Defining the Washington State Truck Intermodal Network

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DEFINING THE WASHINGTON STATE TRUCK INTERMODAL NETWORK

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16. ABSTRACT

In order to support WSDOT in development of the Washington State Freight Mobility Plan, this document presents recommendations for criteria to be used in defining the Washington state truck intermodal network. The state does not have an existing definition of the freight truck-intermodal system. To establish the criteria, this project reviewed methods used by other states, identified the facilities in Washington specified by the National Highway System, and compared these facilities to those identified by regional planning organizations. Finally, recommendations are made for criteria to use in identifying the truck intermodal network for Washington.

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SUMMARY

This work was commissioned by the Washington State Department of Transportation (WSDOT) to develop recommendations for how to define essential freight facilities in Washington state. Washington's investment in freight systems supports economic activity, maintains freight access to major markets, lowers business costs, and sustains jobs. Through the Washington Freight Mobility Plan, WSDOT will make a strong case for funding Washington state freight priority projects and programs in the reauthorization of the federal transportation bill and future state transportation packages. To identify the essential state freight corridors, WSDOT produces the Washington State Freight and Goods Transportation System (FGTS), a classification of state highways, local roads, freight rail lines and waterways based on average annual tonnage. We recommend that WSDOT use the FGTS Tier 1 and Tier 2 definitions to identify essential facilities. FGTS Tier 1 comprises facilities that carry more than 10 million tons per year, FGTS Tier 2 includes facilities with 4 to 10 million tons per year. However, although this approach works well for identifying state highways in the essential freight network of Western Washington, it misses some key intermodal connectors between intermodal facilities and the state highway network. The intermodal connectors do not carry sufficient volumes to meet the FGTS Tier 2 threshold but are important in providing connectivity to the state highway network and access to intermodal facilities. In light of the needs for redefining the essential state freight facilities, the research team worked on Washington State Freight Mobility Plan task 3, "Connectivity Analysis," and undertook four steps to define essential state freight facilities.

STEP 1

The University of Washington research team reviewed methods used by other states and metropolitan planning organizations to categorize essential state freight connectors and intermodal facilities for WSDOT. The complete results of this review are documented in a separate report. We found that many plans

- Define “freight generators” as industrial and commercial areas and ports found in local land-use plans; some plans use building types to categorize truck freight generators
- Rely on national criteria to define state freight connectors and intermodal facilities; several states, including Florida, set their own volume thresholds.

STEP 2

The team reviewed two federal data sets that designate national intermodal facilities and connectors in Washington state:

- National Highway System (NHS) freight connectors, defined as public roads leading to major intermodal facilities. The threshold criterion is 100 trucks/day in each direction.
- Bureau of Transportation Statistics (BTS) Intermodal Terminals Database. This data set is from 2003, is not a comprehensive list, and does not have a volume threshold.

The team created a list of NHS and BTS facilities in Washington.

STEP 3

The team sent the NHS and BTS lists to Washington state’s regional transportation and metropolitan planning organizations, ports, and tribes, asking them to nominate additional essential state freight facilities and connectors and provide the criteria used to identify them.

WSDOT received recommendations for additional intermodal freight facilities, but none of the organizations had or used quantitative criteria to select them.

STEP 4

WSDOT worked with three Washington State Freight Mobility Plan Technical Teams to develop a prioritized list of measurable freight system benefits. They determined that connectivity on the state freight system is most important to and from the following:

- Essential state intermodal facilities, goods processing, and distribution centers to the Interstate system and/or four-lane divided highways
- Essential state intermodal facilities to other essential state intermodal facilities
- Urban freight hubs such as central business districts, ports, or warehouse districts to regional destinations
- Industrial/commercial zoned lands and the Interstate system.

FINDINGS

While the NHS criteria are measurable, the BTS list does not have measurable criteria. Local stakeholders did not provide measureable criteria. Other state approaches either have different goals or do not provide measureable criteria. The criteria suggested by the technical teams were insightful but would require specification, and some, if applied, would identify too much of the roadway network.

RECOMMENDATIONS

To accommodate these drawbacks, the draft criteria for defining the state's essential freight facilities are as follows:

- All FGTS Tier 1 and Tier 2 state roads as defined by WSDOT
- Intermodal facilities:
  - Airports: SeaTac, Boeing Field, Spokane (those with more than 100,000 tons annual cargo volume)
  - Barge loaders: to be determined
  - Marine terminals: 50,000 20-ft equivalents (TEUs) or 500,000 tons annually (MAP-21 definition). This includes Seattle, Tacoma, Anacortes, Kalama, Vancouver, Longview, Everett, Olympia, Grays Harbor, and Port Angeles.
  - Rail terminals: to be determined
- Intermodal connectors:
  - For each of the intermodal facilities identified as essential, identify the key connector from the intermodal facility to the essential freight network. Classify this route as essential.

- To specifically address critical agricultural facilities (CAFs), identify the roadway that connects the Tier 1 and Tier 2 network to crop group-specific critical agricultural facilities or facility clusters. These facilities can/will be established through geographic information system-based network analysis resulting from coordination with industry leaders of the specified crop who have intimate, data-driven knowledge of both the year-round and seasonal significance of the facilities or facility clusters

The remainder of this document describes the approaches used by other states in defining essential freight facilities, the results of Step 1 described above.

1. BACKGROUND

STATEWIDE PLANNING

All statewide long-range transportation plans include freight transportation plans, but the degree to which freight is explicitly covered varies. Considering freight as four distinct modes—rail, waterways, highways, and aviation—the numbers of plans that have developed components for these modes are shown in Figure 1. All plans developed by the state DOTs in regard to these modes were reviewed for this document.

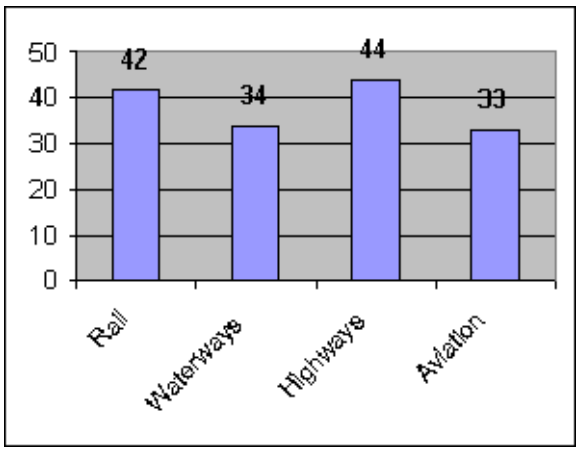

Figure 1: Numbers of plans in which rail, waterways, highways, and aviation are specifically addressed
Source: FHWA - http://www.fhwa.dot.gov/planning/statewide/evalplans.htm#iii

BUREAU OF TRANSPORTATION STATISTICS: DEFINITIONS

The commodity flow survey (CFS) developed and implemented by the Bureau of Transportation Statistics (BTS) provides useful definitions for this document. The most useful definitions are listed below:

- Commodity: Products that an establishment produces, sells, or distributes. This does not include items that are considered as excess or waste of the establishment's operation.
- Intermodal shipment: Shipment of a commodity that has been placed within a piece of transportation equipment that is designed to be interchanged

(transferred) between different modes of transportation under a single rate (e.g., a single bill of lading).

