



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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GOVERNOR

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**North Carolina Board of Transportation
Environmental Planning and Policy Committee
Meeting Minutes for September 3, 2008**

A meeting of the Environmental Planning and Policy Committee (EPPC) was held September 3, 2008 at 8:30 AM in the Board Room (Room 150) of the Transportation Building. Nina Szlosberg chaired the meeting. Other Board of Transportation members that attended were:

Conrad Burrell	Nancy Dunn	Andrew Perkins
Bob Collier	G. R. Kindley	Lyndo Tippet
Marion Cowell	Arnold Lakey	Gus Tolloss
Tony Dennis	Cam McRae	

Other attendees included:

Julie Hunkins	Angela J. Person	Nina Szlosberg
Drew Harbinson	Mark Pierce	Greg Thorpe
Phil Harris	Neil Lassiter	Jerry Jennings
Donna Dancausse	Ricky Greene	Daniel Keel
Edward T. Parker	Whit Webb	Jennifer Garifo
Dan Thomas	Drew Joyner	Don Voelker
Amy Simes	Don Lee	Bob Andrews
Tim Johnson	Anne Tazewell	Chelsea Conover
Berry Jenkins	Berry Jenkins	Mike Mills
Tom Norman	Lacy Love	Richard W. Hancock
Mike Pettyjohn	M. L. Holder	Jay Swain
Joel Setzer	Chris Frey	John Sullivan

Ms. Szlosberg called the meeting to order at 8:30 AM and accepted a motion to approve the meeting minutes from the August committee meeting as presented. The minutes were approved.

Ms. Szlosberg began the meeting by introducing the co-chairs of the NC Interagency Leadership Team (ILT), John Sullivan from the Federal Highway Administration and Debbie Barbour of NCDOT, who provided an update on the ILT. The ILT has been meeting on a regular basis and its one of the initiatives under the Administration which is part of the effort to make sure all the agencies are coordinating together and talking at a pretty high level about where they want to

take the State. Ms. Szlosberg said that they would update the Committee on where they are on terms of using GIS to make better decisions.

The ILT is composed of eleven State and Federal agencies. Their mission is to develop an interagency plan for North Carolina to balance successfully mobility, natural and cultural resource protection, community values, and economic vitality at the confluence of their agency's missions. The goals are basically focused on three areas. The first goal is to develop a shared comprehensive geographic information system (GIS), which will help to have better information earlier in the process and to make better informed decisions which will save time and money. The second goal is the integration of local land use and long-range transportation planning, resulting in projects that meet mobility, economic, and environmental goals. This includes considering environmental features earlier and long range planning and linking the long-range planning process together with the project development and environmental review process. The third goal is the improvement of the Merger 01 process that they typically use for their major projects. Progress with these three goals will help facilitate the project development process.

Ms. Barbour reviewed some of the activities completed for Goal 1 (GIS). Requests for funding the development and maintenance of the data layers for a comprehensive GIS system were submitted a couple of times over the past several years. Unfortunately, the state agencies who requested these funds through their Expansion Budget requests have not received any funding to improve the data layers in GIS. Therefore, the ILT is prioritizing its needs to see if a reduced funding level can be secured and applied to those data layers that would most help the transportation and environmental decision-making process.

The ILT has also requested that a project specific review be conducted to determine potential time and cost savings that would result from the use of GIS during early project development. The thought is that knowing the potential cost and time savings might help create an even better business case for getting the GIS initiative funded. Currently in project development process, project planners use GIS data to basically develop the alternatives that they are considering for the project. They can possibly use GIS information to get to the point where they select an preferred alternative, thus saving time and money. This would cut out a lot of field work that may not be necessary for certain resources, if the GIS information is accurate and complete. This project review consisted of looking back at a project and doing a case study of what would happen if they used GIS during the early stages of project development. They selected a project that is to be let this December that has completed the planning and design process; they went back to look at the GIS mapping and compared it to the final impacts to determine how close they were.

Ms. Debbie Barbour introduced Mark Pierce from Project Development Eastern Region of Project Development and Environmental Analysis Branch to explain the project review and findings.

