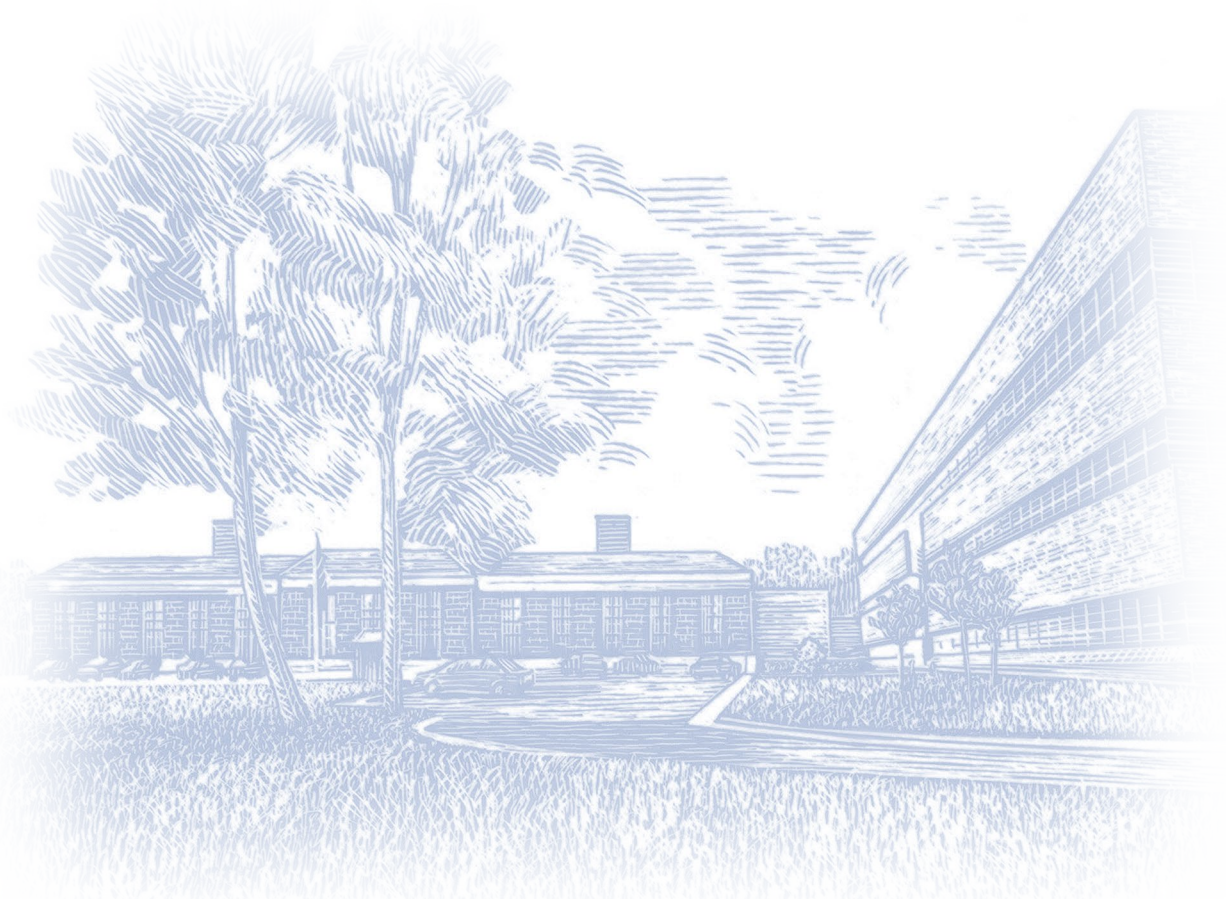


Office of Research, Development, and Technology FY 2005 Research Project Status Summary

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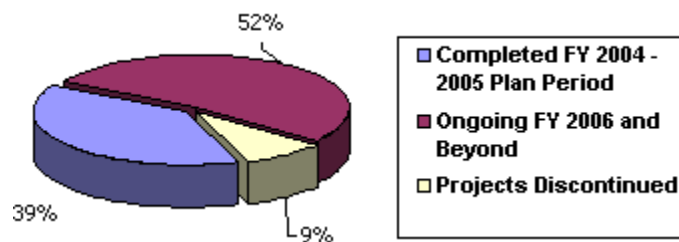
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Introduction

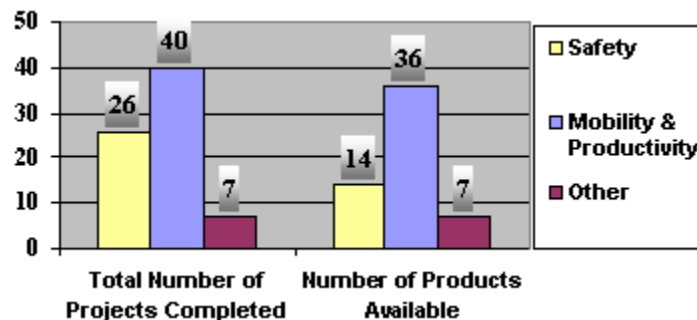
Over the past 2 years, the Turner-Fairbank Highway Research Center (TFHRC) researchers conducted 170 research projects in support of the Agency's goals. Sixty-six of those projects were completed during the Fiscal Year (FY) 2004/2005 Plan timeframe. As a result, 50 ready-to-use products are now available to our customers. A total of 26 projects were completed in support of the Safety goal, and 40 projects were completed in support of the Mobility and Productivity goal. A number of these projects also support Agency objectives in the Environment and National Homeland Security goal areas.

Current and Future Project Distribution (End of FY 2005)



Eighty-nine projects from the FY 2004/2005 Plan are multiyear projects and will continue in FY 2006 or beyond. Further details on projects that were conducted and completed during the FY 2004/2005 period or that are ongoing for FY 2006 or beyond are available in the [Research Development and Technology \(RD&T\) FY 2005 Research Project Status Tables](#).

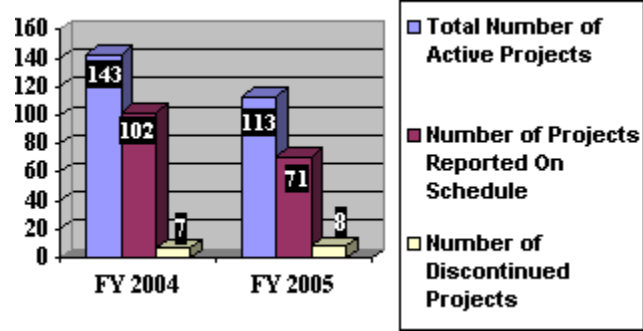
FY 2004-2005 Projects Completed and Products Available by Goal *



Note: Seven research projects supporting the Safety or Mobility and Productivity goals also support the Environment and Security goal areas.

