

# Chapter 8 - The Decision-Making Process

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## KEY POINTS

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- One of the most important products of this Missouri State Freight Plan is a consistent process to prioritize freight investments (projects).
- The process incorporates the needs and conditions of all freight modes as well as land use, economic development, safety and economic impacts to rank projects based on criteria that reflect the Freight Plan goals.
- Stakeholder input helped shaped the prioritization process so that process reflects what matters most to the people and businesses of Missouri.

## Introduction

Fewer dollars are available to preserve and maintain the existing freight transportation system and meet the increasing freight demands of Missouri's businesses. This Missouri State Freight Plan defines a prioritization process to provide information that will help decision-makers choose the strategic freight investments that best support the transportation goals of the State.

## The Need to Prioritize Projects

Freight transportation represents a key economic competitiveness factor for Missouri. Companies depend on the efficient and cost-effective movement of materials, components, and finished goods to and from their operations. As the transportation needs of businesses and their customers continue to evolve, companies are more dependent than ever on an integrated and reliable multimodal freight transportation network. Today, Missouri businesses and industries compete not only on the basis of product quality and cost. Their transportation networks must provide reliable connections to customers, access to diverse domestic and international markets, and ensure timely deliveries that meet or exceed the consumer's expectations.

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The transportation assets that make up Missouri's freight network are critical to the State's economy. If the freight network fails, the economy will fail. Funding for transportation is seriously constrained; as a result, funding for investments needed to sustain the existing freight network and provide additional capacity to meet the increasing freight volumes may not be available. Decision-makers are faced with fewer dollars to preserve and maintain the existing transportation system and meet the growing freight demand required to support Missouri's businesses.

To help decision-makers make the best strategic investment choices, a freight project prioritization process was developed. This prioritization does not take the place of the decision-maker's assessment; rather, it is an additional tool to aid in the evaluation of future freight projects. The project prioritization process was designed to help identify projects that will best support the safety, connectivity, and mobility of the Missouri Freight Network and promote economic development and prosperity for Missouri's people and businesses.

Implementation of this prioritization process will help ensure Missouri's multimodal freight network remains a distinguishing feature of the State's economic success.

### Inputs to the Prioritization Process

The prioritization process builds upon and reflects the goals and performance measures identified in Missouri's Long Range Transportation Plan and this Missouri State Freight Plan, and incorporates input from hundreds of key stakeholders.

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## Freight Plan Goals

The prioritization process was developed to reflect the four goals of this Freight Plan. Projects were screened to ensure they were consistent with and would achieve progress towards one or more of the goals. These goals are:

- **Maintenance** – Maintain the freight system in good condition by keeping highways and bridges in good condition and supporting the maintenance of railways, waterways, airports, and multimodal connections.
- **Safety** – Improve safety on the freight system by decreasing the number and severity of crashes involving commercial vehicles and improving safety at railroad crossings.
- **Economy** – Support economic growth and competitiveness in Missouri through strategic improvements to the freight system.
- **Connectivity and Mobility** – Improve the connectivity and mobility of the freight system by reducing congestion and increasing reliability on the roadways; by supporting improved efficiency of rails, waterways, and airports; and by improving connections between freight modes.

## Performance Measures

Performance measures are used across the transportation industry to evaluate transportation systems and agencies. The Missouri Department of Transportation's (MoDOT's) rich history in performance measurement and management is best exemplified by Tracker, the department's quarterly performance measure publication.

For the Freight Plan, performance measures were established to assist with plan development, implementation, and accountability. With Tracker as the foundation, and through consultation with the Freight Steering Committee made up of key stakeholders and MoDOT leadership, a limited number of strategic performance measures were identified for each of the four goals. These measures, summarized in **Figure 8-1**, provide insight into the project selection prioritization process by establishing how freight performance is and will be measured in Missouri.