Mr. Mark Pierce explained the GIS case study for the Crescent Road project. He explained that GIS is technology that has been in the making for the past 25 years. For the project study, they conducted a forensic review on Crescent Road where they compared the GIS data with actual field delineations. This project consists of multiple lanes on new location from US 70 to NC 58

in Kinston in the vicinity of NC Global TransPark. They selected this project because it has multiple corridors, is a new location project, and will successfully advance through the Merger process. The purpose of the study was to validate the selection of alternatives and the Least Environmentally Damaging Practicable Alternative (LEDPA), determine the effectiveness of the evaluating corridor selection using GIS data, and determine if they would have saved time and money with the process using GIS data for corridor selection. They carried Alternatives 1,2,4,6 and 7 forward and dropped Alternatives 3 and 5 during that actual corridor selection process. They evaluated impacts with a one thousand-foot corridor and preliminary design plans. The data sources used were primarily GIS sources, national wetland inventory maps, Division of Coastal Management maps, NCDOT GIS files, USGS quad maps and Lenoir County GIS data files. The conclusion of the study was that although the Least Environmentally Damaging Practicable Alternative (LEDPA) is based on more than jurisdictional impacts, had they based it simply on GIS data, Alternatives 1, 6 and 7 would have been carried forward; this closely corresponds to what was actually done. If based simply on GIS data, Alternative 1 would have been selected as the Least Environmentally Damaging Practicable Alternative (LEDPA) because it generated fewer wetland impacts and second fewest stream impacts. What is gained if GIS data is used for corridor selection is it reduces the amount of time due to fewer delineations, surveys and regulatory verifications, and it reduces design time by eliminating the need to prepare quite a few preliminary designs for alternatives and reduces the overall cost of project development. There are ongoing activities for this the GIS pilot for the Carthage Bypass, and they are collecting a lot of data in the project development process to develop standards so the information collected will be useful and updated on GIS data layers.

Ms. Debbie Barbour then asked John Sullivan from the US Department of Transportation – Federal Highway Administration, who is co-chair of the ILT, to talk more about the progress of Goal 2 (Collaborative Planning).

Mr. Sullivan stated that the ILT has been updating their strategic plan and have been meeting more frequently during this year (on average every two months). Their strategic plan is now a working plan, with updates being made as progress is made on the goals and as new issues emerge that need their attention.

Goal 2 is the integration of planning with land use and economic development. The ILT is pushing the implementation of the new Comprehensive Transportation Planning (CTP) process and its integration with the environmental process required under National Environmental Policy Act (NEPA). They believe there are a lot of potential benefits to doing this. One is better land use planning and the second is better environmental decisions. A third benefit is more streamlined project delivery. Another major issue the ILT is working on is how to deal with climate change in planning. They are looking to partner with local communities to see how to come up with planning scenarios for adapting to the effects of sea level rise and storm surges. This idea is how to protect the infrastructure. Their plan is to work with different agencies and identify funding that would help us do planning with the local communities to see how they might come up with different planning scenarios to adapt to the effect of climate change.

Goal 3 focuses on streamlining project delivery, and in particular, improving the Merger process. Merger results in better environmental decisions. Things accomplished this year are the

established adoption of performance measures for the Merger process. They are also exploring how facilitation by a neutral third party may help improve the effectiveness of Merger meetings, especially with projects that could become controversial. They have chosen two state projects to pilot facilitation.

The Merger Implementation Team (now called the Merger Management Team) manages the Merger process by looking at the performance measures and identifying where they are having successes and problems. They then can build upon those successes or make adjustments to the process where it is not working well. They have also found that staff is beginning to elevate projects through the dispute resolution process, which is a good thing. This year three projects have been elevated and the Merger Management Team resolved the issues on two of those projects. The dispute never got to the Board because Management Merger Team resolved the issues, which is a big accomplishment.

Mr. Sullivan stated that all the goals work together. Goal 1, which is GIS, has a link to Goal 3, which is project delivery and Merger process. With the use of GIS, they hope to reduce the total elapsed time from Concurrence Point 1 to Concurrence Point 3. Implementation of CTP and its integration with project development will also have an affect on reducing the time between the start of the study in the project development process, Concurrence Point 1 and Concurrence Point 2. The role of the facilitator is not just to facilitate the meeting but to facilitate the resolution of the issue, which they believe is very important; this expedites the overall project delivery process. With the Merger Management Team in place, there is more active management over the process.

Mr. John Sullivan of NC Department of Transportation asked if there were any questions.

Ms. Nancy Dunn asked, “We did a resolution from the Board asking for appropriations for stream mapping. What is the number [amount of funding] that we are looking for”?

Ms. Barbour answered, “40 million dollars with the update and about 100 data layers, but there were various data layers, some of which would be more important from the NC Department of Transportation’s perspective and that is why we have gone in to prioritize those layers. If we get a portion of the funding we will need to decide what layers are more important for us to use to be able to advance transportation projects. We went a lower or lesser two million dollar funding request this year that would have been used to update some to the cultural resources historic properties and use a portion on the GIS pilot project; but, unfortunately, we did not receive any funds allocated.

