

NCDOT Division Engineer Project Solicitation and Ranking Process Prioritization 3.0

Introduction

The NCDOT Division Engineers are required by STI legislation to develop a local input methodology for all transportation projects (highway, bike and pedestrian, public transportation, aviation, rail and ferry) within their respective areas that may compete for state funding. In conjunction with our continuous, cooperative and comprehensive planning relationship with local Metropolitan Planning Organizations (MPOs) and Rural Planning Organizations (RPOs), NCDOT Division Engineers have developed the following project solicitation process and local input methodology.

Applicability

The project solicitation process will apply to all projects submitted by the Division Engineer, and the local input methodology will apply to all projects (regional impact and division needs) to be ranked by the Division Engineer within their geographic boundaries (and adjacent boundaries if a given project spans more than one Division).

Schedule Overview

January - February/March 2014

- DE announces 30-day comment period (project submittal)
- DE schedules and hosts public hearing
- DE reviews comments and consults with MPOs, RPOs, NCDOT staff, local operators
- DE submits new candidate projects to SPOT

March - May 2014

- SPOT computes quantitative scores
- PD prepares tentative statewide mobility project list

June - August 2014

- DE receives quantitative project scores for regional impact and division needs projects
- DE publishes local input methodology
- DE prepares and publishes local input point assignment proposal
- DE announces 30-day comment period (local input)
- DE schedules and hosts drop-in session/workshop
- DE reviews comments and consults with MPOs, RPOs, NCDOT staff, local operators
- DE submits final local input point assignments to SPOT

Schedule Details

Project Solicitation:

Each transportation Division will solicit candidate projects for 30 days prior to the project submittal deadline. **The results of this process will be reviewed with each of the MPOs and RPOs in the Division, appropriate NCDOT Transit Division (all modes) staff, and local aviation, rail and public transit operators prior to submitting new candidate projects.** Project suggestions received will be shared and coordinated with the respective MPO and/or RPO in each Division and with appropriate NCDOT transit division staff to avoid duplication and ensure maximum number of project submittals per Division is not exceeded. The Division will then submit the selected project list using NCDOT's SPOT Online tool (web based system) for quantitative scoring by the announced deadline.

Project Ranking:

The Division Engineer will evaluate the full list of new and previously evaluated projects for the Division between June and August 2014 assigning local input points in consultation with the MPOs and RPOs in the division, and appropriate NCDOT Transit Division (all modes) staff for submission to the Strategic Prioritization Office of Transportation (SPOT) by the announced deadline.

Public Input Process

Project Solicitation:

Each Division Engineer's office will announce the 30 day project solicitation period to all governments, MPOs, RPOs, NCDOT staff, local airport, rail and transit operators, and interested persons in the Division's geographic boundaries using methods approved by the NCDOT Communications Office. In addition, each Division will host public hearings at a central location within each Division in during the 30 day project solicitation period. Information regarding the public hearing, and specific methods for providing input (email, phone, mail, etc.), will be advertised to stakeholders using methods approved by the NCDOT Communications Office. Comments received via public hearings and other methods approved by the NCDOT Communications Office will be posted to the NCDOT website. **The results of the 30 day project solicitation period and the public input received will be reviewed by the Division Engineer in consultation with the MPOs and RPOs in the Division, appropriate NCDOT transit division staff, and local aviation, rail and transit operators.** Through this collaboration, the Division Engineer will determine the list of candidate projects to submit for technical evaluation, while

avoiding duplicate project submissions and ensuring the maximum number of project submittals is not exceeded. The Division Engineer will be able to submit new transportation projects (across all modes) based upon the P3.0 Workgroup and Department's agreed upon allowances.

Project Ranking:

The Division Engineer will receive the quantitative scores for the projects eligible for local input points in May of 2014. The Division Engineer will be responsible for assigning local input points to regional impact and division needs projects for their area (statewide mobility projects will be evaluated based solely on their technical scores). The Division Engineer will publish his/her local input methodology which will be used as the basis to assign preliminary points to all regional impact and division needs projects within their division and/or adjacent divisions using methods approved by the NCDOT Communications Office. Each Division Engineer's office will then announce a 30 day comment period to solicit input on this information and provide specific methods for providing input (email, phone, mail, etc.) as approved by the NCDOT Communications Office. The 30 day comment period will vary by Division, and will take place during the 90 day window for assigning local input points. During this period, each Division will host public drop-in/workshop sessions at a central location within each Division prior to the final assignment of local input points by the announced deadline. Advertisement soliciting input during the 30 day comment period, and for the drop-in/workshop sessions, will be made to the public, and to MPOs, RPOs, NCDOT staff, local airport, rail and transit operators, and interested persons in the Division's geographic boundaries using methods approved by the NCDOT Communications Office.

