives, while the workshops will be opened to all stakeholders and used to generated general discussion of ICM concepts, identify broad program direction, identify common integration issues, and disseminate any information being generated by the foundational research.

C. Freeway Management: Program Manager, Jessie Yung (Jessie.Yung@fhwa.dot.gov

Freeway systems consist of a complex collection of interdependent roadway infrastructure elements, facilities, traffic management centers (TMCs), operational strategies, service providers, and modes. Freeway traffic management involves the practice of combining personnel, operational strategies, advanced technologies, TMCs, and other techniques to proactively manage travel and control traffic on freeway facilities. It provides agencies with the ability to monitor roadway conditions, control traffic, identify recurring and non-recurring bottlenecks, detect and verify incidents, implement traffic management strategies, control traffic, and provide travel conditions information to motorists. The proactive use of freeway management strategies attempts to keep traffic congestion from occurring in the first place, by balancing travel demand with the available roadway capacity and when it does occur, attempts to minimize the duration and extent of congestion. The initiatives of the freeway management program focus on: 1) freeway operations and traffic management; 2) traffic management centers (TMCs); 3) managed lanes, and 4) HOV facilities.

Freeway Management & Traffic Operations Initiative:

a) **Freeway Management & Operations Training Course, NHI Course #13375 -**The purpose of this training course is to provide participants with a general appreciation and understanding of the key policies, challenges and barriers, institutional issues, technical and other issues to consider in the planning, design, implementation, management, operation, evaluation, and marketing of freeway facilities. The pilot presentation for this course was held in September and now is available to be scheduled through NHI. Details and how to schedule this course can be assessed at: http://www.nhi.fhwa.dot.gov/default.asp

b) **Freeway Management and Control Handbook –** This technical reference will provide guidance and recommended practices on managing and controlling traffic on freeway ramps that are intended to enhance the use of and effectiveness of various ramp management and control strategies and techniques, leading to an improved understanding of ramp traffic flow and its impacts on freeway operations. It will also present the impacts that roadway improvement planning, designs, roadway and traffic monitoring, real-time operation, evaluation, and reporting have on the performance and management of traffic at freeway ramps. The annotated outline will be completed in June with the draft handbook being available for review in December of 2005.

Managed Lanes Initiative:

a) **Managed Lane Cross Cutting Study and Primer –** Managed lanes are freeway facilities where one or more operational strategies are proactively used to maintain free-flow conditions on a specific lane or set of lanes. Managed lanes address mobility, safety, and financial objectives and can significantly improve the performance of freeway facilities. However a number of issues critical to advancing managed lanes require greater understanding (e.g., legislative authority, demand forecasting, revenue use, design, management, traffic management and operation). The following projects will be completed or initiated in 2004 to raise the awareness and understanding of the benefits and potential of various managed lane strategies.

- ***Managed Lane Cross Cutting Study*** summarizing the current practices, trends, lessons learned, gaps in practice, and research needs based on experiences from leading agencies from around the country. Draft report was completed.

- ***Managed Lanes Primer*** identifying for senior managers the key challenges, opportunities and benefits. Draft report was completed.

b) **Managed Lanes Traffic Control & Signing –** The purpose of this project is to advance the understanding of the traffic management and signing issues, challenges, innovative techniques that are being utilized, gaps in practice, and research that is needed on traffic control and signing related issues to support the proactive management and operation of various managed lane operational strategies.

- ***Managed Lanes Case Study Reports*** - summarizing the lessons learned related to the proactive management and operation of specific managed lane operational strategies will be completed in the spring of 2005.
- ***Managed Lanes Traffic Control & Signing Study*** - summarizing the current practices, trends, lessons learned, gaps in practice, and research needs based on experiences from leading agencies from around the country will be completed in the Spring of 2005.

***Traffic Management Center (TMC) Initiative*:**

a. **Configuration Management for Transportation Management Systems, NHI Course #137042:** The purpose of this course is to demonstrate the benefits, its role, and how configuration management supports the development and operation of transportation management systems. This course is designed for individuals engaged with or responsible for the planning, design, implementation, management, operation or maintenance of transportation management systems. Details and how to schedule this course can be accessed at: http://www.nhi.fhwa.dot.gov/default.asp

b. **Changeable Message Sign (CMS) Projects:**

- ***Color & Animation Research:*** Project will synthesize current literature, research completed, lessons learned related to the impacts of color and animation with displaying messages on CMSs. This project will also assess future trends and possible impacts of advancements in CMS technologies and the type of messages that could be displayed. It will also identify potential recommended revisions on the use of color and animation in displaying messages on CMS in the MUTCD, priorities for testing, and work plan to perform and evaluate these tests. The target date for completion is the spring of 2005.

- ***Impacts of Dynamic Displaying Messages on Changeable Message Signs:*** The objectives of this project are to (1) develop preliminary guidance to practitioners for dynamically displaying messages on CMS and (2) identify and recommend changes or new provisions to the MUTCD. This project will build upon the TMC Pooled Fund Study project *Changeable Message Sign Operation and Messaging.* The target date for completion is the spring of 2005.

c. **Testing and Acceptance Plans and Procedures -** The purpose of this project is to provide guidance and recommended practices how to integrate and successfully utilize testing and acceptance plans and procedures for TMCs. Guidance and directions being addressed in this handbook will allow people who are involved in or responsible for planning, building, operating and evaluating the TMS to ensure the desired operations of systems by performing proper tests and acceptance procedures. The target completion date is the summer of 2005.

d. **Migration Plans and Procedures for TMCs -** Migration is the process of replacing or augmenting existing systems and system components. This handbook will address the full range of TMC Migration activities including implementing a new TMC, upgrading all or portions of system software, upgrading telecommunications equipment, and other migration activities related to the systems, software, and field services that support a TMC's operation. The purpose of this project is to provide guidance and recommended practices related to the plans and procedures for managing the migration of transportation management systems. The target completion date is the summer of 2005.

e. **TMC Pooled Fund Study (PFS) -** The TMC PFS is to a forum to identify and address issues that are common among public agencies. The goal is to assemble regional, state, local agencies, and FHWA to identify issues, suggest, select, and initiate projects and

initiatives to address these issues. Agencies are encouraged to join now, to participate with the 29 current members in the activities of the TMC PFS for 2005. The latest information and fifteen projects that have been initiated or completed over the past five years can be accessed at: http://tmcpfs.ops.fhwa.dot.gov. The following are the current projects:

- ***TMC Operations Concept:*** This TMC PFS sponsored and led project will develop a handbook, primer and brochure that provide guidance and recommended practices on the need for, how to develop, and use a concept of operations throughout a TMCs life cycle. This project is targeted to be completion in the first quarter of 2005. The latest project information is available at: http://tmcpfs.ops.fhwa.dot.gov/cfprojects/new_detail.cfm?id=38&new=0

