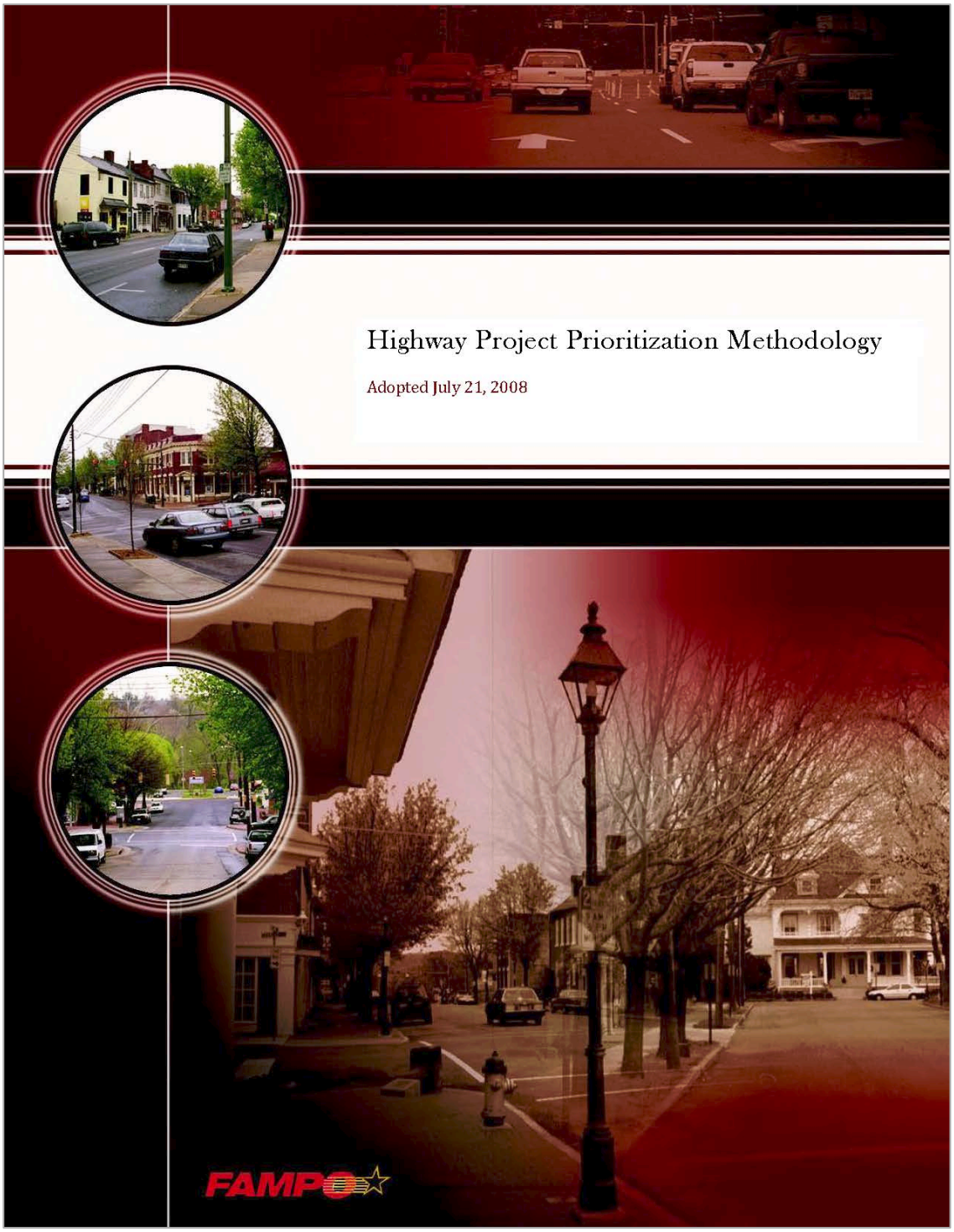
APPENDIX F – HIGHWAY PROJECT PRIORITIZATION METHODOLOGY



Highway Project Prioritization Methodology

Adopted July 21, 2008

Prepared for:

Fredericksburg Area Metropolitan Planning Organization
406 Princess Anne Street
Fredericksburg, Virginia

Prepared by:

Kimley-Horn and Associates, Inc.
Suite 400
13221 Woodland Park Road
Herndon, Virginia
Project Number: 110183002

Table of Contents

Introduction 1

Background 1

Methodology 2

Application of Factors: Project Ranking Process 4

Scoring Categories, Point Values, and Descriptive Guidance 5

1. Congestion Relief (30 points) 5
   - Congestion
   - Continuity and Connectivity
   - Major Users
   - Freight Use

2. Safety and Security (30 points) 7
   - Geometric Impact on Existing Roadways
   - Vehicle Crash Reduction
   - Bike/Pedestrian Safety
   - Homeland Security

3. Environmental Impacts (16 points) 8
   - Natural Environment
   - Neighborhood

4. Public/Community Support (8 points) 9
   - Existing Plans
   - Community Support

5. Funding/Implementation Considerations (8 points) 10
   - Feasibility
   - Project Ready
   - Interagency Cooperation

6. Smart Growth (8 points) 11
   - Growth Areas
   - Intermodal

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 Highway 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 Highway 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.

Methodology

This 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 Prioritization Criteria

	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 and Connectivity	X					
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 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 are awarded the highest number of points whereas projects not benefiting activity centers are 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 are awarded a higher point value. Projects that make the movement of trucks more difficult and less efficient are 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 are awarded the highest point values. New location roadways are 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, are awarded more points. Projects that maintain the status quo or have negative impacts are 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 are awarded higher point values. Projects that involve significant mitigation and remediation of wetlands and impact sensitive ecosystems are 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 are awarded higher point values. Significant road widening and projects that require significant "takings" and that have substantial community impacts are 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 are awarded the highest number of points. Projects that are not programmed or a part of adopted plans are 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 are awarded more points and projects with less interagency support and cooperation are 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 are awarded more points. Projects that promote or extend unsustainable patterns of development are 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