



Research Workshop

September 27, 2005

Columbia, SC

Final Summary Report

Prepared by:

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Introduction

The second South Carolina Department of Transportation (SCDOT) Research Workshop was held September 27, 2005 in Columbia, SC. The SCDOT contracted with the Transportation Technology Transfer Service (T³S) at Clemson University to provide the logistical and administrative support for the workshop.

This workshop, the second of its type conducted by the SCDOT, was intended to market the research program, to identify a wide array of potentially beneficial research topics, and to develop a prioritized list of possible research topics for consideration by the SCDOT Research and Development Executive Committee (RDEC).

Over 100 people, including representatives from the SCDOT, FHWA, USGS, academia, and industry, participated in the workshop. A list of all the workshop participants is shown in Appendix A.

Workshop Format

The workshop began with a plenary session of all participants during which the SCDOT provided an overview of its research program and discussed the purpose of the workshop. Each workshop participant then attended one of seven breakout sessions, each on a different subject area of potential research interest for the SCDOT. The seven breakout groups included:

- ❑ Construction/Materials
- ❑ Maintenance/Bridge Maintenance
- ❑ Traffic/Safety
- ❑ Design-Road/Bridge
- ❑ Project Development/Planning
- ❑ Business Operations
- ❑ Hydrology

A moderator from the SCDOT Office of Materials and Research was assigned to each breakout group. The moderators and participants for each breakout group are shown with the summary of each breakout session later in this report. The agenda for the workshop is shown in Exhibit 1.

Each moderator decided how he or she would conduct the individual breakout sessions. However, the general format for each breakout group was to begin by brainstorming potential research topics. The topics were then discussed to ensure that all participants understood what was intended by the proposed topic. Then, one or more voting techniques were used to identify and prioritize the most important topics.

SCDOT Research Workshop

**September 27, 2005
Columbia Conference Center**

8:30-9:00	<i>Lobby</i>	Registration
9:00-9:15	<i>Salon A&B</i>	Welcoming Remarks Tony Chapman, <i>State Highway Engineer</i> Milt Fletcher, <i>Materials and Research Engineer</i>
9:15-9:35	<i>Salon A&B</i>	Review of SCDOT Research Program Temple Short, <i>Research Assistant</i>
9:45-10:00	<i>Salon A&B</i>	Purpose of Workshop Terry Swygert, <i>Research Coordinator</i>
10:00-10:30	<i>Salon A&B</i>	Break
10:30-12:00	<i>Breakout Rooms</i>	Breakout Session I (<i>see breakout assignment sheets</i>)
12:00-1:00	<i>Salon C</i>	Lunch
1:00-2:30	<i>Breakout Rooms</i>	Breakout Session II (<i>see breakout assignment sheets</i>)
2:30-3:00	<i>Gallery</i>	Break
3:00-3:50	<i>Salon A&B</i>	Summary Reports from Moderators
3:50-4:00	<i>Salon A&B</i>	Closeout Mike Sanders, <i>Research Engineer</i>

Breakout Rooms (see map for locations)

Construction/Materials	<i>Salon A & B</i>
Design-Road/Bridge	<i>Classroom 1</i>
Traffic/Safety	<i>Classroom 2 & 3</i>
Project Development/Planning	<i>Classroom 4</i>
Business Operations	<i>Boardroom</i>
Hydrology	<i>Meeting Room 1</i>
Maintenance/Bridge Maintenance	<i>Meeting Room 2</i>

Exhibit 1. Workshop Agenda

Workshop Findings

Once the breakout sessions were completed, a final plenary session was held in which the moderators presented the highest priority topics from each breakout group. The prioritized projects that were presented by each moderator are shown in Table 1. Additional high priority topics are also included in the summaries of each breakout group later in the report.

Observations

The workshop appears to have been very successful. The workshop format worked well. The initial plenary session presentation by the Research Unit provided useful information and background for the participants before they began their breakout group activities.