- ***TMC Operator Requirements & Position Descriptions – Phase 2:*** This TMC PFS sponsored and led project will revise the draft technical document produced in phase 1 and develop an enhanced software product. The purpose of this tool is to allow public agencies to develop operator requirements; tasks; knowledge, skills and abilities (KSA's), and position descriptions based on the current or planned market packages or functions supported by their TMC. This project is targeted to be completion in the Spring of 2005. The latest project information is available at: http://tmcpfs.ops.fhwa.dot.gov/cfprojects/new_detail.cfm?id=55&new=0

- ***TMC Business Planning and Plans****:* This TMC PFS sponsored and led project will develop a technical document and primer providing guidance and recommended practices on the need for, how to develop, outlines various processes, identify types of business plans, supporting management systems, and use of business planning processes for TMCs. This project will also address various business planning models that have been successfully employed by transportation agencies to ensure the long-term sustainability of applications similar to TMCs. This project is targeted to be completion in the first quarter of 2005. The latest project information is available at: http://tmcpfs.ops.fhwa.dot.gov/cfprojects/new_detail.cfm?id=54&new=0

Information on the projects that will be initiated in 2005 can be accessed at: http://tmcpfs.ops.fhwa.dot.gov/cfprojects/new_search.cfm?new=3

- Integration of TMC and Public
- Recovery and Redundancy of TMCs
- Procuring, Managing, and Evaluating the Performance of Contracted TMC Services
- Statewide, Multi-State, and Regional TMC Concept of Operations and Requirements
- TMC Clearinghouse Support Services, Phase 2

HOV Lanes Initiative: Program Manager, Neil Spiller (Neil.Spiller@fhwa.dot.gov)

a. **HOV Training Course, NHI Course #13375 -** The purpose of this course is to

provide participants with a general appreciation and understanding of the key policies, institutional issues, challenges and barriers, technical, and other issues to consider in the planning, design, implementation, management, operation, evaluation, and marketing of HOV facilities. This course is targeted at a wide range of individuals who may be responsible for or involved in activities that influence the HOV program, system, facility, or specific support services. The update of this course will be available for presentation in 2006.

b. **HOV Pooled Fund Study (PFS) -** This study provides a forum to identify and address the key issues and challenges that are common among agencies. The goal is to assemble regional, state, and local agencies, transportation service providers, and FHWA to identify, propose, prioritize, and initiate projects and initiatives to address these challenges. The HOV PFS will focus on the critical program, policy, technical, and other issues that arise throughout the life cycle of an HOV facility. Current HOV PFS information can be accessed at http://hovpfs.ops.fhwa.dot.gov. Agencies are encouraged to join the nine current members, to comment on projects selected and to propose new projects:

- ***HOV Enforcement:*** Project will develop a technical reference, primer, and brochure that provide guidance, recommended practices, and lessons learned on how to successfully enforce HOV lanes, integrate these needs in the design of HOV facilities and HOV program. The target completion date is 2005.

- ***Safety Considerations of HOV Facilities:*** Project will develop a technical reference, primer, and brochure that provide guidance and best practices on the key issues, considerations, and potential impacts on safety related to various HOV facility issues. These factors and considerations may include: roadway design features (e.g., facility type, shoulder widths, and types of ingress/egress), transit facilities, enforcement area and traffic incident management provisions, or signing or pavement marking. The target completion date is 2005.

- ***HOV Performance Monitoring, Evaluation, & Reporting:*** Project will develop a technical reference, primer, & brochure providing guidance and best practices with monitoring, evaluating, and reporting on HOV system performance. These products are intended to foster improvements in the planning, design, management and operation of HOV facilities and support services. The target completion date is 2005.

- ***HOV Hours of Operation and Eligibility Requirements:*** Project will develop a technical reference, primer, and brochure that provide guidance and best practices on how to evaluate the benefits and potential impacts with making potential modifications in the hours of operation and or vehicles that are allowed to use different HOV facilities. This project will address specific trade-offs with setting and changing eligibility requirements and operating periods along with the supporting methodologies, process, tools, and techniques to support the analysis of these issues. The target completion date is 2005.

D. Travel Demand Management: Program Manager, Wayne Berman (wayne.berman@fhwa.dot.gov)

1. **TDM Reference Guide – Update -** The objective of this project is to update the 1993 Reference Guide based upon a new "operations –oriented" model for TDM in a contemporary environment. The updated Reference Guide shall contain two principal sections – one to address TDM for commute trips and one to address TDM for non-commute trips. Each section will be developed based on five to ten case examples that illustrate contemporary enablers of TDM, such as information, technology, and financial incentives. The Reference Guide is available electronically on the Office of Operations website: www.ops.fhwa.dot.gov Hard copies will be available in Spring 2005 by contacting Wayne Berman at wayne.berman@fhwa.dot.gov.

2. **Managing Demand Through Traveler Information Services:** The objectives of this project are: 1.) To compile existing information on how, where, and under what circumstances traveler information services are affecting or managing demand and 2.) To package the information compiled into a colorful, easy-to-read, 25-page brochure. The brochure highlights the opportunities and benefits for using traveler information services to manage demand during periods of recurring and non-recurring congestion, including special events and emergencies. The brochure is available electronically on the Office of Operations website: www.ops.fhwa.dot.gov Hard copies will be available in Spring 2005 by contacting Wayne Berman at wayne.berman@fhwa.dot.gov.

3. **Commuter Choice Primer -** The new publication entitled *Commuter Choice Primer – An Employer's Guide to Implementing Effective Commuter Choice Programs* has been prepared and distributed. The Primer is intended to be a concise, user-friendly reference guide for employers and transportation professionals to developing and implementing worksite commuter choice programs. This document can be accessed at http://www.ops.fhwa.dot.gov. A digital tool called the *Commuter Choice Decision Support System* (http://ops.fhwa.dot.gov/PrimerDSS/index.htm) is packaged with the Primer to enable an employer to actually develop and test out a various commuter choice programs that fit their situation. The Primer is supportive of an ongoing joint initiative by the FHWA, the FTA, and the EPA to promote government-business partnerships that enhance commuting options and opportunities for employees.

III. DAY-TO-DAY OPERATIONS

A. Manual on Uniform Traffic Control Devices: Program Manager, Linda Brown (**Linda.L.Brown@fhwa.dot.gov**)

1. **MUTCD has been updated and issued as a new 2003 edition in** a final rule published in a November 20, 2003 Federal Register notice. Significant items contained in the final rule include:

   (1) Interim approval process to get new traffic control devices implemented sooner.

(2) Fluorescent pink color (optional) for Incident Management signs
(3) More guidance on HOV Lane signing and signing on surface roadways approaching freeway interchanges
(4) Advance street name sign standards/guidance & larger legend size for overhead & high-speed road street name signs
(5) Countdown Pedestrian signals & revised pedestrian clearance time calculation guidance
(6) Pedestrian & disabled accessibility in work zones
(7) In-street pedestrian and school crossing signs

2. **The 2003 MUTCD Revision 1 final rule was published in the Federal register May 10, 2004.** This final rule revises the 2003 edition of the Manual on Uniform Traffic Control Devices (**MUTCD**) to permit the use of Specific Service and General Service signing to assist motorists in locating licensed 24-hour pharmacy services open to the public.