Funding challenges were an ongoing issue in FY 2005. RD&T worked through a number of changes to project schedules and delays. Many changes and delays were due to funding uncertainties caused by the numerous short-term extensions to FHWA's authorization prior to the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Fifteen projects cited funding as a cause for delay or halting of research.

Comparative Project Status



RD&T Performance Measures Summary

The following chart depicts performance measures that are updated annually as a component of the Office of Management and Budget's (OMB) Program Assessment Rating Tool (PART) for Federal R&D programs.

Measure	Target (2004)	Actual (2004)	Target (2005)	Actual (2005)
Number of deliverable research products, innovations, and technologies that support the accomplishment of USDOT and FHWA safety goals.	5	5	5	7
Number of deliverable research products, innovations, and technologies that support the accomplishment of USDOT and FHWA mobility goals in the area of infrastructure improvements.	5	10	5	7
Number of deliverable research products, innovations, and technologies that support the accomplishment of USDOT and FHWA mobility goals in the area of congestion mitigation.	3	7	3	12
Number of deliverable research products, innovations, and technologies that support the accomplishment of USDOT and FHWA environmental goals.	2	2	2	2
Number of deliverable research products, innovations, and technologies that support the accomplishment of USDOT and FHWA security goals.	2	2	2	1
The annual percentage of research projects reported on schedule. (note1.)	90%	71%	90%	62%
The annual percentage of all research projects that are completed within budget.	90%	99%	90%	100%
The percentage of customer satisfaction for deploying technology and innovation as measured by the <i>FHWA Satisfaction Survey-State/Other Local Partners National Report</i> .	70%	71%	80%	(See Note 2.)

Note 1: Delays were largely due to funding uncertainties caused by numerous short-term extensions to FHWA's authorization prior to the passage of SAFETEA-LU.

Note 2: FHWA's comprehensive annual State DOT partner satisfaction and MPO partner satisfaction survey has been discontinued. As a replacement, FHWA RD&T currently is developing a customer survey focused on FHWA research and technology.

The charts on the following pages detail RD&T Infrastructure, Operations, and Safety research, and identify the goals supported by the research. The charts also indicate which projects were completed during the FY 2004/2005 Plan period and which are ongoing for 2006 and beyond. The comment column provides more information about each project and, when necessary, an explanation of changes or deviations from the plan or schedule.

A complete list of acronyms can be found at the [acr](#) to assist in the interpretation of the acronyms used in the tables.

Infrastructure R&D Status

Office of Infrastructure R&D										
Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Pavement Design and Analysis										
Cost and Performance Benefits of Concrete Pavement Design Features*	Peter Kopa HRDI -11 202-493-3151	Mobility and Productivity				X	Yes	Completed	Yes	Software is available for quickly assessing relative costs and benefits of incorporating the various design features.
Strategic Analysis of Pavement Evaluations for Rehabilitation (SAPER) Software Tool	James Sherwood HRDI -12 202-493-3150	Mobility and Productivity				X	Yes	Completed	No	The software product is currently being evaluated by FHWA prior to distribution.
Guidance for Constructing Smooth, Long-Lasting Concrete Pavements*	Peter Kopa HRDI -11 202-493-3151	Mobility and Productivity				X	Yes	Completed	Yes	The guidance is available as a final report and TechBrief.

Office of Infrastructure R&D

Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Long Term Pavement Performance (LTPP) Binder (LTPPBinder) Version 3.0	Aramis López HRDI-13 202-493-3145	Mobility and Productivity		X			Yes	Feb 05	No	The beta version is available. The final version is pending and is awaiting the availability of funds for 508 compliance.
LTPP Traffic Projection Software	Aramis López HRDI-13 202-493-3145	Mobility and Productivity	X				No	Sep 05	No	This project currently is on hold, as recommended by the Traffic Expert Task Group, until final results of NCHRP 1-39 are available.
Evaluation of NCHRP 1-37A Mechanistic-Empirical Design Models	Katherine Petros HRDI-12 202-493-3154	Mobility and Productivity	X				No	Dec 05	No	The model evaluation has started but a lack of resources has slowed the process.
Guidance for the Use of Fiber Reinforced Polymer (FRP) in Concrete Pavements	Peter Kopa HRDI-11 202-493-3151	Mobility and Productivity		X			Yes	Oct 06	No	Guidance on the design of FRP CRCP is available in the final report. The field trial is scheduled for spring 2006.

Office of Infrastructure R&D

Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Impact of Dynamic Modulus on Model Prediction	Tom Harman HRDI -11 202-493-3072	Mobility and Productivity	X				No	Dec 06	No	Equipment challenges have delayed the timely completion of this project.
Cost and Performance Benefits of Concrete Pavement Design Features*	Peter Kopa HRDI -11 202-49-3151	Mobility and Productivity			X		Yes	Completed	Yes	Software is available for quickly assessing relative costs and benefits of incorporating the various design features.
Strategic Analysis of Pavement Evaluations for Rehabilitation (SAPER) Software Tool	James Sherwood HRDI -12 202-49-3150	Mobility and Productivity			X		Yes	Completed	No	The software product is currently being evaluated by FHWA prior to distribution.
Guidance for Constructing Smooth, Long-Lasting Concrete	Peter Kopa HRDI -11 202-49-3151	Mobility and Productivity			X		Yes	Completed	Yes	The guidance is available as a final report and TechBrief.

Office of Infrastructure R&D

Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
ee Pavements*										
Long Term Pavement Performance (LTPP) Binder (LTPPBinder) Version 3.0	Aramis Lopez HRDI-13 202-493-3145	Mobility and Productivity		X			Yes	Feb 05	No	The beta version is available. The final version is pending and is awaiting the availability of funds for 508 compliance.
LTPP Traffic Projection Software	Aramis Lopez HRDI-13 202-493-3145	Mobility and Productivity	X				No	Sep 05	No	This project currently is on hold, as recommended by the Traffic Expert Task Group, until final results of NCHRP 1-39 are available.
Evaluation of NCHRP 1-37A Mechanistic-Empirical Design Models	Katherine Petros HRDI-12 202-493-3154	Mobility and Productivity	X				No	Dec 05	No	The model evaluation has started but a lack of resources has slowed the process.
Guidance for the Use of Fiber Reinforced Polymer (FRP) in Concrete	Peter Kopic HRDI-11 202-493-3151	Mobility and Productivity		X			Yes	Oct 06	No	Guidance on the design of FRP CRCP is available in the final report. The field trial is scheduled for spring 2006.

