SHRP2

STRATEGIC HIGHWAY RESEARCH PROGRAM

Accelerating solutions for highway safety, renewal, reliability, and capacity

SHRP 2 Safety
Making a Significant Improvement in Highway Safety

Update

For VTTI Human Factors Symposium
August 27, 2008

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

Strategic Highway Research Program 2

- Authorized in 2005 in SAFETEA-LU
- Administered by the Transportation Research Board
- $150 million; 7 year duration
- Focus areas:
  - Safety
  - Renewal
  - Reliability
  - Capacity

Governance

- **Oversight Committee**
  - Overall program responsibility
- **Technical Coordinating Committees**
  - One for each strategic focus area
  - Work plan development, research monitoring
- **Expert Task Groups**
  - One for each group of related contracts
  - RFP preparation, proposal review
  - Assistance TCC with review of deliverables

SHRP 2 Safety Focus Area

Goal: Greatly improve highway safety through increased knowledge of *driver behavior*

- How the driver interacts with and adapts to the vehicle, roadway characteristics, traffic environment, traffic controls, weather, etc.
- Differences in *crash risk* associated with these interactions
- Proposed countermeasures based on the findings

Funding: $43 million

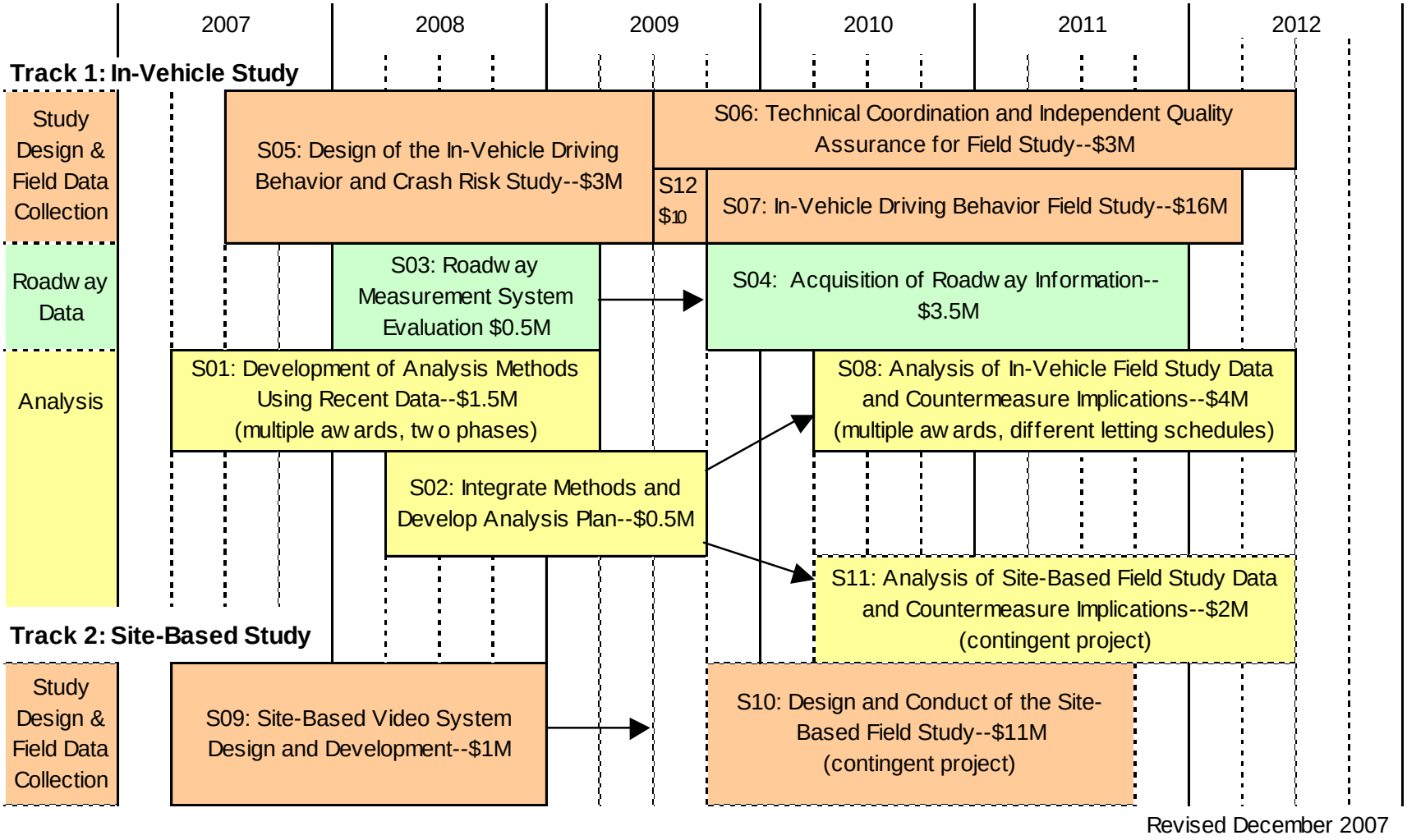
SHRP 2 Safety: Two Tracks

- Naturalistic Driving Study – Instrument vehicles of 4,000 volunteers, observe and record *driver behavior*, roadway, surrounding traffic, environment, etc.

  Separately collect and link roadway data.

- Site-based Risk Study – Instrument series of locations (intersections, curves) and observe and record *vehicle interactions* under different roadway, traffic, and traffic control/warning conditions

SHRP II Safety Projects Timeline



Revised December 2007

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Safety Projects

	Project	Cost	Advertise
S01	Analysis Methods	$1.5M	2006
S05	In-Vehicle Study Design	$3.0M	2006
S09	Site-Based Development	$1.0M	2006
S02	Analysis Integration	$0.5M	2007
S03	Roadway Evaluation	$0.5M	2007 (for S04)
S06	Technical Coordination	$3.0M	2008
S04	Roadway Data	$3.5M	2008 (S03 prequal)
S07	In-Vehicle Field Study	$16.0M	2008 (RFQ)
S08	In-Vehicle Analysis	$4.0M	2009
S12	Data Acquisition System	$10.0M	2009 (RFQQ)
