

Freight & Goods Movement Study



NASHVILLE AREA METROPOLITAN PLANNING ORGANIZATION

- Institutionalize freight needs into the overall NAMPO planning process, by modifying existing planning tools and priorities.

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Objectives of Phase I:

- Establish the basis for subsequent freight planning efforts by assembling a regional freight advisory committee and developing a regional freight profile.
- Produce freight related strategies, policies and projects specific to the Nashville area that can be implemented within the NAMPO planning process in the near term.



Phase I Accomplishments

- A Regional Freight Advisory Committee was established and is intended to last through all phases of the freight & goods movement studies, and beyond, to provide feedback toward the studies, and to help the MPO itself as it plans for future transportation needs.
- Identification of Issues, Opportunities, and Potential Strategies

General Conditions:

While overall freight stakeholders gave Nashville passing marks for regional highway mobility, Nashville's location as a crossroads to the rest of the Nation is affecting traffic operations in the Region. Designating high priority truck routes and focusing advance traffic operational solutions to these networks may offer relief from growing congestion. An opportunity for increasing the use of non-highway modes is another strategy that can relieve the growing pressure on the Region's highway system.

Nashville as a Crossroads:

Two-thirds of Tennessee's truck traffic passes through Nashville rather than originating or terminating in the area. As a crossroads city, Nashville must deal with highway congestion and air quality as well as the need to influence the over-head flow of through traffic. The need for traffic management requires other cities within Tennessee and other states to cooperate in the formation and implementation of rail and highway development plans. There is a need for a strong alliance of organizations to look for comprehensive solutions to transportation and air quality challenges.

Pressures of Growth:

Stakeholders cited many specific problems that revolved around deficient geometric standards. Truck operations are an issue with many trucks driving on streets and highways with inadequate signals and signage. The larger trucks in today's trucking fleets are often not compatible with current road infrastructure, and older facilities

do not meet the needs of these new trucks. Urban design standards also need to be updated to meet freight needs.

Service Sensitivity in Key Industries:

The analysis conducted in other studies and earlier stages of this study suggest that Nashville's most important industries are service sensitive in regard to freight transportation. During stakeholder interviews several issues were raised that work against the agile, time-reliable transportation. Such issues ranged from streets with inadequate commercial parking resulting in longer than necessary delivery times, to sprawling growth trends in the Region resulting in longer truck trips between delivery sites.

Planning to Enhance Freight Mobility:

The level of mobility and accessibility to the Nashville Area transportation network is a key consideration to the smooth and efficient flow of freight. Within the Region, increasing highway congestion affects the cost and efficiency of truck transport, and subsequently the reliability required for just-in-time delivery. Congestion within the Region is occurring at a time when the need for freight movement, primarily from trucks, is likely to increase significantly. The general evolution from push to pull logistics and subsequent demands for just-in-time delivery, combined with growth in distribution centers, will likely heighten regional business sensitivity to disruptions caused by traffic congestion. Traffic congestion typically results from growing population and subsequent increases in travel demand. Since several factors are contributing to the current trends, addressing traffic congestion requires a balanced approach. The strategies to help increase mobility include focusing on key truck corridors, the use of technology to enhance operations, promoting rail intermodal operations.

Urban Design and Growth Management Policy:

The design of the Region's neighborhoods, streets, buildings and shopping centers, as well as the location of manufacturing and industrial sectors within the Region, must allow for safe

Phase I Accomplishments (Continued from page 1)

Fast Action Projects
Beechcroft Road (SR 2247) at the CSX Crossing
8th Avenue Railroad Bridge
Elliston Place
Lebanon and Watertown: Exit 239
New Shackle Island Rd. at Gallatin Rd (US Hwy 31)
Old Hickory Blvd at Firestone Parkway