3. **Traffic Control Devices Pooled Fund Study** - The experimentation process for updating the MUTCD is time-consuming and involves evaluation reports. The experimental process has been used by jurisdictions as a mechanism for on-road testing and evaluation of innovative traffic control devices. FHWA has established a pooled fund study for traffic control devices that is intended to provide a quicker way to assess low risk new traffic control devices and applications. FHWA, two local jurisdictions and 14 states have committed funds to participate on the pooled fund panel. The panel has selected four projects this year, which are:

- Navigation signing for Roundabouts
- Evaluation of 11 new symbols
- Stutter flash for overhead beacons
- Countdown pedestrian signal enhancements

4. **FHWA Pedestrian Accommodation and Delineation Devices Demonstration -** Federal Highway Administration (FHWA) is working hard to make work zones safer for motorists, workers, and pedestrians. Recently, FHWA focused special attention on this issue by including new language in the 2003 Manual on Uniform traffic Control Devices (MUTCD) to address the unique challenges of people with disabilities in traversing a work zone. FHWA's very first Pedestrian Accommodation and Delineation Devices Demonstration took place on September 22 at the Turner-Fairbank Highway Research Center in cooperation with U.S. Access Board and American Traffic Safety Services Association (ATSSA). The event was a great success and the industry support was enormous. There were 22 ATSSA members and 11 ATSSA member companies participated in a unique demonstration and product evaluations in the early fall. The 11 manufactures displayed 19 different pedestrian channelization devices. The event was aimed specifically at traffic control devices used to assist visually impaired pedestrians to traverse safely through work zones.

Manufacturers took this unique opportunity to bring their existing, modified, or prototype devices to Northern Virginia, to participate in an outdoor "laboratory," where their new ideas would be evaluated by visually impaired pedestrians. This demonstration allowed ATSSA members to get feedback from the disabled community immediately. The feedback was of great value, as it enabled the manufacturers to further modify their products to better serve their customers. In addition the information gathered at the event may be used to assist in developing rule making for the Access Board's Guidelines for Accessible Rights-of-Way, as well as future changes to the MUTCD.

B. Operations Asset Management - Program Manager, John Harding (John.Harding@fhwa.dot.gov)

1. **Operations Asset Management Program Plan and Road Map -** An initial program plan and road map has been developed. The Operations Asset Management Program is structured to establish and promote the implementation of Operations Asset Management practices. Implementation of Operations Asset Management practices will lead to the inclusion of operations asset resource allocation needs in a coordinated Transportation Asset Management (TAM) process. The overall goal of the program is to provide the necessary resources operations professionals need to establish Operations Asset Management as a way of conducting business in their organizations. For these operations professionals to be successful, we need to provide them with analytical tools, procedures, processes, policies, and an overall system methodology of how Operations Asset Management relates to and is integral to Transportation Asset Management (TAM) and system performance. We need to show how Operations Asset Management linked to TAM will enable them to identify and quantify for decision-makers the resources they need to increase the performance of the operational aspects of the system, and the entire transportation system. To provide operations professionals with the resources they need to implement Operations Asset Management, the program has been divided into 3 interconnected research areas which are 1.) Establishment of An Analytical Foundation, 2.) Creation of Operations Asset Management and Linkages to TAM, and 3.) Institutionalization of Operations Asset Management.

2. **Investigation of Signal System Assets Management Methodology and Process Elements –** The State-of-the-Practice report for Signal System Asset Management has been completed and is posted on the Office of Operations web site The State-of-the-Practice report identifies and assesses how the physical, system, and human resource assets that generically comprise a typical signal system are currently managed. Continuing from the-State-of-the-Practice investigation, the investigation concentrated on identifying the elements of a comprehensive signal systems asset management system. The analysis used the state-of-the-practice responses to develop a generic signal system as a platform for the analysis. Using the generic signal systems as a platform and the principles of asset management, the report derives the elements needed for a comprehensive signal systems asset management system. The elements of the asset management system are explained and shown. The analysis provides further insight by identifying what kind of analysis and evaluation the asset management system will support. The report contrasts conservative, moderate, and aggressive

improvement scenarios and illustrated how a system would support this type of analysis. The elements of a signal system asset management system also supported a comparison analysis with highway infrastructure and Information Technology (IT) asset management systems to obtain an understanding of the characteristics of Operations Asset Management. The Elements of a Comprehensive Signal System Asset Management System analysis has been completed. The final report is being prepared for posting on the Operations web site. The report should be posted by January 2005.

3. **Identification of Operations Assets –** Two new investigations are being undertaken to further Operations Asset Management. The first investigation is the Identification of Operations Assets. This investigation will provide an informational foundation for operations asset management. Identifying the operations assets will establish a base line from which analytical capabilities; and data, information, and performance measure needs can be identified. The information will also help characterize aspects of operations asset management. The results of this investigation will help draw the lines between operations and other different asset areas and facilitate discussion on those assets that straddle the lines between the areas. The resulting report will not be the final word or a definitive list but an initial identification of what may constitute the range and breadth of operations asset.

4. **Signal System Life Cycle Cost Development and Application –** The second investigation will develop life cycle costs for signal systems. Currently there is no formal guidance on life cycle cost for signal systems. Many signal system units have extensive inventory systems and some even track maintenance activities, however, this only provides some information regarding the physical aspects of signal systems. The complexity of life cycle cost for signal systems is fueled by the various service lives for the various cost items. Service lives can range between 20 years to 6 months for the various cost items that are part of a signal system. The purpose of this task is to create the methodology and techniques that will support calculation of life cycle costs for signal systems. The outcome of being able to calculate signal system life cycle costs will be the ability to identify the total costs of competing signal system options to better manage a signal system by consistently managing the items of a signal system.

C. Real Time Traveler Information - Program Manager, Bob Rupert Robert.Rupert@fhwa.dot.gov)

1. **ATIS/511 Guidance, Lessons Learned, and Technical Assistance** – This activity provides a means to share information with others that may be planning to develop traveler information systems. The information is gathered from locations that are deploying 511 and other traveler information services. The activity includes coordination and cooperation with the 511 Deployment Coalition and its members to gather, process, and disseminate the information. The 511 Deployment Coalition, FHWA and FTA are also cooperating to provide outreach and assistance to metropolitan areas identified for focused attention to encourage and assist the implementation of 511 services in their regions, to help reach the 2005 goal of 50% of

the country's population having access to 511. Seven Deployment Assistance Reports, version 2.0 of the 511 Guidelines, and 511 marketing resources are available on *Resource 511* (www.deploy511.org), the website for the 511 Deployment Coalition. The website also includes status and contact information for the 24 systems in operation in 22 States as of November 2004.