*Figure 8-1: Missouri State Freight Plan Performance Measures*

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Freight Plan Goal	Recommended Measures
<p><b>Maintenance</b> Maintain the freight system in good condition</p>	<ul style="list-style-type: none"> <li>• Percent of the major highways in good condition*</li> <li>• Percent of structurally deficient deck area on National Highway System bridges*</li> </ul>
<p><b>Safety</b> Improve safety on the freight system</p>	<ul style="list-style-type: none"> <li>• Number of commercial vehicle crashes resulting in fatalities or serious injuries*</li> <li>• Rail crossing crashes or fatalities*</li> </ul>
<p><b>Economy</b> Support economic growth and competitiveness</p>	<ul style="list-style-type: none"> <li>• Goods movement competitiveness*</li> <li>• Job and economic growth by key sector, including:               <ul style="list-style-type: none"> <li>○ Agriculture</li> <li>○ Manufacturing</li> <li>○ Transportation/Logistics</li> </ul> </li> </ul>
<p><b>Connectivity and Mobility</b> Improve the connectivity and mobility of the freight system</p>	<ul style="list-style-type: none"> <li>• Freight tonnage by mode*</li> <li>• Annual hours of truck delay*</li> <li>• Truck reliability index*</li> </ul>

\* These or similar measures have been established in MoDOT's Tracker



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## The Freight Network

The Missouri Freight Network was designated to help decision-makers choose the best strategic investments for freight transportation. The Missouri Freight Network includes the significant statewide and multiregional transportation assets—highways, freight rail, intermodal facilities, ports, and airports—most critical to the movement of freight and goods in the State. The network was developed based on the Freight Plan goals and performance measures, and responds in part to *the Fixing America's Surface Transportation (FAST) Act* Primary Freight Network and Critical Rural Freight Network.

The top three tiers of the Missouri Freight Network, as discussed in Chapter 3, is the foundation of the state's multimodal prioritization process because they serve as the first screening filter in the project selection process. In order for a highway project to be considered it must be on the top three tiers of the highway network. This approach focuses freight investment decisions on the multimodal corridors that are most critical.

## Freight Partners' Insight

Freight movement in Missouri is impacted by a number of public and private sector organizations, agencies, and businesses. It is, therefore, increasingly important to engage a broad cross-section of stakeholders in planning for the State's freight infrastructure. The prioritization process was developed with the help of key stakeholders who participated in freight forums, business forums, steering committee meetings, surveys, and webinars as part of the freight planning process.

Stakeholders offered varied perspectives on changing freight transportation needs, existing system conditions, critical domestic and international market destinations, and strategies to optimize the benefits of the multimodal transportation network. These insights were vital to establishing what matters most to the people and businesses of Missouri.

## The Prioritization Process

As available funding for transportation becomes more constrained, decision-makers need better information to help make the most strategic investment choices. Project prioritization provides a reasoned approach to evaluating competing needs and conditions in order to identify transportation investments that best position Missouri to meet the freight needs of tomorrow. The prioritization process developed for the Missouri State Freight Plan, shown in **Figure 8-2**, incorporates all transportation modes as well as land use, economic development, safety, and economic impacts in order to rank projects based on criteria that reflect the Freight Plan goals.