T³S staff visited each of the breakout groups to observe how the process was working. Each of the groups identified a number of research topics through their brainstorming efforts. Each group was then able to develop a prioritized list for consideration by the SCDOT RDEC.

There appeared to be a good deal of interest in the results from the breakout groups. It is not unusual to lose a large percentage of the audience for the closing session of any workshop. However, a large number of the workshop participants remained to hear the breakout reports during the final plenary session. The high attendance indicates that the workshop participants were interested in hearing the priority research topics from the various breakout groups.

Summary of Breakout Group Findings

The following sections include a summary for each of the breakout groups. The summaries include the following:

- Moderator.
- Breakout group participants.
- Priority topics identified.
- All topics identified during the brainstorming session.

For some groups the results of priority voting, either initial multi-voting or final weighted voting, were available and are also indicated in the summaries. Some groups identified SCDOT contacts for each identified project, while others only listed contacts for the prioritized projects.

Table 1. Summary of Priority Topics Presented in the Closing Plenary Session

Topic	SCDOT Champion
Construction/Materials	
Improved Design Parameters for Borrow/Fill Material-Soil Behavior/Design and Stabilization Techniques	Nicholas Harman
Use of Contractor Testing in the Materials Acceptance Process-Validation of Data	Merrill Zwanka
Mechanical/Empirical Design Guide Implementation	Andrew Johnson
Synthesis of Emerging NDT Technology—PCC, HMA, etc.	Merrill Zwanka
Improved Efficiency of Use of Quarry Material-Balance, Optimizing Specs, etc.	Merrill Zwanka
Effective Utilization of Recycled Construction Materials	Andrew Johnson
Maintenance/Bridge Maintenance	
Optimal Crew Composition and Enhancement of Crew Productivity	Jim Feda
Develop Guidelines for Pavement Marking Applications	Jim Feda
Guidelines and Specifications for Pipe/Culvert Rehabilitation	Ed Eargle
Investigate Simplifying Bridge Expansion Joint Design and Maintenance	Curtis Brice
Structural Systems for Rapid Bridge Repair, Rehabilitation, and Construction	Ron Hutson
Cost-Benefit Analysis of Roadway Crack and Joint Sealants	Bryan Jones
Traffic/Safety	
Support for Roadside Improvements and Selected Clearing Using Hazard Index	Dick Jenkins
Evaluation of Communication Alternatives and Reliability of Applications	Rick Werts
Public Perception of Automated Enforcement for Speed, Red Light Running and Toll Collection	Terecia Wilson

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Table 1. (continued)

Topic	SCDOT Champion
Hydrology	
Regional Flood Frequency Update	Wayne Corley
Developing Capacity Curves for Grate Inlet Structures	Preston Helms
Implementation of Scour Monitoring Devices	Wayne Corley
Design–Road/Bridge	
Pile Cap Connections Related to Seismic Design	Lucero Mesa
Safety Study of Limiting Clear Zones to 30 Feet	Rob Bedenbaugh
Corrosion Protection of Bridge Reinforced Concrete	Barry Bowers
Project Development/Planning	
Illegal Encroachments-Current Process, Legalities, Enforcement	David Cook
Feasibility of SCDOT Purchase of Utility Corridors	Matt Lifsey
Effects of Limiting Left Turns on Property Values, Real Estate, Business	Rick Callahan/ Ken Feaster
Cost Effectiveness of Relocation of Utilities to Increase Roadside Safety	Brett Harrelson
Business Operations	
Establish Successful Mitigation Strategies for Management of Growth and Development to Offset Impacts	Ron Patton
Research and Identify Potential Funding Sources for Implementation of Stateside Van Pool/Commuter Bus Program	Glennith Johnson
Development of a Coordinated Plan to Utilize All Modes of Transportation For Evacuation During Natural Disasters or Declaration of Emergencies	Clem Watson
Investigate The Feasibility of Implementing a Statewide Commuter Benefits Program	Tom Johnson
Explore Potential Public/Private Ventures to Fund Transportation Infrastructure (Tolls)	John Walsh

Construction/Materials Breakout Session**Moderator:** Merrill Zwanka, SCDOT**Participants:**