2. **AMBER Alert Guidance, Support and Implementation Program** - This activity includes the AMBER Alert Plan Assistance Program and the AMBER Plan Implementation Assistance Program. The Plan Assistance Program provided up to $125,000 to States to help them determine how transportation agency resources can best be used when child abduction alerts are issued by law enforcement agencies, including looking at enhancements to the communications between law enforcement and transportation agencies, and as of July 2004, a total of $5,009,520 in grants had been provided covering 40 States and the District of Columbia. The Implementation Assistance Program provides up to $400,000 to States for implementing motorist information systems to notify motorists when child abduction alerts are issued, and as of July 2004, a total of $6,376,000 in grants had been provided to 16 States. This activity will also develop guidance and information about best practices for transportation agencies when issuing child abduction alert messages. This guidance is based upon the experiences and lessons learned by agencies that have been involved in providing child abduction alert messages, and on sound engineering practices in crafting messages for display by roadside equipment. The guidance report is available from the Operations website at http://www.ops.fhwa.dot.gov/TravelInfo/resources/cms_rept/cmspractices.htm.

3. Travel Times on Dynamic Message Signs – The purpose of this activity is to encourage and assist states and metropolitan areas to post travel time messages on dynamic message signs (DMS). Many signs across the country are often blank or show messages that have little use to drivers. Cities that currently post travel time messages enjoy wide public support for their efforts. Case studies are being performed on four cities that post travel time messages. The case studies will be useful to other cities in that they will document the obstacles overcome in order to post the messages. Also, a workshop is tentatively planned for Spring 2005 to provide technical assistance to areas wanting to post travel time messages.

4. **Intelligent Transportation Infrastructure Program (ITIP)** - Program Manager, Chung Eng (chung.eng@fhwa.dot.gov)

   This ongoing program is designed to enhance regional surveillance and traffic management capabilities in up to 21 metropolitan areas while developing an ability to measure operating performance and expanding traveler information through public/private partnerships. Deployment has been completed in Philadelphia, Pittsburgh, Chicago and Providence. System acceptance for Tampa occurred on November 16, 2004. Implementation is near completion in Boston and system development is currently underway in San Diego, Washington, D.C., Los Angeles,

Phoenix, Detroit, St. Louis, San Francisco, and Oklahoma City. Negotiations are currently active in 7 additional cities.

5. **iFlorida Model Deployment -** The iFlorida model deployment will demonstrate and evaluate how the safety, security and reliability of the surface transportation system can be enhanced through the widespread availability of real-time information. The project was awarded May 1, 2003. The iFlorida design has been completed and the system components are being deployed. The documents, as well as other project information, can be found on the iFlorida website at www.iflorida.net. The iFlorida documents are also posted on the ITS Electronic Document Library (EDL). Major activities that occurred during this period:

   - Central Florida Field Components: Traffic Control Devices, working under the $6 million design build contract that was awarded in August 2003, has begun construction on the field hardware. Deployment and testing of the field hardware components is scheduled to be completed in February 2005, though the schedule may be pushed back due to the 2004 hurricane season.

   - iFlorida Conditions System: The conditions system is an Internet-based information management tool that will collect, fuse, and disseminate highway-related information throughout the state of Florida, as well as more detailed, multi-modal conditions information for the Central Florida region. In December 2003, Florida DOT selected Castle Rock Consultants to develop the iFlorida Conditions System, which will further enhance the Condition Acquisition and Reporting System (CARS) currently used by a consortium of 12 states. The initial statewide CARS system is being tested at the Regional Traffic Management Center in Orlando. The intent is to get the system out to the users as soon as possible in order to incorporate their feedback into the development process.

   - Weather: The University of North Florida (UNF) will be designing, procuring and installing 10 Road Weather Information System stations in Central Florida along with 4 wind sensors on bridges. The system design and location selections are currently underway, and procurement is expected to begin late this summer. Related to the UNF deployment of weather sensors, a contract with Meteorlogix will develop a weather prediction model for current conditions and forecasts for over 100 road segments in Central Florida.

   - Florida DOT entered into a contract with Greenhorne & O'Mara to develop recommended practices for emergency evacuation of attractions and special event venues, such as the Daytona International Speedway. The consultant observed the Pepsi 400 races at the Speedway in July using an observation plan that included ingress and egress of traffic and pedestrians. Post-race questions were developed and discussed at a meeting of the Stakeholders Local Committee in August.

- The national evaluation of iFlorida is proceeding at the same pace as the model deployment itself.

For more information on the iFlorida model deployment, contact Toni Wilbur at toni.wilbur@fhwa.dot.gov

D. Traffic Analysis Tools - Program Manager, John Halkias (john.halkias@fhwa.dot.gov)

1. **Next Generation Simulation (NGSIM) Core Algorithms and Data Sets** – This effort is to develop a core of open behavioral algorithms in support of traffic simulation with supporting documentation and validation data sets that describe the interactions of multi-modal travelers, vehicles and highway systems. These products will be openly distributed and made freely available to the broad transportation community. For more information, please visit the NGSIM website at http://ngsim.fhwa.dot.gov

2. **Traffic Analysis Tool Primer** - An overview of traffic analysis tools. The report is available through the website at http://www.ops.fhwa.dot.gov/travel/Traffic_Analysis_Tools/traffic_analysis_toolbox.htm

3. **Decision Support Methodology for Selecting Traffic Analysis Tools** – This is an on-going project to assist traffic engineers and traffic operations professionals in the selection of the correct type of traffic analysis tool for operational improvements. In addition, this document will assist in creating analytical consistency and uniformity across State Departments of Transportation and Federal/regional/local transportation agencies. The report is available through the website at http://www.ops.fhwa.dot.gov/travel/Traffic_Analysis_Tools/traffic_analysis_toolbox.htm

4. **Guidelines for Applying Traffic Micro-simulation Modeling Software** – These guidelines are designed to provide practitioners with guidance on the appropriate application of micro-simulation models to the estimation of traffic performance for freeways, highways, rural roads, and city streets. These guidelines will aid practitioners in the development, calibration, and application of micro-simulation models. The report is available through the website at http://www.ops.fhwa.dot.gov/travel/Traffic_Analysis_Tools/traffic_analysis_toolbox.htm

5. **CORSIM Application Guidelines** – These are CORSIM-specific application guidelines that describe the proper use of the CORSIM tool in analyzing real-world transportation problems. These guidelines will build upon the generic FHWA simulation guidelines as a framework and add CORSIM-specific guidance. In addition, these guidelines will aid the CORSIM user in applying the software to more "advanced" problem applications. The report will be available late Spring, 2005 through the website at

http://www.ops.fhwa.dot.gov/travel/Traffic_Analysis_Tools/traffic_analysis_toolbox.htm

6. **Traffic Analysis Tools Case Studies: Benefits and Applications** – These case studies will serve to document real-world applications of the various available tools, and will address topics such as the rationale for selecting the particular analysis procedure(s) employed, the manner in which each tool was applied, the specific benefits achieved, and possibly even the significant pitfalls that were encountered. The report will be available late Spring, 2005 through the website at http://www.ops.fhwa.dot.gov/travel/Traffic_Analysis_Tools/traffic_analysis_toolbox.htm

7. **DYNASMART-P** – represents a new generation of tools to support transportation network planning and operations decisions in the ITS and non-ITS environments. It combines dynamic network assignment models with traffic simulation models. DYNASMART-P has been packaged with DSPED (the Network Editor) and is being released to the public through McTrans Center.

