North Carolina Department of Transportation

Strategic Prioritization Process

August 26, 2009

Strategic Prioritization Process

- ***Efforts Since June 17, 2009 Workshop and Today's Messages***
  - ***Additional Web-based Training***
  - ***Additional Workshop/Webinar***
  - ***Comments/Responses since June 17***
  - ***Overarching Themes To Prioritization***
  - ***Factors to Consider when Ranking Top 25 Projects***
  - ***Scoring Matrix for Highway Projects***
  - ***Defined Multi-modal projects***
  - ***Scoring Multi-modal highway projects***
  - ***Final Implementation Schedule (no change since July 9 e-mail)***

- **Additional Web-based Training**
  - Four training sessions will be held at New Hope Center in Raleigh:
    - ◊ September 14 from 9 – 11 am and 1 to 3 pm
    - ◊ September 15 from 9 – 11 am and 1 to 2 pm
  - Intended for the person in your organization who will be entering projects and associated rankings.
  - Contact David Wasserman at dswasserman@ncdot.gov to sign up for one of the sessions (even if you/they have previously signed up).
  - Due to the limited number of slots (only 12 per session), only one person will be allowed to sign up from each organization.

- **Today's Additional Workshop/Webinar**

Comments Since June 17 Webinar

- Comments grouped by subject area:
  - Multimodal scoring
  - Unequal ranking issues
  - Funding related
  - General comments

COMMENT # 1 ***(Multimodal Related)***	**RESPONSE**
Determine best approach for balancing all issues associated with scoring projects for multimodal features. Example: -some bus-turnouts are not being used because buses are unable to merge into traffic. -Highway projects that include shelters, pads and pedestrian crossings should receive points. Consider a high, medium, or low point value for specific design features. Example: ❋Improved access for one additional mode would receive 5 points ❋10 points for improvements to 2 additional modes ❋15 points for improvements to 3 additional modes or a direct connection to a terminal	The Department realizes that many of the "multi-modal" features, like bus pullouts, sidewalks, bike lanes, bus shelters, etc., are not incorporated into projects until the design phase. It may be premature to give points to projects when those features will not be incorporated into the actual design. This is a prioritization process which ranks projects based on identified needs yet recognizes the ability of "multi-modal" projects to address those needs. Therefore SPOT revised the multimodal scoring process to reflect the multimodal project's impact to the user of the transportation system. Providing viable travel options or striping lanes in an Interstate corridor impacts a larger segment of the traveling public and therefore earns more points. Adding multimodal design features to a project (such as sidewalks or wide outside shoulders) typically provides a positive, yet localized impact, and therefore earns fewer points. The multimodal point scoring hierarchy is described by how a highway project provides either multimodal options, connections or design features. **<u>Multimodal Options:</u>** •HOV / HOT or light rail or bus rapid transit within the highway right-of-way. **<u>Multimodal Connections:</u>** •Direct connection to a transportation terminal (airport, seaport, rail depot, ferry terminal, intermodal terminal, transit terminal). **<u>Multimodal Design Features:</u>** •Sidewalks, pedestrian crossings, striped bicycle lanes, wide outside shoulders (greater than or equal to two feet), bus pullouts, transit bypass lanes, transit signal prioritization, bus shelters.

COMMENT # 2 ***(Multimodal Related)***	**RESPONSE**
• How did SPOT develop these points (first proposed early July)? • How will the final point system be incorporated in the overall project rankings? • Multi-modal project elements should be routinely be included as a matter of policy thereby eliminating the need to factor or score such elements into the evaluation criteria	SPOT asked for 1) definition of multimodal and 2) multimodal scoring suggestions after the June 17th webinar. After reviewing comments received SPOT generated a multimodal definition to guide this prioritization process. An initial point system was developed how well a project featured multimodal components in a travel corridor and how well a project made a connection (to an airport, seaport, rail stations, etc.) Upon further review and additional input from the Prioritization Working Group the point system was refined to: 1) Reflect level of impact (high, medium, low) a particular multimodal project will have on the transportation user 2) Reward projects of various size across the tier spectrum (from statewide to subregional tier) The 8, 5, and 3 points were not derived from a design manual or national publication but using engineering judgment and a review of various types of multimodal projects. Multimodal points act as **bonus points added to the project score AFTER the quantitative and qualitative score is calculated**. At best, a multi-modal project can gain 16 points. Any project scoring near 100 points will likely be a top candidate project. SPOT's commitment to use such a system for multimodal projects is the first of its kind and supports a recent Complete Streets policy that the Board of Transportation adopted in July 09. This policy requires review (but not enforcement) of multimodal elements during the project design phase. Coupling the prioritization process with this new policy strengthens NCDOT's resolve to follow through on promoting more multimodal projects.