Office of Infrastructure R&D										
Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Pavements										
Impact of Dynamic Modulus on Model Prediction	Tom Harman HRDI -11 202-493-3072	Mobility and Productivity	X				No	Dec 06	No	Equipment challenges have delayed the timely completion of this project.
Pavement Materials and Construction										
Lithium Technology for Mitigation of Alkali-Silica Reactivity (ASR)	Fred Faridazar HRDI -11 202-493-3076	Mobility and Productivity	X				Yes	Sep 07	Yes	The lithium guidelines annual report is currently available.
Mixture-Specific Procedure for Estimating ASR Potential	Richard Meinger HRDI -11 202-493-3191	Mobility and Productivity			X		Yes	Completed	No	The report is being prepared.
Characterization of Modified Asphalts	Jack Youtcheff HRDI -11 202-493-3090	Mobility and Productivity		X			No	Mar 06	No	Equipment challenges have delayed completion of this project. The new estimated completion date is March 2006.
Moisture Sensitivity of Asphalt Binders*	Jack Youtcheff HRDI -11	Mobility and Productivity	X				Yes	Dec 06	No	Work is underway to explore the applicability of the pneumatic adhesion tester to evaluate the effect of water on the adhesive and cohesive strength of asphalt binders. The short-term goal is to develop a protocol for evaluating the

Office of Infrastructure R&D

Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
	202-493-3090								moisture susceptibility of asphalt binders. Once this is complete, the remaining effort will be directed at evaluating asphalt mastics.	
Determination of Lime in Hot Mix Asphalt*	Jack Youtcheff HRDI -11 202-493-3090	Mobility and Productivity			X	Yes	Completed	No	The report is being prepared.	
Guidance on Compatibility of Mixture Components	Peter Kopa HRDI -11 202-493-3151	Mobility and Productivity			X	Yes	Completed	No	A three-volume final report is under review.	
FHWA Dynamic Angle Validation Kit (DAVK)	Tom Harman HRDI -11 202-493-3072	Mobility and Productivity	X			Yes	Jul 05	Yes	The original project to develop the DAVK is complete. This extension will incorporate mixless technology.	
Computer-Based Guidelines for Concrete Pavements	Fred Faridazar HRDI -11 202-493-3076	Mobility and Productivity		X		No	Jan 06	No	The contract was modified to include a pocket PC-based system of guidelines on curing concrete. The development of HIPERPAV™ II software is complete. The Volume III report has been submitted for publication.	
Seasonal Monitoring Program*	Aramis López HRDI -13	Mobility and Productivity			X	No	Completed	Yes	The release was delayed due to 508 conversions. A set of three CDs (Version 1.2) is now available.	

Office of Infrastructure R&D										
Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
	202-493-3145									
Pavement Data and Performance										
LTPP Distress Identification Manual	Aramis López HRDI-13 202-493-3145	Mobility and Productivity				X	Yes	Completed	Yes	The manual (FHWA-RD-03-031) was printed in December 2003. To date, more than 2,000 copies have been distributed.
Fatigue Model	Katherine Petros HRDI-12 202-493-3154	Mobility and Productivity			X		No	Sep 04	No	This project involves the development of a viscoelastoplastic fatigue model for modified asphalt concrete (AC) binders using the results from accelerated loading facility (ALF) testing.
Weigh in Motion (WIM) Pavement Smoothness Specifications	Aramis López HRDI-13 202-493-3145	Mobility and Productivity			X		No	Jan 05	No	Version 1.0 has been delayed.
Anytime Weather Software	Aramis López HRDI-13 202-493-3145	Mobility and Productivity	X				Yes	Feb 05	No	The alpha version is complete. The final version is pending and awaiting availability of 508 compliance funds.
DataPave Online	Aramis	Mobility and			X		Yes	Completed	Yes	The product is available at http://www.datapave.com .



Office of Infrastructure R&D

Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
	López HRDI -13 202-493-3145	Productivity								

Bridge of the Future

Compilation and Evaluation of Results from High-Performance Concrete (HPC) Bridge Projects	Joseph Hartman HRDI -06 202-493-3059	Mobility and Productivity				X	Yes	Completed	No	The study is complete and most results have been implemented. The report is in the publication process.	
Ultra-High Performance Concrete*	Joseph Hartman HRDI -06 202-493-3059	Mobility and Productivity				X	Yes	Oct 08	No	Several reports on material characterization and structural behavior are in the publication process. Optimized girder testing also is in progress.	
Curved Girder Bridge Strength Prediction Equation	William Wright HRDI -06 202-493-3053	Mobility and Productivity					X	Yes	Completed	Yes	AASHTO SCOB T-14 balloted and accepted changes to the AASHTO bridge design code in June 2004.
New FRP	Eric Munl	Mobility and					X	Yes	Completed	Yes	The AASHTO materials specification is complete, and the FRP deck testing specification

Office of Infrastructure R&D

Project	Technical Contact	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Specifications	ey HRDI -06 202-493-3046	Productivity							is near completion. The FRP repair specification is in the early stages of development. The work now is focusing on building consensus.	
Standard Tests Using a GeoGauge	Mike Adams HRDI -06 202-493-3025	Mobility and Productivity			X	Yes	Completed	Yes	The GeoGauge testing device has been validated and is commercially available to State highway administrations.	
Corrugated Web Plates for Steel Girders	William Wright HRDI -06 202-493-3053	Mobility and Productivity			X	Yes	Completed	No	The physical testing is complete, and report production is underway.	
Improved Fracture Toughness Specifications for High Performance Steel (HPS)	William Wright HRDI -06 202-493-3053	Mobility and Productivity	X			No	Jun 05	No	The physical testing is complete. Development of design criteria will be accomplished in cooperation with AASHTO SCOB T-14.	
Design Guidance for Composite Timber Bridges	Sheila Duwadi HRDI -07 202-	Mobility and Productivity		X		Yes	Dec 05	No	This study will produce design and material specifications for FRP-reinforced timber bridges for adoption by AASHTO.	

Office of Infrastructure R&D										
Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
	493-3106									
Safety, Reliability, and Security										
Improved Seismic Design Provisions for AASHTO Bridge Specifications	Philip Yen HRDI -07 202-493-3056	Safety, Mobility and Productivity				X	No	Completed	No	This was a study on improving the current seismic design provisions for bridges. A new seismic design provision was proposed to and is being adopted by AASHTO.
Revising Proposed New Seismic Design Provisions for AASHTO Bridge Specifications*	Phillip Yen HRDI -0702-493-3056	Safety, Mobility and Productivity				X	Yes	Jun 06	No	The purpose of this project is to revise the new, proposed seismic design guidelines (NCHRP 12-49) based on the suggestions of the AASHTO SCOB. This project will change the design criteria and simplify the design procedures of the proposed provisions to be adopted by AASHTO.
Seismic Retrofit Manual	Phillip Yen HRDI -07 202-493-3051	Safety, Mobility and Productivity				X	Yes	Completed	No	This project involved a study of the seismic vulnerability of bridges and other structural highway components. The report is complete and is under final editorial review for publication.
Wind-Induced Vibration of Stay Cables	Harold Bosch HRDI -07 202-	Safety, Mobility and Productivity				X	No	Completed	No	This project studied the wind/rain effects on bridge stay cables for development of a design guide. The technical review and first editorial review are both complete. Comments are now being reviewed. The design guide will be published in 2006.