Ms. Dunn asks, “Is that the entire cost for the GIS which would also benefit other agencies as well? Has there been any funding by any of the other agencies for any part of this”?

Mr. Sullivan answered, “There are some agencies, such as DENR, that are actively pursuing mapping. What this additional money will do is help accelerate that mapping for them. For the two million dollars, the more challenging data layers are cultural resources. For instance, like the Carthage Bypass, the information they have is from 1999, and there is a threshold of 50 years when property or a structure can become eligible for National Register, so the Carthage Bypass

has a gap of almost 10 years, so we have to go back and do studies. A lot of the funding requirements would be for wetlands, streams, cultural resources and historic sites. Instead of looking at every data layer, we are prioritizing what effect would this data layer have on transportation planning decisions and Merger decisions. We have a high, medium and low priority of data layers.”

Ms. Dunn asked a question directed to the Board, “Given what you have now documented as savings and process, if you have GIS data, how can we not fund this -- not necessarily all of the funding coming from us [NCDOT] but try to bring the other agencies into the loop, too, and get this done”? A few years ago a package was brought to the Board of 40 million dollars for reviewing and upgrading the signal system throughout the state. The presentation that was made showed very clearly that there would quickly be more than payback on the investment and the board agreed. I don’t understand why we are not saying that for the GIS.”

Ms. Szlosberg asked, “When your team did the pilot project, how did you get the GIS information if it is not there to do the forensic study”?

Ms. Barbour answered, “We basically used the GIS information that was there to quickly determine how accurate was that initial look versus a final permit application, which was on the delineated wetlands. We just used the existing data.”

Ms. Szlosberg asked, “How much did it save on that particular project”?

Ms. Barbour answered, “It would have saved about 400,000 dollars. The project went through our normal project development process where we basically use just GIS mapping to get to the identification of the alternatives. At that point, we go send our biologist to field delineate wetlands and streams in the corridors. With the use of GIS mapping, we are not doing that except on the chosen alternatives.”

Mr. Sullivan continued, “There is a lot to be learned about using GIS in this process. The different groups or agencies have different perceptions on how accurate this information has to be. We are trying to bring everyone together with the pilot projects to figure out if the information we have will be enough.”

Ms. Dunn asked, “Is it premature to think in terms of going ahead and funding and expediting the process”?

Mr. Sullivan answered, “What our past has shown is that we ask for money and we are not getting any. We are building a business case on how much we can save and then we are trying to define what our funding request would be and, if we did get money, what would be our priorities in how we would use that money with the GIS study.”

Ms. Dunn asked, “Who is that funding request going to and what is the process of getting that approved?”

Ms. Barbour answered, “The Governor has expanded the budget and we have made the two requests, and we did include in the business case the time savings and the dollars. All the agencies have put in how much they figure they will save with the expanded use of GIS. Ms. Julie Hunkins, NCDOT, who helped put together the business case, added, “We estimated that there would be about 50 million dollars cost savings per year just for transportation project alone if we have full GIS data layers available, up to date and maintained across the state with about 40 to 45 million dollar investment initial over about a five year period of time, plus about 4.5 to 4.7 million dollars per year to maintain those data layers.”

Ms. Dunn asked, “What if there is not an expansion budget. Is there no source of funding that we can go to”?

Mr. Sullivan answered, “One thing we have done if we have multiple projects in the area is use the money from preliminary engineering to advance some of the acquisitions data layers in that area. We did receive money from Federal Highway [Administration] to advance the NC Conservation tool that DENR is using to map strategic habitat.” He continued, “We are looking for other sources of funds but it’s not going to be obtainable to the total funding needs.

Ms. Dunn continued, “Even with the total funding needs, we could recoup in a single year with saving on transportation projects alone.”

Ms Barbour continued, “That is based primarily on us being able to get to a selected alternative without the very little fear with delineations.”

Mr. Perkins stated, “It would be about 2.7 million dollars per division to fund the whole program”.

Ms. Dunn stated that she would “gladly give 2.7 million to the project” and would like to see the committee or subcommittee (or whomever appropriate) to come together to develop some kind of funding strategy and get serious about getting this done. She stated, “I feel that we look absolutely ridiculous to tax payers not funding this project given the rate of return.”

Mr. Perkins asked, “Is the 50 million dollars a year based upon the TIP analysis that was extrapolated from the pilot?”

Ms. Barbour answered, “It was very much extrapolated and based on some key assumptions, but it does not take into consideration other benefits that other state and federal agencies have as well as local governments and the public and private sector”.

Ms. Dunn asked, “What would be the best way to proceed with the project”?

