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FY 2002/2003

PERFORMANCE PLAN

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Research that is Essential, Indispensable, and Connected to our Customers.

Research, Development, and Technology

FY 2002/2003

PERFORMANCE
PLAN

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Research and Services that are Essential, Indispensable, and Connected to our Customers.

This *Performance Plan for the Federal Highway Administration's (FHWA's) Office of Research, Development, and Technology (RD&T)* describes the RD&T products and services provided in FY 2001 and sets the promise for those to be delivered in FY 2002-03. It serves as a beacon directing our efforts to improve operations and enhance services. The Performance Plan is solidly built upon the foundation of the RD&T Unit Plan for FY 2000 and FY 2001, using the blueprint provided by the strategic plans of the U.S. Department of Transportation (DOT) and FHWA. In the Performance Plan, we show how our efforts are squarely aligned with the strategic goals and objectives of DOT and FHWA.

This plan also includes an "Action Agenda" for the Leadership Council of RD&T. The Leadership Council is continuously working to improve RD&T's contribution to the accomplishment of FHWA's strategic goals and to advance the overall value of our products and services. The overarching vision of the Leadership Council is to provide products and services that are essential,

indispensable, and connected to our customers and partners. The Council is committed to a "quality journey." That means that we will, in very close cooperation and collaboration with internal and external partners, constantly strive to improve our programs, processes, and the quality of work life; to conduct outstanding research; and to provide services that "drive" the achievement of FHWA's strategic goals.

RD&T is organized into six offices that collectively have 16 teams with experts in more than 30 transportation-related disciplines. Three offices—the Office of Safety Research and Development (R&D), the Office of Operations R&D, and the Office of Infrastructure R&D—conduct research and development (R&D) to continually improve highway safety, operations, and infrastructure, respectively. The Office of Program Development and Evaluation develops and executes policy, budget, program management, and administrative mechanisms to enable a nationwide FHWA research and technology program to be carried out in cooperation with our partners. The Office of Research and Technology Services develops and executes a comprehensive RD&T communications strategy and marketing plan in support of FHWA-wide research and

technology (R&T) programs and the technology delivery needs of FHWA's core business units (CBU's) and resource centers (RC's). The Office of Resource Management provides administrative services for RD&T.

RD&T also manages the FHWA Research and Technology Program. The FHWA R&T Program directly supports the R&T goals of DOT and is synchronized with DOT's approach to research. FHWA invests strategically in transportation infrastructure, promotes safe and secure transportation, enhances our environment, and creates new alliances between the Nation's transportation and technology industries. The DOT and FHWA approach to research emphasizes cooperation, information-sharing, and the development of formal research agendas among the agencies within DOT and across the entire Government. It promotes partnerships with State and local governments, academia, and the private sector to cost-effectively accelerate the transformation of new technologies, concepts, and ideas into better transportation systems, processes, and services.

DOT'S VISION

A visionary and vigilant Department of Transportation leading the way to transportation excellence in the 21st Century.

 www.dot.gov

FHWA'S VISION

Create the best transportation system in the world.

 www.fhwa.dot.gov

RD&T'S VISION

The RD&T organization is essential, indispensable, and connected to our partners in advancing research and technology.

 www.tfhrc.gov

DOT'S MISSION

Serve the United States by ensuring a fast, safe, efficient, accessible, and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future.

 www.dot.gov

FHWA'S MISSION

We continually improve the quality of our Nation's highway system and its intermodal connections.

 www.fhwa.dot.gov

RD&T'S MISSION

Leads in the development of a nationally coordinated research and technology program; champions the advancement of highway technological innovation in support of FHWA strategic goals and performance objectives; advances knowledge through research, development, testing, and evaluation services; and provides support and assistance throughout FHWA in matters relating to research, development, and technology.

 www.tfhrc.gov

Visit the Department of Transportation (DOT), Federal Highway Administration (FHWA), and Research, Development, and Technology (RD&T) on the web for more information.

This is a catalog of products that are planned to be delivered in 2002-03. Products are ready-to-use guidelines, procedures, protocols, best practices, software, equipment, etc. that are packaged for and delivered to customers.

RD&T Catalog of Products

Safety Management

- ▶ Highway Safety Information System Reports on: *(Safety Management Team) (Safety goal)*
 - ▶ Evaluation of Lane Reduction "Road Diet" Measures
 - ▶ Car-Truck Proximity Crashes and Injuries
 - ▶ Safety of Narrow Lanes and Shoulders on Freeways
 - ▶ Review of the Impacts of a Tow Away Reporting Threshold
- ▶ Procedures for Enhanced Work Zone Crash Data Collection and Exposure *(Roadway Team) (Safety goal)*
- ▶ Comprehensive Highway Safety Improvement Model Interim Report *(Safety Management Team) (Safety goal)*
- ▶ Safety Improvements Guidance for Emergency Personnel at Incident Sites *(Roadway Team) (Safety goal)*

Run Off Road: Mitigation

- ▶ Simulation and Analysis of Vehicle Crashes into Mailboxes *(Roadside Team) (Safety goal)*
- ▶ Finite Element Model of a Tractor-Trailer and Wood Materials for Guardrails *(Roadside Team) (Safety goal)*
- ▶ Rollover Causation Study Interim Report *(Roadside Team) (Safety goal)*
- ▶ Side Impact Human Injury Methodology for Future Crash Tests *(Roadside Team) (Safety goal)*

Run Off Road Prevention: Design

- ▶ Interactive Highway Safety Design Model (IHSDM) Beta Tests of: *(Roadway Team) (Safety goal)*
 - ▶ Crash Prediction Module
 - ▶ Intersection Diagnostic Review Module

- ▶ Traffic Analysis Module
- ▶ Driver/Vehicle Module *(Human Centered Systems Team) (Safety goal)*
- ▶ Complete Model