Office of Infrastructure R&D

Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
	493-3031									
Implementation of New Small-Scale Wind Tunnel	Harold Bosch HRDI -07 202-493-3031	Safety, Mobility and Productivity	X				Yes	Sep 06	No	In this project, researchers will evaluate and enhance flow conditions in the new wind tunnel. They also will develop test apparatus and procedures to facilitate the use of the tunnel. Work is just beginning.
Support for SPR-3(078)-Wind-Induced Vibration of Cable-Stayed Bridges	Harold Bosch HRDI -07 202-493-3031	Safety, Mobility and Productivity	X				Yes	Oct 06	Yes	Work has started on the development of a guideline for mitigating the wind-induced vibration of stay cables. Two databases have been refined and are now available. Wind instrumentation for the Bill Emerson Memorial Bridge has been designed and procured. Analysis and parametric studies have been performed on a number of stay cable networks.
Abutment Scour (ABSCOUR) Field Data (not included in FY 2004/2005 Performance Plan)	Sterling Jones HRDI -07 202-493-3043	Safety, Mobility and Productivity			X		No	Oct 04	No	The database has been upgraded for testing prediction methods. The ABSCOUR program used by the Maryland State Highway Administration is being evaluated and revised based on this data. The study is approximately 3 months behind schedule due to complications involving ABSCOUR discrepancies.
Effects of Inlet Geometry on Culvert Performance*	Sterling Jones HRDI -07 202-	Mobility and Productivity		X			No	Oct 04	No	This study is approximately 6 months behind schedule due to difficulties in getting a contract underway to fabricate models.

Office of Infrastructure R&D

Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
	493-3043									
Examples for Design of Seismic Isolation Bearings	Hamid Ghasemi HRDI-07 202-493-3042	Safety, Mobility and Productivity			X	Yes	Completed	Yes	The draft final report is available.	
<i>A Risk-Based Methodology for Assessing the Seismic Performance of Lifeline Systems Report</i>	Phillip Yen HRDI-07 202-493-3056	Safety, Mobility and Productivity		X		Yes	Dec 05	No	This project involves developing computer software to help State DOTs assess the seismic risk to bridges. The project research is nearly complete and is now being validated.	
Design Procedure for Bottomless Culverts	Sterling Jones HRDI-07 202-493-3043	Safety, Mobility and Productivity, Environment		X		No	Dec 04	No	This study was interrupted to conduct additional scour tests on the Woodrow Wilson Bridge. Results will be presented at the 2006 National Hydraulics Engineering Conference.	
Tacoma Narrows Technology Demonstration and Research Project	Hamid Ghasemi HRDI-07 202-493-3042	Safety, Mobility and Productivity		X		Yes	Dec 06	No	Several studies under this project are on schedule. One study concerning health monitoring is behind schedule.	

Office of Infrastructure R&D										
Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Seismic Retrofitting Manuals : Part III: Truss Bridges with Long Spans	Phillip Yen HRDI -07 202-493-3056	Safety, Mobility and Productivity		X			Yes	Dec 05	No	This is a study of the seismic vulnerability of long truss and other special bridges for design and retrofitting. The manual is 90 percent complete and will be reviewed by the Highway Seismic Research Council.
Stewardship and Management										
Measurement of the Benefits of Infrastructure R&D	Sheila Duwadi HRDI -07 202-493-3106	Mobility and Productivity			X		Yes	Completed	Yes	This project produced a methodology to measure the benefits of research. The final report and a CD containing the methodology were delivered to FHWA. As it is an in-house report, it has not been published.
Guidelines for the Ultrasonic Inspection of Hanger Pins	Hamid Ghasemi HRDI -07 202-493-3042	Mobility and Productivity			X		Yes	Completed	Yes	The report is complete and has been published.
Guidelines for the Use of High-Energy Radiography for Structures	Hamid Ghasemi HRDI -07 202-493-3042	Mobility and Productivity			X		Yes	Completed	No	This study investigated the use of nuclear methods for evaluating bridges and bridge materials.
Covered Bridge Manual*	John O'Fallon HRDI	Mobility and Productivity			X		Yes	Completed	Yes	This manual is a guide to rehabilitating, restoring, preserving, and reconstructing historic covered bridges.



Office of Infrastructure R&D

Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
	-07 202-493-3051									
<i>Fatigue Retrofit Manual</i>	William Wright HRDI -06 202-493-3053	Mobility and Productivity			X	Yes	Completed	Yes	The manual is complete.	
Corrosion Performance of Epoxy-Coated Rebar in Concrete (10-Year Laboratory Study)	Paul Virmani HRDI -10 202-493-3052	Mobility and Productivity			X	Yes	Completed	Yes	This report is printed and available online at https://www.fhwa.dot.gov/publications/research/infrastucture/structures/04090/index.cfm/structur/pubs/04090/index.htm .	
Ultrasonic Methods for Health Monitoring of Prestressing Tendons	Hamid Ghasemi HRDI -07 202-493-3042	Mobility and Productivity			X	Yes	Completed	No	This study investigated the use of ultrasonic methods for examining bonded strands for corrosion or breakage.	
Bridge and Tunnel Surveillance: A State-of-	Sheila Duwadi HRDI -07 202-	Mobility and Productivity, Security			X	Yes	Jan 05	No	This project developed a protocol for assessing security and surveillance systems.	



Office of Infrastructure R&D


Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
the-Art Review	493-3106									
Guidelines for Corrosion Control Design of Bridges	William Wright HRDI -06 202-493-3053	Mobility and Productivity	X				Yes	Apr 05	No	This effort will coordinate closely with AASHTO SCOB T-9 to develop best practice guidance using FHWA (and other) research results as a baseline. The effort started in FY 2004.
Life Cycle Cost Analysis (LCCA) for Bridges	Joey Hartman HRDI -10 202-493-3059	Mobility and Productivity			X		Yes	Completed	No	An article on this project appeared in the December 2005 issue of <i>Public Roads Magazine</i> .
Best Practices Manual for Quality Bridge Coatings	William Wright HRDI -06 202-493-3053	Mobility and Productivity		X			Yes	Sep 05	No	This effort will produce a training course and national level inspector certification program. Program to be available in January 2005.
Thermal Imaging System for Crack Detection*	Frank Jalinos HRDI -10 202-493-3082	Mobility and Productivity		X			Yes	Sep 06	No	This project will develop a method for detecting cracks and preventing the failure of steel structures. Test setup is complete, and laboratory testing is in progress
Corrosion-Resistant Alloys	Paul Virmani HRDI	Mobility and Productivity	X				Yes	Aug 06	No	This study will identify cost-effective clad or alloyed reinforcement for concrete bridge members to provide 75 years of service life.

