Appendix A

Compliance Description of the Eight SAFETEA-LU Federal Planning Factors

Addressing the Eight Federal Planning Factors:

Factor 1: Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

Supporting economic growth and development was an explicitly identified goal in the development of the prioritization process. With this goal in mind, a separate and distinct economic vitality component was developed for the "Highways," "Bridge/Tunnel," "Transit," and "Intermodal" project categories to evaluate the ability of a project to impact regional economic growth through increased capacity and/or increased opportunity. Criteria were developed t o measure how improvements in the region's transportation network reduce constraints on commerce and industry, improve productivity and labor market access, and expand opportunity for new businesses throughout Hampton Roads.

Some of the evaluation criteria for each category's economic vitality component consider the following:

1) How well a project contributes to reductions in travel time
2) How well a project provides labor market access by improving travel time reliability and increasing access to major employment centers
3) How well a project addresses the needs of basic sector industries such as defense, tourism, and ports
4) How well a project is supported by plans for future growth and development
5) How well a project increases opportunity for business development based on new or increased access
6) How well a project increases access to other modes of travel for the movement of goods

Factor 2: Increase the safety of the transportation system for all motorized and non-motorized users.

Safety was identified by the Steering Committee as well as the technical and public survey respondents as a major factor in prioritizing transportation projects. Specific evaluation criteria were developed to evaluate safety impacts associated with proposed projects. These criteria included measures of effectiveness (MOEs) such as crash reductions (between vehicles and pedestrians), crash rate reductions, improvements to evacuation or incident management routes, improvements to geometric deficiencies, and improvements to intermodal movement conflicts. Additionally, an evaluation criterion which measures the infrastructure condition of highways, bridges, and tunnels also addresses existing safety concerns.

The "Highways," "Bridge/Tunnel," "Bicycle and Pedestrian," "Systems Management/TDM/Operational Improvements," and "Intermodal" project categories all include specific safety evaluation criteria.

Factor 3: Increase the ability of the transportation system to support homeland security and to safeguard the personal safety of all motorized and non-motorized users.

Given the significant military presence and the potential for severe weather conditions such as hurricanes in the Hampton Roads region, security was another priority when developing evaluation criteria for the six categories. Understanding that the operations of the roadways, bridges, and tunnels throughout Hampton Roads are critical during evacuations and other incidents, priority is given to

"Highways" and "Bridge/Tunnel" projects that improve incident management or evacuation routes. In addition, the "Bridge/Tunnel" category has a criterion which considers the potential regional impacts, in terms of operations, of a sudden bridge or tunnel failure. "Systems Management/TDM/Operational Improvements" projects are also evaluated based on improvements to incident management or evacuation routes as well as provisions for emergency vehicle preemption and incident detection.

Factor 4: Increase the accessibility and mobility of people and freight.

This planning factor was accounted for in all six project categories. Specifically, the Hampton Roads prioritization process values projects which:

- Reduce vehicular congestion on the regional roadway network
- Improve system continuity and connectivity for the regional roadway, bicycle and pedestrian, and transit networks
- Encourage the use of alternate travel modes (walking and biking, transit, ridesharing, etc.)
- Enhance the use of other modes (e.g., a roadway project which includes a multiuse path)
- Improve rail or vehicular access to major destinations such as freight distribution facilities, airports/seaports, major industrial clients, employment and population centers, or rail stations/terminals
- Improve transit, bicycle, and pedestrian access to employment and population centers
- Address the mobility and accessibility needs of the region as a whole
- Better accommodate intermodal movements of people and freight

Factor 5: Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

This planning factor was accounted for in all six project categories. Specifically, the Hampton Roads prioritization process values projects which:

- Reduce vehicular emissions by reducing congestion and increasing system efficiencies
- Are compatible with existing land use patterns and future growth and development (based on consistency with state and local planning documents)
- Support economic growth and vitality across the region

Factor 6: Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

This planning factor was accounted for in all six project categories. Specifically, the Hampton Roads prioritization process values projects which:

- Improve system continuity and connectivity for the regional roadway, bicycle and pedestrian, and transit networks
- Provide multimodal accommodations (e.g., a roadway project which includes a multiuse path)

- Improve rail or vehicular access to major destinations such as freight distribution facilities, airports/seaports, major industrial clients, employment and population centers, or rail stations/terminals
- Improve pedestrian and bicycle access to transit as well as local and regional destinations
- Better accommodate intermodal movements of people and freight

Factor 7: Promote efficient system management and operation.

Efficient system management and operation are promoted in the Hampton Roads prioritization process through the emphasis on congestion mitigation. Congestion mitigation was identified by the Steering Committee as well as the technical and public survey respondents as a major factor in prioritizing transportation projects. The "Highways," "Bridge/Tunnel," and "Systems Management/TDM/ Operational Improvements" project categories all include specific evaluation criteria based on congestion levels while the "Transit" category includes travel time reductions as an MOE. "Intermodal" projects which remove conflicts between intermodal movements and thereby improve operations also are prioritized. In addition, the "Systems Management/TDM/Operational Improvements" project category places emphasis on systems management by prioritizing projects which improve communications among multiple operating agencies.

Factor 8: Emphasize the preservation of the existing transportation system.

With limited funding available for new infrastructure, it is now more important than ever to manage the current transportation assets in Hampton Roads. The "Highways" and "Bridge/Tunnel" project categories each include infrastructure condition as an evaluation criterion. Priority is given to facilities with poor existing infrastructure conditions (based on nationwide standards). In addition, projects included in the "Systems Management/TDM/Operational Improvements" category (such as signal retiming and ITS solutions) are inherently designed to improve operations without major infrastructure improvements. TDM programs are implemented to encourage ridesharing, walking/biking, and parking management practices which manage the overall transportation demand for a given destination and reduce the need to build additional infrastructure.

Appendix B

RSTP Criteria and Weighting Factors

(Courtesy of the 2003 HRTPO CMAQ/RSTP Report)

Project Prioritization:

Selected projects are assigned to fiscal years based on priority and on project readiness.

RSTP PROJECT EVALUATION METHOD BY PROJECT CATEGORY

Project Category	Evaluation Method
Highway Capacity, Accessibility & Operational Improvements - Roadway widening, new facilities, HOV lanes, new interchanges, Intersection improvements - Corridor operational improvements - Bridge rehabilitation	 See Table 2 See Table 3 See Table 4
Intermodal Transportation Projects - Intermodal facilities	See Table 5
Transit - New service, Expansion of Service, Shelters & Facilities (Bus, fixed-guideway, HOV express) - Vehicle replacement/purchase - Other transit & ITS projects	 See Table 6 See Table 7 See Table 8
Planning Studies - Alternatives Analysis - Feasibility Studies	See Table 9
Transportation Demand Management - Regional rideshare - Marketing & outreach - HOV lane express bus service - Park-&-ride lots	See Table 10
Intelligent Transportation Systems	See Table 11

HIGHWAY CAPACITY, ACCESSIBILITY AND OPERATIONAL IMPROVEMENTS

Table 2
Roadway Widening, New Facility, HOV Lanes, Intersection Improvements

Evaluation Criteria	Points	Scoring Instructions
Congestion Level	0-20	Existing and future conditions (10 points each): severe=7, moderate=3, low=0
Cost-Effectiveness	0-20	Lowest cost/vmt = 20 Highest cost/vmt = 0 Straight line interpolation between
System Continuity	0-20	Completion of a missing link in the transportation system Total completion = 20 Partial completion = 10
Safety	0-20	20 points to the project with highest safety improvements
Air Quality	0-10	Reduces NOx =5 points Reduces HC=5 points
Project Readiness	0-10	Projects with detailed design and cost estimates that are ready to go will receive 10 points

Table 3
Corridor Operational Improvements

Evaluation Criteria	Points	Scoring Instructions
Arterial LOS based on Average Travel Speed	0-25	Relative Scale- maximum points to arterial with lowest average speed (worst LOS), 0 to arterial with LOS C or better
ADT of Roadway	0-20	Existing and future ADT (10 points each). Relative scale - maximum points to highest corridor ADT/Lane
Cost-Effectiveness	0-35	Relative Scale- maximum points to the project with lowest cost/vmt
Existing Accident Experience	0-20	Relative Scale- maximum points to the project With highest accident rate or frequency
Project Readiness	0-10	Projects with detailed design and cost estimates that are ready to go will receive 10 points

HIGHWAY CAPACITY, ACCESSIBILITY AND OPERATIONAL IMPROVEMENTS

Table 4
Bridge Rehabilitation

Evaluation Criteria	Points	Scoring Instructions
Bridge Condition per VDOT Sufficiency Index	0-60	Relative Scale- maximum points to the bridge with worst condition
ADT of Bridge	0-30	Relative Scale- maximum points to the bridge with highest ADT
Project Readiness	0-10	Projects with detailed design and cost estimates that are ready to go will receive 10 points

INTERMODAL TRANSPORTATION PROJECTS

Table 5
Intermodal Facilities

Evaluation Consideration	Points
Will the project establish opportunities for linkages or connections between transportation modes or existing corridors or centers?	Up to 40 points
Will the project improve the operating system to better accommodate intermodal movements?	Up to 25 points
Will the project improve rail or vehicular access to freight distribution facilities, ports, or major industrial clients?	Up to 25 points
Project Readiness Projects with detailed design and cost estimates that are ready to go will receive 10 points	Up to 10 points

TRANSIT

Table 6
New Service, Expansion of Existing Service, Facilities, etc.

Evaluation Criteria	Points	Scoring Instructions
Congestion relief	0-10	Impacts of new/expanded service on area highways- 10 points to the project with the highest % of trips removed from highways; 0 points to the project with no impact on adjacent highway.
Facility Usage- Daily Ridership	0-20	Relative Scale Highest ridership=20 points Lowest ridership=0 points
Cost Effectiveness - Subsidy/ passenger (or use other FTA formula depending on the project)	0-20	Relative scale Lowest subsidy/passenger=20 Highest subsidy/passenger=0
Air Quality	0-20	NOX reductions=10 HC reductions=10
Coverage Area	0-20	Relative scale - Population and Employment data.
Project Readiness	0-10	Projects with detailed design and cost estimates that are ready to go will receive 10 points

Table 7
Vehicle Replacement/Purchase

Evaluation Criteria	Points	Scoring Instructions
Average age of the vehicles	35	FTA standard=12 years
Number of vehicles to replace/total fleet	10	
Emissions changes of the old and new vehicles	30	
Cost Effectiveness	10	Cost/Ridership
Average mileage of the vehicles to be replaced	15	FTA Standards

TRANSIT

Table 8
Other Transit and ITS Projects

Evaluation Consideration	Points
Will the project increase service reliability of the transit system?	0-25
Will the project improve passenger safety, comfort and convenience?	0-30
Does the project improve efficiency of the transit system?	0-10
Does the project improve the revenue collection?	0-25
Does the project improve transit data collection system?	0-10

PLANNING STUDIES

Table 9
Alternatives Analysis & Feasibility Studies

Evaluation Consideration	Points	Yes or No
1) Is the study necessary to address a major issue or to revise the Plan?	0-25	
2) Is the study necessary to address a safety issue?	0-15	
3) Is the study concerned with encouraging multimodal transportation?	0-10	
4) Does the study address the mobility or accessibility needs of the region?	0-20	
5) Is the study well defined in terms of purpose, design concept and scope?	0-10	
6) Do the goals and objectives of the study show support for economic development?	0-10	
7) Do the goals and objectives demonstrate preservation or protection of the environment?	0-10	

TRANSPORTATION DEMAND MANAGEMENT

Table 10
Regional Rideshare, Marketing & Outreach, HOV Lane Express Bus Service, Park-and Ride Lots, Telecommuting, etc. The TDM Committee developed the following criteria. Measures will be evaluated against the base year's figures (TDM Manager will provide appropriate data for base and target years).

Measures of Success	Base Year	Target Year
Number of employers offering some TDM programs		
% of employees ridesharing (car, van, bus)		
% of employees walking or biking		
Number of contacts made		
Parking Management (availability, price, zoning requirements)		
Mixed use land use (trip reduction)		
HOV usage/ Vehicle occupancy rates		
Other measures		

INTELLIGENT TRANSPORTATION SYSTEMS

Table 11
ITS Projects

Evaluation Consideration	Points
Will the project improve traffic flow during peak congestion periods and special events?	0-15
Will the project directly reduce the number or severity of accidents, which occur on roadways?	0-25
Will the project improve level of service, increase service capacity, or contribute to incident management?	0-20
Does the project address the mobility or accessibility needs of the region?	0-10
Does the project improve the linkage and communications among various operating agencies to provide better and accurate traffic information to the motorists?	0-20
Is the project part of the Regional ITS Strategic Plan?	0-10

Appendix C

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Appendix D

Nationwide Benchmark Agency Research -
Additional Methodology Information

(Courtesy of Each Individual Agency)

Fredericksburg Area MPO
(FAMPO)

Project Prioritization Methodology

Recommended Approach

FAMPO

Project Prioritization Methodology

Recommended Approach

June 17, 2008

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Table of Contents

Prioritization Approach

Introduction

To understand the long-term transportation needs of a region, carefully prepared and executed planning processes are undertaken. These processes compile existing and future transportation system and usage information, as well as other non-technical considerations and elements to identify the comprehensive set of transportation infrastructure, policy, and service modifications that are necessary to accommodate existing and future travel demand by all modes of transportation. In any plan area, differing projects have differing costs and benefits (relative and absolute). In addition, for plans encompassing multiple jurisdictions, regional priorities may differ widely from local priorities.

Understanding that there are practical limitations to the implementation of transportation improvement projects, a regimented system for determining the relative value of all projects when compared to one another generally (all modes and project types together), and when compared to one another within specific groupings, is needed. The Fredericksburg Area Metropolitan Planning Organization has developed a proposed recommended Project Prioritization Methodology to assist in the setting of priorities for projects identified as a part of the Regional Long-Range Transportation Plan.

Background

The FAMPO proposed recommended Project Prioritization Methodology is based on the collective experience of other Metropolitan Planning Organizations and localities, the eight SAFETEA-LU Federal Planning Factors, and the FAMPO Mission Statement. The following is a brief summary of factors evaluated for use, the eight Federal Planning Factors, and the FAMPO Mission Statement.

Summary of Factors Considered

- Congestion
- Economic Opportunities
- Safety
- Security
- Public Support
- Environmental Impacts
- Funding, Local Matches, and Prior Funding Commitments
- Cost
- Regional Connectivity
- Gap Closure
- Deliverability/Readiness
- Freight Mobility
- Emergency Evacuation
- Improve Mobility for Disadvantaged
- Sustainability
- Local Priority

- Benefit/Cost Ratio
- Remaining Life Cycle and Existing Conditions

SAFETEA-LU: Federal Planning Factors

1. Support the economic vitality of the United States, the States, metropolitan areas, and non-metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes and throughout the State, for people and freight;
7. Promote efficient system management and operation; and
8. Emphasize the preservation of the existing transportation system

FAMPO Mission Statement

The Fredericksburg Metropolitan Area Planning Organization's (FAMPO) mission is to provide a cooperative, continuous and comprehensive ("3C") transportation planning process to build regional agreement on transportation investments that balance roadway, public transit, bicycle, pedestrian, and other transportation needs and support regional land use, economic, and environmental goals for the safe and efficient movement of people and goods. Special emphasis is placed on providing equal access to a variety of transportation choices and effective public involvement in the transportation planning process.

Proposed Recommended Methodology

This proposed recommended methodology uses readily accessible information in evaluating projects based on the following major factors and project classifications:

- **Congestion relief:** 30 points
- **Safety and security:** 30 points
- **Environmental impacts:** 16 points
- **Public and community support:** 8 points
- **Funding and implementation considerations:** 8 points

- **Smart growth/mobility:** 8 points

These factors are consistent with FAMPO's mission, build on the relevant factors used in other areas for project prioritization, and fulfill each of the eight Federal Planning Factors, as summarized in **Table 1.0**. The recommended project classifications are the following:

Level I

- **Urban:** includes projects in designated urban areas
- **Rural:** includes projects in designated rural areas

Level II

- **Interstate:** includes interstate mainline projects, projects for new and improved interchanges, and interstate ramp projects (does not include surface street crossings of the interstate not having ramps to the interstate)
- **Arterial:** includes facilities (non-interstate) within the arterial functional classification
- **Collector:** includes facilities within the collector functional classification
- **Local:** includes facilities within the local functional classification
- **Bridge:** includes bridge projects divided into the following two groups:
    - Replacement
    - Rehabilitation and maintenance

Table 1.0: Summary of Federal Planning Factors and Proposed Recommended Prioritization Criteria

	Recommended FAMPO Prioritization Factor					
Federal Planning Factor	1. Congestion Relief	2. Safety and Security	3. Environmental Impacts	4. Public/ Community Support	5. Funding/ Implementation Considerations	6. Smart Growth/Mobility
1. Economic Vitality						X
2. Safety		X				
3. Security		X				
4. Accessibility	X					X
5. Environment			X	X		
6. Integration	X					

and Connectivity						
7. Efficiency	X	X			X	X
8. Existing Network Preservation	X	X				

By evaluating projects based on factors within these major categories, projects are scored on a 100 point scale. Projects with the highest score are technically identified as higher priorities than those earning lower scores.

Application of Factors: Project Ranking Process

1. **Apply prioritization factors**
   - Quantitative factors
   - Qualitative factors

2. **Add totals within individual categories**

3. **Add totals of categories**

4. **Prioritize (rank) projects**
   - Step 1—Organize projects into Urban and Rural
   - Step 2—Organize projects into the following categories: Interstate, Arterial, Collector, Local, and Bridges *[divided into A) Replacement and B) Rehabilitation/Maintenance]*
   - Step 3—Rank categorized projects from highest to lowest scores
   - Step 4 (optional)—Separate projects for individual jurisdictions (within categories)

5. **Review information**

6. **Projects with highest score (nearest 100) are highest priority based on factors**

7. ***Review by Staff, TAC, and Board to identify acceptable exceptions***

Scoring Categories, Point Values, and Descriptive Guidance

The following sections are intended to guide the scoring of projects and provide detailed descriptions of each factor in the major categories and the measures for assigning point values to projects.

1. Congestion Relief (30 points)

Congestion (14 points): Level of current and future congestion

Existing level of congestion = existing volume/existing capacity
7 points: V/C>1.5
5 points: V/C≥1.0 and V/C<1.5
2 points: V/C≥0.9 and V/C<1.0
0 points: V/C<0.9

Future level of congestion = future volume/existing capacity
7 points: V/C>2.0
5 points: V/C≥1.5 and V/C<2.0
2 points: V/C≥1.0 and V/C<1.5
0 points: V/C≤1.0

*For projects on existing location, the higher the existing and future congestion, the more points are awarded. For new location projects, if the project were not implemented, the higher the level of congestion in parallel corridors and future congestion in parallel corridors, the more points are awarded.

Continuity and Connectivity (7 points): Improvement to route continuity and the connectivity of the overall transportation network

7 points: Project has regional significance and provides considerable benefit to the regional transportation system –OR- completes a logical element of the transportation system (i.e. fills in the gaps)
4 points: Project has multijurisdictional significance and provides benefit to a multijurisdictional area
1 points: Project has local significance (only) and provides benefit only to a localized area

*This criterion awards more points to projects that promote overall system continuity and efficiency. More points are awarded for projects that increase the efficiency of the entire system, whereas fewer points are awarded for projects that benefit an isolated area alone.

Major Users (4 points): Service to major activity centers

4 points: Project provides improvements in access to an existing regional major activity center –OR- project reduces single-occupant vehicle travel to, between, and within activity centers
2 points: Project provides improvements in access to an existing local major activity center or a future regional major activity center –OR- project reduces single-occupant vehicle travel to and within activity centers
1 point: Project provides improvements in access to a future local major activity center –OR- project reduces single-occupant vehicle within activity centers
0 points: Project does not benefit activity centers

*Multimodal projects that benefit activity centers would be awarded the highest number of points whereas projects not benefiting activity centers would be awarded the lowest number of points.

Freight Use (5 points): Substantial service to freight movement or facility servicing substantial freight movements

5 points: Project enhances the ability for a National Highway System Route, Interstate Route, or other major state or local route to efficiently move freight
3 points: Project maintains the ability for a National Highway System Route, Interstate Route, or other major state or local route to efficiently move freight
0 points: Project impairs the ability for a National Highway System Route, Interstate Route, or other major state or local route to efficiently move freight

*Projects that increase capacity, improve roadway geometry, increase average travel speed, improve access, and/or improve mobility would be awarded a higher point value. Projects that make the movement of trucks more difficult and less efficient would be awarded a lower point value.

2. Safety and Security (30 points)

Geometric Impact on Existing Roadways (18 points): Improvement to geometric deficiencies such as horizontal and vertical alignment, lane width, or shoulder conditions

18 points: Project corrects all existing geometric roadway deficiencies
15 points: Project corrects 80% of existing geometric roadway deficiencies
12 points: Project corrects 65% of existing geometric roadway deficiencies
9 points: Project corrects 50% of existing geometric roadway deficiencies
6 points: Project corrects 35% of existing roadway geometric deficiencies
3 points: Project corrects 20% of existing geometric roadway deficiencies
0 points: Project does not correct any existing roadway geometric deficiencies

*Projects that mitigate inadequate width roadways (not number of lanes, width of travelway), inadequate width/condition shoulders, and sharp curves or steep hills/deep valleys would be awarded the highest point values. New location roadways would be awarded points only if they replace or supplement a deficient facility that is not being improved.

Vehicle Crash Reduction (6 points): Potential to reduce crash history

6 points: Project with highest crash rate (segment rate)
3 points: Project with a mid-range crash rate (segment rate)
0 points: Project with the lowest crash rate (segment rate)

*Projects are ranked from highest to lowest and awarded a graduated point value based on ranking

Bike/Pedestrian Safety (4 points): Contributor to improved safety for pedestrians and bicyclists

4 points: Project provides positive benefit to pedestrian and bicycle safety (i.e. provides new sidewalks, bikeways, multiuse paths, trails, improved crossings, and similar)
1 point: Project will not change conditions for pedestrians or bicyclists
0 points: Project will negatively impact bicycle or pedestrian facilities and accommodation

* Projects that include improvements to the pedestrian and bicycle system that enhance safety and accommodation above existing conditions, would be awarded more points. Projects that maintain the status quo or have negative impacts would be awarded fewer points.

Homeland Security (2 points): Strategic project that improves Homeland Security

2 points: Project supports evacuation or incident management purposes
0 points: Project does not support evacuation or incident management purposes

*Projects that enhance the efficiency of key travel routes and/or services during major incidents or during evacuations would be awarded the highest point values. Projects on other routes or that do not enhance travel efficiency and system use during evacuations and/or incidents would not be awarded points.

3. Environmental Impacts (16 points)

Natural Environment (8 points): Impact on wetlands, watersheds, ecosystems, air, and water quality

8 points: Project has significant and measurable net positive impact on wetlands, watersheds, ecosystems, air, and water quality
4 points: Project is neutral in its environmental impact, neither providing significant benefit or detriment to the environment
0 points: Project has significant and net negative impact on wetlands, watersheds, ecosystems, air, and water quality

*Projects that contribute to improvements in water and air quality, restore or increase (appropriately) wetlands, and protect ecosystems would be awarded higher point values. Projects that involve significant mitigation and remediation of wetlands and impact sensitive ecosystems would be awarded lower point values.

Neighborhood (8 points): Impact on neighborhoods, communities, and historic and archaeological sites

8 points: Project has a net positive impact on neighborhood, community, historic, or archaeological elements in the community. The project is sensitive to the area context. Project has limited or no impact to significant community elements (schools, churches, archaeological sites, homes, cultural amenities, etc.) and provides measurable benefit in terms of aesthetics, safety, and accommodation of all modes of transportation.
4 points: Project is neutral in its impact on neighborhood, community, historic, or archaeological elements in the community. The project is somewhat context sensitive; however, it has some measurable and real impact to community elements (schools, churches, archaeological sites, homes, cultural amenities, etc.).
0 points: Project has a net negative impact on neighborhood, communities, and historic and archaeological sites. Project encourages unsustainable growth.

*Streetscape, bikeway, trail, sidewalk, transit, context-sensitive roadway modification, and similar projects would be awarded higher point values. Significant road widening and projects that require significant "takings" and that have substantial community impacts would be awarded lower point values.

4. Public/Community Support (8 points)

Existing Plans (4 points): Adherence to existing street and highway, master, regional, and local modal plans

4 points: Project is a part of two of the following: statewide, regional, and locally adopted plans
3 points: Project is a part of a statewide, regionally or locally adopted plan
2 points: Project is not a part of any of the aforementioned plans, but is regionally and locally supported
1 point: Project is not a part of any of the aforementioned plans, but is locally supported

*Projects programmed in local capital improvement programs, regional programs, and statewide programs and that are a part of adopted plans would be awarded the highest number of points. Projects that are not programmed or a part of adopted plans would be awarded the fewest number of points.

Community Support (4 points): Strong governmental or community support or continuity with local goals and initiatives and consistency of request by local jurisdictions

4 points: Project has strong and consistent local support (project has been identified as a high local priority on a consistent basis). Project has received funding towards design and ROW.
2 points: Project has strong, but not always consistent local support or it is a new project within the last year. Project has some funding, but is not enough to begin design work.
1 point: Project has strong local support from the jurisdiction, but is highly controversial or has not received any funding**.**

*Projects that have been a consistent priority for local jurisdictions and those that the public and public officials widely support are awarded the highest number of points. Projects that are controversial (making them hard to implement), but are supported by the local jurisdiction would be awarded fewer points.

5. Funding/Implementation Considerations (8 points)

Feasibility (3 points): Reasonable cost, efficient, resourceful, having positive long-term economic impacts

3 points: Project has demonstrated feasibility either through a concept plan or completed feasibility study, project has begun design work
2 points: Project has undergone some level of concept planning or demonstrates the ability to be implemented
1 point: Project is undefined, except by long range or comprehensive plan

*Projects that have demonstrated feasibility for implementation are awarded the highest number of points. These projects will often have had a supporting feasibility study, concept design, and engineering completed. Projects that are less well-defined are awarded fewer points.

Project Ready (4 points): Project ready to go, except for funding

4 points: Project ready to go (designed and mostly funded)
3 points: Project is well-defined (designed and partially funded)
2 points: Project is well-defined (has feasibility study), but has no funding identified
1 point: Project has funding identified, but is an expansion of an existing road
0 point: Project has no funding and is an new road

*Projects that are ready and have some or all the funding needed would be awarded higher point values. Projects that are less well-defined and do not have funding would receive fewer points.

Interagency Cooperation (1 point): Importance to other agencies or jurisdictions or related to joint initiatives involving multiple jurisdictions or agencies

1 point: Project has state or regional, as well as local support
0 points: Project has only single-agency support

*Projects of regional significance, supported by a larger contingent of jurisdictions would be awarded more points and projects with less interagency support and cooperation would be awarded fewer points.

6. Smart Growth/Mobility (8 points)

Growth Areas (4 points): Promotion of sensible, sustainable growth

4 points: Project promotes, encourages, and supports sustainable patterns of growth
1 point: Project neither promotes nor discourages sustainable patterns of growth
0 points: Project encourages unsustainable patterns of growth

*Projects that support and enhance existing stable communities and/or planned nodes of responsible growth would be awarded more points. Projects that promote or extend unsustainable patterns of development would be awarded fewer points.

Intermodal (4 points): Enhancement of intermodal access

4 points: Project is on a transit route (or provides access to regional transit), designated bike route, supports TDM, and in an area with pedestrian activity
3 points: Project is on two of: transit route, supports TDM, bike route, and in a pedestrian activity area
1 point: Project is on a bike route, transit route, supports TDM or in a pedestrian activity area
0 points: Project is not on a bike route, transit route, does not support TDM or in a pedestrian activity area

FAMPO RSTP AND CMAQ FUNDING PROJECT SELECTION AND PRIORITIZATION CRITERIA METHODOLOGY

INTRODUCTION

This document describes the process the Fredericksburg Area Metropolitan Planning Organization (FAMPO) will undertake to identify and select transportation projects for inclusion in FAMPO's Transportation Improvement Program (TIP). The selection process outlined in this document will be used for all proposed projects using Federal Regional Surface Transportation Program (RSTP) and Congestion Mitigation and Air Quality Improvements (CMAQ) program funding; beginning in Fiscal Year 2010

The process developed for selecting and prioritizing projects utilizing RSTP and CMAQ funding will include four steps: **1)** applications and preliminary screening; **2)** project evaluation; **3)** project prioritization; and **4)** project selection.

Each locality or agency's highest rated project will receive some amount of CMAQ or RSTP funding in each fiscal year unless the FAMPO Policy Committee deems the project to be a non-priority. The percentage of funding allocated to each project will be developed by the FAMPO Staff and the FAMPO Technical Committee for consideration by the FAMPO Policy Committee.

UNUSED FUNDING

CMAQ: All unused, non-pooled* CMAQ funding must revert to the FAMPO reserve, per Federal guidelines.

RSTP: Non-pooled RSTP funds that have not been obligated for more than a two year period will revert to the FAMPO reserve for reallocation. Any funds for projects which have been cancelled will be subject to reallocation. Left over funds for projects that have been completed will be subject to reallocation. There are two possible courses of action to determine the funding reallocation in these circumstances as follows:

1. The funds will be returned to the FAMPO reserve and subject to broad competition on a Regional basis in all cases.

2. If the locality is successful in leveraging additional funding from proffers, private sources, bonds, grants, etc. to supplant the original RSTP funds, then the locality will retain control of original RSTP funds in an amount equal to 50 percent of the locally-leveraged funding. The retained funds will be subject to the same two year deadline as shown in #2 above. The remainder of the

funding will be returned to the FAMPO reserve and subject to broad competition on a Regional basis.

*Note: Pooled funds are defined as funds being accumulated in a UPC account to pay for an eligible CMAQ or RSTP project.

RESERVE FUNDS FOR EMERGENCY SITUATIONS

Beginning in FY10, 10 to 15% of FAMPO's annual RSTP allocations will be placed into reserve for emergency situations, studies and cost overruns. If this allocation is not allocated within that fiscal year, the emergency funds will be the first funds allocated in the subsequent year.

Emergency situations can be characterized as any situation including natural and man made disasters that suddenly and seriously negatively effect:

- Regional Mobility for all Modes of Transportation
- Safety and Security of Users
- The Natural Environment
- Repair Costs

The locality or agency requesting emergency funds will be required to provide a 50% local match on the requested funding.

REGIONAL SURFACE TRANSPORTATION PROGRAM (RSTP)
PROJECT SELECTION

RSTP funds should be allocated and implemented in a manner consistent with the current Federal guidelines for their use (federal guidelines are available from FAMPO upon request). Starting in FY 2010, RSTP funds will be selected based on rankings across the MPO area for:

Ranking Factors:

- Safety
- Congestion Management
- Cost Effectiveness
- Project Readiness/ Additional Committed Funding for Project
- Ability to Get Project to the Next Phase
- Natural and Built Environment
- Efficient Future Land Use
- System Continuity
- Accessibility

RSTP APPLICATION PROCESS AND PRELIMINARY SCREENING

Project funding application forms will be in an electronic format (either .doc or .pdf) and will be distributed to the localities and agencies. Once the applications are received, the projects will go through an initial screening process that will check for:

- The proposed project meets all applicable criteria under Federal regulations; the Safe Accountable Flexible Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU)
- Determination of the projects eligibility to receive funding under the Federal RSTP/CMAQ Guidelines
- The project must be consistent with FAMPO's current Long Range Transportation Plan (2035 LRTP)
- A detailed project description with supporting data
- Cost estimates for proposed projects
- A defined project implementation schedule
- A demonstration that the project is ready for the proposed phase (PE, ROW or Construction)
- A demonstration that the project management team is in place to oversee the project

RSTP PROJECT EVALUATION

After the initial screening process has been completed, projects will be placed into one of six categories, which are listed below, and then scored. Projects within each category will then be compared to each other. FAMPO Staff will evaluate all projects according to the criteria. Staff will then prepare a list of candidate projects that have been scored and ranked in each category. The projects will be listed in descending order from the highest score to lowest score in each category. A funding amount for each project will then be assigned according to the project rankings until the available funding is expended. If the project is eligible for both RSTP and CMAQ funding, the criteria in which the project was originally scored under will determine its ranking unless there are unexpended funds from the other funding category. For example; an intersection improvement project is scored under the CMAQ Criteria. The project does not score high enough in competition with the other CMAQ projects to receive funding and there is an excess of RSTP funds; the project will then be funded via the RSTP funds or vice versa. The list of projects will then be shared with the FAMPO Technical Committee for review, comment and endorsement. The project list will then be presented to the FAMPO Policy Committee for approval.

If the total list of projects exceeds the amount of total funding available, then FAMPO staff will recommend the amount of funds to be allocated to each project, for review, comment and endorsement by the Technical Committee and approval by the FAMPO Policy Committee.

Once the list is approved by the FAMPO Policy Committee, staff will work with VDOT/DRPT to include each project's funding allocations in VDOT's Six Year Improvement Program, (SYIP) which must be submitted to VDOT by June 1 of every year. Selection of projects for inclusion in FAMPO's Transportation Improvement Program (TIP) is based on policies and procedures for programming projects in the TIP (this requires consideration of federal funds obligation requirements, as described by state and federal policies).

The six categories are as follows:

1. **Roadway Capacity**
   - Widening, new facilities, interchanges/intersection improvements
   - Bridge rehabilitation projects & P/E

2. **Intelligent Transportation Systems (ITS) and Operational Improvements**
   - Corridor operational improvements (i.e. signal synchronization/ optimization, and incident management)

3. **Intermodal Transportation Projects**

4. **Transit Projects**
   - Vehicle replacement/purchases
   - Other projects/programs/equipment/signage

5. **Planning/PE Studies**

6. **Non-Motorized Projects**
   - Bicycle projects
   - Pedestrian projects

The descriptions of the evaluation criteria and methods used in scoring candidate projects are as follows:

1. ROADWAY CAPACITY PROJECTS

The FAMPO highway project prioritization methodology adopted by the FAMPO Policy Committee will be employed for ranking all highway project candidates.

2. INTELLIGENT TRANSPORTATION SYSTEMS AND OPERATIONAL IMPROVEMENTS

Criteria	Points
Will the project improve traffic flow during peak congestion periods and special circumstances?	0-25
Will the project directly reduce the number and severity of roadway incidents?	0-25
Does the project address the mobility or accessibility needs of the region?	0-10
Does the project increase the linkage and communications among various operating agencies to provide better traffic information to the motorists?	0-20
Is the project/project concept part of the Regional ITS Strategic Plan?	0-10
Additional committed funding (on a sliding scale: project brining most funds – 10 points, least funds - 0 points)	0-10

3. INTERMODAL TRANSPORTATION PROJECTS

Criteria	Points
Will the project establish opportunities for linkages or connections between transportation modes or existing corridors and industrial, employment and population centers?	0-40
Will the project improve the operating system to better accommodate intermodal movements?	0-20
Will the project improve rail or vehicular access to freight distribution facilities, ports, major industrial clients, or employment and population centers?	0-20
Project readiness: projects with detailed design and cost estimates that are ready to go = 10 points Projects with additional committed funding = 10 (sliding scale)	0-20

4. TRANSIT PROJECTS

Vehicle Replacement/ New Vehicle Acquisitions

With respect to vehicle replacements, the evaluators should assign a score from 0-100 based on "consideration" of the following factors:

Evaluation Criteria	Points	Scoring Instructions/ Supporting Data
Vehicles to be replaced have reached end of usefulness (defined by FTA)	0-20	List of buses to be replaced with existing/projected mileage and age
Estimated cost per vehicle	0-20	Estimated price per fully equipped vehicle
Number of passenger trips effected	0-20	System ridership for past full year/ additional projected ridership
Pollution reduction and energy efficiency enhancements	0-20	Are new vehicles more energy efficient and promote green technologies
Other available funding sources	0-20	Other potential funding sources: likelihood of funding, local match requirement, grant cycle.

Evaluators should consider all of these factors when scoring the application and enter brief comments about each of them on the evaluation sheet.

Other Transit Projects: Facilities/Equipment/Signage

With respect to new or expanded transit services, the evaluators should assign a score from 0-100 based on "consideration" of the following factors:

Evaluation Criteria	Points	Scoring Instructions/ Supporting Data
Population within service area and prospective ridership within area (within ¾ mile of transit route)	0-20	Preliminary service routing, population estimate within service area, (based on most recent census) estimate of perspective ridership
Estimated service cost	0-20	Cost per hour of service, revenue hours of service, cost of buses utilized in service
Will proposed service operate in an area with significant traffic congestion	0-30	Highway LOS of D or below
Will the service attract "choice" or SOV riders and/or transit dependent populations	0-10	Median Household income above and below poverty levels by Census Block Group from most recent US Census
Other funding sources	0-10	Other potential funding sources: likelihood of funding, local match requirement, grant cycle.
Will the jurisdiction commit to continuing the service if the it meets defined ridership objectives	0-10	Letter of Commitment from jurisdiction

Evaluators should consider all of these factors when scoring the application and enter brief comments about each of them on the evaluation sheet.

5. PLANNING/PE STUDIES

Criteria	Points	Yes/No
Is the study necessary to address a major issue or to revise the LRTP?	0-10	
Is the study necessary to address a safety issue?	0-20	
Is the study concerned with encouraging multimodal transportation?	0-10	
Does the study address the region's mobility or accessibility needs?	0-20	
Is the study well defined in terms of purpose, design concept and scope?	0-5	
Do the study's goals and objectives show support for economic vitality, quality of life and efficient, compact land use patterns? (5 points each)?	0-15	
Do the goals/objectives foster environmental preservation/protection?	0-10	
Projects with additional committed funding (sliding scale)	0-10	

6. BICYCLE/PEDESTRIAN PROJECTS

A. Number of people the project will benefit (0-20 points)

These projects will be evaluated based on estimated users that are within a logical distance from the project. A three-mile radius will be used for bicycle projects and a one-mile radius for pedestrian projects. FAMPO 2006 Traffic Analysis Zone (TAZ) geography will be used to determine the base year and projected year (2035) population and employment.

The highest user base will receive 20 points and the lowest user base will receive 0 points.

B. Projects will address existing needs (0-40 points)

Criteria	Points	Scoring Instructions
Need for Improvements	0-10	Completion of a missing link as part of phased construction
	0-10	Provides access to transit, commercial/employment centers, recreational facilities from residential areas
	0-10	Eliminates a barrier to major destinations
	0-10	Improves bicycle/pedestrian safety

C. Transportation Function (0-20 points)

Criteria	Points	Scoring Instructions
Transportation Function	0-10	Serves trips to work/school
	0-10	Serves other trips (personal business, shopping, recreation, etc.)

D. Matching Funds (0-10 points)

Projects with additional committed funding (i.e. an approved budget, resolution, proffer, impact fee, etc) will be listed on a sliding scale, with the project pledging the most additional money receiving 10 points and the least receiving 0 points.

E. Project Readiness (0-10 points)

Projects with detailed design and cost estimates that are ready to go will receive 10 points

CONGESTION MITIGATION & AIR QUALITY IMPROVEMENT PROGRAM (CMAQ) PROJECT SELECTION

Starting in FY 2010, Congestion Mitigation & Air Quality Improvement Program (CMAQ) funds will be selected based on rankings across the MPO area for:

RANKING FACTORS:

- Project readiness/Additional committed funding
- Ability to get project to the next phase
- Demonstrated increase to safety in and around project location
- Demonstration that the project will alleviate congestion in and around the project area
- Demonstration that the project will promote efficient land use
- A demonstration that the projects improve air quality

CMAQ APPLICATION PROCESS AND PRELIMINARY SCREENING

Project funding application forms will be in an electronic format (either .doc or .pdf) and will be distributed to the localities and agencies. Once the applications are received, the projects will go through an initial screening process that will check for:

- The proposed project meets all applicable criteria under Federal regulations; the Safe Accountable Flexible Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU)
- Determination of the projects eligibility to receive funding under the Federal RSTP/CMAQ Guidelines
- The project must be consistent with FAMPO's current Long Range Transportation Plan (2035 LRTP)
- A detailed project description with supporting data
- Cost estimates for proposed projects
- A defined project implementation schedule and project management strategy (i.e. managed by locality, VDOT, etc.)
- A demonstration that the project is ready for the proposed phase (PE, ROW or Construction)

EMISSIONS REDUCTION ANALYSIS OF ELIGIBLE PROJECTS

After the initial screening has been completed, FAMPO staff, with assistance from VDOT, local governments and agencies will conduct an emissions reduction analysis on all eligible projects. Emissions are estimated for volatile organic compounds (VOC) and nitrogen oxides (NOx). The results of the analyses will be tabulated for the eligible projects.

CMAQ PROJECT EVALUATION

After the initial screening process has been completed, projects will be placed into one of five categories, which are listed below, and then scored. Projects within each category will then be compared to each other. FAMPO Staff will evaluate all projects according to the criteria. Staff will then prepare a list of candidate projects that have been scored and ranked in each category. The projects will be listed in descending order from the highest score to lowest score in each category. A funding amount for each project will then be assigned according to the project rankings until the available funding is expended. If the project is eligible for both RSTP and CMAQ funding, the criteria in which the project was originally scored under will determine its ranking unless there are unexpended funds from the other funding category. For example; an intersection improvement project is scored under the CMAQ Criteria. The project does not score high enough in competition with the other CMAQ projects to receive funding and there is an excess of RSTP funds; the project will then be funded via the RSTP funds or vice versa. The list of projects will then be shared with the FAMPO Technical Committee for review, comment and endorsement. The project list will then be presented to the FAMPO Policy Committee for approval.

If the total list of projects exceeds the amount of total funding available, then FAMPO staff will recommend the amount of funds to be allocated to each project, for review, comment and endorsement by the Technical Committee and approval by the FAMPO Policy Committee.

Once the list is approved by the FAMPO Board, staff will work with VDOT/DRPT to include each project's funding allocations in VDOT's Six Year Improvement Program, (SYIP) which must be submitted to VDOT by June 1 of every year. Selection of projects for inclusion in FAMPO's Transportation Improvement Program (TIP) is based on policies and procedures for programming projects in the TIP (this requires consideration of federal funds obligation requirements, as described by state and federal policies).

CMAQ projects will be divided into five primary groups:

- Roadway Projects
- Non-Roadway Projects (Transit, TDM and Bicycle /Pedestrian)
- ITS Projects
- Engineering and Design
- Other Projects

ROADWAY PROJECTS

Eligible highway projects include improvements to intersection/interchange geometric design..

Scoring Factors for Roadway Projects:

Criteria	Points	Scoring Instructions
Reduction of Congestion	0-20	Greatest positive change to LOS = 20 Lowest positive change to LOS = 0 (2 point sliding scale)
Air Quality	0-30	Reduces NOx = 15 points Reduces VOC = 15 points
Safety	0-20	20 points to the project with the highest safety improvements Straight line interpolation (relative scale)
Project Readiness	0-20	Projects with detailed design and cost estimates that are ready to undertaken = 10 points Projects with additional funding committed = 10 points (sliding scale of 2 points each)
Efficient Land Use	0-10	Will the project provide access to areas of efficient, compact land use?

Isolated Intersection Projects

This project type refers to improvements at individual intersections that are not part of a coordinated signal system. The projects may include improvements in the geometric design of the intersection and signal timing or improvements in timing only. The change in emissions for a project is based on the change in delay (in hours per day) at the intersection as a result of the project.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS) AND OPERATIONAL IMPROVEMENTS

A wide array of highway and transit projects are classified as ITS/Operational projects, such as:

- Traffic signal timing
- Upgrades to traffic signal systems
- Advanced traffic management systems
- Changeable message signs
- Communications improvements
- Video surveillance infrastructure
- Automatic vehicle location and passenger counting for transit purposes

Coordinated Signal Systems

This type of project includes several intersections along a section of roadway for which the signal timing is coordinated to promote progression of traffic along that section. Most of the projects in this category consist of improvements to signal timing only. The change in emissions for a project is based on the change in average speed (in miles per hour) along the section of roadway as a result of the project.

The emissions factors are determined for the “before” and “after” average speeds. These factors are multiplied by the daily VMT (vehicle miles traveled) for the section of roadway to compute the daily change in emissions of VOC and NO_x for the section in units of kilograms per day.

Citywide and Countywide Signal System Improvements

This type of project includes a large number of intersections within a jurisdiction. Nearly all of the intersections included in this type of project are part of a coordinated traffic signal system. The projects in this category include improvements to signal equipment and signal timing. The change in emissions for a project is based on the change in average speed (in miles per hour) for the citywide/countywide system.

Improvements may include lane additions, which would permit a change in the traffic signal phasing. For instance, at an intersection with a long cycle length, the addition of left turn lanes would allow the opposing lefts to move concurrently, followed by the opposing through movements. The effect would eliminate phasing referred to as "split phasing" and reduce the overall cycle length of the intersection in a coordinated signal system.

To analyze these projects, citywide or countywide values for average speed and VMT for principal and minor arterials are obtained from a VDOT Conformity Analysis. Then, using the analysis discussed in the section on coordinated signal systems, a four miles-per-hour increase in average speed is assumed to result from the project. If the applicant submits additional "before" and "after" data and analysis, the staff will use this data in lieu of the above value estimated for this category.

The emissions factors are determined for the "before" and "after" average speeds. These factors are multiplied by the citywide daily VMT to compute the daily change in emissions of VOC and NOx in units of kilograms per day.

These projects take advantage of new technologies aimed at improving traffic flow, reducing response time to traffic incidents, improving safety, and providing timely information to the traveling public.

The scoring factors for ITS projects are as follows:

Criteria	Points
Will the project improve traffic flow during peak congestion periods and special circumstances?	0-25
Will the project directly reduce the number and severity of roadway incidents?	0-25
Does the project address the mobility or accessibility needs of the region?	0-10
Does the project increase the linkage and communications among various operating agencies to provide better traffic information to the motorists?	0-20
Is the project part of the Regional ITS Strategic Plan?	0-10
Additional committed funding (2 point sliding scale)	0-10

NON-ROADWAY PROJECTS

Transit Programs and Projects

Transit projects include replacement buses, and new/expanded transit services or facilities. Emissions benefits for most transit projects are based on the predicted reduction in automobile trips and VMT resulting from the project. Projects that involve new or expanded service also take into account the increase in emissions due to the operation of the new transit vehicles. Park & ride lot projects take into account the emissions due to the automobile trips to the lot. Emissions reductions resulting from replacement buses are due to emissions improvements in the newer bus engines and any increase in ridership due to newer vehicles.

The scoring factors for Bus Replacements are as follows:

With respect to vehicle replacements, the evaluators should assign a score from 0-100 based on "consideration" of the following factors:

Evaluation Criteria	Points	Scoring Instructions/ Supporting Data
Vehicles to be replaced have reached end of usefulness (defined by FTA)	0-20	List of buses to be replaced with existing/projected mileage and age
Estimated cost per vehicle	0-20	Estimated price per fully equipped vehicle
Number of passenger trips effected	0-25	System ridership for past full year/ additional projected ridership
Pollution reduction and energy efficiency enhancements	0-25	Are new vehicles more energy efficient and promote green technologies
Other available funding sources	0-10	Other potential funding sources: likelihood of funding, local match requirement, grant cycle.

Evaluators should consider all of these factors when scoring the application and enter brief comments about each of them on the evaluation sheet.

The scoring factors for New/Expanded Transit/ Service Projects are as follows:

With respect to new or expanded transit services, the evaluators should assign a score from 0-100 based on "consideration" of the following factors:

Evaluation Criteria	Points	Scoring Instructions/ Supporting Data
Population within service area and prospective ridership within area (within ¾ mile of transit route)	0-30	Preliminary service routing, population estimate within service area, (based on most recent census) estimate of perspective ridership
Estimated service cost	0-10	Cost per hour of service, revenue hours of service, cost of buses utilized in service
Will proposed service operate in an area with significant traffic congestion	0-30	Highway LOS of D or below
Will the service attract "choice" or SOV riders	0-10	Median Household income by Census Block Group from most recent US Census
Other funding sources	0-10	Other potential funding sources: likelihood of funding, local match requirement, grant cycle.
Will the jurisdiction commit to continuing the service if the it meets defined ridership objectives	0-10	Letter of Commitment from jurisdiction

Evaluators should consider all of these factors when scoring the application and enter brief comments about each of them on the evaluation sheet.

TDM Programs

Transportation Demand Management (TDM) – GWRideConnect

GWRideConnect, the Regional Transportation Demand Management Agency, serves the residents of Stafford, Spotsylvania, Caroline and King George counties and the City of Fredericksburg. *GWRideConnect* promotes and facilitates ridesharing and transportation demand management initiatives to assist persons seeking transportation options to their workplaces and other destinations. The overarching policy of the *GWRideConnect* Program is to promote, plan and establish transportation alternatives to the use of the single occupant vehicle, thereby improving air quality, reducing congestion and improving the overall quality of life for the citizens of the region.

The activities and programs of a transportation demand management agency are all CMAQ eligible, are Regional in scope and provide air quality and congestion mitigation benefits across the entire FAMPO service area. Starting with FY 2010 allocation year, a base amount of $125,000 of the yearly CMAQ allocation will be set aside for *GWRideConnect*. The *GWRideConnect* agency will submit project applications and corresponding materials for programs and activities each fiscal year. Any unspent portion of the yearly allocation will be returned back to FAMPO and placed into the CMAQ reserve balance for reallocation in the following fiscal year. The funding will be reviewed annually and funding will be derived from an off the top designation of the region's annual allocation of CMAQ funds. If

GWRideConnect requires funds in excess of the base allocation, normal CMAQ procedures will be followed.

Bicycle and Pedestrian Projects

Air quality benefits of bicycle and pedestrian projects are calculated as a function of a reduction in the number of automobile trips and VMT. Analysis methods for bicycle and pedestrian projects are typically project specific and may be qualitative or quantitative depending on the type of project and the availability of input data. The scoring criterion that is used for bicycle and pedestrian projects under RSTP funding will be used to score the CMAQ funding requests with additional consideration given to the projects air quality benefits.

OTHER PROJECTS

The other project category includes those projects that do not fit perfectly into any other project groupings. Analysis methods for these projects are typically project specific and may be qualitative or quantitative depending on the type of project and the availability of input data. These projects will be addressed on a case by cases basis by FAMPO Staff and the FAMPO Technical Committee.

North Carolina DOT
(NCDOT)

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***

Prioritization Model Matrix for Scoring 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%

Prioritization Model Matrix for Scoring 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%		50%	50%
SAFETY	Statewide	70%	**CONG = 10% SAFE = 80% PVMT = 10%**	20%	10%
	Regional	70%		15%	15%
	Subregional	0%		50%	50%
INFRASTRUCTURE HEALTH	Statewide	70%	**CONG = 10% SAFE = 10% PVMT = 80%**	20%	10%
	Regional	70%		15%	15%
	Subregional	0%		50%	50%

Quantitative Score

- ALL Condition Data is derived from NCDOT Sources
- *Rule of Thumb*: HIGHER the Score the WORSE the condition

TOTAL QUANTITATIVE SCORE = 100+ points

- ***Congestion Score (0 to 100+)***
  - Score = Volume/Capacity Ratio (60%) + AADT (40%)
    - V/C = (AADT/Capacity)*100
    - AADT = AADT/1000

- ***Safety Score (0 to 100)***
  - Score = mathematical combination of Density (33%) + Severity(33%) + Critical Crash Rate(33%)
    - Crash Density – The crash density of the study area versus the average crash density of similar facilities
    - Severity Index – measure of the mix of accident severity in a group of accidents at a location
    - Critical Crash Rate – The actual crash rate versus the critical crash rate for the study area

- ***Pavement Condition Score (0 to 100)***
  - Score = 100 - Pavement Condition Rating

Examples of Quantitative Scoring

- Apply Highway Matrix Weights and Percentages

- For Statewide Tier Mobility Project (major widening):
  - (0.8 x Congestion Score) + (0.1 x Pavement Score) + (0.1 x Safety Score)
  - Multiply result X weight by Tier (i.e., 70 %)

- For Regional Tier Infrastructure Health Project (rehabilitation):
  - (0.1 x Congestion Score) + (0.8 x Pavement Score) + (0.1 x Safety Score)
  - Multiply result X weight by Tier (i.e., 70 %)

- Total Quantitative Score is always weighted by tier and goal (i.e., 70 or 50 percent) to obtain total quantitative points/per project

Qualitative Point System

Division Rank *TOP 25*	Points		**Local (MPO/RPO) Rank** *TOP 25*	Points
1	100		1	100
2	96		2	96
3	92		3	92
4	88		4	88
5	84		5	84
6	80		6	80
7	76		7	76
--	--		--	--
--	--		--	--
25	4		25	4

Examples of Qualitative Scoring

Qualitative Scoring Summary:

- For Statewide Tier Mobility Project (major widening):
  - (0.2 x Division Rank Points) + (0.1 x Local Rank Points)

- For Regional Tier Infrastructure Health Project (rehabilitation):
  - (0.15 x Division Rank Points) + (0.15 x Local Rank Points)

Summary for Scoring Highway Projects

- ***OVERALL SCORE IS Quantitative plus Qualitative points***

- **Years 1-5 STIP projects** are considered ***Committed*** Delivery Projects & therefore do not need to be ranked (and will not be pre-populated in the database).

- **Years 6-10 of STIP projects** are considered ***Planning*** Projects, i.e. projects in a developmental stage that could ultimately move into the 5-year Committed schedule & therefore do need to be ranked (and will be pre-populated in the database).

- The SPOT Prioritization Model **will only generate on overall rank for**:
  - Current Highway (I, R, U type) projects in STIP (years 6 & 7) AND
  - New Highway (I, R, U type) projects (needed within the next 10 years) submitted in template

Atlanta Regional Commission
(ARC)

APPENDIX G

Envision6 Project Prioritization Technical Analysis

Section 1.0 Context

In August 2006 the ARC Board adopted a Federal Funding Decisions Framework to prioritize projects for federal transportation funding. This framework incorporates the Governor's Congestion Mitigation Task Force (CMTF) recommendation to implement a project selection process that weights congestion mitigation at 70 percent as well as ARC Board direction to develop a multimodal plan that supports the region's development policies through improved integration of transportation and land use planning.

A range of technical analysis methods were developed to evaluate system expansion projects. The technical analysis reflects the 70 percent congestion criteria prescribed by the CMTF and the ARC Board guidance through the inclusion of four major components. These components estimate how well each project meets regional goals and objectives through an analysis of:

1. Recurring delay (50%) which occurs as routine traffic volumes exceed available roadway capacity or transit user benefits,
2. Non-recurring delay (20%) which occurs as a result of a traffic incidents,
3. Environmental impact (15%) which measures a project's proximity to six environmentally sensitive area types, and
4. Regional Development Plan policy support (15%) which measures the level a project supports ARC's RDP policies based on project location and scope.

Different techniques were utilized to evaluate the congestion relief benefits of highway and transit projects. This distinction reflects the fact that there is no one specific analysis tool than can be used to accurately evaluate the congestion impacts

of both highway and transit projects.

Only system expansion projects were subject to this specific technical analysis. Other technical analyses were conducted through the Congestion Mitigation Task Force to evaluate the benefits of other project types. The projects within the system expansion category met the following criteria for testing:

1. System expansion projects in current Mobility 2030 RTP
2. Construction planned in long-range (2012 and later)
3. Within the MPO boundary
4. On the Regional Strategic Transportation System
5. Federal funding programmed

These criteria were applied at the beginning of Envision6 Project Prioritization in October 2006 based on existing costs and phasing within the Mobility 2030 RTP and FY 2006-2011 TIP. Changes were made to costs and new projects were included in the analysis based on updated schedules from GDOT in January 2007. Additional changes were made to reflect input on 100% locally funded projects from jurisdiction meetings held in January and February.

In total the application of these criteria in January/February 2007 resulted in:

- **205** individual general purpose capacity project phases grouped to result in a total of **157** unique projects subject to the technical analysis. Individual projects were grouped together primarily in cases where: projects with overlapping limits, adjacent segments/phases of a larger project or separate bridge or interchange improvements that support a larger widening project.
- **29** tested managed lane projects. All managed lane projects were tested as traditional HOV lanes, including those within the 06-11 TIP.
- **17** transit capital projects within Mobility 2030 RTP were grouped into **12** unique project tests. All transit capital projects were tested including those within the 06-11 TIP.

The projects were tested as they were coded within the Mobility 2030 RTP/FY 2006-2011 travel demand model used to establish the April 2006 conformity determination.

The project scores do not reflect any new project scope details identified for inclusion in the constrained *Envision6 RTP*.

Limitations of the technical analysis methodology resulted in **20** stand alone interchange or bridge capacity/grade separation projects not being analyzed. These projects met all the criteria listed above, but because they did not include a specific increase in system capacity that would impact network performance, they were not tested.