Run Off Road Prevention: Visibility

- ▶ Minimum Levels of Retroreflectivity for Overhead & Street Name Signs *(Roadway Team) (Safety goal)*
- ▶ Guidelines for Traffic Sign Retroreflectivity *(Roadway Team) (Safety goal)*
- ▶ Guidelines for Assuring Systemwide Adequacy of Traffic Sign Visibility at Night *(Roadway Team) (Safety goal)*
- ▶ Updated Minimum Levels for Pavement Marking Retroreflectivity *(Roadway Team) (Safety goal)*
- ▶ Night Driving & Lighting Requirements for the Older Driver *(Roadway Team) (Safety goal)*
- ▶ Field Guide for the Use of Portable Changeable Message Signs *(Roadway Team w/Human Centered Systems Team) (Safety goal)*
- ▶ Minimum Fluorescent Requirements for Traffic Signs *(Roadway Team w/Human Centered Systems Team) (Safety goal)*
- ▶ Requirements for LED Traffic Signals *(Roadway Team w/Human Centered Systems Team) (Safety goal)*
- ▶ Enhanced Night Visibility Project Follow Up Study Results *(Roadway Team) (Safety goal)*

Pedestrian & Bicyclist

- ▶ Pedestrian Facilities Safety User Guide (*Roadway Team*) (*Safety goal*)
- ▶ Recommendations for Future Design of Cross-walk Signals (*Human Centered Systems Team*) (*Safety goal*)
- ▶ Design Criteria Based on the Non-motorists Perception of Speed (*Roadway Team w/Human Centered Systems Team*) (*Safety goal*)

Speed Management

- ▶ Results of Field Tests on Impacts of Setting and Enforcing Rational Speed Limits (*Roadway Team*) (*Safety goal*)
- ▶ USLIMITS: A Preliminary Expert System for Speed Zoning (*Roadway Team*) (*Safety goal*)
- ▶ Recommended Designs for Hump Signs and Markings (*Human Centered Systems Team*) (*Safety goal*)
- ▶ Variable Speed Limit Demonstrations Results (in Conjunction with NCHRP 3-59) (*Roadway Team*) (*Safety goal*)
- ▶ Prototype Variable Speed Limit Systems in Work Zones (*Roadway Team*) (*Safety goal*)
- ▶ Safety Evaluation of Differential Speed Limits for Cars and Trucks (*Roadway Team*) (*Safety goal*)
- ▶ Comprehension of Speed and Hazard Warning Signs (*Human Centered Systems Team*)

Intersections

- ▶ Safety and Operational Impacts of Offset "T" Intersections (*Roadway Team*) (*Safety goal*)
- ▶ Accident Warrant for Traffic Signals (in Conjunction with NCHRP 17-16) (*Roadway Team*) (*Safety goal*)
- ▶ Driver Selection of Path and Speed Through Roundabouts (*Roadway Team w/Human Centered Systems Team*) (*Safety goal*)
- ▶ Functional Requirements for Microsimulation-Based Surrogate Safety Measures at Intersections (*Roadway Team*) (*Safety goal*)
- ▶ Safety Recommendations for Novel Intersection Designs (*Human Centered Systems Team*) (*Safety goal*)
- ▶ Intersection Collision & Roadway Departure Crash Avoidance-Infrastructure Systems Concepts and Requirements (*Enabling Technologies Team*) (*Safety goal*)
- ▶ Traffic Operations and Safety Comparisons of Single Point Urban Interchange with Tight Diamond Interchange (*Roadway Team*) (*Safety goal*)

Human Centered Systems

- ▶ Transportation Management Center National Pooled Fund Study Results (*Human Centered Systems Team*) (*Safety goal*)

- ▶ Revised Older Driver Handbook (*Human Centered Systems Team*) (*Safety goal*)

Intelligent Vehicle Initiative (IVI) Related Research

- ▶ Specialty Vehicles Technologies Evaluation (*Enabling Technologies Team*) (*Safety goal*)
- ▶ Enhanced Digital Mapping (*Enabling Technologies Team*) (*Safety goal*)
- ▶ Societal and Institutional Issues Assessment for IVI (*Enabling Technologies Team*) (*Safety goal*)
- ▶ Guidelines for In-Vehicle Display Icons (*Human Centered Systems Team*) (*Safety goal*)
- ▶ Design Evaluation and Model of Attention Demand (DEMANd) Tool for In-vehicle Information System Designers (*Human Centered Systems Team*) (*Safety goal*)
- ▶ Interactive Icon Evaluation Tool (*Human Centered Systems Team*) (*Safety goal*)
- ▶ Human Factors Review of ALERT Police Specialty Vehicle System (*Human Centered Systems Team*) (*Safety goal*)

Traffic Control & Operations

- ▶ Adaptive Control Systems (ACS) & ACS "Lite" Version Software (*Travel Management Team*) (*Mobility goal*)

- ▶ Ramp Metering 2000 Software (*Travel Management Team*) (*Mobility goal*)
- ▶ Rhodes/CLAIRE/TrEPS Integration and Testing (*Travel Management Team*) (*Mobility goal*)
- ▶ Traffic Detector, Traffic Control Systems, and Freeway Management Handbooks (*Travel Management Team*) (*Mobility goal*)
- ▶ Winter Weather Maintenance Decision Support Systems (*Enabling Technologies Team*) (*Mobility goal*)

Traffic Simulation Modeling

- ▶ Next Generation Simulation Modeling (NGSIM) (*Travel Management Team*) (*Mobility goal*)
- ▶ Traffic Estimation and Prediction Systems/Dynamic Traffic Assignment & Control (TrEPS/DTA) (*Travel Management Team*) (*Mobility goal*)
- ▶ Strategic Work Zone Analysis Tools (SWAT) (*Travel Management Team*) (*Mobility goal*)
- ▶ QuickZone Work Zone Delay Estimation Tool (*Travel Management Team*) (*Mobility goal*)

Nationwide Differential Global Positioning System (NDGPS)