	Total	$43M	

Status of Active Projects

S05: Study Design

S03: Roadway Data Evaluation

S01, S02: Analysis Methods and Integration

S09: Site-Based Technology

Active Project Status

S05: Design of In-Vehicle Study

Objective:

- Develop design for 2-year field study
- Develop complete data collection system
- Conduct field trial of system
- Produce management plan for the full study

Contractors:

- Virginia Tech Transportation Institute with
- U. Michigan Transportation Research Institute, Battelle

Status:

- Sample Design Interim Report December 2007
- Pilot Study Interim Design Report May 2008
- Pilot testing underway

Design Issues:
Drivers

- Age: 16-19; 20-34; 35-49; 50-64; 65-74; 75+
- Gender
- Annual mileage
- Socio-economic status
- Crash / Citation / Suspension History
- Medical conditions

Source VTTI

Design Issues:
Sites

- Availability of other data:
  - State and local safety and roadway data
  - NHTSA-collected Data
  - Highway Safety Information System
- Balance of site characteristics:
  - Regional Representation
  - Weather / Terrain Diversification
  - Urban / Rural / Suburban
  - Roadway Diversity
  - Socioeconomic diversity

Source VTTI

Design Issues: **Vehicles**

- Vehicle type: all light vehicles
  - Passenger
  - Van
  - SUV
  - Pick-up truck
- Vehicle network availability

Source VTTI

Active Project Status

S03: Roadway Measurement System Evaluation

Objective:

Select and measure roadway test site and conduct a roadway measurement system evaluation

Contractor:

Applied Research Associates with

Cambridge Systematics and KCI Technologies

Status:

Rodeo (evaluation) scheduled for September 14-20, 2008, in Fairfax, VA

Active Project Status

S01: Development of Analysis Methods

Objective: Identify and develop analytic methods for the SHRP 2 studies; carry out demonstrations of the methods using data from recent NDS

4 Contracts

1) University of Minnesota
2) Pennsylvania Transportation Institute
3) University of Michigan
4) Iowa State University with The University of Iowa

Status: Methods proposed in Phase I are currently being applied to data from previous studies carried out by others

Active Project Status

S02: Integration of Analysis Methods & Development of Analysis Plan

Objective:

Integrate the results of the S01 projects and produce an analysis plan for the SHRP 2 field studies

Contractor:

University of Iowa with Iowa State University, University of Minnesota, University of Montana

Status:

Nearly 400 research questions have been classified in various ways and grouped into 26 preliminary “global questions”

Active Project Status

S09: Site-Based Video System

Objective:

1) Develop portable, automated video system that provides exposure-based, surrogate measures of collision risk

2) Conduct field study to demonstrate relationship of surrogate measures to actual crash frequencies

Contractor:

University of Michigan Transportation Research Institute with

VTTI, Soar Technology. UC-Berkeley (PATH)

Status:

Phase 1 report received and under review.

Future Projects

S07: Site Data Collection

S06: Coordination and Quality Control

S12: Data Acquisition System

S04: Roadway Data Collection

S08: Analysis Projects

Future Project

S07: In-Vehicle Driving Behavior Field Study

Objective:

Conduct in-vehicle driving behavior field study data collection in 4-8 sites

Budget: $16,000,000 (total for multiple contracts)

Period: 30 months, anticipated start October 2009

Status: RFQ released July 29, responses due September 9

2-Step Process for Selecting S07 Data Collection Contractors

- Released July 2008: Request For Qualifications (RFQ) from potential data collection contractors. Due September 9.
  - Qualifications will cover contractor and general site characteristics
  - Must meet qualifications at this level to bid on Request for Proposals in 2009
- To be released by March 2009: Request for Proposals (RFP) from qualified contractors. Due date TBD.
  - Detailed cost proposals
  - Will know exactly which sites by then

S07 Contractor and Site Qualifications

- Contractor (individual):
  - Human participants research (IRB experience)
  - Staff (numbers, background, training)
  - Facilities
  - Vehicle instrumentation capability & knowledge
  - Project management and logistics expertise
  - Data gathering / storage / security / transfer
- Site (individual)
  - Data Availability: roadway, crash, driver, demographic
- Site (balance across suite of sites)
  - Rural/suburban/urban; socioeconomic diversity
  - Weather, terrain, roadway types and features

Future Project

S06: Technical Coordination and Independent Quality Assurance

Objective:

Provide technical coordination and independent quality assurance for the in-vehicle driving behavior field study (S04 and S07)

Budget: $3,000,000

Period: 36 months, anticipated start early 2009

Status: approved for award to VTTI

Future Project

S12: Data Acquisition System (DAS) purchase

Objective:

Purchase 2900 DAS for field study

Budget: $10,000,000

Anticipated start: January 2009

Status:

- Bidders conference September 15, 2008, in Washington, D.C.
- RFQ&Q soon thereafter

Future Project

S04: Acquisition of Roadway Data

Objective:

Collect roadway characteristics in the sites chosen for the in-vehicle driving behavior field study using roadway measurement system qualified in Project S03 rodeo

Budget: $3,500,000

Period: 27 months, anticipated start October 2009

Status:

- Successful completion of S03 evaluation rodeo (in September 2008) serves as pre-qualification
- Request for Quotation for S04 to be released in March 2009

Future Project

S08: Analysis of In-Vehicle Field Study Data and Countermeasure Implications

Objective:

Quantify contribution of driver, roadway, vehicle, environmental factors to selected research questions and assess countermeasure implications

Budget: $4,000,000 (total for multiple contracts)

Period: 27 months, anticipated start march 2010

Status: No activity on this project at this time; first anticipated RFP release July 2009

Implementation

- Report to Congress due February 1, 2009: identify products, users, incentives, barriers, methods, and costs of implementing the results of SHRP 2
- Safety products:
  - Unprecedented national resource of safety data
  - Analytical methods
  - Safety findings and countermeasure implications
- Implementation needs:
  - Support for data resource center
  - Training
  - Additional analysis
  - Countermeasure development

Things that need to happen in the next 6 months:

- Finish testing all aspects of field study
- Choose sites and qualified contractors to received S07 RFP
- Draft and release S07 RFP
- Identify manufacturer for DAS
- Get S06 under contract
- Identify qualified S04 roadway data collection contractor
- Submit implementation report to Congress