Due to project delays or scope changes, there are **11** general purpose capacity projects with construction in long range in the draft *Envision6* constrained project list that were not tested.

These general purpose capacity projects are:

1. CL-064 & HE-136 – US 23 from SR 138 to I-675
2. DK-327A & RO-235A – Sigman Road Extension/Hayden Quarry Road from Turner Hill Road to I-20 at Sigman Road
3. FT-306C – SR 306 from SR 369 to SR 53
4. GW-316 – Hillcrest Road/Satellite Boulevard Connector
5. HE-126A1 – Hampton-Locust Grove Road from SR 20 to SR 155
6. NE-007 – US 278 from Covington Bypass to SR 142
7. PA-015 – Bill Carruth Parkway from Nebo Road to Dallas-Nebo Road
8. PA-061B – SR 61 from Nebo Road to Dallas-Nebo Road
9. RO-214 – Old Covington Highway from Lake Capri Road to Sigman Road

There are **61** long range general purpose or interchange capacity projects without federal funding that were not included in the analysis. Truck only lanes on I-75 North were also not tested.

There are **98** general purpose roadway capacity, **5** interchange capacity and **14** bridge capacity projects in the draft 2008-2013 TIP that were not tested. These projects meet all the criteria except criterion #2.

Refer to Exhibit A, B & C at the end of this document for scoring results of all the Mobility 2030 projects analyzed for this process.

Section 2.0 Congestion Scoring

As specified through the CMTF, 70% of project scoring is dedicated to congestion relief. Congestion relief includes both recurring and non-recurring (incident) congestion and is calculated differently for highway versus transit projects.

Section 2.1 Recurring Congestion - Roadway

The 2005/2006 Congestion Management Process (CMP) uses a post-processing travel demand model script to calculate link-based daily congested hours, total vehicle delay, free-flow travel time and congested travel time on the 2005 and 2030 loaded networks. The link-based data is aggregated by congestion management network facility name to calculate the three dimensional congestion measures. The composite congestion ranking for each facility is based on the sum of the points from each of the three dimensions for each facility. The maximum total score for a CMP facility is 18.

The project prioritization methodology uses the same three dimensions of congestion (intensity, duration, extent) as is used in the CMP, however the measures representing the three dimensions are slightly different as is the ranking scheme. The benefit of each project in terms of congestion relief is determined through evaluation of the assigned model network at a corridor level.

Table 1 – Project Corridor Analysis

Project Type	Corridor Analysis
Roadway Capacity	.5 mile buffer
New Interchange	1 mile + next upstream and downstream interchange
New Alignment/Bypass	1 mile + alternate state highway or major arterial route

A post-processing travel demand model script is used to compare network performance of the 2030 build scenario to a 2030 build minus the specific project under consideration. The level of benefit at the corridor level is then assigned a point value of 0-17 across each measure.

Table 2 – CMP versus Project Prioritization Evaluation Measures

Measure	Congestion Management Process	Envision6 Project Prioritization
Intensity	CMP facility maximum travel time index	Project corridor maximum peak period delay
Duration	CMP facility congested hours	Project corridor congested hours
Extent	CMP facility % of total daily system vehicle delay	Project corridor daily vehicle delay

Intensity

Project Corridor Peak Period Delay =
Sum(corridor link max congested travel time) – Sum(corridor link free flow travel time)

Using the travel time index to measure project corridor level congestion relief benefits yields marginal results. Utilizing the two components of the travel time index (congested travel time and free flow travel time) individually shows more measurable results. In the project prioritization methodology, intensity is the difference between the maximum congested travel time by link by direction within either the AM or PM peak periods and the free flow travel time. Free flow travel speeds are calculated in the model based on a lookup table of facility type and area type. The measure represents the total link level delay the project corridor experiences during the most congested period of the day.

The percent change in corridor delay between the no build and build is then assigned a ranking from 0-17 based on its % ranking within the list of prioritized projects.

Duration

Project Corridor Congested Hours (weighted by Distance) =
Sum(corridor link congested hours*link distance) / Sum(total corridor distance)

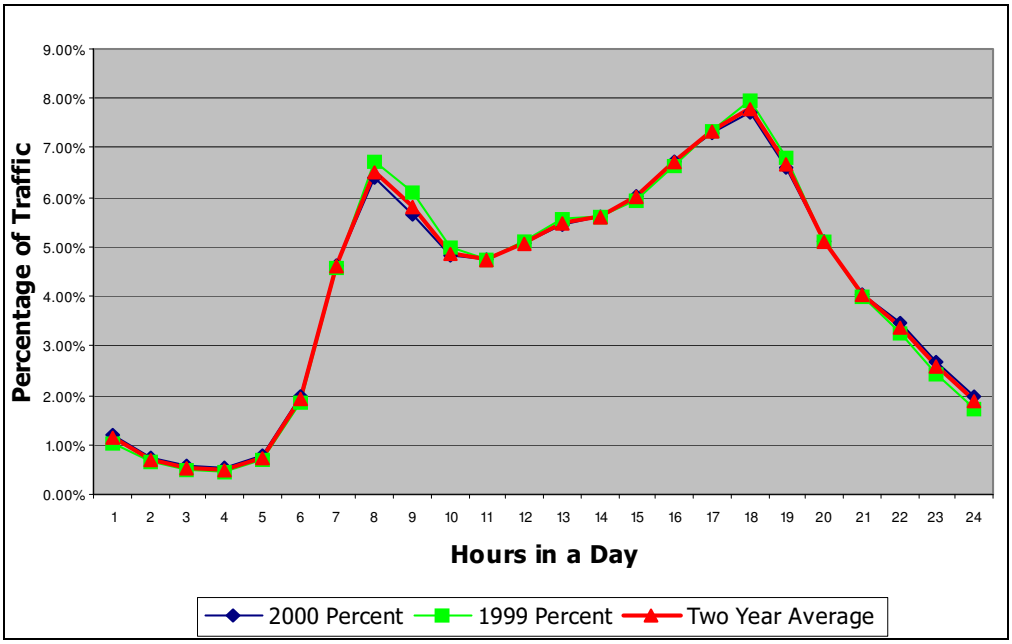
The measure uses the diurnal distribution curve within the regional trip assignment model. This curve represents the average of 1999 and 2000 daily traffic counts used

to determine the temporal trip distribution model for the four time-of-day period assignments. These counts result in hourly estimates of percent of total daily traffic. The duration of extent measure takes the total daily volume on a link and estimates the volume by hour based on the curve.

Table 3 – Diurnal Distribution of Travel in the 13-County Non-attainment Area

Hours	2000 Sum	**2000 Percent**	1999 Total	**1999 Percent**	Two Year Total	**Two Year Average**
1	879,264	**1.19%**	437,089	**1.05%**	1,316,353	**1.14%**
2	547,592	**0.74%**	273,937	**0.66%**	821,529	**0.71%**
3	414,669	**0.56%**	207,875	**0.50%**	622,544	**0.54%**
4	392,431	**0.53%**	197,378	**0.47%**	589,809	**0.51%**
5	579,587	**0.78%**	295,021	**0.71%**	874,608	**0.76%**
6	1,477,073	**2.00%**	776,739	**1.86%**	2,253,812	**1.95%**
7	3,411,341	**4.62%**	1,924,335	**4.60%**	5,335,676	**4.61%**
8	4,736,415	**6.41%**	2,821,324	**6.75%**	7,557,739	**6.53%**
9	4,184,413	**5.67%**	2,554,113	**6.11%**	6,738,526	**5.83%**
10	3,575,173	**4.84%**	2,082,742	**4.98%**	5,657,915	**4.89%**
11	3,514,627	**4.76%**	1,982,420	**4.74%**	5,497,047	**4.75%**
12	3,751,041	**5.08%**	2,134,509	**5.10%**	5,885,550	**5.09%**
13	4,015,302	**5.44%**	2,333,612	**5.58%**	6,348,914	**5.49%**
14	4,134,124	**5.60%**	2,346,228	**5.61%**	6,480,352	**5.60%**
15	4,459,875	**6.04%**	2,488,118	**5.95%**	6,947,993	**6.01%**
16	4,981,794	**6.75%**	2,779,436	**6.65%**	7,761,230	**6.71%**
17	5,405,297	**7.32%**	3,070,729	**7.34%**	8,476,026	**7.33%**
18	5,708,954	**7.73%**	3,330,786	**7.97%**	9,039,740	**7.82%**
19	4,889,228	**6.62%**	2,843,429	**6.80%**	7,732,657	**6.69%**
20	3,778,137	**5.12%**	2,148,166	**5.14%**	5,926,303	**5.12%**
21	3,001,753	**4.06%**	1,667,545	**3.99%**	4,669,298	**4.04%**
22	2,563,461	**3.47%**	1,367,698	**3.27%**	3,931,159	**3.40%**
23	1,990,215	**2.70%**	1,020,471	**2.44%**	3,010,686	**2.60%**
24	1,453,605	**1.97%**	732,662	**1.75%**	2,186,267	**1.89%**
Total	73,845,371	**100.00%**	41,816,362	**100.00%**	115,661,733	**100.00%**

Figure 1 – Diurnal Distribution of Travel in the 13-County Non-attainment Area



The duration measure uses the same V/C thresholds to define congestion as is used in the Congestion Management Process.

Table 4 – Hourly V/C Congestion Thresholds

Area Type	Freeways		Regional Strategic Arterial System	Other Arterials and Regionally Significant Roadways
	HOV	Other		
Volume to Capacity Ratio (V/C)				
URBAN	0.90	0.90	0.85	0.85
SUBURBAN	0.90	0.90	0.85	0.80
EXURBAN/RURAL	0.90	0.90	0.85	0.80

Each hour that the volume to capacity ratio exceeds the V/C ratio threshold is reported as an hour of congestion. The hours of congestion for the entire corridor is weighted by total link distance to report a single corridor hours of congestion. The measure represents the average total hours during the day that a facility exhibits congested conditions.

The percent change in corridor congested hours between the no build and build is then assigned a ranking from 0-17 based on its % ranking within the list of prioritized projects.

Extent

Project Corridor Vehicle Delay = Sum(link Total Vehicle Delay)

The CMP uses link level percentage of system total daily vehicle delay as the measure of extent for each facility. Within project prioritization, the interest is the reduction in total vehicle delay across the project corridor. The measure represents the total daily delay experienced by all vehicles using the project corridor.

The absolute change in daily vehicle delay between the no build and build scenario for each project corridor is assigned a ranking from 0-17 based on its % ranking within the list of prioritized projects. Absolute change is used in order to reflect the higher level of benefit in terms of vehicle delay reduction in the highest travel volume project corridors.

Composite Congestion Relief Measure

The composite congestion relief ranking is based on the sum of the total points across the intensity, duration and extent measures. The rankings for each measure assign 0-17 points per measure based on the projects percent rank within the entire project list for a total possible maximum of 51 points for a project (50pts cannot be split evenly by 3, so each category has a max of 17pts, for a possible total of 51pts). This represents 50 of the possible 70 points for congestion relief, with the other 20 dedicated to project level incident congestion reduction.

Section 2.2 User Benefits - Transit

The FTA's SUMMIT software was used to perform the user benefits analysis for the prioritization of transit projects. The calculation of SUMMIT User Benefits is based on the microeconomic theory of consumer surplus and the user benefits are expressed in hours (see Calculation of User Benefits, below). The SUMMIT software used inputs from the regional travel demand model and was ran via a post-processing TP+ script.

SUMMIT calculates the generalized cost of all trips in both the "Baseline Scenario" and the "Alternative Scenario" and then calculates the User Benefit Hours to be provided by the alternative scenario.

Section 2.2.1 Definition of the Transit Alternative Scenarios

Twelve (12) transit projects were identified for prioritization and an "Alternative Scenario" was created for each transit project. The modeled 2030 Highway Network from the Mobility 2030 Regional Transportation Plan (Mobility 2030 RTP) was used as the 'Baseline Scenario" for the User Benefit Analysis. Each Alternative Scenario was created by removing the particular transit project being considered, and any redundant transit feeder routes, from a copy of the modeled 2030 Highway Network. Each Alternative Scenario therefore had less transit services than the Baseline Scenario.

Section 2.2.2 Running SUMMIT: The TP+ Post Processor

The inputs from the Baseline Scenario required by the SUMMIT software already existed from the 20-County 2030 model run that was prepared and ran for the Mobility 2030 RTP. A TP+ script was used to create the inputs from the Alternative Scenario required by SUMMIT and to run the SUMMIT software. The script created new transit skims from the Alternative Scenario transit network, and then ran the Mode Choice for the Alternative Scenario using the new transit skims but reusing the person trips ad the highway skims from the Baseline Scenario. The TP+ script then ran the SUMMIT software which used the outputs from the Mode Choice of the Baseline and Alternative Scenarios to calculate the User Benefit Hours.

Section 2.2.3 Output from SUMMIT: User Benefit Hours

The SUMMIT software produced several outputs, including but not limited to: number of person and transit trips in the Baseline Scenario; change in person and transit trips resulting from the Alternative Scenario; and the transportation system User Benefit Hours that resulted from the Alternative Scenario. Since each Alternative Scenarios provided less transit services than the Baseline Scenario, the resulting User Benefit Hours calculated by the SUMMIT software were negative – implying a disbenefit, or a reduction in the transportation system's User Benefits. The results can be interpreted

as follows: The transit project, and related feeder routes, that produced the greatest user disbenefit when removed from the Baseline Scenario, would therefore provide the greatest user benefit if added to the regional transportation system.

Section 2.2.4 Ranking and Scoring the Transit Projects

The absolute value of each project's User Benefit Hours total was translated to a final score ranging from 0 to 50 based on a uniform distribution. Specifically, each project was assigned a score of 0, 10, 20, 30, 40, or 50 based on the percent rank of the User Benefit Hours total, with each of these six possible scores assigned to an equal number of projects. (Since a total of 12 transit capital projects were considered, each possible score was assigned to two projects.) The uniform distribution was used to ensure the full utilization of the possible range of scores and to avoid a concentration of scores around a central median value (which would diminish the utility of the scoring system as a project comparison and evaluation tool).

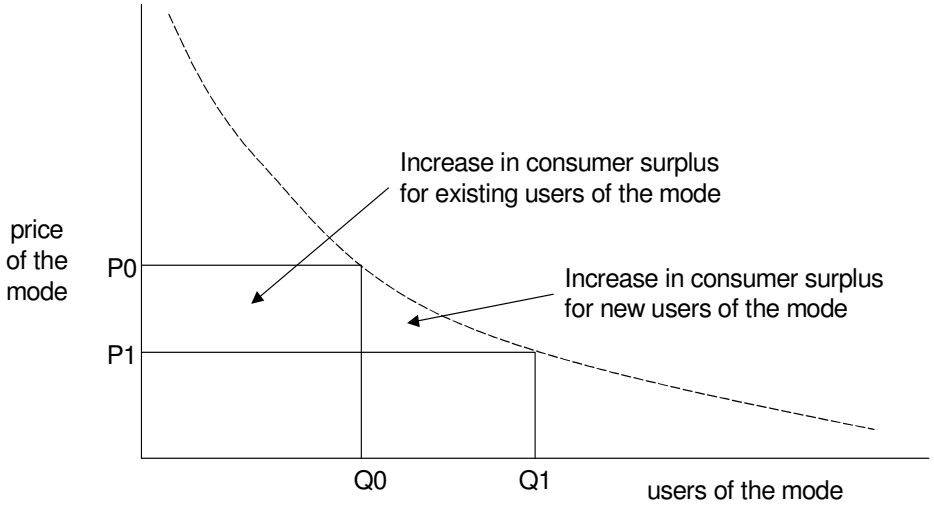
Section 2.2.5 Calculation of User Benefits[1]

User benefits requires a slightly more complex calculation that is similar to that needed for measures based on travel time savings – but includes time savings enjoyed by new riders as well. The user-benefits-measure has several advantages over "time savings" and "new riders" as an indicator of travel benefits;

- It is sensitive to changes in both travel times and travel costs, and recognizes benefits for both existing transit users and new users diverted from other modes;
- It puts direct transportation benefits into a single unit of measurement and permits them to be summed and uses as an overall measure of transportation benefits in the evaluation of alternatives;
- The user benefits measure is based on the concept of "consumer surplus" – a well established method provided by mirco-economic theory for measuring benefits.

[1] Users Guide to SUMMIT

Figure 2 – Microeconomic Principles of Consumer Surplus



Price (P_O) is the price of the Do-Nothing alternative for transit travel between two areas. At this price, R_O riders will be attracted to transit. A transit alternative in the corridor would reduce the generalized price of transit for this alternative to $P_{1.}$ This price reduction is largely the result of lower travel times, though it could reflect a lower (or higher)fare as well. Demand forecasts for the alternative indicated that R_1 riders would use transit for this interchange if the project was built.

The impacts on existing riders are represented by what each rider currently pays for the benefits available from making the transit trip. With the improvements introduced by the alternative, each existing rider would pay only P1 for the same benefits. Thus, each existing rider enjoys a savings, or "surplus", equal to (P0-P1). Since there are R0 existing riders, the total savings to existing riders are simply:

$$(P_0-P_1) * R_0$$

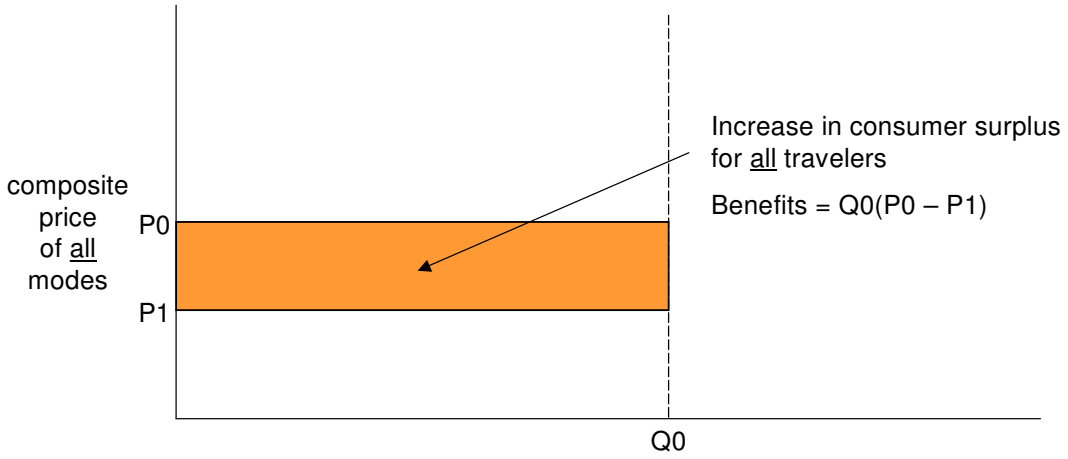
Impacts on new riders are similar. The "average" new rider switches at a price equal to the between the new and old prices, (P0 + P1)/2. The average new rider saves an amount equal to the difference between the price at which the individual switched modes and the eventual price, P1:

$$\frac{(P_0 + P_1)}{2} - P1 = \frac{(P_0 - P_1)}{2}$$

The user benefit definition is broadened when user benefits are considered across several modes. Riders include all travelers. This definition eliminates the issue of

travelers that switch between two modes . The price they pay is the composite price that combines the costs of all modes.

Figure 3 – Composite Utility for All Travelers



This composite price is computed from the (logit) mode choice model used to estimate shares among the competing modes. This measure of system mobility – often referred to as "composite" utility or impedance -- is taken directly from the denominator of the logit model, and converted to equivalent minutes of "in-vehicle" time, based on the locally determined coefficient on in-vehicle time.

$$\text{price in utiles}_{\text{all modes}} = \ln\left(\exp(U_{auto}) + \exp(U_{bus}) + \exp(U_{rail})\right)$$

$$\text{price in minutes}_{\text{all modes}} = \frac{\text{price in utiles}_{\text{all modes}}}{\text{coefficient}_{\text{in-vehicle time}}}$$

All modes of transit are rolled up to produce an aggregate cost, or "price" of transit. Similarly, a price for all auto modes is produced. Auto and transit "prices and quantities" are written directly from the travel forecasting procedures to files that the Summit software will then used to tabulate changes in composite mobility, and finally covert to minutes of system user benefits. The equations shown above are the primary calculations that occur within Summit.

The final price – or utility of all modes – is a measure of attractiveness of all modes. This value is further reduced to access markets based on the transit access representation employed in the local the travel forecasting procedures.

Section 2.3 Non-Recurring Highway Congestion

Section 2.3.1 Highway Incident Analysis

Highway incidents are a major cause of highway travel delay. Typically, these incidents include crashes; disabled vehicle on the roadway; vehicle spills; etc. For the purpose of the highway incident congestion component of the ARC project prioritization process, only crashes were analyzed. The decision to analyze only crashes was based of the unavailability of incident data, other than crash data, for all roads in the metro area.

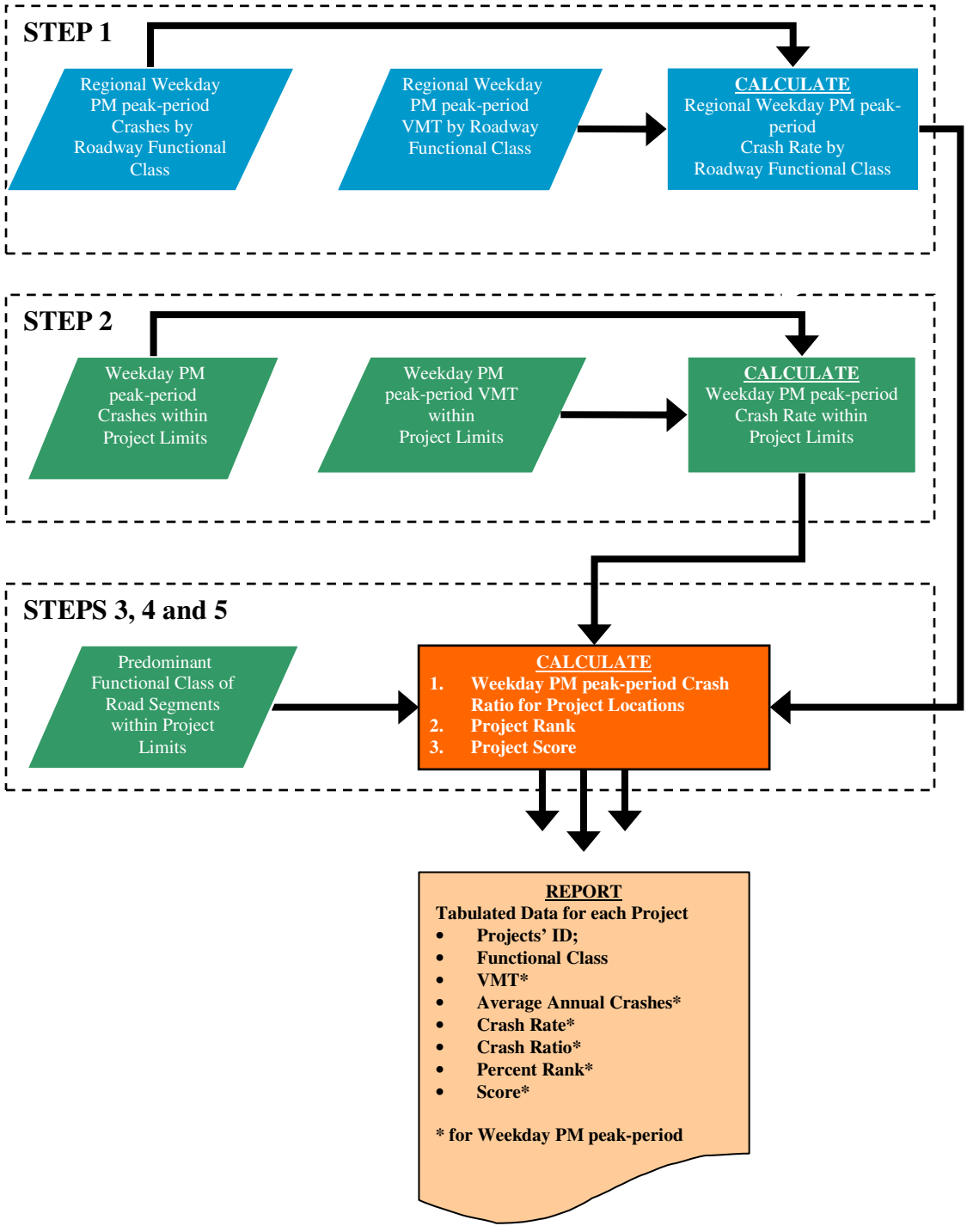
Generally, the duration of congestion resulting from a particular crash is directly related to the number of lanes closed or blocked and the duration of the lane closure. However, data about the number of lanes closed or the duration of lane closure for crashes on all roads in the Atlanta metro area was not available. Consequently, this analysis does not measure the actual delay caused by crashes but provides a proxy measure – the Crash Ratio – that compares the crash rate at a particular road segment (the segment within a project's limits) to a region-wide crash rate on roadways of similar functional classification. The interpretation here is that a roadway segment with a Crash Ratio greater than 1.0 experienced a crash rate that is higher than the regional average for facilities of similar functional class and thus would likely have experienced higher than average incident delays.

Section 2.3.2 Highway Standard Methodology

The analysis contained five steps, described below and illustrated in Figure 4.

- Step 1: Determine the Regional Crash Rates by Functional Class for the weekday PM peak-period (3:01 PM and 7:00 PM).
- Step 2: Determine the Crash Rates on the route(s) within each project's limits, for the weekday PM peak-period.
- Step 3: Determine the Project Locations' Crash Ratio (i.e. the ratio of the project location crash rate to the regional crash rate for facilities of similar functional class).
- Step 4: Rank the projects by Crash Ratio.
- Step 5: Assign a score to each project based on the project's rank.

Figure 4 – Flow Chart for Highway Incident Analysis (Simplified)



Step 1: Determine the Regional Crash Rates by Functional Class for the weekday PM peak- period.

1.1. Determine the number of crashes that occurred on weekdays during the PM peak-period on each Functional Class of roadway in the 20-County area during the 5-year period 2000 to 2004:

The total number of weekday PM peak-period crashes for each Functional Class of roadway in the 20-county area for the years 2000 to 2004 ($C_{R,FC,WDS,PM}$) was obtained by running separate database queries for each Functional Class on the Georgia CARE 2000-2004 Crash Database. The results were copied to a spreadsheet.

1.2. Determine the Weekday PM-peak period Vehicle miles traveled (VMT) by Functional Class for the 20-County area (adjusted for HPMS data):

Firstly, the Weekday "All Day" and Weekday "PM-peak period" VMT by Functional Class for the 20-County area were obtained from the ARC 20-County Travel Demand Model. Then HPMS adjustment factors were determined by comparing the "All Day" VMT by Functional Class from the model with the HPMS daily VMT by Functional Class. The adjustment factors were then applied to the PM peak-period VMT from the model to determine the adjusted Regional VMT by Functional Class for a Weekday PM peak-period ($VMT_{R,FC,WD,PM}$).

1.3. Calculate the Regional Crash Rates by Functional Class ($CR_{R,FC}$) for the 20-County area, for the Weekday PM-peak period:

The Regional Crash Rates by Functional Class were calculated as follows:

$$CR_{R,FC,WDS,PM} = \frac{C_{R,FC,WDS,PM} * 260 * 10^8}{N * VMT_{R,FC,WD,PM}}$$

Where:

$CR_{R,FC,WDS,PM}$ is the Regional Crash Rate by Functional Class for weekday PM peak-period, reported as "Crashes per 100 Million Vehicle Miles Traveled"

$C_{R,FC,WDS,PM}$ is the total number of weekday PM peak-period Crashes that occurred on a particular Functional Class of roadway in the region for the 5-year period 2000 to 2004.

260 is the number of weekdays in a year.

10^8 is the 100 million constant.

N is the number of years of crash data.

$VMT_{R,FC,WD,PM}$ is the adjusted PM peak-period Regional VMT by Functional Class for an average weekday.

Step 2: Determine the Weekday PM peak-period Crash Rate for the route(s) within each project's limits.

2.1. Create GIS line layer shape files for the route(s) within each project's limits:

The line layer shapefiles were created in ArcGIS and were based on the "Milepoint Route Roads" line layer from the Georgia CARE GIS map. One line layer shape file was created for each project and contained all route(s) within the project's limits

2.2. Create GIS point layer shape files for all the crashes that occurred along the route within the project's limits:

Firstly, the CARE software was used to generate a GIS map of all crashes that had occurred in the 20-County region during the 5-year period of 2000 to 2004. These crashes were then saved as an ArcGIS point layer shape file.

The crashes that had occurred on the route(s) within each project's limit were then identified using ArcGIS "Select by Location" feature and saved as point layer shape files. One point layer shape file

containing the crashes that had occurred on the route(s) within each project's limits was created for each project.

2.3. Determine the number of crashes that had occurred on the route(s) within each project's limits on weekdays during the PM peak-period for the years 2000 to 2004:

The details of all crashes for each project location were contained in the attribute table of the project's point layer shapefile. A VBA application (HIDA) was created and used to perform several tasks including extracting the number of crashes that had occurred on a weekday (Monday through Friday), during the hours of 3:01 PM to 7:00 PM, during the 5-year period of 2000 to 2004 from the point layer shapefile attribute table. This data was extracted and summarized for each project.

2.4. Determine the Weekday PM peak-period VMT on the route(s) within each project's limits:

Weekday VMT for the PM peak-period is one of the link attributes of the loaded highway network in the ARC 20-County Travel Demand Model. A TP+ script (PrjInc) was created and used to extract key data from the loaded highway network. The script produced a text file report for each project. The report contained the key data attributes for all links within the project's limits, including a summation of the PM peak-period VMT from the links within each project's limits.

2.5. Calculate the Crash Rate ($CR_{R,FC}$) on the route(s) within each project's limits for the weekday PM peak-period during the years 2000 to 2004:

The Project Location Crash Rates were calculated as follows:

$$CR_{PL,WDS,PM} = \frac{C_{PL,WDS,PM} * 260 * 10^8}{N * VMT_{PL,WD,PM}}$$

Where:

$CR_{PL,WDS,PM}$ is the Crash Rate on the route(s) within the project's limits for the weekday PM peak-period, reported as "Crashes per 100 Million Vehicle Miles Traveled"

$C_{PL,WDS,PM}$ is the total number of weekday PM peak-period Crashes on the route(s) within the project's limits for the 5-year period 2000 to 2004.

260 is the number of weekdays in a year.

10^8 is the 100 million constant.

N is the number of years of crash data.

$VMT_{PL,WD,PM}$ is the PM peak-period VMT for an average weekday on the route(s) within the project's limits.

Step 3: Determine the Project Locations' Crash Ratio

The Project Location Crash Ratio is the ratio of the project location crash rate to the regional crash rate for facilities of a similar functional class. These crash ratios are indicators of the level of incidents on the route(s) within the project limits in relation to the level of incidents on all routes of the same functional class within the 20-County area.

3.1. Determine the predominant Functional Classification of the route(s) within each project's limits:

A single project may include routes with different Functional Classification. Where such occurred, the Functional Classification that made up the longest section of the project was considered as the predominant Functional Class and for the purpose of this analysis, that Function Class was used as the representative Functional Class for the entire project.

A TP+ script (PrjInc), mentioned previously, was created and used to extract key data from the loaded highway network. The script produced a text file report for each project. Each report contained

the key data attributes for all links within a project's limits, including a summary of the Functional Class and length of all links within the project's limits.

A VBA application (Get Attributes) was created and used to process the data in the "PrjInc" text file reports and determine the predominant Functional Class of the routes within each project's limits.

3.2. Calculate the Project Location Crash Ratio:

A VBA application (HIDA), mentioned previously, was created and used to process several steps of the highway incident analysis including the calculation of the Project Location Crash Ratio.

The "HIDA" application used the project's predominant Functional Class to identify the Functional Class specific Regional Crash Rate that had to be used to calculate the Crash Ration for the particular project. The following calculation was then performed by HIDA for each project:

$$CRATIO_{PL,WDS,PM} = \frac{CR_{PL,WDS,PM}}{CR_{R,FC,WDS,PM}}$$

Where:

$CRATIO_{PL,WDS,PM}$ is the Crash Ratio for the route(s) within the limits of a particular project, for the weekday PM peak-period,. NOTE: The predominant Functional Class of the route(s) within the project's limit must be the same as the Functional Class attributed to the Regional Crash Rate used to derive the Crash Ratio."

$CR_{PL,WDS,PM}$ is the Crash Rate on the route(s) within the project's limits for the weekday PM peak-period.

$CR_{R,FCx,WDS,PM}$ is the weekday PM peak-period Regional Crash Rate for a Functional Class similar to the predominant Functional Class within the project's limits.

Step 4: Rank the projects by Crash Ratio.

4.1. A Percent Ranking of the projects' Crash Ratios was done by the HIDA application. The projects were ranked from 0.0 (for lowest Crash Ratio) to 1.0 (for highest Crash Ratio).

Step 5: Assign a Highway Incident Score to each project based on the project's rank.

5.1. As was the case with the recurring congestion component, a uniform distribution was used in determining the final scores for the non-recurring congestion scores. Specifically, each project was assigned a integer score ranging from 0 to 20 based on the percent rank of the Crash Ratio, with each of the 21 possible score values assigned to an equal number of projects.

Tools and Data Used for the Analysis

The following tools and data sources were used for the Highway Incident Analysis:

Tool	Data	Use and Output
Georgia CARE Crash Analysis Software v 8.2.19.0	a. Georgia CARE 2000 – 2004 Crash Database. b. Georgia CARE GIS "Milepost Route Roads" line layer shape file.	a. To generate point layer shape files containing all crashes (and associated crash details) that occurred on each functional class of roadway in the 20-County area during the 5-year period 2000 to 2004. b. To generate a line layer shapefile containing the road routes in the 20-County area. c. To determine the number of crashes that had occurred on all roads in the 20-County area.

Tool	Data	Use and Output
Microsoft Excel	a. Regional VMT by Functional Class for the PM peak-period (adjusted for HPMS). c. Number of Crashes by Functional Class obtained from the 2000-2004 Georgia CARE Crash database.	a. To calculate the Regional Crash Rate by Functional Class for the 20-County area.
ArcGIS	a. Georgia CARE GIS "Milepost Route Roads" line layer shape file. b. Crash data for the 20-County area. A point layer generated from Georgia CARE 2000 – 2004 Crash Database.	a. To create a line layer shapefile for each project. Each line layer shape file contained the route(s) within the project's limits. b. To create a point layer shapefile for each project. Each point layer shape file contained data on the crashes that had occurred on the route(s) within the project's limits.
TP+ script (PrjInc)	a. Loaded 2005 Highway Network and associated network attributes from ARC's 20-county travel demand model.	a. To extract weekday PM peak-period VMT for all highway network links within each project's limits. b. To extract data from the Highway Network about the functional classification and length of each highway network link within each project's limits.
Excel VBA Tool (Get Attributes)	a. Individual reports for each project, created as output from TP+ script (PrjInc)	a. To process text reports from TP+ script (PrjInc) for each project, extract relevant data, including the following, and place that data into a newly created Excel spreadsheet: • Weekday PM peak-period VMT for all links within each project's limits. • Predominant Functional Class of route(s) within each project's limits.

Tool	Data	Use and Output
Excel VBA Tool (HIDA)	a. Crash data contained in the attribute table of each project's point layer shape file. b. Weekday PM peak-period VMT and predominant Functional Class for the route(s) within each project's limits.	a. To process GIS point layer attribute tables and extract data including the number of crashes than occurred on weekdays during the hours of 3:00 PM and 7:00 PM (the PM peak-period). b. To process data, perform calculates and generate a comprehensive report, in spreadsheet format, of the input data, ranking and score for each project.

Exception to the Standard Methodology

The analysis of proposed facilities did not follow the standard methodology described above. For proposed facilities there are no existing routes and thus no historical crash data. Therefore the following methodology was used for the analysis of proposed facilities:

1. Identify the primary route currently being used to get to the locations that will be connected by the proposed facility. This process involved some degree of professional judgment.

2. Perform the Highway Incident Analysis, as described in the standard methodology, on the identified route.

Consequently, a proposed facility was awarded a Highway Incident Score based on the analysis of the primary route that currently joins the locations that the proposed facility would connect.

Section 2.4 Transit Incident Congestion

To determine the impact of transit projects on incident-based roadway congestion, an original formula was devised to estimate the number of crashes prevented from occurring on the roadway system as the result of a specific transit investment. This effective reduction in crashes, which in turn leads to a commensurate reduction in incident-based congestion, can then be used as an indicator of how well the transit

project mitigates roadway congestion resulting from crashes (i.e., non-recurring congestion).

Transportation safety statistics have consistently shown that transit is a safer mode of travel than driving in terms of average collisions per passenger mile. This improvement in safety is observed to varying degrees with all major transit technologies. By calculating the difference between the respective crash rates for private vehicle travel and the transit technology for a particular project, and then applying this difference to the passenger mileage for the project in question, an estimate of the number of crashes prevented can be computed. This technique assumes that all travel handled by a new transit facility would otherwise be handled as private vehicle travel on the existing roadway system if the transit service were not provided.

Three specific data items are required for each project to compute the estimated reduction in crashes due to the addition of transit service:

- **Daily Passenger Miles** – A project-specific estimate of the total number of passenger miles handled by the transit project on a typical weekday. For the proposed *Envision6* transit capital projects, ARC's 20-county travel demand model was used to determine passenger mileage estimates for the year 2030. Because the model measures ridership in terms of individual routes (rather than RTP projects, which may overlap one or more individual routes), the project-level estimates were computed by aggregating the ridership estimates for the portions of any routes that overlap with the project extents. (For the purposes of this exercise, it was assumed that ridership is evenly distributed along the length of each route.)

- **Average Crash Rate for Private Vehicle Travel** – The regional average roadway crash rate, based upon the most recent roadway safety data compiled by ARC and expressed in terms of passenger miles traveled. This input was held constant for all projects being evaluated.

- **Average Crash Rate for Travel by Transit** – The average crash rate for the specific transit technology (e.g. heavy rail, light rail, bus, etc.) associated with the project being considered, also expressed in terms of passenger miles traveled.

Table 5 shows the mode- and technology-specific crash rates that were used in this analysis, expressed in terms of crashes per 100 million passenger miles. When possible, local rates were used rather than national averages. Such local data were available for private vehicle travel (from ARC roadway safety data) as well as for both bus and heavy rail transit (from the Federal Transit Administration's National Transit Database (NTD)). Since there are no existing light rail or commuter rail facilities in the Atlanta region, national averages from the Bureau of Transportation Statistics' National Transportation Statistics (NTS) database were used.

Table 5 – Crash Rates for Specific Travel Modes and Transit Technologies

Mode/Technology of Travel	Crashes per 100 Million Passenger Miles	Source
Private Vehicle	289.8	Atlanta Regional Commission
Transit: Bus	48.2	NTD (MARTA, CCT), 2001
Transit: Heavy Rail	0.5	NTD (MARTA), 2001
Transit: Light Rail	39.0	NTS National Average, 2002
Transit: Commuter Rail	0.9	NTS National Average, 2002

For each project being evaluated, the most appropriate technology-specific crash rate from Table 5 was used. Special consideration was necessary for Bus Rapid Transit (BRT) projects, since the term "BRT" is applied to a wide range of project types and specific crash rates are not typically reported for BRT as a standalone technology. In this analysis, either the light rail or local bus rate was used for BRT projects, depending on the specific project characteristics. More specifically, for BRT projects featuring a transit-exclusive right-of-way, the NTS national average crash rate for light rail was used, as the separation of transit vehicles from other types of traffic is considered to have a more significant effect on crash rates than the specific transit vehicle type. For mixed-traffic BRT facilities, the standard bus crash rate from the NTD was used.

Given the above data, the following formula was used to compute an estimate of the number of crashes removed from the roadway due to the addition of a specific transit facility:

$$\Delta_C = \frac{PM * 260}{10^8} * (CR_{PV} - CR_T)$$

Where:

Δ_C	is the net change in Crashes resulting from the addition of the transit project being considered.
PM	is number of daily Passenger Miles associated with the transit investment
260	is the number of weekdays in a year.
10^8	is the 100 million constant.
CR_{PV}	is the Crash Rate for private vehicle travel, expressed in collisions per 100 million passenger miles.
CR_T	is the Crash Rate for travel by transit for the specific transit technology corresponding to the project being considered, expressed in collisions per 100 million passenger miles.

Similar to the highway non-recurring congestion component, a uniform distribution was used in determining the final scores for the transit non-recurring congestion component. Each project was assigned an integer score ranging from 0 to 20 based on the percent rank of the total number of crashes prevented. Due to the low number of transit projects considered, the possible final scores were restricted to 0, 4, 8, 12, 16, and 20, with each of the 6 possible score values assigned to an equal number of projects.

Section 3.0 Environmental & RDP Scoring

The remaining 30% of the project scores considers project level environmental impact and agreement with ARC's Regional Development Plan policies by project and area type.

Section 3.1 Environmental Analysis

Of the 30 percent of the technical analysis score not specifically dedicated to congestion considerations, a total of fifteen points were allocated to the evaluation of the environmental impacts of transportation capital projects. To quantify the perceived impact, each project was assigned a scored based on the degree to which its geographic extents overlap with those of six specific environmentally-sensitive area types, with higher scores assigned to projects that best avoid such impacts. The methodology described in this section was applied to all projects subjected to the technical analysis, including both roadway capacity and transit capital projects.

The evaluation of environmental impacts was a GIS-based procedure, utilizing ESRI's ArcGIS software (version 9.1) as well as the Spatial Analyst extension to ArcGIS. The specific tool used to calculate the raw environmental impact scores was Spatial Analyst's "Zonal Statistics" utility, which allows for calculation of area-based statistics for a series of input regions ("zones" – in this case, the geographic extents of individual projects). The Zonal Statistics utility requires two primary inputs: a continuous raster dataset whose individual cell values are used as the basis for statistical calculations, and a collection of polygonal features that are overlaid individually upon the input raster to geographically determine which cells from the base layer are included in the statistical calculations.

For the purposes of this exercise, the input raster was a layer representing the six area types that were considered: wetlands, floodplains, historic resources, parks, water bodies, and small area supply watersheds. Individual raster layers corresponding to each of these six area types were combined into a single composite layer using the Weighted Overlay tool, also a component of the ArcGIS Spatial Analyst extension. Listed below are more detailed descriptions of the six sensitive area types, along with the weights assigned to each layer for the Weighted Overlay operation. These specific area types and corresponding weights were chosen in consultation with staff from ARC's Land Use Planning Division.

1. Wetlands (30 percent) – The wetlands inventory was derived from the National Land Cover Database 2001 (NLCD 2001), which was compiled across all 50 states and Puerto Rico as a cooperative mapping effort of the Multi-Resolution Land Characteristics (MRLC) 2001 Consortium. This land cover database is being created using mapping zones and contains standardized land cover components useful for a variety of applications. A 100-foot buffer was applied to the coverage during the analysis.

2. Floodplains (30 percent) – This layer represents the 100-year and 500-year floodplain data as delineated on Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency. Features captured from the paper FIRMs include floodplain boundaries, political boundaries, FIRM panel areas, and USGS 7.5-minute quadrangle boundaries

3. Historic Resources (15 percent) – The historic resources inventory includes buildings, structures, historic sites, landscapes, and districts included in the Historic Preservation Division's Historic Resources Survey or listed in the National Register of Historic Places. This information was derived from NAHRGIS, a dataset compiled by the Historic Preservation Division of the Department of Natural Resources in collaboration with the Georgia Archaeological Site File at the University of Georgia.

4. Parks (15 percent) – This layer was created by ARC's Land Use Planning Division in coordination with various planning partners. The layer represents the publicly accessible parks within ARC's new greenspace database, an inventory of parks and protected greenspace in the 20-county Atlanta Region.

5. Water Bodies (5 percent) – The water bodies layer is a subset of GDOT's 1999 statewide DLG-F Polygonal Hydrography dataset. This dataset contains polygonal hydrographic features including lakes, ponds, reservoirs, swamps, and islands. Only water bodies with a total acreage of 5 acres or more were considered in the technical analysis. A buffer of 50 feet was applied to each feature prior to running the analysis.

6. Small Area Supply Watersheds (5 percent) – The source for the watersheds layer was 2003 data acquired from the Metropolitan North Georgia Water Planning District. This coverage was developed based on jurisdictional input regarding the locations of water supply intakes for small supply watersheds.

The second data input for the Zonal Statistics utility is the series of zones to be analyzed against the base raster, in this case, the geographic extents of the transportation capital projects being considered in the Envision6 technical analysis. Because the capital project features initially take the form of linear and point-location features, it was necessary to apply buffers to each feature in order to convert the dataset to a polygon-based format suitable for use with the Zonal Statistics tool. The size of the buffer applied to each feature was dependent upon the specific project type:

1. For linear roadway capacity projects (including HOV lanes) and expressway-based transit projects, a buffer of 100 feet was applied.
2. For point-location roadway capacity projects (e.g., interchange reconstruction), a buffer of 200 feet was applied.
3. For transit projects located on arterial roadway facilities, a buffer of 50 feet was applied.
4. For transit projects located on a dedicated off-street right-of-way, a buffer of 25 feet was applied.

Upon execution of the Zonal Statistics analysis, a series of values was a produced representing the sums of all raster cell values located within each buffered project boundary (where the raster cell values indicate the combined presence of any or all of the six sensitive area types at the location of that particular cell). This project-level summary data can then be viewed as a measure of the aggregate impact of each project on the six sensitive area types considered, with higher sums corresponding to a greater degree of impact.

The final step of the analysis was to convert the raw output values to integer scores ranging from 0 to 15, to serve as the 15-point environmental impact component of the

100-point technical analysis score. First, the raw scores were scaled to the range of 0 to 15, and redistributed such that each integer value between 0 and 15 contained an equal number of data points (i.e., a discrete uniform distribution). Finally, the distributed 15-point scores were inverted such that the highest score (15) corresponds to a minimal environmental impact while the lowest score (0) corresponds to the most severe impact.

Section 3.2 RDP Policy Support Analysis

The final component of the *Envision6* project prioritization technical analysis was an evaluation of the extent to which each project supports ARC's Regional Development Plan (RDP).

This evaluation was based primarily upon nine placed-based transportation objectives that reflect the major policy goals of the RDP, covering various themes such as transit accessibility, system management, connectivity between activity centers, and coordination with local land use planning. The nine objectives are described in greater detail below.

The RDP policy support criterion accounted for fifteen points of the 100-point scale used to evaluate transportation projects. Points were assigned by ARC staff jurisdictional representatives, based upon project descriptions provided by the sponsor. The specific distribution of the 15 points among the nine objectives varied based on the geographic context of the individual project. Specifically, each project was assigned one of the following eight "place type" designations specified in ARC's Unified Growth Policy Map (UGPM):

- Central City
- Regional Center
- Town Center
- Station Community
- Urban Neighborhood
- Mega Corridor
- Suburban Neighborhood
- Rural Area

A unique distribution of points by objective was determined for each of the above eight UGPM place type designations, with the various objectives weighted differently based on their relative importance in the context of the specific place type. For some place types, a particular objective may not be included at all if it is not considered to be among the key RDP priorities for that area. The detailed point assignment matrix for all place types and objectives is depicted in Table 6.

Table 6 – RDP Policy Support Point Assignment Matrix

	Place Type							
Stakeholder-Identified Transportation Objectives	**Central City**	**Regional Center**	**Station Community**	**Town Center**	**Urban Neighborhood**	**Mega Corridor**	**Suburban Neighborhood**	**Rural Area**
Transit Amenities	***up to 6***	***up to 4***	***up to 6***	***up to 4***	***up to 5***	***up to 6***	***up to 4***	***1***
Transit Project	3	2	3	2	3	3	2	-
Alternative: Roadway w/ transit element	*2*	*1*	*1*	*1*	*1*	*2*	*1*	-
Exclusive ROW for Transit	2	1	2	1	1	2	1	-
Area-Specific Considerations	1	1	1	1	1	1	1	1
System Management	***up to 4***	***up to 4***	***up to 4***	***up to 4***	***up to 2***	***up to 4***	***up to 2***	
Points per Management Program	2	2	2	2	1	2	1	
Connectivity between Centers	***up to 1***	***up to 2***	***up to 1***	***up to 2***	***up to 4***	***up to 2***	***up to 4***	***up to 4***
1 point for a total of 2 centers connected; 2 points for a total of 3 centers connected; 4 points for a total of 4 or more								
Supports Grid Network	**1**	**2**		**2**	**1**		**2**	**1**
Supports Regional ITS Architecture	**1**	**1**	**1**		**1**	**1**	**1**	
Supports Bike/Ped Plan	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**1**
Preserves Existing Character				**1**				**7**
Local Land Use Commitment	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**

Following is a more detailed overview of the nine place-based objectives that formed the basis of the evaluation of RDP policy support.

1. Transit Amenities

This objective focuses on transit capacity additions, as well as roadway capacity additions that include a significant transit element, to encourage mode shift to non-SOV travel.

Up to six points were awarded for this objective, targeting several different types of projects and/or specific project characteristics:

- Transit Capital Project – Any capacity-adding transit project to include, but not limited to, construction of new transit facilities (on or off-road) and/or vehicle purchase to support existing service or implementation of new transit service.
- Roadway with Major Transit Element – Any capacity-adding roadway project that includes a significant specific provision to support new or expanded transit service (e.g. dedicated bus lanes).
- Exclusive ROW for Transit – Projects featuring a transit-exclusive right-of-way to support implementation of new or expanded transit service (applicable to either roadway or transit capacity additions).
- Area-Specific Considerations – Projects including a provision for an additional amenity to support transit service on that facility or demonstrates that the proposal is associated with another transit project that will support transit service on that facility, (e.g., transit station access, P&R lot access, demand-response service).

2. System Management

This objective targets projects where the project sponsor has demonstrated a commitment to protecting the investment on the facility through specific provisions designed to reduce demand, better manage travel demand, or manage access to the facility over time. Up to 4 points were awarded for this objective.

To be eligible, a specific element must be included as part of the project proposal that provides for travel demand management or access management along the project facility, or the proposal must demonstrate that the project is a result of, or compatible with, a relevant land use or transportation study with a system

management component. System management, for this application, is broadly defined to include access management (provisions that control access to the facility), travel demand management (provisions to reduce demand for travel on the facility), and/or managed-lane concepts (provisions to better manage existing demand for the facility).

3. Connectivity between Centers

This objective targets projects that improve regional mobility by providing connectivity between centers. To receive points in this category, a project must connect two centers (1 point), three centers (2 points), or 4 or more centers (4 points). "Centers," for the purposes of this objective, are defined as the Central City, Regional Center, Station Community, and Town Center UGPM place types.

4. Supports Grid Network

This objective targets projects that improve the density of the street grid in order to promote improved local circulation within and around activity and town centers and disperse traffic load on the street system. Up to one point was awarded for this objective. To be eligible, the proposal must demonstrate that capacity addition enhances street network connectivity.

5. Supports Regional ITS Architecture

This objective targets projects that include a provision to manage traffic flow on the facility through implementation of intelligent transportation systems (ITS) elements that support the regional ITS architecture. Up to one point was awarded in this category. To be eligible, the proposal must include a *specific* ITS provision, consistent with the regional ITS architecture, that will support improved traffic flow on the facility or demonstrate that the proposal is associated with another ITS project that will support improved traffic flow on that facility (e.g., electronic toll collection, transit automatic vehicle location systems, and ramp meters). It is assumed for this application that signal synchronization will be included with new roadway capacity additions; therefore, signal retiming does not justify a point reward, by default, as a result.

7. Supports Bicycle/Pedestrian Plan

This objective targets projects that include a specific provision for construction of new bicycle or pedestrian infrastructure that is consistent with the ARC Bicycle Transportation and Pedestrian Walkways Plan and supports a "Complete Streets" concept. Up to 2 points were awarded for this objective. To be eligible, the proposal must include a provision for construction of new bicycle/pedestrian infrastructure that is consistent with the 2002 Regional Bicycle and Pedestrian Plan Strategies (see Section V(C)(i), Strategy 1).

8. Preserves Existing Character

This objective targets projects where the project sponsor has demonstrated a commitment to constructing the project in a manner that respects the existing character of surrounding land uses. The objective was applied only to two UGPM place types: Town Center (up to one point awarded) and Rural Area (up to 7 points awarded). To be eligible for these points, the proposal must demonstrate a commitment that final design of the project will be in keeping with the surrounding community or environmental context. Examples include specific provisions that address aesthetic elements (such as lower design speeds, on-street parking, trees, etc.) in a Town Center or constructing roadways to retain the natural appearance and landscape in a Rural Area.

9. Local Land Use Commitment

This objective targets projects that comply with a locally-initiated visioning process where there is a demonstrated local commitment to implement that vision. Up to one point was awarded for this objective. To be eligible, the project must demonstrate that it is a result of, or compatible with, a locally-initiated visioning process to include, but not limited to, corridor plans or LCI studies.

Finally, it should be noted that the RDP policy support score values were not redistributed to conform to a discrete uniform distribution, in contrast to the other components of the technical analysis. This is due to the fact that the scores for a large number of projects were clustered at the low end of the 15-point range (i.e. a final score or 0, 1, or 2), making it impractical to redistribute the scores in such a manner.

Maricopa Association of Governments
(MAG)

CHAPTER TWO

GOALS, OBJECTIVES AND PRIORITY CRITERIA

Regional goals and objectives provide the planning process with a basis for identifying options, evaluating alternatives and making decisions on future transportation investments. The MAG Transportation Policy Committee has identified a total of four goals and 15 objectives, which were approved on February 19, 2003. In addition, Arizona Revised Statute 28-6354.B directs MAG to develop criteria to establish the priority of corridors, corridor segments, and other transportation projects. As part of the regional transportation planning process, MAG applied various priority criteria for the development of the Regional Transportation Plan (RTP).

Goals and Objectives

A goal is a general statement of purpose that represents a long-term desired end to a specific state of affairs. It is generally measurable by qualitative means. By identifying broad goals that are both visionary and practical, and which respond to the values of the region, the focus of the planning process can be more readily communicated to the public. The goals, in turn, can be defined in greater detail by specifying multiple objectives for each goal.

An objective is very similar to a goal, as it represents a desired end to a specific state of affairs. However, an objective is an intermediate result that must be realized to reach a goal. The definition of an objective is usually more focused than that of a goal and is typically more subject to being measured. Objectives can be further assessed through performance measures that are identified for each objective.

Certain goals and objectives are related to the way in which the regional transportation system is performing overall. Others may be used to evaluate individual components of the overall transportation system or to evaluate proposed projects. They can also serve as the basis to monitor how the transportation system performs as the RTP is implemented. In addition, goals and objectives relate to the planning process, and the importance of accountability during the development and implementation of the plan. Individual goals with their supporting objectives are listed below.

Goal 1: System Preservation and Safety

Transportation infrastructure that is properly maintained and safe, preserving past investments for the future.

- **Objective 1A**: Provide for the continuing preservation and maintenance needs of transportation facilities and services in the region, eliminating maintenance backlogs.
- **Objective 1B**: Provide a safe and secure environment for the traveling public, addressing roadway hazards, pedestrian and bicycle safety, and transit security.

Goal 2: Access and Mobility

Transportation systems and services that provide accessibility, mobility and modal choices for residents, businesses and the economic development of the region.

- **Objective 2A**: Maintain an acceptable and reliable level of service on transportation and mobility systems serving the region, taking into account performance by mode and facility type.
- **Objective 2B**: Provide residents of the region with access to jobs, shopping, educational, cultural, and recreational opportunities and provide employers with reasonable access to the workforce in the region.
- **Objective 2C**: Maintain a reasonable and reliable travel time for moving freight into, through and within the region, as well as provide high-quality access between intercity freight transportation corridors and freight terminal locations, including intermodal facilities for air, rail and truck cargo.
- **Objective 2D**: Provide the people of the region with transportation modal options necessary to carry out their essential daily activities and support equitable access to the region's opportunities.
- **Objective 2E**: Address the needs of the elderly and other population groups that may have special transportation needs, such as non-drivers or those with disabilities.

Goal 3: Sustaining the Environment

Transportation improvements that help sustain our environment and quality of life.

- **Objective 3A**: Identify and encourage implementation of mitigation measures that will reduce noise, visual and traffic impacts of transportation projects on existing neighborhoods.
- **Objective 3B**: Encourage programs and land use planning that advance efficient trip-making patterns in the region.
- **Objective 3C**: Make transportation decisions that are compatible with air quality conformity and water quality standards, the sustainable preservation of key regional ecosystems and desired lifestyles.

Goal 4: Accountability and Planning

Transportation decisions that result in effective and efficient use of public resources and strong public support.