- ▶ Nationwide Differential Global Positioning System (NDGPS) Base Stations & Coverage Verification Test Jig (*Enabling Technologies Team*) (*Mobility goal*)
- ▶ GPS Surface Observation System Installation for Integrated Precipitable Water Vapor (IPWV) (*Enabling Technologies Team*) (*Mobility goal*)

Pavements/Asphalt

- ▶ FHWA Angle Validation Kit (AVK), Commercially Available (*Asphalt Pavement Team*) (*Mobility & Productivity goal*)
- ▶ A State-of-the-Practice Report in the Design of Crumb-Rubber Material (*Asphalt Pavement Team*) (*Mobility, Productivity, & Human and Natural Environment goal*)
- ▶ Evaluation of the Particle Additive Test (PAT) Report (*Asphalt Pavement Team*) (*Mobility & Productivity goal*)
- ▶ Evaluation of the Laboratory Asphalt Stability Test (LAST) Report (*Asphalt Pavement Team*) (*Mobility & Productivity goal*)

Pavements/Portland Cement Concrete (PCC)

- ▶ Vibrating Slope Apparatus to Measure PCC Workability, Equipment and Test Method (*Portland Cement Concrete Team*) (*Mobility & Productivity goal*)
- ▶ Guidelines to Detect, Analyze, Treat, and/or Prevent Materials-Related Distress (*Portland Cement Concrete Team*) (*Mobility & Productivity goal*)
- ▶ Updated Version of HIPERPAV Software, Used to Prevent Early-Age Cracking Of JPCP (*Portland Cement Concrete Team*) (*Mobility & Productivity goal*)
- ▶ Guidelines to Select Curing Materials and Procedures (*Portland Cement Concrete Team*) (*Mobility & Productivity goal*)
- ▶ Petrography Manual (*Portland Cement Concrete Team*) (*Mobility & Productivity goal*)
- ▶ Guidelines on the Use of Recycled PCCP as Aggregate in New PCCP (*Portland Cement Concrete Team*) (*Human and Natural Environment goal*)
- ▶ Guidelines to Develop Statistical Quality Assurance Specifications (*Portland Cement Concrete Team*) (*Mobility & Productivity goal*)

- ▶ Freeze-Thaw Durability of Concrete Report (*Portland Cement Concrete Team*) (*Mobility & Productivity goal*)

Pavements/Long Term Pavement Performance (LTPP)

- ▶ LTPP Database, Data Releases (*Long Term Pavement Performance Team*) (*Mobility & Productivity goal*)
- ▶ DATAPAVE 3.0, CD-ROM Software Package (*Long Term Pavement Performance Team*) (*Mobility & Productivity goal*)
- ▶ Improved Specifications for Weigh-In-Motion (WIM) (*Long Term Pavement Performance Team*) (*Mobility & Productivity goal*)
- ▶ Dynamic Test System Protocol (*Long Term Pavement Performance Team*) (*Mobility & Productivity goal*)
- ▶ Estimating Cumulative Traffic Loads Report (*Long Term Pavement Performance Team*) (*Mobility & Productivity goal*)
- ▶ Joint and Crack Load Transfer in LTPP Test Sections Report (*Long Term Pavement Performance Team*) (*Mobility & Productivity goal*)
- ▶ Verification of LTPP Virtual Weather Stations Report (*Long Term Pavement Performance Team*) (*Mobility & Productivity goal*)

Pavements/Models

- ▶ Mechanistic Pavement Models (*Infrastructure and Management Team*) (*Mobility & Productivity goal*)

Pavements/Surface Analysis

- ▶ Measuring And Evaluating PCCP Warp and Curl (*Infrastructure and Management Team*) (*Mobility & Productivity goal*)

Structures/Steel

- ▶ Designers Guide for High Performance Steel Bridges (HPS) (*High Performance Bridge Materials Team*) (*Mobility & Productivity goal*)
- ▶ Improved Fracture Toughness Specifications for High Performance Steel (*High Performance Bridge Materials Team*) (*Mobility & Productivity goal*)
- ▶ Curved Girder Bridge Strength Prediction Equation (*High Performance Bridge Materials Team*) (*Mobility & Productivity goal*)
- ▶ Corrugated Web Plates for Steel Girders (*High Performance Bridge Materials Team*) (*Mobility & Productivity goal*)

Structures/Concrete

- ▶ High Performance Concrete (HPC) Data Base (*High Performance Bridge Materials Team*) (*Mobility & Productivity goal*)

Structures/Timber

- ▶ Design Guidance for Composite Timber Bridges (*Bridge Design and Hazard Mitigation*) (*Productivity goal*)

Structures/Advanced Materials

- ▶ Specifications for Highway Bridge Applications Using Fiber-Reinforced Polymer (FRP) Composites (*High Performance Bridge Materials Team*) (*Productivity & Mobility goal*)
 - ▶ Materials Spec—Accelerated Test-Based Specification
 - ▶ FRP Prestressing for Highway Bridges
- ▶ Performance Specification and Acceptance Tests for FRP Bridge Decks and Superstructures
 - ▶ Quality Assurance
 - ▶ Structural System Performance

Applied Engineering/Hydraulics

- ▶ Effects of Debris on Bridge Pier Scour (*Bridge Design and Hazard Mitigation Team*) (*Mobility, Productivity, & Safety goal*)
- ▶ Culvert Installation Provisions for AASHTO Bridge Specifications (*Bridge Design and Hazard Mitigation Team*) (*Mobility, Productivity, & Safety goal*)
- ▶ Improved Culvert Entrance Loss Prediction (*Bridge Design and Hazard Mitigation Team*) (*Mobility, Productivity, & Safety goal*)

**Applied Engineering/
Aerodynamics**

- ▶ Mean Wind Force Coefficients for Hexagonal, Uniform, and Tapered Cylinders (*Bridge Design and Hazard Mitigation Team*) (*Mobility, Productivity, & Safety goal*)
- ▶ Stochastic Methods for Simulating 3-D Wind Flow Around Bridges (*Bridge Design and Hazard Mitigation Team*) (*Mobility, Productivity & Safety goal*)