The Division Engineer will review comments received in accordance with his/her local input methodology and in consultation with the MPOs and RPOs in the Division, appropriate NCDOT Transit Division (all modes) staff, and local aviation, rail and transit operators. **Through this evaluation and collaboration, the Division Engineer will determine the final local input point assignments per eligible regional impact and division needs project within their division and/or to projects in adjacent divisions to submit for final evaluation.** All final point assignments will be published using methods approved by the NCDOT Communications Office.

Ranking Process

Introduction:

The criteria outlined below will be used to create a ranking of projects in the regional impact and division needs categories that will be used by the Division Engineer in determining preliminary and final local input point assignments for projects within their division and/or to projects in adjacent divisions. **The Department's quantitative scores for projects and this**

ranking process will act as a guide and first step in determining a preliminary rank-ordered list of projects.

Below is a standardized list of criteria available for use in developing a set of ranking criteria for each division. For each criterion, a detailed description is provided (including any pertinent information regarding data sets to be used). A standard set of ranking criteria has been provided to each Division Engineer for use in the regional impact and division needs ranking processes, and each Division Engineer will determine the combination of criteria that is most reflective of the needs and priorities for their respective area. In developing the list of criteria for their division, the Division Engineer will select a minimum of four criteria from the standardized list and weight each such that the total possible points for a given project is equal to 100. Each Division Engineer will publish their specific set of criteria using methods approved by the NCDOT Communications Office prior to/in conjunction with posting preliminary point assignments for projects within their division and/or to projects in adjacent divisions.

Standard Criteria – Descriptions:

- **Existing Congestion:** a measure of the volume/capacity ratio of a facility or transit service taken from SPOT data.
- **Safety Score:** a calculation based on the crash frequency and severity along sections of a particular roadway. The safety score is the score generated in the quantitative scoring process and is calculated in accordance with the SPOT calculation detailed in appendix 1 of this document.
- **Cost Effectiveness:** a calculation of the cost per vehicle to improve a road one mile. This calculation allows different types of roads to be compared based on how much it costs to improve the road per individual vehicle.
- **Freight Volume:** the number of trucks or equivalent vehicles that utilize the facility on a daily basis. Percentage of truck volume of average daily traffic converted to a number of trucks or equivalent.
- **Transportation Plan Consistency:** a yes or no question to determine if the proposed project is found in an existing adopted transportation plan for the area.
- **Corridor Continuity:** a measure of the project completing or continuing improvements on a defined transportation corridor.
- **Multimodal Accommodations:** a yes or no measure of the incorporation of pedestrian, bicycle or transit elements into a project.
- **Project Feasibility:** a qualitative measure of ROW, environmental justice and/or environmental problems on the project based on Transportation Planning Branch data or a completed feasibility study.

- **Public Support:** Strong public support for the project as documented through feedback received through public outreach efforts.
- **Serves Activity Center(s):** a yes or no measure of the project serving a large employment center, trauma center, institution of higher learning, tourist center or other high traffic facility/site.
- **Shoulder Width:** a measure of the existing paved shoulder width versus the DOT design standard.
- **Lane Width:** a measure of the existing lane width versus the DOT design standard
- **Airport Passenger Service:** a yes or no measure of the project materially improving an airport's ability to increase passenger service capacity.
- **Airport Safety:** a yes or no measure of the project improving safety at an airport.
- **Transit Expansion:** a yes or no measure of the project expanding passenger service on existing routes or opening new routes for increased service.

Regional Impact Ranking:

Certain highway, aviation, bicycle and pedestrian, ferry, transit, and rail projects are scored at the regional impact level, as well as any projects that cascade into the regional impact category from the statewide mobility category. Each Division Engineer will use the criteria and weighting below to generate a score for each project and a ranking of all projects in the regional impact category.

