The Second Strategic Highway Research Program

SHRP2

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SHRP 2
STRATEGIC HIGHWAY RESEARCH PROGRAM
Accelerating solutions for highway safety, renewal, reliability, and capacity

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

Products of SHRP 2 research derive from national goals for safer, longer-lasting, and less congested highways. These products will help transportation agencies to measure performance of the systems they manage; to collect and share data as a reliable basis for sound decisions; and to plan, design, build, and operate highway facilities in collaboration with the communities and regions they serve. This chart identifies the products of each SHRP 2 research project and indicates their status as of spring 2010.

Products of SHRP 2 Highway Renewal Research

Renewal research is producing tools and techniques that can be used throughout the life cycle of bridges, tunnels, and pavements. For the planning phases there will be tools to support decisions at corridor and network levels, tools for locating utilities, and a utility conflict matrix • For the design phase, geotechnical solutions for soil support, guides and tools for long-life pavement for accelerated bridge construction, including typical designs, details, and examples; AASHTO-formatted draft specifications for 100-year bridge concepts; and nondestructive testing and inspection tools • For the procurement phase, there will be performance draft specifications for bridges • For the construction phase, AASHTO-formatted draft specifications for accelerated bridge construction, guidelines for mitigating worker fatigue, guides and tools for constructing long-life pavements, and NDT tools for QC/QA of construction materials • And for operations and maintenance, there will be NDT tools for concrete bridge decks and tunnel linings and pavement preservation approaches.