Potential Funding Streams
Congestion Mitigation /Air Quality Program
Bridge Program
Corridors and Borders Program
Interstate Maintenance Program
Value Pricing Program
Federal Transportation Infrastructure Finance and Innovation Act Program

and efficient interaction between the movement of people, freight, goods and services. By carefully considering and integrating freight transport into regional growth planning, the Nashville Area can enhance its ability to influence the Region’s urban form, and ultimately ensure both a high quality of life and a logistics competitive edge for the Region. To properly plan for a regional freight network, it is necessary that proposed planning activities be officially recognized and implemented at a regional level. Planning procedures that differ across jurisdictional boundaries work against each other, diminishing the efficiencies gained through “just-in-time” inventory management. Without region-wide adoption of transportation planning activities and standards, the value of identifying a regional freight network may be lost. The creation, by all jurisdictions in the Nashville Area, of a zoning classification specifically designed to accommodate freight staging and distribution facilities would greatly enhance the ability of the Nashville Area to coordinate, plan for, and attract freight-related development. Officially recognized infrastructure and operational design guidelines implemented by all jurisdictional bodies within the Region are a fundamental element of effective metropolitan freight and goods movement planning. Building codes where truck traffic is generated should specify the criteria for the number of bays required based on square foot of floor space. These criteria should vary based on the use: office space, retail strip malls, and shopping malls should have different metrics. The development review process also presents an opportunity to understand the traffic patterns, specifically freight goods and services patterns to and from said developments. Understanding the travel flow patterns for heavy-duty vehicles allows transportation planners to approach planning from a systems and corridors approach. Thus, it is recommended that developers or project sponsors be required to also provide an overall concept plan or schematic that identifies the key routes that are expected to be utilized.

Policies Promoting Economic Vitality and Quality of Life:

Air Quality Issues

The transport of freight, goods and services

is affected not only by policies related to urban and transportation system design, but by policies related to environmental pollution. Two areas of focus in this regard are noise pollution and air quality. Complaints about noise from railroads and heavy truck traffic are common in residential areas. Policy development which specifically addresses freight mobility, by establishing truck corridors or designated truck routes, optimizing the location of industrial and warehousing facilities, or perhaps addressing operational constraints, can reduce the strain on the existing transportation infrastructure within the Region, and reduce heavy truck routing through residential neighborhoods. Both state environmental agencies and the Federal government are afforded further authority to implement additional regional measures to achieve attainment, which in some cases involve more stringent emissions requirements placed on heavy trucks and other vehicles. Not only will such potential decisions impact the bottom-line to shippers, but likewise the cost to manufactures and industries will be apparent. In either case, the Region’s economic growth may be stalled as a result. One suggested addition for future air quality related planning efforts in the Nashville Region is the collection and tracking of commercial vehicle registration data in the metropolitan counties. Registration data would provide information about the age of the local delivery fleet in the urban core. The EPA has established several voluntary programs under the “SmartWay Transport Partnership” that seek collaborative solutions between EPA and the freight industry to increase the energy efficiency and security while significantly reducing air pollution and greenhouse gases. The Partnership creates strong market-based incentives that challenge companies shipping products, and the truck and rail companies delivering these products, to improve the environmental performance of their freight operations. SmartWay Transport partners improve their energy efficiency, save money, reduce greenhouse gas emissions and improve air quality.

Environmental Justice

A key focus of freight planning policy issues and considerations involve the co-location of similar freight-related land uses. Historically, where land is most inexpensive has tended to be in areas of low-income and minority populations.

Phase I Accomplishments (Continued from page 2)

Recognizing this pattern over time, President Clinton issued an Executive Order (#12898), based on the Civil Rights Act of 1964. The Executive Order directs Federal agencies to develop policies to avoid, minimize or mitigate impacts on low income or minority communities and to

better engage these communities in the decision making process. It is imperative that environmental justice play a key role in the dialogue between public and private entities within the Nashville Area, and that it play a further role in freight-specific transportation and land-use

policies within the Region. While on the surface a conflict may exist when proposing a policy of clustering freight-related land uses, through proper dialogue and thorough analysis such conflicts can often be eliminated.