COMMENT # 3 ***(Multimodal Related)***	**RESPONSE**
• Some organizations may attempt to add bike-ped or other multimodal features on every project thereby increasing each project's point total. • Points for projects should be based on whether the project is part of an adopted Bike/Ped or Transit Plan or support some overall plan. Greenway projects should also be referenced in an adopted plan and local community needs to pay 20% of the enhancement cost.	SPOT agrees with these comments and has adjusted the criteria in the scoring for "multi-modal" projects. In order to receive additional points for "multi-modal", projects must: 1) meet the multimodal definition 2) be a part of the organization's top 25 projects and 3) be identified in an MPO/RPO or local municipality's adopted long range transportation plan, comprehensive transportation plan OR mode-specific plan. Meeting these guidelines improves the commitment to this project from both the state and local level. These guidelines will also ensure that any organization which is submitting a high number of multimodal projects has made a corresponding commitment to such a policy/transportation vision at a local level. This model will not address nor assign points based on who pays a share of the project cost. Currently local communities are still required to contribute financially in such multimodal design features as sidewalks. The level of financial contribution (and its resulting impact on project points) may be an issue of the next version of SPOT's prioritization process.

COMMENT # 4 ***(Unequal Ranking Issues)***	**RESPONSE**
• Since the subregional tier projects are local projects, I would recommend that the scoring provide for a minimum 50/50 (Local Rank/Division Rank) for these projects.	SPOT agrees and has modified the highway scoring matrix accordingly. The Qualitative scoring for each Subregional Tier under all three goals is now weighted in favor of Local Rank. Quantitative data is now also being used for both the Infrastructure Health and Safety goals on the Subregional Tier. The final Qualitative highway scoring includes: • Mobility Goal – 40% (Division Rank) and 60% (Local Rank) • Infrastructure Health – 20% (Division Rank) and 30% (Local Rank) • Safety – 20% (Division Rank) and 30% (Local Rank)

COMMENT # 5 *(Unequal Ranking Issues)*	RESPONSE
• The process seems to be designed for areas of the State that are not in MPOs. • With the emphasis on ranking I, R and U projects, this results in biases toward larger projects on higher tiers and biases the results towards highway only projects. • MPO priorities need to be built-in to the prioritization and selection process to reflect the authority that MPO's have for developing their MTIPs.	Obviously, some non-urbanized areas believe the process will benefit the urbanized areas and some urbanized areas believe the process will benefit non-urbanized area. It is difficult to design a process that can satisfy all corners of the state. SPOT is committed to implementing a process that is area neutral and data-driven, systematic, and multi-modal. The data drives the quantitative score for every project and SPOT is utilizing as much of it as possible with no bias towards urbanized or non-urbanized areas. The prioritization process ranks I, R, U highway projects by Goal and Tier. At a minimum this process generates NINE prioritized lists of projects (three goals by three tiers). Projects will only be compared within the same tier (i.e., a Statewide tier project will not be compared to a Subregional tier project) Next spring DOT management will determine an investment direction and where to dedicate resources. This will feed the development of the next STIP and 10 Year Program and Resource Plan The Qualitative aspect of SPOT's prioritization process and the submittal of a Top 25 list of projects is a direct reflection of MPO and RPO priorities. SPOT is not imposing a statewide method on how to rank your local projects. Each organization must determine a method (data driven or otherwise) which helps them generate a ranked list. Each local list will be submitted in the template to ultimately create a statewide ranked list of projects by Goal / Tier.