- Mode of transportation: The type of transportation used for moving the shipment to its domestic destination. (For exports, the CFS considers the port of exit to be a domestic destination.)

In the CFS, the possible modes of transportation are defined as follows:

- Parcel delivery/Courier/U.S. Parcel Post: Includes ground and air shipments of packages and parcels that each weigh less than 100 pounds and are transported by a for-hire carrier.
- Private truck: Trucks operated by employees of the establishment or the buyer/receiver of the shipment, including trucks providing dedicated services to the surveyed establishment.
- For-hire truck: Shipments made by common or contract carriers under a negotiated rate.
- Railroad: Any common carrier or private railroad.
- Shallow draft vessel: Barges, ships, or ferries operating on rivers and canals, in harbors, the Great Lakes, the Saint Lawrence Seaway, the Intracoastal Waterway, the Inside Passage to Alaska, major bays and inlets, or in the ocean close to the U.S. shoreline.
- Deep draft vessel: Barges, ships, or ferries operating primarily in the open ocean. (Shipping on the Great Lakes and the Saint Lawrence Seaway is classified with shallow draft vessels.)
- Pipeline: Movements of oil, petroleum, gas, slurry, etc. through pipelines that extend to other establishments or locations beyond the shipper's establishment, excluding aqueducts for the movement of water.
- Air: Any individual package shipped by air that weighs 100 pounds or more.
- Single modes: Shipments transported by only one of the above-listed modes, except parcel or other and unknown.
- Multiple modes: Shipments for which two or more of the following modes of transportation are used:

- Private truck
- For-hire truck
- Railroad
- Shallow draft vessel
- Deep draft vessel
- Pipeline.

Source: http://www.bts.gov/publications/commodity_flow_survey/def_terms/index.html

EXISTING FEDERAL-LEVEL CORRIDOR CLASSIFICATION

National Highway System (NHS)

As defined by the FHWA[1], the National Highway System (NHS) is a system of roadways important to the nation's economy, defense, and mobility. The NHS was developed by the U.S. Department of Transportation (USDOT) in cooperation with the states, local officials, and metropolitan planning organizations (MPOs).

The NHS includes the following subsystems of roadways (note that a specific highway route may be on more than one subsystem):

- Interstate: The Eisenhower Interstate System of highways retains its separate identity within the NHS.
- Other Principal Arterials: These are highways in rural and urban areas that provide access between an arterial and a major port, airport, public transportation facility, or other intermodal transportation facility.
- Strategic Highway Network (STRAHNET): This is a network of highways that are important to the United States' strategic defense policy and that provide defense access, continuity, and emergency capabilities for defense purposes.
- Major Strategic Highway Network Connectors: These are highways that provide access between major military installations and highways that are part of the Strategic Highway Network.

[1] http://www.fhwa.dot.gov/planning/nhs/

- Intermodal Connectors: These highways provide access between major intermodal facilities and the other four subsystems making up the National Highway System.

High Priority Corridors

High Priority Corridors (HPC) have been identified in federal legislation starting with ISTEA in 1991 and continuing through to the current SAFETEA-LU in 2005. These high priority corridors represent routes of national importance and are designated by Congress. Currently there are over 80 corridors and sub-corridors nationwide.

These corridors were frequently mentioned in the transportation plans reviewed for this document.

The Concept of Functional Classification

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. Basic to this process is the recognition that individual roads and streets do not serve travel independently. Rather, most travel involves movement through a network of roads. It becomes necessary then to determine how this travel can be channelized within the network in a logical and efficient manner. Functional classification defines the nature of this channelization process by defining the role that any particular road or street should play in serving the flow of trips through a highway network.

Table 1 presents the classification for rural, urbanized, and small urban areas:

Table 1: The hierarchy of functional systems

Rural areas	Urbanized areas	Small Urban areas
Principal arterials	Principal arterials	Principal arterials
Minor arterial roads	Minor arterial streets	Minor arterial streets
Collector roads	Collector streets	Collector streets
Local roads	Local streets	Local streets

Criteria for the above classifications can be found at the following FHWA website: http://www.fhwa.dot.gov/planning/fcsec2_1.htm. The criteria are qualitative except in the definition of the type of area.

OTHER CORRIDOR CLASSIFICATIONS

There are several additional classifications for roads and highways, and they are not mutually exclusive. These classifications are presented in a list developed by the Indiana DOT (158):

- Intermodal Connecting Links: These are the highways that connect the NHS routes to major ports, airports, international border crossings, public transportation and transit facilities, interstate bus terminals, and rail and inter-modal transportation facilities.
- National Truck Network: This is a national network of highways that allows the passage of trucks with minimum dimensions and weight, as specified in the Surface Transportation Assistance Act of 1982. This system includes all Interstate highways and a significant portion of what used to be referred to as the Federal-Aid Primary system. In addition, this system includes roads providing "reasonable access" to terminals and to facilities for food, fuel, repair and rest, and for household goods carriers to points of loading and unloading.
- Strategic Highway Corridor Network: This is a system of highways identified as strategically important to the defense of the United States. The purposes of this system in peacetime are to maintain the readiness of U.S. fighting forces, to assist in the maintenance of a credible deterrent posture, and to enable the rapid mobilization of military forces during increased tension. In wartime, the purposes of the system are to gather and deploy personnel and equipment as needed and to support industrial mobilization. This system includes the Eisenhower System of Interstate and Defense Highways, road connectors to military facilities, and other roads that meet the above criteria.
- National Scenic Byways: These are highways that cross outstanding examples of the country's aesthetic, cultural, and recreational experience. They are nominated by states and federal land management agencies and designated by the U.S. Secretary of Transportation. These highways possess characteristics that are considered America's best.

AVIATION

The Federal Aviation Administration (FAA) developed the National Plan of Integrated Airport Systems (NPIAS) to identify relevant airports for the aviation system, to identify which ones needed to be repaired, and to better allocate available federal funds.

Airports in this system are classified by the type and level of service they provide to a community. These services include the following:

- Commercial Service Airports: Publicly owned airports that have at least 2,500 passenger boardings each calendar year and receive scheduled passenger service.
- Non-primary Commercial Service Airports are Commercial Service Airports that have at least 2,500 and no more than 10,000 passenger boardings each year.
- Primary Airports: Commercial Service Airports that have more than 10,000 passenger boardings each year. Hub categories for Primary Airports are defined as a percentage of total passenger boardings within the United States in the most current calendar year ending before the start of the current fiscal year.
- Cargo Service Airports: Airports that, in addition to any other air transportation services that may be available, are served by aircraft providing air transportation of only cargo with a total annual landed weight of more than 100 million pounds.
- Reliever Airports: Airports designated by the FAA to relieve congestion at Commercial Service Airports and to provide improved general aviation access to the overall community. These may be publicly or privately owned.
- The remaining airports are commonly described as General Aviation Airports. This airport type is the largest single group of airports in the U.S. system. The category also includes privately owned, public use airports that enplane 2,500 or more passengers annually and receive scheduled airline service.

For additional information and details, please visit the NPIA website: http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/categories/

RAIL

Railroads in the United States are grouped into classifications based on the operating revenue. The classifications are defined by the Surface Transportation Board as follows:

- A Class 1 railroad is a major rail company that has annual revenues in excess of $401.4 million per year (in 2010 dollars).
- A Class II railroad is a line-haul rail company with revenues of less than $401.4 million but in excess of $40 million (in 2010 dollars).
- Class III railroads are defined as having annual operating revenues of less than $40 million (in 2010 dollars). Class III railroads include short-line railroads and switching and terminal railroads.

