

LIST OF FY-2008 RESEARCH IDEAS

REFERENCE	IDEA TITLE	SUBMITTED BY	ORGANIZATION/AFFILIATION	INTERESTED FACULTY / STAFF
Planning and Environment				
8101	Quantitative Analysis of NCDOT Roadway Projects and Induced Development	L. Paugh, et al.	Project Development & Env. Analysis	
81X1	Quantifying the Impact of Roads on Stream Ecosystems: Identifying a Signal in a Noisy Environment	<i>Phil Harris</i>	<i>Project Development & Env. Analysis</i>	NCSU (Gilliam, Cakir, Lamphere)
81X2	Life History, Biology and Population Genetics of the Endangered Carolina Heelsplitter	<i>Phil Harris</i>	<i>Project Development & Env. Analysis</i>	NCSU (Levine, Eads, Raley)
81X3	Effect of Roundabouts and Traffic Calming on Real World Vehicle Activity, Fuel Use, and Emissions	<i>Mike Bruff</i>	<i>Transportation Planning</i>	NCSU (Frey, Roupail)
8201	Economic Impacts of Access Management	D. Wasserman	Transportation Planning	(1) ITRE (Foyle, Cunningham) & HSRC (Carter) (2) UNCC (Thill, Pulugurtha)
8202	Development of Traffic Data Input Resources for the Mechanistic-Empirical Pavement Design Process	K. Taylor	Transportation Planning	NCSU (Kim, List, Rasdorf, Stone)
8203	Effects of an Interstate Designation	D. Wasserman, K. Ivey	Transportation Planning & TESS	UNCC (Thill)
8204	Using Dynasim Computer Simulation Software with Applications to the NC Turnpike Authority Networks	M. Al-Ghandour	Program Development	(1) ECU (Kauffmann, Ozan) & UNCC (Sireli) (2) UNCC (Pulugurtha, Smith, Thill)
8205	Why Does a Project Cost-Estimation Overrun? Why is the Project Cost-Estimation Failing?	C. Leggett, M. Al-Ghandour	Program Development	(1) ECU (Kauffmann, Dixon, Howard) & UNCC (Sireli) (2) NCSU (Rasdorf, Hummer)
8206	Develop Performance Measures for Assessment of RPOs	T. Marshall, E. Zlotchenko	Transportation Planning	(1) ECSU (Bradshaw, Worthington, Adams, Boansi, Huff) (2) ITRE (Cook, Lawrie)
82X1	Measuring Accessibility of Bicycle Riders in NC: Searching for a More Sustainable Transport System	<i>Tom Norman</i>	<i>Bike-Ped</i>	UNCG (Sultana)
Pavement and Maintenance				
8301	Determining HMA Mix Design Methodologies for Predicting Fatigue Using Tensile Strength Testing	T. Whittington	Materials and Tests	NCSU (Khosla)
8302	Pavement Markings Performance Analysis	M. McDiarmid	Materials and Tests	(1) UNCC (Pulugurtha) (2) NCSU (Rasdorf, Hummer)
8303	Effect of the Use of Higher Percentages of RAP in NCDOT Hot Mix Asphalt	T. Whittington	Materials and Tests	NCSU (Khosla)
8304	Effect of Gradation on Predicted Performance of Aggregate Base Course	C. K. Su	Materials and Tests	NCSU (Evans, Tayebali)
8305	Management of Native and Non-Native Vegetation Along NC Roadsides	D. Harris	Roadside Environmental	NCSU (Richardson, Burton)
8306	Development of a New Chip Seal Mix Design Method	E. McGraw	State Road Maintenance	NCSU (Kim)
83X1	A Comprehensive Study of Non-Nuclear Density Gauges	<i>Cecil Jones</i>	<i>Materials and Tests</i>	NCSU (Khosla)
83X2	Method of Determining Cost of Overweight Loads to Pavement and Bridges	<i>Judith Corley-Lay</i>	<i>Pavement Management</i>	NCSU (Kim, Guddati, Kowalsky)
Structures and Construction				
8401	Evaluation of the Performance of Fusion Bonded Epoxy Coated Reinforcing Steel in NCDOT Bridges	D. Greene	Materials and Tests	(1) NCSU (Lim) (2) NCSU (Sumner, Seracino) (3) UNCC (Gergely, Chen) (4) NCSU (Johnston)
8402	Comparison of the Corrosion Resistance of MMFX Reinforcing Steel to the Corrosion Resistance of Fusion Bonded Epoxy Coated Reinforcing Steel	D. Greene	Materials and Tests	(1) NCSU (Lim) (2) NCSU (Rizkalla, Seracino)
8403	Develop Portable Equipment for Testing Scour Potential of Streambed	J. Beard	Hydraulics	WCU (Ford)
8404	Reducing Cut-Slope Erosion Through Prevention of Spring Sapping	R. Callaway	Geotechnical Engineering	UNCC (Warren, Anderson)
8405	Development of Undercut Criteria and Alternatives to Undercut for Subgrade Stability	K. J. Kim	Geotechnical Engineering	(1) NCSU (Gabr, Borden) (2) UNCC (Ogunro, Warren)
8406	Implementation of Micropiles for Bridge Foundations	J. Fargher	Geotechnical Engineering	(1) NCSU (Borden, Kowalsky, Gabr) (2) UNCC (Anderson, Chen)
84X1	Designing to Improve Construction Site Safety on NCDOT Projects	<i>R. Andrews</i>	<i>Safety & Loss Control</i>	ECU (Behm)
84X2	Seismic Hazard Assessment of the Highway 1 Corridor	<i>Njoroge Wainaina</i>	<i>Geotechnical Engineering</i>	UNCC (Eppes, Diemer, Bobyarchick)
84X3	Prediction of Peak Particle Velocities During Driven Pile Installation	<i>Njoroge Wainaina</i>	<i>Geotechnical Engineering</i>	NCSU (Gabr, Borden)
84X4	Strengthening of Reinforced Concrete Bridge Piers Without Ties	<i>John Emerson</i>	<i>Bridge Maintenance</i>	NCSU (Seracino, Rizkalla)
84X5	Repair of Deteriorated Concrete Bridge Piles in Coastal Environments	<i>John Emerson</i>	<i>Bridge Maintenance</i>	NCSU (Seracino, Rizkalla)
84X6	High-Strength Light-Weight Self-Consolidating Concrete	<i>Cecil Jones</i>	<i>Materials and Tests</i>	NCSU (Seracino, Zia, Rizkalla)
84X7	Computerized Tools for Rapid Assessment of Geotechnical Performance	<i>Njoroge Wainaina</i>	<i>Geotechnical Engineering</i>	NCSU (Evans)
84X8	A Comparison of Multi-Channel Seismic and GPR Techniques for Characterizations of Near-Surface Geotechnical Properties of Natural Earth Materials	<i>Njoroge Wainaina</i>	<i>Geotechnical Engineering</i>	UNCC (Bobyarchick)

