Regional Thoroughfare Network Identification and Classification Report

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1.0 INTRODUCTION

This report is the second deliverable of the Strategic Regional Thoroughfare Plan (SRTP) completed for the Atlanta Regional Commission (ARC). The purpose of the SRTP is to identify a subset of the Regional Strategic Transportation System (RSTS), which is illustrated in **Figure 1**, which is to serve as a high priority non-freeway network for management and performance monitoring activities. The purpose of this report is to describe the means by which this network, called the Regional Thoroughfare Network (RTN), was identified and describe the classification framework developed to lead the development of management guidelines for the RTN.

1.1 Definition and Function of Regional Thoroughfares

As part of ARC's Long Range Transportation Plan (LRTP), known as PLAN 2040, the intent of the Regional Thoroughfare Network (RTN) is to focus future transportation system management, operations, and maintenance activities on these critical regional corridors to protect multimodal mobility in the region. For the purposes of the SRTP, a regional thoroughfare is defined as:

"A transportation corridor that serves multiple ways of traveling, including walking, bicycling, driving, and riding transit. It connects people and/or goods to importance places in Metropolitan Atlanta. It is managed by applicable special traffic control strategies and suitable land development guidelines in order to maintain travel efficiency, reliability, and safety for all thoroughfare users. In light of this special function, the thoroughfare network receives priority consideration for infrastructure investment in the Metro Atlanta region."

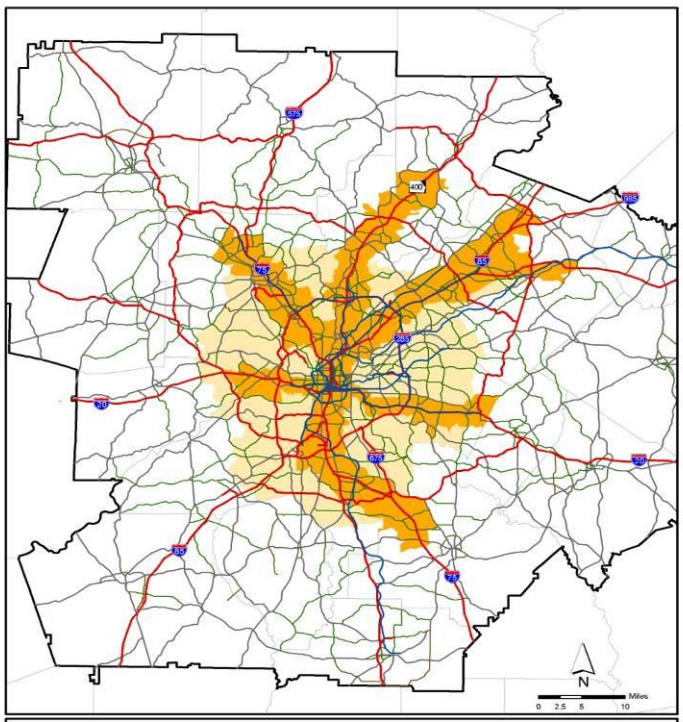


Figure 1: 2006 Regional Strategic Transportation System (RSTS)

The RTN is intended to serve as an important component of the region's multimodal transportation system. It will help ARC and its member local governments proactively plan and develop effective and

sustainable multimodal thoroughfares consistent with their land use and development contexts and transportation functions to serve passenger and freight travel.

1.2 Purpose of this Report

The purpose of this report is to document several steps in the RTN planning process, including:

- Evaluation of the data collected as part of *Task 2 – Data Compilation* in order to determine the most feasible criteria to utilize the identify/define the RTN;
- Establishment of a system definition framework based on available data for the Atlanta region as well as best practices of peer regions in the U.S. and elsewhere;
- Definition and quantitative analysis of two alternative regional thoroughfare networks for consideration;
- The opportunities provided to local governments and other regional stakeholders to give input on the technical planning process and results;
- Refinement of the RTN based on stakeholder input;
- Description of the relationship of the RTN to the region's Congestion Management Process (CMP); and
- Development of a RTN classification scheme based on the overall goals of the network.

Subsequent sections of this report provide detailed information on all of these aspects of the planning process.

1.3 Report Organization

This report outlines the steps taken to define and classify the Regional Thoroughfare Network in a manner that enables performance-based system monitoring as an on-going activity by ARC and its member governments. This report is organized as follows:

- Section 2.0 – Network Identification Process
- Section 3.0 – Relationship to the Congestion Management Process
- Section 4.0 – Network Classification Framework
- Section 5.0 – Continuous Network Management
- Section 6.0 – Next Steps

2.0 NETWORK IDENTIFICATION PROCESS

Several basic policy frameworks can be devised to establish a network of priority thoroughfares in a given geography. One differentiating characteristic of the Metro Atlanta region's focus on thoroughfare system development is the desire to meaningfully integrate multimodal and land use and development considerations. Many thoroughfare systems rely primarily on the relatively simple roadway functional classification criteria that do not address or account for multiple travel modes or its land use context. More sophisticated, integrated thoroughfare system frameworks are far fewer in number. This section will describe the methodology for developing an overall policy framework for the RTN system and the identification of criteria used to define it.