COMMENT # 6 ***(Unequal Ranking Issues)***	**RESPONSE**
• Number of projects to be ranked by MPO or RPO or Division should be proportional to the population in each respective area. • The MPO and RPO rankings of projects are the same although the MPOs and RPOs may represent vastly different population sizes. • Local and Division rankings should account for a population factor in the methodology. Consider especially additional weighted ranking percentages for Transportation Management Area (TMAs).	After much deliberation and analyzing a number of factors (population, miles of roadway, number of counties, etc.) SPOT concluded a factoring method to address population differences was not feasible for version 1.0. SPOT also looked at a reasonable number of projects any one area can expect to see move to construction over a five year period. This analysis was done by reviewing statewide project letting lists over the past five years. A list of 25 projects per area seemed to be the best conclusion. SPOT understands this is a "universal" approach that will not satisfy all parties but finding a better factor to account for population will be under study for version 2.0. Keep in mind projects in years 6 and 7 today become projects in years 4 and 5, respectively when SPOT conducts version 2.0 of prioritization in 2011. No one area is expected to see more than 25 projects to construction in two years. A revised scoring matrix for highway projects also provides local organizations the higher weighted ranking on all subregional tier projects for every one of the three goals.

COMMENT # 7 ***(Funding Related)***	**RESPONSE**
• Model does not account for funding constraints. Equity is not built into the model and needs to be known ahead of time. Practical funding considerations like project cost and cost-to-complete are not addressed**.** • The application of fiscal constraint needs to take into consideration the use of traditional highway funding sources on non-highway projects. An opportunity for MPO input on this step should be built-in to the process.	This prioritization process is based on needs and the solutions to address those needs. Once these are identified, then funding constraints, like equity, will dictate how much of the solutions can actually be implemented. This process will not use equity as a tool to rank needs and would not be a needs-based model if it did. However, this process will ultimately show the affect equity has on the mix of projects, programs, and services which best meet the Department's Mission and Goals. This is a needs-based model. By outlining the needs first, NCDOT can then determine what financial resources are required to address those needs and what resource constraints hamper NCDOT's ability to meet those needs. The Equity Formula (along with other constraints such as horizon year projects for Air Quality conformity) will be applied subsequent to the accurate depiction of true transportation system needs. NCDOT management must determine the statewide investment mix for North Carolina.

COMMENT # 8 ***(Funding Related)***	**RESPONSE**
• The prioritization process needs to include a step for making funding decisions across different modes. This decision should be made regionally since urban and rural areas have different needs and desires.	Ultimately next spring NCDOT management must determine a level of investment across all Goals and Tiers. This investment emphasis will be considered from a statewide perspective. The NINE ranked lists of projects (by three goals and by three tiers) will allow for a more productive and equitable consideration of investment across modes.

COMMENT # 9 ***(General Comment)***	**RESPONSE**
• A ranking methodology for the non-highway modes is needed. • All highway projects should be ranked according to all goals: mobility, safety, and infrastructure health. Projects that address multiple goals and rank highly should have more opportunities to be funded. • Congestion score should use peak hour v/c ratio. • Need more information on the source of the data. Data needs to be consistent across the State. How will AADT data from different years & counties be normalized?	The prioritization process will ensure all projects are classified by Goal and Tier and ranked by Goal and Tier. The multimodal scoring system will help address the concern of a project which meets more than one goal. All non-highway modal units (Transit, Ferry, Aviation, Bike/Ped, and Rail) are expected to produce a data driven approach to rank non-highway projects by summer 2010. The current congestion score is built around 24-hour volume counts to calculate a volume to capacity ratio. The use of peak hour volume to capacity information will be considered as part of SPOT's next version of prioritization. The quantitative data is sourced to specific years and tied to databases at NCDOT which have been in place for many years. • Congestion data is from 2008 volume counts (statewide) • Infrastructure Health data is from 2008 pavement condition ratings (statewide) • Safety data represents the latest moving three year average (statewide) Any questions on how this data is acquired, stored, and used in day to day project decision making is available from the following groups: • Volume counts – Transportation Planning Branch • Pavement Condition Ratings – Pavement Management Unit • Safety data – Mobility and Safety Division