- **Objective 4A**: Make transportation investment decisions that use public resources effectively and efficiently, using performance-based planning.
- **Objective 4B**: Establish revenue sources and mechanisms that provide consistent funding for regional transportation and mobility needs.
- **Objective 4C**: Develop a regionally balanced plan that provides geographic equity in the distribution of investments.
- **Objective 4D**: Recognize previously authorized corridors that are currently in the adopted MAG Long-Range Transportation Plan; i.e., Loop 303 and the South Mountain Corridor.

- **Objective 4E**: Achieve broad public support for needed investments in transportation infrastructure and resources for continuing operations of transportation and mobility services.

Priority Criteria

Arizona Revised Statute 28-6354.B directs MAG to develop criteria to establish the priority of corridors, corridor segments, and other transportation projects. These criteria include public and private funding participation; the consideration of social and community impacts; the establishment of a complete transportation system for the region; the construction of projects to serve regional transportation needs; the construction of segments to provide connectivity on the regional system; and other relevant criteria for regional transportation.

As part of the regional transportation planning process, MAG has applied these kinds of criteria, both for the development and the implementation of the Regional Transportation Plan (RTP). The RTP was developed through a performance-base process that evaluated alternatives relative to a range of performance measures. Also, specific criteria were considered as part of the process to schedule the implementation of transportation projects throughout the duration of the planning period. The discussion below describes how the criteria applied in the RTP planning process correspond to the categories included in ARS 28-6354.B.

Extent of Local Public and Private Funding Participation

A higher level of local public and private funding participation in the RTP benefits the region by leveraging regional revenues and helping ensure local government commitment to the success of the regional program. The extent of local public and private funding participation is addressed in a number of ways in the MAG transportation planning process.

- **Project Matching Requirements -** In developing funding allocations among the various RTP components and project types, local matching requirements have been established. The local matching requirements in the RTP are:

  - 30 percent major street projects, including ITS elements.
  - 30 percent bicycle and pedestrian projects.
  - For air quality and transit projects involving Federal funds, minimum Federal match requirements were assumed. Depending on the specific project funding mix, this match may be provided from regional revenue sources.

- **Private Funding Participation -** As part of the policies and procedures developed for the Arterial Street Life Cycle Program, private funding participation is recognized as applicable local match for half-cent funds for street and intersections projects. This policy helps free local monies that may then be applied to additional transportation improvements.

- **Local Government Incentives -** In the Arterial Street Life Cycle Program, incentives to make efficient use of regional funds have been established by ensuring that project savings by local governments may be applied to new projects in the jurisdiction that achieved those savings.

Social and Community Impacts

Regional transportation improvements can have both beneficial and negative social and community impacts. It is important to conduct a thorough assessment of these impacts, to ensure that they are taken into account in the decision-making process. The MAG planning effort assesses social and community impacts at each key stage of the transportation planning and programming process. In addition, it should be noted that similar efforts are carried out by the agencies implementing specific transportation improvement projects.

- **Public Participation and Community Outreach -** An aggressive citizen participation and outreach program is conducted to obtain public views on the potential community and social impacts of transportation improvements. In particular, input is sought regarding the possible impacts of specific transportation alternatives on the community's social values and physical structure.

- **Social Impact Assessment -** The social impact of transportation options is evaluated as part of the Title VI/Environmental Justice assessment. In this assessment, potential transportation impacts are evaluated for key communities of concern, including minority populations, low-income populations, aged populations, mobility disability populations, and female head of household populations. In addition, community goals are taken into account by basing future travel demand estimates, on local land use plans.

- **Corridor and Community Impact Assessment -** Corridor-level analyses are conducted, which assess the possible social and community impacts of alternative facility alignments based on neighborhood factors such as noise, air quality and land use. Community impacts of transportation facilities are further analyzed by assessing air quality effects through the emissions analysis of plan alternatives, as well as conducting a Federally required air quality conformity analysis of the RTP. In addition, the process for annually updating the Regional Transportation Improvement Program includes project air quality scores, which reflect the potential community impacts of the projects.

Establishment of a Complete Transportation System for the Region

The RTP calls for major investments in all elements of the regional transportation system over the next several decades. It is critical that these expenditures result in a complete and integrated transportation network for the region. The MAG planning process responds directly to this need by conducting transportation planning at the system level, giving priority to segments that can lead to a complete transportation system as quickly as possible, and maintaining a life cycle programming process for all the major modes.

- **System Level Planning Approach -** The regional planning effort is conducted at the system level, taking into account all transportation modes in all parts of the MAG geographic area. This systems level approach is applied in identifying and analyzing alternatives, as well as specifying the final RTP. In this way, the complete transportation needs of the region, as a whole, are identified and addressed in the planning process.

- **Project Development Process and Project Readiness -** The implementation of regional transportation projects requires a complex development process. This process involves extensive corridor assessments, environmental studies, and engineering concept analyses. This is followed by right-of-way acquisition and final design work, before actual construction may begin. For a variety of reasons, certain projects may progress through this process more rapidly than others. By moving forward, where possible, on those projects with the highest level of readiness for construction, important transportation improvements can be delivered as quickly as possible.

- **Progress on Multiple Projects -** Major needs for transportation improvements exist throughout the MAG Region. The scheduling of projects is aimed at proceeding with improvements to the transportation network throughout the planning period in all areas of the region. This will lead toward a complete and functioning regional transportation system that benefits all parts of the MAG Region.

- **Revenues, Expenditures and Life Cycle Programming -** Cash flow patterns from revenue sources limit the amount of work that can be accomplished within a given period of time. Project expenditures need to be scheduled to accommodate these cash flows. Life cycle programs have been established that take these conditions into account and implement the projects in the RTP for the major transportation modes: freeways/highways, arterial streets, and transit. The life cycle programs provide a budget process that ensures that the estimated cost of the program of improvements does not exceed the total amount of revenues available. This ensures that a complete transportation system for the region will be developed within available revenues.

As part of the life cycle programming process, consideration is given to bonding a portion of cash flows to implement projects that provide critical connections earlier than might otherwise be possible. This has to be weighed against the reduction in total revenues available for constructing projects, which results from interest costs.

Construction of Projects to Serve Regional Transportation Needs

The resources to implement the RTP are drawn from regional revenue sources and should address regional transportation needs. Transportation projects that serve broad regional needs should have a higher priority than those that primarily only serve a local area. At the same time, the nature of regional transportation needs varies across the MAG Region and the same type of transportation solution does not apply everywhere in the region. Enhancing the arterial network may represent the most pressing regional need in one part of the region, whereas adding new freeway corridors may be the key need in another; and expanding transit capacity may represent the best approach in yet another area. The process to develop the RTP recognized that this was the nature of regional transportation needs in the MAG Region. As a result, the RTP is structured to respond to different types of needs in different parts of the MAG Region.

Although the modal emphasis of the transportation improvements identified in the RTP varies from area to area, the effects of these improvements can be assessed using common measures of system performance and regional mobility. The measures that were utilized for this purpose are described below. These criteria were applied in the development of the RTP to evaluate alternatives and

establish implementation priorities. They can also be applied in the future to evaluate potential adjustments to the priority of corridors, corridor segments, and other transportation projects and services.

- **Facility/Service Performance Measures -** Facility performance measures focus on the amount of travel on specific facilities, the usage of transportation services, the degree of congestion, and other indicators of the level of service as provided:

  - Accident rate per million miles of passenger travel.
  - Travel time between selected origins and destinations.
  - Peak period delay by facility type and geographic location.
  - Peak hour speed by facility type and geographic location.
  - Number of major intersections at level of service "E" or worse.
  - Miles of freeways with level of service "E" or worse during peak period.
  - Average Daily Traffic on freeways/highways and arterials
  - Total transit ridership by route and transit mode.
  - Cost effectiveness: trips served per dollar invested.

- **Mobility Measures -** Mobility measures focus on the availability of transportation facilities and services, as well as the range of service options as provided:

  - Percentage of persons within 30 minutes travel time of employment by mode.
  - Jobs and housing within one-quarter mile distance of transit service.
  - Percentage of workforce that can reach their workplace by transit within one hour with no more than one transfer.
  - Per Capita Vehicle Miles of Travel (VMT) by facility type and mode.
  - Households within one-quarter mile of transit.
  - Transit share of travel (by transit sub-mode).
  - Households within five miles of park-and-ride lots or major transit centers

Construction of Segments that Provide Connectivity with other Elements of the Regional Transportation System

The phasing of the development of the transportation network should be done in a logical sequence, so that maximum possible system continuity, connectivity and efficiency are maintained. In the RTP, Appropriately located transportation facilities around the region enhance the general mobility throughout the region. To the extent possible, facility construction and transportation service should be sequenced to result in a continuous and coherent network and to avoid gaps and isolated segments, bottlenecks and dead-end routes. Segments that allow for the connection of existing portions of the transportation system should be given a higher priority than segments that do not provide connectivity.

Other relevant criteria developed by the regional planning agency

As part of the RTP, a series of objectives for the regional transportation network were identified. Two key objectives were to achieve broad public support for the needed investments, and to

develop a regionally balanced plan that provides geographic equity in the distribution of investments. Specific criteria related to these objectives are:

- Transportation decisions that result in effective and efficient use of public resources and strong public support.
- Geographic distribution of transportation investments.
- Inclusion of committed corridors.

Denver Regional Council of Governments
(DRCOG)

Table 4
Roadway Capacity Projects

Eligibility Criteria

Only regionally-funded roadway widening, new road, new interchange, interchange reconstruction, and Bus/HOV/BRT projects identified in the adopted networks for testing for the fiscally constrained *2035 Metro Vision Regional Transportation Plan* (will be listed in Appendix D after adoption) are eligible for implementation funding. Submittals can only be for "next meaningful phase" of the project jointly defined by applicant, CDOT, and DRCOG as described in Section III.B. Evaluation for the first seven criteria is based on the entire (full) project, not an individual phase(s). Within the urban growth boundary, arterial roadway projects must adhere to urban design standards and must demonstrate that sidewalks are present and will be maintained and replaced or will be added as part of the project. Outside the urban growth boundary, roadway projects must adhere to non-urban design standards and incorporate a high degree of access control. Any current bicycle or transit infrastructure must as a minimum be retained in kind.

Evaluation Criteria	Points	Scoring Instructions
Current congestion	0-12	Based on the degree of current (2006) congestion on the most congested segment of the project: 12 points will be awarded to projects with current congestion score of 18 or more; 0 points to projects with current congestion score of 6 or less; with straight-line interpolation between. Congestion for new road and interchange projects based on current travel paths. *Source: DRCOG congestion management program; sponsor may supply location-specific volume data to augment DRCOG data in computation of congestion score.)*
Safety	0-5	Based on the project's estimated crash reduction and weighted crash rate in comparison to the statewide average, up to 5 points will be awarded. Appendix E explains the point allocation. *Source: DRCOG or sponsor supplied crash data. Sponsors are encouraged to use qualified traffic personnel for this computation and are asked to indicate that they have done so as part of the application.*
Cost-effectiveness	0-10	Based on the project's current (2005) forecast cost per daily person-miles-of-travel (PMT), up to 10 points will be awarded as follows: • **For Bus/HOV/BRT, roadway widening, and new road projects:** 10 points will be awarded to projects with a cost per PMT of $50 or less; 0 points to projects with a cost per PMT of $550 or more; with straight line interpolation between. • **For interchange reconstruction and new interchange projects:** 10 points will be awarded to projects with a cost per PMT of $250 or less; 0 points to projects with a cost per PMT of $2,750 or more; with straight line interpolation between. • PMT for new road and interchange projects based on modeled usage estimates. *Source: DRCOG 2005 model data (daily)*
Condition of major structure	0-5	Based on the CDOT inspection per the National Bridge Inspection Standards of the included structure, nearby structure, or structure on current travel path, and the resultant bridge sufficiency rating: 5 points will be awarded if the bridge sufficiency rating is 20 or lower; 0 points will be awarded if the bridge sufficiency rating is 80 or higher; with straight line interpolation between. Source: DRCOG from CDOT
Long range plan score	0-15	Based on the score computed by DRCOG for project consideration in the fiscally constrained 2035 Metro Vision RTP process: 15 points will be awarded if the project's long range score was 80 or higher; 0 points will be awarded if the project's long-range score was 50 or lower; with straight line interpolation between. Source: DRCOG

Table 4 (cont.)
Roadway Capacity Projects

Evaluation Criteria	Points	Scoring Instructions
Transportation system management	0-5	1 point will be awarded for each of the following features to be added to or newly provided as part of the project, up to 5 points (of a possible 6): • Provision of raised, depressed, or barrier medians • Access consolidation • Provision of left-turn lanes at signalized intersections • Provision of signal interconnection • Provision of ITS infrastructure • Provision of infrastructure that implements an approved incident management plan.
Multimodal connectivity	0-10	1 point for each of the following, up to 9 points (of a possible 10), will be awarded for the following features being included in and constructed by the project: o including transit operational features (e.g., bus pads, queue jump lanes) o including transit amenities (e.g., bus shelters, multimodal information kiosks) o building a new path, bike lanes, or extra-width curb lanes to accommodate a bike facility on a regional or locally adopted plan o grade separating an existing bike/ped trail from the road o providing bike amenities (e.g., bike racks, bike lockers) o building pedestrian links, in addition to what is required (e.g., sidewalks), connecting to adjacent key pedestrian-generating facilities (e.g., parks, transit stations/lots, businesses) as part of the project o providing pedestrian-oriented street lighting o providing street trees and/or a landscaped buffer between the roadway and sidewalk within the street zone o detaching or widening sidewalks beyond what is required o incorporating transit priority or bicycle activation at project signals 1 point for commitment by applicant to fund telework, carpooling, and/or vanpooling promotion efforts, targeted to the project corridor (funding identified as part of the project or by contributing funds to a TMO and contributing funds must total a minimum of 2% of the total project cost).
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.
Project-related Metro Vision implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F.
Sponsor-related Metro Vision Implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
Total	**100**	

Table 5
Roadway Operational Improvement Projects

Eligibility Criteria

Projects on any roadway shown on the 2035 Metro Vision Regional Roadway System (assume Figure 32 of the 2030 Metro Vision RTP document as default) are eligible. Grade separations of any at-grade railroad crossing on the 2030 Metro Vision Regional Roadway System as depicted on Figure 25 of the 2030 Metro Vision RTP are eligible. Within the urban growth boundary, arterial roadway projects must adhere to urban design standards and must demonstrate that sidewalks are present and will be maintained and replaced or will be added as part of the project. Outside the urban growth boundary, roadway projects must adhere to non-urban design standards and incorporate a high degree of access control. Any current bicycle or transit infrastructure must as a minimum be retained in kind.

Evaluation Criteria	Points	Scoring Instructions
Current congestion	0-12	Based on the degree of current (2006) congestion on the most congested approach or segment of the project: 12 points will be awarded to projects with current congestion score of 18 or more; 0 points to projects with current congestion score of 6 or less; with straight-line interpolation between. *Sources: Roadways: DRCOG congestion management program. For grade separations, the congestion management program will use the following data as default: Number of trains/day: CDOT (divide by 24 for hourly estimate); Default average closure time = 3 min.; Default estimated recovery time multiplier=1.5. Sponsor may supply location-specific data to augment DRCOG or default data.*
Safety	0-7	Based on the project's estimated crash reduction and weighted crash rate in comparison to the statewide average, up to 7 points will be awarded. Appendix E explains the point allocation. *Source: DRCOG or sponsor supplied crash data. Sponsors are encouraged to use qualified traffic personnel for this computation and are asked to indicate that they have done so as part of the application.*
Cost-effectiveness	0-18	Based on the project's current estimated cost per vehicle hour of travel (VHT) reduced during the peak hour: 18 points will be awarded to projects with a cost per VHT reduced of $20,000 or less; 0 points to projects with a cost per VHT reduced of $200,000 or more; with straight line interpolation between. **For intersection operations**, use intersection operations software (for multiple intersections, sum individual intersection improvements). **For grade separations**, compute delay by [(average closure time) * (estimated recovery multiplier)/2]*[number of trains per hour]*[volume in peak hour]/60. *Source: applicant computations.*
Usage	0-9	Based on current AWDT/lane of the major roadway (average for overall project length): projects with AWDT/lane of 17,000 or more will receive 9 points; projects with AWDT/lane of 5,000 or less will receive 0 points; with straight line interpolation between.
2035 MVRTP emphasis corridors	0-3	3 points will be awarded to projects on *emphasized* freeways (mainline or ramps) or major regional arterials on the 2035 Metro Vision RTP Emphasis Corridors map (assume Figure 27 of the 2030 Metro Vision RTP document as default). 2 points will be awarded to projects on *emphasized* principal arterial segments on that map.

Table 5 (cont.)
Roadway Operational Improvement Projects

Evaluation Criteria	Points	Scoring Instructions
Transportation system management	0-5	1 point will be awarded for each of the following features to be added to or newly provided as part of the project, up to 5 points (of a possible 6): • Provision of raised, depressed, or barrier medians • Access consolidation • Provision of left-turn lanes at signalized intersections • Provision of signal interconnection • Provision of ITS infrastructure • Provision of infrastructure that implements an approved incident management plan.
Multimodal connectivity	0-8	1 point for each of the following, up to 7 points (of a possible 10), will be awarded for the following features being included in and constructed by the project: ◦ including transit operational features (e.g., bus pads, queue jump lanes) ◦ including transit amenities (e.g., bus shelters, multimodal information kiosks) ◦ building a new path, bike lanes, or extra-width curb lanes to accommodate a bike facility on a regional or locally adopted plan ◦ grade separating an existing bike/ped trail from the road ◦ providing bike amenities (e.g., bike racks, bike lockers) ◦ building pedestrian links, in addition to what is required (e.g., sidewalks), connecting to adjacent key pedestrian-generating facilities (e.g., parks, transit stations/lots, businesses) as part of the project ◦ providing pedestrian-oriented street lighting ◦ providing street trees and/or a landscaped buffer between the roadway and sidewalk within the street zone ◦ detaching or widening sidewalks beyond what is required ◦ incorporating transit priority or bicycle activation at project signals 1 point for commitment by applicant to fund telework, carpooling, and/or vanpooling promotion efforts, targeted to the project corridor (funding identified as part of the project or by contributing funds to a TMO and contributing funds must total a minimum of 2% of the total project cost).
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.
Project-related Metro Vision implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F.
Sponsor-related Metro Vision Implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
Total	**100**	

Table 6
Roadway Reconstruction Projects

Eligibility Criteria

Projects on any roadway shown on the 2035 Metro Vision Regional Roadway System (assume Figure 32 of the 2030 Metro Vision RTP document as default) are eligible. Projects must reconstruct the travel way; other surface treatment projects are ineligible. Within the urban growth boundary, arterial roadway projects must adhere to urban design standards and must demonstrate that sidewalks are present and will be maintained and replaced or will be added as part of the project. Outside the urban growth boundary, roadway projects must adhere to non-urban design standards and incorporate a high degree of access control. Any current bicycle or transit infrastructure must as a minimum be retained in kind.

Evaluation Criteria	Points	Scoring Instructions
Pavement condition	0-20	Based on the pavement condition index computed per Appendix H: 20 points will be awarded to projects with a condition index of 25 or lower; 0 points to projects with a condition index of 50 or greater; with straight line interpolation between.
Safety	0-5	Based on the project's estimated crash reduction and weighted crash rate in comparison to the statewide average, up to 5 points will be awarded. Appendix E explains the point allocation. *Sponsors are encouraged to use qualified traffic personnel for this computation and are asked to indicate that they have done so as part of the application.*
Cost-effectiveness	0-16	Based on the project's current (2005) estimated cost per daily person-miles-of-travel (PMT): projects with a cost per PMT of $40 or less will receive 16 points; projects with a cost per PMT of $200 or more will receive 0 points; with straight line interpolation between.
Usage	0-9	Based on current AWDT/lane (average for overall project length): projects with AWDT/lane of 17,000 or more will receive 9 points; projects with AWDT/lane of 5,000 or less will receive 0 points; with straight line interpolation between.
Transportation system management	0-5	1 point will be awarded for each of the following features to be added to or newly provided as part of the project, up to 5 points (of a possible 6): • Provision of raised, depressed, or barrier medians • Access consolidation • Provision of left-turn lanes at signalized intersections • Provision of signal interconnection • Provision of ITS infrastructure • Provision of infrastructure that implements an approved incident management plan

Table 6 (cont.)
Roadway Reconstruction Projects

Evaluation Criteria	Points	Scoring Instructions
Multimodal connectivity	0-7	1 point for each of the following, up to 6 points (of a possible 10), will be awarded for the following features being included in and constructed by the project: ○ including transit operational features (e.g., bus pads, queue jump lanes) ○ including transit amenities (e.g., bus shelters, multimodal information kiosks) ○ building a new path, bike lanes, or extra-width curb lanes to accommodate a bike facility on a regional or locally adopted plan ○ grade separating an existing bike/ped trail from the road ○ providing bike amenities (e.g., bike racks, bike lockers) ○ building pedestrian links, in addition to what is required (e.g., sidewalks), connecting to adjacent key pedestrian-generating facilities (e.g., parks, transit stations/lots, businesses) as part of the project ○ providing pedestrian-oriented street lighting ○ providing street trees and/or a landscaped buffer between the roadway and sidewalk within the street zone ○ detaching or widening sidewalks beyond what is required ○ incorporating transit priority or bicycle activation at project signals 1 point for commitment by applicant to fund telework, carpooling, and/or vanpooling promotion efforts, targeted to the project corridor (funding identified as part of the project or by contributing funds to a TMO and contributing funds must total a minimum of 2% of the total project cost).
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.
Project-related Metro Vision implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F.
Sponsor-related Metro Vision Implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
Total	**100**	

Table 7
Rapid Transit Projects

Eligibility Criteria

Only fixed guideway transit projects identified in the rapid transit system of the fiscally constrained 2035 Metro Vision RTP (assume Figure 33 of the Metro Vision RTP as default) are eligible for funding. The Regional Transportation District is the only eligible implementing agency (applicant).

Evaluation Criteria
The fiscally constrained rapid transit system reflects the results of a voter-approved initiative called FasTracks. Corridors and implementation timing were part of the package approved by the voters. The Policy herein reflects intent to provide funding as identified in Section III.E.3 to assist the implementation of FasTracks. Commitments in future years are envisioned but not specifically granted herein. RTD is required to submit funding request applications for relevant, meaningful, identifiable aspects of its approved FasTracks plan for DRCOG to honor the policy. Because the corridors and timing have voter approval, and because the DRCOG selection contribution is modest in comparison to the entire FasTracks program, it is not required that RTD funding requests in this project type be evaluated.

Table 8
Transit Passenger Facilities Projects

Eligibility Criteria

Any stations, transfer facilities, or park-n-Ride lots identified in the 2035 Metro Vision RTP (assume Appendices 1 and 2 of the 2030 Metro Vision RTP as default).

Evaluation Criteria	Points	Scoring Instructions
Usage	0-30	Based on the estimated average number of persons to be served per day at the new facility six months after its completion: 30 points will be awarded to projects serving more than 5,000 people; 0 points to facilities serving less than 1,500; with straight-line interpolation between.
Air Quality Benefits	0-8	Transit passenger facilities projects may reduce air pollution by reducing VMT. Based on the daily reduction in pounds of total air pollutants expected from this project, as a percentage of the regional total from mobile sources, 8 points will be awarded to projects which would reduce 0.3% of the regional total or more; 0 points to projects which would reduce no pollution; with straight-line interpolation between. *Source: sponsor estimates of VMT reduction from estimates of use, trip length, and prior mode.*
Multi-modal Connectivity	0-24	On the basis of number of modes[1] served at the new facility, 3 points will be awarded for each mode of travel served up to a maximum of 24 points.
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.
Metro Vision project-related implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F
Metro Vision sponsor-related Implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
Total	**100**	

[1] Modes are defined as:

- Local or limited bus service
- express or regional bus service
- mall shuttle or circulator bus
- intra-regional commuter rail
- inter-regional commuter rail
- Light rail
- inter-city van/limo (gaming, ski areas
- inter-city rail (AMTRAK, ski train, etc.)
- private inter-city bus and charter bus service
- bicycle
- pedestrian
- auto parking
- rental car

Table 9
New Bus Service Projects

Eligibility Criteria

The following conditions must be met in order to be eligible as a new bus service project:

1. New bus service is defined as service where no other motorized transit for use by the general public currently exists.
2. New bus service must have an minimum of 3 years of detailed and allocated program funding that includes line item budgets for the following:
    a. Vehicles
    b. Physical improvements
    c. Marketing
    d. Operations
    e. Others as defined.
3. New bus service **must** employ a marketing program to identify and reach prospective riders, in both the short and long term. Sponsors must describe this program in the application and should include its costs unless another funding source is committed.
4. Any sponsor proposal for RTD to run the daily operation of a requested transit service must obtain concurrence from RTD in written form. RTD will only consider granting concurrence if sponsors submit formal requests to RTD that are received no later than 7 days after the solicitation for funding requests is announced.
5. Any requests for RTD concurrence on any other aspect of new bus service, besides running the daily operation of the new service as stated above, such as long-term funding support, must be submitted and received by RTD 30 days in advance of the funding request submittal deadline. RTD may request usage/cost-effectiveness data prior to issuing any concurrence.

Evaluation Criteria	Points	Scoring Instructions
Usage	0-16	Based on projected daily boardings that are anticipated 12 months after initiation of service: 16 points will be awarded to projects with boardings above the RTD Service Standard average (varies based on the specific bus service class and their appropriate Service Standard, as described in Appendix I); 0 points to projects with boardings below the RTD 10% Service Standard; with straight-line interpolation between. The specific classes of new bus service include: urban local, suburban local, express, regional, and call-n-ride. A detailed description of the estimated ridership must be supplied with the submittal, per Appendix I. An independent/peer review will be performed on the ridership.
Cost-effectiveness	0-15	Based on the projected subsidy per passenger that is anticipated 12 months after initiation of service: 15 points will be awarded to projects with a subsidy below the RTD Service Standard average (varies based on the specific bus service class and their appropriate Service Standard, as described in Appendix I); 0 points to projects with a subsidy above the RTD 10% Service Standard; with straight-line interpolation between.

Table 9 (cont.)
New Bus Service Projects

Evaluation Criteria	Points	Scoring Instructions
Long-term funding	0-15	15 points awarded to projects with an additional 2 years of total program funding support, beyond the required minimum of 3 years (5 years total), which must be obtained in writing from either: 1. An independent funding source; 2. RTD via a letter of support; or 3. A combination of the two. Zero points will be awarded to projects that do not define an additional 2 years of funding support.
Connectivity	0-8	4 points will be awarded if the new service fills an existing service gap. 2 points will be awarded if the new service connects to existing park-n-Ride lots and transit stations. 1 point will be awarded for each transit route connected (up to 2 routes)
Air Quality (VMT)	0-8	New bus service projects may reduce air pollution by reducing VMT. Based on the daily reduction in pounds of total air pollutants expected from this project, as a percentage of the regional total from mobile sources, 8 points will be awarded to projects which would reduce greater than 0.3% of the regional total; 0 points to projects which would reduce no pollution; with straight-line interpolation between. *Source: sponsor estimates of VMT reduction from estimates of use, trip length, and prior mode.*
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.
Metro Vision project-related implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F.
Metro Vision sponsor-related Implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
Total	**100**	

Table 10
Bicycle/Pedestrian Projects

Eligibility Requirements (All Projects)

1. Pedestrian and bicycle projects must be on facilities contained in an **adopted** local or regional plan.
2. Any new or reconstructed pavement must be designed and constructed to withstand occasional vehicle travel (emergency vehicles).
3. If project consists of multiple, non-contiguous elements, all elements must either be a) on the same facility (primary corridor) OR b) within ¼ mile of the largest element of the project.
4. Projects that consist of both a new construction element and an upgrade and/or reconstruction element must be categorized as either one or the other to score the project. That categorization is determined by the element proposed in the largest contiguous segment of the project, based on linear feet.

Eligibility Requirements (New Construction Projects Only)

5. New construction projects are defined as projects that will result in a new facility where pedestrian and/or bicycle infrastructure does not currently exist.
6. New construction projects must accomplish connectivity. Examples of connectivity include, but are not limited to:
   - Closing a gap between two existing bicycle facility sections
   - Improving access to transit
   - Providing pedestrian and bicycle facilities connecting to schools, parks, shopping, and/or employment
   - Eliminating barriers
   - Linking a bicycle facility to a 2035 Metro Vision RTP roadway that serves bicyclists

Eligibility Requirements (Upgrade/Reconstruction Projects Only)

7. Upgrade construction projects are defined as projects that are an upgrade or operational enhancement to an existing facility that does NOT currently meet ADA/AASHTO design standards.
8. Reconstruction projects are defined as projects that reconstruct the total pavement of a facility due to pavement deterioration.
9. For a project to be proposed as a pavement reconstruction project, the Pavement Condition Index, computed according to the methods in Appendix H, must have a PCI score 25 or less for asphalt surfaces and/or 35 or less for concrete surfaces AND the original pavement must be more than 20 years old.

Evaluation Criteria	Points	Scoring Instructions
		EVALUATION CRITERIA FOR ALL PROJECTS
Project Type	0-3	• 3 points will be awarded for new construction projects • 0 points will be awarded for upgrade and/or reconstruction projects on existing facilities

Table 10 (cont.)
Bicycle and Pedestrian Projects

Evaluation Criteria	Points	Scoring Instructions
RTP Priority Corridors	0-4	If project consists of multiple elements not all on the same corridor, scoring in this category will be based on the largest contiguous element. Score 4 points maximum: • 4 points will be awarded for bike projects that are on Regional Bicycle Corridors in the Pedestrian and Bicycle Element of the 2030 Metro Vision RTP (Figure 19 of that document or within ¼ mile of AND fulfilling the function of the facility depicted on Figure 19) • 3 points will be awarded for bike projects on Community Bicycle Corridors in that element (Figure 19 of the noted document or within ¼ mile of AND fulfilling the function of the facility depicted on Figure 19) • 1 point will be awarded for bike projects on an adopted local plan OR • 4 points will be awarded for pedestrian projects along 2035 Metro Vision RTP major regional arterials (assume Figure 32 of the 2030 Metro Vision RTP document as default) or within 1/8 mile of AND fulfilling the function of the facility depicted on Figure 32 • 3 points will be awarded for pedestrian projects along 2030 Metro Vision RTP principal arterials (Figure 32 of the 2030 Metro Vision RTP document as default) or within 1/8 mile of AND fulfilling the function of pedestrian movement for the facility depicted on Figure 32 • 1 point will be awarded for pedestrian projects on a corridor on an adopted local plan
User Base	0-8	Up to 8 points will be awarded based on the estimated user base of a project as follows: projects with a user base of 50,000 or more will receive 8 points; projects with a user base of 2,000 or less will receive 0 points; with straight line interpolation between. *Source: the project's user base is the combined sum of the DRCOG 2015 traffic analysis zone (TAZ) population and employment estimates within a 1.5 mile radius of the project area for a bicycle project and within a 0.5 mile radius for a pedestrian project, except where applicants can document an alternate user base for the project.* *For projects with non-contiguous elements, sponsors will compute the user base for each element. The project's overall user base is the weighted average based on the percent of the project length in each element compared to the overall length.*
Cost-effectiveness	0-8	Based on the user base calculated above: projects with a total cost per user base below $2 will receive 8 points; projects with a total cost per user base above $50 will receive 0 points; with straight line interpolation between.
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.

Table 10 (cont.)
Bicycle and Pedestrian Projects

Evaluation Criteria	Points	Scoring Instructions
Project-related Metro Vision implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F.
Sponsor-related Metro Vision Implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
Total	**61**	

Evaluation Criteria	Points	Scoring Instructions
		EVALUATION CRITERIA NEW CONSTRUCTION PROJECTS ONLY
Safety	0-10	Projects will be evaluated on the anticipated *improvement* of existing safety problems to be made by building new facilities for non-motorized travel. Three measures of safety improvement will be awarded: **1. Relevant crash history** Based on the number of *documented* injury accidents: o created by the interaction between motorized and non-motorized traffic; o in the area to be affected by the proposed new facility; and o occurring over the last three-year period for which data is available. 1 point will be awarded for each applicable injury accident, up to a maximum of 4 **2. Conflict factor** If the existing facilities are roadways that allow interaction between motorized and non-motorized traffic, and if the project will build new facilities for the non-motorized traffic, to eliminate or reduce the conflict factor, the project will earn safety points. Based on the speed limit on the existing facilities, up to 4 points will be awarded as follows: • 1 points will be awarded if the existing speed limit is 30 MPH or less; • 2 points will be awarded if the existing speed limit is 35 MPH; • 3 points will be awarded if the existing speed limit is 40 MPH; or • 4 points will be awarded if the existing speed limit is 45 MPH or above. **3. Facility lighting** 2 points will be awarded to projects that will provide ADA/AASHTO compliant lighting to facilitate non-motorized travel on the planned facilities, if no lighting is currently available.

Table 10 (cont.)
Bicycle and Pedestrian Projects

Evaluation Criteria	Points	Scoring Instructions
Connectivity	0-17	Up to 17 points will be awarded for specific project attributes that address existing local or regional connectivity of non-motorized travel. Points will be awarded as follows: **Connectivity measures - gap closure (score points for only one of these two)** • 4 points - completely closing a gap between two existing bicycle facility/sidewalk sections • 2 points - completely closing a gap between an existing pedestrian/bicycle facility and an RTP roadway that serves pedestrian/bicyclists **Connectivity measures - access (score points for only one of these three)** • 3 points - provide direct access (project directly touching) to a school • 2 points - provide direct access (project directly touching) to an employment center with greater than 2,000 jobs • 1 points - provide direct access (project directly serving) to such destinations as employment, shopping, dining, or government buildings, or recreational destinations such as parks or recreational facilities **Connectivity measures - barrier elimination (score points for only one of these three)** • 5 points - entirely eliminate a barrier (railway, highway, waterway) for pedestrians or cyclists by grade separating • 3 points - entirely eliminate a barrier (railway, highway) for pedestrians or cyclists by providing a controlled crossing where one does not currently exist (demonstrate achievement of signal warrant if signal proposed) • 1 point - construct at least one phase of a multi-phase improvement (as dictated through an approved plan) towards eliminating a barrier (railway, highway, waterway) **Connectivity measures - transit (score points for only one of these if applicable)** • 3 points - provide new direct access to "transit" within 1.5 miles for bike projects and within 0.5 miles for pedestrian projects. "Transit" is stations, park-n-Ride lots, or transit terminals existing, in final design, or under construction; or existing bus stops serving 3 or more routes • 1 point - provide new indirect access (serving via an existing linkage) to "transit" within 1.5 miles for bike projects and within 0.5 miles for pedestrian projects. "Transit" is stations, park-n-Ride lots, or transit terminals existing, in final design, or under construction; or existing bus stops serving 3 or more routes

Table 10 (cont.)
Bicycle and Pedestrian Projects

Evaluation Criteria	Points	Scoring Instructions
Connectivity (cont.)		**Connectivity Measures – location (score 2 points maximum)** • 2 points – project is located in the jurisdiction of more than one local governmental entity (with written confirmation and agreement by the other affected governmental entities besides the applicant) • 1 point – project connects 2 or more neighborhoods where an exclusive bicycle and/or pedestrian access does not currently exist, excluding roadways.
Multiple enhancements	0-4	Up to 4 points will be awarded for multiple enhancements (score all that apply): • 2 points if project will provide facilities for bidirectional use by both bicycles and pedestrians (10 ft. minimum width) • 1 or 2 points if project will provide bicycle lockers or racks; 1 point for each 10 racks or 3 lockers, up to 2 points
Air Quality Benefits	0-8	New bike/ped projects may reduce air pollution by reducing VMT. Based on the daily reduction in pounds of total air pollutants expected from this project, as a percentage of the regional total from mobile sources, 8 points will be awarded to projects which would reduce 0.3% of the regional total or more; 0 points to projects which would reduce no pollution; with straight-line interpolation between. *Source: sponsor estimates of VMT reduction from estimates of use, trip length, and prior mode.*
Total	**39**	

Table 10 (cont.)
Bicycle and Pedestrian Projects

Evaluation Criteria	Points	Scoring Instructions
		EVALUATION CRITERIA UPGRADE/RECONSTRUCTION PROJECTS ONLY
Safety	0-14	Projects will be evaluated on the anticipated *improvement* of existing safety problems to be made by upgrading or reconstructing the facilities for non-motorized travel. Three measures of safety improvement will be awarded: **1. Relevant crash history** Based on the number of *documented* injury accidents: o created by the interaction between motorized/non-motorized traffic or non-motorized/ non-motorized traffic; o on or at the facility; and o occurring over the last three-year period for which data is available. 1 point will be awarded for each applicable injury accident, up to a maximum of 4 **2. ADA/AASHTO Standards (score for all that are applicable)** If the existing facilities do not meet current ADA and/or AASHTO design standards, up to 2 points per improvement will be awarded if the project includes provisions to do the following and upgrade the facility to meet ADA and/or AASHTO requirements: • 2 points will be awarded if an existing facility currently has an 8% or greater grade over 300 feet and is reduced to a grade of 5% or lower • 2 points will be awarded if a current narrower trail or path will be increased to a 10 foot or greater width to allow for bidirectional multi-purpose use • 2 points will be awarded if substandard radii are improved to meet AASHTO standards • 2 points will be awarded if substandard sight distance is improved to comply with AASHTO standards **3. Facility lighting** 2 points will be awarded to projects that will add ADA/AASHTO compliant lighting to facilitate non-motorized travel on the planned facilities, if lighting is not currently available.
Connectivity	0-13	Up to 13 points will be awarded for specific project attributes that address existing local or regional connectivity of non-motorized travel. Points will be awarded as follows: **Connectivity measures - access (score points for only one of these three)** • 3 points – provides upgraded access (to ADA/AASHTO standards) to a school • 2 points - provides upgraded access (to ADA/AASHTO standards) to an employment center with greater than 2,000 jobs • 1 point - provides upgraded access (to ADA/AASHTO standards) to such destinations as employment, shopping, dining, or government buildings, or recreational destinations such as parks or recreational facilities

Table 10 (cont.)
Bicycle and Pedestrian Projects

Evaluation Criteria	Points	Scoring Instructions
Connectivity (cont.)		**Connectivity measures - barrier elimination (score points for only one of these four)** • 5 points - entirely eliminate an existing barrier (railway, highway, waterway) for pedestrians or cyclists by grade-separating • 3 points - entirely eliminate an existing barrier (railway, highway) for pedestrians or cyclists by providing a controlled crossing where one does not currently exist (demonstrate achievement of signal warrant if signal proposed) • 2 points - improvements upgrade the non-motorized facility geometrics/traffic control to meet ADA and/or AASHTO requirements where the facility intersects at-grade with motorized vehicle traffic • 1 point - construct at least one phase of a multi-phase improvement (as dictated through an approved plan) towards eliminating a barrier (railway, highway, waterway) **Connectivity measures - transit (score points for only one of these if applicable)** • 3 points – reconstruct or upgrade (to make it ADA/AASHTO compliant) <u>direct</u> access to "transit" within 1.5 miles for bike projects and within 0.5 miles for pedestrian projects. "Transit" is stations, park-n-Ride lots, or transit terminals existing, in final design, or under construction; or existing bus stops serving 3 or more routes • 1 point - reconstruct or upgrade (to make it ADA/AASHTO compliant) <u>indirect</u> access (serving via an existing linkage) to "transit" within 1.5 miles for bike projects and within 0.5 miles for pedestrian projects. "Transit" is stations, park-n-Ride lots, or transit terminals existing, in final design, or under construction; or existing bus stops serving 3 or more routes **Connectivity Measures – location (score 2 points maximum)** • 2 points – project that is being reconstructed or upgraded (to make it ADA/AASHTO compliant) is located in the jurisdiction of more than one local governmental entity (with written confirmation and agreement by the other affected governmental entities besides the applicant) • 1 point – facility that is being reconstructed or upgraded (to make it ADA/AASHTO compliant) connects 2 or more neighborhoods where an exclusive bicycle and/or pedestrian access does not currently exist, excluding roadways.
Multiple enhancements	0-4	Up to 4 points will be awarded for multiple enhancements (score all that apply): • 1 point if the project will provide new or additional amenities for facility users (benches, fountains, directional or distance signage, restrooms, etc.) • Up to 3 points if project will provide additional bicycle lockers or racks to what already exists; 1 point for each 10 racks or 3 lockers, up to 3 points

Table 10 (cont.)
Bicycle and Pedestrian Projects

Evaluation Criteria	Points	Scoring Instructions
Existing Users	0-8	Based on current recorded use, facilities with 450 users or more during the AM 2-hour peak will receive 8 points; facilities with 50 users or less during the AM 2-hour peak will receive 0 points; with straight line interpolation between. Users are to be counted at a representative location in the project area. *Source: Actual count from applicant between 7am and 9am on a Tuesday, Wednesday, or Thursday between August 7 and August 23, 2007*
Total	**39**	

Table 11
Other Enhancement Projects

Eligibility Criteria
Any other transportation-related projects meeting FHWA eligibility rules, as outlined in Appendix B.

Evaluation Criteria	Points	Scoring Instructions
Benefit	0-32	Score up to 32 points total for the category that best fits your project: ***Transportation-Related Historic Preservation / Archaeological Projects*** *will be awarded:* • 16 points if this project is part of a local, regional, or state preservation or archaeological effort. • 8 points if this project positively affects the regional transportation system (see 2035 Metro Vision RTP). • 8 points if this project is a good use of public dollars. The economic benefits (i.e., revitalization of tourism and/or reduction in public and private expenditures) must be quantified. ***Transportation Aesthetics and Scenic Values Projects*** *will be awarded:* • 8 points if this project is part of the state's scenic highway program. • 8 points if this project removes a visual blight. • 8 points if the project enhances the visual environment. • 8 points if this project is a good use of public dollars. The economic benefits must be quantified. ***Projects which Mitigate Water Pollution due to Highway Runoff*** *will be awarded:* • 16 points for a project which implements mitigation measures identified in the Colorado Department of Health Non-Point Source Management Program and/or DRCOG Clean Water Plan for a demonstrated water quality problem. • 8 points if evidence is provided that the proposed mitigation will improve water quality, preserve wetlands, or create new ones. • 8 points if this project is a good use of public dollars. The economic and environmental benefits must be quantified.
Cost-effectiveness	0-30	All projects in this category will be compared by their cost per benefit point calculated above: projects with a total cost per benefit point below $8,000 will receive 30 points; projects with a total cost per benefit point above $80,000 will receive 0 points; with straight line interpolation between.
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.
Project-related Metro Vision implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F.
Sponsor-related Metro Vision Implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
TOTAL	**100**	

Table 12
Air Quality Improvement Projects

Eligibility Criteria

CMAQ-eligible transportation-related air quality improvement projects (see Appendix A). All submitted funding requests must provide an estimate of air pollutant emissions reduction. TDM, ITS, and signal system/coordination projects eligible for funding in specific pools (see Section III.E) are ineligible to be submitted as funding requests in the TIP process. Pedestrian/bicycle, rapid transit, HOV, new bus service, roadway operations, and study funding requests should be submitted in appropriate project types, not as air quality improvement projects.

Evaluation Criteria	Points	Scoring Instructions
Project Type	0-4	4 points will be awarded for diesel retrofit projects 0 points will be awarded for all other air quality improvement projects that are not diesel retrofit project
Benefit	0-29	*For projects which would indirectly reduce air pollution by reducing VHT or VMT or for projects which would directly address the reduction of multiple air pollutants:* Based on the daily reduction in pounds of *total* air pollutants expected from the project, as a percentage of the regional total from mobile sources, 29 points will be awarded to projects which would reduce greater than 0.3% of the regional total; 0 points to projects which would reduce no pollution; with straight-line interpolation between. *For projects which directly address reduction of a specific air pollutant (NOx, CO, PM2.5, PM10 or VOC):* Based on the daily reduction in pounds of any *single* pollutant as a percentage of the regional mobile source total from that pollutant: 29 points will be awarded to projects which would reduce above 0.3% of the regional total; 0 points to projects which would reduce no pollution; with straight-line interpolation between. ***Only* projects scoring at least one point for Benefit are eligible for funding under this project type.**
Cost-effectiveness	0-29	Based on the anticipated daily cost in dollars per pound of total daily air pollutant reduction expected over the life of the project in years: 29 points will be awarded to projects which would cost below $0.25 per pound; 0 points to projects which would cost above $1.00 per pound; with straight-line interpolation between.
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.
Metro Vision project-related implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F.
Metro Vision sponsor-related Implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
Total	**100**	

Table 13
Studies

Eligibility Criteria

Only three types of studies are eligible for funding requests for the 2008-2013 TIP:

- **Roadway capacity project** studies to further project development for regionally-funded roadway widening, new road, new interchange, interchange reconstruction, and Bus/HOV/BRT projects identified in the adopted networks for testing for the fiscally constrained 2035 Metro Vision RTP (will be listed in Appendix D after adoption);
- **Operational improvement** studies to identify low-cost system management and operational improvements to reduce congestion on an arterial corridor (or portion thereof but not less than one mile in length) shown on the 2035 Metro Vision Regional Roadway System (assume Figure 32 of the 2030 Metro Vision RTP document as default); and
- Studies to further implementation of the fiscally constrained rapid transit system (assume Figure 33 of the 2030 Metro Vision RTP document as default). Such studies include the three types of station area planning studies described below.
  - Corridor-wide TOD workshops focusing on:
    - Maximizing both transit operations and TOD
    - Involving all the local jurisdictions and other major stakeholders
    - Completing a TOD action plan identifying, on a corridor basis, such things as needed plan updates, code revisions, and financial or regulatory incentives
  - Creation and adoption of a station area master plan (2020 horizon or beyond). The scope for such a study/plan **must include**:
    - Definition of station area activity focus (character, nature, typology)
    - Station area market study
    - Identification (map) of type and density of future land uses
    - Circulation plan(s) (maps) for motor vehicles, transit, bicycle and pedestrian modes
    - Identification (map) of pedestrian areas and characteristics
    - Public spaces plan (map)
    - Identification of the transportation impacts and air quality benefits of the proposed plan (CMAQ benefits reporting requirement)
    - Identification of land use and other actions necessary to accomplish the station area master plan
    - Active involvement by RTD and the public in the development of the plan
  - Additional studies to further the development of the station area if a station area master plan has already been adopted. Such “next step” studies are only eligible if they:
    - Are for planning activities that are clearly and unambiguously related to transportation infrastructure for use by the general public, AND
    - Are for planning/design activities that do not conflict with RTD planning/design activities as demonstrated by a letter of concurrence from RTD, AND
    - Total no more than $200,000 federal funds awarded for transportation-related planning activities at an individual station, aggregate (total of funds awarded for preparation of a master plan and any “next step” studies over ALL TIP cycles for which station area planning funds are awarded).

  No more than three stations can be included in any single funding request for a station area master plan or additional studies. Funding requests for corridor-wide workshops have no limit on number of stations. When multiple stations are included, all evaluation criteria refer to the average conditions for those locations. Corridor-wide TOD workshops and creation and adoption of an initial station area master plan are higher priorities than “next step” studies.

Table 13 (cont.)
Studies

Evaluation Criteria	Points	Scoring Instructions
		For roadway capacity project studies and operational improvement studies
Current congestion	0-20	Based on the degree of current (2006) congestion on the most congested segment of the project: 20 points will be awarded to projects with current congestion score of 20 or more; 0 points to projects with current congestion score of 0; with straight-line interpolation between. For studies for new roads or new interchange projects, congestion based on current travel paths. *Source: DRCOG congestion management program; sponsor may supply location-specific volume data to augment DRCOG data in computation of congestion score.)*
Usage	0-16	Based on estimated 2005 AWDT/lane of the major roadway (average for overall project length): projects with AWDT/lane of 17,000 or more will receive 16 points; projects with AWDT/lane of 5,000 or less will receive 0 points; with straight line interpolation between. *Source: DRCOG 2005 model (daily)*
Other criticality criteria	0-26	For **roadway capacity project studies:** A maximum of 15 points will be awarded based on the score computed by DRCOG for project consideration in the fiscally constrained 2035 Metro Vision RTP process: 15 points will be awarded if the project's long-range score was 75 or higher; 0 points will be awarded if the project's long-range score was 45 or lower; with straight line interpolation between. *Source: DRCOG* **AND** a maximum of 5 points will be awarded based on the CDOT inspection per the National Bridge Inspection Standards of the included structure, nearby structure, or structure on current travel path, and the resultant bridge sufficiency rating: 5 points will be awarded if the bridge sufficiency rating is 20 or lower; 0 points will be awarded if the bridge sufficiency rating is 80 or higher; with straight line interpolation between. *Source: DRCOG from CDOT* **AND** a maximum of 6 points will be awarded based on the project's current (2005) forecast cost per daily person-miles-of-travel (PMT): • **For Bus/HOV/BRT, roadway widening, and new road projects**: 6 points will be awarded to projects with a cost per PMT of $50 or less; 0 points to projects with a cost per PMT of $550 or more; with straight line interpolation between. • **For interchange reconstruction and new interchange projects**: 6 points will be awarded to projects with a cost per PMT of $250 or less; 0 points to projects with a cost per PMT of $2,750 or more; with straight line interpolation between. • PMT for new road and interchange projects based on modeled usage estimates. *Source: DRCOG 2005 model data (daily)* For **operational improvement studies:** A maximum of 20 points will be awarded based on the weighted crash rate of the study (area) corridor in comparison to the statewide average. Appendix E explains the point allocation. **AND** a maximum of 6 points will be awarded based on inclusion on the 2035 Metro Vision RTP Emphasis Corridors map (assume Figure 27 of the 2030 Metro Vision RTP document as default): 6 points will be awarded to freeway or major regional arterial corridors. 3 points will be awarded to emphasized principal arterial corridors.

Table 13 (cont.)
Studies

Evaluation Criteria	Points	Scoring Instructions
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.
Project-related Metro Vision implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F.
Sponsor-related Metro Vision implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
TOTAL	**100**	

Table 13 (cont.)
Studies

Evaluation Criteria	Points	Scoring Instructions
		For station area planning studies
Current congestion	0-20	Based on the degree of current (2006) congestion on the nearby freeway segment (or major regional arterial for selected corridors): 20 points will be awarded to projects with current congestion score of 20 or more; 0 points to projects with current congestion score of 0; with straight line interpolation between. *Source: DRCOG congestion management program; sponsor may supply location-specific volume data to augment DRCOG data in computation of congestion score.)*
Ridership potential	0-10	Based on daily (average) 2030 station usage: 10 points will be awarded for productions/attractions of 2,000 or more; 0 points for productions/attractions of 0; with straight line interpolation between. *Source: DRCOG 2030 model data*
Existing station area land use, ownership, income, and ethnicity	0-32	A maximum of 6 points will be awarded based on the percentage of the study area that is brownfields: 6 points will be awarded if the study area is 30% or more brownfields; 0 points will be awarded if the study area is 0% brownfields; with straight line interpolation between. **AND** a maximum of 6 points will be awarded based on the number of different property owners within 1/4 mile of the station: 6 points will be awarded if there are 14 or more owners; 0 points will be awarded if there are 2 or fewer owners; with straight line interpolation between. **AND** a maximum of 10 points will be awarded based on the percentage of the study area that would be infill/redevelopment area as opposed to currently-undeveloped land: 10 points will be awarded if the study area is 50% or more infill/redevelopment; 0 points will be awarded if the study area is 0% infill/redevelopment (i.e., 100% currently undeveloped); with straight line interpolation between. **AND** a maximum of 10 points will be awarded based on the percentage of the study area in low income or minority areas (reference 2030 Metro Vision RTP Figure 34 as default): 10 points will be awarded if the study area is 40% or more low income or minority area; 0 points will be awarded if the study area is 0% low income or minority area; with straight line interpolation between.
Overmatch	0-12	Based on providing *above* the minimum 20 percent local funding match: 12 points will be awarded to projects with local match of 50 percent or more; 0 points to projects with the minimum 20 percent local match; with straight line interpolation between.
Project-related Metro Vision implementation and strategic corridor focus	0-14	Up to 14 points will be awarded as described in Appendix F.
Sponsor-related Metro Vision implementation	0-12	Up to 12 points will be awarded for sponsor actions implementing Metro Vision. Appendix G explains the specific criteria.
TOTAL	**100**	

APPENDIX E
ROADWAY SAFETY CRITERIA

Safety is an evaluation criterion for all roadway project types: roadway capacity improvements, operational improvements, and reconstruction. Safety is also a criterion for roadway operations studies. Of relevance in the point computation is one or both of the following (depending on project type):

- Current weighted crash rate (Rw) compared to the statewide average; and/or
- Estimated reduction in number of crashes.

Sponsors are encouraged to use qualified traffic personnel for the safety computations.

Current Weighted Crash Rate Comparison

To compute this measure, applicants will provide the following information in the DRCOG TIP funding request application form:

1. Roadway data

The applicant must provide the roadway type, rural/non-rural designation, safety computation area length, and average weekday traffic volumes (AWDT).

- The roadway type is either freeway or arterial.
- The urban/non-urban designation should be based on Figure E-1.
- **For all funding requests, the safety computation area must be at least one mile in length.**
- For new roadway projects, the roadway type, length, and volumes should be for the current travel path.
- For new interchanges (all of which are arterial-arterial intersection upgrades) and intersection operational improvements (and studies thereof), data should be provided for the primary roadway and the cross street (if applicable). The sum of the road leg distances must equal at least one mile. The minimum AWDT information to be provided is one count on each of the primary roadway and cross street; more desirable is one count on each leg. The roadway type reported should be for the primary roadway.
- For interchange reconstruction projects, the data provided should be for the interchanging arterial, not the freeway mainline (e.g., project type is arterial).

2. Number of crashes over three years

The applicant must supply the number of crashes by severity category over the three most recent years for which data is available. The severity categories are: fatal crashes, injury crashes and property damage only (PDO) crashes.

- The crashes should be tallied at all appropriate intersections, approaches, and road segments along the identified safety computation area length (minimum distance of one mile).

Estimated reduction in number of crashes

For all funding requests for roadway capacity projects, roadway operational improvements, and reconstruction projects, but NOT for roadway operations studies, the applicant is asked to estimate the potential reduction in number of crashes from the project. The estimates are used to determine levels (low, medium, high, very high) of improvement to award safety points. They are not meant to imply precise predictions of eliminated crashes. The reduction should be reported for a three-year period (similar to crash data provided).

- For new roadways, the number of crashes reduced shall be based on the reduction in volume on the current travel path due to the new roadway. In other words, [AWDT decrease/current AWDT] * [current number of crashes]. Source for volumes: DRCOG.
- For requests for other projects noted above, the estimated crash reductions should consider all individual elements of the project. Table E-1 presents Crash Reduction Factors that should be used to estimate crash reduction. It presents specific percentage reductions **for relevant crashes due to specific improvement elements**. Sponsors must document how the crash reductions were determined. Crash reduction factors must only be applied to specific sites along the project length and for relevant crash types. Total crash reduction estimates may not exceed 75 percent of the original three-year crash total. The professional judgment of qualified personnel will be necessary in the crash reduction determination process.

Safety Projects

The funding request application program will compute and award the safety points scored. The steps in the process are:

1. Calculate the weighted annual crash rate for the existing roadway(s) or intersection:

   From the entered volume, safety computation area length, and crash data, the program will calculate Rw as follows:

   Weighted Annual Crashes (Aw)
   A_w={(12)(#of fatal crashes)+(5)(#of injury crashes)+(#of PDO crashes)}/3

   Annual miles traveled on the subject segments of roadway(s), VMT:
   VMT=Average AWDT * length * 365 * .9277 (minimum length=1.0 mile)
   Average AWDT={sum of AWDT}/ number of counts

Weighted Annual Crash Rate, R_w (per million miles)
$R_w = A_w / (VMT/10^6)$

2. Identify the crash range

Using the computed weighted annual crash rate (R_w), the roadway type and urban/non-urban designation, and the statewide averages displayed in the following table, the funding request application program will assign the appropriate crash range (row A, B, C, or D in the left column).

	R_w (weighted annual crash rate per Million Vehicle Miles of Travel) by Roadway Type			
	Non-rural Arterial	Non-rural Freeway	Rural Arterial	Rural Freeway
Crash Range	R_w			
A <State Average	0.01 to 7.49	0.01 to 3.85	0.01 to 3.02	0.01 to 2.26
B 1-2x State Average	7.5 to 14.94	3.86 to 7.7	3.03 to 6.04	2.27 to 4.52
C 2-3x State Average	14.94 to 22.38	7.8 to 11.64	6.05 to 9.06	4.532 to 6.78
D >3x State Average	22.39+	11.65+	9.07+	6.79+

Source: DRCOG from CDOT data for 2003 and 2004.

3. Identify the estimated crash reduction level (as applicable)

Using the estimated number of crashes reported by the applicant for the three-year period, the funding request application program will convert that to a per-mile basis (using the safety computation area length) and will assign the crash reduction level as follows:

- Low (9 or fewer crashes eliminated per mile)
- Medium (10-19)
- High (20-29)
- Very High (30 or more).