Applied Engineering/Seismic

- ▶ Seismic Retrofitting Manuals: Part III: Long Span Bridges (*Bridge Design and Hazard Mitigation Team*) (*Mobility, Productivity, & Safety goal*)
- ▶ Report: "A Risk-Based Methodology For Assessing the Seismic Performance of Lifeline Systems" (*Bridge Design and Hazard Mitigation Team*) (*Mobility, Productivity & Safety goal*)
- ▶ Improved Seismic Design Provisions for AASHTO Bridge Specifications (*Bridge Design and Hazard Mitigation Team*) (*Mobility, Productivity & Safety goal*)

**Applied Engineering/
Geotechnology**

- ▶ Micropile Technology for Bridges (*Geotechnical Team*) (*Mobility & Productivity goal*)
- ▶ Non-Nuclear Compaction Control Equipment (*Geotechnical Team*) (*Mobility & Productivity goal*)

Applied Engineering/Corrosion

- ▶ Knowledge-Based Tools for Bridge Coatings Maintenance Decision Making (*Corrosion and Coatings Team*) (*Productivity & Mobility goal*)
- ▶ Materials and Methods for Corrosion Protection of Concrete Structures (*Corrosion and Coatings Team*) (*Mobility, Productivity & Human and Natural Environment goal*)

**Applied Engineering/
Nondestructive Evaluation (NDE)**

- ▶ Thermal Imaging System for Crack Detection (*Infrastructure Inspection and Management Team*) (*Mobility, Productivity, & Safety goal*)

- ▶ PERES III Ground Penetrating Radar System (*Infrastructure Inspection and Management Team*) (*Mobility, Productivity, & Safety goal*)
- ▶ Ultrasonic Stress Measurements Sensor for Prestressing Tendons (*Infrastructure Inspection and Management Team*) (*Mobility, Productivity, & Safety goal*)

**Applied Engineering/Bridge
Management**

- ▶ WebNBI: Internet-Based Query and Analysis System for the National Bridge Inventory Database (*Infrastructure Inspection and Management Team*) (*Productivity, Mobility, & Safety goal*)

RD&T Catalog of Services

Human Centered Systems

- ▶ Support to Operations CBU on MUTCD Signing Issues (*Human Centered Systems Team*)
- ▶ Synthesis of Practices Addressing Consistency in Text-Based Messaging for Advanced Traveler Information Systems (ATIS) (*Human Centered Systems Team*)
- ▶ Review of Potential Safety Effects of Electronic Billboards on Driver Attention and Distraction (*Human Centered Systems Team*)

Safety Analysis and Management

- ▶ Research Methods Support and HSIS Data to Requesting Parties (*Safety Management Team*) (*Safety goal*)
- ▶ Photometric and Radiometric Measurements of Light Sources, Including Traffic Signals, Vehicle Headlamps and Roadway Lighting (*Roadway Team*) (*Safety goal*)
- ▶ Photometric and Colorimetric Measurements (including Coefficient of Retroreflectivity and Fluorescence) of Signing and Marking Materials (*Roadway Team*) (*Safety goal*)

Research Program Support

- ▶ IVI Infrastructure Consortium Coordination and Leadership (*Enabling Technologies Team*)
- ▶ US-Japan ITS Joint Research Program (*Enabling Technologies Team*)

- ▶ Cooperative Program for Operational Meteorological, Education and Training for Road Weather Forecasting (COMET) (*Enabling Technologies Team*)
- ▶ High Speed Rail IDEAs Program Support (*Office of Program Development & Evaluation*)
- ▶ Small Business Innovative Research Program (SBIR) Review and Support (*Office of Program Development & Evaluation*)
- ▶ University Research Program Coordination and Support (*Office of Program Development & Evaluation*)

Traffic Analysis/Modeling

- ▶ Traffic Research Laboratory (TReL) Model Simulation and Problem Solving Studies (*Travel Management Team*)

Communication and Frequency Spectrum Support

- ▶ Dedicated Short Range Communications Program Support for Standards and ITS Applications (*Enabling Technologies Team*)
- ▶ Ultra Wide Band Radar Technology Coordination (*Enabling Technologies Team*)
- ▶ Frequency Spectrum Coordination for FHWA (*Enabling Technologies Team*)

Services are technical support we have provided and plan to provide to others due to our unique work, expertise, renowned status, facilities and/or our resources over the 2002 and 2003 fiscal year. The services each team have in common, e.g., coordination of Pooled Fund Projects, NCHRP panels, TRB committee work, professional committee support, routine problem solving and trouble shooting, participation in conferences and workshops, consulting with States on the application of our research results/products and other technologies, participation in FHWA work groups and task forces, and routine lab tests are not listed. This is not intended to be a listing of every function or activity that we perform.

Structures

- ▶ Forensic Evaluations of Catastrophic Failures or Risk Analysis in the Areas of:
 - ▶ Bridges and Bridge Components
 - ▶ Hydraulic Erosion and Bridge/Culvert Stability
 - ▶ Seismic Stability, Nationally and Internationally
 - ▶ Aerodynamic Induced Failures of Bridges and Bridge Components
- ▶ Studies to Resolve Unique or Very Complex Design Situations in:
 - ▶ Hydraulic Capacity, Efficiency and Effectiveness
 - ▶ Aerodynamic Stability of Bridge and Bridge Components
 - ▶ Bridge Foundations, Abutments and Retaining Walls
- ▶ Testing of New and Innovative Materials and Products
- ▶ Technical Expertise and Consultation in Bridge Coatings and Corrosion

Materials and Techniques to Other Government Agencies, States and Industry Groups

- ▶ Application, Evaluation and Development of Specialized Instrumentation for Nondestructive Evaluation, Measurement and Long Term Monitoring of Highway Structures.
- ▶ Application of Bridge Management Information Systems to Better Understand Bridge Performance and Develop Improved Performance Measures for Bridges.