COMMENT # 10 ***(General Comment)***	**RESPONSE**
• The quantitative measures are retrospective instead of anticipation of future conditions and consider broader network effects. Data sources are limited and have weaknesses because past data is being used. • There is a belief that ranking methodology does not account for projects on new location.	The Department is determining needs based on existing conditions. This initial prioritization effort is focused on best addressing the existing deficiencies in the system prior to attempting to address future deficiencies. SPOT acknowledges the weakness in our process which cannot currently anticipate future conditions and deficiencies. However this will be a primary focus area of improvement for version 2.0 of the prioritization model. Quantitative data will be extracted to provide technical merit for new location projects. This approach uses data on the parallel route (from which traffic will be ultimately diverted) to serve the new location route. The assumption built into this approach is that new location route is needed since existing parallel routes will not be able to serve the travel demand.

COMMENT # 11 ***(General Comment)***	**RESPONSE**
• Urban loops should be listed in the 5-year work program. Urban loops need different quantitative criteria and should probably be ranked separately.	SPOT is developing a process to evaluate and prioritize the uncompleted sections of urban loops (24 projects in 10 areas). The criteria proposed to support such a process will be shared with the Board of Transportation in September with a public comment period to follow in the near future. Therefore urban loop projects will not be pre-populated in the template and should not be submitted in local ranked lists. A final process is expected to be presented to the BOT in early 2010.

COMMENT # 12 ***(General Comment)***	**RESPONSE**
• Put High Hazard ("W") projects and Direct Attributable ("DA") funded projects in the top 25 list to be ranked (and compete against I, R, U projects).	SPOT has evaluated this in detail and concludes that for this initial version of the prioritization process "W" and DA funded ONLY projects will be ranked separately. "W" projects have their own, federally approved ranking system and any change in the ranking system requires an approval from the Federal Highway Administration. Also, the Department has allowed MPO's to determine which DA funded ONLY projects go to construction and this process will not change at this time. If an MPO chooses use their DA funds to contribute to an existing I, R, or U project that project must be in the area's top 25 list.

Overarching Themes

- 60 month DRAFT let list released Aug 10
  - 60 month DRAFT let list projects, ARRA and Loop projects will NOT be in the prioritization database
- MPO/RPOs and Divisions should communicate!
- Loop projects not in template
  - Separate draft process for uncompleted sections at September BOT
- Turnpike Projects not in the template

Overarching Themes

- Classify NEW projects in only one mode—project cannot live in 2 modes at once

- Only # 1 project per Division and per MPO/RPO
  - Cannot submit 1a, 1b, 1c, etc.

- Results of project submittals (statewide list ranked projects per Goal and Tier) available in January 2010

Factors to Consider when Ranking Top 25

- Projects based on NEED not expected level of funding or wish list
- Transportation finance still tight
  - More needs in current TIP ($17 B) than revenue to address ($9 B)
- Qualitative weighted scoring allows greater local influence on regional and subregional tier projects
- Quantitative rank will drive statewide tier projects
- Projects will only be compared within the same Tier
  - I-40 compared to US 70 NOT I-40 compared to SR 1000
- Projects with multimodal design features may still require local contribution $'s (ex. Sidewalks)

Highway Prioritization Model Overview

Total Score per Highway Project = Quantitative Score + Qualitative Score

- **Quantitative** score derived from current roadway condition data:
  - Safety Score (Critical Crash Rate, Crash Severity, Crash Density)
  - Mobility/Congestion Score (Volume/Capacity + AADT)
  - Infrastructure Health/Pavement Score (Pavement Condition Rating)

- **Qualitative** score driven by Division rank and Local rank:
  - MPO/RPO Rank – use local methodology to rank order priorities
  - Division Rank – use knowledge of local area to rank order priorities
  - ***Only one # 1 highway project per MPO/RPO and per Division***
    - ◊ ***Rank Top 25 highway projects***