2. FREIGHT GENERATORS

LAND USE

Freight generators are often identified by locating commercial and industrial areas (see references 49 and 83). These types of areas are defined in the cities' and regions' land-use plans (which are public documents).

SPECIFIC FREIGHT GENERATORS

Freight generators are also identified as specific buildings and defined areas. For example, the Multimodal Freight Analysis Study by the Maricopa Association of Governments (Arizona), provided the following list of freight generators. The criteria help in the selection of these buildings, and how they are defined was not included.

- Manufacturing sites
- Terminals
- Warehouses
- Areas of retail and wholesale activities
- Community job centers: defined as delimitated areas at the local level that comprises an identifiable concentration of employment activities and land uses that are entirely or predominantly non-residential.

Additionally, the PIMA Association of Government's Transportation Plan (Arizona) mentioned that companies offering transportations services also generate freight-related traffic (although it was not specified how companies were classified). These companies are usually concentrated in commercial and industrial areas (defined in land-use plans). These companies include

- Air service
- Logistics support service
- Rail service
- Third party logistics service
- Truck service
- Warehouse service.

Definitions are not provided for these facility types, nor are any thresholds for activity level provided.

Another approach is found in the Regional Goods Movement Study by the San Francisco Metropolitan Transportation Commission (84). In this study, generators are classified into three tiers. These tiers include specific types of buildings and associated activities, and they have different levels of freight generation associated with them. Neither generation rates nor industry classification criteria are provided in the document. A detailed list of industries in each tier (identified as "GM Rank") can be found in Figure 2. A definition for each of the tiers is presented below.".

GM Rank	Industry Group
1	Air Carriers
1	Airports
1	Postal, Parcel, & Express
1	Maritime Industries
1	Seaports
1	Rail Carriers
1	Pipelines & Refineries
1	Resource Extraction
1	Truck Carriers
1	Fuel Dealers
1	Household Goods (HHG) Carriers
1	Local Manufacturing
1	Local Wholesale
1	Waste Management
1	Local/Regional Manufacturing
1	Local/Regional Wholesale
1	Regional Manufacturing
1	Regional Wholesale
1	Truck Rental & Leasing
1	Warehousing
2	Utilities & Telecom
2	Vehicle Towing
2	Construction
2	Agriculture & Husbandry
2	Equipment Rental
2	Transport Support
2	Computer & Electronics Mfg.
2	Pharmaceutical & Biotech Mfg.
2	*Big Box Retailers*
2	*Gas Stations*
3	*Accommodations & Food Services*
3	*Education & Health Care*
3	*Entertainment & Recreation*
3	*Finance & Insurance*
3	*Industrial Services*
3	*Information Industry*
3	*Organizations & Government*
3	*Passenger Transport*
3	*Real Estate*
3	*Repair & Maintenance*
3	*Retail Trade*
3	*Services*

Figure 2: Industries per tier
Source: Regional Good Movement Study by the Metropolitan Transportation Commission

Definitions of the tiers:

- Tier 1: Goods Movement Dependent Groups: These are businesses/industries that have goods movement as a central focus of their activity and that typically exhibit frequent freight vehicle trips inbound and outbound. Goods movement access is important to location decision making for these businesses/industries.
- Tier 2: Goods Movement User Groups: These are businesses/industries that depend on regular goods movement, although it is of less importance to business operations and secondary to other business purposes. For these groups, goods movement access is typically not as important as other factors in making location decisions.
- Tier 3: Incidental Goods Movement Customers: These are businesses/industries that use goods movement services incidentally, and most do not ship or receive goods in significant volume.

Aviation

Airports are also often identified as freight-trip generators in DOTs' freight studies and airport plans. Airports are generally classified by using the NPIAS system, which was described in the first section. No specific classification was found for -freight-only airports.

One good example of planning based on the NPIAS metrics is the Northwest Alaska Transportation Plan (11). The plan suggests changes in demand and services offered that would allow Alaska's airports to be considered in a higher category under NPIAS. The benefit of such a change would be the availability of more federal funds.

Additionally, the U.S. Census defines air carriers as establishments that are primarily engaged in providing air delivery of individually addressed letters, parcels, and packages that are generally less than 100 pounds.

Marine Terminals

Ports are identified as another source of freight trips in the reviewed plans. In the Alaska Port Plan (6), ports are classified as regional and subregional port hubs. This definition is said to be based on trade volume and directions of flows. No quantitative

analysis was presented. Regional hubs represent the primary ports of entry for goods moving into or out of the state and region. Subregional hubs represent smaller ports of entry that tend to receive shipments from the regional hubs and distribute goods elsewhere in the region. If funding needs to be prioritized, regional ports have priority over sub-regional ones.

In this same plan, a methodology is presented to rank ports. This ranking is done by assigning points to a set of features based on ports' characteristics and performance. Each feature is valued independently (for example, each feature can be assigned a value from 1 to 5). The best port is the one with the highest sum of points. For the Alaska Port Plan, eight features were considered:

- Public safety
- Economic development
- Regional support / impact to communities
- Existing infrastructure needs
- Operations and maintenance
- Cost / benefit
- Sustainability
- Intermodal access / location.

These eight features were derived from a longer list of features. Stakeholders voted from the longer list presented in Table 2.

Table 2: Suggested criteria for ranking ports and harbor projects

Criterion	Explanation
Health and Safety	The safety of vessels, their crews, passengers, and community residents is of the utmost importance, and should be heavily weighted in all programs.
The Arctic Priority	A port of refuge/forward operating base that can serve the Arctic should have additional weighting for project ranking due to its ability to improve vessel and mariner safety, and emergency response capability.
Hubs	If a community or location has been identified as a hub or subregional hub, the relevant project should receive additional weight because such improvements would result in the greatest benefit to the overall marine and riverine transportation system and a larger number of communities.
Community/Regional Support	Projects that have been deemed a priority through a local or regional ranking process should be given extra weight.
Regional Significance	For projects that have not been ranked on a regional level, their importance to the regional transportation network and economy should be considered.
Joint Funding	Projects that incorporate a significant portion of their resources from non-state entities are preferable to those which are solely state funded.
Alignment with Other Projects or Organizations	Savings or synergies captured by two or more projects that are timed to share mobilization, demobilization or other relevant costs are preferable.
Economic Development	Projects that will lead to economic development (jobs, new businesses, industry growth, etc.) are encouraged.
Economic Feasibility	Project benefits should outweigh project costs; this criteria ranking will be based on a calculation that compares benefits such as spending effects, job creation, industry growth to costs like materials and labor for construction.
Cost-Effectiveness	Multiple transportation alternatives (including non-marine/riverine modes) should be considered for each need, with the most cost-effective solution being the preferred approach.
Environmental Protection	The project benefits the environment directly or will increase the ability to respond to environmental crises (e.g.: oil spill response, etc.).
Sustainability	The project is sustainable over time (physically and financially).
Existing Infrastructure Needs	The project is intended to repair, maintain or upgrade existing facilities that are currently in use.
Security	The project will meet national or state security needs.
Intermodal Access/Location	The project will create an intermodal connection, thereby improving the regional and/or statewide transportation network.
Subsistence	The project will facilitate subsistence activities such as harvesting marine and riverine resources or providing access to lands for hunting and gathering
Capacity and Demand	The intended size or capacity of the new project should be evaluated as compared to existing and anticipated demand as shown by indicators such as vessel waiting lists, resource size, vessel traffic, etc.
Operations and Maintenance (O&M) Reductions	The project will minimize O&M costs going forward
Service Life	Projects with a longer expected service life are preferable.
Transportation Alternatives	Projects for which there are no other options should rank higher than those that could be reduced in importance or eliminated by other feasible options.