Office of Infrastructure R&D

Project	Technical Contract	Projected Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
for Use as Reinforcement in Concrete*	-10202-493-3052									
HERMES II Ground Penetrating Radar System*	Frank Jalinos HRDI -10202-493-3082	Mobility and Productivity	X				Yes	Oct 08	No	This project will help develop tools to rapidly survey concrete decks for deficiencies. A prototype system currently is undergoing expanded testing under a new workplan in cooperation with State partners.

* Addition to FY 2004/2005 Performance Plan

Operations R&D Status

Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Intelligent Vehicle Initiative (IVI) and Research Related to Human Centered Systems										
Infrastructure Consortium (IC) Prototype I Intersection Collision Avoidance (ICA) Projects*	Gene McHale HRD O-04 202-493-3275	Safety			X		No	Apr 05	No	These projects were mostly completed by September 2005. However, the completion date for all of the projects was extended due to the significant Cooperative Intersection Collision Avoidance Systems (CICAS) support required by the IC. The final reports are expected in the near future.
CICAS IC*	Gene McHale HRD O-04 202-493-3275	Safety	X				Yes	Aug 2010	No	Partnering with automobile manufacturers, the IC will design, develop, and test prototype CICAS technologies in support of the USDOT's CICAS Initiative. Following testing of prototype systems, the IC will support field operational testing of the CICAS technologies.
Human Factors Assessment of Infrastructure-Based ICA Devices-Phase II	Greg Davis HRDS -07 202-493-3367	Safety				X	Yes	Completed	No	Research for this study was conducted on a closed test course. The goal was to gather deceleration profiles and reaction time data for drivers responding to warnings given close to and far from an intersection. A paper on this project was accepted by TRB.
Enhanced Digital Mapping	Toni Wilbur HRD O-01 202-493-3269	Safety				X	No	Completed	Yes	The final report is complete and available at http://nhtsa-nrdweb.nhtsa.dot.gov/pdf/nrd-12/CAMP/EDMap%20Final%20Report/Main%20Report/FinalRept_111904.pdf .  (Download Acrobat Reader)
Work Zone ITS for	Peter Huan	Safety				X	Yes	Completed	Yes	For Phase I of this project, researchers developed the

Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Crash Avoidance-Phase I*	g HRD O-04 202-493-3484								operational concept for work zone crash avoidance and tested the concept using a driving simulator. They also developed hardware requirements and tested several types of sensor applications in the field. The final report was completed in March 2005.	
Work Zone ITS for Crash Avoidance-Phase II*	Peter Huang HRD O-04 202-493-3484	Safety		X			Yes	Apr 06	No	In this phase, a prototype system will be developed, tested, and demonstrated. A public demonstration will be held at the Chrysler TM proving ground in the first quarter of 2006.
Transportation Management Center (TMC) National Pooled Fund Study Results	Raj Ghaman HRD O-03 202-493-3270 Thomas Grand HRDS -07 202-493-3365	Safety, Mobility and Productivity	N A	N A	N A	N A	Yes	Ongoing	Yes	This is a study of the operational and human centered issues common among agencies that manage and operate TMCs. States contribute to this pooled fund project on a yearly basis and select projects on an ongoing basis depending on the availability of funds.
Traffic Control Device Consortium Pooled Fund Study	Joe Moyer HRDS -07 202-493-3370	Safety, Mobility and Productivity	N A	N A	N A	N A	Yes	Ongoing	Yes	A consortium of State, regional, and local entities, FHWA, and other partners are evaluating innovative traffic control devices. The results will be included in the <i>Manual on Uniform Traffic Control Devices</i> (MUTCD). This study

Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
										will be done in conjunction with the Human Centered Systems Laboratories.
Real-Time Linux® Operating System for Advanced Traffic Controllers *	David Gibson HRD O-04 202-493-3271	Mobility and Productivity		X			Yes	Sep 06	No	The purpose of this project is to connect the Linux real-time operating system to advanced transportation controllers. This will provide the support necessary for faster detector polling and information processing, which is required for CICAS and vehicle infrastructure integration (VII) research. Phase I is complete. Phase II should be complete by September 2006.
Traffic Control and Operations										
Adaptive Control System (ACS) "Lite"-Field Tests	Raj Ghaman HRD O-03 202-493-3270	Mobility and Productivity		X			No	Jan 06	No	Econolite™ controller testing was completed in Gahanna, OH. The remaining field tests with Eagle controllers are planned for Houston, TX. The test with PeekSM controllers is planned for St. Petersburg/Tampa FL, and the field test of McCain controllers is planned for San Diego, CA. The estimated completion date is January 2006.
Surface Transportation Security and Reliability Information System Model Deployment (iFlorida)	Toni Wilbur HRD O-01 202-493-3269	Safety, Security, Mobility and Productivity		X			No	Jun 08	No	This project will demonstrate and evaluate how security, reliability, and safety can be enhanced through the widespread availability of real-time information. The deployment phase is nearing completion.
Coordinated Freeway and	James Colyar	Mobility and			X		No	Dec 04	No	The final report is under development.



Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Arterials Plans and Procedures Handbook	HRD O-03 202-493-3282	Productivity								
Ramp Metering 2000 Software Expanded Simulation Testing*	Deborah Curtis HRD O-03 202-493-3267	Mobility and Productivity				X	Yes	Completed	No	FHWA determined that the developer owns the software rights. Distribution is at the discretion of the developer.
<i>Ramp Management Handbook*</i>	James Colyar HRD O-03 202-493-3282	Mobility and Productivity			X		No	Jun 05	No	This is a followup document to the <i>Freeway Management and Operations Handbook</i> (FHWA-OP-04-003). The draft handbook is finished, and the final handbook now is under development.
Integrated Corridor Management (ICM) Initiative-Phase I: Foundational Research*	Dale Thompson HRD O-03 202-493-3420	Safety, Mobility and Productivity				X	Yes	Completed	Yes	The foundational research to initiate the ICM program is complete. ICM stakeholder involvement will continue through Phase II (ICM Research and Systems Development). During Phase II, researchers will address integration issues, initiate research projects, develop ICM analysis tools, and establish demonstration sites. More information is available at: http://www.itsa.org/icm.html .
Integration of DynaMIT, CLAIRE, and the Advanced Incident Detection Algorithm	Henry Lieu HRD O-03 202-493-3273	Mobility and Productivity			X		No	Apr 06	No	The goal of this project is to integrate DynaMIT, CLAIRE, and AIDA to facilitate real-time traffic management on arterials in Los Angeles, CA. The data collection process has proven more time consuming than anticipated so the target

Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
(AIDA) for Real-Time Traffic Management on Arterials: Field Test in Los Angeles, CA*									completion date has been reevaluated. The new estimated completion date is April 2006.	
Integration of DYNASMART-X, CLAIRE, and RHODES® for Real-Time Traffic Management: Field Test in Houston, TX *	Henry Lieu HRD O-03 202-493-3273	Mobility and Productivity	X				No	Dec 07	No	The goal of this project is to integrate DYNASMART-X, CLAIRE, and RHODES into TranStar SM in Houston, TX. This will allow for real-time traffic management to alleviate traffic congestion, particularly congestion caused by freeway reconstruction and flooding. The project was delayed by 1 year due to contracting issues that have now been resolved. The project started in early 2005 and is projected to be completed in December 2007.
Winter Weather Maintenance Decision Support System (MDSS) Deployment Assistance*	Randall VanGorder HRD O-03 202-493-3266 Rudy Persaud HRD O-04 202-493-3391	Safety, Mobility and Productivity, Environment			X		Yes	Sep 06	Yes	This project will provide deployment assistance to ensure that the MDSS technology is transferred successfully to the private sector. The project also will complete all programming, documentation, and evaluations from the second year of the MDSS demonstration.

Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Winter Weather MDSS Pooled Fund Study	Rudy Persaud HRD O-04 202-493-3391	Safety, Mobility and Productivity, Environment			X		Yes	Jun 06	No	This project is a pooled fund study involving seven States. The project goal is to develop an MDSS to help maintenance crews better plan and respond to winter weather and road conditions.
Clear Roads Pooled Fund Study*	Rudy Persaud HRD O-04 202-493-3391	Safety, Mobility and Productivity, Environment		X			Yes	Dec 07	No	Clear Roads is a new pooled fund research project aimed at rigorous testing of winter maintenance materials, equipment, and methods for use by highway maintenance crews.
Empirical Studies of Traffic Flow in Inclement Weather*	James Colyar HRD O-03 202-493-3282	Safety, Mobility and Productivity		X			Yes	Dec 06	No	This project involves collecting traffic and weather data from Baltimore, MD; Minneapolis, MN; Phoenix, AZ; and Seattle, WA. After the data are collected, the relationship between adverse weather and traffic operations will be researched.
<i>Traffic Detector Handbook</i>	David Gibson HRD O-04 202-493-3271	Safety, Mobility and Productivity				X	No	Completed	No	The update to the handbook is complete, and a peer review currently is underway. The estimated publication date is March 2006.
Traffic Detector Video*	David Gibson HRD O-04 202-493-3271	Safety, Mobility and Productivity	X				No	Sep 06	No	The video script has been approved, but the project is being delayed while the contractor searches for an appropriate installation to film the video. The estimated completion date is September 2006.

Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Pedestrian Stereo Imaging Sensor*	David Gibson HRD O-04 202-493-3271	Safety, Mobility and Productivity	X				Yes	Sep 07	No	This project will investigate the uses of stereo imaging to detect and trace pedestrians near intersections. Phase 1 was completed in September 2005. A second phase has been recommended, with an estimated completion date of September 2007.
Unmanned Aerial Vehicle (UAV) for Aerial Surveillance	David Gibson HRD O-04 202-493-3271	Safety, Mobility and Productivity					No	NA	No	This project was terminated due to contactor fiscal problems.
Traffic Analysis Tools/Simulation and Modeling										
Emergency Vehicle Network Delay Study	Gene McHale HRD O-04 202-493-3275	Mobility and Productivity				X	No	Completed	Yes	This project was delayed due to other priorities related to TSIS/CORSIM software. The expected completion date was December 2004. The project now has ended, and a final report is available.
CORSIM Application Guidelines	James Colyar HRD O-03 202-493-3282	Mobility and Productivity			X		No	Sep 05	No	The start of the project was delayed, but the draft report is now complete. A final report is being written. The new target completion date is January 2006.
Federal Facility Evacuation Study	James Colyar HRD O-03 202-493-3282	Safety, Mobility and Productivity				X	Yes	Completed	Yes	Project completed.



Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Next Generation Simulation Modeling (NGSIM)	James Colyar HRD O-03 202-493-3282	Mobility and Productivity	X				Yes	Dec 07	Yes	<p>The following tasks or products are complete and available at http://ops.fhwa.dot.gov/trafficanalysisistools/ngsim.htm/:</p> <ul style="list-style-type: none"> Algorithm assessment and algorithm prioritization reports. High-level project development plans. Prototype and full vehicle trajectory dataset on I-80 in Emeryville, CA. Open-source version of MITSIMLab, a simulation package used for algorithm validation. Freeway lane selection algorithm. <p>The following tasks and products are under development:</p> <ul style="list-style-type: none"> Freeway dataset on Highway 101 in the Los Angeles, CA, area (January 2006). Arterial dataset of the Los Angeles, CA, area (February 2006). Commercial validation of freeway lane selection algorithm (December 2005). Cooperative freeway merge algorithm (July 2006). Arterial lane selection algorithm (August 2006).

Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
										<ul style="list-style-type: none"> Oversaturated freeway flow algorithm (August 2006). <p>For more information, see http://ops.fhwa.dot.gov/trafficanalysisistools/ngsim.htm.</p>
Traffic Analysis Tools Case Studies and Best Practices	James Colyar HRD O-03 202-493-3282	Mobility and Productivity				X	No	Completed	Yes	Project completed.
Strategic Work Zone Analysis Tools (SWAT)	Deborah Curtis HRD O-03 202-493-3267	Mobility and Productivity				X	No	Completed	No	Work is underway on the final draft report.
QuickZone Work Zone Delay Estimation Tool	Deborah Curtis HRD O-03 202-493-3267	Mobility and Productivity				X	No	Completed	Yes	The software is available from the McTrans Center.
QuickZone Partnership Program	Deborah Curtis HRD O-03 202-493-3267	Mobility and Productivity				X	Yes	Completed	No	No further funding and no additional States are being added. FHWA, however, is maintaining a working relationship with the current seven partner States.
Exclusive Truck Lane Simulation	James Colyar	Safety, Mobility and				X	Yes	Completed	Yes	Study completed.



Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Safety Study*	HRD O-03 202-493-3282	Productivity								
DynaMIT-P-Field Test in Hampton Roads, VA*	Henry Lieu HRD O-03 202-493-3273	Mobility and Productivity			X		No	Apr 06	No	The Phase 1 offline evaluation work was completed in July 2004. The Phase 2 online evaluation work started in September 2004. The estimated target completion date is April 2006.
Enabling Technologies										
Global Positioning System (GPS) Surface Observation System Installation for Integrated Precipitable Water Vapor (IPWV)	Jame s Arnold HRD O-04 202-493-3265 Rudy Persaud HRD O-04 202-493-3391	Safety, Mobility and Productivity, Environment, Security		X			No	Dec 07	No	The installation of GPS Surface Observation System (GSOS) meteorological sensors at NDGPS sites provides useful weather observations and the information needed to calculate atmospheric water vapor. Funding was not available to meet the December 2005 target date. The new estimated completion date is December 2007.
NDGPS Reference Station Modernization	Jame s Arnold HRD O-04 202-493-3265	Safety, Mobility and Productivity, Environment, Security		X			No	Dec 08	No	This project involves research to define existing GPS capability. The December 2008 target completion date is based on anticipated funding.
High-Accuracy NDGPS	Jame s Arnold	Safety, Mobility and		X			Yes	Dec 07	No	This is a research program to evaluate the potential for achieving very high-accuracy

Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
	HRD O-04 202-493-3265	Productivity, Environment, Security								navigation solutions using existing infrastructure.
Precipitable Water Vapor for Weather Forecasting	James Arnold HRD O-04 202-493-3265	Safety, Mobility and Productivity, Environment, Security		X			Yes	Dec 07	No	This is a research program to develop and evaluate a precipitable water vapor algorithm, which will help improve weather forecasting.
Dedicated Short-Range Communications/ Wireless Access for Vehicular Environments*	James Arnold HRD O-04 202-493-3265	Safety, Mobility and Productivity, Environment, Security			X		Yes	Dec 08	No	This project involves the development of telecommunications technology. Researchers will obtain a spectrum allocation from the Federal Communications Commission; develop licensing rules, standards and, prototypes; and perform an initial deployment of the technology.
Telecommunications Interference Model for Predicting Ionospheric Changes*	James Arnold HRD O-04 202-493-3265	Safety, Mobility and Productivity, Environment, Security	X				Yes	Dec 08	No	This is a research program to develop and evaluate an ionospheric model for predicting interference levels with telecommunication systems.
Identify Mobility Applications for VII	Bob Ferlis HRD O-02 202-493-3268	Mobility and Productivity			X		Yes	Jan 06	No	This project will identify promising mobility applications that will be enabled by the anticipated VII infrastructure. Candidate applications will include innovations of current services and technologies, such

Office of Operations R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
										as adaptive cruise control, and new concepts that use vehicle control technologies to achieve significant mobility improvements.

* Addition to FY 2004/2005 Performance Plan

Safety R&D Status

Office of Safety R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Run-Off-Road Prevention: Design										
Requirements for High-Conspicuity Traffic Signs	Carl Andersen HRDS -05 202-493-3366	Safety	X				No	Mar 04	No	The study plan is complete, but the human factors studies are delayed until FY 2005 due to a lack of funding.
Guidelines for Maintaining Night Visibility of Traffic Signs	Ken Opiela HRDS -05 202-493-3371	Safety			X		No	Sep 07	No	Research is in progress, and draft versions of parts of the final report have been reviewed.
Driver Recognition of Traffic Control Color Coding	Carl Andersen HRDS -05 202-493-3366	Safety	X				No	Sep 06	No	No work has been done to date due to a lack of funding. This project was intended to follow work on high-conspicuity signs.
The Effects of Innovative Applications of Pavement Markings and RRPMS on Driver Performance	Ken Opiela HRDS -05 202-493-3371	Safety			X		Yes	Mar 06	No	Field data has been gathered to allow work to begin using a highway driving simulator. Subject testing started in March 2005.
Visibility Requirements for Novel Pavement Marking	Ken Opiela HRDS -05 202-	Safety	X				No	Sep 08	No	This effort would follow completion of the above project.



Office of Safety R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Treatments	493-3371									
Guidelines for Maintaining Night Visibility of Pavement Markings	Ken Opiela HRDS -05 202-493-3371	Safety	X				Yes	Jun 07	No	Contract initiated in August 2005.
Requirements for Light Emitting Diode (LED) Traffic Signals	Carl Andersen HRDS -05 202-493-3366	Safety	X				No	Jun 06	No	This project has not yet been initiated.
Develop Design Guidelines for Crosswalk Lighting*	Carl Andersen HRDS -05 202-493-3366	Safety			X		Yes	May 06	Yes	Phases I, II, III are complete, and a draft report is being prepared.
Wet Night Visibility of Pavement Markings*	Carl Andersen HRDS -05 202-493-3366	Safety			X		Yes	Mar 07	No	A draft report on static testing is under review.
Run-Off-Road Mitigation: Severity Reduction										
Guardrail Blockout Surrogate Test	Ken Opiela HRDS -04 202-493-3371	Safety	X				No	Sep 06	No	This project initially on hold. Work is currently in progress.

Office of Safety R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Mailbox Surrogate Test	Ken Opiela HRDS -04 202-493-3371	Safety	X				No	Jun 06	No	Project efforts were restarted with a series of pendulum tests.
Cable Median Barrier Development	Ken Opiela HRDS -04 202-493-3371	Safety	X				Yes	Sep 06	No	Work in progress.
Vehicle Impacts for Median Landscapes	Ken Opiela HRDS -04 202-493-3371	Safety	X				Yes	Jun 07	No	Work will begin in March 2006.
Pedestrian and Bicycle Safety										
Study of the Characteristics of Emerging Road and Trail Users and Their Safety	Ann Do HRDS -06 202-493-3319	Safety				X	Yes	Completed	No	A TechBrief (FHWA-HRT-04-104) on this study is available at https://www.fhwa.dot.gov/research/publications/technical/ .
Pedestrian Bicycle Crash Analysis Tool (PBCAT) Version 2.0	Ann Do HRDS -06 202-493-3319	Safety			X		Yes	May 06	No	Version 2 is currently under review in FHWA's Office of Safety. PBCAT Version 1.0 currently is available.
Evaluation of Safety Design and	Ann Do HRDS -06	Safety			X		No	Apr 06	No	The publication will be available in April 2006.