Al Barwick	SCDOT
Bill Dubose	American Concrete Pavement Association
Ali Eliadorani	SC State University
Scott Fant	Carolinas Associated General Contractors
Milt Fletcher	SCDOT
Nicholas Harmon	SCDOT
Chad Hawkins	SCDOT
David Herndon	South Carolina Asphalt Pavement Association
Andy Johnson	SCDOT
Matt Jolliff	South Carolina Aggregate Producers
Tad Kitowicz	FHWA
Lee Neighbors	SCDOT
Charles Pierce	University of South Carolina
Brad Putman	Clemson University
Prasada Rangaraju	Clemson University
Danny Shealy	SCDOT
Ben Smith	Construction Resource Management -West
Travis Nelson	SCDOT
Dennis Townsend	SCDOT
Kevin Ulmer	SCDOT

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Construction/Materials Breakout Session (continued)**Priority Topics Identified:**

Topic	SCDOT Champion
1. Improved Design Parameters for Fill/Borrow Material - Soil Behavior/Design and Stabilization Techniques	Nicholas Harman
2. Use of Contractor Testing in the Materials Acceptance Process - Validation of Data	Merrill Zwanka
3. Mechanical/Empirical Design Guide Implementation	Andrew Johnson
4. Synthesis of Emerging NDT Technology (PCC, HMA, etc.)	Merrill Zwanka
5. Improved Efficiency of Use of Quarry Material (Balance, Optimizing Specifications)	Merrill Zwanka
6. Effective Utilization of Recycled Construction Materials	Andrew Johnson
7. Special Design/Construction Considerations of Low Volume Roads	Andrew Johnson
8. Emerging Technology for Compaction Measurement (HMA and Soil)	Andrew Johnson
9. Comparison of Standard Sized Concrete Cylinders to Reduced Size	Merrill Zwanka
10. Repair Strategies for Embankment Failures	Andrew Johnson

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Construction/Materials Breakout Session (continued)**All Topics Identified During Brainstorming:**

M-E Design Guide Implementation
SN Benefits of High Performance HMA
Emerging Technology for Compaction Measurement (HMA & Soil)
Gyratory Design Validation for HMA
Corrosion Protection for Bridges (75 Year Life)
Improved Design for Parameters for Fill/Borrow Material
Determination of Lime Content in HMA Post Construction
Benefit/Cost Analysis of Subsurface Utility Engineering (SUE)
Construction Vibration Effects on Nearby PCC Structures
Special Design/Construction Considerations of Low Volume Roads
Laboratory Evaluation of Warm-Mix Asphalt
Rapid Construction for Pre-Stress/Pre-Cast Bridge Construction
Improved Efficiency of Use of Quarry Material (Balance, Optimizing Specifications)
MSE Wall Design Optimization (Materials, Usage)
Best Practices for Cross-Slope Correction
RAP Utilization and Design Enhancement
Evaluation of RCC Mix and Pavement Design Parameters
Pervious Pavement Application/Design
Effective Utilization of Recycled Construction Materials
Use of Contractor Testing in the Materials Acceptance Process-Validation of Data
Emerging Technologies for Rapid Field Testing of PCC
Evaluation of Reflective Crack-Retardation Mitigation Techniques
Repair Strategies for Embankment Failures
Comparison of Standard Sized Concrete Cylinders to Reduced Size
Synthesis of Emerging PCC Mixtures (Polymers, Fiber, Supplies, Cement, Materials)
Synthesis of Emerging NDT Technology (PCC, HMA,etc.)