3. FREIGHT CORRIDORS

ROADS AND HIGHWAYS

A methodology frequently used in the transportation plans to define freight corridors and their importance was to survey citizens, local governments, state legislators, councils of government, MPOs, chambers of commerce, business communities, and state DOT transportation planners and engineers (see reference 72). These stakeholders often have knowledgeable judgment about the criteria but not always data to support their judgment. For example, they may understand that a a bridge provides a critical connection but may not be able to quantify the extent to which it does.

In addition to the qualitative criteria provided by stakeholders, DOTs and agencies use quantitative information, for example, average daily traffic and number of accidents. These offices use flow data to estimate the numbers and proportions of trucks on roads (e.g., Colorado Statewide Transportation Plan). Then, these roads are classified as more or less important on the basis of volumes and proportions of trucks. Construction and improvement projects usually focus on those roads and intersections that currently exceed a certain level of congestion or fall below a minimum speed based on travel demand forecasts.

Many DOTs rely on existing definitions and classifications. For example, the National Highway System is considered in the Indiana plan (158). High Priority Corridors are widely used as well (243). Also, functional classifications are considered in some plans (161). These classifications are detailed in the first section of this document.

Particularly useful examples come from Arizona's Mariscopa region, where high volume routes are defined as roadway segments experiencing average daily truck (ADT) counts of more than 600, and in Alaska, where roadways were recognized by one of the people interviewed as critical freight infrastructure if they carry more than 1,000 trucks per day, or if truck traffic comprises more than 15 percent of the total traffic volume on the roadway.

In the Northwest Arkansas Regional Planning Commission's Long-Range Transportation Plan (60), roads are classified on the basis of the road's dimension (width

of pavement and right of way). For each of the categories, there is a desired service volume and speed. The road classification criteria is as follows:

Minor road

- In general, 30-ft pavement, 50-ft right of way

Collector street

- In general, 40-ft pavement, 60-ft right of way
- Desired service volume: 4,000 vpd to 6,000 vpd with left turn bays
- Desired speed: 25-30 mph

Minor Arterial street

- In general, 48-ft pavement, 80-ft right of way
- Desired service volume: 12,200 vpd to 14,800 vpd with left turn bays
- Desired speed: 35-50 mph

Major Arterial street

- In general, 64-ft pavement, 90-ft to 100-ft right of way
- Desired service volume: 17,600 vpd to 20,600 vpd with left turn bays
- Desired speed: 40-45 mph

4-Lane divided median street

- In general, 60-ft pavement, 100-ft to 110-ft right of way

Expressway / Freeway

- 28,300 vpd expressway , 44,800 vpd freeway
- Speed: 45-70 mph

A different method of ranking corridor priorities is provided in the Atlanta Regional Commission's Freight Mobility Plan (147). It suggested funding should be primarily assigned to a Regional Priority Freight Highway Network (PFHN), which is identified on the basis of the following criteria (no quantitative indicators were explained):

- Average annual truck volume
- Average annual truck percentage
- Connectivity to significant freight generator
- Designation as truck route

- Stakeholder identified route
- Intermodal connectors
- Role in terms of servicing local vs. regional freight needs.

In its statewide intermodal freight plan (166), Kentucky also defines a list of characteristics for highways to be considered as part of its backbone network:

- Interstate highways
- Other highways that provide access between an arterial highway and a major port, airport, public transportation facility, or other intermodal transportation facility
- Highways important to the United States' strategic defense policy and that provide defense access, continuity, and emergency capabilities for defense purposes, including highways that provide access between major military installations
- Additionally, principal arterial highways that provide service to areas with a population in excess of 25,000.
- Segments of the Kentucky portion of the National Truck Network (NTN)
- Some specific highways to ensure a complete geographical coverage.

More general is the definition by Kansas. In its long range transportation plan (164), it defines quantitative thresholds to categorize its highways and roads into five groups:

- Class A routes are Interstates. They are fully access-controlled routes that permit high speed travel. They are important arteries with high truck volumes. They average 21,700 vehicles per day.
- Class B routes are non-Interstate routes with limited access, high-speed travel, long distance truck traffic, and statewide significance. They average 5,100 vehicles per day.
- Class C routes are for regional travel and connect to higher-speed, limited-access roads. The average number of vehicles per day on these routes is 3,800.
- Class D routes provide inter-county transport and connect to higher-speed roadways. They may have speed restrictions because of the number of local road intersections. On average, these are traveled by 1,800 vehicles per day.

- Class E routes are for short trips. They typically connect small towns to nearby higher speed routes. They carry low traffic volumes and few trucks. The average number of vehicles per day on these routes statewide is 800.

Another methodology to classify roads is provided by the Washington DOT. The Washington State Freight and Goods Transportation System (286), or FGTS, classifies state highways, county roads, and city streets in five different categories according to the average annual gross truck tonnage they carry. Freight corridors with statewide significance, usually designated as Strategic Freight Corridors, are those routes that carry an average of 4 million or more gross tons by truck annually.

The tonnage classifications used for designating the FGTS are as follows:

- T-1 more than 10 million tons per year
- T-2 4 million to 10 million tons per year
- T-3 300,000 to 4 million tons per year
- T-4 100,000 to 300,000 tons per year
- T-5 at least 20,000 tons in 60 days to the average annual gross truck tonnage they carry.

The Texas DOT (269) created a methodology to calculate international trade corridors, understanding that these corridors are important elements of a freight network. The methodology uses the first and second edition of the Freight Analysis Framework (FAF and FAF2) to determine trade flows. The FAF2 databases for foreign trade and waterborne trade are used. The FAF2 databases include commodity, mode, origin, port, destination, tonnage, and value. All data on goods that had a foreign origin and passed through a given U.S. state's port of entry are included in the import trade flow. For exports, all data on goods passing through a port of entry with a foreign destination are considered. Analysts assign the flows to individual corridors by estimating the most likely routes from the ports of entry to the final destination, or conversely, the routes most likely taken from the origin to the ports of entry. If there is interest in only a subset of roads and highways, these resulting flows can be filtered to the desired corridors.

An interesting observation was made by Ohio DOT in its Inter-Modal Freight Strategy report (239). Nowadays, there is a rising interest in non-road modes of freight. This diversion will reduce funds for maintaining highways; this could affect traffic

conditions, which will have an impact on freight. Therefore, the Ohio DOT proposed the following four principles to better understand the impacts of highway changes on truck traffic. These criteria give a different weight to trucks versus other vehicles.