Pavements

- ▶ Forensic Evaluations of Early Performance Problems in Asphalt and Concrete Pavements
- ▶ Laboratory Testing of New, Innovative and Recycled Materials Used in Pavement Construction

- ▶ Technical Expertise, Assistance and Laboratory Testing Support for Field Trials of New Pavement Materials and Procedures.
- ▶ Technical Assistance in the Application, Test and Evaluation and Problem Solving for Construction Quality Control, Quality Assurance, Performance Related Specifications and Warranties.
- ▶ Technical Assistance and Information on the Application, Testing, Specifications, Cost and Performance of Recycled Pavement Materials.
- ▶ Access to the Worlds Largest and Most Comprehensive Pavement Performance Data Base. Technical Assistance and Consultation in the Use of the Data.

To guide our Business and Performance Plan, the RD&T Leadership Council has a vision to conduct research and provide products and services that are essential, indispensable, and connected to our customers and partners. We are committed to continuing our quality journey; to initiating improvements in programs, processes, and the quality of work life; to conducting outstanding research; and to providing services that “drive” the achievement of FHWA strategic goals and performance indicators. Our Top Challenges and Commitments for exceeding partner and customer expectations are to:

Effectively Deliver Needed Products and Services by:

- ▶ Developing quality research products and services that address the needs of our internal customers and external partners in a timely manner; and
- ▶ Improving collaboration, communication, and feedback on research and technology with the FHWA Resource Centers and Division Offices.

Improve Business and Administrative Processes by:

- ▶ Developing and implementing a lab assessment process to routinely provide independent feedback to improve the quality of laboratory services and lab-based research programs;
- ▶ Effectively utilizing research resources and efficient operations of the RD&T facilities, organization, and programs;
- ▶ Defining and implementing methodologies/tools to evaluate projects and conduct performance measurement of research at TFHRC; and
- ▶ Advancing information technologies and systems to address the unique needs of a world class research organization.

Develop and Recognize Employees by:

- ▶ Mentoring and through Individual Development Plans (IDP) that build skills and agency research capacity and competence; and
- ▶ Providing an improved award and recognition program that values achievements, is directly linked to team accomplishment, and advances the RD&T Leadership Council Action Agenda.

Communicate the FHWA R&T Story and Future Agenda by:

- ▶ Developing an improved and “consumable” statement of FHWA R&T initiatives and focus areas;
- ▶ Gathering and reporting on FHWA achievements in delivering technology and innovation in collaboration with FHWA headquarters and field offices;
- ▶ Identifying national research program priorities, resources, and funding needs with our partners, through activities such as the National R&T Partnership Initiative and Future Strategic Highway Research Program; and
- ▶ Building a common advocacy for an enhanced national R&T program and legislative agenda.

*Our Vision for the Future,
Management Philosophy,
and Top Challenges &
Commitments*

One of the strategies for the RD&T Leadership Council is to “create, maintain, and advance a Council Action Agenda with specific tasks, schedules, and assigned responsibilities.” The Action Agenda is a dynamic document which is updated as items are initiated, advanced, and are accomplished. Action Items are documented in one-page descriptions which provide key information on the initiative. The Action Agenda is not all inclusive of strategic activities in which RD&T is engaged, but rather includes selected items of significant impact across RD&T and/or FHWA for which we have a direct responsibility and are held accountable. In addition, short-term Council efforts resulting in products or accomplishments are documented as part of this Agenda.

Contents

The organization of this Action Agenda is aligned to the strategy categories defined for the Leadership Council.

Action Item	Office	Target Cmpl. Date
A. Leadership		
1. Develop and Implement R & T Legislative Agenda and Strategy	HRPD	Ongoing
2. Prepare a Concept Paper and Work Plan for Advanced Research	HRDS/HRDO/HRDI	12/01
3. Establish a Student Volunteer Program	HRRM	12/01
4. Prepare a White Paper on “The FHWA Role in R&T”	HRPD	5/02
B. Strategic Planning		
1. Mobility	See FY 2002/2003 Products Page	FY 2002/2003
2. Safety	See FY 2002/2003 Products Page FY	FY 2002/2003
3. Productivity	See FY 2002/2003 Products Page	FY 2002/2003
4. Human and Natural Environment	See FY 2002/2003 Products Page	FY 2002/2003
5. Security	See FY 2002/2003 Products Page	
6. Organizational Excellence	See FY 2002-2003 Action Agenda	
C. Human Resource Development & Management		
1. Provide a Forum for Outreach on Work Systems, Training, Security and Morale	HRRM	12/01
D. Customer & Partner Focus		
1. Communicate the FHWA R&T Story	HRTS	12/01
2. Update & Maintain Technology Facilitation/Strategy and Action Plans	HRDI/HRDS/HRDO	12/01

3. Communicating RD&T Activities (Profiles report, success stories, Innovation connection, etc.)	HRTS	9/01
4. Develop a Customer Feedback Plan for RD&T	HRPD	5/02
E. Information and Analysis		
1. Improve the RD&T Web Site for Enhanced Customer Access & Service	HRTS	7/02
F. Process Management		
A. Administrative Processes		
1. Procurement Planning Process Review, Evaluate Results, and Document Improvements	HRRM	9/02
2. Administrative Processes Review, Evaluate Results, and and Document Improvements	HRRM	9/02
B. Business Processes		
1. Technology and Innovation Process, Evaluate Results, and Document Improvements	HRTS	12/01
2. Develop a TFHRC Lab Assessment Process	HRPD	7/02
3. Complete a Process Management Improvement for FHWA Participation in the SBIR Process	HRPD/HRRM	10/02
G. Business Results (Metrics)		
1. Develop and Implement a R&D Performance Evaluation Program	HRPD	9/02
2. Establish and Support RD&T Information Technologies Team	HRRM	12/02
3. Outreach for Worklife Issues	HRRM	9/02

*Goals and RD&T's
Corporate Management
Strategies*

Goals of the DOT

- **Safety** Promote the public health and safety by working toward the elimination of transportation-related deaths, injuries, and property damage.
- **Mobility** Shape America's future by ensuring a transportation system that is accessible, integrated, and efficient and offers flexibility of choices.
- **Economic Growth and Trade** Advance America's economic growth and competitiveness domestically and internationally through efficient and flexible transportation.
- **Human and Natural Environment** Protect and enhance communities and the natural environment affected by transportation.
- **National Security** Advance the Nation's vital security interests in support of national strategies such as the National Security Strategy and National Drug Control Strategy by ensuring that the transportation system is secure and available for defense mobility and that our borders are safe from illegal intrusion.
- **Organizational Excellence** Advance the Department's ability to manage for results and innovation.