Maintenance/Bridge Maintenance Breakout Session

Moderator: Temple Short, SCDOT

Participants:

Curtis Brice	SCDOT
Phillip Brooks	SCDOT
Todd Cook	SCDOT
Ed Eargle	SCDOT
Charles Eleazer	SCDOT
Jim Feda	SCDOT
Lee Floyd	SCDOT
Bryan Jones	SCDOT
Jamie Kendall	SCDOT
Jo Ann Woodrum	SCDOT
Paul Ziehl	University of South Carolina
David Law	FHWA

Priority Topics Identified:

Topic	SCDOT Champion
1. Optimal Crew Composition and Enhancement of Crew Productivity	Jim Feda
2. Develop Guidelines for Pavement Marking Applications (Frequency, Cost, Types, Application Rates)	Jim Feda
3. Guidelines and Specs for Pipe/Culvert Rehabilitation	Ed Eargle
4. Investigate Simplifying Bridge Expansion Joint Design and Maintenance	Curtis Brice
5. Structural Systems for Rapid Bridge Repair, Rehabilitation, and Construction	Ron Hutson
6. Cost Benefit Analysis for Roadway Crack and Joint Sealants	Bryan Jones

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Maintenance/Bridge Maintenance Breakout Session (*continued*)**All Topics Identified During Brainstorming:**

Specification for Pipe Rehabilitation (Identify Rehabilitation Methods)

Buried Structure Evaluation (Latest Terminology)

Condition Based Maintenance Monitoring System (Site-specific Bridge Monitoring, Web Based, Long-term)

Structural Systems for Rapid Bridge Construction

Assessment of Techniques Intended to Increase Durability of Bridges

Fill Slope Rehabilitation/Repair (Identify Alternate Methods)

Simplify Bridge Expansion Joint Design and Maintenance

TCCC (Transportation Curriculum Coordination Council-Pooled Fund Study)

Policy for Traffic Control/Lane Closures for Maintenance Activities (Non-emergency)

Investigate the Effects of New Policies: Develop Committee and Standards for Analyzing Policy, Methods for Choosing Analysis Tool (LCCA, Benefit Cost, Etc.)

Investigate Ways of Improving Repair/Replacement Part Availability

Investigate Long Term Maintenance of MSEW (Corrosion of Straps)

Optimal Procedures for Winter Maintenance of OGFC

Study Needs of Older/Aging Drivers (Signs, Rest Areas)

Bridge Deck Analysis for Bridges 25+ Years (Emphasis on Construction Methods to Ensure Long-term Durability)

Cost Benefit Analysis of Roadway Crack and Joint Sealants

Analysis of SC Transportation Infrastructure and Needs

Pavement Markings Management System (Guidelines, Frequency, Optimization, Types)

Investigate the Benefit and Need for Portable/Detour Bridges (Costs, Re-use)

Optimal Maintenance Crew Composition and Enhancement of Crew Productivity

Enhancing Leadership Skills for Management Personnel

Implementation of FRP Materials to Increase Structural Capacity

Traffic/Safety Breakout Session

Moderator: Terry Swygert, SCDOT

Participants:

Kim Alexander	Clemson University
Bill Beck	SCDOT
Cyril Busbee	SCDOT
Mecit Cetin	University of South Carolina
Ronnie Chowdhury	Clemson University
Robert Clark	SCDOT
Tommy Elrod	SCDOT
Brett Harrelson	SCDOT
Kevin Harrington	FHWA
Dick Jenkins	SCDOT
Carol Jones	SCDOT
Ned Joye	SCDOT
Mark Lester	SCDOT
Andrew Nichols	University of South Carolina
Jennifer Ogle	Clemson University
Cole Page	SCDOT
Phillip Pidgeon	Clemson University
Rick Werts	SCDOT
Randy Williamson	SCDOT
Terecia Wilson	SCDOT

Traffic/Safety Breakout Session (continued)

Priority Topics Identified:

	SCDOT Champion
1. Support for Roadside Improvements and Selected Clearing Using Hazard Index	Dick Jenkins
2. Evaluation of Communication Alternatives and Reliability of Applications	Rick Werts
3. Public Perception of Automated Enforcement for Speed, Red Light Running and Toll Collections	Terecia Wilson
4t. Traffic Signal Optimization	Carol Jones
4t. Evaluation of Work Zone Projects with Highway Patrol	Terecia Wilson
6t. Posting Travel Time/Traffic Information on Dynamic Message Signs	Dick Jenkins
6t. Accuracy of Signal Timing Software	Carol Jones
8. Develop Training Course for Traffic Signal Equipment and Design	Carol Jones
9t. Evaluation of the Operational and Safety of Interchange Ramp Ramp	Terecia Wilson
9t. Adding a Fourth Cable to Low Tension Cable System	Ned Joye
11. Examine Collision Data Collection and Methods for any Improvements in Consistency/Accuracy	Brett Harrelson
12. Evaluation of Interstate/Freeway Towing Rotation Systems vs Time Based Towing Incentive	Dick Jenkins
13. Evaluating the Use of Officers at Signalized Locations and Their Effect on Efficiency and Safety	Brett Harrelson

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Traffic/Safety Breakout Session (*continued*)**All Topics Identified During Brainstorming:**

Accuracy of Signal Timing Software

Support for Roadside Improvements and Selected Clearing Using Hazard Index

Evacuation of Work Zone Project with Highway Patrol

Statewide Hispanic Road Users Assessment

Development and Pilot Test of an Online Version Targeting Youth Traffic Safety as well as the Workforce

Identifying Hazardous Locations (Holistic Data Approach)

Examine Collision Data Collection and Methods for any Improvement in Consistency/Accuracy

Evaluation of Communication Alternatives and Reliability of Applications

Develop Training Course for Traffic Signal Equipment and Design

Posting Travel Time/Traffic Information on Dynamic Message Signs

Evaluation of the Operational and Safety of Interchange Ramp Improvements

Work Zone Enforcement Using Automated Technology

Adding a Fourth Cable to Low Tension Cable System

Investigate Design of Rumble Strips that are User-Friendly to Cyclists

Nighttime Pedestrian Visibility-Educating Pedestrians and Motorists on Conspicuity Weigh In Motion Accuracy

Assess the Current SCDOT Data Bases for Compliance or Federal Requirements

Evaluation of Freeway Management System

Integration of Freeway and Arterial Management Systems

Public Perception or Automated Enforcement for Speed, Red Light Running, Toll Collection

Evaluating the Use of Officers at Signalized Locations and Their Effect on Efficiency and Safety

Assessing Interactions Between Roads and Wildlife as Related to Driver Safety (Evaluation of Critter Crossing)

Evaluation of Interstate/Freeway Towing Rotation System vs. Time Based Towing Incentive

Traffic Signal Optimization

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Traffic/Safety Breakout Session (*continued*)

All Topics Identified During Brainstorming (*continued*):

Retro-Reflectivity on Z-Lane Roads

Use of Simulators to Improve Safety

Look at New Ways to Manage School Traffic

Use of Traffic Simulation Models to Assess Safety

Bicycle Suitability Analysis Using FHWA Criteria and Video Log

Design–Road/Bridge Breakout Session

Moderator: Mike Lockman, SCDOT

Participants:

Bener Amado	SCDOT
Ray Amick	SCDOT
Ron Andrus	Clemson University
Rob Bedenbaugh	SCDOT
Lindy Hallman	SCDOT
Ron Hutson	SCDOT
Kendall Johnson	FHWA
Tim Lindberg	SCDOT
Douglas McClure	SCDOT
Lucero Mesa	SCDOT
Steve Page	Construction Resource Management-East
Depak Patel	SCDOT
Dimitris Rizos	University of South Carolina
Jeff Sizemore	SCDOT

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Design–Road/Bridge Breakout Session (*continued*)

Priority Topics Identified:

	SCDOT Champion
1. Pile Cap Connections Related to Seismic Performance-AGC/IND Input	Lucero Mesa
2. Safety Study of Limiting Clear Zones to 30 Feet	Rob Bedenbaugh
3. Corrosion Protection for Bridge Reinforced Concrete	Barry Bowers
4. Methods for Measuring Cross Slopes on High Volume Roadways	Tim Lindberg
5. High Speed Curb and Gutter	Dipak Patel
6. Structural Systems for Rapid Bridge Construction	Yassin Askar
7. Use of Materials for Bridge Strength Rehabilitation, Retrofit	Ron Hutson
8. User Volumes and Mode Shifts as a Result of Bicycle Networks	Tom Dodds
9. Geotech Database for Highway Bridge Design	Jeff Sizemore
10. Ultra High Performance Concrete using Nano Composite Technology	Benar Amado