- Principle 5A: Average Daily Traffic – Considers truck traffic independent of total ADT, so that corridors with a heavy truck concentration can compete with more commuter-oriented routes.
- Principle 5B: Volume-to-Capacity Ratio – As a measure of congestion, V/C ratio inherently considers the impact of trucks, which receives more weight in the V/C calculation than automobiles.
- Principle 5C: Roadway Classification – This transportation factor assigns more weight to Interstate highways and less weight to lower-classified roadways. Since 83 percent of Ohio's truck traffic is on the Interstate system, this factor, too, is very favorable to freight transport.
- Principle 5D: Macro Corridor Completion – Macro corridors were identified for their potential to link Ohio regionally and nationally*. When completed, 90 percent of Ohio's population will live within 15 miles of a macro corridor. These corridors are vital to freight movement, as fully 94 percent of Ohio's truck traffic uses the macro corridors (which include the Interstate system).

**This fourth criterion can be adapted to situations in other states by considering corridors with these characteristics.*

RAIL

Almost all state rail plans follow the "Class" classification system. This is a well-known and quantitative way to classify railroads (for example, see 287).

However, some plans propose variants of the "class" system. For Example, Iowa's Rail System Plan (161) proposes to stratify rail systems into five subsystems (Table 3). The purpose of stratification is to group rail lines with similar characteristics according to their benefits to the state as transportation facilities and generators of economic activity.

Table 3: Rail system stratification criteria

Level	National Defense	Average Density (1)	On-Line Rail Traffic Cars/Mile (2)	On-Line Population (2)	On-Line Manufacturing Employees (2)
1	STRACNET	Over 20			
2	Connector	5 to 20			
3		1 to 5	Over 100	Over 10,000	Over 500
4		0.5 to 1.0	50 to 100	5,000 to 10,000	100 to 500
5		0.0 to 0.5	0 to 50	0 to 5,000	0 to 100

Notes:
(1) Density = million gross ton-miles per mile.
(2) Density is the primary factor used to determine levels 3, 4, and 5. Line segments are adjusted to the next higher level if any two of the factors are higher than the density level.

The Florida DOT, in its 2006 Passenger and Freight Rail Plan, defines Florida's Strategic Intermodal System (SIS). The SIS includes three different types of facilities, each of which forms one component of an interconnected transportation system:

- Hubs are ports and terminals that move goods or people between a state's regions or between a state and other markets in the United States and the rest of the world. These include commercial service airports, deepwater seaports, spaceports, interregional rail and bus terminals and freight rail terminals.
- Corridors are highways, rail lines, and waterways that connect major markets within Florida or between Florida and other states or nations.
- Intermodal connectors are highways, rail lines, or waterways that connect hubs and corridors.

Criteria for designating the SIS hubs and corridors are based on available national or industry standards for measures of transportation and economic activity. For example, the airport designation is based on the number of passengers or the total freight tonnage handled by each airport; highway designation is based in part on the average number of passenger vehicles and trucks that use the highway each day. The majority of the criteria are based on percentages of total U.S. activity, so that they can be easily adjusted to reflect growth or decline in activity levels nationally.

The SIS comprises SIS Components and Emerging SIS Components. The first one relates to freight elements that can be considered essential for the freight network while the second component is projected to have a fundamental role in the future. The

definitions for these components are presented in Table 4. Non-rail components are included in this table as well.

Table 4: Summary of hubs and corridors designation criteria

Facility Type	SIS Component	Emerging SIS Component
Commercial Service Airports	0.25% of U.S. activity	0.05% of U.S. activity OR serves clusters of aviation-dependent industries AND more than 50 miles from SIS airport
Spaceports	Commercial or military payloads	Not applicable
Deepwater Seaports	250,000 passengers OR 0.25% of U.S. freight activity	50,000 passengers OR 0.05% of U.S. freight activity OR serves clusters of seaport-dependent industries AND more than 50 miles from SIS seaport
Passenger Terminals	100,000 interregional passengers	50,000 interregional passengers OR serves clusters of population and tourist activity AND more than 50 miles from SIS terminal
Freight Terminals	0.25% of U.S. activity	0.05% of U.S. activity OR serves clusters of rail-dependent industries AND more than 50 miles from SIS terminal
Passenger Rail Corridors	Existing service	Not applicable
Freight Rail Corridors	10 million gross ton-miles per track-mile	5 million gross ton-miles per track-mile OR serves clusters of rail-dependent industries
Waterways	Intracoastal waterways and coastal shipping lanes OR 0.25% of total U.S. traffic	Inland interregional waterway AND 0.05% of total traffic OR serves clusters of waterborne-dependent industries
Highways*	FIHS with 9,000 AADT OR FIHS with 20% truck traffic OR NHS connections to Alabama and Georgia	FIHS with 6,000 AADT OR FIHS with 13% truck traffic (minimum 800 trucks per day) OR SHS serving designated Rural Areas of Critical Economic Concern with 6,000 AADT OR SHS serving designated Rural Areas of Critical Economic Concern with 13% truck traffic (minimum 1,000 trucks per day)
Exclusive Use Busways, Truckways and Transit Facilities	Provides intercity or interregional service with connection to other modes	Provides alternative travel mode within designated SIS interregional highway or rail corridors

The Florida DOT also developed a useful list of criteria to prioritize rail needs (138), although these criteria could be adapted to other freight-network elements. These criteria are presented in Table 5.

Table 5: Criteria used for prioritizing FDOT rail needs projects

Criteria	**Ranking**	**(Score) Definition**
Funding Status	High (3)	Project is currently funded or partially funded.
	Medium (2)	Project is not currently funded but is eligible for funding from one or more sources.
	Low (1)	Project is not currently funded, and no potential/eligible funding sources have been identified.
Coordination Status	High (3)	Project has consulted with multiple plans (e.g., Florida Transportation Plan, local comprehensive plans), agencies, and stakeholders, and has received public support.
	Medium (2)	Project has consulted with one or more plans or agencies and/or has received some public support.
	Low (1)	No evidence of coordination with other plans and/or agencies and no evidence of public support.
State and/or Regional Significance	High (3)	Project is of statewide significance.
	Medium (2)	Project is of regional significance.
	Low (1)	Project is not of statewide or regional significance.
Environmental Review Status *(criteria considered only as a component of shovel readiness)*	High (3)	All environmental review for the project has been completed, or environmental review is not necessary.
	Medium (2)	Required environmental review for the project is currently under way.
	Low (1)	Environmental review of the project has not yet been undertaken, or information about the environmental review status of the project is not available.
Design Completeness and Right-of-Way Acquisition *(criteria considered only as a component of shovel-readiness)*	High (3)	Right-of-way for the project has been acquired and design is complete.
	Medium (2)	Negotiations are under way to acquire right-of-way for the project and/or project design is under way.
	Low (1)	Right-of-way has not yet been acquired for the project, design has not yet been initiated, and/or information about the status of project design and right-of-way is not available.
Eligibility for	High (3)	Project is eligible for federal monies.