Project (Number)	Products	Principal Contractor (Budget) Project Milestone	Staff Contact
Encouraging Innovation in Locating and Characterizing Underground Utilities (R01)	**Web-based decision tool for selecting location technologies • Case studies • Summary of frequently encountered problems • Documentation of current and promising technologies • Bibliography • Research plan for developing innovative tools and methods**	Louisiana Technical University ($0.39M) Project completed March 2010, Report published on www.TRB.org; products in review	Monica Starnes mstarnes@nas.edu
3-D Utility Location Data: Technologies for Storage, Retrieval, and Utilization (R01-A)	**Successful practices model for implementing a 3-D repository for utilities in public ROW • Guidelines for implementation • Field tested 3-D utility data repository**	Gas Technology Institute ($1.0M) Completion 2012	Chuck Taylor ctaylor@nas.edu
Multi-Sensor Platforms for Locating Underground Utilities (R01-B)	**Nondestructive testing tools for detecting & locating buried utilities • Training materials & users manuals**	Underground Imaging Technologies Inc. ($2.0M) Completion 2012	Chuck Taylor ctaylor@nas.edu
Innovation in Location of Deep Utilities (R01-C)	**Prototype locating technologies • Guidance document for technology implementation • Training material**	Gas Technology Institute ($1.615M) Completion 2012	Chuck Taylor ctaylor@nas.edu
Geotechnical Solutions for Soil Improvement, Rapid Embankment Construction, and Stabilization of the Pavement Working Platform (R02)	**Electronic catalog of existing and emerging materials and systems for ground improvement • Model design, construction, QA/QC, and cost estimating procedures for applying them • Draft performance specifications**	Iowa State University ($3.0M) Completion September 2011	James Bryant jbryant@nas.edu
Identifying and Reducing Worker, Inspector, and Manager Fatigue in Rapid Renewal (R03)	**Techniques to reduce worker fatigue • Strategies to incorporate fatigue-reducing practices into rapid renewal projects • Strategies for teaching the transportation community and leaders the importance of mitigating fatigue**	The Battelle Group ($1.0M) Completion March 2012	James Bryant jbryant@nas.edu
Innovative Bridge Designs for Rapid Renewal (R04)	**Training materials • AASHTO-formatted design and construction specifications • Design and analysis methods • Standard plans and plan details**	HNTB Inc. ($2.0M) Completion October 2011	Monica Starnes mstarnes@nas.edu
Modular Pavement Technology (R05)	**Draft model design procedures • Draft model specifications and construction guidelines • Long-term evaluation plan for modular pavements**	Fugro Consultants Inc. ($1.0M) Completion May 2011	James Bryant jbryant@nas.edu
A Plan for Developing High- Speed, Nondestructive Testing Procedures for both Design Evaluation and Construction Inspection (R06)	**Summary report of the state-of-the-practice and the state-of-the-art in nondestructive testing • Plan for research and development**	Texas Transportation Institute ($0.35M) Complete, Report published on www.TRB.org	Monica Starnes mstarnes@nas.edu
Nondestructive Testing to Identify Concrete Bridge Deck Deterioration (R06-A)	**Online library of NDT techniques and NDT testing protocols**	Rutgers, State University of New Jersey ($0.75M) Completion July 2011	Monica Starnes mstarnes@nas.edu
Evaluating Applications of Field Spectroscopy Devices to Fingerprint Commonly Used Construction Materials (R06-B)	**NDT draft procedures and protocols for field spectroscopy devices**	University of Connecticut ($0.4M) Completion January 2011	Monica Starnes mstarnes@nas.edu
Using Both Infrared and High-Speed Ground Penetrating Radar for Uniformity Measurements on New HMA Layers (R06-C)	**Field demonstrations in all AASHTO regions • Testing protocols •Training materials**	Texas Transportation Institute ($0.25M) Completion January 2011	Monica Starnes mstarnes@nas.edu
Nondestructive Testing to Identify Delaminations between HMA Layers (R06-D)	**Technical summaries of developed techniques**	National Center for Asphalt Technology ($0.6M) Completion July 2011	Monica Starnes mstarnes@nas.edu
Real-Time Smoothness Measurements on Portland Cement Concrete Pavements During Construction (R06-E)	**Draft model real-time smoothness specifications and guidelines • Documentation of field data and performance of existing devices**	The Transtec Group ($0.55M) Completion August 2011	James Bryant jbryant@nas.edu