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Design–Road Bridge Breakout Session (*continued*)**All Topics Identified During Brainstorming:**

Reducing Uncertainties in Geotech Design
LRFD for Bridge Foundation Design
Geotech Database for Highway Bridge Design
Corrosion Protection for Bridge Reinforced Concrete
Pile Cap Connections Related to Seismic Performance—AGC/Ind. Input
Develop Geotech Resistance Factors and Downdrag Load Factors for LRFD Foundation Strength Limit State Design
Liquefaction of Aged Soils in South Carolina
Structural Systems for Rapid Bridge Construction
Lightweight, Self-Consolidating Concrete for Structures
Enhanced Structural Monitoring of Bridges, WIM-cameras, Remote System, Web-Based
Bridge Deck Drainage Analysis Computer Program
Development of Appropriate Criteria for Design of Piles
Concrete Pile/Steel Pile Connections
High Speed Curb and Gutter
Guard Rail for Radius that Meets NCHRP 350
User Volumes and Mode Shifts as a Result of Bicycle Networks
Ultra High Performance Concrete Using Nano Composite Technology
Utilization of Signalization for Maintenance of Traffic at Bridge Replacements
Use of Materials for Bridge Strength, Rehabilitation, Retrofit
Review and Update of Current Corrosion Protection Policy
Precast Cap for Seismic Zones
Verify Procedure for Constructing Post-Grouted Drilled Shafts
Performance of Self Compacting Concrete - Seismic Phase II of Existing Project
Evaluation of Roundabouts in South Carolina
Evaluation of National Truck Network in South Carolina
Safety Study of Limiting Clear Zones to 30 Feet
Methods for Measuring Cross Slopes on High-Volume Roadways

Hydrology Breakout Session

Moderator: Mike Sanders, SCDOT

Participants:

Stephen Benedict	US Geological Survey
Catherine Blackwell	FHWA
Stan Bland	SCDOT
Hanif Chaudhry	University of South Carolina
Wayne Corley	SCDOT
Noel Hurley	US Geological Survey
Abdul Khan	Clemson University
Huley Shumpert	SCDOT
Charlie Smoak	SCDOT
Todd Steagall	SCDOT
Ray Vaughan	SCDOT

Priority Topics Identified:

Topic	SCDOT Champion
1. Regional Flood Frequency Update	Wayne Corley
2t. Developing Capacity Curves for Grate Inlet Structures	Preston Helms
2t. Implementation of Scour Monitoring Devices	Wayne Corley
4. Re-Evaluating Seeding Schedule	Ray Vaughan
5. Effectiveness of Bio-Retention Cells	Ray Vaughan
6. Bridge Pier and Abutment Scour in Cohesive Soils	Wayne Corley

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Hydrology Breakout Session (continued)**All Topics Identified During Brainstorming:**

Development of MS4 Permitting/Compliance Guide

Development of an Environmental Management System for the SCDOT

Regional Flood Frequency Update

Bridge Pier and Abutment Scour in Cohesive Soils

Developing Capacity Curves for Grate Inlet Structures

Theoretical versus Actual Inlet Capacities

Effectiveness of Bio-Retention Cells

Determination of Pollutant Loads in Highway Run-Off

Determination of Pollutant Accumulation in Detention Basins

Implementation of Scour Monitoring Devices

Non-Destructive Testing for Unknown Foundations

Development of GIS-Based Plan of Action for Scour Critical Bridges

Development of Risk Assessment of Unknown Foundations

Developing Regional Relations for Stream Characteristics to Assist in Stream Restoration