Federal Grants *(criteria considered only as a component of shovel-readiness)*	Medium (2)	Project is potentially eligible for Federal funding.
	Low (1)	Project is not eligible for federal funding or proof of eligibility for federal grants is not available.
Included in TIP and/or STIP *(criteria considered only as a component of shovel-readiness)*	High (3)	Project is currently included in the STIP.
	Medium (2)	Project is currently included in a local TIP.
	Low (1)	Project is not currently included in the STIP or a local TIP, or information about the project's status is not available. Shovel Readiness
Shovel Readiness	High (3)	Average score/ranking for Environmental Review Status, Design Completeness and Right-of-Way Acquisition, Eligibility for Federal Grants, and Included in TRIP and/or STIP criteria of 2.5 or greater.
	Medium (2)	Average score/ranking for Environmental Review Status, Design Completeness and Right-of-Way Acquisition, Eligibility for Federal Grants, and Included in TRIP and/or STIP criteria of 1.5 to 2.4.
	Low (1)	Average score/ranking for Environmental Review Status, Design Completeness and Right-of-Way Acquisition, Eligibility for Federal Grants, and Included in TRIP and/or STIP criteria of 1.4 or less.
Overall Project Priority	Very High	Average score/ranking of Funding Status, Coordination Status, State or Regional Significance, and Shovel Readiness criteria of 2.5 or greater.
	High	Average score/ranking of Funding Status, Coordination Status, State or Regional Significance, and Shovel Readiness criteria of 2.0 to 2.4.
	Medium-High	Average score/ranking of Funding Status, Coordination Status, State or Regional Significance, and Shovel Readiness criteria of 1.6 to 1.9.
	Medium	Average score/ranking of Funding Status, Coordination Status, State or Regional Significance, and Shovel Readiness criteria of 1.5.
	Low-Medium	Average score/ranking of Funding Status, Coordination Status, State or Regional Significance, and Shovel Readiness criteria of 1.1 to 1.4.
	Low	Average score/ranking of Funding Status, Coordination Status, State or Regional Significance, and Shovel Readiness criteria of 1.0.

Source: Cambridge Systematics.

In Indiana's Rail Plan (160), a scoring system is presented for making funding decisions on the basis of the goals and factors considered important by this state's DOT (Table 6).

Table 6: Major moves project scoring process

Goal	**Factors**	**Maximum Score**
Transportation Efficiency	Cost-Effectiveness Index – Measure of Benefit/Cost Ratio and Net Present Value of Investment	20
	Congestion Relief – Measure of Mobility using Truck and Automobile AADT, V/C Ratio, and Change in LOS from the Improvement	15
	Road Classification – Measure of Highway Importance	5
	Percent Complete in Development	5
	Adjacent State or Relinquishment Agreement – Measure of Interstate Connectivity	3
	Corridor Completion – Measure of Project's Ability to Complete Statewide Connectivity Targets	2
	Transportation Efficiency Total Points Possible	**50**
Safety	Crash Frequency/Density, Crash Severity, and Fatality Rate Ratio	25
	Safety Total Points Possible	**25**
Economic Development	Jobs Created or Retained	10
	Economic Distress and Cost-Effectiveness	5
	Customer Input Local Planning Agency Input	4
	Legislative and Elected Officials	3
	Other Citizen Input	3
	Economic Development/Customer Input Total Points Possible	**25**
Bonus Points		
Earmarks	Public/Private or Local Participating Funds	Up to 100
Urban Revitalization		10
	Total Points Possible, Including Bonus Points	**210**

BRIDGES

Bridges are also considered important elements of the freight network in the states' freight and transportation plans. Their level of importance can be determined if

they belong to corridors or roads established as important with the previously described criteria. In addition, some states have specific methods for identifying bridges of importance.

A simple list of criteria is provided by Ohio DOT (in 238) to define major bridges. A bridge is considered "major" if it meets one or more of the following criteria:

- More than 1,000 feet long
- Single bridge with a deck area of 81,000 square feet (9000 square yards) or greater
- Twin bridges with a deck area of 135,000 square feet (15,000 square yards) or greater
- Spans the Ohio River*
- Moveable bridge
- Continuous/cantilever truss bridge
- Suspension bridge.

**This criterion could be generalized to crossing a major river in a different state. "Major river" would have to be defined.*

All state and locally owned public bridges are inspected at least every two years as part of the state's safety inspection program. The bridge sufficiency rating is a score, ranging from 0 to 100, that assesses a bridge's (a) structural adequacy and safety, (b) serviceability and functional obsolescence, and (c) essential importance for public use.

Replacement and rehabilitation criteria are as follows:

- Bridge Replacement: A bridge sufficiency rating of 50 or less means a bridge is structurally deficient and/or functionally obsolete. A functionally obsolete bridge is defined as too narrow to serve the existing volume of traffic, regardless of structural integrity.
- Bridge Rehabilitation: A bridge sufficiency rating of 80 or less means a bridge is structurally deficient and/or functionally obsolete.

4. CONCLUSIONS

A review of transportation plans and studies for the fifty U.S. states, District of Columbia, and Puerto Rico was conducted to summarize existing definitions of freight networks. The reviewed plans and studies included statewide long-range transportation plans, state rail plans, specific technical freight studies, and transportation plans from MPOs in Alabama, Alaska, Arizona, and California, as well as a few airport plans and corridor studies. A complete list of the documents reviewed is provided in the final section.

The findings are summarized below as they relate to freight generators and freight corridors.

In terms of generation, the reviewed plans consider industrial and commercial areas as freight generators. These areas are defined in cities' land-use plans. Also, certain types of buildings are identified as generators. Neither trips nor cargo generation rates were found in the plans. In other words, generation is classified into levels and categories, but no specific values are provided for the type of area or facility.

In regard to freight corridors, we found that federal definitions (e.g., high priority corridors) are widely used by state DOTs to define types of corridors, modes, and facilities in their plans and studies. However, some states have developed complementary definitions or new ones. A complementary road and highway definition was developed by the Kansas DOT. Roads and highways are classified into five categories, depending on their accessibility, travel speed, and average vehicular flows per day. However, the definition of interstate highways is used along with their own five-level definition. One example of the development of new definitions is that the Washington DOT has reclassified state highways, county roads, and city streets into five different categories according to the average annual gross truck tonnage they carry. Although the WSDOT uses existing definitions, it has created a totally new five-level classification of the roads and highways in Washington.

The states' methodologies to determine investment priorities can be used to guide the importance of freight infrastructure and elements. For example, the criteria to

prioritize rail investment developed by the Florida DOT, define and classify facilities and investment needs, and can be used to assign priorities to the needed investments.

Therefore, it is possible to conclude that states generally use existing federal sources to define and classify their freight corridors and local-level sources to define generation. In some cases, states have developed definitions that complement the federal ones and a few have developed unique definitions and classifications. Additionally, investment prioritization criteria have been presented with the intent of helping to define a hierarchy of freight infrastructure and elements.

We suggest that future work focuses on MPOs' transportation plans, given the extensive areas that some of them cover and the systems approach they are required to use. Aviation system plans and corridors plans may also provide useful concepts for the definition of freight networks.

