

LIST OF FY-2006 RESEARCH IDEAS

<u>IDEA NO.</u>	<u>IDEA TITLE</u>	<u>SUBMITTED BY</u>	<u>AFFILIATION</u>	<u>PROPOSAL SUBMITTED BY</u>
Environment				
EN-01	Evaluation of Manufactured Stormwater Best Management Practices	M. Lauffer	Hydraulics Unit	(1) UNCC (Alan, Wu) (2) NCSU (Line, McLaughlin)
EN-02	Determination of the Causes of Increased NOx Emissions from the Use of Biodiesel in Heavy Equipment	B. Thompson, D. Harbinson	Equipment Unit	NCSU (Frey)
EN-03	Guidance for Defining the Appropriate Indirect and Cumulative Impacts Study Area for Road Widening Projects on Existing Location	R. Deaton, T. Gardiner	PDEA-Human Env.	UNC (Morton) + ITRE (Furney, Townsend)
EN-04	The Impact of Road Projects on Residential Property and Viability	T. Gardiner, S. Gurganus	PDEA-Human Env.	UNC (Morton, Song) + ITRE (Fain, Townsend)
EN-05	Hydrographs & Stream Alterations from Road Projects & Secondary Development	P. Todd	PDEA-Natural Env.	-----
EN-06	Benefits of Causeway Removal	P. Todd	PDEA-Natural Env.	-----
EN-07	Review Effectiveness of Bear Crossings on TIP No. A-10	P. Todd	PDEA-Natural Env.	NCSU (Lancia, Doerr)
EN-08	Aquatic Organism Passage Simulator	R. Little	Roadside Env. Unit	NCSU (Jennings)
EN-09	Functional Assessment for Culvert & Pipe Retrofits for Mitigation Credit	R. Little	Roadside Env. Unit	-----
EN-X1	Embankment Infiltration and Moisture Distribution	-----	-----	UNCC (Daniels)
EN-X2	Soil Erosion and Attenuation Capacity Maps for Stormwater BMPs	-----	-----	UNCC (Daniels, Anderson)
EN-X3	Mountain Visibility and Air Quality: The Impact of Severe Weather and a Direct Quantitative Measurement of Visibility			WCU (Sanger, Howell, Ford)
EN-X4	Integrating Roadway Vegetative Coverage with Highway Runoff Best Management Practices		-----	UNCC (Wu, Allan)

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Planning				
PL-01	Integrating IDAS into Transportation Planning	R. Fussell	Trans. Planning Branch	ITRE (Huntsinger, Roupail) + UNC (Khattak)
PL-02	Data Quality Assessment Framework for NCDOT Spatial Information System	A. R. Pradhan	GIS Unit	-----
PL-03	Determining Vehicle Miles (VMT) within City/Urban Areas	L. Smith	GIS Unit	(1) UNCC (Kane, Hilger) (2) ITRE (Furney, Huntsinger, Fain)
PL-04	The Effects of Hurricanes, Tornadoes and Snow on Air Quality	R. Crummey	Trans. Planning Branch	UNCW (Tagliarini, Blum)
PL-05	Transportation and Cost Impacts of School Locations and School Travel	T. Norman	Bicycle & Ped. Div.	(1) UNCC (Kane) (2) ITRE (Tsai, Cook)
PL-06	Real World Duty Cycles and Utilization for Construction Equipment in NC	J. Alavi	Trans. Planning Branch	NCSU (Frey, Rasdorf)
PL-07	Economic Development Benefit Based Trip Model	P. Black	UCP RPO	-----
PL-08	Future Activities & Programs for North Carolina's RPOs	D. Eggert	Cape Fear RPO	UNC (Morton) + ITRE (Cook, Lane, Lawrie)
PL-09	Economic Impact of Bypass Projects for Small Towns in NC	J. Alavi	Trans. Planning Branch	-----
PL-10	North Carolina Truck Network Models	L. Cove	Trans. Planning Branch	(1) NCA&T (Benjamin, Sakano) (2) NCSU (Stone)
PL-11	Economic Impacts of Access Management	D. Wasserman, J. Alavi	Trans. Planning Branch	NCSU (Hummer) + ITRE (Fain, Cunningham)
PL-X1	Understanding and Improving Rural Public Transportation Operating Statistics and Comparative Performance		-----	ITRE (Cook, Lawrie)
PL-X2	Development of LIDAR and GIS Methods for Mapping of Topography and Stream Networks in North Carolina		-----	NCSU (Gregory, Nelson)