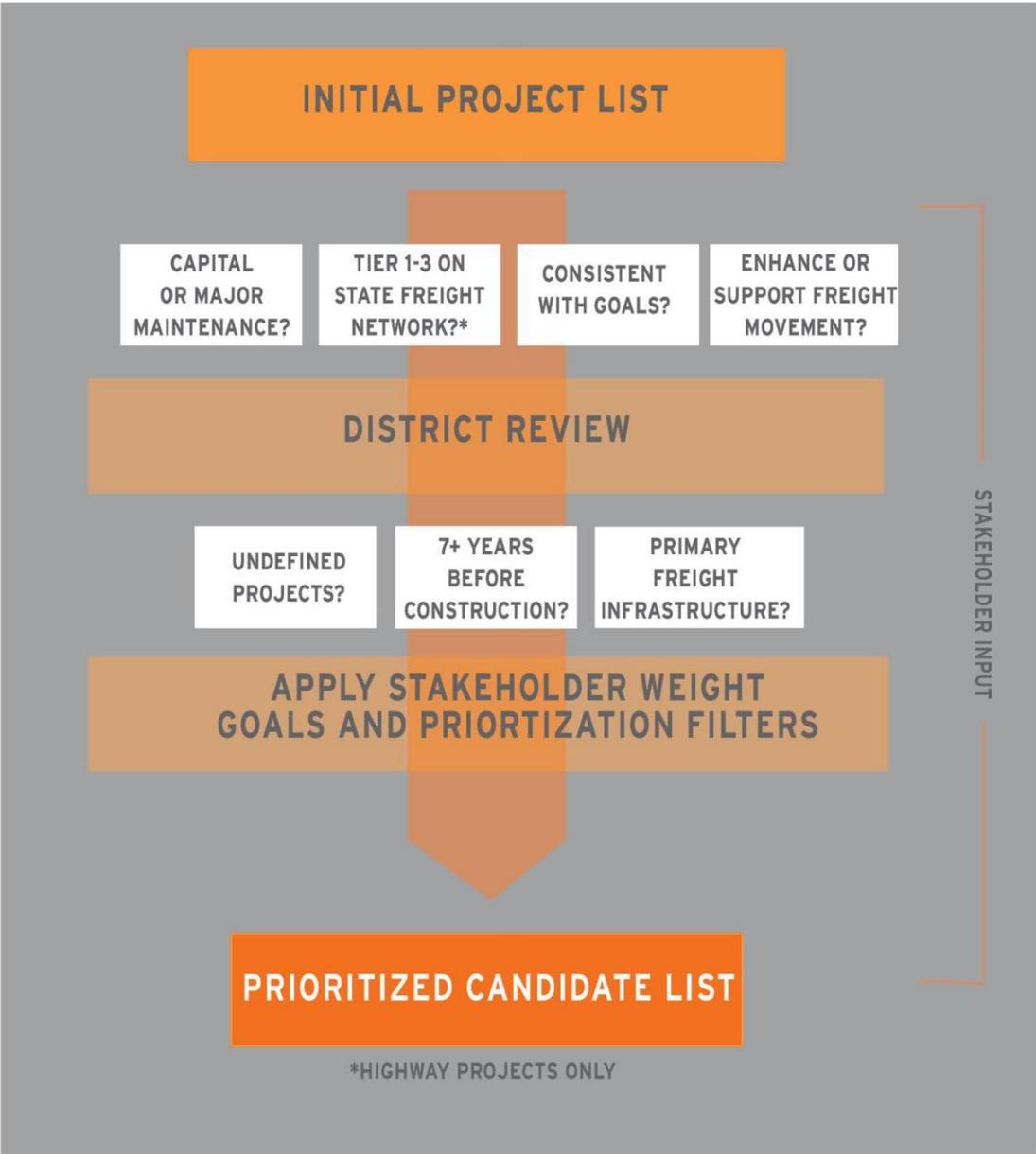
The Missouri State Freight Plan prioritization process included four steps:

- **Step 1** – The initial step evaluated and refined a list of potential projects. A three-tiered process was used to screen projects to determine which would be prioritized.
- **Step 2** – The second step in the prioritization process generated a gap analysis to identify projects that were missing from the initial list of potential investments. These were added to the project list.

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- **Step 3** – In step three, a prioritization framework was developed to define prioritization filters, project scoring factors, data sources, and scoring methodologies for each mode.
- **Step 4** – The last step in the process analyzed each project on the final list and produced a scoring classification for every project. Feedback from community stakeholders, MoDOT district staff, the Freight Steering Committee, and freight stakeholders was used to refine the final list of projects.