Database Needs for Freight Model
Designation of truck routes in the current model network
Identification of special generators for freight
County Level 2-Digit STCC Reebie TRANSEARCH data for commodity flows into and out of the Nashville Area
Employment by industry sector (or industry group) for each TAZ in the Nashville Model (base year and forecast)
Payload factors appropriate for trucks in the Nashville Area
Heavy Commercial Truck Counts for all truck routes

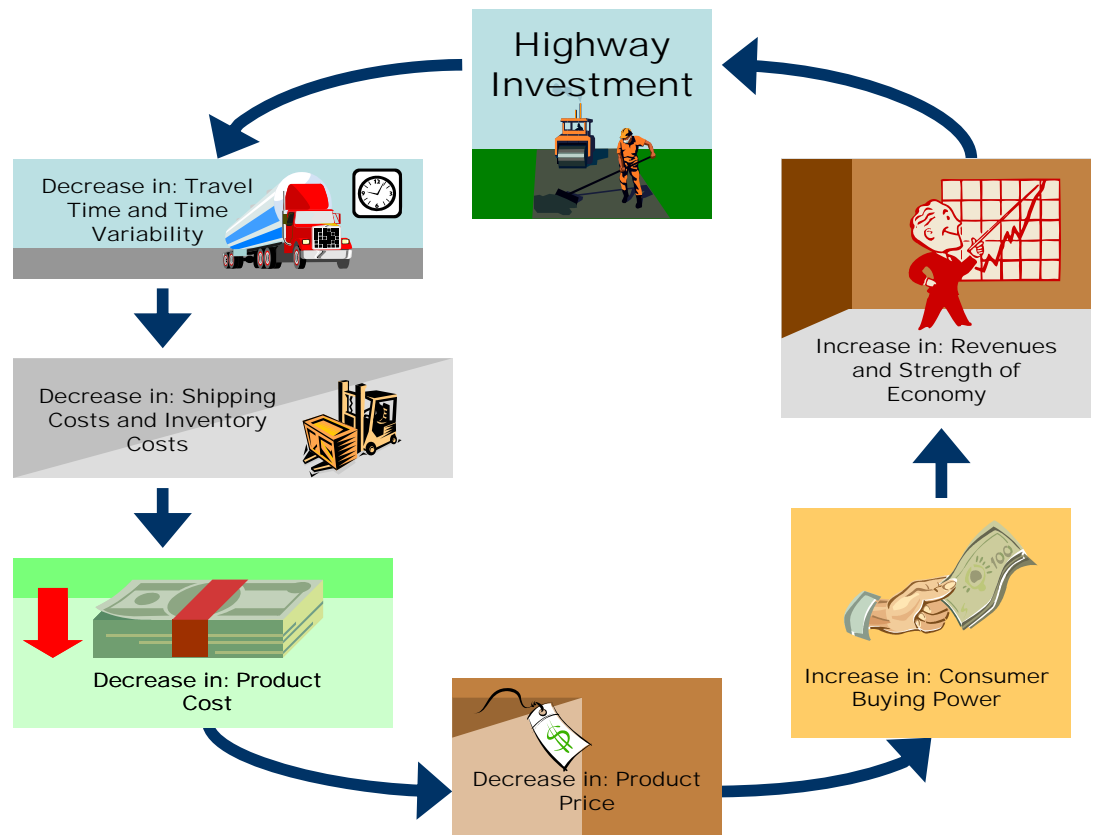
Phase II Goals

The Nashville Area MPO and the selected consultant team will work closely with a Freight Advisory Committee to develop a regional freight model with the goal of improving the MPOs ability to predict future freight-related demands on the regional network and to evaluate proposed investment alternatives to meet those travel demands.

Phase II of the Nashville Area Freight & Goods Movement Study will update and analyze all information gathered from Phase I, including the FAC, freight movements, volumes, mode share, and trends. Phase II will also produce a Freight Model to forecast freight traffic in 2035 and the planning horizon years. The model results will show how estimated freight growth in the region will be distributed and accommodated in terms of volume, modal share, and commodity flows by the existing freight transportation system. It will also indicate the location and severity of expected freight transportation capacity constraints, bottlenecks, barriers, and deficient infrastructure for all freight modes within the region. From this analysis, recommended projects, programs, and/or

strategies that will provide sufficient capacity and operating flexibility necessary to accommodate future levels of reliable freight service will be developed. Analysis of the resulting

costs and benefits of recommended projects, programs, and strategies will be evaluated for project prioritization and selection into the 2035 Long Range Transportation Plan.



Investments in the transportation system start a chain reaction of events that benefits more than trucking companies and road users.