5. SOURCES OF INFORMATION

These are the plans and reports reviewed in preparation of the present document:

1. FHWA's Highway Priority Corridors
2. BTS's commodity flow survey
3. Alabama Statewide Transportation Plan
4. Alabama Statewide Transportation Plan Update, Existing System Assessment
5. Alaska Statewide Long-run Transportation Policy Plan
6. Alaska Regional Port's Final Report
7. Alaska - Southeast Alaska Transportation Plan
8. Alaska - Prince William Sound Transportation Plan
9. Alaska - Prince William Sound Transportation Plan - Vessel Suitability Study
10. Alaska - Southwest Alaska Transportation Plan
11. Alaska - Northwest Alaska Transportation Plan
12. Alaska - Yukon-Kuskokwim Delta Transportation Plan
13. Alaska - Fairbanks Metropolitan Transportation Plan: 2010-2035
14. Alaska - Anchorage - Freight Mobility Study
15. Arizona - Transportation Improvement Program, FY 2011-2015 MAG
16. Arizona - Unified Nogales, Santa Cruz County Transportation 2000 Plan
17. Arizona - State Route 77-Oracle Road Multimodal Corridor Profile Study
18. Arizona - Salt River Pima-Maricopa Indian Community Long Range Transportation Study
19. Arizona - Northwest Cochise County Long Range Transportation Plan
20. Arizona - Regional Transportation Plan - Mariscopa Association of Governments 2010
21. Arizona - Regional Freight Assessment, April 2004
22. Arizona - Arizona Freight Transportation Prospects
23. Arizona - Proposed MAG freight Study and Interstate 11
24. Arizona - I-8 and I-10 - Hidden Valley Roadway Framework Study
25. Arizona - 2010 Statewide Transportation Planning Framework
26. Arizona - Multimodal Freight Analysis Study

27. Arizona – Logistics Capacity Study of the Guaymas-Tucson Corridor
28. Arizona - US 60 Corridor Definition Study
29. Arizona - Williams Gateway Corridor Definition Study
30. Arizona - Southern Pinal - Northern Pima Corridor Definition Study
31. Arizona - Pinal County Corridor Definition Study
32. Arizona - Multimodal Freight Analysis Study
33. Arizona - Kachina Village Multimodal Transportation Study
34. Arizona - 2040 Regional Transportation Plan - Pima association of Governments
35. Arizona - Statewide Transportation Investment Strategy for the counties of Yuma, Yavapai, Santa Cruz, Pinal, Pima, Mohave, Navajo, Maricopa, La Paz, Greenlee, Graham, Gila, Coconino, Cochise, and Apache.
36. Arizona - Five-Year Transportation Facilities Construction Program - 2011 – 2015
37. Arizona - Town of Superior Small Area Transportation Study
38. Arizona - Intermodal Transportation Division Strategic Plan FY - 2011-2015
39. Arizona - Graham County Small Area Transportation Study
40. Arizona - City of San Luis Small Area Transportation Study
41. Arizona - Arizona Update of the Colorado River Regional Transportation Study
42. Arizona - City of Benson Small Area Transportation Plan – 2007
43. Arizona - Lake Havasu City Small Area Transportation Study Update – 2005
44. Arizona - Town of Sahuarita Small Area Transportation Plan – 1999
45. Arizona - Unified Nogales, Santa Cruz County Transportation 2000 Plan
46. Arizona - Statewide Transportation Planning Framework
47. Arkansas - Metroplan MPO - Central Arkansas Regional - Metropolitan Transportation Plan 2030
48. Arkansas - Metroplan MPO - Central Arkansas Regional – Transportación Improvement Plan 2010-2013
49. Arkansas - Bi State MPO - 2030 transportation mobility plan
50. Arkansas - Bi State MPO - Transportation Improvement Plan - 2010 – 2013
51. Arkansas - City of Jonesboro - Metropolitan Transportation Plan 2035
52. Arkansas - City of Jonesboro – Transportation Improvement Plan
53. Arkansas - Fayetteville South Industrial Park Railroad Access Study

54. Arkansas - Hot Springs Area MPO - Long-Range Transportation Plan – 2035
55. Arkansas - Hot Springs Area MPO – Transportation Improvement Plan 2010-2013
56. Arkansas - Landside Access Study - Van Buren Regional Intermodal Port Complex
57. Arkansas - Little Rock National Airport Air Cargo Study
58. Arkansas - Little Rock Port Complex Freight Study
59. Arkansas - Northwest Arkansas Regional Airport Air Cargo Study and Freight Transportation Access Assessment
60. Arkansas - Northwest Arkansas Regional Planning Commission - Regional Long Range Transportation Plan 2035
61. Arkansas - Port of Pine Bluff Initiative: Domestic and International Shipping Study
62. Arkansas - Southeast Arkansas Regional Planning Commission - Metropolitan Transportation Plan 2035
63. Arkansas - State Rail Plan – 2002
64. Arkansas - Statewide long-range intermodal transportation plan - 2007 update
65. Arkansas - Texarkana Region Freight Transportation Study (Shippers' Study)
66. Arkansas - Texas - Transportation Improvement Program 2011 2014
67. Arkansas -City of Searcy - Transportation Improvement Study
68. Arkansas - West Memphis MPO - Long Range Transportation Plan 2033
69. Arkansas - west Memphis MPO – Transportation Improvement Plan 2010-2013
70. Arkansas - Yellow Bend Slackwater Harbor Study – Phase II
71. California - California State Rail Plan
72. California - Transportation Plan 2025
73. California - Goods Movement Action Plan - Phase I – 2005
74. California - Goods Movement Action Plan - Phase II – 2007
75. California – Kern Council - Federal Transportation Improvement Program - 2011
76. California – Kern Council - Freight Annual Report - 2008-2009
77. California – Kern Council - Goods Movement Study for US 395 Corridor - 2006
78. California – Kern Council - Origin and Destination Truck Study - 2011
79. California – Kern Council - Regional Transportation Improvement Program - 2010
80. California – Kern Council - Regional Transportation Plan - 2011
81. California – Kern Council Regional Aviation System Plan, Phase I - 1994

82. California – Merced County – Regional Transportation Plan 2011
83. California – Metropolitan Transportation Commission - Goods Movement-Land Use Study Update
84. California – Metropolitan Transportation Commission - Regional Goods Movement Study for the San Francisco Bay Area
85. California – Metropolitan Transportation Commission - Task 2 Report: Central Area Industrial Land Supply for Bay Area Goods Movement Businesses-Industries
86. California – Metropolitan Transportation Commission - Task 2: Data Reconnaissance and Trends Final Report
87. California – Metropolitan Transportation Commission - Task 3: Goods Movement Industry Cluster Analysis
88. California - Metropolitan Transportation Commission - Task 3A Report: Goods Movement Businesses-Industries With Demand for Central Corridors
89. California - Metropolitan Transportation Commission - Task 3B Report: Forecast Growth of Goods Movement Industries with Demand for Central Corridors
90. California – Metropolitan Transportation Commission - Task 3C Report: Jobs and Other economic Benefits Associated with Goods Movement Industries
91. California – Metropolitan Transportation Commission - Task 4A Report: Goods Movement Land Use Scenarios for Central Area Study Corridors
92. California – Metropolitan Transportation Commission - Task 4B Report: Transportation, Environmental, and Economic Impacts of a Dispersed Goods Movement Land Use Pattern
93. California – Metropolitan Transportation Commission - Task 4C Report: Implications of a Dispersed Goods Movement Land Use Pattern for Region's Smart Growth Vision and FOCUS Program
94. California – Metropolitan Transportation Commission - Task 5: Overview of Goods Movement Industries and Land Use Issues in the South Bay
95. California – Metropolitan Transportation Commission - Task 9: Technical Memorandum – Issue Identification and Development of Preliminary Solutions and Strategies