Figure 8-2: Project Prioritization Process



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## Defining the Freight Projects

Determining an initial project list is an important step in any prioritization process. For the prioritization process, a potential freight project must fit in one of the following categories:

- **Freight focused** – The primary purpose of the project is to address a specific freight transportation need.
- **Freight related** – The primary purpose of the project is to address multiple transportation concerns, of which freight is one element.
- **Freight impacted** – The primary purpose of the project is to address general transportation needs; however, freight mobility may be positively affected.

The initial list of potential freight projects included 3,800 projects from across the State. These projects came from the Statewide Transportation Improvement Program, modal plans, Missouri’s Long Range Transportation Plan, Metropolitan Planning Organization plans, freight forums, interviews, business forums, MoDOT district offices, and stakeholders and planning partners. A three-tiered process was used to refine the list of potential projects.

Tier one screening used four filters to refine the initial project list:

- Projects are located on, linked to, or within the prescribed buffer of the Missouri Freight Network (see Chapter 3).
- Projects are capital expenditure projects or major maintenance projects. Major maintenance projects are high-cost, replace-in-place projects; they do not include routine maintenance. General maintenance, operations, and planning projects were captured for further evaluation, but were not included in the prioritization process.
- Projects are consistent with the goals and the modes incorporated in the Freight Plan.
- Projects enhance and support the movement of freight.

The tier one screening process reduced the initial freight project list to approximately 480 projects.

In the tier two screening process, the remaining candidate projects were reviewed by each of the MoDOT district offices. Projects were added or deleted based on criteria determined by the districts. Participants at each of three business forums were asked to suggest additional projects, and these were added to the project list.

The tier three screening process identified projects that were determined to be speculative. Projects on the list were screened to remove:

- Projects with descriptions too general to define or locate
- Projects requiring 7 or more years before initiation of construction (a list of longer-term projects was captured for future consideration)
- Interchange projects that did not serve freight-related activities (based on the percentage of truck volumes on the primary corridors)
- Planning studies (planning projects captured from the project lists for future freight project studies are included in Chapter 9)

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- General maintenance projects
- Statewide planning projects
- Projects that did not support freight-related activities

At the close of this tier three screening process, approximately 122 projects remained on the project list. Projects deleted during the screening process were captured for consideration in the next generation of freight projects, and for further consideration as future planning and initial program review projects.

## The Prioritization Framework

Once the list of 122 projects was compiled, prioritization filters and project scoring factors were used to evaluate and prioritize each project. Twenty-nine filters and project scoring factors were identified for the four freight modes (road, rail, water, air). The filters were the general criteria for prioritization while the scoring factors were how each filter was measured.

Filters were weighted to reflect the goals of the Missouri State Freight Plan—maintenance, safety, economic development, and connectivity and mobility. These filters were discussed in stakeholder meetings, and based on stakeholder feedback, several scoring factors were deleted from the prioritization process and other scoring factors were determined to be more important.

The economic impacts of freight activity in Missouri were calculated in a process that integrates TRANSEARCH® commodity information, an IMPLAN economic model for Missouri, and indirect and induced economic impacts.

The process used quantitative data when it was practical and available. Data for each transportation mode was collected from a number of sources including MoDOT, Federal Highway Administration, and reliable geographic information system resources, TRANSEARCH® data, the U.S. Census, and the U.S. Department of Commerce. Geospatial analysis was also incorporated into the process.

**Tables 8-1 through 8-4** show the prioritization filters used for each of the four transportation modes included in the process.