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Operations				
OP-01	Impact of Road Construction on Water Quality in Coastal Plain Watersheds	B. Holman	Roadside Env. Unit	-----
OP-02	Signal Replacement	R. E. Moore	Div. 14-Operations	(1) NCSU (Hummer) + ITRE (Foyle) (2) UNCC (Kane) combined with OP-03
OP-03	Minimum Traffic Signal Spacing	R. Hawkins	Div.3-Traffic	NCSU (Williams, Roupail)
OP-04	Defining the Decision Zone at Traffic Signals in NC	R. Mullinax	Signals & Geom. Section	-----
OP-05	Effectiveness of Interagency Communication to Shorten Traffic Incidents and Secondary Crashes on Interstate Facilities	R. Stone	ITS Operations Unit	UNC (Khattak) + NCSU (Roupail) combined with OP-06
OP-06	Economic Impact of Traffic Incidents on NC Interstate Facilities	R. Stone	ITS Operations Unit	see OP-05
OP-07	Effectiveness of Traveler Information Tools	J. Oerter	ITS Operations Unit	NCSU (Williams) + UNC (Khattak)
OP-08	Crash Data Quality	K. Lacy	Traffic Eng. Branch	-----
OP-09	Evaluating the Safety Benefits of Closed-Loop Traffic Signal Systems in NC	S Lowry	Traffic Safety Section	NCSU (Hummer, Williams)
OP-10	Determining the Public Perception and Understanding of Diagrammatic and Exit Only Signing	R. King	Signing Unit	-----
OP-11	Safety and Cost to Perform Mowing Outside Guardrails with Little Shoulder Room	M. Patton	Div. 9-Maintenance	-----
OP-12	Effects of Signal Preemption on Signalized Closed Loop Systems	J. Couch	Div. 9-Traffic Operations	NCSU (Williams, Roupail)
OP-13	Using 'Wet-Blade' Technology for Brush Control Along NC Roadsides	D. Smith	Roadside Env. Unit	-----
OP-14	Capacity and Safety Impacts of Triple Left Turn Lanes	N. Phillips	Congestion Mgmt. Unit	NCSU (Hummer, Roupail) + HSRC (Srinivasan)
OP-15	Standard Lane Drops	N. Phillips	Congestion Mgmt. Unit	ITRE (Fain) + HSRC (Srinivasan)
OP-16	Determining Geographic Pedestrian/Bicycle Crash Emphasis Areas for TIP Projects	J. Jaeger	Traffic Safety Pl. Section	HSRC (Hunter) + ITRE (Meletiou)
OP-17	Incorporating a Comprehensive Traffic Safety Review in Transportation Plans	J. Jaeger	Traffic Safety Pl. Section	NCSU (Hummer) + ITRE (Huntsinger) + HSRC (Srinivasan)
OP-18	Ecologically Friendly and Safer Medians	W. Garner	Div. 8-Traffic	-----
OP-19	Internal Capture within a Multi- Use Development	T. Becher	Congestion Mgmt. Unit	-----
OP-20	Internal Capture within a Super Store Development	T. Becher	Congestion Mgmt. Unit	UNC (Khattak) + NCSU (Stone)
OP-21	Impact of School Buses Traveling on Interstate Facilities	N. Phillips	Congestion Mgmt. Unit	-----
OP-22	Capacity & Safety Impacts of Single & Dual Lane Interchange Loop Ramps	N. Phillips	Congestion Mgmt. Unit	NCSU (Hummer, Williams, Roupail) + HSRC (Hunter)
OP-23	Effectiveness of Truck Lane Use Restrictions	J. Button	Traffic Eng.-TRIAD	ITRE (Foyle, Cunningham) + HSRC (Srinivasan)
OP-24	Crash Reduction on Wet CRC Pavement	W. B. Staley	Traffic-Field Operations	-----