Ms. Barbour stated, “You say that this decision is ours, but I am not really sure that this Board has participated in the real funding discussion dealing with GIS.” She suggested that a small group of two to three people to try and come up with a strategy. She asked to hear from other Board Members.

Mr. McRae stated, “There are two issues. First of all, this is the first time we have heard of the cost being \$2.5 million per division. I think the business trends have not gone far enough to recognize what the other benefits are to the other stakeholders in the process and, therefore, you need to be able to extend it to that position so we can be able to get a more collaborative support for local funding. In the market that we have now, 2.5 million dollars per division is a substantial amount of money.” He suggested that the ILT take a look at the benefits further and solicit the stakeholders to support the funding going forth for a future budgetary meeting.

Ms. Barbour stated, “Part of the funding strategy discussion is what is needed to bring the other agencies in and when Nina throws the number out, I don’t think any of us have any realization whether it is coming solely from the division. But if you say to the agencies that DOT will put up 50 percent of the money, if you guys will kick in the rest and take a leadership position on the funding, then I can’t imagine that the other agencies feel like they can take it on without significant DOT participation. I agree that we need to continue building the business model, but we need some resources just to get the business model built.”

Mr. McRae asked if you have an expedient increase of special habitat, you have to go out and do the ground truthing. He continued, “The question is, is the same history to get to the alternative equal to or less than where you are taking it to that so called jurisdictional impacts? Let’s say you have a drought where you have done the GIS study for several years and the impact goes substantially less, do you care whether or not you have a water source that will help to be able to get available water to be able to determine the impact? You will have an immediate following with the constituents, which is our citizens, saying we have a problem because today I have 50 acres [of wetlands], but the last time you did this I had 120 acres, which creates issues”.

Ms. Barbour responded, “The Corps [of Engineers] has cautioned us and reminded us of the risks we are taking in proceeding with GIS, which is why we wanted to go through these three case studies on projects to see what the results are. Again, the biggest benefit for the Department of Transportation is that we can reduce the amount of our full delineation and preliminary designs that we do on all these alternatives. We felt that in choosing the case study projects the western part of the state we had good stream mapping, the Crescent Road project we have good wetland mapping, and in the Carthage area, we don’t have as many wetlands impact but we have the historical impacts. We tried to get a candidate project from each region of the state to review what will happen and will be getting to what we hope to do, which is a selection of an alternative without an extensive field delineation and associated time. We have been alerted by the court that we do run the risk, so we are taking precautions and working with the agencies to try and determine what level of detail we need to go into”.

Mr. McRae stated, that it “is part of the educational process because even if we are doing detailed, full delineations survey, we are only doing it once, so we are running into the same issue as if we are using GIS on the survey once. If we send another delineation survey crew out, they may have a different boundary. There are certain levels of variability with delineation and add to that the variability in surveying.”

Mr. Kindley asked, “I don’t know what the sense of urgency is on reaching a final proposal and bringing it before the Board, but this isn’t the typical recommendation that we bring as a

Committee to the Board. It is feasible to have something like we are going to do later this morning or a joint committee meeting to bring everyone else up to speed because it is a 50 million dollar expenditure”?

Secretary Tippet stated, “The GIS submission started some 5 years ago and merely composed of Secretaries Fain [Commerce] and Ross of DENR, and as of the last meeting, the project has grown from a few layers.” He continued. “It is not a matter of committing a few million dollars. It involves General Fund money, hence, [it involves] the Governor’s Office, Policy Office and Budget Offices involved with the other budget considerations. So it’s been quite a bit of work and it is in a desirable state to move forward as rapidly as possible.”

Ms. Szlosberg asked, “Does it have to come from the General Fund or could it not be a coalition of the agencies who make that decision”?

Mr. Tippet answered, “Since the other agencies are drawing from the information, I presume it does, but not sure if it has to. It is the agencies who make that decision, but they are funded by the General Fund”.

Ms. Szlosberg stated, “ I wonder if we could ask for an executive briefing on what 20 million or what layers that are most important in order to expedite and get the cost saving for DOT and then what would that cost. She asked the Interagency Leadership Team to consider doing that and get back with the Board with what the DOT can contribute that would have the most savings for the agency.”

Ms. Szlosberg thanked the Board and the Committee for the informative information. Next on the agenda were the results of some research that the agency has done in cooperation with NC State University on the reduction of admissions generated by the use of biodiesel.