Development of Continuous Deflection Device (R06-F)	**Documentation of performance of existing devices • Training materials and training manual to facilitate the technology transfer to users**	Virginia Tech Transportation Institute ($0.25M) Completion January 2011	Chuck Taylor ctaylor@nas.edu
NDT Techniques for Mapping Voids, Bonding, and Moisture Behind or Within Tunnel Linings (R06-G)	**NDT tool for mapping voids, bonding, and moisture behind or within tunnel linings • Test procedures and protocol**	Texas Transportation Institute ($1.65M) Completion March 2012	Monica Starnes mstarnes@nas.edu
Performance Specifications for Rapid Highway Renewal (R07)	**Prototype model standards and performance specifications for highway renewal • Guidelines for implementation of performance specifications • Electronic index of performance specifications**	Trauner Consulting Services Inc. ($3.0M) Completion February 2012	James Bryant jbryant@nas.edu
Risk Manual for Rapid Renewal Contracts (R09)	**Guide for implementing risk management processes for highway renewal • Training materials to help transportation agencies implement the risk management guide**	Golder Associates ($0.25M) Completion June 2010	James Bryant jbryant@nas.edu
Innovative Project Management Strategies for Complex Projects (R10)	**Guide to innovative management strategies for complex highway renewal projects • Case studies of strategies for complex projects • Training materials for implementing innovative management strategies**	Iowa State University ($1.25M) Completion March 2012	James Bryant jbryant@nas.edu
Strategic Approaches at the Corridor and Network Level to Minimize Disruption from the Renewal Process (R11)	**Recommended practices, methods, and dynamic tools for planning corridor and network-level renewal activities • Workshops • Training materials**	The Louis Berger Group ($1.50M) Completion March 2012	Monica Starnes mstarnes@nas.edu
Strategies for Integrating Utility and Transportation Agency Priorities in Renewal Projects (R15)	**Summary report on the causes of delay to highway renewal projects related to utilities • Plan for testing and evaluating innovative strategies**	ICF International ($0.25M) Project complete; Report published on www.TRB.org	Monica Starnes mstarnes@nas.edu
Identification of Utility Conflicts and Solutions (R15-B)	**Utility conflict matrix • Training materials and procedural manual • Guidelines for implementing successful practices**	Texas Transportation Institute ($0.3M) Completion May 2011	Chuck Taylor ctaylor@nas.edu
Railroad-DOT Institutional Mitigation Strategies (R16)	**Successful practices and benefits assessment • Model agreements for Railroad-DOT cooperation • Recommendations for streamlined permitting procedures • Strategies to mitigate institutional and policy issues**	Gordon Proctor & Associates Inc. ($0.4M) Project complete, Report in publication	Monica Starnes mstarnes@nas.edu
Bridges for Service Life beyond 100 Years: Innovative Systems, Subsystems, and Components (R19-A)	**AASHTO-formatted LRFD design and construction specifications, design and analysis methods • Design for Life Guide • Detailed examples for bridge systems, subsystems, and components that will achieve a bridge service life of 100+ years**	University of Nebraska at Lincoln ($2.0M) Completion December 2011	Monica Starnes mstarnes@nas.edu
Durable Bridges for Service Life beyond 100 Years: Service Limit State Design (R19-B)	**Framework for LRFD design and load rating specifications • Design and analysis methods**	Modjeski and Masters Inc. ($1.0M) Completion March 2012	Monica Starnes mstarnes@nas.edu
Composite Pavement Systems (R21)	**Draft design procedures, draft construction guidelines, QM procedures for composite pavement systems • Training materials to promote use of composite pavement systems**	Applied Research Associates Inc. ($4.0M) Completion September 2011	James Bryant jbryant@nas.edu
Using Existing Pavement in Place and Achieving Long Life (R23)	**Summary of pavement options for rapid renewal projects • Criteria on when each technique is advantageous • New and updated design guides • Recommended construction procedures and specifications**	Nichols Consulting Engineers ($1.0M) Completion October 2011	James Bryant jbryant@nas.ed
Preservation Approaches for High Traffic-Volume Roadways (R26)	**Preservation strategies for high traffic-volume roadways • Methodology for life-cycle approaches to preserving high traffic-volume roadways • Research needs**	Applied Pavement Technology Inc. ($0.25M) Project complete, Report and Guide in publication	James Bryant jbryant@nas.edu