June 17, 2009 Proposed Scoring Matrix for Highway Projects

		Quantitative	Qualitative	
GOAL	**TIER**	**Weighted Condition Data Percentage**	**Weighted Division Rank Percentage** *Top 25 Projects*	**Weighted Local Rank Percentage** *Top 25 Projects*
MOBILITY	Statewide	70%	20%	10%
	Regional	50%	25%	25%
	Subregional	0%	50%	50%
SAFETY	Statewide	70%	20%	10%
	Regional	70%	15%	15%
	Subregional	0%	50%	50%
INFRASTRUCTURE HEALTH	Statewide	70%	20%	10%
	Regional	70%	15%	15%
	Subregional	0%	50%	50%

Final Scoring Matrix for Highway Projects

		Quantitative	Qualitative	
GOAL	**TIER**	**Weighted Condition Data Percentage**	**Weighted Division Rank Percentage** *Top 25 Projects*	**Weighted Local Rank Percentage** *Top 25 Projects*
MOBILITY	Statewide	70%	20%	10%
	Regional	50%	25%	25%
	Subregional	0	**40%**	**60%**
SAFETY	Statewide	70%	20%	10%
	Regional	70%	15%	15%
	Subregional	**50%**	**20%**	**30%**
INFRASTRUCTURE HEALTH	Statewide	70%	20%	10%
	Regional	70%	15%	15%
	Subregional	**50%**	**20%**	**30%**

Final Scoring Matrix for Highway Projects

		Quantitative		Qualitative	
GOAL	**TIER**	**Weighted Condition Data Percentage**		**Weighted Division Rank Percentage** *Top 25 Projects*	**Weighted Local Rank Percentage** *Top 25 Projects*
MOBILITY	Statewide	70%	**CONG = 80%** **PVMT = 10%** **SAFE = 10%**	20%	10%
	Regional	50%		25%	25%
	Subregional	0		**40%**	**60%**
SAFETY	Statewide	70%	**CONG = 10%** **PVMT = 10%** **SAFE = 80%**	20%	10%
	Regional	70%		15%	15%
	Subregional	**50%**	**PVMT = 20%** **SAFE = 80%**	**20%**	**30%**
INFRASTRUCTURE HEALTH	Statewide	70%	**CONG = 10%** **PVMT = 80%** **SAFE = 10%**	20%	10%
	Regional	70%		15%	15%
	Subregional	**50%**	**PVMT = 80%** **SAFE = 20%**	**20%**	**30%**

Project Prioritization

- In an effort to be the one-stop shop for submitting local priorities, the web-based template will allow you to enter and rank the following types of projects:

- **Highway** – These projects will be scored quantitatively and qualitatively as has been discussed over the past several months.
  - Each MPO, RPO, and Division will be able to enter as many NEW projects as they wish, but can only apply a rank to the top 25 projects (the other projects will still receive a quantitative score).

Other Highway Project Prioritization

- **“W” Projects - Hazard Elimination**
- **“SF” Projects - Spot Safety**
  - Approved ranking system already in place

- **Bridges**
  - NCDOT Bridge Prioritization Model will generate rank for Bridge projects (produced by Bridge Management Unit)

- **Weigh Stations**
  - Per 2004 Feasibility Study and ITS / Equipment and Inventory Control Unit

- **Rest Areas**
  - Prioritized by Roadside Environmental Unit

Non-Highway Mode Project Prioritization

- **SPOT will receive NEW candidate Transit, Rail, Bike/Ped., Aviation, Ferry project priorities (Oct 5 – 30)**
  - **Existing non-highway STIP projects will be pre-populated in template**

- **NCDOT Modal Units responsible for determining:**
  - **1) eligibility and 2) ranking NEW plus existing non-highway STIP projects in November**
  - **MPOs/RPOs should communicate with NCDOT modal units prior to entering project priorities**

- ***<u>NCDOT Goal:</u> Non-hwy modes create data driven method by summer 2010***