*Table 8-1: Highway Mode Prioritization Filters*

Freight Plan Goal	Prioritization Filter
Safety	<ul style="list-style-type: none"> <li>• Reduces number of substandard bridges</li> <li>• Improves high truck crash location</li> </ul>
Connectivity and Mobility	<ul style="list-style-type: none"> <li>• Improves bridges with vertical clearance or weight restrictions</li> <li>• Addresses freight bottlenecks</li> <li>• Improves multimodal connections</li> </ul>



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	<ul style="list-style-type: none"> <li>• Improves capacity</li> </ul>
Economic Development	<ul style="list-style-type: none"> <li>• Improves connection to top freight generators</li> <li>• Economic link scores</li> </ul>
Major Maintenance	<ul style="list-style-type: none"> <li>• Project maintains existing freight network</li> </ul>

*Table 8-2: Freight Rail Mode Prioritization Filters*

Freight Plan Goal	Prioritization Filter
Safety	<ul style="list-style-type: none"> <li>• Improves rail safety</li> </ul>
Connectivity and Mobility	<ul style="list-style-type: none"> <li>• Adds capacity to improve rail bottlenecks</li> <li>• Improves vertical clearance</li> <li>• Improves rail access to intermodal or transload facilities</li> </ul>
Economic Development	<ul style="list-style-type: none"> <li>• Improves rail access to ports</li> <li>• Improves rail access to freight generators</li> <li>• Improves rail access to certified industrial sites</li> <li>• Economic link scores</li> </ul>
Major Maintenance	<ul style="list-style-type: none"> <li>• Project maintains existing freight network</li> </ul>



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*Table 8-3: Ports Mode Prioritization Filters*

Freight Plan Goal	Prioritization Filter
Safety	<ul style="list-style-type: none"> <li>2013 port projects scoring includes projects that address all goals</li> </ul>
Connectivity and Mobility	<ul style="list-style-type: none"> <li>Establishes or improves rail-port intermodal facilities</li> <li>Improves on-port facilities for increased throughput</li> </ul>
Economic Development	<ul style="list-style-type: none"> <li>Supports retention or expansion of business</li> <li>Economic link scores</li> </ul>
Major Maintenance	<ul style="list-style-type: none"> <li>Project maintains existing freight network</li> </ul>

*Table 8-4: Aviation Mode Prioritization Filters*

Freight Plan Goal	Prioritization Filter
Connectivity and Mobility	<ul style="list-style-type: none"> <li>Improves access to air cargo facilities</li> <li>Expands aviation freight services</li> <li>Increases air cargo operations</li> </ul>
Economic Development	<ul style="list-style-type: none"> <li>Supports or expands aviation/land use for air cargo operations</li> </ul>
Major Maintenance	<ul style="list-style-type: none"> <li>Project maintains existing freight network</li> </ul>

## Results

Each project was classified as very high, high, medium, or low priority.

The prioritization process ranked 19 projects as very high priority; of which 14 were highway projects and five were rail projects. Most of the 19 projects addressed capacity and safety issues, and the remaining projects improved intermodal connectivity. Projects were located in five of the MoDOT districts or represented I-70 improvements to the statewide network. The estimated cost of these



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projects exceeded \$5 billion. (Note that costs for two significant I-70 statewide project segments were not available, and thus are not included in this overall cost information.)

The process ranked 34 projects as high priorities, and they represent all of the freight modes. Projects in this category addressed mobility and capacity needs, safety concerns, I-44 statewide improvements, modernization of air cargo facilities, and access to ports and industrial parks. These projects are located in all seven MoDOT Districts, and project costs range from \$300,000 to over \$2 billion. A list of projects is included in Appendix G.

This project prioritization process developed for the Missouri State Freight Plan can be reapplied in the future and can be modified as new resources, data, and needs are identified. The prioritization process can evolve over time to reflect the needs of business, freight stakeholders, and MoDOT.

Each year during development of the Statewide Transportation Improvement Plan (STIP) transportation needs are identified in conjunction with the planning partners. Projects that are ready for construction and have available funds are then programmed in the next STIP. MoDOT does not fully program years four and five of the STIP, therefore National Highway Freight Program (NHFP) funds are not 100% programmed in the latter years. Any freight-focused needs (funded or unfunded) identified through the STIP process, from partners and from system and network analysis are appended to the Missouri State Freight Plan Appendix G.