Products of SHRP 2 Highway Safety Research

The products listed below, although individually significant, may be also viewed strategically. Collectively these products provide a uniquely rich and diverse data set with viewing, exploratory, data mining, and analysis tools for users. They include: Naturalistic driving study database from 6 sites • Roadway database for the 6 sites • Analytical methods for data from the naturalistic driving studies • Development and evaluation of surrogate measures for safety analysis and demonstration of their use • Analysis of high-priority safety issues using databases and identification of countermeasure implications • A site-based system for safety analysis of intersections and road segments • Database viewing software to facilitate use of the data.

Project (Number)	Products	Principal Contractor (Budget) Project Milestone	Staff Contact
Development of Analysis Methods using Existing Data (S01-A)	**Developed structural models of crash and near-crash events using naturalistic driving study data, from site-based video data, and from site-based Doppler shift data to illustrate that trajectory-based reconstruction of crash-related events is feasible using both vehicle-based and site-based data**	University of Minnesota ($0.3M) Project complete	Walter Diewald wdiewald@nas.edu
Development of Analysis Methods using Existing Data (S01-B)	**Structured modeling paradigms for naturalistic driving data**	Pennsylvania State University Transportation Institute ($0.3M) Project complete	Charles Fay cfay@nas.edu
Development of Analysis Methods using Existing Data (S01-C)	**Demonstrated that links can be drawn between variations in continuous driving behavior seen in normal driving through naturalistic driving databases and discrete crash events recorded in crash databases. The linkages depend on the existence of crash surrogates, which are expected to include variables in future naturalistic driving studies, including road departure crash risk**	University of Michigan Transportation Research Institute with Virginia Tech Transportation Institute ($0.3M) Project complete	Walter Diewald wdiewald@nas.edu
Development of Analysis Methods using Existing Data (S01-E)	**Research questions related to lane departure events • Analysis methods to evaluate lane departure risk • Lane departure crash surrogates**	Iowa State University Center for Transportation Research & Education ($0.3M) Project complete	Charles Fay cfay@nas.edu
Integration of Analysis Methods and Development of Analysis Plan (S02)	**A plan for analyzing the data collected in the naturalistic driving study**	University of Iowa ($0.5M) Project complete, Report in review	Kenneth Campbell kcampbell@nas.edu
Roadway Measurement System Evaluation (S03)	**An assessment of the state of the practice for mobile data collection of roadside and roadway characteristics and evaluation of commercial mobile data features related to safety analysis**	Applied Research Associates ($0.5M) Project completed, online report in review	Charles Fay cfay@nas.edu
Roadway Information Database Development and Technical Coordination and Quality Assurance of the Mobile Data Collection Project (S04A)	**A GIS database for SHRP 2 naturalistic driving sites, to include roadside and roadway characteristics and features important to SHRP 2's Safety Program • Overall technical coordination and quality control for mobile roadway data collection**	Iowa State Center for Transportation Research & Education ($1.0M) Completion December 2012	Charles Fay cfay@nas.edu
Mobile Data Collection (S04B)	**Roadside and roadway data collected at highway speeds in each of the naturalistic driving study sites**	TBD ($3.5 M) Expected RFP and RFQ release August 2010	Charles Fay cfay@nas.edu
Design of the In-Vehicle Driving Behavior and Crash Risk Study (S05)	**Design of large-scale, multi-site naturalistic driving study • Management plan for in-vehicle field study • Hardware and software for in-vehicle instrumentation • Technical specifications for hardware • Data reduction manual and data dictionary**	Virginia Tech Transportation Institute ($3.0M) Project completed, Report in publication	Kenneth Campbell kcampbell@nas.edu
Technical Coordination and Independent Quality Assurance for Field Study (S06)	**Overall technical coordination and quality control for the SHRP 2 naturalistic driving study • Design, production, and housing of the SHRP 2 Safety database • Participant recruitment • Report will describe the data collection phase**	Virginia Tech Transportation Institute ($6.2M) Project Start June 2009	Kenneth Campbell kcampbell@nas.edu
In-Vehicle Driving Behavior Field Study (S07A-F, multiple awards)	**Conduct of the naturalistic driving study, including installation of instrumentation in participant's vehicles and retrieving the recorded data**	Six sites selected for data collection: Tampa, FL; central Indiana; Durham, NC; Erie County, NY; central PA; and Seattle, WA ($16.5M)	Kenneth Campbell kcampbell@nas.edu
Analysis of Driving Behavior Field Study Data and Countermeasure Implications (multiple awards) (S08a-x)	**Execution of the analysis plan developed in project S02 to address the research questions**	TBD ($4.0M) RFP expected 2010	Kenneth Campbell kcampbell@nas.edu
Site-Based Video System Design and Development (S09)	**An automated video system for collecting vehicle trajectory and relative position at intersections and on road segments**	University of Michigan Transportation Research Institute ($1.0M) Completion June 2010	Walter Diewald wdiewald@nas.edu
Data Acquisition System (DAS) Procurement (S12)	**Procurement of in-vehicle data acquisition system for naturalistic driving studies**	Prototype suppliers selected ($10.0M) Delivery begins August 2010	Walter Diewald wdiewald@nas.edu

Products of SHRP 2 Travel Time Reliability Research

Reliability research is developing tools to help transportation agencies manage and operate highways so that travel times are consistent. These tools will help highway agencies: Organize to better address travel time reliability • Collect the right data and use new methods and tools to understand and improve travel time reliability • Understand driver behavior that causes nonrecurring congestion and travel time reliability problems • Communicate reliability-focused traveler information to motorists and other highway system users • Directly address travel time reliability in transportation planning, capital programming, roadway design, and project delivery • Discover new ideas and innovations that improve travel time reliability.