Non-Highway Mode Project Prioritization

SPOT encourages *rank order entry* of these projects

- **Bicycle and Pedestrian** – These projects will be forwarded to the Program Development Branch and the Bicycle and Pedestrian Division.
  - ***John Vine-Hodges (POC)***
- **Public Transportation** – These projects will be forwarded to the Public Transportation Division. *Local Transit Operators are encouraged to communicate with NCDOT-PTD.*
  - ***Bill Barlow (POC)***
- **Rail** – These projects will be forwarded to the Rail Division
  - ***Shirley Williams (POC)***
- **Ferry** – These projects will be forwarded to the Ferry Division
  - ***Jesse Vinson (POC)***
- **Aviation** – These projects will be forwarded to the Aviation Division
  - ***Rick Barkes / Bobby Walston (POC)***

Other Project Prioritization

- **CMAQ** – These projects will be forwarded to the Transportation Planning Branch
  - Enter rank in the attached Application (not in the template)
  - Routed to Transportation Planning

SPOT encourages *rank order entry* of these projects

- **Non-Bicycle and Pedestrian Enhancement** – These projects will be forwarded to the Program Development Branch

- **Direct Attributable Funded Only** – These projects will be forwarded to the Program Development Branch.

- **Feasibility Studies** – These projects will be forwarded to the Program Development Branch
  - ***Derrick Lewis (POC)***

- ***<u>Multi-Modal – Definition</u>***

"Projects which encourage the use of 2 or more modes (highway, bicycling, walking, rail, ferry, aviation, transit) to achieve enhanced mobility in a travel corridor."

ORIGINAL Multi-Modal Scoring System For Highway Projects

***Multimodal Corridors*:**

- Managed lanes (such as HOV/bus lanes or HOT/bus lanes) OR fixed transit guideway within the highway right-of-way (such as light rail or bus rapid transit) → (8 points)

- Dedicated / striped bike lanes or bus pullouts → (4 points)

- Sidewalks or wide outside shoulders → (2 points)

***Multimodal Connections*:**

- Direct connection to a transportation terminal (airport, seaport, rail depot, ferry terminal, transit terminal) → (5 points)

Points added after Quantitative and Qualitative Scoring is complete.

***FINAL* Multi-Modal Scoring System For Highway Projects**

3) Please check if the **highway** project includes one or more of the following new or additional multimodal **components** (select all that apply):

- **Multimodal Options → 8 points:** HOV / HOT or Light Rail or Bus Rapid Transit within the highway right-of-way.
- **Multimodal Connections → 5 points:** Direct connection to a transportation terminal (airport, seaport, rail depot, ferry terminal, intermodal terminal, transit terminal)
- **Multimodal Design Features → 3 points:** Sidewalks, Pedestrian Crossings, Striped Bicycle Lanes, Wide Outside Shoulders (greater than or equal to two feet), Bus Pullouts, Transit Bypass Lanes, Transit Signal Prioritization, Bus Shelters

NOTE:

- ***Multimodal Projects must be included in the Top 25 Highway Projects and must be part of an adopted Comprehensive Transportation Plan, Long Range Transportation Plan, or a mode-specific plan.***
- ***Multimodal points will be added to a project after the Quantitative and Qualitative Scoring is calculated.***

Final Implementation Schedule

- **Now to (Oct 5th – 30th) →** MPOs/RPOs Rank Top 25 Highway (I, R, U type) Projects
- **Nov / Dec →** Division's Rank Top 25 Highway (I, R, U type) Projects
- **Dec / Jan 2010 →** SPOT provides rankings of projects by Goal, Tier, and Mode
- **Feb 2010 →** BOT establishes resource allocation and priorities based on long range plan and General Statutes
- **Mar / April 2010 →** Constraints Applied
- **May →** Draft STIP and Input to Draft Work Program

- Instructional Guide and Other Information
  - Review Draft provided today and provide comments to Alpesh Patel (agpatel@ncdot.gov) by September 4
  - Final version will be sent September 14

- SPOT's "spot" on NCDOT's website

http://www.ncdot.gov/performance/reports/default.html

  - Today's power point
  - DRAFT 60 month let list
  - DRAFT projects pre-populated in template
  - DRAFT Instructional Guide
  - Construction Cost estimate spreadsheet
  - Statewide / Regional Tier maps (mid-Sept)

Strategic Prioritization Process

- Questions? / Comments