8. **Dynamic Traffic Assignment** - The FHWA R&D initiated a Dynamic Traffic Assignment (DTA) research project to develop advanced network-wide traffic models to address complex traffic control and management issues in the information-based, dynamic ITS environment. Under this project, two prototypes of Traffic Estimation and Prediction System (TrEPS) for real time traffic management and two prototypes for offline Operations Planning (TrEPS-P) were developed. All prototypes can be used for corridor traffic management analyses, both online and offline analyses. The two TrEPS prototypes are being field-tested and one of the TrEPS-P prototypes, DYNASMART-P, is being released to the public through McTrans Center.

IV. CREATING A FOUNDATION FOR 21ST CENTURY OPERATIONS

Program Manager, Wayne Berman (wayne.berman@fhwa.dot.gov)

A. Planning for Operations

Program Manager, Wayne Berman wayne.berman@fhwa.dot.gov)

1. **Regional Transportation Operations Collaboration and Coordination (RTOCC)** Primer - This Primer was printed and distributed to introduce the concepts and guiding principles for Regional Transportation Operations Collaboration and Coordination. The Primer is available electronically on the Office of Operations website: www.ops.fhwa.dot.gov Hard copies are available by contacting Wayne Berman at wayne.berman@fhwa.dot.gov.

2. **Demonstration projects on "Regional Transportation Operations Collaboration and Coordination"** – Funding is planned in FY 2004 and FY 2005 for demonstration projects in two cities to serve as laboratories to develop and showcase Regional Transportation Operations Collaboration and Coordination. Proposals from seven cities have been submitted and two sites have been recommended to FHWA management. Awards are

expected in early 2005. For more information on this initiative, please contact Chung Eng (chung.eng@fhwa.dot.gov) or Wayne Berman (wayne.berman@fhwa.dot.gov)

3. **Advancing Transportation Systems Management and Operations Training Course and Executive Session** - This course and Executive Session are intended to provide instruction on concepts, principles, and experiences needed to advance a regional perspective for Transportation Systems Management and Operations. The three key aspects address in both the course and executive session are greater operations collaboration and coordination, emphasizing operations in the planning process, and better linking planning and operations. Both the course and executive session are available and are intended for planners and for professionals with day-to-day experience in management and operations in both transportation and public safety communities. For more information on this initiative, please contact Wayne Berman (wayne.berman@fhwa.dot.gov)

4. **Regional Concept for Transportation Operations** – A white paper has been prepared to begin to frame a Regional Concept for Transportation Operations as a management tool for guiding regional transportation operations collaboration and coordination. The white paper is available electronically on the Office of Operations website: www.ops.fhwa.dot.gov Hard copies are available by contacting Wayne Berman at wayne.berman@fhwa.dot.gov. Further guidance is planned in 2005 to articulate the benefit and importance of it, and identify the steps necessary to make it an accepted and valued action for transportation operators and public safety managers in metropolitan areas.

5. **Opportunities for Linking Planning and Operations –** The FHWA Office of Operations and the Office of Planning, Environment, and Realty have jointly prepared a new reference manual. The reference manual identifies and helps develop nine opportunities for planners and operations staffs to work closer together and thereby facilitate better linkages between planning and operations. Some of these opportunities include development of operations performance measures, data sharing, the regional ITS architecture, and the congestion management system. The reference manual is available electronically through the Office of Operation's website at www.ops.fhwa.dot.gov. Hardcopies will be available by contacting Wayne Berman (wayne.berman@fhwa.dot.gov) or Harlan Miller (harlan.miller@fhwa.dot.gov)

6. **Plan4Operations Website** – A new website, developed joint between the FHWA Office of Operations and the Office of Planning, Environment, and Realty, is available to serve as a resource for information related to planning for operations. The website will be available by January 2005. The address is www.plan4operations@fhwa.dot.gov

B. Performance Measurement: Interim Program Manager, Chung Eng (chung.eng@fhwa.dot.gov)

1. **Mobility Monitoring Program** - FHWA is working closely with TTI to develop and calculate area wide, travel-time based performance measures using archived data from freeway management systems. This program, which began in 2001 (analyzing 2000 data) with 10 cities, has grown to include 28 cities in 2004. The program tracks three congestion measures (travel time index, percent congested travel, and delay)

and two reliability measures (buffer index and planning time index). Additional cities may be added during FY 05 as circumstances permit. For more details, visit the mobility monitoring program web site at http://mobility.tamu.edu/mmp.

2. **Monthly Urban Congestion Reporting** - This on-going program acquires travel time data from web sites in 10 metropolitan areas and uses it to calculate key travel time reliability performance measures. Real-time congestion data is acquired daily and monthly congestion measures are reported. Annual trend data is being reported for participating cities with available data.

3. **Developing reliability measure outreach materials** - This on-going program develops materials for an outreach campaign to advance the state of the practice in travel time reliability performance measurement and to broaden acceptance of its use by public agencies. As part of the Performance Measurement program, a travel time reliability communications plan has been developed and an outreach campaign will begin in FY2005 to support technology transfer and capacity building in the area of operations performance measures.

4. **FHWA National State of Congestion Report** – FHWA published and distributed the first annual FHWA National State of Congestion Report in FY2004. The report was released in conjunction with the Texas Transportation Institute's Urban Mobility Study that focuses on congestion at the state and metropolitan levels. The report may be viewed at http://www.ops.fhwa.dot.gov/congestion_report/index.htm. Planning is under way for the FY2005 report.

5. **Sources of Congestion Study** – This study will help to build a more thorough understanding of the causes of congestion and to identify targeted strategies to mitigate those sources of congestion. The study results will be published in January 2005.