Below is a standard ranking of criteria eligible for use by each Division Engineer in evaluating projects in the regional impact category. Each Division Engineer will determine the combination of criteria (minimum of four) and criteria weights that best reflect the needs and priorities of their respective area. The resulting scores and rank order will be used by the Division Engineer in developing preliminary and final local input point assignments for projects within their division and/or to projects in adjacent divisions. The Department's quantitative scores for projects and this ranking process will act as a guide and first step in determining a preliminary rank-ordered list of projects. Each Division Engineer will use the preliminary rank-ordered list of projects along with local knowledge as well as information gathered through collaboration and consultation with MPOs, RPOs, local airport, rail and transit operators and input from other interested stakeholders to determine the actual assignment of qualitative points.

Regional Impact Standard Ranking – Criteria and Weights <i>(Note: Choose minimum of four criteria and determine percent weights; total points for any given project cannot exceed 100)</i>					
Criteria	0 Points				
Existing Congestion (% weight)	Volume to capacity less than 0.5	Volume to capacity between 0.51 and 0.75	Volume to capacity between 0.76 and 0.9	Volume to capacity between 0.91 and 1.0	Volume to Capacity over 1.0
Safety Score (% weight)	SPOT safety points less than 30	SPOT safety points between 31-50	SPOT safety points between 51-65	SPOT safety points greater than 66	
Cost Effectiveness (% weight)	Cost per Vehicle/equivalent greater than \$1500 per mile	Cost per Vehicle/equivalent between \$1000-\$1500 per mile	Cost per Vehicle/equivalent between \$500-\$999 per mile	Cost per Vehicle/equivalent less than \$499 per Mile	
Freight Volume (% weight)	Less than 500 trucks/equivalent per day	Between 500-1000 trucks/equivalent per day	More than 1000 trucks/equivalent per day		
Transportation Plan Consistency (% weight)	Project is not in CTP of TP	Project is in CTP or TP			
Corridor Continuity (% weight)	Project does not complete of continue corridor improvement	Project does continue corridor improvement			
Multimodal Accommodations (% weight)	Project does not include ped/bike/transit facilities	Project does include ped/bike/transit facilities			
Project Feasibility (% weight)	Significant ROW, EJ or environmental concerns	Minimal ROW, EJ or environmental concerns			
Public Support (% weight)	Minimal public support	Strong public support			

Serves Activity Center (% weight)	Serves employment centers of fewer than 500 employees, trauma centers, institutions of higher learning, or tourist centers	Project adds new capacity to serve employment centers of 500 to 1500 employees, trauma centers, institutions of higher learning or tourist centers	Project adds significant new capacity to serve employee centers with more than 1500 employees, trauma centers, institutions of higher learning or tourist centers		
Shoulder Width (% weight)	Project does not widen shoulder	Project widens shoulder to 50%> of DOT standard	Project widens shoulder to DOT standard		
Lane Width (% weight)	Project does not increase lane width	Project widens lane width to DOT standard			
Airport Passenger Service (% weight)	Project does not increase capacity	Project increases capacity			
Airport Safety (% weight)	Does not improve airport safety	Does improve airport safety			
Transit Expansion (% weight)	No service expansion	Expands service			

Division Needs Ranking:

Certain highway, aviation, bicycle and pedestrian, ferry, transit, and rail projects are scored at the division needs level, as well as any projects that cascade into the division needs category from the regional impact category. Each Division Engineer will use the criteria and weighting below to generate a score for each project and a ranking of all projects in the division needs category.

Below is a standard ranking of criteria eligible for use by each Division Engineer in evaluating projects in the division needs category. Each Division Engineer will determine the combination

of criteria (minimum of four) and criteria weights that best reflect the needs and priorities of their respective area. The resulting scores and rank order will be used by the Division Engineer in developing preliminary and final local input point assignments for projects within their division and/or to projects in adjacent divisions. The Department's quantitative scores for projects and this ranking process will act as a guide and first step in determining a preliminary rank-ordered list of projects. Each Division Engineer will use the preliminary rank-ordered list of projects along with local knowledge as well as information gathered through collaboration and consultation with MPOs, RPOs, local airport, rail and transit operators and input from other interested stakeholders to determine the actual assignment of qualitative points.