Freight Model Uses

The Gaston Urbanized Area Metropolitan Planning Organization, located west of Charlotte, North Carolina, utilized the Freight Model in their latest LRTP update. The model was able to compare the existing truck volumes to future forecasts on specific facilities based on improvements to the highway system. The map shows the existing network and proposed improvements. The model forecasts the volume of freight traffic that may be diverted to the new facilities resulting in a volume decrease on currently congested facilities. Note the decrease in freight volumes on I-85 with the addition of the Garden Parkway, Belmont/ Mt. Holly Loop, and the Gastonia-Mt. Holly Connector. The proposed projects can then be evaluated against each other to determine which improvement would have the greatest impact. This allows for planners to determine which improvements show the greatest need.

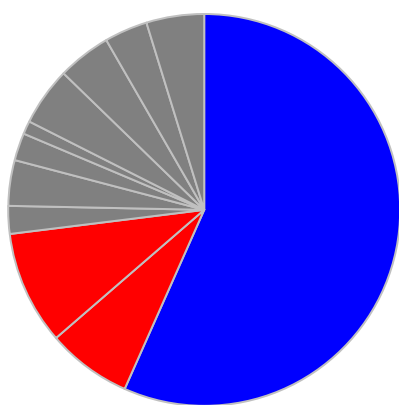


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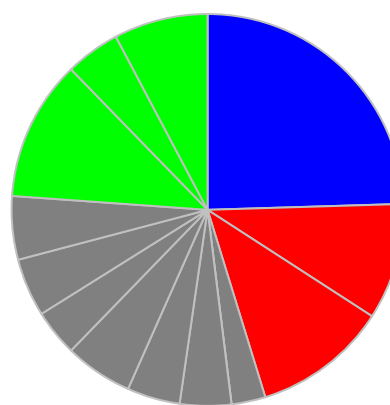
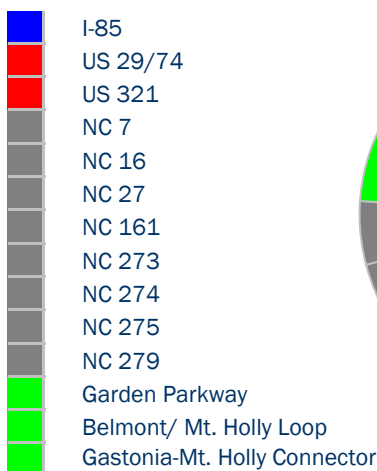
Table 6: Existing and Future Truck Volumes

Segment	Existing ADT (vpd)	Existing Truck Volumes (vpd)	2030 ADT (vpd)	2030 Truck Volumes (vpd)
Interstate 85	48,000 – 120,000	8,256 – 20,640	44,600 – 84,500	4,359 – 9,569
US 29/74	9,000 – 35,000	648 – 2,520	30,700 – 46,600	920 – 3,752
US 321	8,700 – 47,000	626 – 3,384	11,900 – 40,100	638 – 4,243
NC 7	950 – 12,000	68 – 864	1,400 – 13,500	120 – 1,072
NC 16	3,600 – 19,000	259 – 1,368	Not available	Not available
NC 27	2,400 – 11,000	173 – 792	12,700 – 19,000	478 – 1,625
NC 161	4,400 – 6,400	317 – 461	7,900 – 12,900	722 – 1,696
NC 273	4,300 – 24,000	310 – 1,728	12,100 – 26,000	448 – 2,091
NC 274	4,300 – 22,000	310 – 1,584	4,900 – 28,500	20 – 1,503
NC 275	4,900 – 18,000	353 – 1,296	7,100 – 17,100	517 – 1,890
NC 279	4,900 – 24,000	353 – 1,728	10,400 – 35,100	750 – 2,023
Garden Parkway	Not Available	Not Available	18,900 – 57,000	1,245 – 4,421
Belmont/Mt. Holly Loop	Not Available	Not Available	9,400 – 23,500	717 – 1,704
Gastonia-Mt. Holly Connector	Not Available	Not Available	12,900 – 28,100	1,104 – 3,014

Source: Existing data provided by NCDOT Traffic Survey Unit and 2030 data provided by Metrolina Regional Travel Demand Model.



Existing Freight AADT



2030 Freight AADT