Project (Number)	Products	Principal Contractor (Budget) Project Milestone	Staff Contact
Integrating Business Processes to Improve Reliability (L01)	**Case studies and guide to using successful practices that integrate business processes to improve reliability**	Kimley-Horn and Associates Inc. ($0.4M) Project completed, Guide and report in publication.	David Plazak dplazak@nas.edu
Establishing Monitoring Programs for Travel Time Reliability (L02)	**Guidebook on data requirements, technologies, statistical techniques, data integration, and deployment models for travel time reliability monitoring programs**	North Carolina State University ($1.8M) Completion February 2012	William Hyman whyman@nas.edu
Analytic Procedures for Determining the Impacts of Reliability Mitigation Strategies (L03)	**Guidance, analytic procedures, and examples to determine the impacts on travel time reliability of strategies to mitigate nonrecurring congestion**	Cambridge Systematics Inc. ($1.75M) Project completed, Report in publication	William Hyman whyman@nas.edu
Incorporating Reliability Performance Measures in Planning and Operations Modeling Tools (L04)	**Guidance on how planning and traffic simulation models can be modified to incorporate reliability performance measures • Documented proof of concept on reliability performance measure adoption**	Delcan Inc. ($1.25M) Completion February 2012	William Hyman whyman@nas.edu
Incorporating Reliability Performance Measures into the Transportation Planning and Programming Processes (L05)	**Recommended procedures for linking countermeasures to reliability performance measures • Comparisons of analysis tradeoffs in capital vs. operating expenditures • Analysis results of how reliability performance measures can be built into the short-term programming process**	Cambridge Systematics Inc. ($1.5M) Completion March 2012	David Plazak dplazak@nas.edu
Institutional Architectures to Advance Operational Strategies (L06)	**Guidance on recommended organizational structures, both within and among agencies, to advance operational strategies**	PB Consult Inc. ($1.0M) Project completed, Guide and report in publication	William Hyman whyman@nas.edu
Evaluation of Costs and Effectiveness of Highway Design Features to Improve Travel Time Reliability (L07)	**Guidance on cost and effectiveness of design features related to reliability improvement • Design guidebook • Information distribution plan**	Midwest Research Institute ($2.75M) Completion December 2011	William Hyman whyman@nas.edu
Incorporation of Nonrecurring Congestion Factors into the Highway Capacity Manual Methods (L08)	**Methodologies for predicting: probability of nonrecurring congestion; impacts on speed and delay; and effectiveness of design and management strategies for reducing nonrecurring congestion • Draft of proposed new sections of the Highway Capacity Manual**	TBD ($.5M, Additional $1.5M pending approval) RFP July 2010	William Hyman whyman@nas.edu
Incorporation of Nonrecurring Congestion Factors into the AASHTO Policy on Geometric Design (L09)	**Guidance for incorporating nonrecurring congestion factors and design features into the AASHTO policy on geometric design**	TBD ($0.5M) July 2010 RFP, may be rescheduled pending outcomes of project L07	William Hyman whyman@nas.edu
Feasibility of Using In-Vehicle Video Data to Explore How to Modify Driver Behavior that Causes Nonrecurring Congestion (L10)	**Results of investigating existing in-vehicle video data sets to determine the feasibility of identifying and modifying driver behavior to reduce nonrecurring congestion**	Virginia Tech Transportation Institute ($0.3M) Project completion April 2010	William Hyman whyman@nas.edu
Feasibility of Using In-Vehicle Video Data to Explore How to Modify Driver Behavior that Causes Nonrecurring Congestion (L10a,b,c)	**Analyses of driver behavior and guidance on effective strategies to modify driver behavior that causes nonrecurring congestion**	TBD ($1.2M) RFP TBD based on results of L10	William Hyman whyman@nas.edu
Evaluating Alternative Operations Strategies to Improve Travel Time Reliability (L11)	**User requirements for travel time reliability • Corresponding performance measures and targets and imputations of the value of travel time reliability • Alternative futures and concepts of operations for the year 2035**	Kittelson & Associates ($1.0M) Completion March 2010	William Hyman whyman@nas.edu
Training and Certification of Traffic Incident Responders (L12)	**Checklist of responder actions, core competencies, proposed curriculum for traffic incident responders • Model framework for certification • Recommendations on course materials and delivery approach • Recommendations based on results of the pilot tests of the curriculum and certification process • Marketing plan for the training and certification process**	SAIC ($1.0M) Completion December 2010, Pilot tests of course materials and certification test conducted spring 2010	David Plazak dplazak@nas.edu
Requirements and Feasibility of a System for Archiving and Disseminating Data from SHRP 2 Reliability and Related Studies (L13)	**Alternative and recommended ways to archive reliability research input data and research results/outputs • Will determine follow-on work to design, develop, test, and populate the archive • Prototype archive using L03 data**	Weris Inc. ($0.4M) Completion April 2010	David Plazak dplazak@nas.edu
Design and Implement a System for Archiving and Disseminating Data from SHRP 2 Reliability and Related Studies (L13A)	**Web-based archive and user manual that provides access to SHRP 2 Reliability program data**	TBD ($1.0M) RFP July 2010, combined with L16 (12 months)	David Plazak dplazak@nas.edu
Effectiveness of Different Approaches to Disseminating Traveler Information on Travel Time Reliability (L14)	**Deployment guide for effectively delivering travel time reliability information to travelers • Recommendations on different approaches to disseminating travel information on travel time reliability**	Texas Transportation Institute ($1.0M) Completion August 2011	David Plazak dplazak@nas.edu
Reliability Innovations Deserving Exploratory Analysis (IDEA) (L15)	**Funding to test 5 to 10 innovative concepts with potential to improve travel time reliability**	TBD ($0.5M) Fifteen proposals in response to announcement	David Plazak dplazak@nas.edu
Assistance to Contractors to Archive their Data for Reliability (L16)	**On-site technical and financial assistance to archive data in conformance with specifications**	TBD ($0.35M) RFP July 2010, combined with L13A (18 months)	David Plazak dplazak@nas.edu
A Framework for Improving Travel Time Reliability (L17)	**A framework of strategic and tactical elements that integrate different approaches from the Reliability and related focus areas to improve travel time reliability**	TBD ($1.8M) RFP March 2010 (18 months)	David Plazak dplazak@nas.edu