C. Facilitating Integrated ITS Deployment

1. **Regional ITS Architecture Implementation -** Program Manager, Pam Kordenbrock; (Pamela.Kordenbrock@fhwa.dot.gov)
   All regions that have used, or are planning to use Federal funds from the Highway Trust Fund (including the Mass Transit Account) for ITS projects, must develop a regional ITS architecture by April 8, 2005. Until a regional ITS architecture is in place, all major ITS projects must have a project level architecture to ensure proper consideration of regional integration. All ITS projects must be developed using a systems engineering process. Elements of this process include: concept of operations, functional requirements, identification of agencies and roles, identification of applicable standards, alternative analysis, procurement options, and system operations and management.

   a. **ITS Architecture Training and Technical Assistance Program -** FHWA continues to sponsor a variety of training and technical assistance activities designed to assist States and metropolitan areas develop and implement effective ITS architectures. For FY05, this effort will focus more on use and maintenance of completed regional architectures, and systems engineering. For instance, a one-day facilitated session

entitled Using Your Regional ITS Architecture" that describes which elements of the regional ITS architecture apply to a region's transportation planning process and ITS project development process, is now available through the FHWA Division offices. Best practices on regional ITS architectures are currently available on the architecture conformity website (http://www.its.dot.gov/aconform/aconform.htm).

b. **Regional ITS Architecture Guidance –** Version 1.0 of this document has been completed and distributed. This guidance document is the basis for the Regional ITS Architecture Process Workshops (2-days long) and the Architecture Process Seminars (1-day long) that are being conducted around the country. All sessions of the regional ITS architecture workshop and seminar are offered tuition-free to participants, and are scheduled through the FHWA Division Offices. Visit the ITS web site (http://www.its.dot.gov/aconform/aconform.htm) for further information. Now available is the "Regional ITS Architecture Maintenance White Paper" (EDL # 13957) which provides guidance on what should be contained in a regional ITS architecture maintenance plan and on the configuration management and process of maintaining a regional ITS architecture.

2. ITS Standards Deployment – Program Manager, Tom Stout Tom.Stout@fhwa.dot.gov)

The Intelligent Transportation Systems (ITS) Standards Program has evolved from its initial focus on standards development to one that emphasizes standards implementation. The program encourages the widespread use of standards to promote interoperability and interchangeability of ITS devices and systems by providing deployment support. Deployment support includes helping to build confidence in the standards through testing and case studies, by providing standards resource information, by developing and delivering standards training courses, by providing training and technical assistance to deployers, by collecting and disseminating deployment experience-based guidance such as "lessons learned", and by assessing the readiness of standards for deployment.

a. Overview and Introductory Courses - Training delivered in a classroom format to provide a basic understanding of the ITS communications standards. The subjects covered include how the standards are defined by the ITS Natural Architecture, their purpose, and how they are combined to achieve an agency's traffic management objectives. The following introductory courses are available.

- **ITS Standards Overview** - A one-day overview of ITS standards. This course is intended for transportation professionals and policy makers that are, or may be involved in ITS deployment;
- **Center-to-Center Communications (C2C)** - A one-day introduction to the use of applications level communications standards, such as DATEX and XML, and the information level communications standards, such as the Traffic Management Data Dictionary (TMDD) to exchange data among ITS centers. This course, and the next two courses, are intended for designers and deployers of ITS traffic control and management systems;

- **Dynamic Message Signs** - A one-day introduction to the use of NTCIP 1203 standard for dynamic message signs and the supporting applications, transport, and sub network level NTCIP standards.
- **Actuated Traffic Signals** - A one-day introduction to the use of NTCIP 1202 standard for actuated traffic signal controllers and the supporting applications, transport, and sub network level NTCIP standards.

b. Advanced Training – Classroom training to discuss in detail the particulars of what is necessary to develop successful procurement documents incorporating NTCIP standards. The course is designed for professionals responsible for specifying/procuring ITS systems.

- **DMS Procurement Workshop** – A two-day workshop to develop procurement documents incorporating NTCIP 1203 Version 2.x dynamic message signs. May be customized to include additional topics, such as testing, that may be of interest to agencies that will attend a workshop.
- **Environmental Sensor Station (ESS) Procurement Guide and ESS Procurement Training Module -** Developing the user's guide and associated workshop to assist agencies to develop ESS procurement documents. Target completion date is *Summer 2005*
- **Incident Management Workshop –** A workshop providing deployment guidance for the incident management and traffic incident related message sets addressed by the IEEE 1512® Family of standards

c. Technical Assistance Program - The Federal Highway Administration has established a technical assistance program to provide short-term, on-call assistance to solve ITS standards implementation issues.

- **Peer-to-Peer Program** – The FHWA's Peer-to-peer Program scope has been expanded to provide the assistance of specialists in all areas of ITS standards to assist public agencies implement standards based systems. For the most part these specialists are from the public sector and are knowledgeable of the range of problems and benefits that may be encountered when deploying ITS standards.
- **Field Support Team** - The Field Support Team (FST) is comprised of FHWA specialists who are prepared to provide short-term, on-call ITS standards assistance. The team's goal is to support and facilitate deployment of ITS standards.

d. Guidance – The FHWA ITS program has developed numerous documents to guide agencies in deploying ITS standards. Included in these is SpecWizard, a software tool that assists in writing the NTCIP portion of procurement specifications. SpecWizard currently addresses deployments for dynamic message signs, environmental sensor stations, and traffic signal controllers.

3. **Systems Engineering -** Program Manager, Pam Kordenbrock; (Pamela.Kordenbrock@fhwa.dot.gov)

Transportation professionals must take a "systems approach" to planning, implementation, and operations in order to ensure that the full effectiveness of ITS technologies will be realized, with individual deployments connected to a meaningful network. The clear requirement within the Final Rule/Final Policy is that all ITS projects must be developed using a systems engineering process. Currently, information on and assistance with systems engineering is available and included in the Architecture Implementation program. The following training courses are available through NHI (www.nhi.fhwa.dot.gov). More systems engineering resources and technical assistance will be developed and offered beginning in FY05.

a. **Systems Engineering Training Series**
   - Introduction to Systems Engineering
   - Applied Systems Engineering for Adv. Transportation Projects
   - Managing High Technology Projects in Transportation
   - ITS Procurement/ITS Software Acquisition
   - Configuration Management for Traffic Management Systems
   - Regional Planning for Operations
   - Recommended Practices for Operations of Advanced Transportation Systems

b. **ITS Systems Engineering Guidance –** The following documents are available through the EDL and on the Architecture Conformity area of the ITS website (www.its.dot.gov), however several other are under development.
   - "Building Quality Intelligent Transportation Systems Through Systems Engineering" (EDL # 13620) - Introduces the topic of systems engineering to managers and staff working on transportation systems projects, with particular emphasis on Intelligent Transportation Systems (ITS) projects.
   - "Developing Functional Requirements for ITS Projects" (EDL #13621) – Discusses the value and importance of good functional requirements, particularly focused on ITS projects, as part of an overall systems engineering development process.
   - "A Guide to Configuration Management for Intelligent Transportation Systems" (EDL #13622) – Discusses the configuration management process as a way to manage change and maintain consistency of performance and design of ITS projects.