Development of Scour Assessment Tool using Field Data and Flood Analysis

Cost versus Impact of Three Sided Culverts

Assessment of Impact of Culverts/Structures on Wildlife

Verifying New Rainfall Patterns by Monitoring/Instrumenting Detention Ponds

Development of Hydraulic Guidelines for Reviewing and Approving Encroachment Permits

Evaluation of Cross-Slope on Multi-Lane Facilities (for Hydroplaning)

Re-Evaluation of Seeding Schedule

Project Development/Planning Breakout Session

Moderator: Melissa Campbell, SCDOT

Participants:

Lance Bell	Clemson University
Thad Brunson	SCDOT
Leland Colvin	SCDOT
David Cook	SCDOT
Anne Dunning	Clemson University
Ken Feaster	SCDOT
Liv Haselbach	University of South Carolina
Rocque Kneece	SCDOT
James London	Clemson University
Matt Lifsey	SCDOT
Ron Patton	SCDOT
Mark Pleasant	SCDOT
Roy Tolson	SCDOT

Priority Topics Identified:

	SCDOT Champion
1. Illegal Encroachments, Current Process, Legalities, Enforcement	David Cook
2. Feasibility of SCDOT Purchase of Utility Corridors	Matt Lifsey
3t. Effect of Limiting Left Turns on Property Values, Real Estate, Business	Rick Callaham, Ken Feaster
3t. Cost Effectiveness of Relocation of Utilities to Increase Roadside Safety	Brett Harrelson
5. Identify Alternative Funding Sources to Reduce Dependence on Gasoline User Fees	Michael Covington
6. Strategies to Limit Stormwater Encroachments	Charlie Smoak
7. Quantify Impact of Filling Wetlands (Relative to Environment, Other Stakeholders)	Berry Still
8. Passenger Rail Development Planning Coordination with Local Entities	Mark Pleasant

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Project Development/Planning Breakout Session (*continued*)

All Topics Identified During Brainstorming:

Illegal Encroachments, Current Process, Legalities, Enforcement

Feasibility of SCDOT Purchase of Utility Corridors

Effect of Limiting Left Turns on Property Values, Real Estate, Business

Cost Effectiveness of Relocation of Utilities to Increase Roadside Safety

Identify Alternative Funding Sources to Reduce Dependence on Gasoline User Fees

Strategies to Limit Stormwater Encroachments

Quantify Impact of Filling Wetlands (Relative to Environment, Other Stakeholders)

Passenger Rail Development Planning Coordination with Local Entities

Business Operations Breakout Session

Moderator: Patti Gambill, SCDOT

Participants:

Moses Ashford	SCDOT
Kevin Baker	SCDOT
Mo Denny	SCDOT
Susan Johnson	SCDOT
Glennith Johnson	SCDOT
Tom Johnson	SCDOT
Alex Nelson	SCDOT
Anna Salvagin	SCDOT

Priority Topics Identified:

	SCDOT Champion
1. Establish Successful Mitigation Strategies for Management Of Growth and Development to Offset Impacts	Ron Patton
2t. Research and Identify Potential Funding Sources for Implementation of a Statewide Van Pool/Commuter Bus Program	Glennith Johnson
2t. Development of a Coordinated Plan to Utilize All Modes of Transportation for Evacuation During Natural Disasters or Declarations of Emergencies	Clem Watson
4. Investigate The Feasibility of Implementing a Statewide Commuter Benefits Program	Tom Johnson
5. Explore Potential Public/Private Ventures to Fund Transportation Infrastructure (Tolls)	John Walsh
6t. Research the Feasibility of Establishing a High-Speed Rail Corridor Connecting Florence, Myrtle Beach, and Charleston Using Existing Rail	Tom Johnson
6t. Investigate Reasons for Lack of Participation by DBE's on Set-aside Projects	Alex Nelson
8. Development of Best Practices for Workforce Succession Planning	Rose Marie Simones

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Business Operations Breakout Session Continued

All Topics Identified During Brainstorming:

Investigate the Feasibility of Implementing a Statewide Commuter Benefits Program