Products of SHRP 2 Highway Capacity Research

Capacity research products are tools for systematically integrating environmental, economic, and community requirements into the analysis, planning, and design of new highway capacity. They include tools and resources for: Making collaborative decisions that reduce delays in the planning process • Estimating travel behavior and demand • Analyzing the economic impact of highways • Approaching highway projects from an ecological perspective that considers wetlands, endangered species, and greenhouse gases • Integrating freight into highway planning and design • Measuring highway impacts on communities • Determining thresholds and conditions for effective smart growth policies related to travel demand • Linking community visioning to transportation decision making and environmental protection • Operating highways efficiently. In the table, an asterisk indicates products integrated with and available through the website: transportationforcommunities.com (TCAPP), which functions as a framework for most Capacity research products.

Project (Number)	Products	Principal Contractor (Budget) Project Milestone	Staff Contact
A Framework for Collaborative Decision Making on Additions to Highway Capacity (C01)	**Comprehensive case studies. Collaborative decision guide on the web: Transportation for Communities – Advancing Projects through Partnerships (TCAPP)**	ICF Incorporated LLC ($2.6M) TCAPP (version 1.0) Delivered January 2010, Integration and refinement continue through 2012 Report and Case Studies in publication	Steve Andrle sandrle@nas.edu
System-Based Performance Measurement Framework for Highway Capacity Decision Making (C02)	**System-based performance measurement framework for highway capacity decision making in a web-based tool ***	Cambridge Systematics Inc. ($0.825M) Project complete, Report printed and available online at www.TRB.org	Steve Andrle sandrle@nas.edu
Interactions between Transportation Capacity, Economic Systems, and Land Use Merged with Integrating Economic Considerations in Project Development (C03)	**Practitioner's handbook • Knowledge-based web product with 100 before-and-after case studies on economic impact of highways (T-PICS)**	Economic Development Research Group Inc. ($2.1M) T-PICS 1.0 released January 2010, Completion December 2010	David Plazak dplazak@nas.edu
Improving Our Understanding of Highway Users and the Factors Affecting Travel Demand (emphasis on pricing and congestion) (C04)	**Specification for use of mathematical product in demand models • An integrated data base**	PB Americas Inc. ($1.0M) Completion June 2010	Steve Andrle sandrle@nas.edu
Understanding the Contribution of Operations, Technology, and Design to Meet Highway Capacity Needs (C05)	**Analysis tool for selecting management strategies to incorporate operations, technology, and design to address highway capacity needs • An integrated database**	Kittelson & Associates Inc. ($1.0M) Completion September 2010	Steve Andrle sandrle@nas.edu
Integrating Conservation, Highway Planning, and Environmental Permitting Using an Outcome-Based Ecosystem Approach (C06A)	**Business model, model program agreement • Guidelines document for integrating conservation, planning, and environmental permitting into an ecosystem approach • Invitational symposium***	URS Group ($0.7M) Completion March 2011	Steve Andrle sandrle@nas.edu
Development of an Ecological Assessment Process and Credits System for Enhancements to Highway Capacity (C06B)	**Web-based templates for ecological assessment and eco-system services crediting • Invitational symposium***	Oregon State University ($0.8M) Completion October 2010	Steve Andrle sandrle@nas.edu