Division Needs Standard Ranking – Criteria and Weights					
<i>(Note: Choose minimum of four criteria and determine percent weights; total points for any given project cannot exceed 100)</i>					
Criteria	0 Points				
Existing Congestion (% weight)	Volume to capacity less than 0.5 (roads and rail), existing facilities available (other modes)	Volume to capacity between 0.51 and 0.75 (roads and rail), intermittent or incomplete facilities/transit available (other modes)	Volume to capacity over 0.75 (roads and rail), no facilities/transit available (other modes)		
Safety Score (% weight)	Spot safety points less than 30	Spot safety points between 31 and 50	Spot safety points between 51 and 65	Spot safety points between 66 and 80	Spot safety points greater than 80
Cost-Effectiveness (% weight)	Cost per daily user greater than \$4,000 per user per unit per mile	Cost per daily user between \$2,000-\$4,000 per user per unit per mile	Cost per daily user between \$1,500-\$1,999 per user per unit per mile	Cost per daily user between \$1,000-\$1,499 per user per unit per mile	Cost per daily user less than \$999 per user per unit per mile
Transportation Plan Consistency (% weight)	Project is not in adopted land use, transportation, transit or other plan	Project is in an adopted land use, transportation, transit or other plan			
Multimodal Accommodations (% weight)	Project does not include bike/ped/transit facilities	Project includes bike/ped/transit facilities			

Project Feasibility (% weight)	Significant ROW, EJ or environmental concerns	Minimal ROW, EJ or environmental concerns			
Public Support (% weight)	Minimal Public Support	Strong Public Support			
Serves Activity Center (% weight)	Serves employment centers of fewer than 500 employees, trauma centers, institutions of higher learning, or tourist centers	Project adds new capacity to serve employment centers of 500 to 1500 employees, trauma centers, institutions of higher learning or tourist centers	Project adds significant new capacity to serve employee centers with more than 1500 employees, trauma centers, institutions of higher learning or tourist centers		
Shoulder Width (% weight)	Project does not widen shoulder	Project widens shoulder to 50%> of DOT standard	Project widens shoulder to DOT standard		
Lane Width (% weight)	Project does not increase lane width	Project widens lane width to DOT standard			
Airport Passenger Service (% weight)	Project does not increase capacity	Project increases capacity			
Airport Safety (% weight)	Does not improve airport safety	Does improve airport safety			
Transit Expansion (% weight)	No service expansion	Expands service			

Appendix 1

SAFETY SCORES FOR PRIORITIZATION 3.0

The calculation of safety scores varies depending on whether the project is located along a roadway segment or at an intersection:

Segments → (Crash Density x 33%) + (Severity Index x 33%) + (Critical Crash Rate x 33%)

Intersections → (Crash Frequency x 50%) + (Severity Index x 50%)

Safety scores for segment projects will be calculated automatically in the SPOT Online tool, based on a GIS safety score data layer provided by the Mobility and Safety Division. This layer contains the Crash Density, Severity Index, and Critical Crash Rate scores for all segments on state-maintained roadways (each safety component is scored using a 0-100 point scale). Scores are based on a 2010-2012 crash data.

Intersection safety scores will be calculated manually by the Mobility and Safety Division.

Definitions for each safety component are as follows:

- **Crash Density:** Number of reported crashes per mile.
- **Severity Index:** Locations with a high severity index have higher than average injury rates and/or more severe injuries. This index uses the reported “Crash Severity” data described below. NCDOT has established “Equivalent Property Damage Only” (EPDO) coefficients which are used to compare crash severity types among each other. One “B-injury” crash or “C-injury” crash is equivalent to 8.4 “PDO” crashes. One “K-injury” crash or “A-injury” crash is equivalent to 76.8 “PDO” crashes. The severity index of a location is equal to the total EPDO divided by the number of crashes.
 - Crash Severity:** Crash severity is reported based on the “KABCO” scale. The crash injury status is the most severe injury to a person involved in the crash.
 - K-Fatal – A death results from injuries within 12 months after the crash.
 - A-Disabling – Prevents the person from performing normal activities for at least one day.
 - B- Evident – Obvious injury.
 - C- Possible – No visible injury may have momentary loss of consciousness.
 - O- Property Damage Only (PDO).
- **Critical Crash Rate:** A statistically derived number, which is often used a screening tool to identify locations where crash rates are higher than should be expected for a given facility type and where further engineering investigations may be considered. Crash Rate is defined for a section of highway as the number of crashes per 100 million vehicle miles travelled.
- **Crash Frequency:** The number of reported crashes during a given timeframe.