If no data is provided by the applicant, the low crash reduction level will be assigned.

4. Award the safety points

The following four tables show the number of safety points the funding request application program will award, based on the estimated crash reduction level and the crash range.

- Roadway Capacity Projects

Because the long-range plan score criterion was computed in part based on current weighted crash rates, the points available are based primarily on the estimated crash reduction level.

Roadway Capacity Projects	Estimated Crash Reduction Level			
	Low	Medium	High	Very High
Crash Range	Safety points to be awarded			
A & B	0	1	3	4
C & D	1	3	4	5

- Roadway Reconstruction Projects

Roadway Reconstruction Projects	Estimated Crash Reduction Level			
	Low	Medium	High	Very High
Crash Range	Safety points to be awarded			
A	0	0	1	2
B	0	1	2	3
C	1	2	3	4
D	2	3	4	5

- Roadway Operations Projects

Roadway Operations Projects	Estimated Crash Reduction Level			
	Low	Medium	High	Very High
Crash Range	Safety points to be awarded			
A	0	1	3	4
B	1	2	4	5
C	2	4	5	6
D	3	5	6	7

- Roadway Operations Studies

For studies, the crash reduction level is not estimated and the points are awarded based entirely on crash range.

Roadway Operations Studies	
Crash Range	Safety points to be awarded
A	0
B	7
C	14
D	20

Table E-1
DRCOG TIP Project Evaluation Safety Criteria
Sample Suggested Crash Reduction Factors

Improvement Characteristics	Percentage Reduction in Relevant Crashes (at applicable crash locations)	Example Relevant Crash Types
Intersections		
New traffic signal	20%	right-angle, turns
Upgrade traffic signal (heads)	20%	rear-end, red light run
Add new approach turn lanes (either left or right)	25%	rear-end
Add accel/decel lane	25%	rear-end, sideswipe
Convert to roundabout	40%	right-angle
Convert to interchange	40%	right-angle
Increase turn radii	15%	turn crashes
Railroad		
Automatic gate	75%	vehicle-train
Grade separate	100%	vehicle-train, rear-end
Roadside/Bridges		
Guardrail-install/upgrade	60% fatal, 40% injury	run off road
Shoulder widening/addition	20%	run off road, overtake ped/bike
Bridge widening	40%	bridge
Remove fixed objects	50% fatal, 15% injury	fixed object
Separated bicycle/pedestrian path	80%	overtake ped/bike
Roadways		
Curve reconstruction	50%	run off road, head-on
Vertical realignment	45%	head-on, limited sight
Median barriers	60% fatal, 10% injury	head-on
Raised median	40%	turn crashes, turn-related rear-ends
Climbing/passing lane	15%	passing, rear-end
Lane widening	20%	sideswipe (multi-lane)
Ramp geometric reconstruction	25%	ramp
Widen from 2-lane to 4-lane road	30%	rear-end, head-on
Continuous center-left turn lane	30%	rear-end
Shoulder rumble strips	80%	run off road
Pave shoulder to full width	10%	run off road
Other		
Lighting improvement	90%	night-time crashes
Close median opening	30%	turn crashes

Notes:

1. Crash reduction factors are for TIP project scoring guidance only.
2. The factors are not meant to imply precise predictions of eliminated crashes.
3. Rates should be applied only to specific applicable sites within the project area.
4. Rates should only be applied to relevant crash types addressed by the improvement.
5. Do not double-count similar improvement types or eliminated crashes.
6. Crash reduction factors may be applied to improvement and crash types not shown on this table; however, applicant must provide justifying documentation.

APPENDIX F
PROJECT-RELATED METRO VISION IMPLEMENTATION
AND STRATEGIC CORRIDOR FOCUS

Urban Centers (score points as applicable, for only one of the three) Project is entirely within an urban center shown on the adopted Metro Vision 2030 Plan Figure 9, or is within proximity of and helps support the functioning of the urban center by directly or indirectly serving it (definitions below): • 6 points if Denver Central Business District (CBD) urban center • 5 points if other urban center with fixed guideway transit station included in fiscally constrained 2030 Metro Vision RTP • 3 points if other urban center • 0 points if not serving an urban center
Urban Growth Boundary/Area (UGB/A) • 3 points if the project is at least 90% contained within the established UGB of a UGB community or the "committed area" of a UGA community • 1 point if the project is at least 40% contained within the established UGB of a UGB community or the "committed area" of a UGA community
Denver International Airport (DIA) (score points if applicable) • 1 point if project is in or within one-half mile of airport boundary and provides convenient access to DIA
Strategic Corridors (score points if applicable, for only one of the two) Project is entirely on a strategic corridor shown on Figure F-1 (including relevant rapid transit lines), or is within proximity of and helps support the functioning of the strategic corridor by directly or indirectly serving it (definitions below): • 4 points if two or more strategic corridors • 2 points if one strategic corridor

Definitions:

- Directly serving = physically touching
- Indirectly serving = serving via an existing or included-in-the-project linkage
- Proximity (measured as crow flies)
    - For pedestrian projects: within one-half mile of urban center outer boundary; within one-half mile of fixed guideway transit station platform location in strategic corridor.
    - For bicycle projects: within one and one-half miles of urban center outer boundary; within one and one-half miles of fixed guideway transit station platform location in strategic corridor.
    - For bus service projects: must directly serve urban center or directly serve fixed guideway transit station platform location or use HOV/BRT guideway in strategic corridor.
    - For roadway, studies, or other enhancements, and air quality improvement projects: within three-quarters of a mile of urban center outer boundary; within three-quarters of a mile of the centroid of a freeway interchange or major intersection (if not freeway) or fixed guideway transit station platform located in strategic corridor.

APPENDIX G (cont.)
SPONSOR-RELATED* METRO VISION IMPLEMENTATION CRITERIA

Evaluation Criteria	Points Each	Scoring Instructions
PM_{10} conformity commitment (for communities that **were** asked to make a conformity commitment)	Up to 4	If the sponsor or project's local jurisdiction has made a conformity commitment for the horizon year in the RTP (2035) that exceeds: • 30 percent reduction, award 1 point. • 45 percent reduction, award 2 points. • 55 percent reduction, award 3 points. If the sponsor or project's local jurisdiction is meeting its 2015 conformity commitment in current practice, award 1 additional point to the PM_{10} points scored above. The survey of past performance conducted annually in June by the RAQC will be compared to the conformity commitments assembled for the 2035 RTP conformity.
Current practice (for communities that were **not** asked to make a PM_{10} conformity commitment)	Up to 4	Based on the survey of past performance conducted annual in June by the RAQC, if the sponsor or project's local jurisdiction has a current practice that exceeds: • 30 percent reduction, award 1 point. • 45 percent reduction, award 2 points. • 55 percent reduction, award 4 points.
Total Points Possible	**12**	

* or the project location's jurisdiction

Sacramento Area Council of Governments (SACOG)

PROJECT SELECTION PROCESS

[The following process applies to Sacramento, Yolo, Yuba, and Sutter Counties, but not to Placer and El Dorado Counties.]

Applications for Air Quality projects in Sacramento and Yolo Counties must be presented as information to the countywide transportation agency in those counties. Because there are no countywide transportation agencies in Yuba and Sutter Counties, this step is not necessary. The Air Quality Working Group and a Grant Overview Committee, formed from existing SACOG committees and staffed by SACOG, will make recommendations to the Board of Directors, through the appropriate Board Committee, on project selection. After SACOG staff screen project applications for eligibility, Working Group and Grant Overview Committee members will be responsible for reading applications and making recommendations for projects to be funded. Appendix E provides more detail on the process and the membership of these committees.

SACOG reserves the right to fund less than the amount reserved for each funding program in a given funding cycle, as well as to fund projects in a program other than the one for which it was submitted.

IMPLEMENTATION

After SACOG has awarded a grant, project sponsors will be asked to follow or be aware of these requirements:

- Follow all federal funding requirements listed in Appendix D.
- Follow all federal environmental justice directives.
- Assure SACOG that the projects meet the requirements of the Americans with Disabilities Act.
- Follow SACOG's "Use It or Lose It" policy for obligating and spending the grant funds. The policy requires project sponsors to schedule fund obligation and project implementation in the *Metropolitan Transportation Improvement Program* and to honor that schedule.
- A local non-federal match of at least 11.47% of the total cost of a project is required for projects receiving federal funding in the Sacramento region, with a few exceptions that are detailed under the individual program guidelines. This does not include "in kind"

match, but must be funding that is dedicated to eligible features within the project and included in its overall cost.

- For capital projects, federal funds may be used for Preliminary Engineering (which includes environmental work and design) as well as for right-of-way and construction. When a project is ready for implementation, the project sponsor requests an authorization from Caltrans. When the project is authorized, the sponsor can incur expenses that will then be reimbursed from the grant. A project sponsor submits invoices for the entire cost incurred, and will be reimbursed at 88.53% (the total cost minus local match).

- SACOG encourages project sponsors to seek other sources of funding that may be available, including Community Development Block Grants or other federal HUD funds (although for the most part, federal funds from other programs cannot be used as match).

FUNDING PROGRAM GOALS, ELIGIBLE PROJECT TYPES, AND PROJECT EVALUATION

Background and Program Goal

The SACOG region currently holds a non-attainment status for ozone under federal air quality laws. Because the region must meet stringent federal air quality in the *upcoming Rate of Progress State Implementation Plan for Air Quality*, (or SIP) SACOG will place highest priority on the selection of cost-effective transportation projects that contribute the most to reaching attainment.

When there is a new SIP based on the eight-hour standard, expected in 2007, this air quality funding program could be used to directly implement the mobile-source measures in that plan.

Eligible Project Types

The Air Quality Program will fully or partially fund projects in the following categories, first applying screening criteria to qualify potential projects. The project must meet all of the screening criteria.

A. **Projects that provide real, permanent[4] and quantifiable on-roads emissions reductions for the region**. Examples are gross-polluting vehicle replacement programs, bus demonstration projects, and alternative-fuel buses.

Screening Criteria

- The project results in claimable emissions reductions.

[4] The definition of "permanent" used by the Environmental Protection Agency is "that the emission reduction occurs throughout the life of the measure, and for as long as it is relied upon in the State Implementation Plan."

B. **Air quality improvement plans**
For example, State and Federal air quality plans.

Screening Criteria

- Funding of the appropriate type is available for this purpose.
- Air quality planning activities proposed are related to analysis and assessment of control measures for on-road vehicle emissions or emissions from road construction vehicles.
- There is inadequate funding from other sources to prepare legally required air quality plans by mandated deadlines.

C. **Public awareness and educational campaigns**
An example would be the Spare the Air campaign

Screening Criteria

- The program has an established track record in this region or in another region or offers the potential of significantly contributing to a reduction in emissions.
- The program is eligible for credit under the Environmental Protection Agency's Economic Incentive Program.

Project Evaluation

Projects will be evaluated using the criteria shown below with other appropriate criteria that may be added.

For all projects

- Air quality benefits
- Project costs (see Note 1)
- Project lifecycle costs (see Note 1)
- Air quality cost effectiveness (see Notes 1 and 2)
- Length of time to implement and see results
- Air quality impacts of not funding project or plan
- Added priority (see Note 3)
- Other policy considerations

For plans

- The relevance and significance of the planning activities to the region's submission of a legally valid and technically sound air quality plan in compliance with Federal laws.

For buses

- Projected ridership and average trip length

- For bus replacements, the potential impacts of not replacing the buses (such as function of the transit system and regional network, ridership, and shifts from or to driving or other modes of transportation).

Notes

1. The definition of "cost" is that part of the total cost of the project intended to be funded with this program. There is an 11.47% local match required for using these funds, but additional match funding can be applied.
2. Evaluation of benefits and cost-effectiveness require the use of Air Resources Board or Environmental Protection Agency methodologies. In the absence of an ARB or EPA accepted methodology, SACOG will rely on methodologies recommended by the Air Districts of the region.
3. Added priority is given to projects that
   - are time critical for meeting state or federal air quality mandates.
   - in addition to reducing ozone precursors also reduce particulate matter.

H. PROJECT EVALUATION

Screening criteria

To be selected for funding, a project or program must meet both of the following screen criteria:

a. It is included in the *Regional Bicycle, Pedestrian, and Trails Master Plan* as a "high" priority project. "Medium" priority projects will be considered if not enough "high" priority projects are ready for inclusion as described below, or if the delivery of a "high" priority project as been significantly delayed or has become infeasible. Under very special circumstances, applications may be considered that are not listed in the *Master Plan* or are listed as low or medium priority.

b. It must be ready for inclusion into the *Metropolitan Transportation Improvement Program*, with project scope and cost. The project application may include the cost of preparing environmental documents. However, for large projects that will necessitate a full Environmental Impact Statement (EIS), the EIS can be funded separately from the design and construction of the project (which should seek funding in a later round of funding).

Ranking criteria

In Sacramento, Yolo, Yuba, and Sutter Counties, projects to be funded will be chosen from the list of high priority projects included in the *Master Plan.* The Bicycle and Pedestrian Working Group will rank projects based on the following criteria, with a maximum of 100 points, and 10 additional bonus points possible. The Working Group will also take other considerations into account. The rankings will be used to determine which of the high priority projects will be funded.[1]

Ranking criteria

1. Meets capital or non-capital program goals: How many of the goals the project/program addresses and how well? (60 points)
2. Cost effectiveness: The ratio of items 2a. and 2b. below (20 points)
   a. Project costs and lifecycle costs. For analysis, all costs should be computed to present value.
   b. Quantifiable and qualitative project benefits, including safety improvement, time savings, air quality benefits, and increases in usage by bicyclists and pedestrians.
3. Strength of commitment, degree of risk to cost and schedule, relative priority at local jurisdiction(s). (20 points)
4. Bonus - Extra local match provided. (10 points maximum, 1 point for each 5% of additional local match beyond the required 11.47%)

[1] Placer and El Dorado County projects are ranked in the Master Plan to serve as guidelines for the respective jurisdictions and do not indicate a priority relative to projects in Sacramento, Yolo, Yuba, and Sutter Counties. See Appendix C for details on project selection in those counties.

Other Considerations

Other factors SACOG will take into consideration when ranking projects are:

- Capital projects that support Blueprint implementation will be given priority over non-capital projects and programs, although up to 10% of the funding in a round may be used for non-capital projects.
- Project is closely related to local activity center/compact development area, and identified in the local general plan, that will be implemented soon but is beyond what is required of the developer to pay for.
- A bicycle or pedestrian project located in an undeveloped area that connects two developed areas with good circulation.
- Projects that benefit both public transit or roadways and bicycling/walking may be funded partially from this funding source with the expectation that transit or roadway funding sources will pay for the remainder.
- The same type of program or project has been implemented successfully elsewhere.

Appendix E1

Summary of Technical Survey Results

Appendix E1 Table of Contents

Appendix E1 List of Figures

Appendix E1 – Technical Weighting Factor Survey Process and Results

Given the fast track schedule, the TWFS was made available for one full week from September 17 through September 24, 2009. In that time, 36 surveys were completed, including representation from most agencies (see **Figure 1**). Approximately 47 percent of the respondents were city representatives, with another 47 percent from a combination of VDOT, HRTPO, and Kimley-Horn. The remaining 6 percent consisted of individuals from HRT, VPA, and the Virginia Modeling and Simulation Center (VMASC).

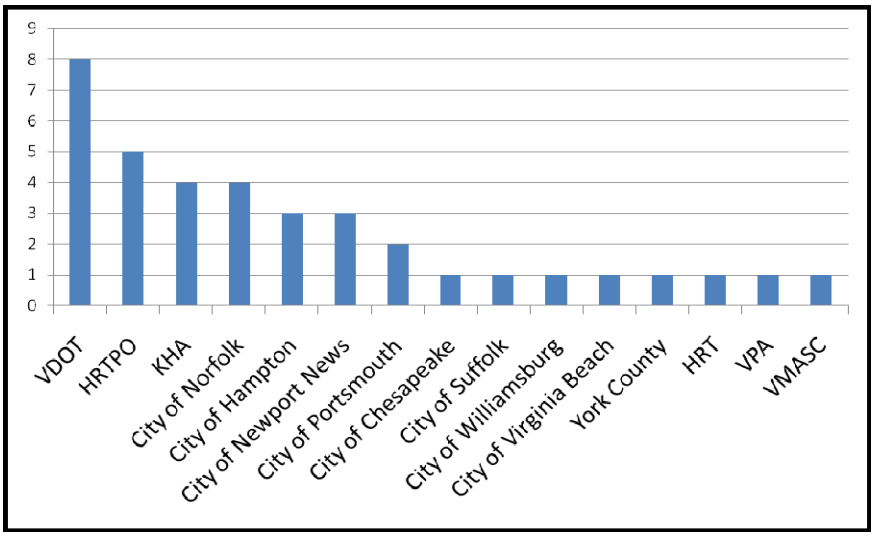


Figure 1 - Technical Survey Respondents (by Agency)

Based on the information provided by the participants, approximately 22 percent have lived in Hampton Roads for less than five years while approximately 75 percent have resided in the region for more than ten years (see **Figure 2**).

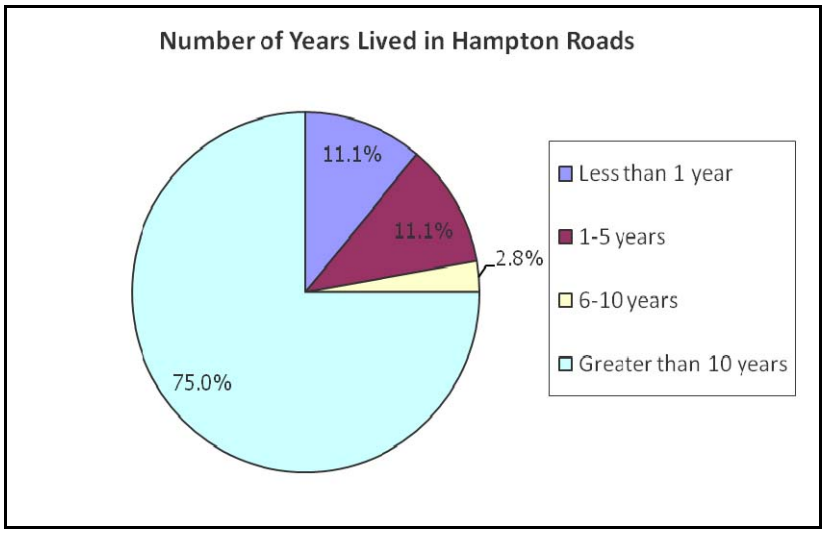


Figure 2 - Technical Survey Respondents (by Years of Residency)

When observing the types and frequency of transportation modes used (**Figure 3**), it is clear that the dominant mode of transportation used by the Technical Survey participants is the personal automobile,

which is used by approximately 91 percent of the respondents on a daily basis. It also is evident that Carpool/Vanpool/Public Transit and Bicycle are not currently frequently used modes. Walking, however, was observed to be relatively equal between all frequencies of use with the understanding that many respondents chose to walk for non-commuter trips.

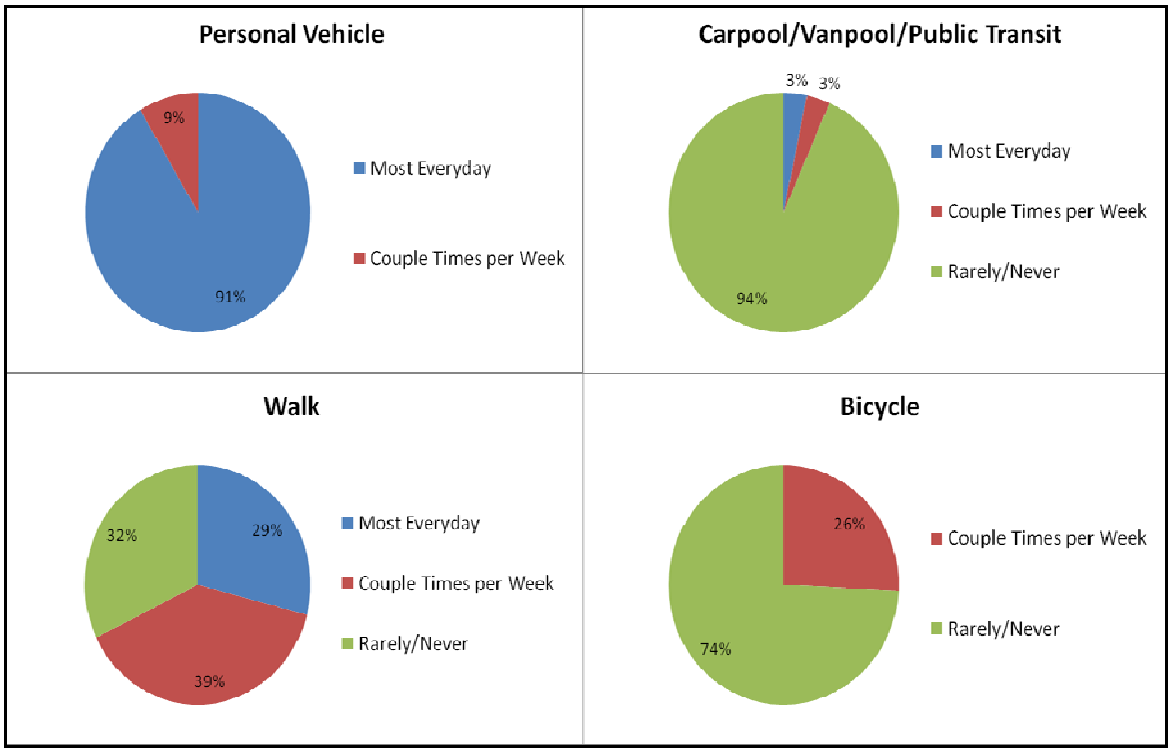


Figure 3 - Technical Survey Respondents (by Preferred Mode of Transportation)

The next respondent related questions dealt with the average length of their typical daily commute, measured in both distance and time. As shown in **Figure 4** and **Figure 5**, the majority of daily commutes made by respondents are observed to be less than 15 miles in length (83 percent) and take less than 30 minutes to complete (86 percent).

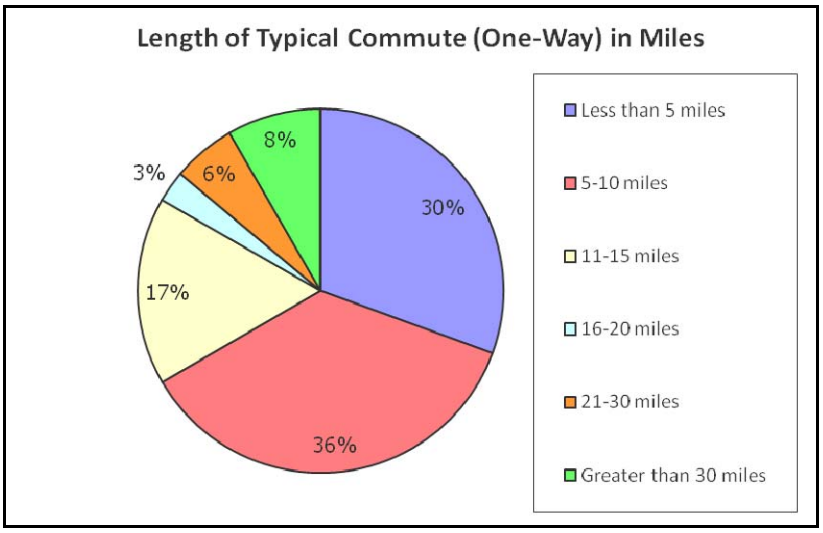


Figure 4 - Technical Survey Respondents (by Length of Typical Commute, in Miles)

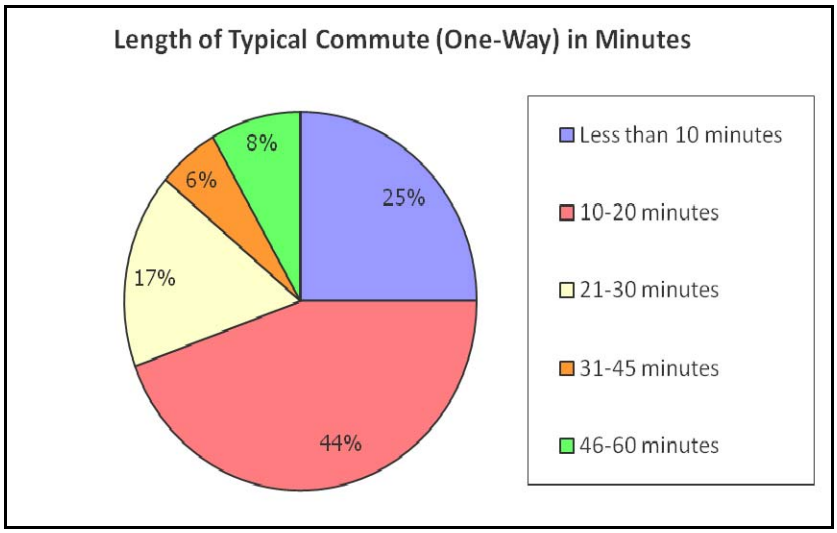


Figure 5 - Technical Survey Respondents (by Length of Commute, in Minutes)

When observing the different bridges and tunnels crossed during each respondent's daily commute, it is noticeable that approximately 41 percent of commuters do not cross a bridge or tunnel (See **Figure 6**). However, from the respondents who do cross a bridge or tunnel facility, approximately 32 percent of respondents use a tunnel facility while 27 percent use one of the bridge facilities.

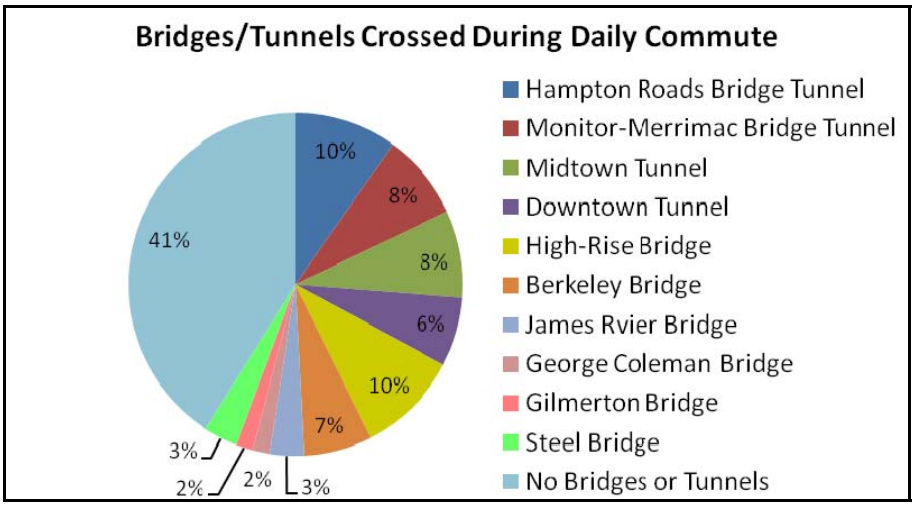


Figure 6 - Technical Survey Respondents (by Facility Crossed During Daily Commute)

E1.1 "Highways" Technical Survey Results

Nine different evaluation crtieria were included on the survey under the "Highways" category. **Figure 7** shows the relative importance of each according to the 36 total respondents. It is clear that *Congestion Level*, *Safety and Security*, *System Continuity and Connectivity*, *Cost Effectivness*, and *Land Use Compatibility* are all observed to be important to the respondents of the techical survey when considering the importance of a "Highways" project.

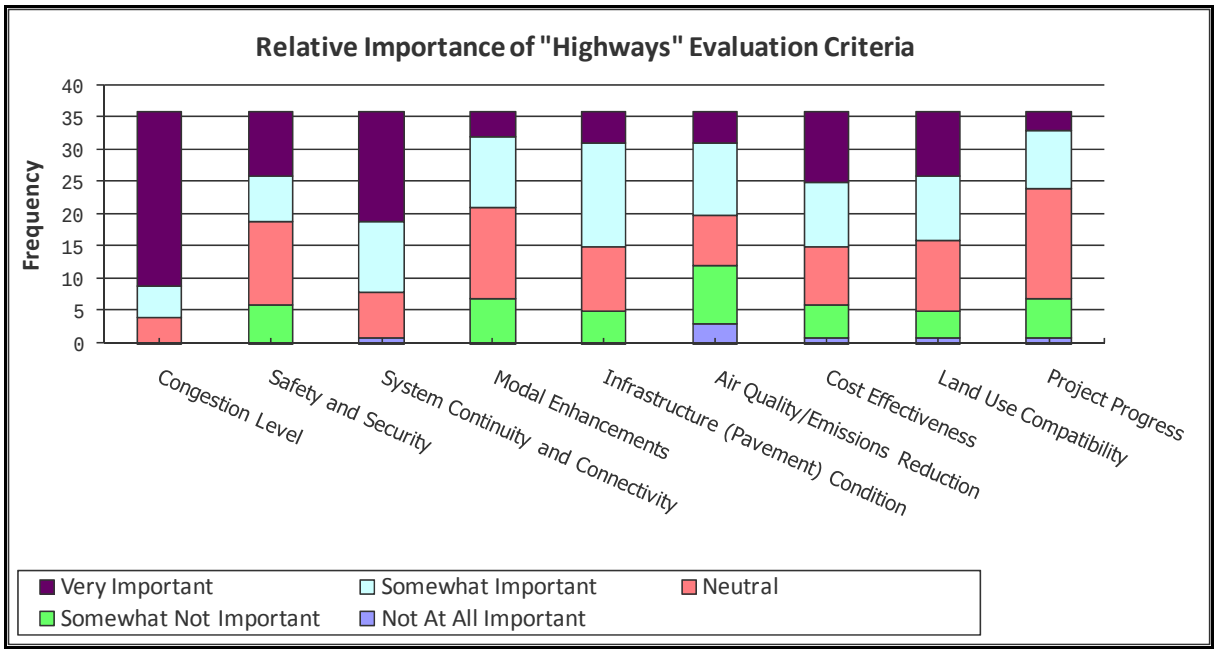


Figure 7 - Relative Importance of "Highways" Evaluation Criteria

With regards to weighting factor preference, refer to **Figure 8**. In **Figure 8**, it is observed that the relative importance results coincide accurately with the average weighting preferences, where *Congestion Level*,

Safety and Security, *System Continuity and Connectivity*, *Cost Effectivness*, and *Land Use Compatibility* are more significant than the other criteria.

Congestion Level has the highest average weighting factor preference with it being worth 18 out of a possible 100 points. *Air Quality* is the lowest with an average weighting factor value of six points. A more detailed analysis of responses by individual criterion and subcriterion is included in **Appendix E2**.

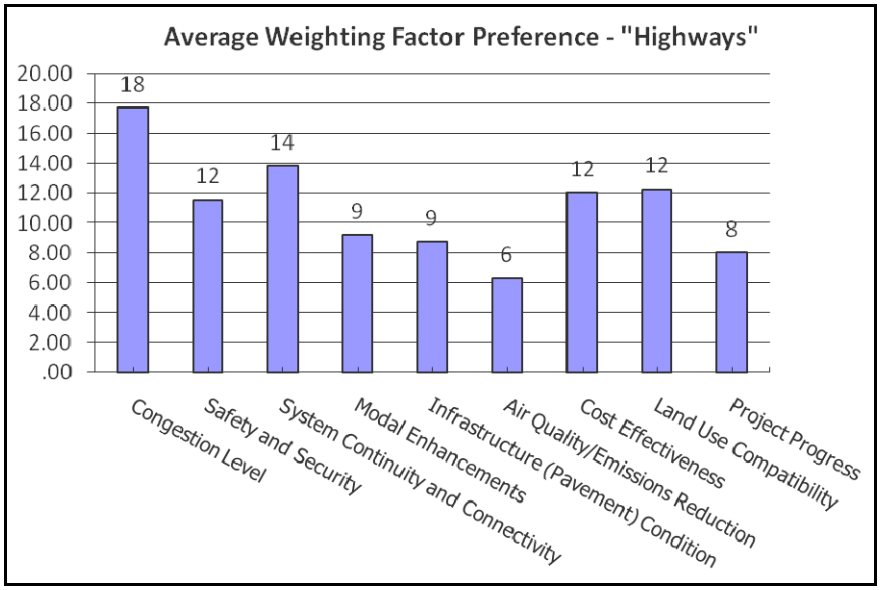


Figure 8 - Average Weighting Factor Preference for "Highways" Evaluation Criteria

E1.2 "Bridge/Tunnel" Technical Survey Results

Similar to "Highways," the Technical Survey included the same nine evaluation criteria for the "Bridge/Tunnel" category. **Figure 9** demonstrates that in terms of relative importance, *Congestion Level*, *System Continuity and Connectivity*, and *Infrastructure Condition* are all very important to the 36 total Technical Survey respondents when evaluating a "Bridge/Tunnel" project. However, *Modal Enhancements* and *Project Progress* are not seen to be very important.

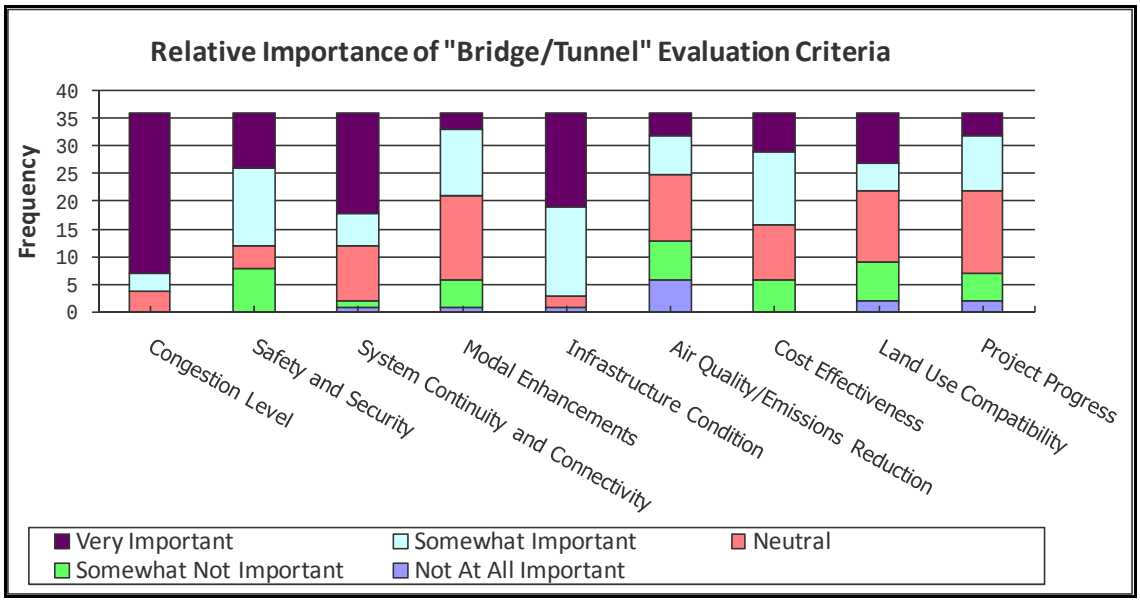


Figure 9 - Relative Importance of "Bridge/Tunnel" Evaluation Criteria

In **Figure 10**, the average weighting factors coincide with the relative importance results. *Congestion Level*, *System Continuity and Connectivity*, and *Infrastructure Condition* are observed to have average weighting factor preferences of 19, 12, and 18 points (out of 100 total avaialble), respectively. A more detailed analysis of responses by individual criterion and subcriterion is included in **Appendix E2**.

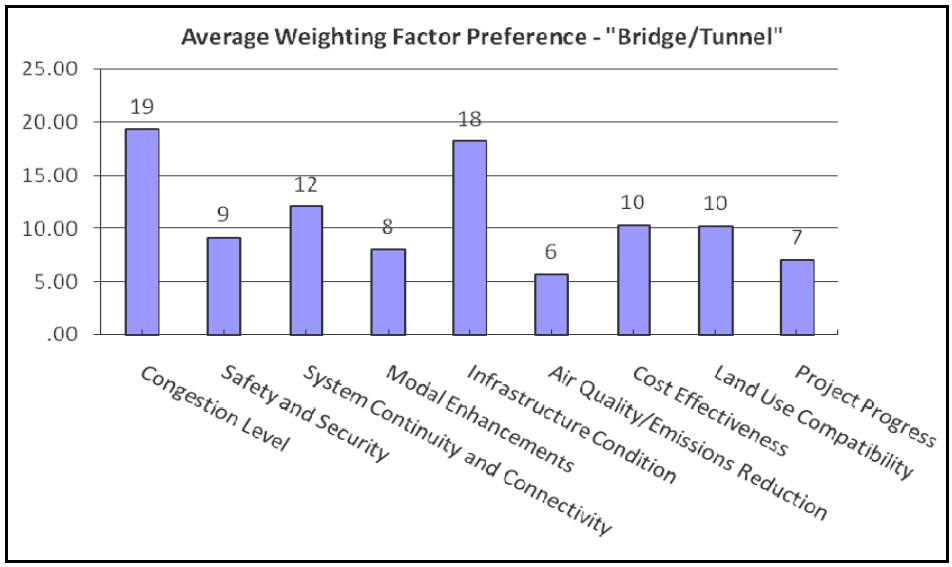


Figure 10 - Average Weighting Factor Preference for "Bridge/Tunnel" Evaluation Criteria

E1.3 "Bicycle and Pedestrian" Technical Survey Results

Six different evaluation criteria were included in the survey for the "Bicycle and Pedestrian" category. **Figure 11** illustrates that *Safety* and *System Continuity and Connectivity* are considered to be very important in the evaluation of "Bicycle and Pedestrian" projects, according to the 37 total individuals who

responded to this question. The remaining four criteria have some importance; however, they have much more Neutral responses.

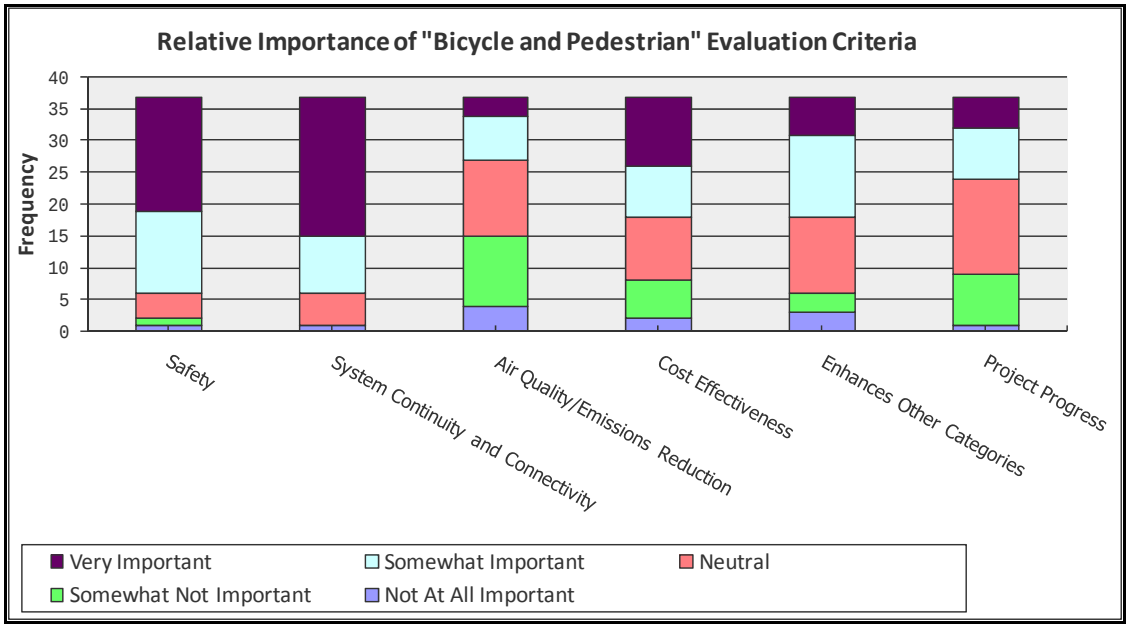


Figure 11 - Relative Importance of "Bicycle and Pedestrian" Evaluation Criteria

In **Figure 12** it is observed that out of 100 total points, the average responses for *Safety* and *System Continuity and Connectivity* are 23 and 25 points, respectively. Additionally, *Air Quality*, *Enhances Other Categories*, and *Project Progress* each averaged approximately 10 to 15 points. A more detailed analysis of responses by individual criterion and subcriterion is included in **Appendix E2**.

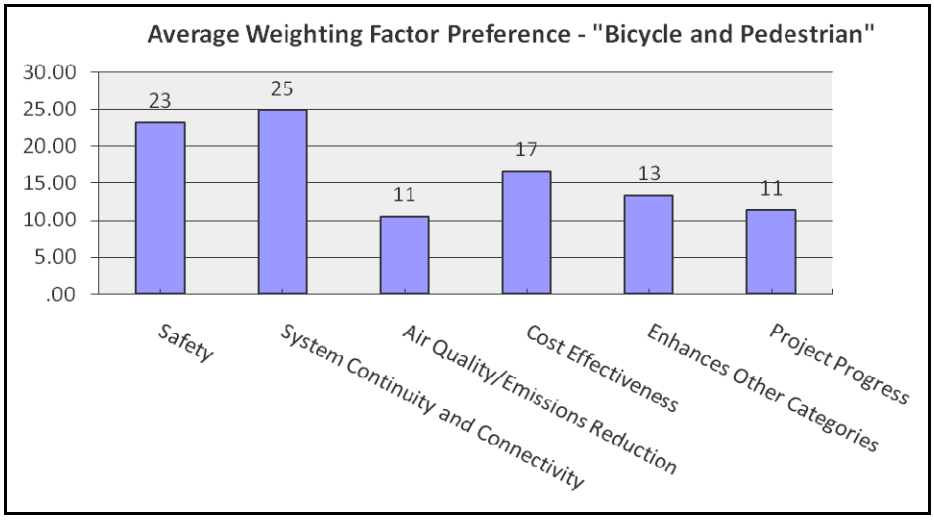


Figure 12 - Average Weighting Factor Preference for "Bicycle and Pedestrian" Evaluation Criteria

E1.4 "Systems Management/Transportation Demand Management/Operational Improvements" Technical Survey Results

Seven different evaluation criteria were included in the survey for the "Systems Management/TDM/ Operational Improvements" category. **Figure 13** illustrates that, according to the 36 total respondents, there are strong views that *Congestion Level* and *Air Quality/Emission Reduction* are very important while *Regional Significance*, *Safety*, and *Cost Effectiveness* also are observed to be important.

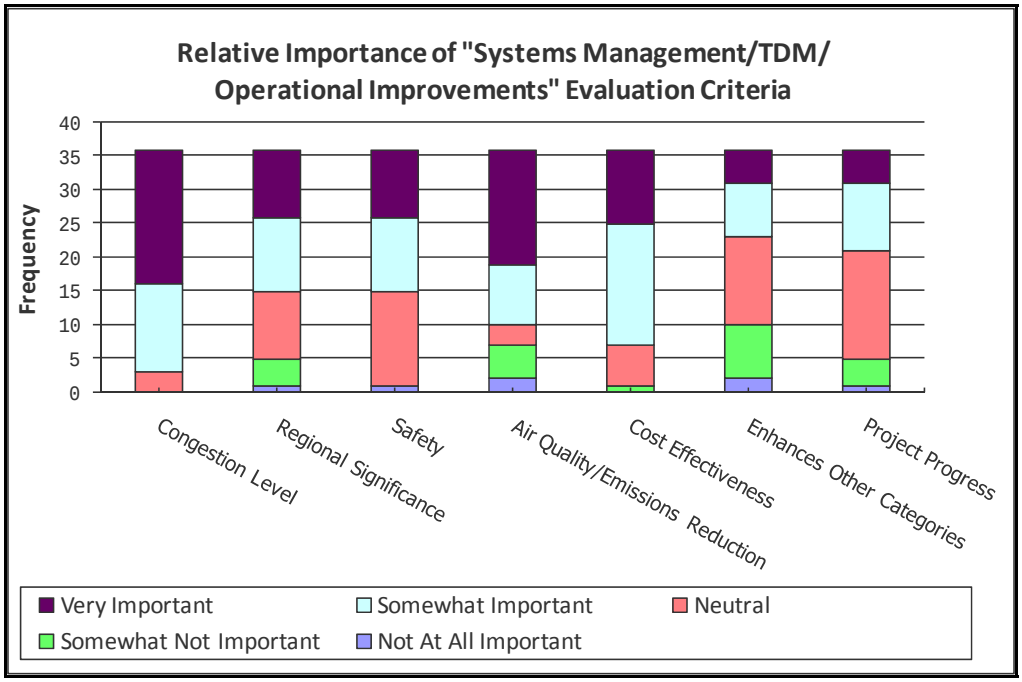


Figure 13 - Relative Importance of "Systems Management/Transportation Demand Management/Operational Improvements" Evaluation Criteria

Looking further at the average weighting factor preferences (**Figure 14**), *Congestion Level*, *Air Quality*, and *Cost Effectiveness* were observed to be approximately equal (19, 17, and 17 points, respectively). A more detailed analysis of responses by individual criterion and subcriterion is included in **Appendix E2**.

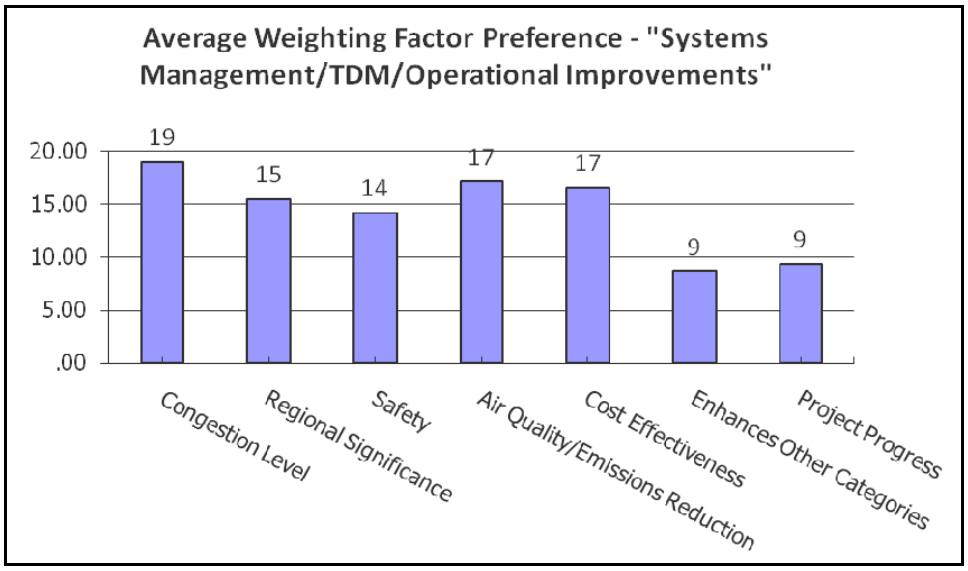


Figure 14 - Average Weighting Factor Preference for "Systems Management/Transportation Demand Management/Operational Improvements" Evaluation Criteria

E1.5 "Transit" Technical Survey Results

For "Transit," eight evaluation criteria were included in the Technical Survey. **Figure 15** illustrates that, according to the 36 total respondents, *User Benefit*, *Existing Usage/Prospective Ridership*, *System Continuity and Connectivity*, *Cost Effectivness*, and *Land Use Compatibility* are all seen to be important in evaluating "Transit" projects.

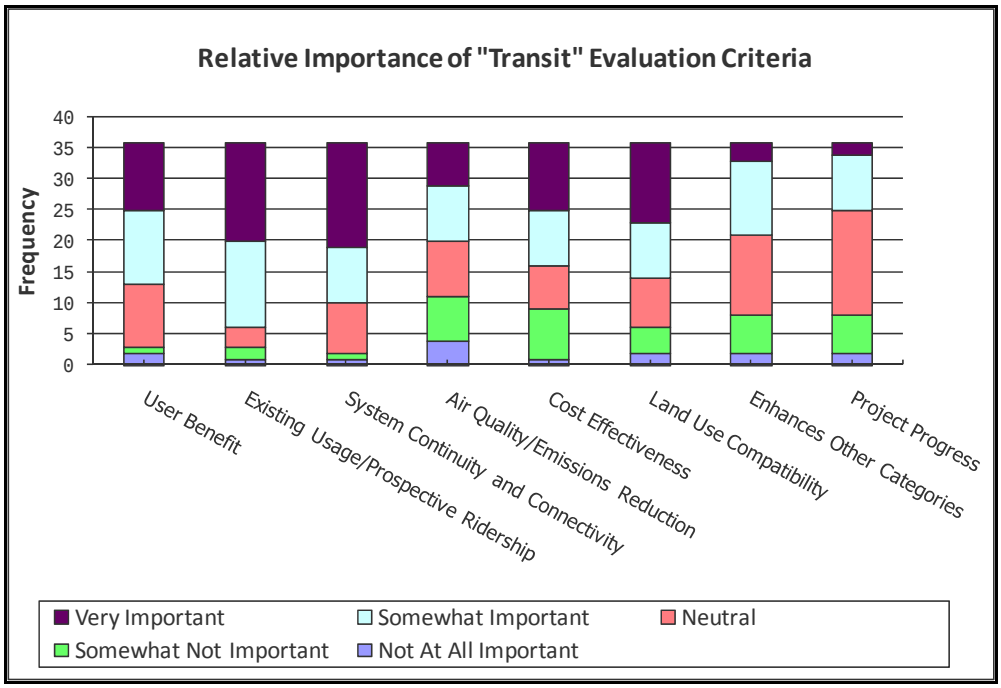


Figure 15 - Relative Importance of "Transit" Evaluation Criteria

When observing the average weighting factor preferences (**Figure 16**), the two evaluation criteria with the highest relative imortance also are observed to have the highest average weighting factor preferences (*Existing Usage/Prospective Ridership* and *System Continuity and Connectivity*). A more detailed analysis of responses by individual criterion and subcriterion is included in **Appendix E2**.

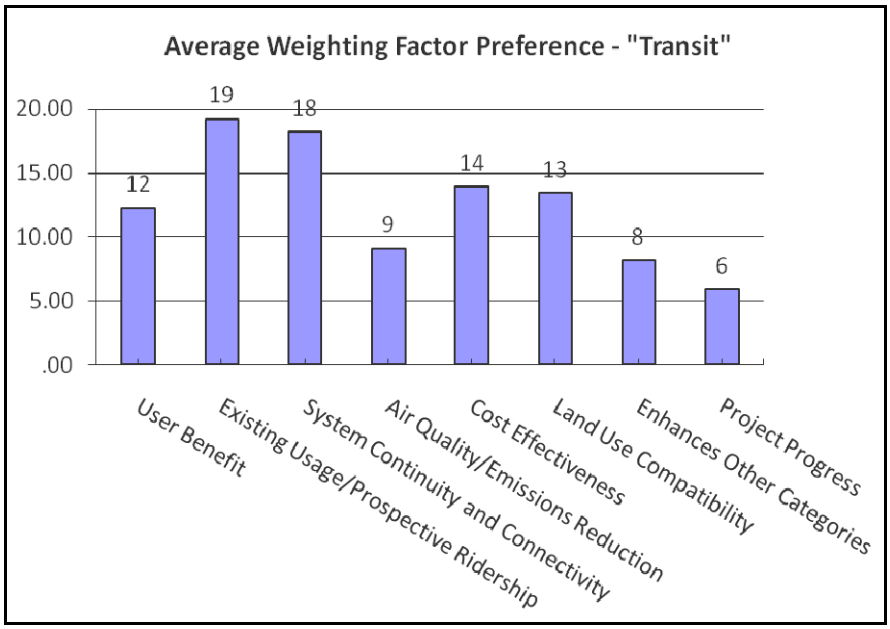


Figure 16 - Average Weighting Factor Preference for "Transit" Evaluation Criteria

E1.6 "Intermodal" Technical Survey Results

The "Intermodal" section of the Technical Survey included five evaluation criteria, as shown in **Figure 17**. From the 36 total respondents, it is clearly seen that the ability for a project to safely *Accommodate Intermodal Conflicts* with other traffic and *Improve Intermodal Access* to the transportation network are very important.

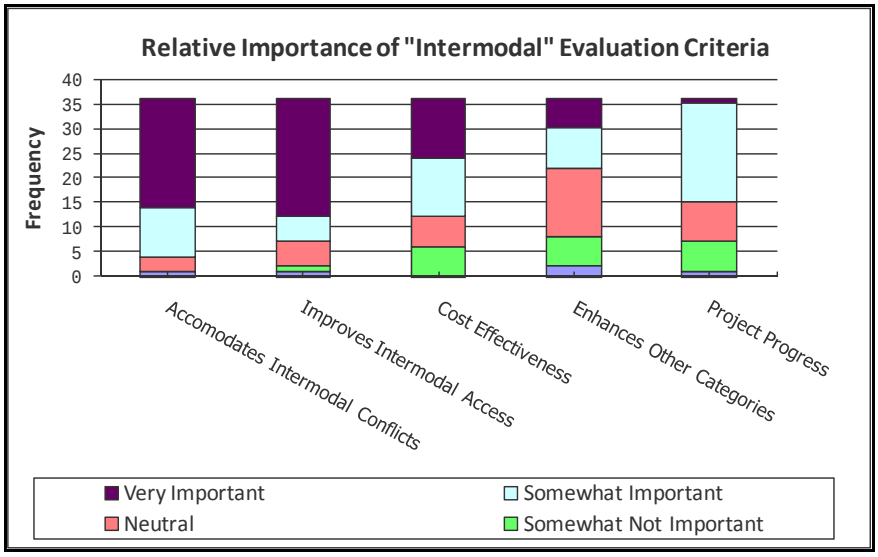


Figure 17 - Relative Importance of "Intermodal" Evaluation Criteria

These results are further backed by looking at the average weighting factor preferences for each criterion (**Figure 18**). *Accomodates Intermodal Conflicts* and *Improves Intermodal Access* have the highest average weighting scores of 26 and 27, respectively. A more detailed analysis of responses by individual criterion and subcriterion is included in **Appendix E2**.