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Pavement and Materials				
PV-01	Reflective Cracking from Concrete Pavement	R. Blakley	Div 8-CMY Randolph Co.	NCSU (Kim)
PV-02	Quantifying the Benefits of Improved Rolling of Chip Seals	J. Corley-Lay	Pavement Mgmt. Unit	NCSU (Kim)
PV-03	Method of Determining Cost of Overweight Loads	J. Corley-Lay	Pavement Mgmt. Unit	NCSU (Kim, Guddati)
PV-04	Determination of an Appropriate Specification for Dowel Bar Alignment in PCC Pavement	J. Corley-Lay	Pavement Mgmt. Unit	-----
PV-05	Use of Recycled Glass Aggregates in Concrete	B. Ketchem, A. Azimi	Project Services Unit	(1) NCSU (Rizkalla, Zia) (2) WCU (Sanger, Summers) (3) UNCC (ogunro, Gergely)
PV-06	Performance Assessment of PADL & HB or B25.0B under Jointed Concrete Pavement	C. Morrison	Pavement Mgmt. Unit	-----
PV-07	Performance Based Analysis of Polymer Modified Emulsions in Bituminous Surface Treatments	E. McGraw	Road Maintenance Unit	NCSU (Kim)
PV-08	Using the Maturity Method to Predict Concrete Strength	O. Cordle	Materials & Tests Unit	(1) NCA&T (Picornell) (2) NCSU (Khosla)
PV-09	Validation of Gyrotory Compactor Angles in NC	T. Whittington	Materials & Tests Unit	NCSU (Khosla)
PV-10	Warm-Mixed Asphalt	T. Whittington	Materials & Tests Unit	NCSU (Tayebali)
PV-11	Compatibility Issues with Emulsions	T. Whittington	Materials & Tests Unit	NCSU (Tayebali)
PV-12	Implementation of Modulus Based Control of Field Compaction	C. K. Su	Materials & Tests Unit	(1) NCSU (Borden, Kim) (2) UNCC (Anderson, Daniels)
PV-13	Maintenance Condition Assessment Data Collection	J. Brandenburg	Road Maintenance Unit	ITRE (Foyle, Johnson)
PV-14	Updating and Automating Construction Aggregate Testing Process	M. Haeri, C. K. Su	Materials & Tests Unit	NCSU (Bernold)
PV-X1	Accelerated Pavement Testing for the Evaluation of Moisture Damage in Hot Mix Asphalt		-----	NCSU (Kim)
PV-X2	Geosynthetics Reinforcement as an Alternative for Lime Stabilization of Weak Subgrades		-----	NCSU (Gabr, Borden)
PV-X3	Implementation Plan for the New Mechanistic-Empirical Pavement Design Guide		-----	NCSU (Kim)

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Structures				
ST-01	Design Criteria for Post and Beam Bents with Drilled Shafts	G. Perfetti	Structures Design Unit	(1) NCSU (Kowalsky, Gabr) (2) UNCC (Boyajian, Anderson, Weggel)
ST-02	Lateral Flange Bending in Heavily Skewed Bridges	G. Perfetti	Structures Design Unit	NCSU (Sumner)
ST-03	Material Property and Quality Control Specifications for Elastomeric Concrete Used at Bridge Deck Joints	R. Hancock	Construction Unit	-----
ST-04	Value Engineering and Cost Effectiveness of Various FRP Repair Systems - Part II	J. Emerson	Bridge Maintenance Unit	NCSU (Rizkalla)
ST-05	Long Term Slope Stabilization Measures Along Large Fill Sections	J. Nance	Highway Division 5	-----