V. IMPROVING GLOBAL CONNECTIVITY BY ENHANCING FREIGHT MANAGEMENT AND OPERATIONS IMPROVING GLOBAL CONNECTIVITY BY ENHANCING FREIGHT MANAGEMENT AND OPERATIONS

A. Freight Analysis

1. **Freight Analysis Framework –** Program Manager, Rolf Schmitt (Rolf.Schmitt@fhwa.dot.gov)

FHWA's Office of Freight Management and Operations (HOFM) plans future enhancements to the Freight Analysis Framework (FAF), including new benchmarks to the 2002 Economic Census, provisional estimates of current freight flows, quality checks and enhancements, and links to policy models such as the Highway Economic Requirements System (HERS). A detailed design phase will be conducted through June 2005 following the FAF plan of 24 September 2004 posted on the HOFM Web site.

2. **Freight Travel Time** – Program Manager, Crystal Jones (Crystal.Jones@fhwa.dot.gov)

   HOFM is developing performance measures for travel time in freight-significant corridors and at border crossings in conjunction with ATRI. Private sector data collected from tracking and communications technologies are used to measure travel time variability and border crossing delays. These travel-time measures will provide useful insights on intercity highway network performance. Initial technology tests have been completed. A meeting with interested State DOTs and others was held in Summer 2004. By the end of September 2005, FHWA will have baseline measurements of travel rates, travel time, and a buffer index for five Interstate highways identified as freight significant.

3. **Benefit/Cost of Freight** - Program Manager, Rob Mulholland (Robert.Mulholland@fhwa.dot.gov)

   HOFM has completed initial research on improved methods for estimating the benefits to shippers and carriers arising from freight transportation investments. Traditional benefit-cost analysis methods base the value of transportation investments on short-term cost savings to highway users. This research suggests the value increases by approximately 15 percent when the productivity gains of longer-term adaptations of businesses to transportation improvements are taken into account. The theoretical framework and empirical analyses have been published in the recent HOFM report, *Freight Transportation Improvements and the Economy*, and incorporated in the Freight Chapter of FHWA's 2004 Condition and Performance Report.

4. **Freight Model Improvement Program** - Program Manager, Rolf Schmitt, (Rolf.Schmitt@fhwa.dot.gov)

   In cooperation with the Office of Environment and Planning, HOFM is developing a Freight Model Improvement Program (FMIP). Similar to the Travel Model Improvement Program, FMIP is intended to assess the state of the art and state of practice in freight forecasting and evaluation models, identify needs for short-term improvements and long-term research, and provide a forum in which the transportation community can improve both the state of the art and state of practice. A web-based clearinghouse will be established in early 2005. HOFM is working with its DOT partners and the Transportation Research Board to organize a national conference in spring, 2006.

B. Freight Professional Development (FPD) - Program Manager, Rolf Schmitt (rolf.Schmitt@fhwa.dot.gov)

In partnership with the Office of Planning and the Resource Center Planning Team, the Office of Freight Management and Operations developed a 2-day National Highway Institute (NHI) course on "Integrating Freight into the Transportation Planning Process." It is currently being delivered to over 20 States/regions. Additional courses and workshops in development and scheduled for delivery in January 2005 include "Uses of Multimodal Freight Forecasting in Transportation Planning," "Engaging the Private Sector in Transportation Planning," and "Freight Data Made Simple." The "Talking Freight" Seminar Series via web conference, cosponsored with the Office of Planning, has been very successful and routinely draws about 75-100 participants per month. Seminars will continue to be held throughout 2005. In addition, we will offer additional, targeted training opportunities using the net-conference technology.

A new FHWA Virtual Freight Team (VFT) has been developed to leverage the technical talents of many of FHWA's Resource Center Technical Service Teams and will serve as a resource to develop and deliver freight training and assistance to our customers from a variety of functional areas including safety, finance, operations, planning, air quality, and environment. In 2005, the VFT will develop and begin delivering workshops on "Freight Finance" and "Freight and the Environment."

Additionally, a new FHWA Freight Council was launched in June 2004 and is comprised of about 75 FHWA staff including 48 division offices. The Freight Council will help facilitate the sharing of information between FHWA units and support our ability to respond to our customers' freight-related needs. In Spring 2005, we will cosponsor an FHWA-AASHTO National Freight Conference with representatives from the Freight Council and State DOTs to define the roles and responsibilities of freight transportation professionals and identify major freight initiatives planned by our State partners. Fact Sheets on *Federal Sources of Freight Data* and *Engaging the Private Sector in Transportation Planning* have been developed and distributed.

C. Freight Size and Weight

1. **Size & Weight Databases and Reporting Requirements -** Program Manager, Bob Davis (Robert.Davis@fhwa.dot.gov)

   The databases are being updated with the latest annual information submitted via hardcopy by the State DOTs. Completion of the automated web site enabling States to report on-line will provide up to date electronic access of the Measures of Activity data to authorized users. National trends and analysis will be provided to the public on the main Size and Weight web page.

2. **Training and Technical Assistance -** Program Manager, Julie Strawhorn at (Julie.strawhorn@fhwa.dot.gov)

   HOFM Size and Weight will be offering 2 new training opportunities for the States, FHWA Division staff, and the public on the various requirements of the Size and Weight program. The first program under development is an on-line training course for

the public on multiple aspects of size and weight activities, rules, and regulations. The second program is a formal classroom course for FHWA Division and State enforcement personnel, providing guidance on how to run an effective size and weight enforcement program.

3. **Electronic Documents -** Program Manager, Phil Forjan at (Phillip.Forjan@fhwa.dot.gov)

   The HOFM Size and Weight Team is developing an automated system whereby the FHWA Division Offices and State DOTs can develop and transmit required annual Enforcement Plans and Certification of actual activities through a closed computer network. Anticipated delivery date is Spring 2005. Five States and District of Columbia participated in the pilot of this program, with excellent results. Tutorial and, if needed, field training on the new system will be made available to users.

D. Intermodal Freight Technology - Program Manager, Mike Onder (Michael.onder@fhwa.dot.gov)

To improve freight mobility and enhance its security, FHWA is pursuing an aggressive intelligent transportation systems (ITS) technologies research program in concert with industry. ITS and other new technologies will play a key role in balancing freight transportation productivity with security needs. Working with our partners in state and local governments and the private sector, FHWA initiated several operational tests, including the Air Cargo Supply Chain Manifest System, electronic seals, and asset cargo tracking. The tests have been completed and nearly all the results analyzed. Growth in trade, changes in business practices, and concerns about security have also underscored the need for government/industry partnerships to standardize information exchange and implement best practices throughout the global supply chain network. FHWA is working with international organizations to develop electronic freight data exchange standards to streamline cargo transactions, thus improving mobility and security, reducing costs, and relieving congestion. FHWA is also working with industry through the Intermodal Freight Technology Working group (IFTWG) to implement operational best practices through deployment tests began in FY2004 and extends through 2007.

FHWA's Office of Freight Management and Operations (HOFM) in coordination with the Office of Interstate and Border Planning (HEPI) and Transport Canada are spearheading an effort to develop a border-information flow architecture. The initiative involves numerous stakeholders and is intended to be a framework that depicts the flow of information between government agencies and components of the transportation system, as they relate to border processes (e.g., the flow of advanced traveler information from inspection and enforcement agencies to transportation organizations). The end state objective is to develop architecture that's promotes information sharing and coordination among agencies and stakeholders and increases the interoperability of technologies used to support their operations.