Italics = NCDOT Customer

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Traffic and Safety				
8501	The Need for More Effective Size & Weight Enforcement Facilities & Methods in NC	T. Hopkins	Traffic Engineering & Safety Systems	ITRE (Hughes)
8502	Establishing Collaborative Efforts Between NCDOT and Motor Carrier Enforcement Personnel on Developing More Effective Enforcement Strategies for Reducing Fatal CMV-Involved Crashes on NC and US-Numbered Highways	T. Hopkins	Traffic Engineering & Safety Systems	(1) ITRE (Hughes) (2) UNCC (Pulugurtha)
8503	Reducing the Severity of CMV-Involved Crashes Through Increased NCSHP Focus on CMV Traffic (Speed) Enforcement	T. Hopkins	Traffic Engineering & Safety Systems	ITRE (Hughes) & HSRC (Srinivasan)
8504	Superstreets and Directional Crossovers: Operation and Safety Benefits	J. Dunlop	Congestion Management & Signing	NCSU (Hummer) & ITRE (Cunningham)
8505	Capacity and Safety Impacts of Single and Dual Lane Interchange Loop Ramps	N. Phillips	Congestion Management & Signing	NCSU (Hummer, Williams) & HSRC (Hunter)
8506	Identify and Evaluate the Traffic Safety Benefits of Various Sign Treatments Including Sign Sheeting, Fluorescent Flags or Panels	C. Bunting	Congestion Management & Signing	UNCC (Pulugurtha)
8507	Superstreet Capacities	D. Wasserman, L. Cove	Transportation Planning & TESS	NCSU (Hummer) & ITRE (Foyle)
8508	Roundabouts To Be or Not To Be: A Mobility Assessment	M. Al-Ghandour	Program Development	(1) NCSU (Williams, Roupail, Rasdorf) (2) UNCC (Pulugurtha)
8509	Pedestrian Operations at Single-Point Interchanges	J. Dunlop, T. Norman	Congestion Management & Bike-Ped	ITRE (Foyle, Cunningham)
8510	Injury, Illness, and Accident Analysis for Historical Trends and Development of Standard Reports	R. Andrews	Safety & Loss Control	(1) ECU (Behm, Batts) (2) NCA&T (Cho)
85X1	Comprehensive Evaluation of North Carolina Coastal Evacuation Plans	<i>Kelly Damron</i>	<i>ITS Opeations</i>	NCSU (Williams, Roupail)
85X2	Design and Simulation of a Smart Urban Intersection Traffic Control System	<i>Kevin Lacy</i>	<i>Traffic Engineering & Safety Systems</i>	NCA&T (Yu)
85X3	Evaluation of Four Shared-Use Paths to Identify Effective Design Treatments and User Safety Considerations	<i>Tom Norman</i>	<i>Bike-Ped</i>	ITRE (Cook, Meletiou, Lawrie, O'Brien)
85X4	Evaluation of Penetration on In-Service Cable Median Barriers by Full-Scale Finite Element Simulations	<i>Kevin Lacy</i>	<i>Traffic Engineering & Safety Systems</i>	UNCC (Fang)