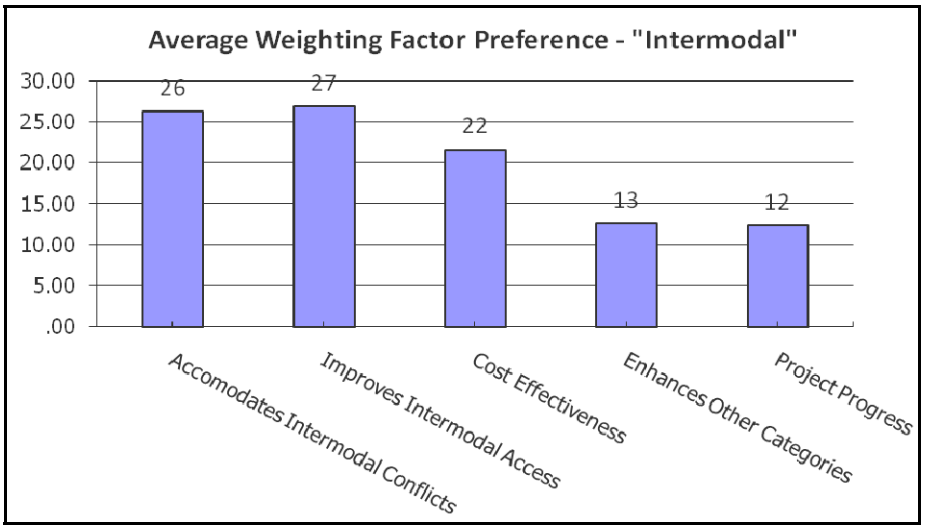


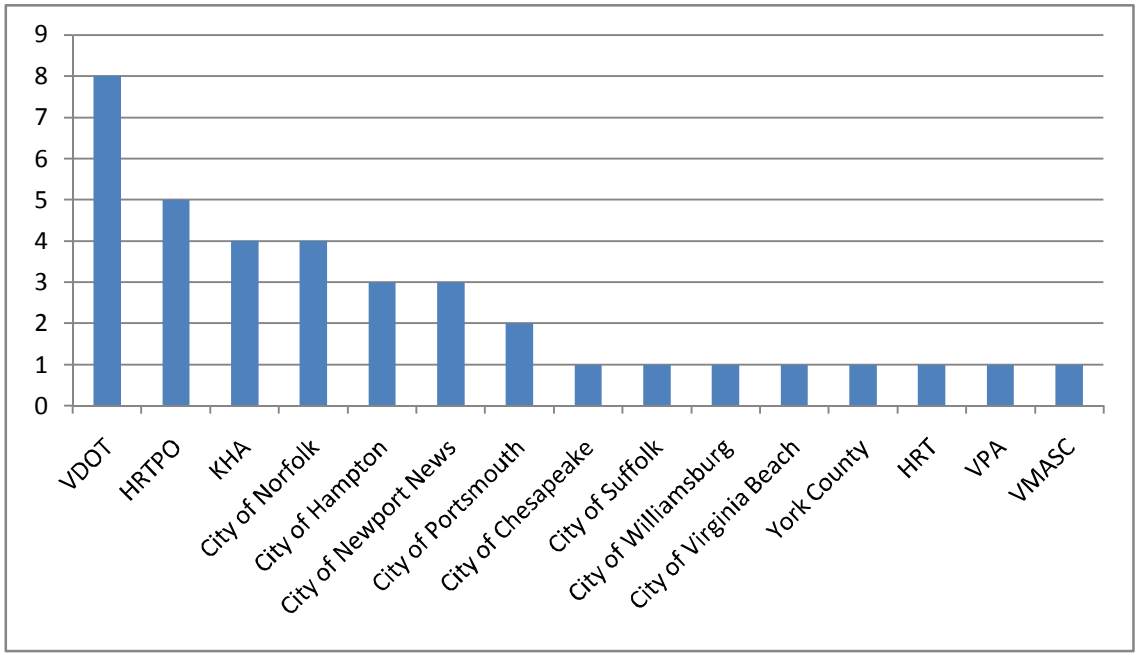
Figure 18 - Average Weighting Factor Preference for "Intermodal" Evaluation Criteria

Appendix E2

Detailed Technical Survey Results

Question 1

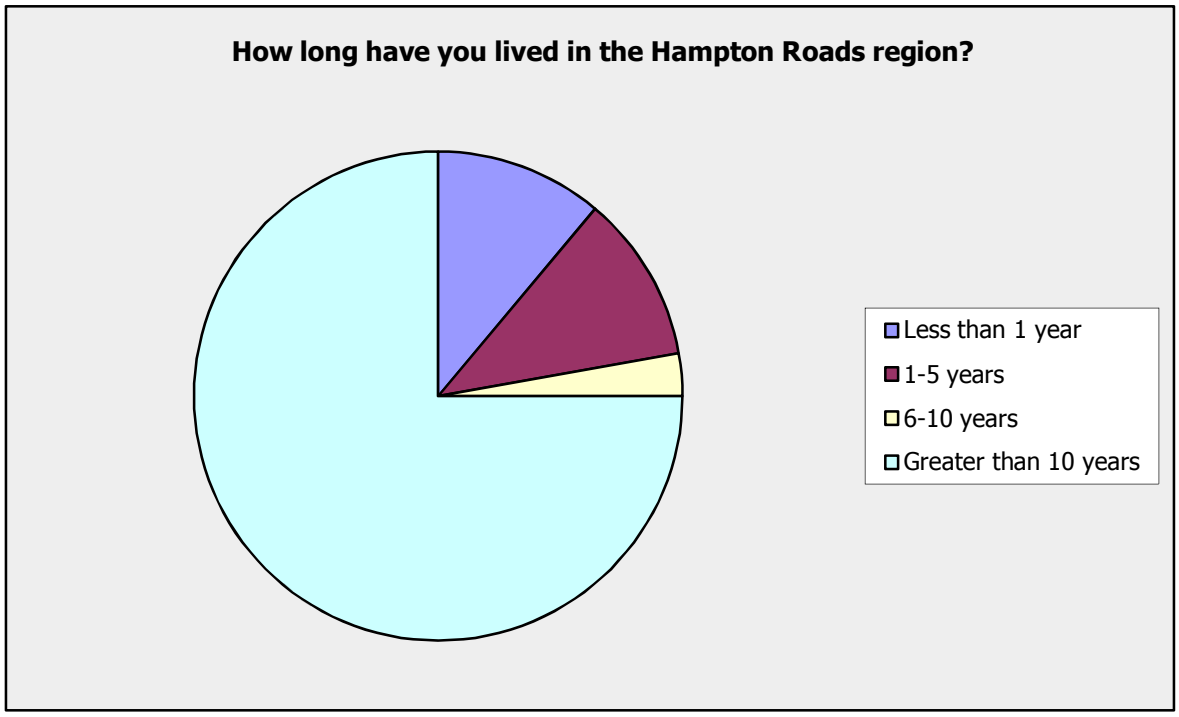
Jurisdiction	Frequency
VDOT	8
HRTPO	5
KHA	4
City of Norfolk	4
City of Hampton	3
City of Newport News	3
City of Portsmouth	2
City of Chesapeake	1
City of Suffolk	1
City of Williamsburg	1
City of Virginia Beach	1
York County	1
HRT	1
VPA	1
VMASC	1
TOTAL	**37**



Steering Committee	13	(out of 25)
Non-Steering Committee	24	
TOTAL	**37**	

HRTPO Program Priorities Survey - Technical Version

How long have you lived in the Hampton Roads region?		
Answer Options	**Response Percent**	**Response Count**
Less than 1 year	11.1%	4
1-5 years	11.1%	4
6-10 years	2.8%	1
Greater than 10 years	75.0%	27
answered question		**36**
skipped question		**0**

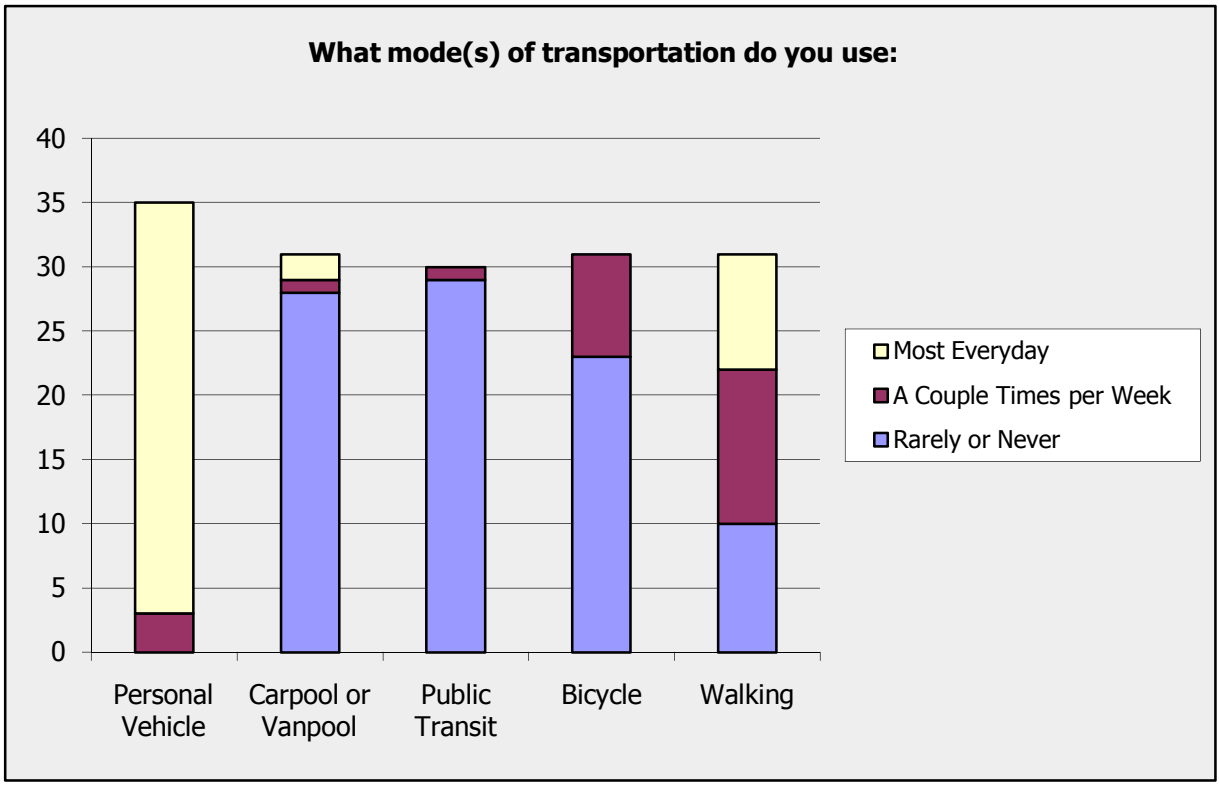


HRTPO Program Priorities Survey - Technical Version

What mode(s) of transportation do you use:

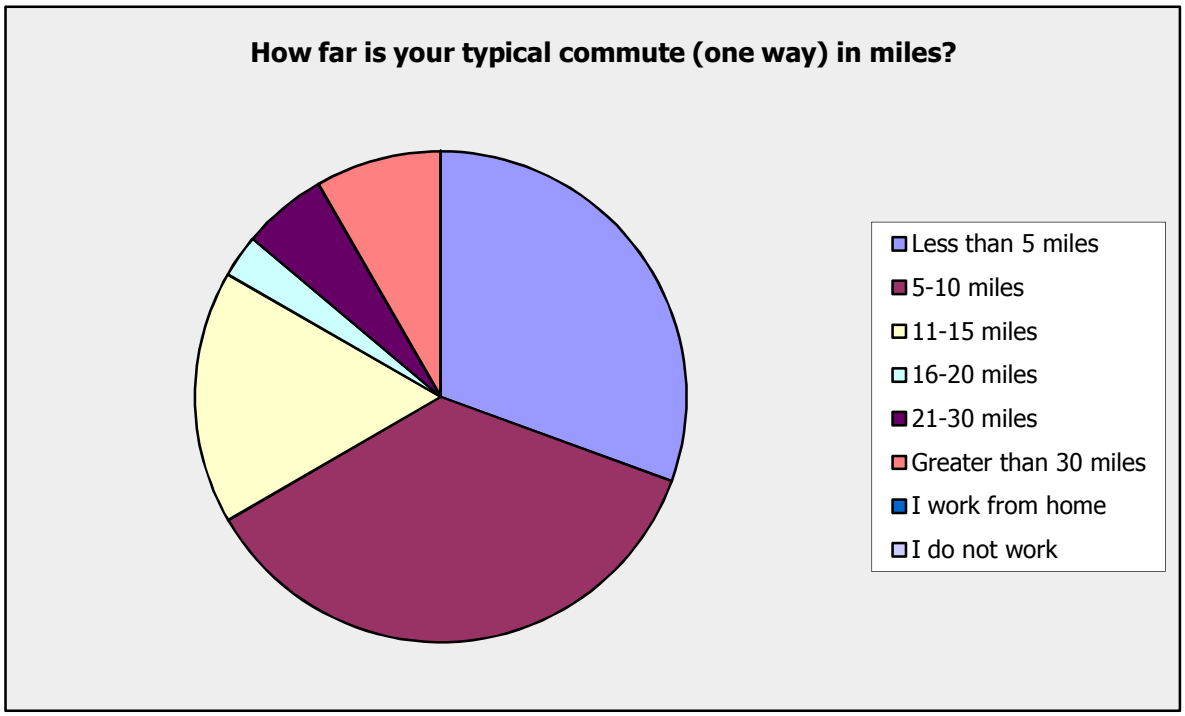
Answer Options	Most Everyday	A Couple Times per Week	Rarely or Never	Response Count
Personal Vehicle	32	3	0	35
Carpool or Vanpool	2	1	28	31
Public Transit	0	1	29	30
Bicycle	0	8	23	31
Walking	9	12	10	31
Other (please specify)				2
			answered question	**36**
			skipped question	**0**

Number	Response Date	Other (please specify)
1	Sep 17, 2009 8:36 PM	Biking in HR is too dangerous
2	Sep 22, 2009 9:03 PM	Walking for shopping trips near home but not commuting



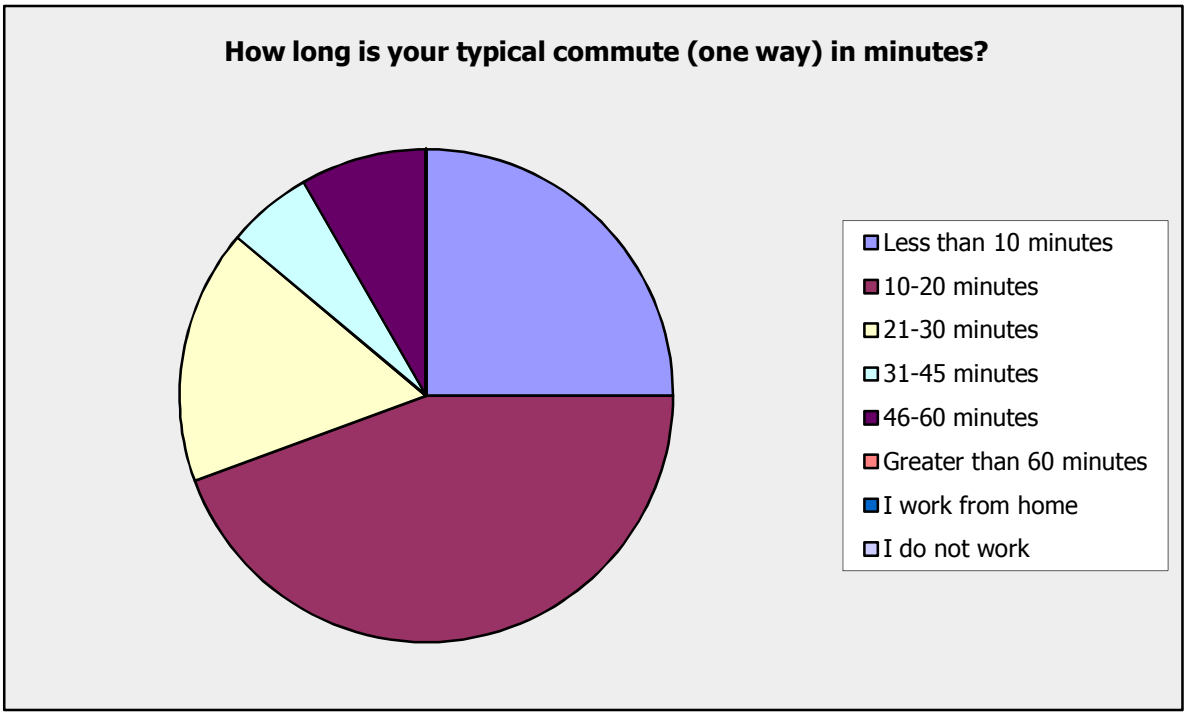
HRTPO Program Priorities Survey - Technical Version

How far is your typical commute (one way) in miles?		
Answer Options	**Response Percent**	**Response Count**
Less than 5 miles	30.6%	11
5-10 miles	36.1%	13
11-15 miles	16.7%	6
16-20 miles	2.8%	1
21-30 miles	5.6%	2
Greater than 30 miles	8.3%	3
I work from home	0.0%	0
I do not work	0.0%	0
answered question		**36**
skipped question		**0**



HRTPO Program Priorities Survey - Technical Version

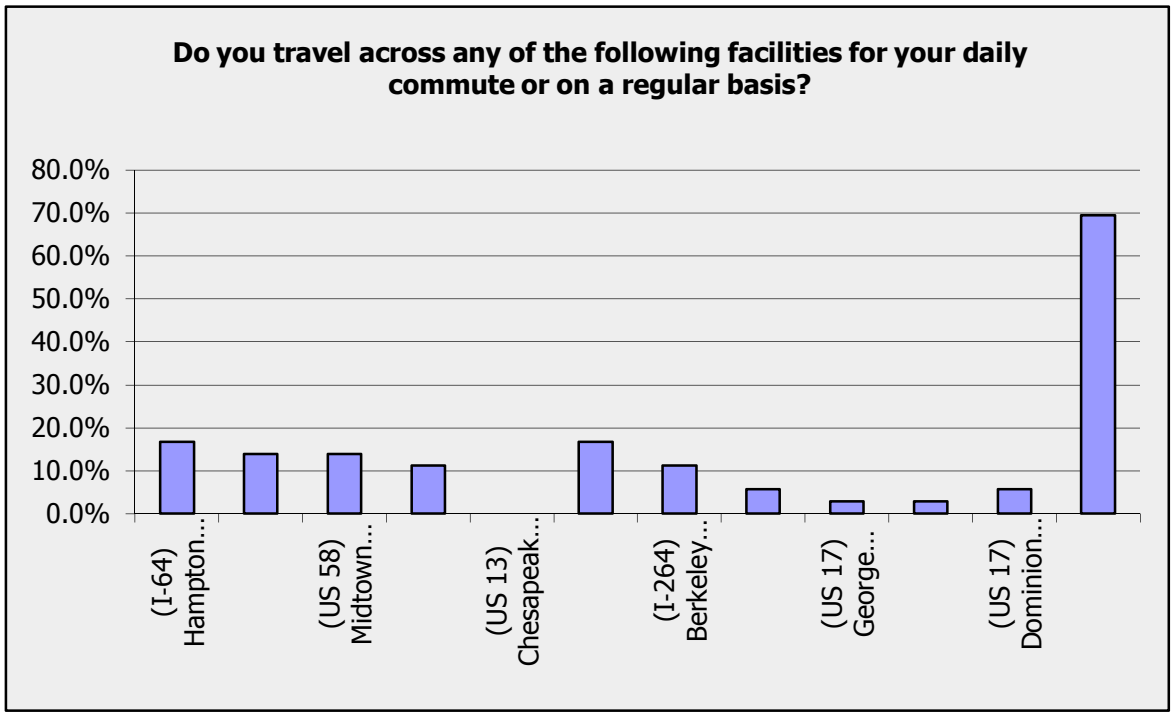
How long is your typical commute (one way) in minutes?		
Answer Options	**Response Percent**	**Response Count**
Less than 10 minutes	25.0%	9
10-20 minutes	44.4%	16
21-30 minutes	16.7%	6
31-45 minutes	5.6%	2
46-60 minutes	8.3%	3
Greater than 60 minutes	0.0%	0
I work from home	0.0%	0
I do not work	0.0%	0
answered question		**36**
skipped question		**0**



HRTPO Program Priorities Survey - Technical Version

Do you travel across any of the following facilities for your daily commute or on a regular basis?

Answer Options	Response Percent	Response Count
(I-64) Hampton Roads Bridge Tunnel	16.7%	6
(I-664) Monitor Merrimac Memorial Bridge Tunnel	13.9%	5
(US 58) Midtown Tunnel	13.9%	5
(I-264) Downtown Tunnel	11.1%	4
(US 13) Chesapeake Bay Bridge Tunnel	0.0%	0
(I-64) High-Rise Bridge	16.7%	6
(I-264) Berkeley Bridge	11.1%	4
(US 17) James River Bridge	5.6%	2
(US 17) George Coleman Bridge	2.8%	1
(US 460) Military Hwy Gilmerton Bridge	2.8%	1
(US 17) Dominion Blvd Steel Bridge	5.6%	2
None of the above	69.4%	25
answered question		**36**
skipped question		**0**



Highway Projects	Very Important	Somewhat Important	Neutral	Somewhat Not Imp.	Very Not Imp.	Weighted Score
Points	5	4	3	2	1	
Congestion Level	27	5	4	0	0	167
Safety and Security	10	7	13	6	0	129
System Continuity and Connectivity	17	11	7	0	1	151
Modal Enhancements	4	11	14	7	0	120
Infrastructure Condition (Pavement Condition)	5	16	10	5	0	129
Air Quality/Emissions Reduction	5	11	8	9	3	114
Cost Effectiveness	11	10	9	5	1	133
Compatibility with Existing Land Use Patterns and Future Plans and Development	10	10	11	4	1	132
Project Progress	3	9	17	6	1	115

Level of Importance:

Congestion Level	167
System Continuity and Connectivity	151
Cost Effectiveness	133
Compatibility with Existing Land Use Patterns and Future Plans and Development	132
Safety and Security	129
Infrastructure Condition (Pavement Condition)	129
Modal Enhancements	120
Project Progress	115
Air Quality/Emissions Reduction	114

HIGHWAY PROJECTS - MAIN CRITERIA WEIGHTING FACTORS

Number	Response Date	Congestion Level	Safety and Security	System Continuity and Connectivity	Modal Enhancements	Infrastructure (Pavement) Condition	Air Quality/ Emissions Reduction	Cost Effectiveness	Compatibility with Existing Land Use Patterns and Future Plans and Development	Project Progress
1	**Sep 17, 2009 8:10 PM**	15	10	15	10	15	10	5	15	5
2	**Sep 17, 2009 9:00 PM**	20	10	20	10	10	5	10	10	5
3	**Sep 17, 2009 9:17 PM**	20	10	20	15	10	0	5	20	0
4	**Sep 18, 2009 12:40 PM**	10	5	15	10	10	10	10	15	15
5	**Sep 18, 2009 1:11 PM**	25	20	15	5	15	0	5	10	5
6	**Sep 18, 2009 1:46 PM**	10	10	10	10	0	0	50	10	0
7	**Sep 18, 2009 2:32 PM**	10	10	20	20	5	5	5	20	5
8	**Sep 18, 2009 6:41 PM**	10	15	25	10	10	10	5	10	5
9	**Sep 20, 2009 10:44 PM**	30	5	10	5	5	10	10	20	5
10	**Sep 21, 2009 1:08 PM**	0	0	30	20	0	0	50	0	0
11	**Sep 21, 2009 2:04 PM**	20	5	15	5	5	5	20	10	15
12	**Sep 21, 2009 6:33 PM**	20	10	5	10	15	5	20	10	5
13	**Sep 21, 2009 6:45 PM**	20	10	10	5	10	10	15	5	15
14	**Sep 22, 2009 1:14 PM**	20	20	10	10	20	5	5	5	5
15	**Sep 22, 2009 5:16 PM**	15	5	5	5	20	10	20	15	5
16	**Sep 22, 2009 9:06 PM**	20	20	10	5	10	10	10	5	10
17	**Sep 22, 2009 9:10 PM**	15	15	10	10	5	10	15	10	10
18	**Sep 22, 2009 9:13 PM**	20	30	30	0	0	0	10	10	0
19	**Sep 22, 2009 9:16 PM**	15	10	5	20	5	5	15	15	10
20	**Sep 22, 2009 9:40 PM**	25	25	25	5	2	3	5	5	5
21	**Sep 23, 2009 11:59 AM**	15	12	15	7	8	15	10	13	5
22	**Sep 23, 2009 12:29 PM**	20	10	15	5	5	10	20	5	10
23	**Sep 23, 2009 12:47 PM**	20	10	25	5	5	10	10	5	10
24	**Sep 23, 2009 1:33 PM**	10	10	10	10	10	10	10	20	10
25	**Sep 23, 2009 2:40 PM**	10	5	15	15	10	10	10	10	15
26	**Sep 23, 2009 2:41 PM**	20	15	20	15	10	5	5	5	5
27	**Sep 23, 2009 2:59 PM**	25	15	5	5	10	0	0	25	15
28	**Sep 23, 2009 3:03 PM**	25	15	5	5	10	0	0	25	15
29	**Sep 23, 2009 5:56 PM**	20	10	15	15	10	5	10	10	5
30	**Sep 23, 2009 6:08 PM**	25	15	5	5	10	0	0	25	15
31	**Sep 23, 2009 7:08 PM**	15	10	10	10	5	15	10	15	10
32	**Sep 23, 2009 7:59 PM**	25	15	5	5	10	0	0	25	15
33	**Sep 23, 2009 10:48 PM**	10	10	15	15	5	10	15	10	10
34	**Sep 24, 2009 2:04 AM**	20	5	15	5	10	15	15	5	10
35	**Sep 24, 2009 10:16 AM**	15	10	10	10	10	5	15	20	5
36	**Sep 24, 2009 12:43 PM**	25	5	10	10	15	5	15	5	10

Minimum	0	0	5	0	0	0	0	0	0
Maximum	30	30	30	20	20	15	50	25	15
Median	20	10	15	10	10	5	10	10	7.5
Mode	20	10	15	5	10	10	10	10	5
Mean	18	12	14	9	9	6	12	12	8
# of Zeros	**1**	**1**	**0**	**1**	**3**	**9**	**4**	**1**	**4**

HIGHWAY PROJECTS - "CONGESTION LEVEL" SUB-CRITERIA

Number	Response Date	Existing and Future Levels of Congestion on Roadway	Impact to Nearby Roadways
1	**Sep 17, 2009 8:11 PM**	65	35
2	**Sep 17, 2009 9:02 PM**	60	40
3	**Sep 17, 2009 9:19 PM**	50	50
4	**Sep 18, 2009 12:41 PM**	55	45
5	**Sep 18, 2009 1:13 PM**	60	40
6	**Sep 18, 2009 1:46 PM**	100	0
7	**Sep 18, 2009 2:33 PM**	50	50
8	**Sep 18, 2009 6:43 PM**	60	40
9	**Sep 20, 2009 10:45 PM**	75	25
10	**Sep 21, 2009 1:14 PM**	100	0
11	**Sep 21, 2009 2:09 PM**	70	30
12	**Sep 21, 2009 6:34 PM**	75	25
13	**Sep 21, 2009 6:47 PM**	95	5
14	**Sep 22, 2009 1:16 PM**	60	40
15	**Sep 22, 2009 5:17 PM**	75	25
16	**Sep 22, 2009 9:07 PM**	70	30
17	**Sep 22, 2009 9:12 PM**	70	30
18	**Sep 22, 2009 9:14 PM**	70	30
19	**Sep 22, 2009 9:17 PM**	50	50
20	**Sep 22, 2009 9:42 PM**	70	30
21	**Sep 23, 2009 12:02 PM**	55	45
22	**Sep 23, 2009 12:31 PM**	70	30
23	**Sep 23, 2009 12:48 PM**	80	20
24	**Sep 23, 2009 1:34 PM**	40	60
25	**Sep 23, 2009 2:41 PM**	65	35
26	**Sep 23, 2009 2:42 PM**	80	20
27	**Sep 23, 2009 2:59 PM**	75	25
28	**Sep 23, 2009 3:03 PM**	75	25
29	**Sep 23, 2009 6:08 PM**	75	25
30	**Sep 23, 2009 7:08 PM**	60	40
31	**Sep 23, 2009 8:00 PM**	75	25
32	**Sep 23, 2009 8:06 PM**	70	30
33	**Sep 23, 2009 10:50 PM**	65	35
34	**Sep 24, 2009 2:05 AM**	60	40
35	**Sep 24, 2009 10:17 AM**	60	40
36	**Sep 24, 2009 12:46 PM**	75	25

Minimum	40	0
Maximum	100	60
Median	70	30
Mode	75	25
Mean	68	32
# of Zeros	**0**	**2**

HIGHWAY PROJECTS - "MODAL ENHANCEMENTS" SUB-CRITERIA

Number	Response Date	Improves vehicular access to freight distribution facilities, ports, major industrial clients, or employment and population centers	Includes HOV, transit, or bike/ped facilities or enhancements
1	**Sep 17, 2009 8:11 PM**	65	35
2	**Sep 17, 2009 9:02 PM**	40	60
3	**Sep 17, 2009 9:19 PM**	60	40
4	**Sep 18, 2009 12:41 PM**	45	55
5	**Sep 18, 2009 1:13 PM**	80	20
6	**Sep 18, 2009 1:46 PM**	100	0
7	**Sep 18, 2009 2:33 PM**	40	60
8	**Sep 18, 2009 6:43 PM**	50	50
9	**Sep 20, 2009 10:45 PM**	80	20
10	**Sep 21, 2009 1:14 PM**	50	50
11	**Sep 21, 2009 2:09 PM**	60	40
12	**Sep 21, 2009 6:34 PM**	45	55
13	**Sep 21, 2009 6:47 PM**	25	75
14	**Sep 22, 2009 1:16 PM**	70	30
15	**Sep 22, 2009 5:17 PM**	70	30
16	**Sep 22, 2009 9:07 PM**	60	40
17	**Sep 22, 2009 9:12 PM**	70	30
18	**Sep 22, 2009 9:14 PM**	70	30
19	**Sep 22, 2009 9:17 PM**	75	25
20	**Sep 22, 2009 9:42 PM**	50	50
21	**Sep 23, 2009 12:02 PM**	60	40
22	**Sep 23, 2009 12:31 PM**	70	30
23	**Sep 23, 2009 12:48 PM**	50	50
24	**Sep 23, 2009 1:34 PM**	50	50
25	**Sep 23, 2009 2:41 PM**	60	40
26	**Sep 23, 2009 2:42 PM**	40	60
27	**Sep 23, 2009 2:59 PM**	60	40
28	**Sep 23, 2009 3:03 PM**	60	40
29	**Sep 23, 2009 6:08 PM**	60	40
30	**Sep 23, 2009 7:08 PM**	40	60
31	**Sep 23, 2009 8:00 PM**	60	40
32	**Sep 23, 2009 8:06 PM**	50	50
33	**Sep 23, 2009 10:50 PM**	30	70
34	**Sep 24, 2009 2:05 AM**	60	40
35	**Sep 24, 2009 10:17 AM**	95	5
36	**Sep 24, 2009 12:46 PM**	70	30

Minimum	25	0
Maximum	100	75
Median	60	40
Mode	60	40
Mean	59	41
# of Zeros	**0**	**1**

HIGHWAY PROJECTS - "PROJECT PROGRESS" SUB-CRITERIA

Number	Response Date	Additional Local Match / Other Funding Availability (e.g., Private Investment)	Federal Mandates	Prior Commitment	Project Readiness
1	**Sep 17, 2009 8:11 PM**	25	30	20	25
2	**Sep 17, 2009 9:02 PM**	25	35	20	20
3	**Sep 17, 2009 9:19 PM**	30	50	10	10
4	**Sep 18, 2009 12:41 PM**	20	20	30	30
5	**Sep 18, 2009 1:13 PM**	10	50	25	15
6	**Sep 18, 2009 1:46 PM**	50	50	0	0
7	**Sep 18, 2009 2:33 PM**	5	60	5	30
8	**Sep 18, 2009 6:43 PM**	25	50	15	10
9	**Sep 20, 2009 10:45 PM**	40	20	20	20
10	**Sep 21, 2009 1:14 PM**	0	50	0	50
11	**Sep 21, 2009 2:09 PM**	15	15	40	30
12	**Sep 21, 2009 6:34 PM**	70	5	5	20
13	**Sep 21, 2009 6:47 PM**	10	60	5	25
14	**Sep 22, 2009 1:16 PM**	30	30	20	20
15	**Sep 22, 2009 5:17 PM**	15	15	35	35
16	**Sep 22, 2009 9:07 PM**	20	60	10	10
17	**Sep 22, 2009 9:12 PM**	15	70	5	10
18	**Sep 22, 2009 9:14 PM**	40	20	20	20
19	**Sep 22, 2009 9:17 PM**	50	10	20	20
20	**Sep 22, 2009 9:42 PM**	25	25	25	25
21	**Sep 23, 2009 12:02 PM**	30	25	25	20
22	**Sep 23, 2009 12:31 PM**	40	10	20	30
23	**Sep 23, 2009 12:48 PM**	50	20	15	15
24	**Sep 23, 2009 1:34 PM**	25	25	25	25
25	**Sep 23, 2009 2:41 PM**	25	25	25	25
26	**Sep 23, 2009 2:42 PM**	30	30	20	20
27	**Sep 23, 2009 2:59 PM**	40	0	0	60
28	**Sep 23, 2009 3:03 PM**	40	0	0	60
29	**Sep 23, 2009 6:08 PM**	40	0	0	60
30	**Sep 23, 2009 7:08 PM**	20	20	30	30
31	**Sep 23, 2009 8:00 PM**	40	0	0	60
32	**Sep 23, 2009 8:06 PM**	35	15	20	30
33	**Sep 23, 2009 10:50 PM**	20	30	20	30
34	**Sep 24, 2009 2:05 AM**	30	30	10	30
35	**Sep 24, 2009 10:17 AM**	40	30	10	20
36	**Sep 24, 2009 12:46 PM**	10	15	50	25

Minimum	0	0	0	0
Maximum	70	70	50	60
Median	27.5	25	20	25
Mode	40	30	20	20
Mean	29	28	17	27
# of Zeros	**1**	**4**	**6**	**1**

HIGHWAY PROJECTS - "SAFETY AND SECURITY" SUB-CRITERIA

Number	Response Date	Crash Rate	Improvement to Geometric Deficiencies	Improvements to Incident Management or Evacuation Routes
1	**Sep 17, 2009 8:11 PM**	35	30	35
2	**Sep 17, 2009 9:02 PM**	30	30	40
3	**Sep 17, 2009 9:19 PM**	30	20	50
4	**Sep 18, 2009 12:41 PM**	35	30	35
5	**Sep 18, 2009 1:13 PM**	50	30	20
6	**Sep 18, 2009 1:46 PM**	50	0	50
7	**Sep 18, 2009 2:33 PM**	40	20	40
8	**Sep 18, 2009 6:43 PM**	40	40	20
9	**Sep 20, 2009 10:45 PM**	40	30	30
10	**Sep 21, 2009 1:14 PM**	50	0	50
11	**Sep 21, 2009 2:09 PM**	40	30	30
12	**Sep 21, 2009 6:34 PM**	45	20	35
13	**Sep 21, 2009 6:47 PM**	30	50	20
14	**Sep 22, 2009 1:16 PM**	60	20	20
15	**Sep 22, 2009 5:17 PM**	25	50	25
16	**Sep 22, 2009 9:07 PM**	60	20	20
17	**Sep 22, 2009 9:12 PM**	60	10	30
18	**Sep 22, 2009 9:14 PM**	40	20	40
19	**Sep 22, 2009 9:17 PM**	25	25	50
20	**Sep 22, 2009 9:42 PM**	20	30	50
21	**Sep 23, 2009 12:02 PM**	20	30	50
22	**Sep 23, 2009 12:31 PM**	50	30	20
23	**Sep 23, 2009 12:48 PM**	50	25	25
24	**Sep 23, 2009 1:34 PM**	40	20	40
25	**Sep 23, 2009 2:41 PM**	40	20	40
26	**Sep 23, 2009 2:42 PM**	30	30	40
27	**Sep 23, 2009 2:59 PM**	40	40	20
28	**Sep 23, 2009 3:03 PM**	40	40	20
29	**Sep 23, 2009 6:08 PM**	40	20	40
30	**Sep 23, 2009 7:08 PM**	30	30	40
31	**Sep 23, 2009 8:00 PM**	40	40	20
32	**Sep 23, 2009 8:06 PM**	40	30	30
33	**Sep 23, 2009 10:50 PM**	50	20	30
34	**Sep 24, 2009 2:05 AM**	40	30	30
35	**Sep 24, 2009 10:17 AM**	40	40	20
36	**Sep 24, 2009 12:46 PM**	35	40	25

Minimum	20	0	20
Maximum	60	50	50
Median	40	30	30
Mode	40	30	20
Mean	40	28	33
# of Zeros	**0**	**2**	**0**

Bridge and Tunnel Projects	Very Important	Somewhat Important	Neutral	Somewhat Not Imp.	Very Not Imp.	Weighted Score
Points	5	4	3	2	1	
Congestion Level	29	3	4	0	0	169
Safety and Security	10	14	4	8	0	134
System Continuity and Connectivity	18	6	10	1	1	147
Modal Enhancements	3	12	15	5	1	119
Infrastructure Condition (Bridge Sufficiency Rating or Tunnel Condition)	17	16	2	0	1	156
Air Quality/Emissions Reduction	4	7	12	7	6	104
Cost Effectiveness	7	13	10	6	0	129
Compatibility with Existing Land Use Patterns and Future Plans and Development	9	5	13	7	2	120
Project Progress	4	10	15	5	2	117

Level of Importance:

Congestion Level	169
Infrastructure Condition	156
System Continuity and Connectivity	147
Safety and Security	134
Cost Effectiveness	129
Compatibility with Existing Land Use Patterns and Future Plans and Development	120
Modal Enhancements	119
Project Progress	117
Air Quality/Emissions Reduction	104

BRIDGE AND TUNNEL PROJECTS - MAIN CRITERIA WEIGHTING FACTORS

Number	Response Date	Congestion Level	Safety and Security	System Continuity and Connectivity	Modal Enhancements	Infrastructure Condition (Bridge Sufficiency Rating or Tunnel Condition)	Air Quality/ Emissions Reduction	Cost Effectiveness	Compatibility with Existing Land Use Patterns and Future Plans and Development	Project Progress
1	Sep 17, 2009 8:07 PM	15	10	15	5	15	10	10	15	5
2	Sep 17, 2009 8:54 PM	20	10	15	10	10	5	10	10	10
3	Sep 17, 2009 8:56 PM	15	10	10	10	15	10	15	10	5
4	Sep 17, 2009 9:12 PM	15	15	15	10	15	0	5	20	5
5	Sep 18, 2009 12:36 PM	10	5	20	10	15	5	10	15	10
6	Sep 18, 2009 1:06 PM	25	15	15	5	20	0	10	5	5
7	Sep 18, 2009 1:39 PM	25	0	0	0	25	0	25	25	0
8	Sep 18, 2009 2:27 PM	10	5	10	10	40	10	10	5	0
9	Sep 20, 2009 10:42 PM	40	5	5	5	10	10	10	10	5
10	Sep 21, 2009 1:05 PM	0	0	0	20	50	0	30	0	0
11	Sep 21, 2009 1:48 PM	25	5	20	0	20	5	15	5	5
12	Sep 21, 2009 6:25 PM	35	10	25	0	10	20	0	0	0
13	Sep 21, 2009 6:27 PM	25	15	10	0	20	5	10	0	15
14	Sep 22, 2009 12:49 PM	15	20	10	10	20	5	10	5	5
15	Sep 22, 2009 5:10 PM	10	5	10	5	20	10	20	10	10
16	Sep 22, 2009 9:06 PM	15	10	10	10	15	10	15	10	5
17	Sep 22, 2009 9:06 PM	15	20	20	5	10	5	10	5	10
18	Sep 22, 2009 9:09 PM	30	20	0	0	40	0	10	0	0
19	Sep 22, 2009 9:11 PM	20	5	5	20	5	10	10	20	5
20	Sep 22, 2009 9:31 PM	25	20	20	6	10	3	6	4	6
21	Sep 23, 2009 11:50 AM	20	10	20	8	15	8	5	7	7
22	Sep 23, 2009 12:22 PM	25	5	10	5	25	0	20	5	5
23	Sep 23, 2009 12:34 PM	15	10	20	5	15	8	15	2	10
24	Sep 23, 2009 1:31 PM	5	10	10	10	10	10	10	25	10
25	Sep 23, 2009 2:30 PM	20	5	15	15	10	10	5	10	10
26	Sep 23, 2009 2:36 PM	25	15	25	5	15	5	5	0	5
27	Sep 23, 2009 2:58 PM	25	0	5	10	25	0	0	25	10
28	Sep 23, 2009 3:00 PM	25	0	5	10	25	0	0	25	10
29	Sep 23, 2009 5:47 PM	10	10	20	10	25	5	10	5	5
30	Sep 23, 2009 6:07 PM	25	0	5	10	25	0	0	25	10
31	Sep 23, 2009 7:07 PM	15	10	15	5	10	15	5	10	15
32	Sep 23, 2009 7:56 PM	25	0	5	10	25	0	0	25	10
33	Sep 23, 2009 10:41 PM	15	10	15	15	15	5	10	5	10
34	Sep 24, 2009 1:55 AM	25	10	10	15	5	5	10	5	15
35	Sep 24, 2009 10:12 AM	15	15	10	5	5	5	20	15	10
36	Sep 24, 2009 12:27 PM	15	15	10	10	20	5	15	5	5

Minimum	0	0	0	0	5	0	0	0	0
Maximum	40	20	25	20	50	20	30	25	15
Median	20	10	10	10	15	5	10	8.5	5.5
Mode	25	10	10	10	15	5	10	5	5
Mean	19	9	12	8	18	6	10	10	7
# of Zeros	**1**	**6**	**3**	**5**	**0**	**10**	**5**	**5**	**5**

BRIDGE AND TUNNEL PROJECTS - "CONGESTION" SUB-CRITERIA

Number	Response Date	Existing and Future Levels of Congestion on Structure	Impact to Nearby Roadways
1	**Sep 17, 2009 8:09 PM**	60	40
2	**Sep 17, 2009 8:57 PM**	60	40
3	**Sep 17, 2009 9:14 PM**	50	50
4	**Sep 18, 2009 12:38 PM**	45	55
5	**Sep 18, 2009 1:08 PM**	60	40
6	**Sep 18, 2009 1:42 PM**	100	0
7	**Sep 18, 2009 2:31 PM**	75	25
8	**Sep 18, 2009 6:37 PM**	50	50
9	**Sep 20, 2009 10:43 PM**	75	25
10	**Sep 21, 2009 1:06 PM**	100	0
11	**Sep 21, 2009 1:52 PM**	70	30
12	**Sep 21, 2009 6:27 PM**	65	35
13	**Sep 21, 2009 6:34 PM**	95	5
14	**Sep 22, 2009 12:56 PM**	60	40
15	**Sep 22, 2009 5:13 PM**	50	50
16	**Sep 22, 2009 9:06 PM**	60	40
17	**Sep 22, 2009 9:09 PM**	70	30
18	**Sep 22, 2009 9:11 PM**	70	30
19	**Sep 22, 2009 9:13 PM**	50	50
20	**Sep 22, 2009 9:40 PM**	70	30
21	**Sep 23, 2009 11:53 AM**	60	40
22	**Sep 23, 2009 12:26 PM**	60	40
23	**Sep 23, 2009 12:37 PM**	80	20
24	**Sep 23, 2009 1:31 PM**	50	50
25	**Sep 23, 2009 2:32 PM**	65	35
26	**Sep 23, 2009 2:38 PM**	75	25
27	**Sep 23, 2009 2:58 PM**	75	25
28	**Sep 23, 2009 3:01 PM**	75	25
29	**Sep 23, 2009 5:50 PM**	60	40
30	**Sep 23, 2009 6:07 PM**	75	25
31	**Sep 23, 2009 7:07 PM**	50	50
32	**Sep 23, 2009 7:57 PM**	75	25
33	**Sep 23, 2009 10:43 PM**	65	35
34	**Sep 24, 2009 2:04 AM**	60	40
35	**Sep 24, 2009 10:13 AM**	60	40
36	**Sep 24, 2009 12:35 PM**	60	40

Minimum	45	0
Maximum	100	55
Median	62.5	37.5
Mode	60	40
Mean	66	34
# of Zeros	**0**	**2**

BRIDGE AND TUNNEL PROJECTS - "MODAL ENHANCEMENTS" SUB-CRITERIA

Number	Response Date	Includes HOV, transit, or bike/ped facilities or enhancements	Improves vehicular access to freight distribution facilities, ports, major industrial clients, or employment and population centers
1	**Sep 17, 2009 8:09 PM**	55	45
2	**Sep 17, 2009 8:57 PM**	35	65
3	**Sep 17, 2009 9:14 PM**	20	80
4	**Sep 18, 2009 12:38 PM**	45	55
5	**Sep 18, 2009 1:08 PM**	25	75
6	**Sep 18, 2009 1:42 PM**	0	100
7	**Sep 18, 2009 2:31 PM**	25	75
8	**Sep 18, 2009 6:37 PM**	25	75
9	**Sep 20, 2009 10:43 PM**	40	60
10	**Sep 21, 2009 1:06 PM**	50	50
11	**Sep 21, 2009 1:52 PM**	25	75
12	**Sep 21, 2009 6:27 PM**	50	50
13	**Sep 21, 2009 6:34 PM**	90	10
14	**Sep 22, 2009 12:56 PM**	25	75
15	**Sep 22, 2009 5:13 PM**	30	70
16	**Sep 22, 2009 9:06 PM**	50	50
17	**Sep 22, 2009 9:09 PM**	30	70
18	**Sep 22, 2009 9:11 PM**	20	80
19	**Sep 22, 2009 9:13 PM**	25	75
20	**Sep 22, 2009 9:40 PM**	50	50
21	**Sep 23, 2009 11:53 AM**	30	70
22	**Sep 23, 2009 12:26 PM**	30	70
23	**Sep 23, 2009 12:37 PM**	50	50
24	**Sep 23, 2009 1:31 PM**	50	50
25	**Sep 23, 2009 2:32 PM**	40	60
26	**Sep 23, 2009 2:38 PM**	40	60
27	**Sep 23, 2009 2:58 PM**	40	60
28	**Sep 23, 2009 3:01 PM**	40	60
29	**Sep 23, 2009 5:50 PM**	45	55
30	**Sep 23, 2009 6:07 PM**	40	60
31	**Sep 23, 2009 7:07 PM**	30	70
32	**Sep 23, 2009 7:57 PM**	40	60
33	**Sep 23, 2009 10:43 PM**	70	30
34	**Sep 24, 2009 2:04 AM**	40	60
35	**Sep 24, 2009 10:13 AM**	5	95
36	**Sep 24, 2009 12:35 PM**	30	70

Minimum	0	10
Maximum	90	100
Median	40	60
Mode	40	60
Mean	37	63
# of Zeros	**1**	**0**

BRIDGE AND TUNNEL PROJECTS - "PROJECT PROGRESS" SUB-CRITERIA

Number	Response Date	Additional Local Match / Other Funding Availability (e.g., Private Investment)	Federal Mandates	Prior Commitment	Project Readiness
1	Sep 17, 2009 8:09 PM	25	30	20	25
2	Sep 17, 2009 8:57 PM	30	35	20	15
3	Sep 17, 2009 9:14 PM	10	30	50	10
4	Sep 18, 2009 12:38 PM	25	25	20	30
5	Sep 18, 2009 1:08 PM	15	50	20	15
6	Sep 18, 2009 1:42 PM	100	0	0	0
7	Sep 18, 2009 2:31 PM	5	85	5	5
8	Sep 18, 2009 6:37 PM	15	35	25	25
9	Sep 20, 2009 10:43 PM	55	25	10	10
10	Sep 21, 2009 1:06 PM	0	50	0	50
11	Sep 21, 2009 1:52 PM	15	15	40	30
12	Sep 21, 2009 6:27 PM	55	15	5	25
13	Sep 21, 2009 6:34 PM	15	50	5	30
14	Sep 22, 2009 12:56 PM	30	30	10	30
15	Sep 22, 2009 5:13 PM	15	15	35	35
16	Sep 22, 2009 9:06 PM	10	60	15	15
17	Sep 22, 2009 9:09 PM	10	70	5	15
18	Sep 22, 2009 9:11 PM	30	20	40	10
19	Sep 22, 2009 9:13 PM	25	25	25	25
20	Sep 22, 2009 9:40 PM	25	40	25	10
21	Sep 23, 2009 11:53 AM	35	25	35	5
22	Sep 23, 2009 12:26 PM	60	10	10	20
23	Sep 23, 2009 12:37 PM	10	70	10	10
24	Sep 23, 2009 1:31 PM	25	25	25	25
25	Sep 23, 2009 2:32 PM	25	25	25	25
26	Sep 23, 2009 2:38 PM	35	35	20	10
27	Sep 23, 2009 2:58 PM	40	0	0	60
28	Sep 23, 2009 3:01 PM	40	0	0	60
29	Sep 23, 2009 5:50 PM	40	10	20	30
30	Sep 23, 2009 6:07 PM	40	0	0	60
31	Sep 23, 2009 7:07 PM	30	30	20	20
32	Sep 23, 2009 7:57 PM	40	0	0	60
33	Sep 23, 2009 10:43 PM	20	30	25	25
34	Sep 24, 2009 2:04 AM	10	40	30	20
35	Sep 24, 2009 10:13 AM	40	30	10	20
36	Sep 24, 2009 12:35 PM	5	15	50	30

Minimum	0	0	0	0
Maximum	100	85	50	60
Median	25	27.5	20	25
Mode	25	30	20	25
Mean	28	29	18	25
# of Zeros	**1**	**5**	**6**	**1**

BRIDGE AND TUNNEL PROJECTS - "SAFETY AND SECURITY" SUB-CRITERIA

Number	Response Date	Crash Rate	Improvement to Geometric Deficiencies	Improvements to Incident Management or Evacuation Routes	Failure Impact
1	**Sep 17, 2009 8:09 PM**	25	20	30	25
2	**Sep 17, 2009 8:57 PM**	25	20	35	20
3	**Sep 17, 2009 9:14 PM**	20	15	50	15
4	**Sep 18, 2009 12:38 PM**	25	20	35	20
5	**Sep 18, 2009 1:08 PM**	25	20	15	40
6	**Sep 18, 2009 1:42 PM**	40	0	20	40
7	**Sep 18, 2009 2:31 PM**	30	5	60	5
8	**Sep 18, 2009 6:37 PM**	40	15	5	40
9	**Sep 20, 2009 10:43 PM**	25	25	25	25
10	**Sep 21, 2009 1:06 PM**	50	0	0	50
11	**Sep 21, 2009 1:52 PM**	35	25	25	15
12	**Sep 21, 2009 6:27 PM**	30	5	25	40
13	**Sep 21, 2009 6:34 PM**	20	10	40	30
14	**Sep 22, 2009 12:56 PM**	30	20	20	30
15	**Sep 22, 2009 5:13 PM**	10	10	10	70
16	**Sep 22, 2009 9:06 PM**	25	20	35	20
17	**Sep 22, 2009 9:09 PM**	10	5	15	70
18	**Sep 22, 2009 9:11 PM**	30	20	30	20
19	**Sep 22, 2009 9:13 PM**	20	30	30	20
20	**Sep 22, 2009 9:40 PM**	10	10	40	40
21	**Sep 23, 2009 11:53 AM**	30	10	30	30
22	**Sep 23, 2009 12:26 PM**	20	30	10	40
23	**Sep 23, 2009 12:37 PM**	20	20	10	50
24	**Sep 23, 2009 1:31 PM**	30	30	30	10
25	**Sep 23, 2009 2:32 PM**	25	15	30	30
26	**Sep 23, 2009 2:38 PM**	25	20	30	25
27	**Sep 23, 2009 2:58 PM**	50	0	25	25
28	**Sep 23, 2009 3:01 PM**	50	0	25	25
29	**Sep 23, 2009 5:50 PM**	20	15	30	35
30	**Sep 23, 2009 6:07 PM**	50	0	25	25
31	**Sep 23, 2009 7:07 PM**	20	20	30	30
32	**Sep 23, 2009 7:57 PM**	50	0	25	25
33	**Sep 23, 2009 10:43 PM**	30	20	25	25
34	**Sep 24, 2009 2:04 AM**	20	20	40	20
35	**Sep 24, 2009 10:13 AM**	30	20	20	30
36	**Sep 24, 2009 12:35 PM**	25	15	10	50

Minimum	10	0	0	5
Maximum	50	30	60	70
Median	25	17.5	25	27.5
Mode	25	20	30	25
Mean	28	15	26	31
# of Zeros	**0**	**6**	**1**	**0**

Bike and Ped Projects		Very Important	Somewhat Important	Neutral	Somewhat Not Imp.	Very Not Imp.	Weighted Score
Points		5	4	3	2	1	
Safety	**Safety**	18	13	4	1	1	157
System	**System Continuity and**	22	9	5	0	1	162
Air	**Air Quality/Emissions**	3	7	12	11	4	105
Cost	**Cost Effectiveness**	11	8	10	6	2	131
Enhances	**Enhances Other Categories**	6	13	12	3	3	127
Progress	**Project Progress**	5	8	15	8	1	119

Level of Importance:

System Continuity and Connectivity	162
Safety	157
Cost Effectiveness	131
Enhances Other Categories	127
Project Progress	119
Air Quality/Emissions Reduction	105

BIKE AND PED PROJECTS - MAIN CRITERIA WEIGHTING FACTORS

Number	Response Date	Safety	System Continuity and Connectivity	Air Quality/Emissions Reduction	Cost Effectiveness	Enhances Other Categories	Project Progress
1	Sep 17, 2009 8:04 PM	20	20	15	15	15	15
2	Sep 17, 2009 8:44 PM	20	25	5	20	20	10
3	Sep 17, 2009 8:49 PM	20	20	20	10	20	10
4	Sep 17, 2009 9:07 PM	25	25	20	15	10	5
5	Sep 18, 2009 12:10 PM	20	20	10	10	20	20
6	Sep 18, 2009 12:57 PM	35	25	10	15	5	10
7	Sep 18, 2009 1:39 PM	20	20	20	20	20	0
8	Sep 18, 2009 2:22 PM	25	30	0	5	15	25
9	Sep 20, 2009 10:40 PM	20	20	20	20	10	10
10	Sep 21, 2009 12:49 PM	28	20	10	27	10	5
11	Sep 21, 2009 1:00 PM	0	50	0	50	0	0
12	Sep 21, 2009 6:18 PM	20	20	10	10	15	25
13	Sep 21, 2009 6:21 PM	40	10	5	5	40	0
14	Sep 22, 2009 12:37 PM	20	10	10	35	15	10
15	Sep 22, 2009 12:42 PM	25	25	10	20	15	5
16	Sep 22, 2009 5:01 PM	20	25	0	25	15	15
17	Sep 22, 2009 9:03 PM	20	10	20	20	15	15
18	Sep 22, 2009 9:06 PM	20	15	15	25	10	15
19	Sep 22, 2009 9:06 PM	40	30	20	0	0	10
20	Sep 22, 2009 9:08 PM	30	30	10	10	10	10
21	Sep 22, 2009 9:08 PM	30	5	5	40	15	5
22	Sep 23, 2009 11:41 AM	15	40	10	15	15	5
23	Sep 23, 2009 12:00 PM	30	20	0	20	10	20
24	Sep 23, 2009 12:31 PM	30	20	20	10	10	10
25	Sep 23, 2009 1:24 PM	20	20	20	20	10	10
26	Sep 23, 2009 1:57 PM	15	25	15	10	15	20
27	Sep 23, 2009 2:28 PM	30	30	10	15	10	5
28	Sep 23, 2009 2:56 PM	20	50	5	5	5	15
29	Sep 23, 2009 2:58 PM	20	50	5	5	5	15
30	Sep 23, 2009 5:17 PM	25	25	5	15	25	5
31	Sep 23, 2009 6:06 PM	20	50	5	5	5	15
32	Sep 23, 2009 7:06 PM	15	25	10	10	25	15
33	Sep 23, 2009 7:54 PM	20	50	5	5	10	10
34	Sep 23, 2009 10:32 PM	20	20	10	15	15	20
35	Sep 24, 2009 1:48 AM	20	5	20	30	20	5
36	Sep 24, 2009 10:08 AM	25	10	5	25	10	25
37	Sep 24, 2009 12:12 PM	35	25	10	15	10	5

Minimum		0	5	0	0	0	0
Maximum		40	50	20	50	40	25
Median		20	25	10	15	15	10
Mode		20	20	10	15	10	10
Mean		23	25	11	17	13	11
# of Zeros		**1**	**0**	**4**	**1**	**2**	**3**

1 RESPONDENT ANSWERED THIS ONE ONLY

BIKE AND PED PROJECTS - "PROJECT PROGRESS" SUB-CRITERIA

Number	Response Date	Additional Local Match / Other Funding Availability	Federal Mandates	Prior Commitment	Project Readiness
1	**Sep 17, 2009 8:05 PM**	20	35	25	20
2	**Sep 17, 2009 8:47 PM**	35	25	20	20
3	**Sep 17, 2009 8:52 PM**	30	30	10	30
4	**Sep 17, 2009 9:09 PM**	0	0	100	0
5	**Sep 18, 2009 12:32 PM**	20	5	30	45
6	**Sep 18, 2009 1:00 PM**	30	50	15	5
7	**Sep 18, 2009 1:39 PM**	50	50	0	0
8	**Sep 18, 2009 2:24 PM**	5	60	10	25
9	**Sep 20, 2009 10:41 PM**	25	25	25	25
10	**Sep 21, 2009 12:54 PM**	10	30	30	30
11	**Sep 21, 2009 1:03 PM**	0	75	0	25
12	**Sep 21, 2009 6:21 PM**	0	40	10	50
13	**Sep 21, 2009 6:23 PM**	30	40	10	20
14	**Sep 22, 2009 12:39 PM**	25	25	25	25
15	**Sep 22, 2009 12:45 PM**	10	30	40	20
16	**Sep 22, 2009 5:07 PM**	10	10	30	50
17	**Sep 22, 2009 9:04 PM**	15	70	0	15
18	**Sep 22, 2009 9:06 PM**	35	40	10	15
19	**Sep 22, 2009 9:08 PM**	50	20	10	20
20	**Sep 22, 2009 9:10 PM**	10	30	30	30
21	**Sep 22, 2009 9:25 PM**	60	20	10	10
22	**Sep 23, 2009 11:44 AM**	30	25	25	20
23	**Sep 23, 2009 12:02 PM**	30	20	20	30
24	**Sep 23, 2009 12:32 PM**	20	40	20	20
25	**Sep 23, 2009 1:25 PM**	25	25	25	25
26	**Sep 23, 2009 2:01 PM**	20	30	20	30
27	**Sep 23, 2009 2:32 PM**	30	35	25	10
28	**Sep 23, 2009 2:57 PM**	30	10	30	30
29	**Sep 23, 2009 2:59 PM**	30	10	30	30
30	**Sep 23, 2009 5:41 PM**	35	10	25	30
31	**Sep 23, 2009 6:06 PM**	30	10	30	30
32	**Sep 23, 2009 7:06 PM**	30	20	30	20
33	**Sep 23, 2009 7:54 PM**	30	10	30	30
34	**Sep 23, 2009 10:32 PM**	20	30	30	20
35	**Sep 24, 2009 1:51 AM**	20	30	20	30
36	**Sep 24, 2009 10:10 AM**	25	20	25	30
37	**Sep 24, 2009 12:16 PM**	5	25	40	30