Research the Feasibility of Establishing a High-speed Rail Corridor Connecting Florence, Myrtle Beach, and Charleston Using Existing Rail

Research and Identify Potential Funding Sources for Implementation of a Statewide Van Pool/Commuter Bus Program

Development of a Coordinated Plan to Utilize all Modes of Transportation for Evacuation During Natural Disasters or Declarations of Emergencies

Investigate Reasons for Lack of Participation by DBE's on Set-aside Projects

Development of Best Practices for Workforce Succession Planning

Explore Potential Public/Private Ventures to Fund Transportation Infrastructure (Tolls)

Establish Successful Mitigation Strategies for Management of Growth and Development to Offset Impacts

APPENDIX A: List of Workshop Participants

Representing	Last Name	First Name
American Concrete Pavement Assoc.-SE	Dubose	Bill
Associated General Contractors	Fant	Scott
Clemson University, Center for Safety Research and Education	Alexander	Kim
	Pidgeon	Phillip
Clemson University Civil Engineering Department	Andrus	Ron
	Bell	Lance
	Chowdhury	Ronnie
	Khan	Abdul
	Ogle	Jennifer
	Putman	Brad
Clemson University Department of Planning & Landscape Architecture	Rangaraju	Prasada
	Dunning	Anne
Clemson University Department of Planning & Landscape Architecture	London	James
Construction Resource Manager-East	Page	Steve
Construction Resource Manager-West	Smith	Ben
Federal Highway Administration	Blackwell	Catherine
	Harrington	Kevin
	Hinton	Dan
	Johnson	Kendall
	Kitowicz	Tad
	Law	David
South Carolina Aggregate Producers	Joliff	Matt
South Carolina State University	Eliadorani	Ali
South Carolina Department of Transportation	Amado	Bener
	Amick	Ray
	Ashford	Moses
	Baker	Kevin
	Barwick	Al
	Beck	Bill
	Bedenbaugh	Rob
	Bland	Stan
	Brice	Curtis
	Brooks	Phillip
	Brunson	Thad
	Busbee	Cyril
	Campbell	Melissa
	Chapman	Tony
	Clark	Robert
	Colvin	Leland
	Cook	Todd
	Cook	David
	Corley	Wayne
	Denny	Mo
Eargle	Ed	
Eleazer	Charles	
Elrod	Tommy	
Feaster	Ken	

Representing	Last Name	First Name
South Carolina Department of Transportation	Feda	Jim
	Fletcher	Milt
	Floyd	Lee
	Gambill	Patti
	Hallman	Lindy
	Harman	Nick
	Harrelson	Brett
	Hawkins	Chad
	Hutson	Ron
	Jenkins	Dick
	Johnson	Susan
	Johnson	Andrew
	Johnson	Tom
	Jones	Bryan
	Jones	Carol
	Joye	Ned
	Kendall	Jamie
	Kneece	Rocque
	Lester	Mark
	Lifsey	Matt
	Lindberg	Tim
	Lockman	Mike
	McClure	Doug
	Mesa	Lucero
	Neighbors	Lee
	Nelson	Alex
	Patel	Dipak
	Patton	Ron
	Pleasant	Mark
	Pratt	Robert
	Salvagin	Anna
	Sanders	Mike
	Shealy	Danny
	Sheppard	Tony
	Short	Temple
	Shumpert	Huley
	Sizemore	Jeff
	Smoak	Charlie
	Steagall	Todd
	Swygert	Terry
Tolson	Roy	
Townsend	Dennis	
Travis	Nelson	
Ulmer	Kevin	
Vaughan	Ray	
Walsh	John	
Werts	Richard	
Williamson	Randy	
Wilson	Terecia	
Woodrum	Jo Ann	

Representing	Last Name	First Name
	Zwanka	Merrill
South Carolina Asphalt Pavement Association	Herndon	David
University of South Carolina Civil & Envir. Engr. Dept.	Cetin	Mecit
	Chaudhry	Hanif
	Haselbach	Liv
	Nichols	Andrew
	Pierce	Charles
	Rizos	Dimitris
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