Goals of the FHWA

- **Safety** Continually improve highway safety.
- **Mobility** Continually improve the public's access to activities, goods, and services through preservation, improvement, and expansion of the highway transportation system and enhancement of its operations, efficiency, and intermodal connections.
- **Productivity** Continuously improve the economic efficiency of the Nation's transportation system to enhance America's position in the global economy.
- **Human and Natural Environment** Protect and enhance the natural environment and communities affected by highway transportation.
- **National Security** Improve the Nation's national defense mobility.
- **Organizational Excellence** Advance FHWA's ability to manage for results and innovation.

FHWA Corporate Management Strategies

■ **Leadership** Define and advance the core mission and values of FHWA R&T, and its future direction. Involve senior leaders in the review of organizational structure and performance. Balance the needs of stakeholders, customers, partners and employees in approaches and decision-making, and share accomplishments. Address responsibilities to the public and practice good citizenship.

■ **Strategic Planning** Focus Leadership Council activities on development and delivery of the FHWA Strategic and Performance Plans, and specifically on strategic issues that cut across all RD&T. Create, maintain, and advance a Leadership Council Action Agenda with specific tasks, schedules, and assigned responsibilities.

■ **Customer and Partner Focus** Foster coordination and collaboration with CBU's, other SBU's, Resource Centers, Division Offices, other US DOT offices, and with external partners such as TRB, universities, and private sector firms.

■ **Information and Analysis** Create, maintain, and advance effective performance management systems for measuring, analyzing, aligning and improving performance at all levels and in all parts of the organization.

■ **Human Resource Development & Management**

Provide a forum for two-way communication between the Council and Team Leaders and the entire RD&T staff on work systems, training and employee development, and employee well-being, security and morale.

Work together to "make RD&T a stimulating, rewarding, productive, and fun place to come to work."

■ **Process Management** Anticipate issues and implement solutions related to RD&T key processes. Focus on improvements to processes related to the design and the production/delivery of products and services, marketing, supply-chain management, and support or administrative processes, such as finance, procurement, and facilities. Continuously review key processes to improve overall quality and promote a unified and professional approach.

■ **Business Results** Champion and facilitate implementation of Quality Journey principles within RD&T, including assessment, benchmarking, and evaluation of results.

Use the analysis of results to facilitate the transfer of RD&T technologies, products, and services.

RD&T successfully completed these products for our customers and partners. Products are also the result of research that has been delivered in the form of reports or test results.

SAFETY

Run Off Road Prevention & Mitigation

- ▶ Interactive Highway Design Safety Design Model (IHSDM): Beta Tests on
 - ▶ Policy Review Module
 - ▶ Design Consistency Module
- ▶ All-Weather Pavement Markings Study and Findings (*Roadway Team*)
- ▶ Enhanced Night Visibility Project Pilot Test Results (*Roadway Team*)
- ▶ Crash Test Simulation Models at National Crash Analysis Center for:
 - ▶ Transitions
 - ▶ 18,000-lb Single-Unit Trucks (*Roadside Team*)
- ▶ Vehicle Crash Testing and Results for Transitions, Cable Guardrails, and Buried-in-Back Slope Terminals (*Roadside Team*)
- ▶ R&D Program Plan to Address Rollover Crashes (*Roadside Team*)
- ▶ Synthesis of Shoulder Rumble Strip Practices and Policies (*Roadway Team*)

Pedestrian & Bicycle

- ▶ Pedestrian/Bicycle Crash Analysis Tool (PBCAT) Software (*Roadway Team*)

- ▶ ITS Pedsmart: ITS Pedestrian Safety Applications Webpage (*Roadway Team*)

- ▶ Current Practices of Shoulder Rumble Strips (*Roadway Team and Human Centered Systems Team*)

Safety Management Systems

- ▶ Highway Safety Information System (HSIS) Summary Reports on:
 - ▶ Red Light Running
 - ▶ High Priority Roadside Safety (*Safety Management Team*)
- ▶ Geographic Information System (GIS) Safety Analysis Tool: Version 2.0 (*Safety Management Team*)
- ▶ Initiate Comprehensive Highway Safety Improvement Model project (*Safety Management Team*)
- ▶ Safety Data Analytical Support to the Safety Core Business Unit & Field (*Safety Management Team*)

Speed Management

- ▶ Traffic Calming: State of the Practice Report (*Roadway Team*)

Intersections

- ▶ Roundabouts Information Guide (*Roadway Team*)
- ▶ Advantages of the Split Intersection (*Roadway Team*)

Human Centered Systems

- ▶ Truck Rest Stop Study & Report to Congress (*Roadway Team and Human Centered Systems Team*)
- ▶ Review of Potential Safety Effects of Electronic Billboards on Driver Attention and Distraction (*Human Centered Systems Team*)

Intelligent Vehicle Initiative (IVI)

- ▶ Assessment of Societal and Institutional Issues for IVI (*Enabling Technologies Team*)
- ▶ Identification of Sensor-Friendly Vehicle and Roadway Methods (*Enabling Technologies Team*)