Ms. Szlosberg introduced Drew Harbinson, Director of NCDOT’s Equipment Unit. As part of his responsibility, Mr. Harbinson manages 111 fuel sites. NCDOT is one of the largest consumers of fuel in the state. We have used around 10 to 11 million gallons of diesel this year and the same amount of gasoline. In the 1990’s they began experimenting with alternative fuels, and biodiesel was one that was looked at and has been a leader in that area every since. Four years ago, the legislature mandated that a reduction be made in the use of petroleum products by twenty percent, and one way of doing that was with biodiesel. They have converted statewide to using B20. One of the problems that they had early on, according to one of the National Environmental Policy groups, was the concern about the use of biodiesel and its relationship to a NOx level increase. They began to look at that issue and all the studies they could find on it, and they learned that all the studies were done in a laboratory environment. They wanted to find out exactly what was going on “in the street” with the use of biodiesel. They contracted with Dr. Chris Frey of North Carolina State to conduct a study of on-road equipment and off-road equipment. In each case they began to look at real world duty cycles to determine whether or not the least previous research was accurate.

Mr. Harbinson introduced Dr. Chris Frey from North Carolina State.

The goal of the study was to get real world data and not laboratory data, so they did measurements on the vehicles while they were operated by Department of Transportation operators under DOT task, real world duty cycles in real word conditions. They simultaneously measured the real world in-use omissions along with the activities of the vehicle and compared the ignitions from the B20 versus the petroleum diesel. Ozone is one of the most severe air quality problems in the United States, so it's undesirable to see an increase in NOx emissions. There is a two to three percent increase in NOx, and that has been a significant policy barrier or at least a barrier to the use of biodiesel. There are substantial reductions in particulate matter, carbon monoxide and hydrocarbon emissions, so there are a lot of benefits to biodiesel. They questioned whether the NOx increase was subject to availability and if it was different if you measure it in the field than in the lab. One of the studies was on twelve dump trucks of different sizes and engine certifications and was able to test older standards versus newer standards. They used a portable device resembling a suit case that contained several gas analyzers, particle analyzer, a global positioning system and instrumentation to measure the engine itself and some other data.

They installed sensors on the dump trucks and they can be measured while on the road. In the study, the dump trucks operated at sites across Wake County primarily, and in some of the adjacent counties. In addition to the on-road vehicles, they tested a number of off-road and non-road vehicles like backhoes, front-end loaders and motor graders and tested several with different engine certification standards. The tests were performed in Divisions 4 and 5. They tested a total of 15 construction vehicles and, on average, the NOx omissions didn't change much, but there was a slight decrease in emissions. The reason they believe this may be different from the EPA engine dynamometer database is that they tested under real world duty cycles and not standardized laboratory test schedules. There is also growing evidence that fuel quality makes a difference with B20, and DOT purchases fuel to its strict specification; hence, they think the fuel quality is also an important factor. They saw substantial reductions on the order of 18 to 26 percent in emission of particulate matter, hydrocarbons and carbon monoxide. One of the things that they can do with their data is apply emission factors from the test vehicle to predict what's going on with DOT's non-road equipment fleet. If they used B20 extensively instead of petroleum diesel, the overall reductions would be 17 to 24 percent for particulate matter, carbon monoxide and hydrocarbons. They also looked at replacing older vehicles like backhoes, front end liners and motor graders with the new Tier 2 certified engines rather than Tier 0 or Tier 1, which are the older vehicles. They feel that the study was significant.

Dr. Chris Frey in conclusion turned the meeting back over to Nina Szlosberg.

Ms. Szlosberg stated that she values the research and effort put forth and was proud to see the Department taking advantage of the aggressive research program. She reminded everyone that we obviously all want to get in the business of reducing our dependence on foreign oil and promote the new energy economy in North Carolina, and that has to do with the promotion of advanced biofuels. She stated that as a Department purchasing so much fuel, we can play a huge role in the creation of a lot of new jobs, particularly in Eastern North Carolina. Ms. Szlosberg asked if there were any questions on biodiesel.

Ms. Szlosberg mentioned an issue that she would like brought before the Board dealing with E85 fuel. The State fleet has a bunch of cars that could use Ethanol 85. There are biodiesel and

ethanol plants in the state and she would like to make sure they are successful. If at least 100 E-85 tanks were made available for state vehicle use, it would cost around 2 million dollars, which is not a huge amount for the whole state. Ms. Szlosberg stated that the Committee would take this up at a future meeting.

Seeing no further questions, Ms. Szlosberg adjourned the meeting at 9:35 A.M.

The next meeting of the Environmental Planning and Policy Committee is scheduled for Wednesday, October 1, 2008 at 8:30 AM in the Board Room (Room 150) of the Transportation Building.

AJP/jh