96. California – Metropolitan Transportation Commission - Task 11: A Land-Use Strategy to Support Regional Goods Movement in the Bay Area
97. California – Metropolitan Transportation Commission - Transportation Plan 2035
98. California – Port of LA - Strategic Plan 2010-2011
99. California – Regional Rail Plan
100. California – Sacramento – Metropolitan Transportation Improvement Plan 2011-2014
101. California – San Joaquin – Regional Transportation Improvement Plan 2008
102. California – San Luis Obispo Council of Governments – Regional Transportation Plan 2010
103. California – SANGAB - Regional Transportation Plan 2050
104. California – Santa Barbara County Associations of Governments – Regional Transportation Plan 2008
105. California – Sashta – Federal Transportation Improvement Plan 2010
106. California - Sashta – Regional Transportation Plan 2010
107. California – Southern California Association of Governments - Goods Movement Truck and Rail Study
108. California – Southern California Association of Governments – Regional Transportation Plan 2010
109. California – California – Southern California Association of Governments – Regional Transportation Improvement Plan 2010
110. California – Tahoe MPO – Regional Transportation Plan 2030
111. California - Tulare County Association of Governments - RTP 2011
112. Colorado - 2030 Statewide Transportation Plan
113. Colorado - 2030 Statewide Transportation Plan - Accomplishments Technical Report
114. Colorado - 2030 Statewide Transportation Plan - Aviation Technical Report
115. Colorado - 2030 Statewide Transportation Plan - Corridor Visions Appendix
116. Colorado - 2030 Statewide Transportation Plan - Corridor Visions Technical Report
117. Colorado - 2030 Statewide Transportation Plan - Economic Connections Technical Report

118. Colorado - 2030 Statewide Transportation Plan - Environmental Technical Report
119. Colorado - 2030 Statewide Transportation Plan - Freight Technical Report
120. Colorado - 2030 Statewide Transportation Plan - State Highway Technical Report
121. Colorado - 2030 Statewide Transportation Plan - Transportation Demand Management Technical Report
122. Colorado - 2035 Statewide Transportation Plan Amendment – May 2011
123. Colorado - 2035 Statewide Transportation Plan
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131. Delaware - Freight and Goods Movement Plan Technical Report
132. Delaware - State Rail Plan - April 2011
133. Florida - 2002 Rail System
134. Florida - 2006 Passenger and Freight Rail Plan
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136. Florida - 2060 Transportation Plan
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139. Florida - Statewide Transportation Planning
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141. Florida - Strategic Intermodal System Plan 2005
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145. Georgia - Freight Plan - 2005-2035
146. Georgia - Minutes Stakeholder Advisory Committee Dec8 2004

147. Georgia - Georgia - Atlanta Regional Commission - Freight Mobility Plan
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149. Georgia - Statewide Strategic Transportation Plan 2010-2030
150. Georgia - Statewide Transportation Plan
151. Idaho - Long Range Capital Improvement Process - FY 2008
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157. Illinois - State Transportation Plan 2007
158. Indiana - 2030 Long Range Transportation Plan
159. Indiana - Multimodal Freight and Mobility Plan
160. Indiana - Rail Plan
161. Iowa - Rail System Plan
162. Iowa - State Transportation Plan 1997
163. Kansas - 2007 Transportation Logistics & Economics of the Processed Meat and Related Industries in SW Kansas
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165. Kansas - Rail Plan 2003-2004
166. Kentucky - 2006 Long-Range Statewide Transportation Plan
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170. Louisiana - Statewide Transportation Plan
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199. Missouri - 2007 Long-Range Transportation Plan
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201. Missouri - Freight Optimization and Development in Missouri_ Ports and Waterways Module
202. Missouri - Missouri Freight and Passenger Rail Analysis Phase 2
203. Missouri - Update of Missouri Port Authority Assessment
204. Montana - Commodity Flow Feasibility Study
205. Montana - Local Transportation and Land Use Coordination_ Tools and Gaps
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214. Nebraska - Statewide Long Range Transportation Plan 2006
215. Nevada - Goods Movement Study
216. Nevada - Statewide Multi-Modal Plan
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219. New Hampshire - State Airport System Plan - Technical Report – Chapter 2 System Inventory
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237. North Dakota - Statewide Strategic Transportation Plan
238. Ohio - 30 Year Major Bridge Asset Management Plan
239. Ohio - Inter-Modal Freight Strategy
240. Ohio - Ohio's Intermodal Transportation System
241. Ohio - State Rail Plan
242. Ohio - Statewide Freight Study, Initial Results (presentation)
243. Oklahoma - Long Range Transportation Plan - without maps
244. Oklahoma - Statewide Intermodal Transportation Plan
245. Oregon - Freight Considerations for Local Transportation System Planning, September 1999 (just a list of freight concepts, useful though)
246. Oregon - Freight Moves the Economy Report
247. Oregon - Freight Plan Modeling Analysis
248. Oregon - Inventory of Oregon Freight Infrastructure
249. Oregon - Rail Plan 2001
250. Oregon Rail Studies - Appendix A Oregon Freight Rail System
251. Oregon - Rail Study 2010
252. Oregon - State of the System 2010 Report
253. Oregon - Statewide Multimodal Freight Plan
254. Oregon - Transportation Plan, Volume 1

255. Oregon - Transportation Plan, Volume 2
256. Oregon - Truck Trip Data Collection Methods
257. Pennsylvania - Mobility Plan Direction Document
258. Pennsylvania - The Intercity Passenger and Freight Rail Plan for 2035
259. Puerto Rico - San Juan - Long Range Transportation Plan
260. Rhode Island - Long Range Transportation Plan
261. Rhode Island - Transportation Future
262. South Carolina - Rail Inventory
263. South Carolina - Statewide Interstate Plan
264. South Dakota - Rail Plan 1997
265. Tennessee - Long Range Transportation Plan - Modal Needs Report
266. Tennessee - Rail Plan - Task 5 - Freight Forecasting (Freight Movement Inventory and Future Demand Analysis)
267. Tennessee - Unlocking Freight: Key Findings
268. Texas - Grain Transportation Study
269. Texas - International Trade Corridor Plan 2006
270. Texas - International Trade Corridor Plan 2008
271. Texas - International Trade Corridor Plan 2010
272. Texas - Rail Plan
273. Texas - Statewide Long-Range Transportation Plan 2035
274. Texas - West Texas Freight Rail Study
275. Vermont - Long Range Transportation Business Plan - Technical Appendix
276. Vermont - Long Range Transportation Business Plan
277. Vermont - Rail Studies - Vermont Railway Western Corridor
278. Vermont - State Rail and Policy Plan
279. Vermont - Statewide Freight Study
280. Virginia - 2025 State Highway Plan
281. Virginia - Corridors of Statewide Significance – Overview
282. Virginia - Long-Range Multimodal Transportation Plan
283. Virginia - Statewide Multimodal Freight Study
284. Virginia - Statewide Multimodal Long-Range Transportation Plan

285. Virginia - Surface Transportation Plan 2035
286. Washington - Freight and Goods Transportation - Update 2007
287. Washington - Freight Rail Plan - 2010-2030
288. Washington - Highway System Plan 2007-2026
289. Washington - Highway System Plan 2007-2026 - Technical Update
290. Washington - Intermodal Connectors_ A Method for Improving Transportation Efficiency
291. Washington - Transportation Plan - 2007-2026
292. Washington - Transportation Plan Freight Report
293. West Virginia - Statewide Multi-modal Long Range Transportation Plan
294. Wisconsin - Long Range Transportation Plan
295. Wisconsin - Rail Plan 2030 - Draft plan
296. Wyoming - Long Range Transportation Plan 2010
297. Wyoming - Aviation - Priority Rating Model