PRODUCTIVITY

Structures

- ▶ Seismic Risk Assessment, Bridge Retrofitting, and Retrofitting of Other Highway Structures Manuals (*Bridge Design and Hazard Mitigation Team*)
- ▶ New Permeability Tests for Concrete (*High-Performance Bridge Materials Team*)
- ▶ Bridge Foundations Innovative Load Testing Procedures (*Geotechnical Team*)

Pavements

- ▶ IVESYS (Pavement-Performance Prediction Model); VSIM ((Vehicle Dynamic Model); and EAROMAR

(Pavement Life-Cycle Cost Model) Improvements
(Infrastructure Inspection and Management Team)

- ▶ ROSAN Gyroscopic Cross-Slope Measurement Prototype Device
(Infrastructure Inspection and Management Team)
- ▶ Hot-Mix Asphalt Construction Prototype Performance-Related Specifications
(Asphalt Pavement Team)
- ▶ Measure the Workability of PCC Prototype Test Equipment and Procedure
(Portland Cement Concrete Pavement Team)
- ▶ PCCP Improved PaveSpec Software for Developing Performance-Related Specifications
(Portland Cement Concrete Pavement Team)
- ▶ DataPave, Product Training, Rigid Pavement Design, and LTPPBIND
(Long Term Pavement Performance Team)

MOBILITY

Traffic Management Systems/ITS

- ▶ Transportation Management Center (TMC) National Pooled Fund Project: Develop Plan and Initiate Studies
(Traffic Management Team & Human Centered Systems Team)

- ▶ Preliminary Human Factors Guidelines for TMCs
(Human Centered Systems Team)
- ▶ ErgoTMC Multimedia Web Site and Advanced TMC Workshop to Support Preliminary Human Factor Guidelines for TMCs
(Human Centered Systems Team)
- ▶ ITS Deployment Analysis System (IDAS)
(Traffic Management Team)
- ▶ Advanced Transportation Controller and Cabinet Specifications
(Traffic Management Team)
- ▶ Traffic Software Integrated System (TSIS), Version 5.0
(Traffic Management Team)
- ▶ Advanced Traffic Management System Research Analysis Database System (ARADS)

Structures

- ▶ Timber Bridge Inspection Manual
(Bridge Design and Hazard Mitigation Team)
- ▶ Culvert Installation for AASHTO Bridge Specifications Recommended Provisions
(Bridge Design and Hazard Mitigation Team)
- ▶ Micropiles in Seismic Areas Design Guidelines Manual
(Geotechnical Team)

- ▶ Comprehensive Summary of U.S. Bridge Conditions and Compositions
(Infrastructure Inspection and Management Team)

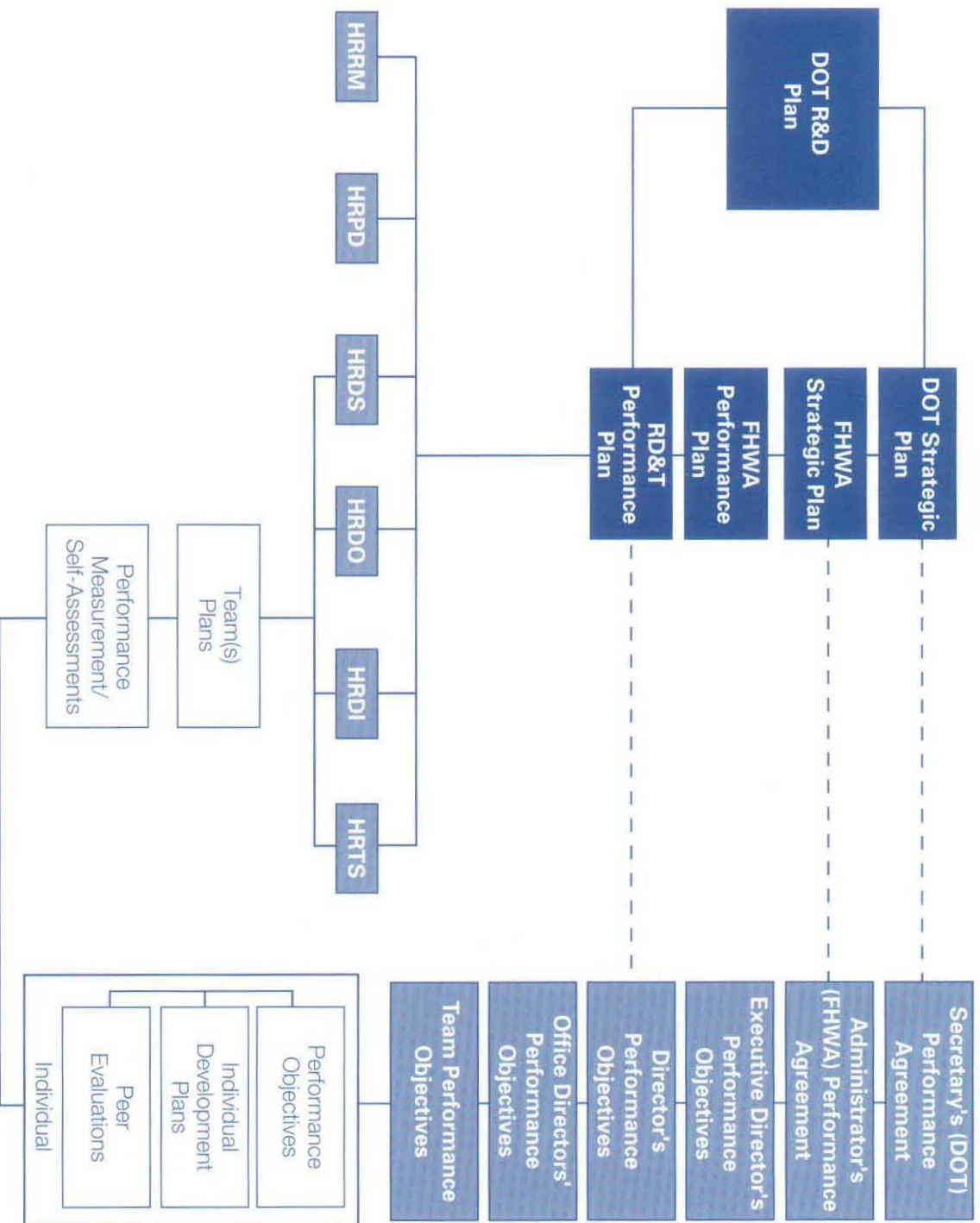
Pavements

- ▶ Superpave Binder Fatigue Criteria in ALF Experiment Validation
(Asphalt Pavement Team)
- ▶ HIPERPAV Software and Supporting Documentation
(Portland Cement Concrete Pavement Team)