Integrating SHRP 2 products into the Collaborative Decision-Making Process (C07). This project has been added to project C01.	**Programming of TCAPP and integrating other Capacity products into it • User interface tools to enhance web information access**	ICF Incorporated LLC ($1.65M + $0.25M from Reliability) Completion July 2012	Steve Andrle sandrle@nas.edu
Linking Community Visions and Highway Capacity Planning (C08)	**Web-based practitioner's guide and business case for visioning**	Cambridge Systematics Inc. ($0.8M) Draft web-based vision guide: T-VIC released March 2010, Completion July 2010	Dave Plazak dplazak@nas.edu
Incorporating Greenhouse Gas Emissions into the Collaborative Decision-Making Process (C09)	**Practitioner's handbook linking greenhouse gas analysis to TCAPP**	Parsons Brinckerhoff with Cambridge Systematics Inc. ($0.8M) Completion July 2010	Steve Andrle sandrle@nas.edu
Partnership to Develop an Integrated, Advanced Travel Demand Model and a Fine Grained, Time-Sensitive Network (C10A)	**Application software for a dynamic integrated highway travel demand model and simulation type network**	Resource Systems Group Inc. ($1.4M) Completion February 2012. Partnering with North Florida TPO, Jacksonville	Steve Andrle sandrle@nas.edu
Partnership to Develop an Integrated, Advanced Travel Demand Model and a Fine Grained, Time-Sensitive Network (C10B)	**Application software for a dynamic integrated highway and transit travel demand model and simulation type network • DynaST Network software released in open source format**	Cambridge Systematics Inc. ($2.6M) Completion February 2012. Partnering with SACOG, Sacramento, California	Steve Andrle sandrle@nas.edu
Development of Improved Economic Analysis Tools Based on Recommendations from project C03 (C11)	**Improved economic analysis tools based on C03 case studies**	TBD ($0.6M) Contract anticipated September 2010	Dave Plazak dplazak@nas.edu
The Effect of Public-Private Partnerships and Nontraditional Procurement Processes on Highway Planning, Environmental Review, and Collaborative Decision Making (C12)	**Guidebook for incorporating partnerships and private funding into TCAPP**	TBD ($0.3M) Contract anticipated September 2010	Steve Andrle sandrle@nas.edu
Integrating Freight Considerations into Collaborative Decision Making for Additions to Highway Capacity (C15)	**Strategies and methods for improved coordination of freight movements in transportation planning ***	RFP (TBD ($0.3M) March 2010	Dave Plazak dplazak@nas.edu
The Effect of Smart Growth Policies on Travel Demand (C16)	**Tool box and documentation to analyze the contribution of vehicle trip-reduction to "smart growth" in land management***	TBD ($0.425M) RFP July 2010	Dave Plazak dplazak@nas.edu
Pilot Test the Collaborative Decision-Making Framework with Three DOTS, Including a Self-Assessment Method (C18)	**Documented results of pilot tests with lessons learned and suggested refinements**	TBD ($1.25M) multiple awards Contract anticipated September 2010	Steve Andrle sandrle@nas.edu
Add Expedited-Schedule Case Studies to Collaborative Decision-Making Framework Data Base (C19)	**Case studies of expedited-schedule projects to be added to TCAPP**	Parametrics Inc. ($0.3M) RFP September 2010	Steve Andrle sandrle@nas.edu
Freight Demand Modeling and Data Improvement Strategic Plan (C20)	**Strategic "road map" for encouraging innovations and breakthrough research in freight travel demand modeling and data**	Gannett Fleming Inc. ($0.55M) Completion February 2011	Dave Plazak dplazak@nas.edu
Pilot Test the C06A and C06B Products: the Ecological Approach to Environmental Protection (C21)	**Documented results of pilot tests with lessons learned and suggested refinements**	TBD ($1.25M, multiple awards RFP July 2010	Steve Andrle sandrle@nas.edu
Decision Maker's Guide to the Collaborative Decision-Making Framework (C22)	**Guides for transportation agency and resource agency upper management and project managers on use and benefits of TCAPP**	TBD ($0.20M) RFP July 2010	Steve Andrle sandrle@nas.edu