Minimum	0	0	0	0
Maximum	60	75	100	50
Median	25	25	25	25
Mode	30	30	30	30
Mean	24	29	23	24
# of Zeros	**3**	**1**	**3**	**2**

1 RESPONDENT ANSWERED THIS ONE ONLY

BIKE AND PED PROJECTS - "SAFETY" SUB-CRITERIA

Number	Response Date	Crash History	Safety Improvement
1	**Sep 17, 2009 8:05 PM**	25	75
2	**Sep 17, 2009 8:47 PM**	55	45
3	**Sep 17, 2009 8:52 PM**	70	30
4	**Sep 17, 2009 9:09 PM**	50	50
5	**Sep 18, 2009 12:32 PM**	40	60
6	**Sep 18, 2009 1:00 PM**	60	40
7	**Sep 18, 2009 1:39 PM**	25	75
8	**Sep 18, 2009 2:24 PM**	50	50
9	**Sep 20, 2009 10:41 PM**	50	50
10	**Sep 21, 2009 12:54 PM**	65	35
11	**Sep 21, 2009 1:03 PM**	100	0
12	**Sep 21, 2009 6:21 PM**	50	50
13	**Sep 21, 2009 6:23 PM**	50	50
14	**Sep 22, 2009 12:39 PM**	50	50
15	**Sep 22, 2009 12:45 PM**	50	50
16	**Sep 22, 2009 5:07 PM**	34	66
17	**Sep 22, 2009 9:04 PM**	50	50
18	**Sep 22, 2009 9:06 PM**	35	65
19	**Sep 22, 2009 9:08 PM**	70	30
20	**Sep 22, 2009 9:10 PM**	50	50
21	**Sep 22, 2009 9:25 PM**	40	60
22	**Sep 23, 2009 11:44 AM**	40	60
23	**Sep 23, 2009 12:02 PM**	40	60
24	**Sep 23, 2009 12:32 PM**	60	40
25	**Sep 23, 2009 1:25 PM**	50	50
26	**Sep 23, 2009 2:01 PM**	25	75
27	**Sep 23, 2009 2:32 PM**	60	40
28	**Sep 23, 2009 2:57 PM**	50	50
29	**Sep 23, 2009 2:59 PM**	50	50
30	**Sep 23, 2009 5:41 PM**	60	40
31	**Sep 23, 2009 6:06 PM**	50	50
32	**Sep 23, 2009 7:06 PM**	25	75
33	**Sep 23, 2009 7:54 PM**	50	50
34	**Sep 23, 2009 10:32 PM**	55	45
35	**Sep 24, 2009 1:51 AM**	50	50
36	**Sep 24, 2009 10:10 AM**	50	50
37	**Sep 24, 2009 12:16 PM**	75	25

Minimum	25	0
Maximum	100	75
Median	50	50
Mode	50	50
Mean	50	50
# of Zeros	**0**	**1**

1 RESPONDENT ANSWERED THIS ONE ONLY

BIKE AND PED PROJECTS - "SYSTEM CONTINUITY & CONNECTIVITY " SUB-CRITERIA

Number	Response Date	Regional Significance	Elimination of barriers to major destinations	Connections to Existing Facilities	Access to transit, local or regional destinations (such as schools, commercial/employment centers, or recreational facilities), or high density residential areas	Population Served
1	**Sep 17, 2009 8:05 PM**	10	30	30	15	15
2	**Sep 17, 2009 8:47 PM**	15	20	20	30	15
3	**Sep 17, 2009 8:52 PM**	10	30	20	20	20
4	**Sep 17, 2009 9:09 PM**	0	30	20	40	10
5	**Sep 18, 2009 12:32 PM**	15	20	20	30	15
6	**Sep 18, 2009 1:00 PM**	10	25	20	30	15
7	**Sep 18, 2009 1:39 PM**	0	0	100	0	0
8	**Sep 18, 2009 2:24 PM**	5	20	40	20	15
9	**Sep 20, 2009 10:41 PM**	10	10	30	30	20
10	**Sep 21, 2009 12:54 PM**	10	20	25	25	20
11	**Sep 21, 2009 1:03 PM**	0	50	0	0	50
12	**Sep 21, 2009 6:21 PM**	5	10	40	40	5
13	**Sep 21, 2009 6:23 PM**	0	20	30	35	15
14	**Sep 22, 2009 12:39 PM**	20	20	20	20	20
15	**Sep 22, 2009 12:45 PM**	15	30	30	15	10
16	**Sep 22, 2009 5:07 PM**	5	20	35	35	5
17	**Sep 22, 2009 9:04 PM**	15	20	20	25	20
18	**Sep 22, 2009 9:06 PM**	25	10	15	40	10
19	**Sep 22, 2009 9:08 PM**	0	20	10	50	20
20	**Sep 22, 2009 9:10 PM**	10	30	10	30	20
21	**Sep 22, 2009 9:25 PM**	10	30	30	30	0
22	**Sep 23, 2009 11:44 AM**	10	10	30	30	20
23	**Sep 23, 2009 12:02 PM**	20	20	30	20	10
24	**Sep 23, 2009 12:32 PM**	20	20	20	20	20
25	**Sep 23, 2009 1:25 PM**	20	20	20	20	20
26	**Sep 23, 2009 2:01 PM**	20	10	30	25	15
27	**Sep 23, 2009 2:32 PM**	10	20	25	25	20
28	**Sep 23, 2009 2:57 PM**	10	10	20	50	10
29	**Sep 23, 2009 2:59 PM**	10	10	20	50	10
30	**Sep 23, 2009 5:41 PM**	10	20	20	35	15
31	**Sep 23, 2009 6:06 PM**	10	10	20	50	10
32	**Sep 23, 2009 7:06 PM**	10	25	30	25	10
33	**Sep 23, 2009 7:54 PM**	10	10	20	50	10
34	**Sep 23, 2009 10:32 PM**	10	10	30	40	10
35	**Sep 24, 2009 1:51 AM**	10	25	30	20	15
36	**Sep 24, 2009 10:10 AM**	25	15	20	20	20
37	**Sep 24, 2009 12:16 PM**	10	20	25	40	5

Minimum	0	0	0	0	0
Maximum	25	50	100	50	50
Median	10	20	20	30	15
Mode	10	20	20	20	20
Mean	11	19	26	29	15
# of Zeros	**5**	**1**	**1**	**2**	**2**

1 RESPONDENT ANSWERED THIS ONE ONLY

Systems Management, TDM, and Operational Improvement Projects	Very Important	Somewhat Important	Neutral	Somewhat Not Imp.	Very Not Imp.	Weighted Score
Points	5	4	3	2	1	
Congestion Level	20	13	3	0	0	161
Regional Significance	10	11	10	4	1	133
Safety	10	11	14	0	1	137
Air Quality/Emissions Reduction	17	9	3	5	2	142
Cost Effectiveness	11	18	6	1	0	147
Enhances Other Categories	5	8	13	8	2	114
Project Progress	5	10	16	4	1	122

Level of Importance:

Congestion Level	161
Cost Effectiveness	147
Air Quality/Emissions Reduction	142
Safety	137
Regional Significance	133
Project Progress	122
Enhances Other Categories	114

SYS MNGMT/TDM/OP IMP PROJECTS - MAIN CRITERIA WEIGHTING FACTORS

Number	Response Date	Congestion Level	Regional Significance	Safety	Air Quality/Emissions Reduction	Cost Effectiveness	Enhances Other Categories	Project Progress
1	Sep 17, 2009 8:14 PM	20	15	15	15	15	10	10
2	Sep 17, 2009 9:11 PM	20	10	20	5	15	15	15
3	Sep 17, 2009 9:23 PM	20	15	20	15	10	10	10
4	Sep 18, 2009 12:46 PM	20	20	15	10	10	15	10
5	Sep 18, 2009 1:20 PM	25	10	25	0	20	15	5
6	Sep 18, 2009 1:52 PM	0	0	50	0	50	0	0
7	Sep 18, 2009 2:36 PM	25	10	15	25	5	15	5
8	Sep 18, 2009 6:56 PM	20	20	10	20	10	15	5
9	Sep 20, 2009 10:48 PM	30	5	5	20	30	5	5
10	Sep 21, 2009 1:18 PM	0	50	0	0	0	0	50
11	Sep 21, 2009 2:20 PM	25	5	15	5	25	10	15
12	Sep 21, 2009 6:37 PM	30	0	15	25	30	0	0
13	Sep 21, 2009 7:05 PM	25	5	10	15	15	5	25
14	Sep 22, 2009 1:22 PM	20	15	20	10	15	10	10
15	Sep 22, 2009 5:22 PM	15	5	10	35	15	10	10
16	Sep 22, 2009 9:11 PM	20	20	15	5	20	5	15
17	Sep 22, 2009 9:15 PM	20	10	20	20	10	10	10
18	Sep 22, 2009 9:21 PM	20	15	15	10	15	10	15
19	Sep 22, 2009 9:42 PM	25	25	25	10	15	0	0
20	Sep 22, 2009 9:54 PM	25	10	15	25	25	0	0
21	Sep 23, 2009 12:07 PM	15	15	10	30	10	10	10
22	Sep 23, 2009 12:35 PM	20	10	20	20	20	0	10
23	Sep 23, 2009 12:51 PM	25	25	10	10	10	10	10
24	Sep 23, 2009 1:40 PM	10	20	20	20	10	10	10
25	Sep 23, 2009 2:45 PM	25	20	20	10	10	10	5
26	Sep 23, 2009 2:47 PM	20	15	15	20	15	5	10
27	Sep 23, 2009 3:05 PM	20	20	0	40	20	0	0
28	Sep 23, 2009 3:15 PM	20	20	0	40	20	0	0
29	Sep 23, 2009 6:10 PM	20	20	0	40	20	0	0
30	Sep 23, 2009 7:09 PM	15	10	10	20	15	20	10
31	Sep 23, 2009 8:03 PM	20	20	0	40	20	0	0
32	Sep 23, 2009 8:13 PM	15	5	20	15	20	15	10
33	Sep 23, 2009 10:57 PM	5	20	5	15	15	20	20
34	Sep 24, 2009 2:11 AM	15	15	15	10	10	25	10
35	Sep 24, 2009 10:20 AM	15	25	15	10	10	15	10
36	Sep 24, 2009 12:59 PM	15	30	15	5	20	10	5

Minimum	0	0	0	0	0	0	0
Maximum	30	50	50	40	50	25	50
Median	20	15	15	15	15	10	10
Mode	20	20	15	10	15	10	10
Mean	19	15	14	17	17	9	9
# of Zeros	**2**	**2**	**5**	**3**	**1**	**10**	**8**

SYS MNGMT/TDM/OP IMP PROJECTS - TDM ONLY CRITERIA

Number	Response Date	Response Text
1	Sep 17, 2009 8:14 PM	20
2	Sep 17, 2009 9:11 PM	10
3	Sep 17, 2009 9:23 PM	0
4	Sep 18, 2009 12:46 PM	35
5	Sep 18, 2009 1:20 PM	0
6	Sep 18, 2009 1:52 PM	0
7	Sep 18, 2009 2:36 PM	0
8	Sep 18, 2009 6:56 PM	50
9	Sep 20, 2009 10:48 PM	25
10	Sep 21, 2009 1:18 PM	50
11	Sep 21, 2009 2:20 PM	30
12	Sep 21, 2009 6:37 PM	20
13	Sep 21, 2009 7:05 PM	40
14	Sep 22, 2009 1:22 PM	0
15	Sep 22, 2009 5:22 PM	25
16	Sep 22, 2009 9:11 PM	25
17	Sep 22, 2009 9:15 PM	50
18	Sep 22, 2009 9:21 PM	5
19	Sep 22, 2009 9:42 PM	60
20	Sep 22, 2009 9:54 PM	30
21	Sep 23, 2009 12:07 PM	15
22	Sep 23, 2009 12:35 PM	20
23	Sep 23, 2009 12:51 PM	50
24	Sep 23, 2009 1:40 PM	15
25	Sep 23, 2009 2:45 PM	20
26	Sep 23, 2009 2:47 PM	25
27	Sep 23, 2009 3:05 PM	50
28	Sep 23, 2009 3:15 PM	5
29	Sep 23, 2009 6:10 PM	15
30	Sep 23, 2009 7:09 PM	25
31	Sep 23, 2009 8:03 PM	10
32	Sep 23, 2009 8:13 PM	25
33	Sep 23, 2009 10:57 PM	80
34	Sep 24, 2009 2:11 AM	20
35	Sep 24, 2009 10:20 AM	10
36	Sep 24, 2009 12:59 PM	25

Minimum	0
Maximum	80
Median	22.5
Mode	25
Mean	25
# of Zeros	**5**

SYS MNGMT/TDM/OP IMP PROJECTS - "PROJECT ROGRESS" SUB-CRITERIA

Number	Response Date	Additional Local Match / Other Funding Availability	Federal Mandates	Prior Commitment	Project Readiness
1	Sep 17, 2009 8:15 PM	25	30	20	25
2	Sep 17, 2009 9:13 PM	30	30	20	20
3	Sep 17, 2009 9:25 PM	10	50	30	10
4	Sep 18, 2009 12:48 PM	25	25	25	25
5	Sep 18, 2009 1:22 PM	10	50	25	15
6	Sep 18, 2009 1:54 PM	50	50	0	0
7	Sep 18, 2009 2:37 PM	5	50	40	5
8	Sep 18, 2009 7:03 PM	20	40	25	15
9	Sep 20, 2009 10:49 PM	40	20	20	20
10	Sep 21, 2009 1:20 PM	0	50	0	50
11	Sep 21, 2009 2:26 PM	30	15	30	25
12	Sep 21, 2009 6:39 PM	30	25	20	25
13	Sep 21, 2009 7:07 PM	5	75	5	15
14	Sep 22, 2009 1:24 PM	30	30	20	20
15	Sep 22, 2009 5:34 PM	15	15	35	35
16	Sep 22, 2009 9:12 PM	20	60	10	10
17	Sep 22, 2009 9:22 PM	50	10	20	20
18	Sep 22, 2009 9:39 PM	10	70	5	15
19	Sep 22, 2009 9:43 PM	40	20	30	10
20	Sep 22, 2009 9:55 PM	50	10	20	20
21	Sep 23, 2009 12:09 PM	30	25	25	20
22	Sep 23, 2009 12:37 PM	30	10	30	30
23	Sep 23, 2009 12:52 PM	30	30	20	20
24	Sep 23, 2009 1:41 PM	30	30	30	10
25	Sep 23, 2009 2:47 PM	30	30	20	20
26	Sep 23, 2009 2:50 PM	25	25	25	25
27	Sep 23, 2009 3:06 PM	40	0	0	60
28	Sep 23, 2009 3:15 PM	40	0	0	60
29	Sep 23, 2009 6:10 PM	40	0	0	60
30	Sep 23, 2009 7:09 PM	20	20	30	30
31	Sep 23, 2009 8:04 PM	40	0	0	60
32	Sep 23, 2009 8:15 PM	40	10	20	30
33	Sep 23, 2009 11:00 PM	10	30	30	30
34	Sep 24, 2009 2:14 AM	30	30	10	30
35	Sep 24, 2009 10:21 AM	25	30	20	25
36	Sep 24, 2009 1:01 PM	5	20	50	25

Minimum	0	0	0	0
Maximum	50	75	50	60
Median	30	27.5	20	22.5
Mode	30	30	20	20
Mean	27	28	20	25
# of Zeros	**1**	**4**	**6**	**1**

SYS MNGMT/TDM/OP IMP PROJECTS - "REGIONAL SIGNIFICANCE" SUB-CRITERIA

Number	Response Date	Addresses Mobility or Accessibility Needs of Region	Improvements to Communications among Various Operating Agencies	Part of the Regional ITS Strategic Plan
1	**Sep 17, 2009 8:15 PM**	35	35	30
2	**Sep 17, 2009 9:13 PM**	30	30	40
3	**Sep 17, 2009 9:25 PM**	70	10	20
4	**Sep 18, 2009 12:48 PM**	25	25	50
5	**Sep 18, 2009 1:22 PM**	50	20	30
6	**Sep 18, 2009 1:54 PM**	0	25	75
7	**Sep 18, 2009 2:37 PM**	40	20	40
8	**Sep 18, 2009 7:03 PM**	40	20	40
9	**Sep 20, 2009 10:49 PM**	40	20	40
10	**Sep 21, 2009 1:20 PM**	0	0	100
11	**Sep 21, 2009 2:26 PM**	30	35	35
12	**Sep 21, 2009 6:39 PM**	35	45	20
13	**Sep 21, 2009 7:07 PM**	20	25	55
14	**Sep 22, 2009 1:24 PM**	50	20	30
15	**Sep 22, 2009 5:34 PM**	30	30	40
16	**Sep 22, 2009 9:12 PM**	60	20	20
17	**Sep 22, 2009 9:22 PM**	40	30	30
18	**Sep 22, 2009 9:39 PM**	35	30	35
19	**Sep 22, 2009 9:43 PM**	50	10	40
20	**Sep 22, 2009 9:55 PM**	50	40	10
21	**Sep 23, 2009 12:09 PM**	50	30	20
22	**Sep 23, 2009 12:37 PM**	50	40	10
23	**Sep 23, 2009 12:52 PM**	50	10	40
24	**Sep 23, 2009 1:41 PM**	40	30	30
25	**Sep 23, 2009 2:47 PM**	35	35	30
26	**Sep 23, 2009 2:50 PM**	40	20	40
27	**Sep 23, 2009 3:06 PM**	40	35	25
28	**Sep 23, 2009 3:15 PM**	40	35	25
29	**Sep 23, 2009 6:10 PM**	40	35	25
30	**Sep 23, 2009 7:09 PM**	50	10	40
31	**Sep 23, 2009 8:04 PM**	40	35	25
32	**Sep 23, 2009 8:15 PM**	50	30	20
33	**Sep 23, 2009 11:00 PM**	60	30	10
34	**Sep 24, 2009 2:14 AM**	30	30	40
35	**Sep 24, 2009 10:21 AM**	60	20	20
36	**Sep 24, 2009 1:01 PM**	50	15	35

Minimum	0	0	10
Maximum	70	45	100
Median	40	30	30
Mode	50	30	40
Mean	40	26	34
# of Zeros	**2**	**1**	**0**

SYS MNGMT/TDM/OP IMP PROJECTS - "TDM" SUB-CRITERIA

Number	Response Date	Number of Employers Offering TDM Programs	Percent of Employees Ridesharing	Percent of Employees Walking/Biking	Parking Management
1	Sep 17, 2009 8:15 PM	25	25	25	25
2	Sep 17, 2009 9:13 PM	40	15	20	25
3	Sep 17, 2009 9:25 PM	25	25	25	25
4	Sep 18, 2009 12:48 PM	35	25	15	25
5	Sep 18, 2009 1:22 PM	50	15	10	25
6	Sep 18, 2009 1:54 PM	0	50	50	0
7	Sep 18, 2009 2:37 PM	25	25	25	25
8	Sep 18, 2009 7:03 PM	25	25	25	25
9	Sep 20, 2009 10:49 PM	25	25	25	25
10	Sep 21, 2009 1:20 PM	100	0	0	0
11	Sep 21, 2009 2:26 PM	30	50	5	15
12	Sep 21, 2009 6:39 PM	30	30	20	20
13	Sep 21, 2009 7:07 PM	30	10	10	50
14	Sep 22, 2009 1:24 PM	30	10	10	50
15	Sep 22, 2009 5:34 PM	10	30	30	30
16	Sep 22, 2009 9:12 PM	25	25	25	25
17	Sep 22, 2009 9:22 PM	25	25	25	25
18	Sep 22, 2009 9:39 PM	25	30	30	15
19	Sep 22, 2009 9:43 PM	25	25	25	25
20	Sep 22, 2009 9:55 PM	30	20	20	30
21	Sep 23, 2009 12:09 PM	40	35	5	20
22	Sep 23, 2009 12:37 PM	20	30	30	20
23	Sep 23, 2009 12:52 PM	30	30	10	30
24	Sep 23, 2009 1:41 PM	25	25	25	25
25	Sep 23, 2009 2:47 PM	20	30	30	20
26	Sep 23, 2009 2:50 PM	25	25	25	25
27	Sep 23, 2009 3:06 PM	25	25	25	25
28	Sep 23, 2009 3:15 PM	25	25	25	25
29	Sep 23, 2009 6:10 PM	25	25	25	25
30	Sep 23, 2009 7:09 PM	50	20	15	15
31	Sep 23, 2009 8:04 PM	25	25	25	25
32	Sep 23, 2009 8:15 PM	20	30	20	30
33	Sep 23, 2009 11:00 PM	25	25	10	40
34	Sep 24, 2009 2:14 AM	30	30	20	20
35	Sep 24, 2009 10:21 AM	30	20	20	30
36	Sep 24, 2009 1:01 PM	25	25	25	25

Minimum	0	0	0	0
Maximum	100	50	50	50
Median	25	25	25	25
Mode	25	25	25	25
Mean	29	25	21	25
# of Zeros	**1**	**1**	**1**	**2**

Transit Projects	Very Important	Somewhat Important	Neutral	Somewhat Not Imp.	Very Not Imp.	Weighted Score
Points	5	4	3	2	1	
User Benefit	11	12	10	1	2	137
Existing Usage and/or Prospective Ridership and Coverage Area / Population Served	16	14	3	2	1	150
System Continuity and Connectivity	17	9	8	1	1	148
Air Quality/Emissions Reduction	7	9	9	7	4	116
Cost Effectiveness	11	9	7	8	1	129
Compatibility with existing land use patterns and future plans and development	13	9	8	4	2	135
Enhances Other Categories	3	12	13	6	2	116
Project Progress	2	9	17	6	2	111

Level of Importance:

Existing Usage and/or Prospective Ridership and Coverage Area / Population Served	150
System Continuity and Connectivity	148
User Benefit	137
Compatibility with existing land use patterns and future plans and development	135
Cost Effectiveness	129
Enhances Other Categories	116
Air Quality/Emissions Reduction	116
Project Progress	111

TRANSIT PROJECTS - MAIN CRITERIA WEIGHTING FACTORS

Number	Response Date	User Benefit	Existing Usage and/or Prospective Ridership and Coverage Area / Population Served	System Continuity and Connectivity	Air Quality/ Emissions Reduction	Cost Effectiveness	Compatibility with existing land use patterns and future plans and development	Enhances Other Categories	Project Progress
1	Sep 17, 2009 8:16 PM	15	15	15	10	10	20	5	10
2	Sep 17, 2009 9:16 PM	15	10	25	5	5	15	15	10
3	Sep 17, 2009 9:27 PM	15	25	20	0	5	25	10	0
4	Sep 18, 2009 12:50 PM	15	15	15	5	10	20	15	5
5	Sep 18, 2009 1:26 PM	25	15	5	0	30	5	20	0
6	Sep 18, 2009 1:57 PM	0	20	10	0	50	20	0	0
7	Sep 18, 2009 2:44 PM	15	15	15	15	5	20	10	5
8	Sep 18, 2009 7:25 PM	15	20	20	10	5	15	10	5
9	Sep 20, 2009 10:49 PM	10	10	10	20	20	10	10	10
10	Sep 21, 2009 1:21 PM	0	0	25	0	50	0	25	0
11	Sep 21, 2009 2:29 PM	5	5	15	10	30	25	5	5
12	Sep 21, 2009 6:40 PM	10	30	10	20	0	30	0	0
13	Sep 21, 2009 7:26 PM	15	15	10	5	30	10	0	15
14	Sep 22, 2009 1:27 PM	10	15	15	10	15	15	15	5
15	Sep 22, 2009 5:36 PM	10	25	10	5	25	10	10	5
16	Sep 22, 2009 9:14 PM	15	15	10	10	15	20	5	10
17	Sep 22, 2009 9:23 PM	10	10	10	10	20	20	10	10
18	Sep 22, 2009 9:41 PM	20	15	5	15	20	15	5	5
19	Sep 22, 2009 9:45 PM	20	25	30	10	15	0	0	0
20	Sep 22, 2009 9:59 PM	15	20	20	7	8	13	5	12
21	Sep 23, 2009 12:13 PM	15	20	20	10	7	15	8	5
22	Sep 23, 2009 12:41 PM	10	25	10	10	25	5	10	5
23	Sep 23, 2009 12:53 PM	20	20	20	10	10	5	10	5
24	Sep 23, 2009 1:43 PM	20	5	20	20	5	20	5	5
25	Sep 23, 2009 2:48 PM	15	20	25	10	5	5	15	5
26	Sep 23, 2009 2:53 PM	15	15	15	10	5	20	10	10
27	Sep 23, 2009 3:07 PM	5	40	40	5	0	5	0	5
28	Sep 23, 2009 3:16 PM	5	45	40	0	0	5	0	5
29	Sep 23, 2009 6:10 PM	5	40	40	5	0	5	0	5
30	Sep 23, 2009 7:10 PM	5	20	20	15	10	20	5	5
31	Sep 23, 2009 8:07 PM	5	40	35	10	0	5	0	5
32	Sep 23, 2009 8:22 PM	15	15	15	15	15	15	5	5
33	Sep 23, 2009 11:03 PM	15	10	15	15	10	15	10	10
34	Sep 24, 2009 2:18 AM	10	20	10	15	10	10	15	10
35	Sep 24, 2009 10:22 AM	10	15	15	5	15	15	15	10
36	Sep 24, 2009 1:04 PM	15	20	20	5	15	10	10	5

Minimum	0	0	5	0	0	0	0	0
Maximum	25	45	40	20	50	30	25	15
Median	15	17.5	15	10	10	15	10	5
Mode	15	15	15	10	5	20	10	5
Mean	12	19	18	9	14	13	8	6
# of Zeros	**2**	**1**	**0**	**5**	**5**	**2**	**8**	**6**

TRANSIT PROJECTS - "PROJECT PROGRESS" SUB-CRITERIA

Number	Response Date	Additional Local Match / Other Funding Availability	Federal Mandates	Prior Commitment	Project Readiness
1	**Sep 17, 2009 8:17 PM**	25	30	20	25
2	**Sep 17, 2009 9:17 PM**	30	30	20	20
3	**Sep 17, 2009 9:27 PM**	10	50	30	10
4	**Sep 18, 2009 12:51 PM**	25	25	25	25
5	**Sep 18, 2009 1:27 PM**	10	50	15	25
6	**Sep 18, 2009 1:58 PM**	50	50	0	0
7	**Sep 18, 2009 2:45 PM**	20	60	20	0
8	**Sep 18, 2009 7:26 PM**	30	40	15	15
9	**Sep 20, 2009 10:50 PM**	40	20	20	20
10	**Sep 21, 2009 1:21 PM**	0	50	0	50
11	**Sep 21, 2009 2:30 PM**	20	10	40	30
12	**Sep 21, 2009 6:41 PM**	30	30	10	30
13	**Sep 21, 2009 7:27 PM**	15	75	5	5
14	**Sep 22, 2009 1:28 PM**	30	30	20	20
15	**Sep 22, 2009 5:37 PM**	15	15	35	35
16	**Sep 22, 2009 9:15 PM**	20	60	10	10
17	**Sep 22, 2009 9:24 PM**	30	10	30	30
18	**Sep 22, 2009 9:42 PM**	15	70	5	10
19	**Sep 22, 2009 9:46 PM**	40	10	30	20
20	**Sep 22, 2009 10:00 PM**	35	15	35	15
21	**Sep 23, 2009 12:13 PM**	30	25	25	20
22	**Sep 23, 2009 12:42 PM**	70	10	10	10
23	**Sep 23, 2009 12:55 PM**	30	30	20	20
24	**Sep 23, 2009 1:44 PM**	40	30	10	20
25	**Sep 23, 2009 2:48 PM**	30	30	20	20
26	**Sep 23, 2009 2:54 PM**	25	25	25	25
27	**Sep 23, 2009 3:07 PM**	40	0	0	60
28	**Sep 23, 2009 3:17 PM**	40	0	0	60
29	**Sep 23, 2009 6:11 PM**	40	0	0	60
30	**Sep 23, 2009 7:10 PM**	20	20	30	30
31	**Sep 23, 2009 8:07 PM**	40	0	0	60
32	**Sep 23, 2009 8:23 PM**	35	20	25	20
33	**Sep 23, 2009 11:04 PM**	10	30	30	30
34	**Sep 24, 2009 2:18 AM**	30	30	10	30
35	**Sep 24, 2009 10:23 AM**	30	30	15	25
36	**Sep 24, 2009 1:05 PM**	20	5	50	25

Minimum	0	0	0	0
Maximum	70	75	50	60
Median	30	30	20	22.5
Mode	30	30	20	20
Mean	28	28	18	25
# of Zeros	**1**	**4**	**6**	**2**

TRANSIT PROJECTS - "SYSTEM CONTINUITY AND CONNECTIVITY" SUB-CRITERIA

Number	Response Date	Regional Significance	Improves access to employment and population centers
1	Sep 17, 2009 8:17 PM	50	50
2	Sep 17, 2009 9:17 PM	35	65
3	Sep 17, 2009 9:27 PM	50	50
4	Sep 18, 2009 12:51 PM	65	35
5	Sep 18, 2009 1:27 PM	40	60
6	Sep 18, 2009 1:58 PM	0	100
7	Sep 18, 2009 2:45 PM	50	50
8	Sep 18, 2009 7:26 PM	25	75
9	Sep 20, 2009 10:50 PM	50	50
10	Sep 21, 2009 1:21 PM	100	0
11	Sep 21, 2009 2:30 PM	35	65
12	Sep 21, 2009 6:41 PM	25	75
13	Sep 21, 2009 7:27 PM	5	95
14	Sep 22, 2009 1:28 PM	50	50
15	Sep 22, 2009 5:37 PM	75	25
16	Sep 22, 2009 9:15 PM	65	35
17	Sep 22, 2009 9:24 PM	50	50
18	Sep 22, 2009 9:42 PM	30	70
19	Sep 22, 2009 9:46 PM	40	60
20	Sep 22, 2009 10:00 PM	50	50
21	Sep 23, 2009 12:13 PM	25	75
22	Sep 23, 2009 12:42 PM	30	70
23	Sep 23, 2009 12:55 PM	80	20
24	Sep 23, 2009 1:44 PM	50	50
25	Sep 23, 2009 2:48 PM	60	40
26	Sep 23, 2009 2:54 PM	50	50
27	Sep 23, 2009 3:07 PM	40	60
28	Sep 23, 2009 3:17 PM	40	60
29	Sep 23, 2009 6:11 PM	40	60
30	Sep 23, 2009 7:10 PM	40	60
31	Sep 23, 2009 8:07 PM	40	60
32	Sep 23, 2009 8:23 PM	40	60
33	Sep 23, 2009 11:04 PM	50	50
34	Sep 24, 2009 2:18 AM	50	50
35	Sep 24, 2009 10:23 AM	75	25
36	Sep 24, 2009 1:05 PM	40	60

Minimum	0	0
Maximum	100	100
Median	45	55
Mode	50	50
Mean	46	54
# of Zeros	**1**	**1**

Intermodal Projects	Very Important	Somewhat Important	Neutral	Somewhat Not Imp.	Very Not Imp.	Weighted Score
Points	5	4	3	2	1	
Better Accommodates Intermodal Movements	22	10	3	0	1	160
Improves Rail or Vehicular Access to Freight	24	5	5	1	1	158
Cost Effectiveness	12	12	6	6	0	138
Enhances Other Categories	6	8	14	6	2	118
Project Progress	1	20	8	6	1	122

Level of Importance:

Better Accommodates Intermodal Movements	160
Improves Rail or Vehicular Access to Freight	158
Cost Effectiveness	138
Project Progress	122
Enhances Other Categories	118

INTERMODAL PROJECTS - MAIN CRITERIA WEIGHTING FACTORS

Number	Response Date	Better Accommodates Intermodal Movements	Improves Rail or Vehicular Access to Freight Distribution Facilities, Airports/Seaports, Major Industrial Clients, Employment and Population Centers, or Rail Stations/Terminals	Cost Effectiveness	Enhances Other Categories	Project Progress
1	Sep 17, 2009 8:11 PM	25	25	20	15	15
2	Sep 17, 2009 9:05 PM	25	15	15	30	15
3	Sep 17, 2009 9:20 PM	35	30	20	15	0
4	Sep 18, 2009 12:43 PM	30	20	20	15	15
5	Sep 18, 2009 1:16 PM	15	10	30	40	5
6	Sep 18, 2009 1:50 PM	0	0	100	0	0
7	Sep 18, 2009 2:34 PM	35	20	20	20	5
8	Sep 18, 2009 6:45 PM	40	20	10	20	10
9	Sep 20, 2009 10:46 PM	30	20	25	20	5
10	Sep 21, 2009 1:15 PM	50	0	50	0	0
11	Sep 21, 2009 2:12 PM	10	30	30	15	15
12	Sep 21, 2009 6:35 PM	25	25	20	15	15
13	Sep 21, 2009 6:52 PM	15	5	35	5	40
14	Sep 22, 2009 1:17 PM	20	30	20	15	15
15	Sep 22, 2009 5:19 PM	25	15	35	15	10
16	Sep 22, 2009 9:08 PM	30	30	15	5	20
17	Sep 22, 2009 9:13 PM	25	25	25	10	15
18	Sep 22, 2009 9:18 PM	5	50	20	5	20
19	Sep 22, 2009 9:40 PM	35	35	10	10	10
20	Sep 22, 2009 9:49 PM	30	30	10	10	20
21	Sep 23, 2009 12:04 PM	20	40	15	20	5
22	Sep 23, 2009 12:32 PM	30	10	30	10	20
23	Sep 23, 2009 12:49 PM	30	20	20	10	20
24	Sep 23, 2009 1:37 PM	25	25	15	20	15
25	Sep 23, 2009 2:44 PM	35	25	15	20	5
26	Sep 23, 2009 2:45 PM	25	25	20	15	15
27	Sep 23, 2009 3:00 PM	45	45	0	0	10
28	Sep 23, 2009 3:04 PM	45	45	0	0	10
29	Sep 23, 2009 6:09 PM	45	45	0	0	10
30	Sep 23, 2009 7:09 PM	30	20	20	15	15
31	Sep 23, 2009 8:01 PM	45	45	0	0	10
32	Sep 23, 2009 8:08 PM	20	30	30	10	10
33	Sep 23, 2009 10:52 PM	10	40	35	5	10
34	Sep 24, 2009 2:07 AM	20	20	20	20	20
35	Sep 24, 2009 10:18 AM	15	50	15	10	10
36	Sep 24, 2009 12:49 PM	5	50	15	20	10

Minimum	0	0	0	0	0
Maximum	50	50	100	40	40
Median	25	25	20	15	10
Mode	25	20	20	15	10
Mean	26	27	22	13	12
# of Zeros	**1**	**2**	**4**	**6**	**3**

INTERMODAL PROJECTS - "PROJECT PROGRESS" SUB-CRITERIA

Number	Response Date	Additional Local Match / Other Funding Availability (e.g., Private Investment)	Federal Mandates	Prior Commitment	Project Readiness
1	Sep 17, 2009 8:12 PM	25	30	20	25
2	Sep 17, 2009 9:05 PM	30	30	20	20
3	Sep 17, 2009 9:20 PM	10	70	10	10
4	Sep 18, 2009 12:43 PM	25	25	25	25
5	Sep 18, 2009 1:16 PM	10	50	25	15
6	Sep 18, 2009 1:50 PM	50	50	0	0
7	Sep 18, 2009 2:35 PM	20	75	5	0
8	Sep 18, 2009 6:50 PM	25	40	20	15
9	Sep 20, 2009 10:46 PM	40	20	20	20
10	Sep 21, 2009 1:16 PM	0	50	0	50
11	Sep 21, 2009 2:13 PM	35	10	35	20
12	Sep 21, 2009 6:36 PM	70	20	5	5
13	Sep 21, 2009 6:52 PM	10	50	5	35
14	Sep 22, 2009 1:17 PM	30	30	20	20
15	Sep 22, 2009 5:19 PM	15	15	35	35
16	Sep 22, 2009 9:08 PM	20	60	10	10
17	Sep 22, 2009 9:13 PM	15	70	5	10
18	Sep 22, 2009 9:19 PM	50	15	15	20
19	Sep 22, 2009 9:41 PM	40	20	30	10
20	Sep 22, 2009 9:50 PM	50	10	10	30
21	Sep 23, 2009 12:04 PM	35	25	25	15
22	Sep 23, 2009 12:33 PM	30	10	25	35
23	Sep 23, 2009 12:49 PM	40	20	20	20
24	Sep 23, 2009 1:37 PM	25	25	25	25
25	Sep 23, 2009 2:44 PM	30	30	20	20
26	Sep 23, 2009 2:45 PM	25	25	25	25
27	Sep 23, 2009 3:00 PM	40	0	0	60
28	Sep 23, 2009 3:04 PM	40	0	0	60
29	Sep 23, 2009 6:09 PM	40	0	0	60
30	Sep 23, 2009 7:09 PM	20	20	30	30
31	Sep 23, 2009 8:01 PM	40	0	0	60
32	Sep 23, 2009 8:09 PM	35	15	20	30
33	Sep 23, 2009 10:53 PM	30	40	10	20
34	Sep 24, 2009 2:08 AM	30	30	10	30
35	Sep 24, 2009 10:18 AM	20	35	15	30
36	Sep 24, 2009 12:50 PM	5	20	50	25

Minimum	0	0	0	0
Maximum	70	75	50	60
Median	30	25	20	22.5
Mode	40	20	20	20
Mean	29	29	16	26
# of Zeros	**1**	**4**	**6**	**2**

Appendix F

Detailed Weighting Factors and Measures of Effectiveness for the HRTPO Program Prioritization Methodology

"Highways" Projects

Evaluation Criterion	Points	Scoring Instructions
Project Utility – 100 Points Total		
Congestion Level	0-30	Scoring based on both the degree of existing congestion within the project area and the project's potential to improve congestion levels after construction. Points are awarded according to three subcriteria: • (10.00 points possible) Percent Reduction of Existing Volume-to-Capacity (V/C) Ratios o 10.00 points awarded if the projected future V/C ratio is 50% or less of the existing V/C ratio o 0.00 points awarded if the future V/C is greater than or equal to the existing V/C ratio o Projected reductions less than 50% but greater than 0% are awarded points between 10.00 and 0.00 using straight-line interpolation • (10.00 points possible) Existing V/C Ratio o 10.00 points awarded if the existing V/C is greater than 1.0, which implies a roadway is over capacity o 5.00 points awarded if the existing V/C is less than or equal to 1.0 but greater than or equal to 0.85, which implies heavy congestion o 0.00 points awarded if the existing V/C is less than 0.85, which implies acceptable congestion levels • (10.00 points possible) Impact to Nearby Roadways (i.e., the volume of traffic that will be attracted to the project roadway from adjacent roadways as a result of construction) o 10.00 points awarded if the projected volume attracted from adjacent roadways is greater than or equal to 30,000 vehicles per day (which equates to a new 4-lane facility) o 0.00 points awarded if the projected volume attracted from adjacent roadways is 0 vehicles per day or if the existing traffic volume on the project roadway is anticipated to decrease o Projected volumes less than 30,000 vehicles per day but greater than 0 are awarded points between 10.00 and 0.00 using straight-line interpolation
System Continuity and Connectivity	8.25-25	Scoring based on the degree to which a project will impact the continuity and connectivity of the region's transportation network • 25.00 points awarded if the project is expected to improve connectivity and continuity on a regional level (project would have to be regionally significant with regards to connectivity and continuity and provide considerable benefit to the regional transportation system) • 16.75 points awarded if the project is expected to improve connectivity and continuity on a multijurisdictional level (provide benefit to at least two local jurisdictions) • 8.25 points awarded if the project is expected to improve connectivity and continuity on a local level (benefit to only one jurisdiction)

Cost Effectiveness	0-15	Scoring based on the ratio of the overall cost of the project with respect to the number of users the project will serve (measured in vehicle-miles traveled [VMT] throughout the project study area) • 15.00 points awarded if the projected ratio of construction cost to VMT is less than or equal to $500 per VMT • 0.00 points awarded if the projected ratio of construction cost to VMT is greater than or equal to $2,500 per VMT • Projected ratios greater than $500 per VMT but less than $2,500 per VMT are awarded points between 15.00 and 0.00 using straight-line interpolation
Compatibility with Existing Land Use Patterns and Future Plans and Development	0-10	Scoring based on the degree to which a project is compatible with existing land use patterns and future development plans • 10.00 points awarded if the project is compatible with existing land use patterns and future plans and has been formally adopted by a body of elected officials (such as part of a comprehensive plan) • 5.00 points awarded if the project is compatible with existing land use patterns and future plans but has not been formally adopted by a body of elected officials. • 0.00 points awarded if the project is not compatible with existing land uses and future development

Safety and Security	0-10	Scoring based on a project's impact to evacuation/incident management routes and its potential to improve safety. Points are awarded according to three subcriteria: • (4.00 points possible) Critical Crash Ratio (CCR) – calculated by taking the ratio of the actual crash rate for the project area to the average jurisdictional crash rate for where the project resides o 4.00 points awarded if the CCR is greater than or equal to 2.0, which implies that the actual crash ratio is at least twice the average rate o 0.00 points awarded if the CCR is less than or equal to 1.0, which implies that the actual crash rate is less than or equal to the average crash rate o Projects with a CCR less than 2.0 but greater than 1.0 are awarded points between 4.00 and 0.00 using straight-line interpolation • (3.00 points possible) Improvement of Geometric Deficiencies (physical roadway features that do not meet current design standards such as horizontal or vertical alignment, sight distance, lane/shoulder widths, etc.) o 3.00 points awarded if the project is expected to correct three or more geometric deficiencies OR the project will be brought up to standard o 2.25 points awarded if the project is expected to correct two or more geometric deficiencies in the project area but will not bring the project up to standard o 1.50 points awarded if the project is expected to correct one geometric deficiency in the project area o 0.00 points awarded if the project is not expected to correct any geometric deficiencies in the project area (i.e., the proposed project is either new or addresses an issue such as capacity, which is not a safety issue) • (3.00 points possible) Improvement to Incident Management or Evacuation Routes o 3.00 points awarded if the project roadway is part of an established and documented incident management or evacuation route o 0.00 points awarded if the project is **not** part of an established and documented incident management or evacuation route
Infrastructure Condition	0-5	Scoring based on the Critical Condition Index (CCI), which is a numerical value ranging between 1 and 100 assigned to a roadway to describe its physical condition. • 5.00 points awarded if the pavement condition is classified as Very Poor (CCI less than 50) • 3.75 points awarded if the pavement condition is classified as Poor (CCI between 50 and 59) • 2.50 points awarded if the pavement condition is classified as Fair (CCI between 60 and 69) • 1.25 points awarded if the pavement condition is classified as Good (CCI between 70 and 89) • 0.00 points awarded if the pavement condition is classified as Excellent (CCI greater than or equal to 90)

Modal Enhancements	0-5	Scoring based on a project's impact to other modes of transportation aside from personal vehicles. Points are awarded according to two subcriteria: • (2.00 points possible) Improving Vehicular Access to Freight Distribution Facilities, Ports, Major Industrial Clients, or Employment and Population Centers o 2.00 points awarded if the project improves access on a regional level (must include access to seaport, airport, military facility, inter-jurisdictional connection, or major industrial/ employment center) o 1.00 point awarded if the project improves access to these facilities but not on a regional level (such as to a local commerce park) o 0.00 points awarded if the project does not improve access to these facilities • (3.00 points possible) Enhances Other Categories (e.g., bus shelters, sidewalks or bike paths, water crossing, TDM initiative or ITS improvement, or intermodal movement) o 3.00 points awarded if the project will improve three or more categories o 2.00 points awarded if the project will improve two categories o 1.00 point awarded if the project will improve one category o 0.00 points awarded if the project will not improve any categories
Project Viability – 100 Points Total		
Amount of Additional Local Match or Private Funding Committed to the Project	0-40	Scoring based on the amount (in percentage of total project budget) of additional local match or private funding committed to the project beyond the required match. • 40.00 points awarded if committed funding is greater than or equal to 100% of the project budget • 32.50 points awarded if committed funding is less than 100% but greater than or equal to 80% of the project budget • 25.00 points awarded if committed funding is less than 80% but greater than or equal to 60% of the project budget • 15.00 points awarded if committed funding is less than 60% but greater than or equal to 40% of the project budget • 7.50 points awarded if committed funding is less than 40% but greater than or equal to 20% of the project budget • 0.00 points awarded if committed funding is less than 20% of the project budget
Prior Commitment	0-10	Scoring based on whether a project has prior commitment (i.e., inclusion in the current Long Range Transportation Plan [LRTP]). • 10.00 points awarded if the project is included in the current LRTP • 0.00 points awarded if the project is not included in the current LRTP

Federal Mandates	0-10	Scoring based on whether a project is backed by federal mandates (e.g., emergency bridge replacements, projects addressing significant existing design deficiencies, and projects with soon to expire federal funding previously allocated to the project) • 10.00 points awarded if the project is backed by documented federal mandates • 0.00 points awarded if the project is not backed by documented federal mandates
Degree of Project Readiness	0-40	Scoring based on how quickly a project could begin construction. Points are awarded cumulatively according to three components: • 15.00 points awarded if the design plans are complete and ready for advertisement, plus • 15.00 points awarded if the environmental plans/permits required for the project are complete, plus • 10.00 points awarded if the project is fully funded
Economic Vitality – 100 Points Total		
Total Reduction in Travel Time	0-30	Scoring based on a project's ability to decrease travel time for the entire region, as determined using HRTPO's travel demand model • Up to 30.00 points awarded based on a project's success in meeting this measure (specific thresholds are still under development)
Labor Market Access	0-20	Scoring based on the degree to which a project will reduce the effective distance that workers have to travel to get to work. Points are awarded according to two subcriteria: • (10.00 points possible) Increases Travel Time Reliability o Up to 10.00 points awarded based on level of service, number of incidents, and staff analysis of a project's ability to enhance travel time reliability (specific thresholds are still under development) • (10.00 points possible) Increases Access for Major Employment Centers o Up to 10.00 points awarded if the project will result in travel time savings for trips that end in TAZs with employment that is two standard deviations greater than the regional average (specific thresholds are still under development)

Addresses the Needs of Basic Sector Industries	0-30	Scoring based on the degree to which a project will provide or improve access to basic sector industries within Hampton Roads. Points are awarded according to three subcriteria: • (10.00 points possible) Increases Access for Defense Installations o Up to 10.00 points awarded if a project significantly reduces travel time for trips that end in TAZs with major military bases (specific thresholds are still under development) • (10.00 points possible) Increases Access to Tourist Destinations o Up to 10.00 points awarded if a project significantly reduces travel time for trips that end in TAZs with tourism employment that is more than one standard deviation greater than average tourism employment for the region (specific thresholds are still under development) • (10.00 points possible) Increases Access to Port Facilities o Up to 10.00 points awarded if a project significantly reduces travel time for trips that end in TAZs that provide critical access to a port (specific thresholds are still under development)
Increases Opportunity	0-20	Scoring based on a project's ability to bring in new dollars or businesses. Points are awarded according to two subcriteria: • (10.00 points possible) Provides New or Increased Access o 10.00 points awarded if a project provides new access to an area in a way that would encourage economic development in that area o 5.00 points awarded if a project provides increased access to an area in a way that would encourage economic development in that area o 0.00 points awarded if a project does not provide new or increased access to an area • (10.00 points possible) Supports Plans for Future Growth o 10.00 points awarded if a project is located in an area specifically designated as a growth area in local comprehensive plans. Staff will assess jurisdictional comprehensive plans to determine the relative score. o 5.00 points awarded if a project is supported by a jurisdictional comprehensive plan o 0.00 points awarded if a project is not supported by a jurisdictional comprehensive plan or located in a designated growth area as described above

"**Bridge/Tunnel" Projects**

Evaluation Criterion	Points	Scoring Instructions
Project Utility – 100 Points Total		
Congestion Level	0-30	Scoring based on both the degree of existing congestion within the project area and the project's potential to improve congestion levels after construction. Points are awarded according to three subcriteria: • (10.00 points possible) Percent Reduction of Existing Volume-to-Capacity (V/C) Ratios o 10.00 points awarded if the projected future V/C ratio is 50% or less of the existing V/C ratio o 0.00 points awarded if the future V/C is greater than or equal to the existing V/C ratio o Projected reductions less than 50% but greater than 0% are awarded points between 10.00 and 0.00 using straight-line interpolation • (10.00 points possible) Existing V/C Ratio o 10.00 points awarded if the existing V/C is greater than 1.0, which implies a roadway is over capacity o 5.00 points awarded if the existing V/C is less than or equal to 1.0 but greater than or equal to 0.85, which implies heavy congestion o 0.00 points awarded if the existing V/C is less than 0.85, which implies acceptable congestion levels • (10.00 points possible) Impact to Nearby Roadways (i.e. volume of traffic that will be attracted to the project roadway from adjacent roadways as a result of construction) o 10.00 points awarded if the projected volume attracted from adjacent roadways is greater than or equal to 30,000 vehicles per day (which equates to a new 4-lane facility) o 0.00 points awarded if the projected volume attracted from adjacent roadways is 0 vehicles per day or if the existing traffic volume on the project roadway is anticipated to decrease o Projected volumes less than 30,000 vehicles per day but greater than 0 are awarded points between 10.00 and 0.00 using straight-line interpolation
Compatibility with Existing Land Use Patterns and Future Plans and Development	0-10	Scoring based on the degree to which a project is compatible with existing land use patterns and future development plans • 10.00 points awarded if the project is compatible with existing land use patterns and future plans and has been formally adopted by a body of elected officials (such as part of a comprehensive plan) • 5.00 points awarded if the project is compatible with existing land use patterns and future plans but has not been formally adopted by a body of elected officials. • 0.00 points awarded if the project is not compatible with existing land uses and future development

Infrastructure Condition	0-20	Scoring based on the existing condition of the bridge or tunnel infrastructure. Points are awarded according to two subcriteria, one for bridges and one for tunnels: • (20.00 points possible) Bridge Sufficiency Rating (for bridge projects only) – scoring based on a nationwide system which assigns bridges point values between 0-100 to indicate structural condition o 20.00 points awarded if Bridge Sufficiency Rating is less than 50 (very poor condition) o 10.00 points awarded if Bridge Sufficiency Rating is greater than or equal to 50 but less than or equal to 80 o 0.00 points awarded if Bridge Sufficiency Rating is greater than 80 (excellent condition) • (20.00 points possible) Tunnel Condition (for tunnel projects only) – points are awarded cumulatively according to three components o 6.50 points awarded if the tunnel is more than 40 years old, plus o 6.75 points awarded if the last major repairs to the tunnel were completed more than 20 years ago, plus o 6.75 points awarded if the tunnel currently requires repairs costing more than $10 million or if the facility has never had a major repair
System Continuity and Connectivity	3.5-10	Scoring based on the degree to which a project will impact the continuity and connectivity of the region's transportation network • 10.00 points awarded if the project is expected to improve connectivity and continuity on a regional level (project would have to be regionally significant with regards to connectivity and continuity and provide considerable benefit to the regional transportation system) • 6.75 points awarded if the project is expected to improve connectivity and continuity on a multijurisdictional level (provide benefit to at least two local jurisdictions) • 3.50 points awarded if the project is expected to improve connectivity and continuity on a local level (benefit to only one jurisdiction)
Cost Effectiveness	0-15	Scoring based on the ratio of the overall cost of the project with respect to the number of users the project will serve (measured in vehicle-miles traveled [VMT] throughout the project study area) • 15.00 points awarded if the projected construction cost to VMT ratio is less than or equal to $2,000 per VMT • 0.00 points awarded if the projected construction cost to VMT ratio is greater than or equal to $20,000 per VMT • Projected ratios greater than $2,000 per VMT but less than $20,000 per VMT are awarded points between 15.00 and 0.00 using straight-line interpolation

Safety and Security	1-10	Scoring based on a project's impact to evacuation/incident management routes and its potential to improve safety. Points are awarded according to four subcriteria: • (2.50 points possible) Critical Crash Ratio (CCR) – calculated by taking the ratio of the actual crash rate for the project area to the average jurisdictional crash rate for where the project resides o 2.50 points awarded if the CCR is greater than or equal to 2.0, which implies that the actual crash ratio is at least twice the average rate o 0.00 points awarded if the CCR is less than or equal to 1.0, which implies that the actual crash rate is less than or equal to the average crash rate o Projects with a CCR less than 2.0 but greater than 1.0 are awarded points between 2.50 and 0.00 using straight-line interpolation • (2.00 points possible) Improvement of Geometric Deficiencies (physical roadway features that do not meet current design standards such as horizontal or vertical alignment, sight distance, lane/shoulder widths, etc.) o 2.00 points awarded if the project is expected to correct three or more geometric deficiencies OR the project will be brought up to standard o 1.50 points awarded if the project is expected to correct two or more geometric deficiencies in the project area but will not bring the project up to standard o 1.00 point awarded if the project is expected to correct one geometric deficiency in the project area o 0.00 points awarded if the project is not expected to correct any geometric deficiencies in the project area (i.e., the proposed project is either new or addresses an issue such as capacity, which is not a safety issue) • (3.00 points possible) Improvement to Incident Management or Evacuation Routes o 3.00 points awarded if the facility is part of an established and documented incident management or evacuation route o 0.00 points awarded if the facility is **not** part of an established and documented incident management or evacuation route • (2.50 points possible) Diversion Impact Due to Failure – calculated by multiplying the existing average daily traffic volume by the length of required detour and adding the current daily VMT along the route o 2.50 points awarded if failure of the facility will result in a detour of greater than 250,000 daily vehicle-miles (regional diversion impact) o 1.75 points awarded if failure of the facility will result in a detour of less than or equal to 250,000 daily vehicle-miles but greater than or equal to 10,000 daily vehicle-miles (multijurisdictional diversion impact) o 1.00 point awarded if the failure of the facility will result in a detour of less than 10,000 daily vehicle-miles (local diversion impact)

Modal Enhancements	0-5	Scoring based on a project's impact to other modes of transportation aside from personal vehicles. Points are awarded according to three subcriteria: • (2.00 points possible) Improving Vehicular Access to Freight Distribution Facilities, Ports, Major Industrial Clients, or Employment and Population Centers o 2.00 points awarded if the project improves access on a regional level (must include access to seaport, airport, military facility, inter-jurisdictional connection, or major industrial/ employment center) o 1.00 point awarded if the project improves access to these facilities but not on a regional level (such as to a local commerce park) o 0.00 points awarded if the project does not improve access to these facilities • (1.50 points possible) Enhances Other Categories (e.g., bus shelters, sidewalks or bike paths, HOV service, TDM initiative or ITS improvement, or intermodal movement) o 1.50 points awarded if the project will improve three or more categories o 1.00 point awarded if the project will improve two categories o 0.50 points awarded if the project will improve one category o 0.00 points awarded if the project will not improve any categories • (1.50 points possible) Continuous Maritime Crossing o 1.50 points awarded if the facility will provide an uninterrupted maritime crossing o 0.00 points awarded if the facility will cause interruptions of maritime operations
Project Viability – 100 Points Total		
Amount of Additional Local Match or Private Funding Committed to the Project	0-40	Scoring based on the amount (in percentage of total project budget) of additional local match or private funding committed to the project beyond the required match. • 40.00 points awarded if committed funding is greater than or equal to 100% of the project budget • 32.50 points awarded if committed funding is less than 100% but greater than or equal to 80% of the project budget • 25.00 points awarded if committed funding is less than 80% but greater than or equal to 60% of the project budget • 15.00 points awarded if committed funding is less than 60% but greater than or equal to 40% of the project budget • 7.50 points awarded if committed funding is less than 40% but greater than or equal to 20% of the project budget • 0.00 points awarded if committed funding is less than 20% of the project budget