Office of Safety R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Operation of Shared-Use Paths	202-493-3319									
Hazard Index for Assessing Pedestrian and Bicyclist Safety at Intersections	Ann Do HRDS -06 202-493-3319	Safety	X				No	Sep 06	No	This project is ongoing.
Speed Management										
Results of Field Tests on Impacts of Setting and Enforcing Rational Speed Limits	Ray Krammes HRDS -05 202-493-3312	Safety		X			No	Dec 05	No	Two demonstration projects are complete. Five demonstration projects are underway. The revised target completion date for all demonstrations is December 2006.
Intersections										
Divergent Diamond Interchange and Double Crossover Intersection and Pedestrian Performance	Joe Bared HRDS -05 202-49-3314	Safety, Mobility and Productivity				X	Yes	Completed	Yes	A paper on this project was presented at the International Symposium on Highway Geometric Design in June 2005.
Safety Evaluation of Michigan U-Turns	Joe Bared HRDS -05 202-49-3314	Safety	X				Yes	Jul 06	No	The contract for this project has been awarded. Less than 25 percent of the project work is complete at this time.

Office of Safety R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Safety Analysis of Interchanges	Joe Bared HRDS -05 202-49-3314	Safety	X				Yes	Mar 07	No	Work on this project has started, but less than 25 percent is complete at this time.
Roundabout Accessibility Study	Greg Davis HRDS -07 202-49-3367	Safety				X	No	Aug 04	No	Study has been completed. Report is in publication process.
Novel Intersections-Divergent Diamond Interchanges	Greg Davis HRDS -07 202-49-3367	Safety	X				No	May 07	No	This project started in FY 2005, and is targeted for completion in May 2007.
Evaluation of Separator Islands at Nonsignalized Intersections	Joe Bared HRDS -05 202-49-3314	Safety		X			No	Sep 09	No	The start of the contract for this project was delayed due to funding limitations in FY 2004. The revised target completion date is September 2009.
Safety Management Systems										
Roadway Safety Hardware Management Systems*	Kerry Perrill o Childress HRDS -05 202-493-3318	Safety, and Productivity				X	Yes	Completed	Yes	This is a final report on transportation asset management for roadway safety. It includes case studies and a primer on implementation of asset management systems.
Rollover Causation Study	Mort Oskard	Safety		X			No	Sep 06	No	This project was partially completed and then was terminated.



Office of Safety R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
	HRDS-04 202-493-3339									
Pavement Edge Dropoff Study	Kerry Perrillo Childress HRDS-05 202-493-3318	Safety	X				Yes	Jun 07	No	The project scope has changed, and this is now a pooled fund study to evaluate the effectiveness of the Safety Edge. Participating States include California, Georgia, Indiana, Mississippi, New York, North Carolina, and Utah. The new project completion date is December 2007.
<i>Safety Analyst</i>	Mike Griffith HRDS-02 202-493-3316	Safety		X			Yes	Nov 06	Yes	White papers and functional specifications for the software are currently available.
Evaluation of Low-Cost Safety Improvements	Kerry Perillo Childress HRDS-05 202-493-3318	Safety	X				Yes	Dec 2010	Yes	This pooled fund study (involving 26 States) includes multiple products. A database for installation of safety strategies has been completed. Evaluations are ongoing of four safety strategies from the AASHTO NCHRP Report 500 guidebooks.
Safety Effects of Using Narrow Lanes and Shoulder-Use Lanes to Increase the Capacity of Urban Freeways"	Carol Tan HRDS-06 202-493-3315	Safety			X		Yes	Completed	Yes	The paper was published in June 2005.

Office of Safety R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Safety Evaluation of Red Light Running Cameras*	Mike Griffith HRDS -02 202-493-3316	Safety			X		Yes	Completed	Yes	This study documented findings from evaluations of red light running cameras in several jurisdictions.
Advanced Research-Digital Highway Measurement Vehicles	Pete Mills HRDS -02 202-493-3338	Safety		X			Yes	Dec 07	No	This project involves ongoing, long-term research that will validate the performance of a prototype instrumented vehicle.
Human Centered Systems										
Personal Transportation Technology: Segway® Human Transporter	Carol Tan HRDS -06 202-493-3315	Safety		X			Yes	Jun 06	No	Data collection is in progress.
In-Roadway Warning Lights Study	Thomas Grand HRDS -07 202-493-3365	Safety		X			No	Dec 05	Yes	Budget limitations and system installation delays at the field sites have slowed this project. Interim findings were presented at the ITE Annual Meeting in August 2004.
Traffic Control Device Consortium Pooled Fund Study Projects	Joe Moyer HRDS -07 202-493-3370	Safety, Mobility and Productivity	X				Yes	Sep 06	Yes	This pooled fund study encompasses a series of ongoing research projects. Four studies are complete, and two are planned for completion in September 2006.
Work Zone Safety										

Office of Safety R&D										
Project	Technical Contact	Project Goal Impact	Project Completion Status (Percent)				On Schedule	Anticipated Research Completion Date	Product Available	Comments
			25	50	75	100				
Improving Visibility of Work Zone Features to Aid Drivers	Ken Opiela HRDS -05 202-493-3371	Safety	X				No	Jun 06	No	There currently is no funding to initiate this effort, but alternative funding sources are being pursued.
Guidelines for Work Zone Safety Impacts Analysis	Ken Opiela HRDS -05 202-493-3371	Safety	X				No	Dec 09	No	There currently is no funding to initiate this effort, but alternative funding sources are being pursued.

*Addition to FY 2004/2005 Performance Plan

Acronym List

AASHTO	American Association of State Highway and Transportation Officials
ABSCOUR	abutment scour
ASR	alkali-silica reactivity
CICAS	Cooperative Intersection Collision Avoidance Systems
CORSIM	CORridor SIMulation
CRCP	continuously reinforced concrete pavements
DAVK	Dynamic Angle Validation Kit
FRP	fiber reinforced polymer
FY	fiscal year
GPS	global positioning system
GSOS	GPS surface observation system
HERMES	High Speed Electromagnetic Roadway Measurement and Evaluation System
HPC	high performance steel
HPS	high performance concrete
IC	Infrastructure Consortium
ICA	intersection collision avoidance
ICAS	intersection collision avoidance system
ICM	integrated corridor management
IPWV	integrated precipitable water vapor
ITE	Institute of Transportation Engineers
ITS	intelligent transportation system
LCCA	life cycle cost analysis
LTPP	Long Term Pavement Performance
MDSS	Maintenance Decision Support System
MITSIM	Microscopic Traffic Simulator
MPO	metropolitan planning organization
NCHRP	National Cooperative Highway Research Program
NDGPS	Nationwide Differential Global Positioning System
NGSIM	Next Generation SIMulation
OMB	Office of Management and Budget
PART	Program Assessment Rating Tool
R&D	research and development
RD&T	research, development, and technology
RHODES	Real-Time Hierarchical Optimized Distributed Effective System
RRPM	raised retroreflective pavement markers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

SAPER	Strategic Analysis of Pavement Evaluations for Rehabilitation
SCOB	Subcommittee on Bridges
SWAT	strategic work zone analysis tools
TMC	transportation management center
TRB	Transportation Research Board
TSIS	Traffic Software Integrated System