VI. IMPROVING MOBILITY AND SECURITY THROUGH BETTER EMERGENCY MANAGEMENT

A. Emergency Transportation Operations

1. **Military Coordination Exercises -** Program Manager Dan Ferezan (dan.ferezan@fhwa.dot.gov) In cooperation with the Department of Defense, FHWA conducted 1-day exercises with major military power projection platforms to bring together military and transportation agencies to review procedures and roadway operations during a military deployment. The draft guidance document based on these exercises is available online. A final document is expected to be published mid-2005.

2. **Reducing Vulnerability of Agency-Owned Telecommunications system –** Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov)The intelligent infrastructure is a critical resource in managing during a disaster. Just as the vulnerability of traditional transportation infrastructure is being assessed and measures are being taken to reduce its vulnerability, comparable efforts are needed for our electronic infrastructure. This report looked at several existing systems and analyzed what we know about agency-owned telecommunications systems and how they can be made less vulnerable to attack. The report is awaiting approval by agency Counsel for public release.

3. **Reducing Vulnerability of Transportation Management Centers -** Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov) This project is examining the security of transportation management centers and what measures can be taken to reduce their vulnerability. The final report is undergoing review.

4. **Emergency Management Requirements and Integration -** Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov) An project was completed in 2004 documenting high-level information requirements for emergency transportation operations. The project also analyzed various existing transportation models to assess the level to which they meet transportation managers' emergency requirements. A follow-on project, jointly managed between the Emergency Transportation Operations and Road Weather programs is looking at how this information can be integrated to support decision-making.

5. **Communications Interoperability -** Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov) This project is examining the voice communication needs of transportation agencies during emergencies, what technologies are available to provide interoperability, and what initiatives are underway in the public safety community that transportation agencies should participate in so that they are able to interoperate with other responders. A first draft of the report is due by the end of 2004.

6. **Transportation Emergency Response/Recovery Workshops -** Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov Surface transportation is a critical element in responding to and recovering from any disaster, whether natural or man-made. A

first key step in making the best use of transportation during a crisis is to have relationships in place and to have worked through core issues. This project will fund a few workshops around the nation in 2005 to bring transportation agencies together with their partners to work through simulated terrorist attacks on the transportation system. FHWA will begin formal follow-up with previous workshop locations to determine how well they have done on completing the major tasks identified during their workshops, and what can be done to assist them in making progress.

7. **Alternate Route Development -** Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov) Not all states have well defined processes for identifying alternative routes around critical transportation infrastructure that might be damaged or destroyed. This report is documenting a recommended methodology for developing such routes. The final report is under review.

8. **Emergency Operations and Planning Resource CD -** Program Manager, Vince Pearce (vince.pearce@fhwa.dot.gov) The CD set is being developed as a "one stop shop" for transportation and emergency managers seeking guidance and/or resources for planning for transportation operations and impacts as a result of natural or man-made emergencies. The CD was distributed to 2200 agencies in October, 2004.

9. **Blackout Case Study -** Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov) This study is investigating the impact of the August, 2003 blackout on surface transportation systems in New York, Detroit, and Cleveland, and how those systems were used to manage transportation during the blackout. It includes multiple modes of transportation, and highlights ITS. The final report has been posted.

10. **Traffic Signal Timing For Evacuation –** Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov) This study by the University of Maryland is looking at how traffic signals can be timed within a metropolitan area to facilitate evacuation of citizens and response to the scene at the same time. Work is due to be completed in 2005.

11. **9/11/2001 Surface Transportation Case Studies** – Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov) Counsel has determined that these case studies are now appropriate for public release. They have been posted.

12. **Managing Pedestrians in Evacuations** - Program Manager Vince Pearce (vince.pearce@fhwa.dot.gov) This project is examining how pedestrians impact mobility during evacuations and how transportation agencies and their partners can overcome the mobility limitations caused by potential masses of pedestrians in the travel lanes. Work is due to be completed in 2005.

13. **Security Self-Assessment** – Operations Lead, Vince Pearce (vince.pearce@fhwa.dot.gov) The Office of Operations is providing operationally

focused input to the Security Self-Assessment tool development effort being led by John Gerner in the Administrator's office. This tool is scheduled for completion in 2005.

14. **Security Training Plan** – Operations Lead, Vince Pearce (vince.pearce@fhwa.dot.gov) The Office of Operations is providing operationally-oriented input to the development of a training strategy for FHWA personnel involved in transportation security. John Gerner in the Administrator's office manages this effort, being performed by the Volpe Center. The strategy is due to be completed in 2005.

15. **Democratic National Convention Case Study** – Program Manager, Vince Pearce (vince.pearce@fhwa.dot.gov) FHWA commissioned the Volpe Center to study and document the impact of the security measures taken for the 2004 Democratic National Convention on transportation in the greater Boston Area. A first draft of the report is under review.

16. **Homeland Security Advisory System Actions** – Program Manager, Vince Pearce (vince.pearce@fhwa.dot.gov). FHWA developed for AASHTO a compilation of actions taken at each level of the HSAS by a variety of state and federal agencies. The compilation is available on AASHTO's website at www.transportation.org

17. **Security Basic Briefing Materials** – Program Manager, Vince Pearce (vince.pearce@fhwa.dot.gov). FHWA summarized several key areas in homeland security into introductory PowerPoint presentations. The presentations, with full speaker notes, are available on the operations website.

18. **Emergency Transportation Operations ITS Initiative** - Program Manager, Vince Pearce (vince.pearce@fhwa.dot.gov) The ETO program has received funding from the ITS Joint Program Office for series of projects related to no-notice evacuation. A multimodal steering team has been formed, and links to DHS/FEMA and DHS/Office of Domestic Preparedness are being put in place. A website will be established by the ITS JPO to cover this and the other 8 ITS Tier-I initiatives. ETO Initiative projects and status include:
    - Demonstration of application of incident scene images to enhancing response by towing/recovery and hazmat responders (kickoff January, 2005)
    - ITS to Enhance Incident Response (kickoff December, 2004)
    - Application of Technology to Transportation Operations in Biohazard Situations (in negotiation)
    - Communicating with the Public Using ATIS During Disasters (in negotiation)
    - Assessment of State of the Practice and State of the Art in Evacuation Transportation Management (kicked off November, 2004)
    - Review Existing and Emerging Technologies for Vehicle-Infrastructure Cooperation to Support Emergency (kicked off November, 2004)
    - Define Service Concepts for Vehicle-Infrastructure Cooperation to Support Emergency Transportation Operations (kicked off November, 2004)
    - Completion and demonstration of incident management standards suite (contracting underway)

- Harmonization of transportation and public safety incident management standards (agreement in place; pending USDOJ contracting completion)

Additional projects for FY 2005 startup are under discussion.