Prior Commitment	0-10	Scoring based on whether a project has prior commitment (i.e., inclusion in the current Long Range Transportation Plan [LRTP]). • 10.00 points awarded if the project is included in the current LRTP • 0.00 points awarded if the project is not included in the current LRTP
Federal Mandates	0-10	Scoring based on whether a project is backed by federal mandates (e.g., emergency bridge replacements, projects addressing significant existing design deficiencies, and projects with soon to expire federal funding previously allocated to the project) • 10.00 points awarded if the project is backed by documented federal mandates • 0.00 points awarded if the project is not backed by documented federal mandates
Degree of Project Readiness	0-40	Scoring based on how quickly a project could begin construction. Points are awarded cumulatively according to three components: • 15.00 points awarded if the design plans are complete and ready for advertisement, plus • 15.00 points awarded if the environmental plans/permits required for the project are complete, plus • 10.00 points awarded if the project is fully funded
Economic Vitality – 100 Points Total		
Total Reduction in Travel Time	0-30	Scoring based on a project's ability to decrease travel time for the entire region, as determined using HRTPO's travel demand model • Up to 30.00 points awarded based on a project's success in meeting this measure (specific thresholds are still under development)
Labor Market Access	0-20	Scoring based on the degree to which a project will reduce the effective distance that workers have to travel to get to work. Points are awarded according to two subcriteria: • (10.00 points possible) Increases Travel Time Reliability o Up to 10.00 points awarded based on level of service, number of incidents, and staff analysis of a project's ability to enhance travel time reliability (specific thresholds are still under development) • (10.00 points possible) Increases Access for Major Employment Centers o Up to 10.00 points awarded if the project will result in travel time savings for trips that end in TAZs with employment that is two standard deviations greater than the regional average (specific thresholds are still under development)

Addresses the Needs of Basic Sector Industries	0-30	Scoring based on the degree to which a project will provide or improve access to basic sector industries within Hampton Roads. Points are awarded according to three subcriteria: • (10.00 points possible) Increases Access for Defense Installations o Up to 10.00 points awarded if a project significantly reduces travel time for trips that end in TAZs with major military bases (specific thresholds are still under development) • (10.00 points possible) Increases Access to Tourist Destinations o Up to 10.00 points awarded if a project significantly reduces travel time for trips that end in TAZs with tourism employment that is more than one standard deviation greater than average tourism employment for the region (specific thresholds are still under development) • (10.00 points possible) Increases Access to Port Facilities o Up to 10.00 points awarded if a project significantly reduces travel time for trips that end in TAZs that provide critical access to a port (specific thresholds are still under development)
Increases Opportunity	0-20	Scoring based on a project's ability to bring in new dollars or businesses. Points are awarded according to two subcriteria: • (10.00 points possible) Provides New or Increased Access o 10.00 points awarded if a project provides new access to an area in a way that would encourage economic development in that area o 5.00 points awarded if a project provides increased access to an area in a way that would encourage economic development in that area o 0.00 points awarded if a project does not provide new or increased access to an area • (10.00 points possible) Supports Plans for Future Growth o 10.00 points awarded if a project is located in an area specifically designated as a growth area in local comprehensive plans. Staff will assess jurisdictional comprehensive plans to determine the relative score. o 5.00 points awarded if a project is supported by a jurisdictional comprehensive plan o 0.00 points awarded if a project is not supported by a jurisdictional comprehensive plan or located in a designated growth area as described above

"**Bicycle and Pedestrian" Projects**

Evaluation Criterion	Points	Scoring Instructions
Project Utility – 100 Points Total		
System Continuity and Connectivity	1-30	Scoring based on its impact to the connectivity and continuity of the greater Hampton Roads network of bicycle and pedestrian facilities. Points are awarded according to four subcriteria: • (4.00 points possible) Regional Significance o 4.00 points awarded if the project is expected to improve connectivity and continuity on a regional level (project would have to be regionally significant with regards to connectivity and continuity and provide considerable benefit to the regional bicycle/pedestrian system) o 2.00 points awarded if the project is expected to improve connectivity and continuity on a multijurisdictional level (provide benefit to at least two local jurisdictions) o 1.00 point awarded if the project is expected to improve connectivity and continuity on a local level (benefit to only one jurisdiction) • (7.00 points possible) Elimination of Barriers or Completion of Gaps across Major Barriers (e.g., crossing of a major arterial or body of water, moving bicycle/pedestrian travel paths away from the roadway, etc.) o 7.00 points awarded if the project will eliminate at least one barrier or complete at least one gap across a major barrier o 0.00 points awarded if the project will **not** eliminate or complete a gap across a major barrier • (8.00 points possible) Connection of Existing Bicycle and Pedestrian Facilities o 8.00 points awarded if the project will connect at least two existing bicycle/pedestrian facilities o 0.00 points awarded if the project will not connect existing bicycle/pedestrian facilities • (11.00 points possible) Project Provides Access to Transit, Local, or Regional Destinations (e.g., schools, employment centers, parks, or high density residential areas) o 11.00 points awarded if the project will provide access to three or more destinations o 7.25 points awarded if the project will provide access to two destinations o 3.75 points awarded if the project will provide access to one destination o 0.00 points awarded if the project will not provide access to any destinations

Safety	0-30	Scoring based on the degree to which a project is expected to improve safety. Points are awarded according to two subcriteria: • (15.00 points possible) Crash History – average number of crashes (involving bicycles or pedestrians) per year during a predetermined three-year period. o 15.00 points awarded if six or more average annual bicycle/pedestrian crashes occurred o 7.50 points awarded if less than six but greater than one average annual bicycle/pedestrian crash occurred o 0.00 points awarded if no bicycle or pedestrian crashes occurred during the three-year period • (15.00 points possible) Project Is Being Completed to Address an Existing Safety Issue or Concern o 15.00 points awarded if the project will address at least one existing safety issue or concern (such as dedicating lanes, removing conflicts, or installing signage) o 0.00 points awarded if the project will not address an existing safety issue or concern
Cost Effectiveness	0-20	Scoring based on the ratio of the overall cost of the project with respect to the number of users the project will serve (calculated as the population residing within a 1.5-mile radius of the project) • 20.00 points awarded if the ratio of the project cost to the projected population served is less than or equal to $25 per person • 0.00 points awarded if the ratio of the project cost to the projected population served is greater than or equal to $100 per person • Projected ratios greater than $25 per person but less than $100 per person are awarded points between 20.00 and 0.00 using straight-line interpolation
Compatibility with Existing Land Use Patterns and Future Plans and Development	0-10	Scoring based on the degree to which a project is compatible with existing land use patterns and future development plans • 10.00 points awarded if the project is compatible with existing land use patterns and future plans and has been formally adopted by a body of elected officials (such as part of a comprehensive plan) • 5.00 points awarded if the project is compatible with existing land use patterns and future plans but has not been formally adopted by a body of elected officials • 0.00 points awarded if the project is not compatible with existing land uses and future development
Enhances Other Categories	0-10	Scoring based on the degree to which a project will enhance other project categories (e.g., bus shelters, HOV service*, water crossing*, TDM initiative or ITS improvement, or intermodal movement) • 10.00 points awarded if the project will improve three or more categories • 6.75 points awarded if the project will improve two categories • 3.50 points awarded if the project will improve one category • 0.00 points awarded if the project will not improve any categories *A project can only receive credit for one highway or bridge/tunnel enhancement even if it enhances both categories

Project Viability – 100 Points Total		
Amount of Additional Local Match or Private Funding Committed to the Project	0-40	Scoring based on the amount (in percentage of total project budget) of additional local match or private funding committed to the project beyond the required match. • 40.00 points awarded if committed funding is greater than or equal to 100% of the project budget • 32.50 points awarded if committed funding is less than 100% but greater than or equal to 80% of the project budget • 25.00 points awarded if committed funding is less than 80% but greater than or equal to 60% of the project budget • 15.00 points awarded if committed funding is less than 60% but greater than or equal to 40% of the project budget • 7.50 points awarded if committed funding is less than 40% but greater than or equal to 20% of the project budget • 0.00 points awarded if committed funding is less than 20% of the project budget
Prior Commitment	0-10	Scoring based on whether a project has prior commitment (i.e., inclusion in the current Long Range Transportation Plan [LRTP]). • 10.00 points awarded if the project is included in the current LRTP • 0.00 points awarded if the project is not included in the current LRTP
Federal Mandates	0-10	Scoring based on whether a project is backed by federal mandates (e.g., emergency bridge replacements, projects addressing significant existing design deficiencies, and projects with soon to expire federal funding previously allocated to the project) • 10.00 points awarded if the project is backed by documented federal mandates • 0.00 points awarded if the project is not backed by documented federal mandates
Degree of Project Readiness	0-40	Scoring based on how quickly a project could begin construction. Points are awarded cumulatively according to three components: • 15.00 points awarded if the design plans are complete and ready for advertisement, plus • 15.00 points awarded if the environmental plans/permits required for the project are complete, plus • 10.00 points awarded if the project is fully funded

"Systems Management/TDM/Operational Improvements" Projects

Evaluation Criterion	Points	Scoring Instructions
Project Utility – 100 Points Total		
Existing Congestion Level	3-30	Scoring based on the level of congestion within the project's impact area (according to the LRTP congestion classification) • 30.00 points awarded if the project area congestion classification is Severe • 15.00 points awarded if the project area congestion classification is Moderate • 3.00 points awarded if the project area congestion classification is Low
Cost Effectiveness	0-15	Scoring based on the ratio of the total travel cost savings to the total cost of the project. • 15.00 points awarded if the ratio of travel cost savings to total project cost is greater than or equal to 3.0 • 0.00 points awarded if the ratio of travel cost savings to total project cost is less than or equal to 0.0 • Ratios of travel cost savings to total project cost less than 3.0 but greater than 0.0 are awarded points between 15.00 and 0.00 using straight-line interpolation
Air Quality	0-15	Scoring based on the total reduction (in tons) of VOC and NOx emissions annually if the project were constructed. • 15.00 points awarded if the total annual VOC and NOx emissions reduction is greater than or equal to 10 tons per year • 0.00 points awarded if the total annual VOC and NOx emissions reduction is less than or equal to 0 tons per year • Annual VOC and NOx emissions reductions less than 10 tons per year but greater than 0 tons per year are awarded points between 15.00 and 0.00 using straight-line interpolation
Safety	0-15	Scoring based on the degree to which a project is expected to improve safety. Points are awarded cumulatively according to three components. • 5.00 points awarded if the project will improve an established and documented evacuation or incident management route, plus • 5.00 points awarded if the project includes the implementation of emergency vehicle preemption or incident detection systems, plus • 5.00 points awarded if the project is expected to reduce the number of crashes annually based on crash data obtained from the past three years (if the project is addressing a known cause of crashes, then it is expected that the project would decrease the number of crashes throughout the study area)

Regional Significance	2-15	Scoring based on the degree to which a project will improve mobility, access, or communications within the region. Points are awarded according to three subcriteria: • (6.00 points possible) Mobility or Accessibility Needs o 6.00 points awarded if the project addresses mobility or accessibility needs on a regional level (project would have to be regionally significant with regards to mobility and accessibility and provide considerable progress in meeting regional needs) o 4.00 points awarded if the project addresses mobility or accessibility needs on a multijurisdictional level (provides benefit to at least two local jurisdictions) o 2.00 points awarded if the project addresses mobility or accessibility needs on a local level (benefit to only one jurisdiction) • (3.00 points possible) Improves Communications between Operating Agencies o 3.00 points awarded if the project will improve communications between at least two operating agencies (e.g., police, fire, VDOT 511, City Traffic Operations Centers, etc.) o 0.00 points awarded if the project will not improve communications between operating agencies • (6.00 points possible) Project Is Part of the Regional ITS Strategic Plan o 6.00 points awarded if the project is officially documented within the Regional ITS Strategic Plan o 0.00 points awarded if the project is not part of the Regional ITS Strategic Plan
Enhances Other Categories	0-10	Scoring based on the degree to which a project will enhance other project categories (e.g., bus shelters, sidewalks or bike paths, HOV service*, water crossing*, or intermodal movement) • 10.00 points awarded if the project will improve three or more categories • 6.75 points awarded if the project will improve two categories • 3.50 points awarded if the project will improve one category • 0.00 points awarded if the project will not improve any categories *A project can only receive credit for one highway or bridge/tunnel enhancement even if it enhances both categories

TDM Specific Criterion **(TDM projects only)**	3.75-25	Scoring based on the degree to which a project will encourage alternate modes of transportation or offer new TDM programs. Points are awarded according to four subcriteria: • (6.25 points possible) Number of New Employers Offering TDM Programs (after project completion) o 6.25 points awarded if the number of new employers offering TDM programs is greater than or equal to 25 o 0.00 points awarded if no new employers offer TDM programs o Numbers of new employers offering TDM programs less than 25 but greater than 0 are awarded points between 6.25 and 0.00 using straight-line interpolation • (6.25 points possible) Resulting Percentage of Employees Ridesharing (if the project is implemented) o 6.25 points awarded if the percentage of employees ridesharing is greater than 10% o 4.00 points awarded if the percentage of employees ridesharing is less than or equal to 10% but greater than or equal to 5% o 2.00 points awarded if the percentage of employees ridesharing is less than 5% • (5.00 points possible) Resulting Percentage of Employees Walking/Biking (if the project is implemented) o 5.00 points awarded if the percentage of employees walking/biking is greater than 5% o 3.50 points awarded if the percentage of employees walking/biking is less than or equal to 5% but greater than or equal to 3% o 1.75 points awarded if the percentage of employees walking/biking is less than 3% • (7.50 points possible) Parking Management (includes strategies such as long- vs. short-term parking, special carpool/hybrid parking, implementation of parking fees, etc.) o 7.50 points awarded if the project includes parking management strategies o 0.00 points awarded if the project does not include parking management strategies

Project Viability – 100 Points Total		
Amount of Additional Local Match or Private Funding Committed to the Project	0-40	Scoring based on the amount (in percentage of total project budget) of additional local match or private funding committed to the project beyond the required match. • 40.00 points awarded if committed funding is greater than or equal to 100% of the project budget • 32.50 points awarded if committed funding is less than 100% but greater than or equal to 80% of the project budget • 25.00 points awarded if committed funding is less than 80% but greater than or equal to 60% of the project budget • 15.00 points awarded if committed funding is less than 60% but greater than or equal to 40% of the project budget • 7.50 points awarded if committed funding is less than 40% but greater than or equal to 20% of the project budget • 0.00 points awarded if committed funding is less than 20% of the project budget
Prior Commitment	0-10	Scoring based on whether a project has prior commitment (i.e., inclusion in an official document). • 10.00 points awarded if the project is included in an official document • 0.00 points awarded if the project is not included in an official document
Federal Mandates	0-10	Scoring based on whether a project is backed by federal mandates (e.g., emergency bridge replacements, projects addressing significant existing design deficiencies, and projects with soon to expire federal funding previously allocated to the project) • 10.00 points awarded if the project is backed by documented federal mandates • 0.00 points awarded if the project is not backed by documented federal mandates
Degree of Project Readiness	0-40	Scoring based on how quickly a project could begin construction. Points are awarded cumulatively according to three components: • 15.00 points awarded if the design plans are complete and ready for advertisement, plus • 15.00 points awarded if the environmental plans/permits required for the project are complete, plus • 10.00 points awarded if the project is fully funded

"Transit" Projects

Evaluation Criterion	Points	Scoring Instructions
Project Utility – 100 Points Total		
Existing Usage or Prospective Ridership	0-20	Scoring based on the existing average daily ridership for an improvement project or the forecasted daily ridership for a new project • 20.00 points awarded if daily ridership is greater than or equal to 12,000 passengers per day • 0.00 points awarded if daily ridership is less than or equal to 100 passengers per day • Projected daily riderships less than 12,000 passengers per day but greater than 100 passengers per day are awarded points between 20.00 and 0.00 using straight-line interpolation
System Continuity and Connectivity	3-20	Scoring based on the degree to which a project will improve continuity and connectivity of transit systems within the region. Points are awarded according to two subcriteria: • (9.00 points possible) Regional Significance o 9.00 points awarded if the project is expected to improve connectivity and continuity on a regional level (would have to be regionally significant with regards to connectivity and continuity and provide considerable benefit to the regional transit system) o 6.00 points awarded if the project is expected to improve connectivity and continuity on a multijurisdictional level (provides benefit to at least two local jurisdictions) o 3.00 points awarded if the project is expected to improve connectivity and continuity on a local level (benefit to only one local jurisdiction) • (11.00 points possible) Improving Transit Access to Freight Distribution Facilities, Ports, Major Industrial Clients, or Employment and Population Centers o 11.00 points awarded if the project improves access on a regional level (must include access to seaport, airport, military facility, inter-jurisdictional connection, or major industrial/employment center) o 5.50 points awarded if the project improves access to these facilities but not on a regional level (such as to a local commerce park) o 0.00 points awarded if the project does not improve access to these facilities

User Benefit	0-15	Scoring based on the degree to which a project will reduce travel times for users and whether the project results in a new amenity. Points are awarded according to two subcriteria: • (10.00 points possible) Annual Travel Time Savings per Rider (after completion of a project) o 10.00 points awarded if the project will result in annual travel time savings greater than or equal to 1.0 hour per rider o 0.00 points awarded if the project will not result in any annual travel time savings per rider o Annual travel time savings less than 1.0 hour per rider but greater than 0 hours per rider are awarded points between 10.00 and 0.00 using straight-line interpolation • (5.00 points possible) New Project – classifies whether the project will result in new transit amenities o 5.00 points awarded if the project results in the creation of new transit amenities (e.g., new service, route, etc.) o 0.00 points awarded if the project is an upgrade to an existing system
Cost Effectiveness	0-15	Scoring based on the ratio of the annual capital and operating costs of the project with respect to the number of users the project will serve (calculated by dividing the sum of the estimated total annualized capital cost of the project and the estimated total annualized operating cost of the project by the estimated annual ridership) • 15.00 points awarded if the annualized cost is less than or equal to $5 per rider • 0.00 points awarded if the annualized cost is greater than or equal to $50 per rider • Projected ratios greater than $5 per rider annually but less than $50 per rider annually are awarded points between 15.00 and 0.00 using straight-line interpolation
Compatibility with Existing Land Use Patterns and Future Plans and Development	0-15	Scoring based on the degree to which a project is compatible with existing land use patterns and future development plans • 15.00 points awarded if the project is compatible with existing land use patterns and future plans and has been formally adopted by a body of elected officials (such as part of a comprehensive plan) • 7.50 points awarded if the project is compatible with existing land use patterns and future plans but has not been formally adopted by a body of elected officials. • 0.00 points awarded if the project is not compatible with existing land uses and future development
Air Quality	0-10	Scoring based on the total reduction (in tons) of VOC and NOx emissions annually if the project were constructed. • 10.00 points awarded if the total annual VOC and NOx emissions reduction is greater than or equal to 200,000 tons per year • 0.00 points awarded if the total annual VOC and NOx emissions reduction is less than or equal to 0 tons per year • Annual VOC and NOx emissions reductions less than 200,000 tons per year but greater than 0 tons per year awarded points between 10.00 and 0.00 using straight-line interpolation

Enhances Other Categories	0-5	Scoring based on the degree to which a project will enhance other project categories (e.g., sidewalks or bike paths, HOV service*, water crossing*, TDM initiative or ITS improvement, or intermodal movement) • 5.00 points awarded if the project will enhance three or more other categories • 3.50 points awarded if the project will enhance two other categories • 1.75 points awarded if the project will enhance one other category • 0.00 points awarded if the project will not enhance any other categories *A project can only receive credit for one highway or bridge/tunnel enhancement even if it enhances both categories
Project Viability – 100 Points Total		
Amount of Additional Local Match or Private Funding Committed to the Project	0-40	Scoring based on the amount (in percentage of total project budget) of additional local match or private funding committed to the project beyond the required match. • 40.00 points awarded if committed funding is greater than or equal to 100% of the project budget • 32.50 points awarded if committed funding is less than 100% but greater than or equal to 80% of the project budget • 25.00 points awarded if committed funding is less than 80% but greater than or equal to 60% of the project budget • 15.00 points awarded if committed funding is less than 60% but greater than or equal to 40% of the project budget • 7.50 points awarded if committed funding is less than 40% but greater than or equal to 20% of the project budget • 0.00 points awarded if committed funding is less than 20% of the project budget
Prior Commitment	0-10	Scoring based on whether a project has prior commitment (i.e., inclusion in the current Long Range Transportation Plan [LRTP]). • 10.00 points awarded if the project is included in the current LRTP • 0.00 points awarded if the project is not included in the current LRTP
Federal Mandates	0-10	Scoring based on whether a project is backed by federal mandates (e.g., emergency bridge replacements, projects addressing significant existing design deficiencies, and projects with soon to expire federal funding previously allocated to the project) • 10.00 points awarded if the project is backed by documented federal mandates • 0.00 points awarded if the project is not backed by documented federal mandates

Degree of Project Readiness	0-40	Scoring based on how quickly a project could begin construction. Points are awarded cumulatively according to two components: • 20.00 points awarded if the project has received Federal Transit Authority (FTA) approval for final design, plus • 20.00 points awarded if the project has received environmental clearance
Economic Vitality – 100 Points Total		
Labor Market Access	0-45	Scoring based on the degree to which a project will reduce the effective distance that workers have to travel to get to work. Points are awarded according to four subcriteria: • (20.00 points possible) Increases Access for Major Employment Centers o Up to 20.00 points awarded if employment along the transit line is greater than one standard deviation above the regional mean (specific thresholds are still under development) • (10.00 points possible) Increases Travel Time Reliability o Up to 10.00 points awarded based on level of service, number of incidents, and staff analysis of a project's ability to enhance travel time reliability (specific thresholds are still under development) • (10.00 points possible) Increases Frequency of Service o Up to 10.00 points awarded if service frequency is high (specific thresholds are still under development) • (5.00 points possible) Provides Access to Institutions of Higher Education o 5.00 points awarded if the project has either a two or four year academic institution within ½ mile of its route o 0.00 points awarded if the project does not have an institution of higher education with ½ mile of its route
Addresses the Needs of Basic Sector Industries	0-20	Scoring based on the degree to which a project will provide or improve access to basic sector industries within Hampton Roads. Points are awarded according to two subcriteria: • (10.00 points possible) Provides or Improves Access for Defense Installations o 10.00 points awarded if a transit project passes within ¼ mile of a major defense installation o 5.00 points awarded if a transit project passes within ½ mile of a major defense installation o 0.00 points awarded if the project does not pass within ½ mile of a major defense installation • (10.00 points possible) Increases Access to Tourist Destinations o 10.00 points awarded if a transit project has a high density tourism employment of 15,000 within ¼ mile of its line o 5.00 points awarded if a transit project has a high density tourism employment of 7,500 within ½ mile of its line o 0.00 points awarded if the project has less than 7,500 high density tourism employment within ½ mile of its line

Increases Opportunity	0-20	Scoring based on a project's ability to bring in new dollars or businesses. Points are awarded according to two subcriteria: • (5.00 points possible) Provides New Access to the Network o Up to 5.00 points awarded based on staff assessment of the project (specific thresholds are still under development) • (15.00 points possible) Supported by Plans for Increased Density and Economic Activity o 15.00 points awarded if a project is located within a strategic growth area (such as enterprise zones, empowerment zones, and technology zones) o Up to 10.00 points awarded if a project is located in an area that has plans for increased density. Staff will assess jurisdictional comprehensive plans to determine the relative score.
Economic Distress Factors	0-15	Scoring based on a project's level of access provided to economically disadvantaged areas. Points are awarded according to two subcriteria: • (5.00 points possible) Provides Access to Areas with High Unemployment o 5.00 points awarded if any TAZ along the project's transit route has an unemployment rate greater than two standard deviations above the regional average o 0.00 points awarded if no TAZ along the project's transit route has an unemployment rate greater than two standard deviations above the regional average • (10.00 points possible) Provides Access to Low Income Areas o 10.00 points awarded if any TAZ located within ¼ mile of the transit line has a median income that is less than twice the poverty level o 5.00 points awarded if any TAZ located within ½ mile of the transit line has a median income that is less than twice the poverty level o 0.00 points awarded if no TAZ within ½ mile of the transit has a median income that is less than twice the poverty level

“Intermodal” Projects

Evaluation Criterion	Points	Scoring Instructions
Project Utility – 100 Points Total		
Better Accommodates Intermodal Movements	10-30	Scoring based on the level at which a project will improve the efficiency of intermodal movements • 30.00 points awarded if the project will provide conflict free intermodal movements (e.g., grade-separated rail crossing) • 20.00 points awarded if the project will provide limited conflict intermodal movements (e.g., at-grade rail crossing of a facility with low ADT) • 10.00 points awarded if the project will provide conflicting intermodal movements (e.g., at-grade rail crossing of a busy arterial with high ADT)
Improving Vehicular Access to Freight Distribution Facilities, Ports, Major Industrial Clients, or Employment and Population Centers	0-30	Scoring based on the extent to which a project will improve existing access to freight distribution facilities, ports, etc. • 30.00 points awarded if the project improves access on a regional level (must improve access to at least one of the following: seaport, airport, military facility, connections between jurisdictions, or connections between major industrial/employment centers) • 15.00 points awarded if the project improves access to these facilities but not on a regional level • 0.00 points awarded if the project does not improve access to these facilities
Cost Effectiveness	0-25	Scoring based on the ratio of revenue increase to overall cost of the project • 25.00 points awarded if the ratio of revenue increase to project cost is greater than or equal to 1.5 • 0.00 points awarded if the ratio of revenue increase to project cost is less than or equal to 0.9 • Projected ratios less than 1.5 but greater than 0.9 are awarded points between 25.00 and 0.00 using straight-line interpolation
Enhances Other Categories	0-15	Scoring based on the degree to which a project will enhance other project categories (e.g., bus shelters, sidewalks or bike paths, HOV service*, water crossing*, or TDM initiative or ITS improvement) • 15.00 points awarded if the project will enhance three or more other categories • 10.00 points awarded if the project will enhance two other categories • 5.00 points awarded if the project will enhance one other category • 0.00 points awarded if the project will not enhance any other categories *A project can only receive credit for one highway or bridge/tunnel enhancement even if it enhances both categories

Project Viability – 100 Points Total		
Amount of Additional Local Match or Private Funding Committed to the Project	0-40	Scoring based on the amount (in percentage of total project budget) of additional local match or private funding committed to the project beyond the required match. • 40.00 points awarded if committed funding is greater than or equal to 100% of the project budget • 32.50 points awarded if committed funding is less than 100% but greater than or equal to 80% of the project budget • 25.00 points awarded if committed funding is less than 80% but greater than or equal to 60% of the project budget • 15.00 points awarded if committed funding is less than 60% but greater than or equal to 40% of the project budget • 7.50 points awarded if committed funding is less than 40% but greater than or equal to 20% of the project budget • 0.00 points awarded if committed funding is less than 20% of the project budget
Prior Commitment	0-10	Scoring based on whether a project has prior commitment (i.e., inclusion in the current Long Range Transportation Plan [LRTP]). • 10.00 points awarded if the project is included in the current LRTP • 0.00 points awarded if the project is not included in the current LRTP
Federal Mandates	0-10	Scoring based on whether a project is backed by federal mandates (e.g., emergency bridge replacements, projects addressing significant existing design deficiencies, and projects with soon to expire federal funding previously allocated to the project) • 10.00 points awarded if the project is backed by documented federal mandates • 0.00 points awarded if the project is not backed by documented federal mandates
Degree of Project Readiness	0-40	Scoring based on how quickly a project could begin construction. Points are awarded cumulatively according to three components: • 15.00 points awarded if the design plans are complete and ready for advertisement, plus • 15.00 points awarded if the environmental plans/permits required for the project are complete, plus • 10.00 points awarded if the project is fully funded

Economic Vitality – 100 Points Total		
Total Reduction in Travel Time	0-20	Scoring based on a project's ability to decrease travel time for the entire region, as determined using HRTPO's travel demand model • Up to 20.00 points awarded based on a project's success in meeting this measure (specific thresholds are still under development)
Labor Market Access	0-20	Scoring based on the degree to which a project will reduce the effective distance that workers have to travel to get to work. Points are awarded according to two subcriteria: • (15.00 points possible) Increases Travel Time Reliability o Up to 15.00 points awarded based on level of service, number of incidents, and staff analysis of a project's ability to enhance travel time reliability (specific thresholds are still under development) • (5.00 points possible) Increases Access for Major Employment Centers o Up to 5.00 points awarded if the project will result in travel time savings for trips that end in TAZs with employment that is two standard deviations greater than the regional average (specific thresholds are still under development)
Impact on Truck Movement	0-15	Scoring based on a project's impact to truck movement as determined using freight volumes, crash data, and capacity estimates • 15.00 points awarded if a project impacts greater than 3,000 trucks per day • 10.00 points awarded if a project impacts greater than 1,500 but less than or equal to 3,000 trucks per day • 5.00 points awarded if a project impacts less than or equal to 1,500 trucks per day
Improves Interaction between Modes of Travel	0-15	Scoring based on a project's ability to improve interaction between other modes of travel. Points are awarded cumulatively according to three components: • 5.00 points awarded if a project increases access to the Port • 5.00 points awarded if a project improves freight movement by rail • 5.00 points awarded if a project increases access to airports

Increases Opportunity	0-30	Scoring based on a project's ability to bring in new dollars or businesses. Points are awarded according to two subcriteria: • (20.00 points possible) Provides New or Increased Access o 20.00 points awarded if a project opens a new access to an area that is primed for development, but was previously inaccessible o 10.00 points awarded if a project allows increased or expanded access to an existing area o 0.00 points awarded if a project does not provide new, increased, or expanded access as described above • (10.00 points possible) Supports Plans for Future Growth o 10.00 points awarded if a project is located in an area specifically designated as a growth area in local comprehensive plans. Staff will assess jurisdictional comprehensive plans to determine the relative score. o 5.00 points awarded if a project is supported by a jurisdictional comprehensive plan o 0.00 points awarded if a project is not supported by a jurisdictional comprehensive plan or located in a designated growth area as described above

Appendix G1

Program Prioritization Tool
Structure and Data Inputs

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Appendix G1 – Program Prioritization Tool Structure and Data Inputs

G1.1 General Overview/Structure of the Tool

The general layout of the tool (as illustrated with the "Highways" project category input tab) is illustrated in **Figure 1**. This figure and other screen shots from the tool are used throughout this chapter to help demonstrate the structure of the tool. These figures are intended only to illustrate general key elements of the tool, and therefore the clarity of these graphics is not illustrative of detailed line items or inputs. Additionally, some columns in the screen shots may be labeled as "CELLS LOCKED." The locked cells indicate that these columns are referenced through the macros and should not be changed, even if the project categories, evaluation criteria, weighting factors, or MOEs are revised. However, in the actual tool, there are no passwords or security in place to prevent the user from observing these columns.

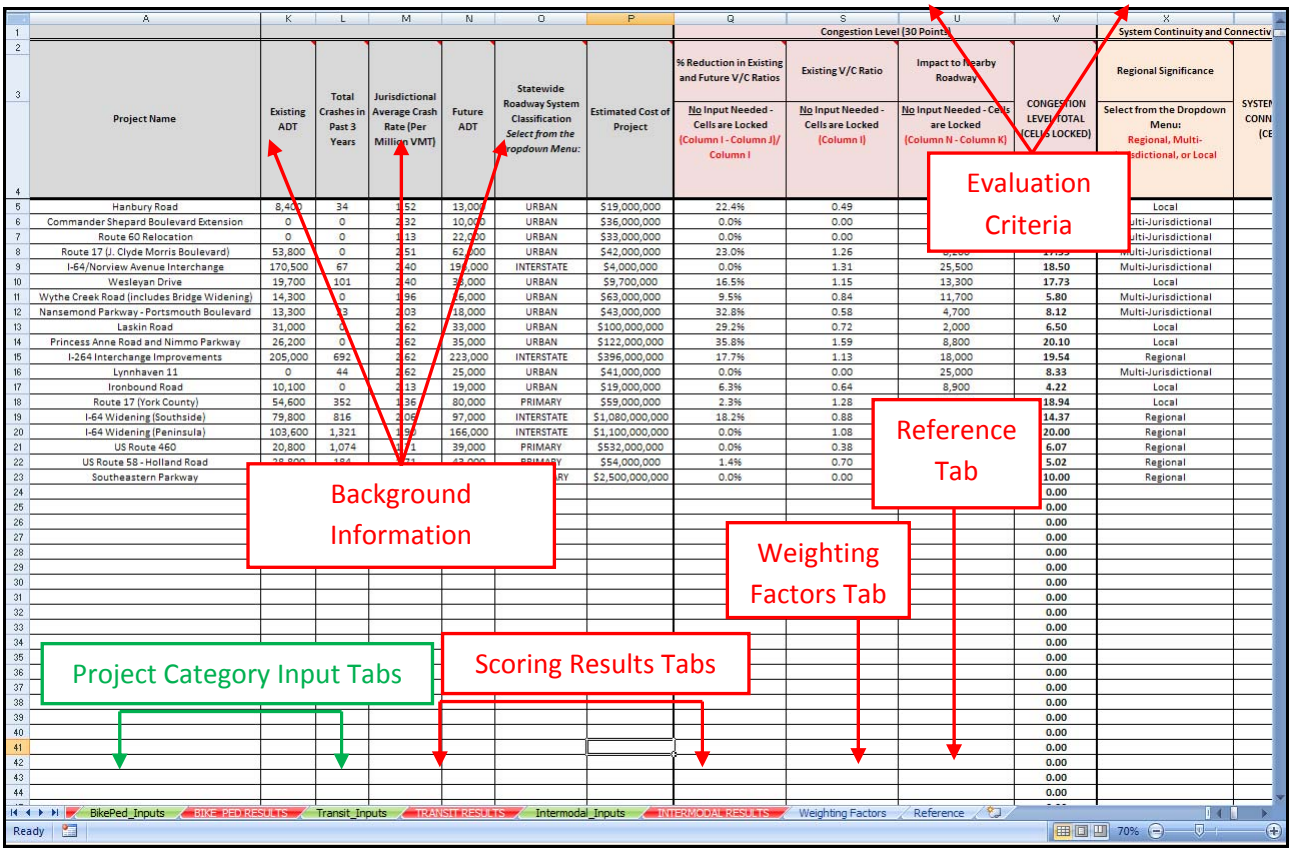


Figure 1 - Program Prioritization Tool General Layout

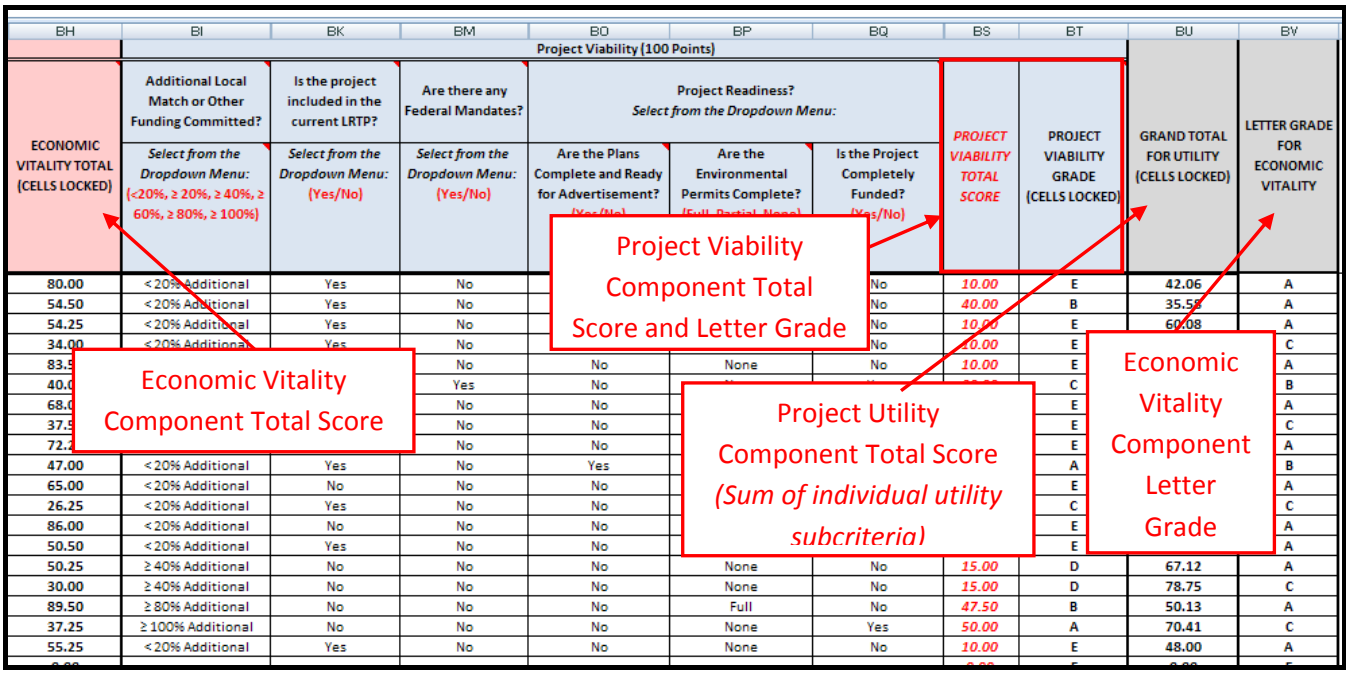
Under each project category input tab (depicted in green), evaluation criteria and background information are included as user inputs. Detailed background inputs are explained later in this chapter, while the various evaluation criteria inputs are described in Chapter 6 of the report. This Appendix is intended to illustrate how and where input data are entered into the tool. The background information (grey headings) and evaluation criteria elements (colors other than grey) also are illustrated in **Figure 1**. As the background information and evaluation criteria are filled in, the tool begins to calculate individual scores for each evaluation criterion.

With a three-part methodology, individual scores for project utility, project viability, and economic vitality are tabulated separately. Each of these traits is evaluated using a 100-point, cumulative scale; however, as mentioned in Chapter 5, the totals are independent of each other and are not added together. They are separate pieces of information on which policy makers can base their decisions. Based on the sampling of projects chosen for the tool validation analysis, letter grades ranging from A (higher score) to E (lower score) were then assigned to the project viability component scores. These letter grade thresholds are illustrated in **Table 1**. Although the economic vitality component was not evaluated during the tool validation analysis, letter grade thresholds similar to those used for the project viability component were assumed. The tool allows for each component's letter grade thresholds to be modified independently as needed.

SCORE RANGE	GRADE
> 50	A
40 - 49	B
25 - 39	C
15 - 24	D
< 15	E

Table 1 - Project Viability and Economic Vitality Component Score/Letter Grade Thresholds

Examples of overall project and individual evaluation criterion scores are illustrated in **Figure 2**. The use of a letter grade system for both the project viability and economic vitality components provides policy makers with a parallel analysis by which they can evaluate how viable projects with high utility scores actually are and how they may influence the economic vitality of the region. A project having a letter grade of A or B is extremely viable and supports economic vitality, while a project having a grade of E may be non-viable or may not influence the economic vitality of the region. A project viability letter grade of E indicates that the project is lacking additional matching funds, plans or permits have not been brought forward, or the project is not ready for construction.



BH	BI	BK	BM	BO	BP	BQ	BS	BT	BU	BV
	Project Viability (100 Points)									
ECONOMIC VITALITY TOTAL (CELLS LOCKED)	Additional Local Match or Other Funding Committed? *Select from the Dropdown Menu:* (<20%, ≥ 20%, ≥ 40%, ≥ 60%, ≥ 80%, ≥ 100%)	Is the project included in the current LRTP? *Select from the Dropdown Menu:* (Yes/No)	Are there any Federal Mandates? *Select from the Dropdown Menu:* (Yes/No)	Project Readiness? *Select from the Dropdown Menu:* Are the Plans Complete and Ready for Advertisement?	Are the Environmental Permits Complete?	Is the Project Completely Funded?	PROJECT VIABILITY TOTAL SCORE	PROJECT VIABILITY GRADE (CELLS LOCKED)	GRAND TOTAL FOR UTILITY (CELLS LOCKED)	LETTER GRADE FOR ECONOMIC VITALITY
80.00	< 20% Additional	Yes	No			No	10.00	E	42.06	A
54.50	< 20% Additional	Yes	No			No	40.00	B	35.58	A
54.25	< 20% Additional	Yes	No			No	10.00	E	60.08	A
34.00	< 20% Additional	Yes	No			No	10.00	E		C
83.5			No	No	None	No	10.00	E		A
40.0			Yes	No				C		B
68.0			No	No				E		A
37.5			No	No				E		C
72.2			No	No				E		A
47.00	< 20% Additional	Yes	No	Yes				A		B
65.00	< 20% Additional	No	No	No				E		A
26.25	< 20% Additional	Yes	No	No				C		C
86.00	< 20% Additional	No	No	No				E		A
50.50	< 20% Additional	Yes	No	No				E		A
50.25	≥ 40% Additional	No	No	No	None	No	15.00	D	67.12	A
30.00	≥ 40% Additional	No	No	No	None	No	15.00	D	78.75	C
89.50	≥ 80% Additional	No	No	No	Full	No	47.50	B	50.13	A
37.25	≥ 100% Additional	No	No	No	None	Yes	50.00	A	70.41	C
55.25	< 20% Additional	Yes	No	No	None	No	10.00	E	48.00	A

Figure 2 - Total Component Scores and Letter Grades

The weighting factors tab allows the user to view and/or modify existing project weighting factors for all evaluation criteria and subcriteria based on the total possible points available within each category (100 points each for project utility, project viability, and economic vitality). Within this tab, the user also may adjust thresholds for all objective MOEs which involve linear interpolation or letter grade thresholds for the project viability and economic vitality components. Based on the projects being evaluated, individual thresholds for both MOEs and letter grades will need to be adjusted periodically so that points are effectively being awarded amongst all proposed projects within a category. In addition, the weighting factors tab provides a quality control check for each project criterion and subcriterion to ensure that all weighting factors do not exceed the total possible points overall or for that criterion or subcriterion. **Figure 3** illustrates the features provided within the weighting factors tab. All revisions to this tab should only be made based on consensus from a technical committee meeting.

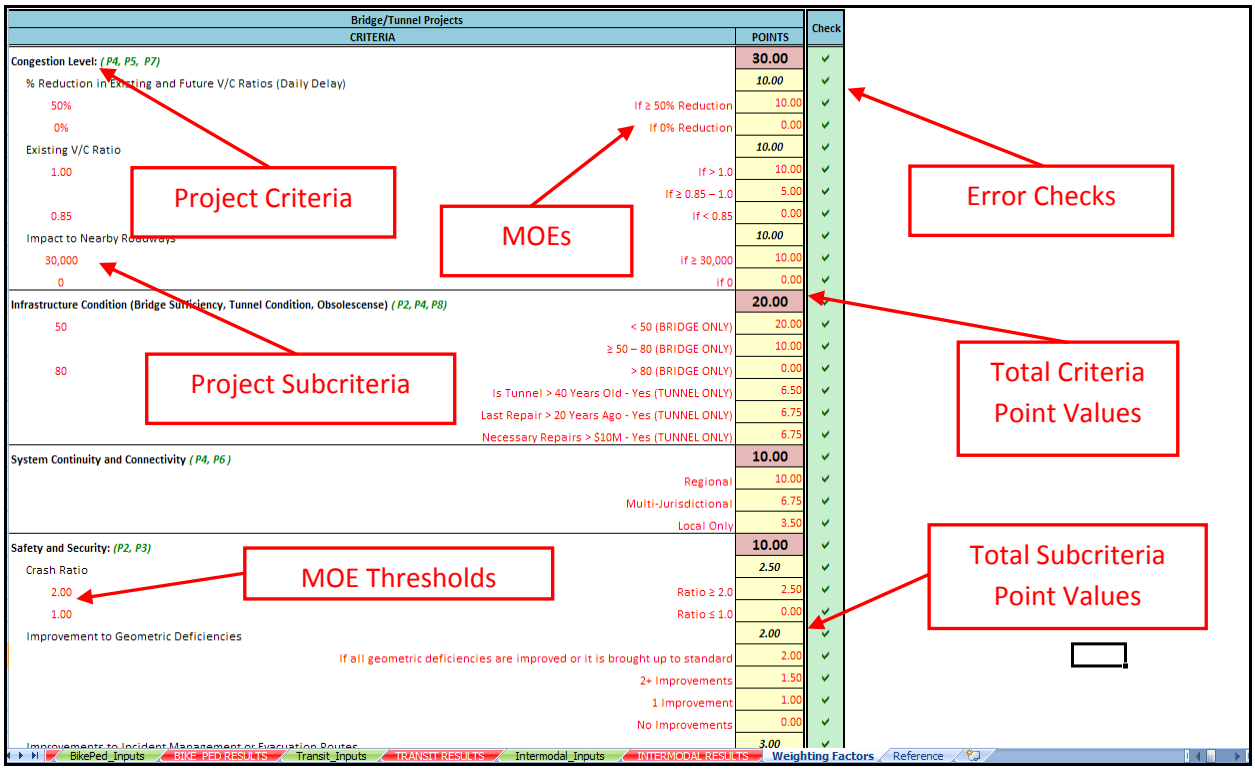


Figure 3 - Elements of the Weighting Factors Tab

Appropriate cell notes are provided for each of the background information and subcriteria input headers. Drop-down selection menus listing the available response choices also are provided to the user. An example of a typical drop-down menu provided in the tool is illustrated in **Figure 4**. All drop-down menus can be edited through the "Reference" tab.

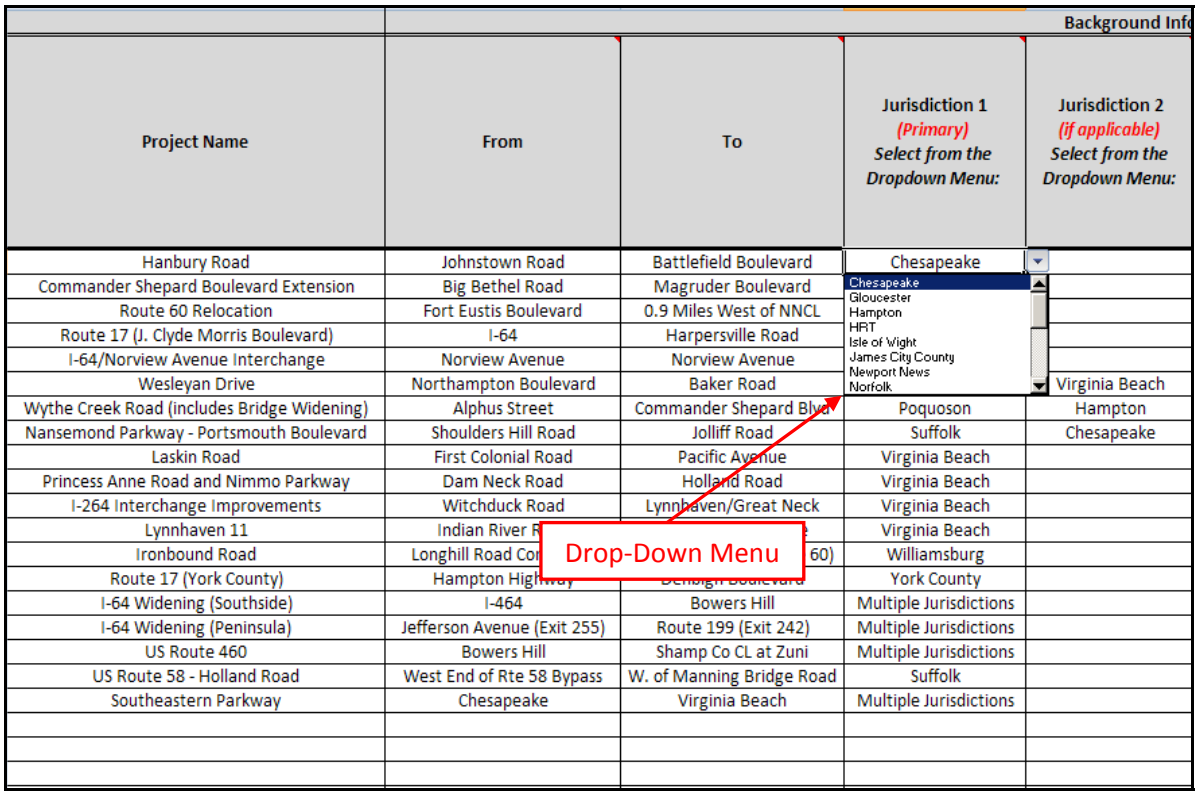
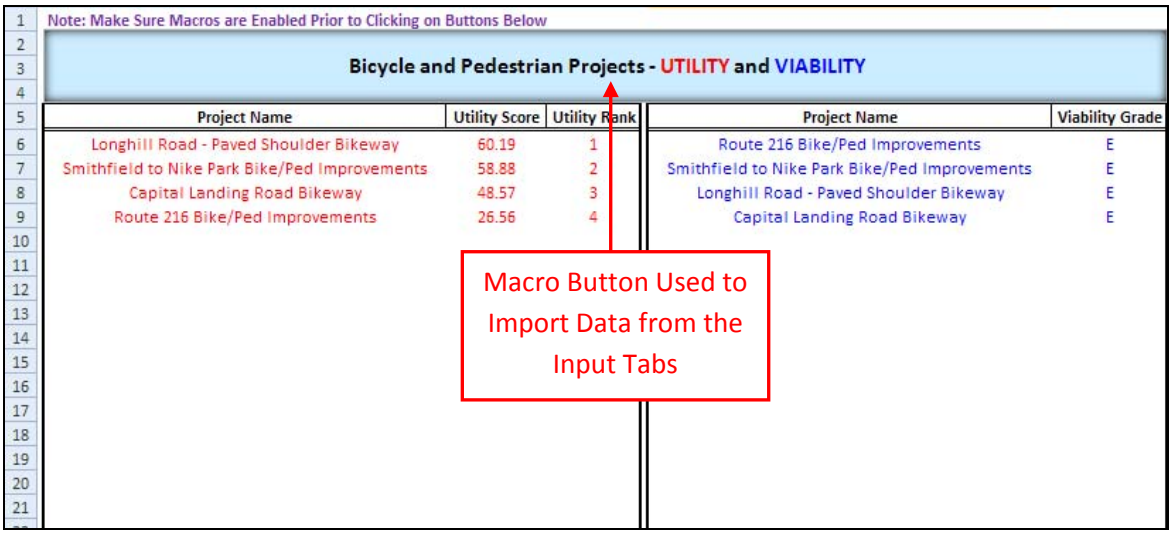


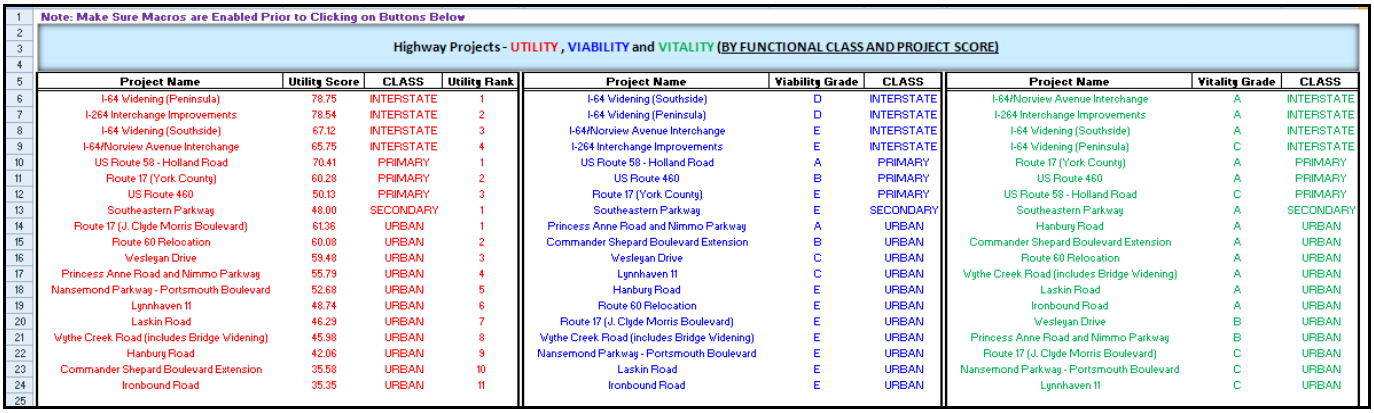
Figure 4 - Drop-Down Menu Example

Project scores are depicted in the various results tabs. Overall, there are ten results tabs (an overall results tab for each category plus two additional tabs ranking scores by VDOT roadway system and by individual criteria for each of the "Highways" and "Bridge/Tunnel" categories). All six of the overall results tabs include a column for the project name, utility score, utility score rank, and viability letter grade while four of the six overall results tabs include an additional letter grade for the economic vitality component. The two categories without an economic vitality component ("Bicycle and Pedestrian" and "Systems Management/Transportation Demand Management/Operational Improvements") have results tabs which resemble a format illustrated in **Figure 5** while the remaining categories have results tabs that resemble a format illustrated in **Figure 6**. To generate the overall ranked project scores and letter grades, users need to click a "button" with the tab name included (shown in light blue in **Figures 5** and **6**) to activate the macros. The macros will then efficiently import and sort all project utility numeric scores, project viability letter grades, and economic vitality letter grades from the respective project category tabs in descending order. This allows the user to quickly compare and evaluate project scores under each primary category. For the "Highways" and "Bridge/Tunnel" categories, an additional overall results tab is included which ranks the projects within each category of the VDOT roadway system (Interstate, Primary, Secondary, Urban, or Other). ***It is highly recommended that the user enable macros within the Excel file before clicking the button.***



* Note: Results depicted in screenshot are for illustrative purposes only and may not be representative of actual data

Figure 5 - Overall Result Tab Structure/Layout (for Categories without Economic Vitality Component)



* Note: Results depicted in screenshot are for illustrative purposes only and may not be representative of actual data

Figure 6 - Overall Result Tab Structure/Layout (for Categories with Economic Vitality Component)

The remaining two tabs yet to be described are detailed "Highways" and "Bridge/Tunnel" results by individual evaluation criteria. In each of these tabs is a set of additional buttons, one for each evaluation criterion in "Highways" and "Bridge/Tunnel," which import and sort all projects within the respective category by the numeric score received. This allows the user to view how a project ranked within a specific criterion, which is very useful when evaluating MOE thresholds. For example, a project may score high in *Congestion Level* but have minimal benefits relative to *System Continuity and Connectivity* or *Cost Effectiveness*. This level of detail provides users guidance into how they can improve their overall utility scores to increase the likelihood of receiving federal funding. **Figures 7 and 8** illustrate examples of the "Highways" detailed results and the "Bridge/Tunnel" detailed results, respectively. Full detailed results for the "Highways" and "Bridge/Tunnel" categories sorted by individual criteria are provided in **Appendix G2**.

Note: Make Sure Macros are Enabled Prior to Clicking on Buttons Below

Highways - Congestion Level

Project Name	Score	Rank
Princess Anne Road and Nimmo Parkway	15.10	1
I-64 Widening (Peninsula)	15.00	2
I-264 Interchange Improvements	14.54	3
Route 17 (York County)	13.94	4
I-64/Norview Avenue Interchange	13.50	5
Wesleyan Drive	12.73	6
Route 17 (J. Clyde Morris Boulevard)	12.33	7
I-64 Widening (Southside)	11.87	8
Southeastern Parkway	10.00	9
Lynnhaven 11	8.33	10
Nansemond Parkway - Portsmouth Boulevard	8.12	11
Route 60 Relocation	7.33	12
Laskin Road	6.50	13
US Route 460	6.07	14
Hanbury Road	6.02	15
Wythe Creek Road (includes Bridge Widening)	5.80	16
US Route 58 - Holland Road	5.02	17
Ironbound Road	4.22	18
Commander Shepard Boulevard Extension	3.33	19

Highways - System Continuity and Connectivity

Project Name	Score	Rank
I-264 Interchange Improvements	20.00	1
I-64 Widening (Southside)	20.00	1
I-64 Widening (Peninsula)	20.00	1
US Route 460	20.00	1
US Route 58 - Holland Road	20.00	1
Southeastern Parkway	20.00	1
Commander Shepard Boulevard Extension	13.25	7
Route 60 Relocation	13.25	7
Route 17 (J. Clyde Morris Boulevard)	13.25	7
I-64/Norview Avenue Interchange	13.25	7
Wythe Creek Road (includes Bridge Widening)	13.25	7
Nansemond Parkway - Portsmouth Boulevard	13.25	7
Lynnhaven 11	13.25	7
Hanbury Road	6.75	14
Wesleyan Drive	6.75	14
Laskin Road	6.75	14
Princess Anne Road and Nimmo Parkway	6.75	14
Ironbound Road	6.75	14
Route 17 (York County)	6.75	14

* Note: Results depicted in screenshot are for illustrative purposes only and may not be representative of actual data

Figure 7 - Detailed "Highways" Results Example

Note: Make Sure Macros are Enabled Prior to Clicking on Buttons Below

Bridge/Tunnel - Congestion Level

Project Name	Score	Rank
Hampton Roads Bridge Tunnel	21.39	1
Dominion Boulevard	21.23	2
Midtown Tunnel, MLK Extension	17.20	3
Hampton Roads Third Crossing (I-664 widening)	10.00	4
Hampton Roads Third Crossing (E-W connection)	10.00	4
James River Bridge Improvements	7.50	6
Lesner Bridge	5.03	7
Blackwater Bridge Replacement	0.33	8

Bridge/Tunnel - System Continuity and Connectivity

Project Name	Score	Rank
Hampton Roads Bridge Tunnel	10.00	1
Midtown Tunnel, MLK Extension	10.00	1
Hampton Roads Third Crossing (I-664 widening)	10.00	1
Hampton Roads Third Crossing (E-W connection)	10.00	1
James River Bridge Improvements	6.75	5
Dominion Boulevard	6.75	5
Lesner Bridge	6.75	5
Blackwater Bridge Replacement	3.50	8

* Note: Results depicted in screenshot are for illustrative purposes only and may not be representative of actual data

Figure 8 - Detailed "Bridge/Tunnel" Results Example

G1.2 Data Inputs

Data inputs in the tool are categorized as either background information or evaluation criteria information. Each primary project category contains different input information based on the types of projects considered. The various evaluation criteria for each category are explained in the MOEs chapter of the report (Chapter 6). The following illustrates the specific background project data inputs required for each project category with a detailed description of each. In each of the criteria, labels are placed describing the type of input. ***Manual inputs*** are numeric or text entries needing to be entered into the tool, ***dropdown inputs*** are inputs (located in the reference tab) that the user will select from an established dropdown menu, and ***reference inputs*** are values which are calculated based on other values (either manual, dropdown, or both in nature). Individual project application forms were developed such

that each municipality or agency will be responsible for providing a portion of the objective inputs while all subjective inputs will be entered by a neutral party.