HUMAN & NATURAL ENVIRONMENT

- ▶ Highway Effects on Vehicle Performance
(Corrosion and Coatings Team)
- ▶ Environmental Impact of Construction and Repair Materials on Surface and Ground Waters
(Corrosion and Coatings Team)
- ▶ Evaluations of Near Highway Dispersion Mechanics for Air Pollutants
(Corrosion and Coatings Team)
- ▶ Investigation of Environmental Impacts of Recycled Materials
(Corrosion and Coatings Team)

RDDT's Planning Performance Alignment Framework



What are we measuring* and why?

	Organization	Program	Project
Level of Measurement	How Well Are We Doing?	Are We Doing the Right Things?	Are We Doing Things Right?
Type of Measurement	President's Quality Award Criteria (and the FHWA Corporate Management Strategies)	Independent Peer Review (with little or no stake in outcome)	Peer Review (with stake in the outcome)
Results	Continuous Improvement Best-in-Class Organization	Outcomes Validation Benchmarking	Outputs Validation Benchmarking

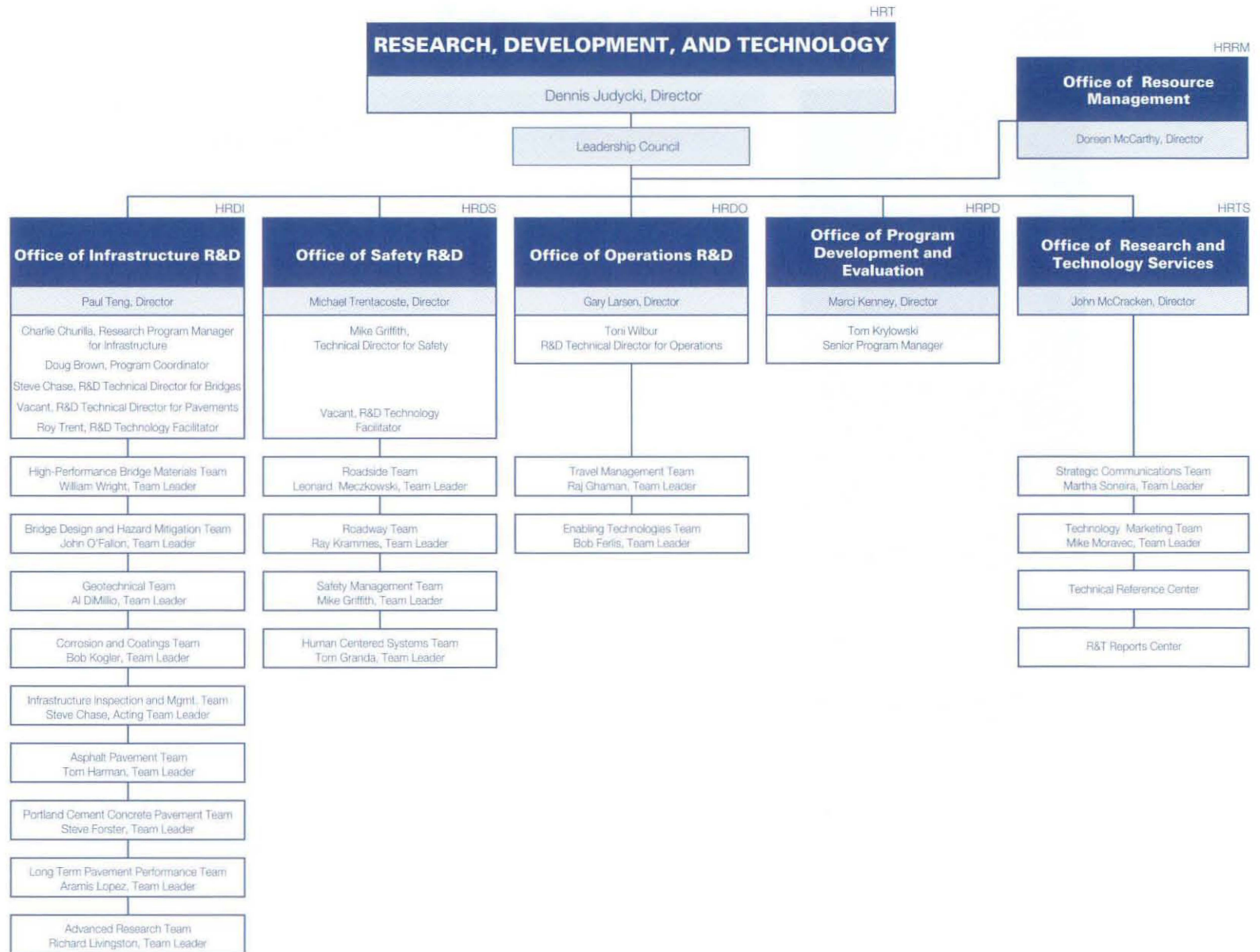
*NOTE: The 1993 Government Performance and Results Act (GPRA) requires Federal Agencies to set strategic goals and use performance measures for management and budgeting. The objective of GPRA is to encourage greater efficiency, effectiveness, and accountability in Federal programs and spending.

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