G1.2.1 "Highways" Project Background Inputs

- **Project Name***:* The "Highways" project name *(manual input)*.

- **From** and **To:** The geographical reference point of where the project begins and ends. Examples of geographical reference points include intersecting roadway, milepost, physical boundary, or political boundary *(manual input)*.

- **Jurisdiction 1***:* Indicates the primary jurisdiction where the project will be located *(dropdown input)*. Select the appropriate jurisdiction from the drop-down menu for the following scenarios:
    - Project is located in one jurisdiction – Choose the appropriate jurisdiction from the drop-down menu.
    - Project is located in two jurisdictions – Choose the primary jurisdiction under **Jurisdiction 1** column and the secondary jurisdiction under the **Jurisdiction 2** column.
    - Project is located in more than two jurisdictions – Choose Multiple Jurisdictions from the drop-down menu.

- **Jurisdiction 2***:* Indicates the secondary jurisdiction where the project will be located using the drop-down menu. Only select an input for a project that is located within two jurisdictions. If the project is located in only one jurisdiction or more than two jurisdictions, no input is required under **Jurisdiction 2** *(dropdown input).*

- **Improvement Description***:* A short description of the type of work proposed with the project *(manual input)*. Examples for input include:
    - Roadway Widening – Indicate the number of existing and proposed lanes
    - New Alignment – Indicate the proposed laneage
    - Ramp Improvements
    - Interchange Improvements

- **Length***:* Total length of the project in miles. The distance entered should be the distance between the geographical reference points listed in the **From** and **To** data columns *(manual input)*.

- **Existing ADT***:* Existing ADT volumes are the current year average 24-hour, bidirectional volumes throughout the project limits. If the roadway segments for a project area do not currently exist, manually enter zero for this input *(manual input)*.

- **Future ADT:** Future ADT volumes are the forecasted future year (currently 2030) average bidirectional, 24-hour volumes throughout the project limits *(manual input)*.

- **Existing V/C Ratio***:* The ratio of existing ADT volumes to the average existing daily capacity of the roadway segments throughout the study area. V/C ratios less than 1.0 indicate a roadway segment operating under capacity. V/C ratios greater than 1.0 indicate a roadway segment operating over capacity. If the roadway segment does not currently exist, manually enter 0.00 for this input *(manual input)*.

- **Forecasted V/C Ratio***:* The ratio of future ADT volumes to the average future daily capacity of the roadway segments throughout the study area. V/C ratios less than 1.0 indicate a roadway segment operating under capacity. V/C ratios greater than 1.0 indicate a roadway segment operating over capacity *(manual input)*.

- **Future Daily VMT***:* Average 24-hour volume in each direction throughout the project limits in Year 2030 **(Future ADT)** multiplied by the **Length** of the roadway segment *(reference input)*.

- **Total Crashes in Past Three Years***:* Total number of crashes occurring within the project limits, in each direction, during the past three years. Crash data may be obtained from VDOT, the DMV, or local jurisdictions. It is recommended that entire years of data be used for input. Therefore, if the current date is June 15, 2009, then use the total number of crashes which occurred within the project limits from January 1, 2006 through December 31, 2008. If the roadway segment does not currently exist, manually enter a zero *(manual input)*.

- **Jurisdictional Average Crash Rate (Per Million VMT)***:* Jurisdictional average crash rate per million vehicle miles traveled for all roadway segments within the project area. If the project is proposed under multiple jurisdictions, average the crash rates from each jurisdiction. The jurisdictional average crash rate per million vehicle miles traveled may be obtained from the HRTPO, VDOT, or the local jurisdiction *(manual input)*.

- **Roadway System Classification***:* Existing roadway system classification, as per VDOT, of the roadway segments included within the project area selected from a drop-down menu. Roadway system classification types provided in the drop-down menu include **Interstate, Primary, Secondary, Urban,** and **Other**. If the roadway segment has multiple roadway system classifications identified, select the classification that exists for the longest portion of the roadway segment. This input provides for an additional sorting of "Highways" projects by roadway system for cases where specific funding streams exist *(dropdown input)*.

- **Estimated Cost of Project***:* Estimated total project cost in dollars *(manual input)*.

G1.2.2 "Bridge/Tunnel" Project Background Inputs

- **Project Name***:* The "Bridge/Tunnel" project name *(manual input)*.

- **Primary Jurisdiction***:* Indicates the primary jurisdiction where the project will be located *(dropdown input)*. Select the appropriate jurisdiction from the drop-down menu for the following scenarios:
    - Project is located in one jurisdiction – Choose the appropriate jurisdiction from the drop-down menu.
    - Project is located in two or more jurisdictions – Choose Multiple Jurisdictions from the drop-down menu.

- **Improvement Description***:* A short description of the type of work proposed with the project *(manual input)*. Examples for input include:
    - Widening – Indicate the number of existing and proposed lanes
    - New Alignment – Indicate the proposed laneage
    - Widening and New Alignment
    - Improvements
    - Replacement

- **Length***:* Total length of the project in miles *(manual input)*.

- **Existing ADT***:* Existing ADT volumes are the current year average 24-hour, bidirectional volumes throughout the project limits. If the roadway segments for a project area do not currently exist, manually enter zero for this input *(manual input)*.

- **Future ADT:** Future ADT volumes are the forecasted future year (currently 2030) average bidirectional, 24-hour volumes throughout the project limits *(manual input)*.

- **Existing V/C Ratio***:* The ratio of existing ADT volumes to the average existing daily capacity of the roadway segments throughout the study area. V/C ratios less than 1.0 indicate a roadway segment operating under capacity. V/C ratios greater than 1.0 indicate a roadway segment operating over capacity. If the roadway segment does not currently exist, manually enter 0.00 for this input *(manual input)*.

- **Forecasted V/C Ratio***:* The ratio of future ADT volumes to the average future daily capacity of the roadway segments throughout the study area. V/C ratios less than 1.0 indicate a roadway segment operating under capacity. V/C ratios greater than 1.0 indicate a roadway segment operating over capacity *(manual input)*.

- **Future Daily VMT***:* Average 24-hour volume in each direction throughout the project limits in Year 2030 **(Future ADT)** multiplied by the **Length** of the roadway segment *(reference input)*.

- **Total Crashes in Past Three Years***:* Total number of crashes occurring within the project limits, in each direction, during the past three years. Crash data may be obtained from VDOT, the DMV, or local jurisdictions. It is recommended that entire years of data be used for input. Therefore, if the

current date is June 15, 2009, then use the total number of crashes which occurred within the project limits from January 1, 2006 through December 31, 2008. If the roadway segment does not currently exist, manually enter a zero *(manual input)*.

- **Jurisdictional Average Crash Rate (Per Million VMT)***:* Jurisdictional average crash rate per million vehicle miles traveled for all roadway segments within the project area. If the project is proposed under multiple jurisdictions, average the crash rates from each jurisdiction. The jurisdictional average crash rate per million vehicle miles traveled may be obtained from the HRTPO, VDOT, or the local jurisdiction *(manual input)*.

- **Roadway System Classification***:* Existing roadway system classification, as per VDOT, of the roadway segments included within the project area selected from a drop-down menu. Roadway system classification types provided in the drop-down menu include **Interstate, Primary, Secondary, Urban,** and **Other**. If the roadway segment has multiple roadway system classifications identified, select the classification that exists for the longest portion of the roadway segment. This input provides for an additional sorting of "Highways" projects by roadway system for cases where specific funding streams exist *(dropdown input)*.

- **Bridge or Tunnel Project***:* The project type (bridge or tunnel), selected from the provided dropdown menu *(dropdown input)*.

- **Estimated Cost of Project***:* Estimated total project cost in dollars *(manual input)*.

G1.2.3 "Bicycle and Pedestrian" Project Background Inputs

- **Project Name***:* The "Bicycle and Pedestrian" project name *(manual input)*.

- **From** and **To***:* The geographical reference point of where the project begins and ends. Examples of geographical reference points include intersecting roadway, milepost, physical boundary, or political boundary. If the project does not have geographical physical limits, leave the fields blank. Blank fields for these inputs do not have a bearing on project scoring *(manual input)*.

- **Primary Jurisdiction***:* Indicates the primary jurisdiction where the project will be located *(dropdown input)*. Select the appropriate jurisdiction from the drop-down menu for the following scenarios:
    - Project is located in one jurisdiction – Choose the appropriate jurisdiction from the drop-down menu.
    - Project is located in two or more jurisdictions – Choose Multiple Jurisdictions from the drop-down menu.

- **Improvement Description***:* A short description of the type of work proposed with the project *(manual input)*. Examples for input include:

- Bicycle Improvements
- Pedestrian Improvements
- Bicycle and Pedestrian Improvements
- New Bikeway
- New Pedestrian Facility

- **Population within a 1.5-Mile Radius of Project***:* Population served by the project within a 1.5-mile radius, which should only include people residing no further than 1.5 miles from the project area *(manual input)*.

- **Length***:* Total length of the project in miles. The distance entered should be the distance between the geographical reference points listed in the **From** and **To** data columns. If no values are entered into the **From** and **To** columns, leave the field blank *(manual input)*.

- **Estimated Cost of Project***:* Estimated total project cost in dollars *(manual input)*.

G1.2.4 "Systems Management/Transportation Demand Management/Operational Improvements" Project Background Inputs

- **Project Name***:* The "Systems Management/TDM/Operational Improvements" project name *(manual input)*.

- **From** and **To***:* The geographical reference point of where the project begins and ends. Examples of geographical reference points include intersecting roadway, milepost, physical boundary, or political boundary. If the project does not have geographical physical limits, leave the fields blank. Blank fields for these inputs do not have a bearing on project scoring *(manual input)*.

- **Primary Jurisdiction***:* Indicates the primary jurisdiction where the project will be located *(dropdown input)*. Select the appropriate jurisdiction from the drop-down menu for the following scenarios:
  - Project is located in one jurisdiction – Choose the appropriate jurisdiction from the drop-down menu.
  - Project is located in two or more jurisdictions – Choose Multiple Jurisdictions from the drop-down menu.

- **Systems Management, TDM, or Operational Improvement Project***:* Indicates the project type (systems management, TDM, or operational improvements) from the provided drop-down menu *(dropdown input)*.

- **Length***:* Total length of the project in miles. The distance entered should be the distance between the geographical reference points listed in the **From** and **To** data columns. If no values are entered into the **From** and **To** columns, leave the field blank *(manual input)*.

- **Estimated Cost of Project***:* Estimated total project cost in dollars *(manual input)*.

G1.2.5 "Transit" Project Background Inputs

- **Project Name***:* The "Transit" project name *(manual input)*.

- **From** and **To***:* The geographical reference point of where the project begins and ends. Examples of geographical reference points include intersecting roadway, milepost, physical boundary, or political boundary. If the project does not have geographical physical limits, leave the fields blank. Blank fields for these inputs do not have a bearing on project scoring *(manual input)*.

- **Primary Jurisdiction***:* Indicates the primary jurisdiction where the project will be located *(dropdown input)*. Select the appropriate jurisdiction from the drop-down menu for the following scenarios:
    - Project is located in one jurisdiction – Choose the appropriate jurisdiction from the drop-down menu.
    - Project is located in two or more jurisdictions – Choose Multiple Jurisdictions from the drop-down menu.

- **Estimated Annual Ridership***:* Total estimated number of people expected to use the transit service annually if the project was constructed or the current estimated number of people using an existing transit service if the project improves an existing service/facility *(manual input)*.

- **Length***:* Total length of the project in miles. The distance entered should be the distance between the geographical reference points listed in the **From** and **To** data columns. If no values are entered into the **From** and **To** columns, leave the field blank *(manual input)*.

- **Estimated Total Capital Cost of Project (Annualized)***:* Cost to purchase required right-of-way, design, construct, and/or implement the transit service divided by the total expected life of the project *(manual input)*.

- **Estimated Total Operating/Maintenance Cost of Project (Annualized)***:* Cost to maintain the transit service divided by the total expected life of the project *(manual input).*

G1.2.6 "Intermodal" Project Background Inputs

- **Project Name***:* The "Intermodal" project name *(manual input)*.

- **From** and **To:** The geographical reference point of where the project begins and ends. Examples of geographical reference points include intersecting roadway, milepost, physical boundary, or political boundary. If the project does not have geographical physical limits, leave the fields blank. Blank fields for these inputs do not have a bearing on project scoring *(manual input)*.

- **Primary Jurisdiction***:* Indicates the primary jurisdiction where the project will be located *(dropdown input)*. Select the appropriate jurisdiction from the drop-down menu for the following scenarios:
    - Project is located in one jurisdiction – Choose the appropriate jurisdiction from the drop-down menu.
    - Project is located in two or more jurisdictions – Choose Multiple Jurisdictions from the drop-down menu.

- **Length***:* Total length of the project in miles. The distance entered should be the distance between the geographical reference points listed in the **From** and **To** data columns. If no values are entered into the **From** and **To** columns, leave the field blank *(manual input)*.

- **Estimated Cost of Project***:* Estimated total project cost in dollars *(manual input)*.

Appendix G2

Tool Validity Scoring Results, Sorted by each Individual Criterion

("Highways" and "Bridge/Tunnel" Categories only)

Highway Projects Sorted by Individual Criteria

Highways - Congestion Level

Project Name	Score	Rank
Princess Anne Road and Nimmo Parkway	20.10	1
I-64 Widening (Peninsula)	20.00	2
I-264 Interchange Improvements	19.54	3
Route 17 (York County)	18.94	4
I-64/Norview Avenue Interchange	18.50	5
Wesleyan Drive	17.73	6
Route 17 (J. Clyde Morris Boulevard)	17.33	7
I-64 Widening (Southside)	14.37	8
Southeastern Parkway	10.00	9
Lynnhaven 11	8.33	10
Nansemond Parkway - Portsmouth Boulevard	8.12	11
Route 60 Relocation	7.33	12
Laskin Road	6.50	13
US Route 460	6.07	14
Hanbury Road	6.02	15
Wythe Creek Road (includes Bridge Widening)	5.80	16
US Route 58 - Holland Road	5.02	17
Ironbound Road	4.22	18
Commander Shepard Boulevard Extension	3.33	19

Highways - System Continuity and Connectivity

Project Name	Score	Rank
I-264 Interchange Improvements	25.00	1
I-64 Widening (Southside)	25.00	1
I-64 Widening (Peninsula)	25.00	1
US Route 460	25.00	1
US Route 58 - Holland Road	25.00	1
Southeastern Parkway	25.00	1
Commander Shepard Boulevard Extension	16.75	7
Route 60 Relocation	16.75	7
Route 17 (J. Clyde Morris Boulevard)	16.75	7
I-64/Norview Avenue Interchange	16.75	7
Wythe Creek Road (includes Bridge Widening)	16.75	7
Nansemond Parkway - Portsmouth Boulevard	16.75	7
Lynnhaven 11	16.75	7
Hanbury Road	8.25	14
Wesleyan Drive	8.25	14
Laskin Road	8.25	14
Princess Anne Road and Nimmo Parkway	8.25	14
Ironbound Road	8.25	14
Route 17 (York County)	8.25	14

Highways - Cost Effectiveness

Project Name	Score	Rank
Route 60 Relocation	15.00	1
I-64/Norview Avenue Interchange	15.00	1
Wesleyan Drive	15.00	1
I-264 Interchange Improvements	15.00	1
Route 17 (York County)	15.00	1
US Route 58 - Holland Road	14.57	6
I-64 Widening (Peninsula)	13.00	7
Route 17 (J. Clyde Morris Boulevard)	10.28	8
Lynnhaven 11	10.16	9
Laskin Road	10.04	10
Wythe Creek Road (includes Bridge Widening)	9.93	11
Princess Anne Road and Nimmo Parkway	8.94	12
Hanbury Road	8.04	13
Ironbound Road	6.88	14
Nansemond Parkway - Portsmouth Boulevard	6.81	15
I-64 Widening (Southside)	4.50	16
Commander Shepard Boulevard Extension	3.50	17
US Route 460	3.16	18
Southeastern Parkway	0.00	19

Highways - Land Use Compatibility

Project Name	Score	Rank
Hanbury Road	10.00	1
Commander Shepard Boulevard Extension	10.00	1
Route 60 Relocation	10.00	1
Route 17 (J. Clyde Morris Boulevard)	10.00	1
Wesleyan Drive	10.00	1
Nansemond Parkway - Portsmouth Boulevard	10.00	1
Laskin Road	10.00	1
Princess Anne Road and Nimmo Parkway	10.00	1
Lynnhaven 11	10.00	1
Ironbound Road	10.00	1
I-64 Widening (Southside)	10.00	1
I-64 Widening (Peninsula)	10.00	1
US Route 58 - Holland Road	10.00	1
Southeastern Parkway	10.00	1
I-64/Norview Avenue Interchange	5.00	15
Wythe Creek Road (includes Bridge Widening)	5.00	15
I-264 Interchange Improvements	5.00	15
Route 17 (York County)	5.00	15
US Route 460	5.00	15

Highways - Safety and Security

Project Name	Score	Rank
US Route 58 - Holland Road	8.07	1
Route 17 (York County)	7.09	2
US Route 460	6.40	3
Hanbury Road	6.25	4
I-64/Norview Avenue Interchange	6.00	5
I-264 Interchange Improvements	6.00	5
Route 60 Relocation	5.25	7
Nansemond Parkway - Portsmouth Boulevard	5.25	7
I-64 Widening (Southside)	5.25	7
I-64 Widening (Peninsula)	5.25	7
Route 17 (J. Clyde Morris Boulevard)	4.50	11
Laskin Road	4.50	11
Wesleyan Drive	4.00	13
Wythe Creek Road (includes Bridge Widening)	3.00	14
Princess Anne Road and Nimmo Parkway	1.50	15
Lynnhaven 11	1.50	15
Ironbound Road	1.50	15
Commander Shepard Boulevard Extension	0.00	18
Southeastern Parkway	0.00	18

Highways - Infrastructure Pavement Condition

Project Name	Score	Rank
Laskin Road	5.00	1
Princess Anne Road and Nimmo Parkway	5.00	1
I-264 Interchange Improvements	5.00	1
Route 17 (York County)	5.00	1
I-64 Widening (Southside)	5.00	1
Route 60 Relocation	3.75	6
Nansemond Parkway - Portsmouth Boulevard	3.75	6
US Route 58 - Holland Road	3.75	6
Hanbury Road	2.50	9
Route 17 (J. Clyde Morris Boulevard)	2.50	9
I-64/Norview Avenue Interchange	2.50	9
Wesleyan Drive	2.50	9
Wythe Creek Road (includes Bridge Widening)	2.50	9
Ironbound Road	2.50	9
I-64 Widening (Peninsula)	2.50	9
US Route 460	2.50	9
Commander Shepard Boulevard Extension	0.00	17
Lynnhaven 11	0.00	17
Southeastern Parkway	0.00	17

Highway Projects Sorted by Individual Criteria

Highways - Modal Enhancements		
Project Name	Score	Rank
US Route 58 - Holland Road	4.00	1
Wythe Creek Road (includes Bridge Widening)	3.00	2
I-264 Interchange Improvements	3.00	2
I-64 Widening (Southside)	3.00	2
I-64 Widening (Peninsula)	3.00	2
Southeastern Parkway	3.00	2
Commander Shepard Boulevard Extension	2.00	7
Route 60 Relocation	2.00	7
I-64/Norview Avenue Interchange	2.00	7
Wesleyan Drive	2.00	7
Nansemond Parkway - Portsmouth Boulevard	2.00	7
Laskin Road	2.00	7
Princess Anne Road and Nimmo Parkway	2.00	7
Lynnhaven 11	2.00	7
Ironbound Road	2.00	7
US Route 460	2.00	7
Hanbury Road	1.00	17
Route 17 (York County)	1.00	17
Route 17 (J. Clyde Morris Boulevard)	0.00	19

Highways - Project Viability		
Project Name	Score	Rank
Princess Anne Road and Nimmo Parkway	50.00	1
US Route 58 - Holland Road	50.00	1
US Route 460	47.50	3
Commander Shepard Boulevard Extension	40.00	4
Lynnhaven 11	35.00	5
Wesleyan Drive	30.00	6
I-64 Widening (Southside)	15.00	7
I-64 Widening (Peninsula)	15.00	7
Hanbury Road	10.00	9
Route 60 Relocation	10.00	9
Route 17 (J. Clyde Morris Boulevard)	10.00	9
I-64/Norview Avenue Interchange	10.00	9
Wythe Creek Road (includes Bridge Widening)	10.00	9
Nansemond Parkway - Portsmouth Boulevard	10.00	9
Laskin Road	10.00	9
Route 17 (York County)	10.00	9
Southeastern Parkway	10.00	9
I-264 Interchange Improvements	0.00	18
Ironbound Road	0.00	18

Bridge/Tunnel Projects Sorted by Individual Criteria

Bridge/Tunnel - Congestion Level

Project Name	Score	Rank
Hampton Roads Bridge Tunnel	26.39	1
Dominion Boulevard	26.23	2
Midtown Tunnel, MLK Extension	22.20	3
Hampton Roads Third Crossing (I-664 widening)	10.00	4
Lesner Bridge	7.53	5
James River Bridge Improvements	7.50	6
Blackwater Bridge Replacement	0.33	7
Hampton Roads Third Crossing (E-W connection)	0.00	8

Bridge/Tunnel - System Continuity and Connectivity

Project Name	Score	Rank
Hampton Roads Bridge Tunnel	10.00	1
Midtown Tunnel, MLK Extension	10.00	1
Hampton Roads Third Crossing (I-664 widening)	10.00	1
Hampton Roads Third Crossing (E-W connection)	10.00	1
James River Bridge Improvements	6.75	5
Dominion Boulevard	6.75	5
Lesner Bridge	6.75	5
Blackwater Bridge Replacement	3.50	8

Bridge/Tunnel - Cost Effectiveness

Project Name	Score	Rank
James River Bridge Improvements	15.00	1
Dominion Boulevard	15.00	1
Hampton Roads Third Crossing (I-664 widening)	15.00	1
Hampton Roads Bridge Tunnel	14.54	4
Hampton Roads Third Crossing (E-W connection)	13.33	5
Lesner Bridge	11.83	6
Midtown Tunnel, MLK Extension	11.01	7
Blackwater Bridge Replacement	0.00	8

Bridge/Tunnel - Land Use Compatibility

Project Name	Score	Rank
James River Bridge Improvements	10.00	1
Hampton Roads Bridge Tunnel	10.00	1
Midtown Tunnel, MLK Extension	10.00	1
Dominion Boulevard	10.00	1
Hampton Roads Third Crossing (I-664 widening)	10.00	1
Blackwater Bridge Replacement	5.00	6
Lesner Bridge	5.00	6
Hampton Roads Third Crossing (E-W connection)	5.00	6

Bridge/Tunnel - Safety and Security

Project Name	Score	Rank
Midtown Tunnel, MLK Extension	7.50	1
Dominion Boulevard	7.50	1
Lesner Bridge	7.50	1
Hampton Roads Bridge Tunnel	6.50	4
Blackwater Bridge Replacement	6.25	5
James River Bridge Improvements	5.50	6
Hampton Roads Third Crossing (I-664 widening)	5.50	6
Hampton Roads Third Crossing (E-W connection)	5.50	6

Bridge/Tunnel - Infrastructure Condition

Project Name	Score	Rank
Hampton Roads Bridge Tunnel	20.00	1
Lesner Bridge	20.00	1
Midtown Tunnel, MLK Extension	13.25	3
Blackwater Bridge Replacement	10.00	4
James River Bridge Improvements	10.00	4
Dominion Boulevard	10.00	4
Hampton Roads Third Crossing (I-664 widening)	0.00	7
Hampton Roads Third Crossing (E-W connection)	0.00	7

Bridge/Tunnel - Modal Enhancements

Project Name	Score	Rank
Hampton Roads Third Crossing (I-664 widening)	4.50	1
Hampton Roads Third Crossing (E-W connection)	4.50	1
Hampton Roads Bridge Tunnel	4.00	3
Midtown Tunnel, MLK Extension	4.00	3
Dominion Boulevard	4.00	3
James River Bridge Improvements	2.50	6
Lesner Bridge	1.50	7
Blackwater Bridge Replacement	0.50	8

Bridge/Tunnel - Project Viability

Project Name	Score	Rank
Midtown Tunnel, MLK Extension	90.00	1
Dominion Boulevard	60.00	2
Hampton Roads Third Crossing (I-664 widening)	32.50	3
Hampton Roads Third Crossing (E-W connection)	22.50	4
James River Bridge Improvements	10.00	5
Lesner Bridge	7.50	6
Blackwater Bridge Replacement	0.00	7
Hampton Roads Bridge Tunnel	0.00	7

Appendix H

Project Application Forms

Title

Instructions/Description

GENERAL INFORMATION – FORM A

Primary Locality/Agency: _____	Date: _____
Prepared By: _____	Phone: _____
E-Mail: _____	Fax: _____
UPC #: _____	
Project Name: _____	

Project Location: (Brief description of project location, including project extents and length of project in miles.)

Project Description: (Brief description of project. If applicable, include additional data or maps as attachments.)

Has any additional local or other funding been committed to the project above and beyond the required local match? ☐Yes ☐No

If yes, in terms of the total project budget, what percentage of additional local or other funding has been committed? _____%

Are there any documented federal mandates requiring that the project be constructed? ☐Yes ☐No

Are all plans for the project currently complete and ready for advertisement: ☐Yes ☐No

Is the project completely funded? ☐Yes ☐No

To what level has permitting been completed?

- ☐ Right-of-Way
- ☐ EIS
- ☐ Environmental Clearance (Transit Projects Only)
- ☐ FTA Approval for Final Design (Transit Projects Only)

Project Type

Please select the associated form to complete your application.

- ☐ Highways Project (**Form B**)
- ☐ Bridge or Tunnel Project (**Form C**)
- ☐ Bicycle or Pedestrian Project (**Form D**)
- ☐ Systems Management or Operational Improvement Project (**Form E**)
- ☐ Transportation Demand Management (TDM) Project (**Form F**)
- ☐ Transit Project (**Form G**)
- ☐ Intermodal Project (**Form H**)

Highways Project Application Form
Form B

Project Name: _____

Estimated Total Project Cost: $_____

Statewide Roadway System:

- ☐ Interstate
- ☐ Primary
- ☐ Secondary
- ☐ Urban
- ☐ Other _____

Improvement Description (Such as widening, new alignment, number of lanes, etc.):

Does the project improve an established and documented Incident Management or Evacuation Route?
☐Yes ☐No

List all documentation (approved by an elected body) which supports the project's compatibility with existing land use patterns and future plans/development.

How will the project enhance other modes of transportation?

What geometric deficiencies currently exist in the project area? Which deficiencies will this project address?

What is the Critical Condition Index (CCI) of the subject roadway? _____

(Optional) How will the project impact the continuity and connectivity of the region's transportation network?

(Optional) How will the project improve vehicular access to freight distribution facilities, ports, major industrial clients, or employment/population centers?

Bridge or Tunnel Application Form
Form C

Project Name: _____

Estimated Total Project Cost: $_____

Statewide Roadway System:

- ☐ Interstate
- ☐ Primary
- ☐ Secondary
- ☐ Urban
- ☐ Other _____

Improvement Description (Such as widening, new alignment, number of lanes, etc.):

Does the project improve an established and documented Incident Management or Evacuation Route?
☐Yes ☐No

Will the project provide a continuous maritime crossing? ☐Yes ☐No

How will the project enhance other modes of transportation?

What geometric deficiencies currently exist in the project area? Which deficiencies will this project address?

(Optional) How will the project impact the continuity and connectivity of the region's transportation network?

(Optional) How will the project improve vehicular access to freight distribution facilities, ports, major industrial clients, or employment/population centers?

TUNNEL PROJECTS ONLY
What is the age of the subject tunnel? _____ years old When was the last major repair ($5M or more) completed for the subject tunnel? _____ What is the estimated cost of necessary repairs for the subject tunnel? _____

BRIDGE PROJECTS ONLY
What is the Bridge Sufficiency Rating of the subject bridge? _____

Bicycle or Pedestrian Project Application Form
Form D

Project Name: _____

Estimated Cost of Project: $_____

How does the project eliminate barriers to bicyclists/pedestrians? If the project completes a gap across a major barrier (e.g., street), please specify.

Will the project connect at least two existing bicycle or pedestrian facilities? ☐Yes ☐No

How will the project enhance access to transit, local, or regional destinations? (e.g. schools, employment centers, parks, or high density residential areas)

Is the project being completed to improve/address existing safety concerns? ☐Yes ☐No

How will this project enhance other modes of transportation?

List all documentation (approved by an elected body) which supports the project's compatibility with existing land use patterns and future plans/development.

(Optional) How will the project impact the continuity and connectivity of the region's bicycle/pedestrian network?

Systems Management or Operational Improvement Project Application Form
Form E

Project Name: _____

Estimated Cost of Project: $_____

Project Type: ☐ Systems Management Project

☐ Operational Improvement Project

Does the project improve an established and documented Incident Management or Evacuation Route?
☐Yes ☐No

Does the project include the implementation of Emergency Vehicle Preemption or Incident Detection Systems?
☐Yes ☐No

How will the project reduce the number of crashes?

Is the project officially documented within the Regional ITS Strategic Plan? ☐Yes ☐No

How will the project improve communications amongst various operating agencies?

How will the project enhance other modes of transportation?

(Optional) How will the project impact mobility or accessibility needs with the region?

Transportation Demand Management (TDM) Project Application Form
Form F

Project Name: _____

Estimated Cost of Project: $_____

Does the project improve an established and documented Incident Management or Evacuation Route?
☐Yes ☐No

Does the project include the implementation of Emergency Vehicle Preemption or Incident Detection Systems?
☐Yes ☐No

How will the project reduce the number of crashes?

Is the project officially documented within the Regional ITS Strategic Plan? ☐Yes ☐No

How will the project improve communications amongst various operations agencies?

How will the project enhance other modes of transportation?

(Optional) How will the project impact mobility or accessibility needs with the region?

List any new projected employers who would offer TDM Programs with this project (specify TDM Program with employer).

If the project is implemented, what is the projected total percentage of employees who would participate in ridesharing initiatives? _____% If the project is implemented, what is the projected total percentage of employees who would walk/bike to work? _____%

Will the project incorporate any parking management strategies (such as long- vs. short-term parking, special carpool/hybrid parking, or the implementation of parking fees)? Explain.

Transit Project Application Form
Form G

Project Name: _____

Project Cost:

Estimated Total Capital Cost of Project (Annualized): $_____

Estimated Total Operating Cost of Project (Annualized): $_____

This is a(n): ☐ New Project

- If new, what is the Forecasted **Daily** Ridership? _____

☐ Improvement to an existing route/service

- If existing, what is the Existing **Daily** Ridership? _____

Estimated **Annual** travel time savings per rider if project is completed: _____

Estimated **Annual** Ridership (Proposed): _____

Estimated frequency of service? _____

List all documentation (approved by an elected body) which supports the project's compatibility with existing land use patterns and future plans/development.

How will this project enhance other modes of transportation?

(Optional) How will the project impact the continuity and connectivity of the region's transit network?

(Optional) How will the project improve transit access to freight distribution facilities, ports, major industrial clients, or employment/population centers?

Intermodal Project Application Form
Form H

Project Name: _____

Project Financials:
Estimated Total Project Cost: $_____
Estimated Increase in Revenue with the Proposed Project: $_____

How will the project improve access to freight distribution facilities, ports, major industrial clients, or employment/population centers?

How will this project enhance other modes of transportation?

(Optional) How will this project better accommodate intermodal movements by reducing or removing conflicts between intermodal movements?

Appendix I

Tool Validation Analysis for Project Utility and Project Viability Components

Appendix I Table of Contents

Appendix I List of Figures

Appendix I – Tool Validation Analysis

In order to test the validation of the prioritization tool's methodology and structure, a tool validation analysis was previously performed considering the project utility and project viability components. The tool validation analysis was performed on a sampling of 41 initial projects spanning all six project categories. The projects included both regionally significant mega projects such as the Hampton Roads Bridge-Tunnel and the Widening of I-64 (Southside and Peninsula) and local/multijurisdictional projects including minor road widenings and bike paths. The end goal of this validation test was to ensure the validity and reliability of the resulting tool's output from a collection of sample transportation improvement projects. A more detailed description of the tool validation projects is provided below, followed by a description of the analysis procedure and results.

I.1 Tool Validation Projects

The tool validation project selection process was a key step in evaluating the tool's effectiveness; validity of the categories, criteria, and MOEs; and reasonableness of results. The initial list of 41 tool validation projects was refined several times through multiple discussions and meetings with the Steering Committee, TTAC, TAC, and HRTPO Board. However, throughout all of the revisions, there were three guidelines associated with the selection of tool validation projects that were maintained:

1. **Eligibility**: Only projects that had not been started were eligible. Projects or portions of projects which were already started or completed could not be considered. Additionally, there were 12 projects specifically listed in the scope of services which needed to be included in the tool validation analysis. These 12 projects are discussed in more detail later in this chapter.
2. **Variety**: At least three projects were required within each category. Without at least three, a sensible comparison of project scores could not be made to ensure that all weighting factors and MOEs were adequate.
3. **Representation**: The Program Prioritization tool needed to be evaluated based on an equitable representation of the entire HRTPO community such that each of the agencies/localities had at least one project included in the tool validation analysis. This is a critical objective to provide a methodology and tool which will be ultimately adopted, consensus-based, and beneficial to all municipalities within the region.

There were 12 projects identified during the initial scoping meetings to be included in the tool validation analysis. These projects were selected to evaluate the tool methodology and include the following:

- I-64 Widening (Peninsula)
- I-64 Widening (Southside)
- Southeastern Parkway/Dominion Boulevard
- U.S. Route 460
- U.S. Route 58 (Holland Road)
- Hampton Roads Bridge-Tunnel
- Midtown Tunnel, MLK Extension
- Phases 1 and 2 of the Hampton Roads Third Crossing
- Lesner Bridge
- Intermodal Connector + Chambers Interchange
- Virginia Beach Light Rail Transit Extension
- Peninsula Fixed Guideway

Throughout the tool validation analysis, it was recommended that the Hampton Roads Third Crossing and the Southeastern Parkway/Dominion Boulevard projects be evaluated as four individual projects so that the merits of each phase could be evaluated. This brings the new grand total to 43 projects in the tool validation project list.

Hampton Roads Third Crossing:

1. ***Hampton Roads Third Crossing Phase 1****:* Includes the widening of I-664 from Coliseum Drive, through the Monitor-Merrimac Memorial Bridge-Tunnel, to Bowers Hill and the interchange of I-64/I-264
2. ***Hampton Roads Third Crossing Phase 2****:* Includes the East-West Connection from the Monitor-Merrimac Memorial Bridge-Tunnel to I-564

Southeastern Parkway/Dominion Boulevard:

1. ***Southeastern Parkway:*** This project includes only the Southeastern Parkway project
2. ***Dominion Boulevard:*** This project includes the improvements to the Steel Bridge and along Dominion Boulevard

There were 29 other projects evaluated in addition to the previously listed 14. These additional projects included:

- I-264 Interchange Improvements
- I-64/Norview Avenue Interchange Improvements
- Route 17 – J. Clyde Morris Boulevard
- Route 60 Relocation
- Princess Anne Road/Nimmo Parkway
- Route 17 – York County
- Wesleyan Drive
- Laskin Road
- Nansemond Road – Portsmouth Boulevard
- Lynnhaven 11
- Hanbury Road
- Commander Shepard Boulevard Extension
- Wythe Creek Road
- Ironbound Road
- James River Bridge Improvements
- Blackwater Bridge Replacement
- I-264 ITS Improvements
- Traffix Program
- Atlantic Avenue Trolley – ITS/Special Events
- Route 58 Business (3 Signals)
- Longhill Road – Paved Shoulder Bikeway
- Smithfield to Nike Park Bike/Ped Improvements
- Capital Landing Road Bikeway
- Route 216 Bike/Ped Improvements
- Naval Base Norfolk Fixed Guideway Extension
- WATA Bus Replacement (16 Buses)
- WATA Jamestown Bus Route
- Terminal Boulevard Grade Separation
- Craney Island Access Road

A complete list of the 43 projects, including their respective jurisdictions and project categories, is included in **Figure 1** and illustrated by location in **Figure 2**. Please note that the four italicized projects in the list account for two of the initial 41 projects which were later divided into four separate projects.

FINAL TOOL VALIDATION PROJECT LIST		
Locality	**Project**	**Category**
Gloucester County	Route 216 Bike/Ped Improvements	Bike/Ped
Isle of Wight County	Smithfield to Nike Park Bike/Ped Improvements	Bike/Ped
James City County	Longhill Road - Paved Shoulder Bikeway	Bike/Ped
York County	Capitol Landing Road Bikeway	Bike/Ped
Isle of Wight	Blackwater Bridge Replacement	Bridge/Tunnel
MULTI	James River Bridge Improvements	Bridge/Tunnel
MULTI	Hampton Roads Bridge Tunnel (HRBT)	Bridge/Tunnel
MULTI	Midtown Tunnel, MLK Extension	Bridge/Tunnel
Chesapeake	***Dominion Boulevard***	***Bridge/Tunnel***
Virginia Beach	Lesner Bridge	Bridge/Tunnel
MULTI	***Phase 1 of the Third Crossing (I-664 Widening)***	***Bridge/Tunnel***
MULTI	***Phase 2 of the Third Crossing (E-W Connector)***	***Bridge/Tunnel***
Chesapeake	Hanbury Road	Highways
Hampton	Commander Sheppard Blvd Extension	Highways
James City County	Route 60 Relocation	Highways
Newport News	Route 17 (J Clyde Morris Blvd)	Highways
Norfolk	I-64 / Norview Ave. Interchange Ramp Improvements	Highways
Virginia Beach/Norfolk	Wesleyan Drive	Highways
Poquoson/Hampton	Wythe Creek Road (includes bridge widening)	Highways
Suffolk/Chesapeake	Nansemond Pkwy - Portsmouth Boulevard	Highways
Virginia Beach	Laskin Road	Highways
Virginia Beach	Princess Anne Road and Nimmo Parkway	Highways
Virginia Beach	I-264 Interchange Improvements	Highways
Virginia Beach	Lynnhaven 11	Highways
Williamsburg	Ironbound Road	Highways
York County	Route 17 (York County)	Highways
MULTI	I-64 Widening - Southside	Highways
MULTI	I-64 Widening - Peninsula	Highways
MULTI	U.S. Route 460	Highways
Suffolk	U.S. Route 58 – Holland Road	Highways
MULTI	***Southeastern Parkway***	***Highways***
Norfolk	Terminal Boulevard Grade Separation	Intermodal
Portsmouth	Craney Island Access Road	Intermodal
Norfolk	Intermodal Connector + Chambers Interchange (I-564)	Intermodal
HRT	Traffix Program	SysOps/TDM
MULTI	I-264 ITS: Replace 10 VMS & 10 LSC	SysOps/TDM
Suffolk	Route 58 Business - 3 Signals	SysOps/TDM
Virginia Beach	Atlantic Avenue Trolley - ITS/Special Events	SysOps/TDM
HRT	Naval Base Norfolk Fixed Guideway Extension	Transit
Newport News	Peninsula Fixed Guideway	Transit
WATA	Proposed Jamestown Bus Route	Transit
WATA	WATA Bus Replacement (16 Buses)	Transit
Virginia Beach/HRT	Virginia Beach Transit Extension	Transit

Figure 1 - Complete List of Tool Validation Projects

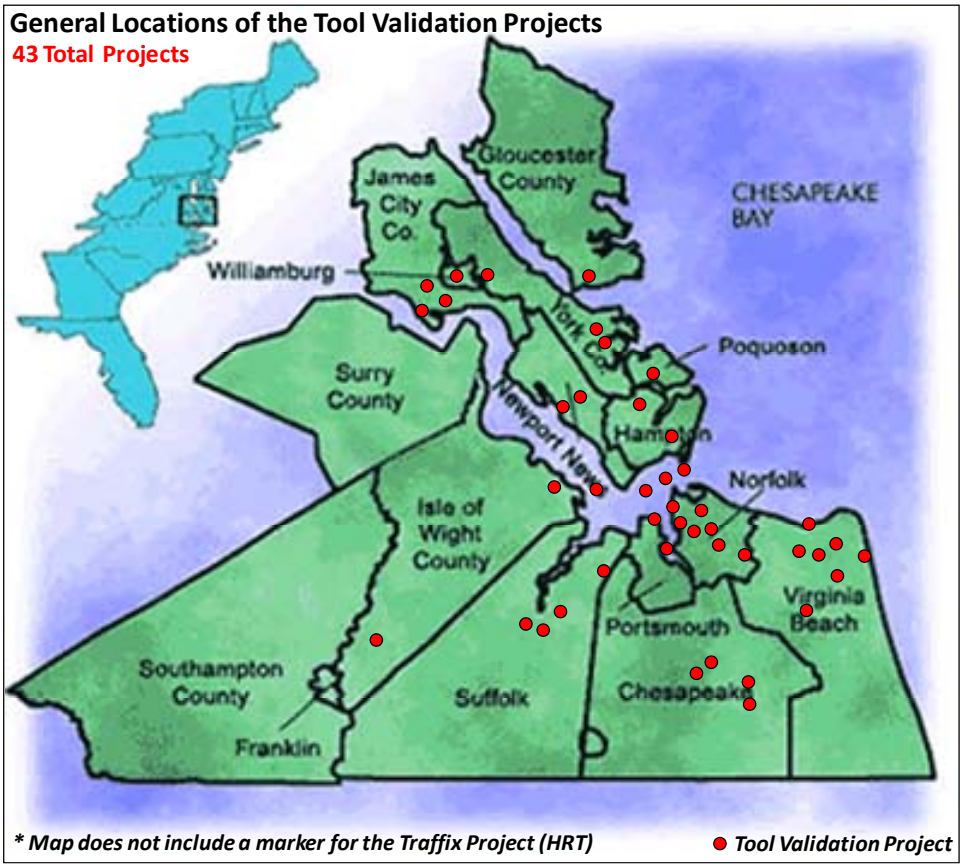


Figure 2 - Tool Validation Project Locations in Hampton Roads

It should be noted that in the future, the large mega projects could be segmented into several smaller projects that are more manageable from a financing and construction standpoint; however with exception to the Hampton Roads Third Crossing, they were kept as single, large projects to evaluate the reasonableness of the input assumptions and subsequent tool output.

I.2 Tool Validation Results

The tool validation analysis involved three main steps. The first was to input all MOEs and weighting factors into the weighting factors tab. It is anticipated that inputs for this tab will be reevaluated periodically when the LRTP is updated or when specific project inputs need to be addressed. The second step was to enter the data for each of the 43 projects into their respective category tabs. This step also involved entering all of the necessary project inputs outlined in **Appendix G1**. For the tool validation analysis, each category and each evaluation criterion was completed by either manual entry or by choosing from the dropdown menu.

Once all project data were entered into the tool, the three results tabs were activated, and the project scores were sorted in descending order from highest to lowest for both the utility score and viability grade. Results were first examined by category to evaluate where the projects were ranked in their category on a comprehensive level. An additional evaluation also was made for both the “Highways” and “Bridge/Tunnel” categories to sort projects by individual evaluation criteria and VDOT roadway system.

This was done not only to examine how the chosen MOE thresholds and weighting factors were being applied to the overall score and to see if the MOEs for any criteria needed to be further refined, but also to observe how similar projects compared amongst one another. Furthermore by performing this subsequent sorting, projects were able to be evaluated based on individual characteristics and benefits.

This analysis process was very iterative and was performed multiple times in order to fine tune the thresholds and weighting factors for project utility and project viability MOEs according to direction provided by the Steering Committee, TTAC, and HRTPO Board. Revisions included adjusting both MOEs and weighting factors throughout the tool development process. Some of the more significant modifications involved the elimination of certain criteria and the reallocation of points to the remaining criteria. It is important to understand that this is a living methodology and that MOEs and weighting factors will continue to evolve and be modified as more data are obtained and evaluation criteria preferences change.

Results from the tool validation analysis are summarized in **Figures 3 through 14**. Detailed results for the "Highways" and "Bridge/Tunnel" categories, scored and sorted by individual evaluation criterion, are included in **Appendix G2**.

Project Name	Utility Score	CLASS	Utility Rank
I-64 Widening (Peninsula)	78.75	INTERSTATE	1
I-264 Interchange Improvements	78.54	INTERSTATE	2
I-64 Widening (Southside)	67.12	INTERSTATE	3
I-64/Norview Avenue Interchange	65.75	INTERSTATE	4
US Route 58 - Holland Road	70.41	PRIMARY	1
Route 17 (York County)	60.28	PRIMARY	2
US Route 460	50.13	PRIMARY	3
Southeastern Parkway	48.00	SECONDARY	1
Route 17 (J. Clyde Morris Boulevard)	61.36	URBAN	1
Route 60 Relocation	60.08	URBAN	2
Wesleyan Drive	59.48	URBAN	3
Princess Anne Road and Nimmo Parkway	55.79	URBAN	4
Nansemond Parkway - Portsmouth Boulevard	52.68	URBAN	5
Lynnhaven 11	48.74	URBAN	6
Laskin Road	46.29	URBAN	7
Wythe Creek Road (includes Bridge Widening)	45.98	URBAN	8
Hanbury Road	42.06	URBAN	9
Commander Shepard Boulevard Extension	35.58	URBAN	10
Ironbound Road	35.35	URBAN	11

Figure 3 – "Highways" Tool Validation Results for Project Utility (Sorted by Roadway System)

Project Name	Viability Grade	CLASS
I-64 Widening (Southside)	D	INTERSTATE
I-64 Widening (Peninsula)	D	INTERSTATE
I-64/Norview Avenue Interchange	E	INTERSTATE
I-264 Interchange Improvements	E	INTERSTATE
US Route 58 - Holland Road	A	PRIMARY
US Route 460	B	PRIMARY
Route 17 (York County)	E	PRIMARY
Southeastern Parkway	E	SECONDARY
Princess Anne Road and Nimmo Parkway	A	URBAN
Commander Shepard Boulevard Extension	B	URBAN
Wesleyan Drive	C	URBAN
Lynnhaven 11	C	URBAN
Hanbury Road	E	URBAN
Route 60 Relocation	E	URBAN
Route 17 (J. Clyde Morris Boulevard)	E	URBAN
Wythe Creek Road (includes Bridge Widening)	E	URBAN
Nansemond Parkway - Portsmouth Boulevard	E	URBAN
Laskin Road	E	URBAN
Ironbound Road	E	URBAN

Figure 4 – "Highways" Tool Validation Results for Project Viability (Sorted by Roadway System)

From the "Highways" results, it can be seen that the overall spread is approximately 43 points, indicating that the evaluation criteria, MOEs, and weighting factors are adequately differentiating between projects. The top four projects based on the project utility component scores (I-64 Widening on the Peninsula, I-264 Interchange Improvements, U.S. 58 – Holland Road, and I-64 Widening on the Southside) are relatively similar in total score (within approximately 11 points). Of these top four, U.S. 58 – Holland Road receives a viability grade of A, the two I-64 Widening projects receive a D, and I-264 Interchange Improvements receives an E. Through a more thorough examination of project utility component scores by roadway system classification, all interstate projects are relatively close in score, while the point spread between the urban roadway projects is approximately 26 points. In terms of Project Viability, none of the interstate projects are seen to be very viable, while both the U.S. Route 58 and Princess Anne Road/Nimmo Parkway projects received a Viability Grade of A. Of the 14 initially determined projects, five are included within "Highways." Despite relatively small sample sizes of each functional class, these five projects are observed to be within the top three of their respective classifications for both project utility and project viability and are reasonable results when compared to the other projects.

Project Name	Utility Score	CLASS	Utility Rank
Hampton Roads Bridge Tunnel	91.43	INTERSTATE	1
Hampton Roads Third Crossing (I-664 widening)	55.00	INTERSTATE	2
Midtown Tunnel, MLK Extension	77.96	OTHER	1
Blackwater Bridge Replacement	25.58	OTHER	2
Dominion Boulevard	79.48	PRIMARY	1
Hampton Roads Third Crossing (E-W connection)	38.33	PRIMARY	2
Lesner Bridge	60.11	URBAN	1
James River Bridge Improvements	57.25	URBAN	2

Figure 5 – "Bridge/Tunnel" Tool Validation Results for Project Utility (Sorted by Roadway System)

Project Name	Viability Grade	CLASS
Hampton Roads Third Crossing (I-664 widening)	C	INTERSTATE
Hampton Roads Bridge Tunnel	E	INTERSTATE
Midtown Tunnel, MLK Extension	A	OTHER
Blackwater Bridge Replacement	E	OTHER
Dominion Boulevard	A	PRIMARY
Hampton Roads Third Crossing (E-W connection)	D	PRIMARY
James River Bridge Improvements	E	URBAN
Lesner Bridge	E	URBAN

Figure 6 – "Bridge/Tunnel" Tool Validation Results for Project Viability (Sorted by Roadway System)

The "Bridge/Tunnel" project scores show the Hampton Roads Bridge-Tunnel receiving the highest utility score (91.43); however, given the cost and complex permitting process, it only receives a viability grade of E. The Blackwater Bridge Replacement has the lowest utility score (25.58) and receives an E grade for viability. These both appear to be reasonable results when compared to the other projects. Of the eight "Bridge/Tunnel" projects, six are part of the 14 initially determined projects previously described. Despite relatively small sample sizes for each roadway system classification, the projects with the highest utility score from each of the four reported classes are one of these six. Results illustrate that the top four "Bridge/Tunnel" projects are four of the six major projects. The remaining two major projects rank 6th and 7th.

Project Name	Utility Score	Utility Rank
Longhill Road - Paved Shoulder Bikeway	60.19	1
Smithfield to Nike Park Bike/Ped Improvements	58.88	2
Capital Landing Road Bikeway	48.57	3
Route 216 Bike/Ped Improvements	26.56	4

Figure 7 – "Bicycle and Pedestrian" Tool Validation Results for Project Utility

Project Name	Viability Grade
Route 216 Bike/Ped Improvements	E
Smithfield to Nike Park Bike/Ped Improvements	E
Longhill Road - Paved Shoulder Bikeway	E
Capital Landing Road Bikeway	E

Figure 8 – "Bicycle and Pedestrian" Tool Validation Results for Project Viability

The "Bicycle and Pedestrian" results indicate that the Longhill Road Paved Shoulder Bikeway and the Smithfield to Nike Park Bike/Ped Improvements are only separated by approximately 1.5 points. The remaining two projects are not relatively close and are approximately 12 and 33 points from the highest overall project score, respectively. All four "Bicycle and Pedestrian" projects receive the same viability grade of E, which implies that funding and design plans will require significant effort to move towards construction. However, given the relatively low cost associated with these types of projects, an E does not imply that these are not viable projects, rather that they are not ready for construction. Unlike large roadway or bridge/tunnel projects, bicycle and pedestrian projects can become construction ready in a short period of time and can therefore improve from an E to a C more easily.

Project Name	Utility Score	Utility Rank
I-264 ITS: Replace 10 VMS & 10 LSC	78.88	1
Traffix Program	51.20	2
Atlantic Avenue Trolley - ITS/Special Events	49.25	3
Route 58 Buisness - 3 Signals	31.29	4

Figure 9 – "Systems Management/Transportation Demand Management/Operational Improvements" Tool Validation Results for Project Utility

Project Name	Viability Grade
Traffix Program	A
I-264 ITS: Replace 10 VMS & 10 LSC	E
Route 58 Buisness - 3 Signals	E
Atlantic Avenue Trolley - ITS/Special Events	E

Figure 10 – "Systems Management/Transportation Demand Management/Operational Improvements" Tool Validation Results for Project Viability

With regards to "Systems Management/TDM/Operational Improvements" projects, the I-264 ITS Project has the highest overall project score (78.88) but receives a viability grade of E. Like so many other projects in the list, although the benefits are substantial, the associated costs may not make the project viable. The Traffix Program and Atlantic Avenue Trolley Project are very close in total project scores (separated by approximately two points). Another positive check of the tool's validity is the Traffix Program, which is the only TDM project of the four. All TDM projects have separate exclusive criteria accounting for 25 percent of the overall project score. The remaining 75 percent comes from the other evaluation criteria common to all other projects. The results of the tool validation analysis show that TDM projects can be competitive with the other projects. It also should be noted that the Traffix Program is the only project of the four that receives an A for the viability grade.

Project Name	Utility Score	Utility Rank
Naval Base Norfolk Fixed Guideway Extension	85.60	1
Virginia Beach Transit Extension	83.83	2
Peninsula Fixed Guideway	58.89	3
Bus Replacement (16 Buses)	54.29	4
Proposed Jamestown Route	42.56	5

Figure 11 – "Transit" Tool Validation Results for Project Utility

Project Name	Viability Grade
Proposed Jamestown Route	A
Bus Replacement (16 Buses)	A
Virginia Beach Transit Extension	C
Naval Base Norfolk Fixed Guideway Extension	E
Peninsula Fixed Guideway	E

Figure 12 – "Transit" Tool Validation Results for Project Viability

The "Transit" project results indicate two distinct groups of projects. The top two projects are separated by approximately two points while the 3rd and 4th highest projects are separated by approximately 4.5 points. Both the Virginia Beach Transit Extension and the Peninsula Fixed Guideway are two of the 14 required major projects to be evaluated in the tool validation analysis and are the 2nd and 3rd highest project scores, respectively. This category is an excellent example of how the viability grade will help differentiate projects with similar numerical scores. In this case, both pairs of projects with similar scores have significantly different viability grades.

Project Name	Utility Score	Utility Rank
Intermodal Connector + Chambers Interchange (I-564)	70.00	1
Terminal Boulevard Grade Separation	65.00	2
Craney Island Access Road	65.00	2

Figure 13 – "Intermodal" Tool Validation Results for Project Utility

Project Name	Viability Grade
Intermodal Connector + Chambers Interchange (I-564)	B
Terminal Boulevard Grade Separation	E
Craney Island Access Road	E

Figure 14 – "Intermodal" Tool Validation Results for Project Viability

For the final category, "Intermodal," the highest utility score and viability grade belong to the Intermodal Connector and Chambers Interchange (I-564), which also is the final major project of the initial list of 14. The other two projects (Terminal Boulevard Grade Separation and Craney Island Access Road) receive identical scores of 65.00. All three projects have the potential to gain an additional 25 points when an ultimate *Cost Effectiveness* MOE is developed. Currently, this criterion is measured by the ratio of revenue increase to overall cost of the project. However, since revenue increase projections could not be obtained, the 25 points for *Cost Effectiveness* were not allocated to any of the "Intermodal" tool validation projects.

I.3 Tool Validation Findings

The tool validation analysis enabled stakeholders to observe the validity of the proposed project categories, evaluation criteria, weighting factors, and MOEs for both the project utility and project viability components. From the analysis, it was evident that the six project categories and their associated evaluation criteria, weighting factors, and MOEs were valid, reliable, and able to differentiate a wide spectrum of pertinent projects for the project utility and project viability components. The "Highways" category in particular supports this conclusion, since projects within the same roadway system (Interstate, Primary, Secondary, Urban, or Other) received similar overall scores. Additionally one of the two most viable "Bridge/Tunnel" projects known to stakeholders, the Midtown Tunnel/MLK Extension, ranked first in project viability and third in project utility. These observations reinforce the conclusion that the most important project characteristics within each category are being adequately considered and scored. The additional sorting of the "Highways" and "Bridge/Tunnel" categories by individual criterion also was observed to support the same conclusions.