2.1 Policy Review of Thoroughfare Systems

The study team reviewed information from several peer regions within the U.S. as well as State Departments of Transportation and cities outside the U.S. to understand how various policy frameworks relating to thoroughfare systems were devised. The review examined methods for defining and classifying thoroughfares as well as criteria used for both activities. The peer regions with the greatest relevance to Metro Atlanta were:

- Greater Charlotte, North Carolina
- Greater Dallas-Ft. Worth, Texas
- Greater Denver, Colorado
- Auckland, New Zealand
- Greater San Diego, California

In addition, the following regions, cities, and states were researched:

- Miami-Dade County, Florida
- City of Orlando, Florida
- City of Tampa, Florida
- City of Houston, Texas
- Washington, DC
- State of South Carolina
- State of Florida

The peer review revealed that the various areas shared similar purposes for establishing the thoroughfare systems. **Table 1** lists the important regional functions or purposes considered in the designation of the peer region thoroughfare systems.

Table 1: Purposes of Peer Region Thoroughfare Systems

Transportation and Mobility Context	
Provides Congestion Relief	Considers Spacing of Facilities
Provides Continuous Regional Routes	Forms Intra-Regional Connectors
Creates Freeway-to-Freeway Connections	Provides Intermodal Connections
Supportive of High Capacity, Frequent Transit Service	Facilitates Freight Movement
Supports Regional Bicycle/Pedestrian/Trail Systems	
Travel Demand	
Serves/Links High Population Areas	Serves/Links High Employment Areas
Provides Access to Centers (such as Cities, Towns, Transit-Oriented Developments, Visitor Venues, etc.)	
Security	
Allows for System Resiliency	Provides for Parallel Corridors
Land Use and Development Context	
Role in Statewide System	Potential for Corridor Expansion
Character of Adjacent Properties	Support for Regional and Local Land Use Visions
Consultation with Local Plans	

Each of the peer regions developed their own methodology for identifying or designating their system and some of them chose specific system identification criteria to define their systems. **Table 2** describes the criteria used in each peer region to identify or designate the region's thoroughfare network. These criteria were all considered as potential criteria for identifying and designating the Metro Atlanta RTN.

Table 2: Network Identification Criteria of Peer Regions

Region	Criteria Used to Identify Network	
Auckland, NZ Region	**Urban Roads** Provide access to major destinations of national significance Provide access to major employment areas Relatively high traffic volume Major freight routes Major bus routes Access to rapid transit Perform a regional function Provide network resilience/security Provide network connectivity	**Rural Roads** Provide access to major centers Provide access to regional facilities Provide access to rural industry Provide network resilience/security Provide network connectivity Relatively high traffic volume Support the growth strategy
Charlotte, NC Region	Primary inventory of roadway projects are evaluated for construction priorities. Serves as the starting point from which the Mecklenburg Union Metropolitan Planning Organization (MUMPO) begins the process to determine which roadways require upgrades in ten to twenty years.	
Dallas-Ft Worth, TX Region	Includes all principal arterials through the TEA-21 classification effort National Highway System (NHS) City and County Thoroughfare Plans Mobility 2025 Plan Update – Regional Arterial System Thoroughfare Spacing Continuous Regional Routes	

Table 2: Network Identification Criteria of Peer Regions (continued)

Region	Criteria Used to Identify Network
Denver, CO Region	Congestion levels and travel demand Lane-balancing Role as statewide connectors, intraregional corridor facilities, or regional accessibility roadways Urban growth boundary area Location of urban centers and transit-oriented developments Metro Vision land development concepts Development pattern area traversed Service to parks and recreation areas Consultation with and participation of local governments
San Diego, CA Region	**Original Criteria (2002):** Critical link – provide direct connection between communities ensuring system continuity and congestion relief in high volume corridors Population – located in areas with high concentrations of existing and future populations Future traffic – generally accommodate high traffic volumes Intermodal – provide access to intermodal facilities Regional Transit Vision – accommodate/support Regional Transit Vision Employment – linking areas with high concentrations of existing and future employment **Additional Criteria (2006):** Provides parallel capacity in high-volume corridors to supplement freeways and regional arterials Provides capacity and direct connection between freeways and other regional arterials, ensuring continuity of the freeway and arterial network throughout the region without duplicating other regional facilities Provides all or part of the route for existing or planned regional and/or corridor transit service that provides headways of 15 minutes or less during the peak period

After a detailed review of the five (5) peer regions, several common elements were identified as significant to the thoroughfare system and especially applicable to the Metro Atlanta region:

- Roadway Characteristics – Speeds, Volumes, Congestion, etc.
- Connectivity – Access to Regional Functions, Centers, etc.
- Special Significance to Regional Transportation
    - Freight Corridors
    - Regional Transit Systems
    - Regional Bicycle/Pedestrian/Trail systems
- Other Criteria:
    - System Resiliency and Security
    - Parallel Capacity to Regional Roadways
    - Role in Statewide Transportation System
    - Regional Land Development Concepts and/or Visions
    - Freeway-to-Freeway Connectors
    - Lane-Balancing

The results of the peer review were presented to the Technical Coordinating Committee (TCC) members for ARC for their input. Using this input, the project team developed an initial set of thoroughfare system definition (identification) criteria for Metro Atlanta's RTN. More detailed criteria for defining the RTN then evolved addressing these major functional purposes and Metro Atlanta's transportation policy environment.

2.2 Metro Atlanta Network Identification Process

As stated previously, the overall function of the RTN is to serve as the highest level of transportation facilities next to interstate highways and expressways in the RSTS. The RTN is intended to be a priority in terms of regional transportation data collection as well as system monitoring activities. As such, roadways identified for the RTN would be those outside of limited access facilities that facilitate regional travel.

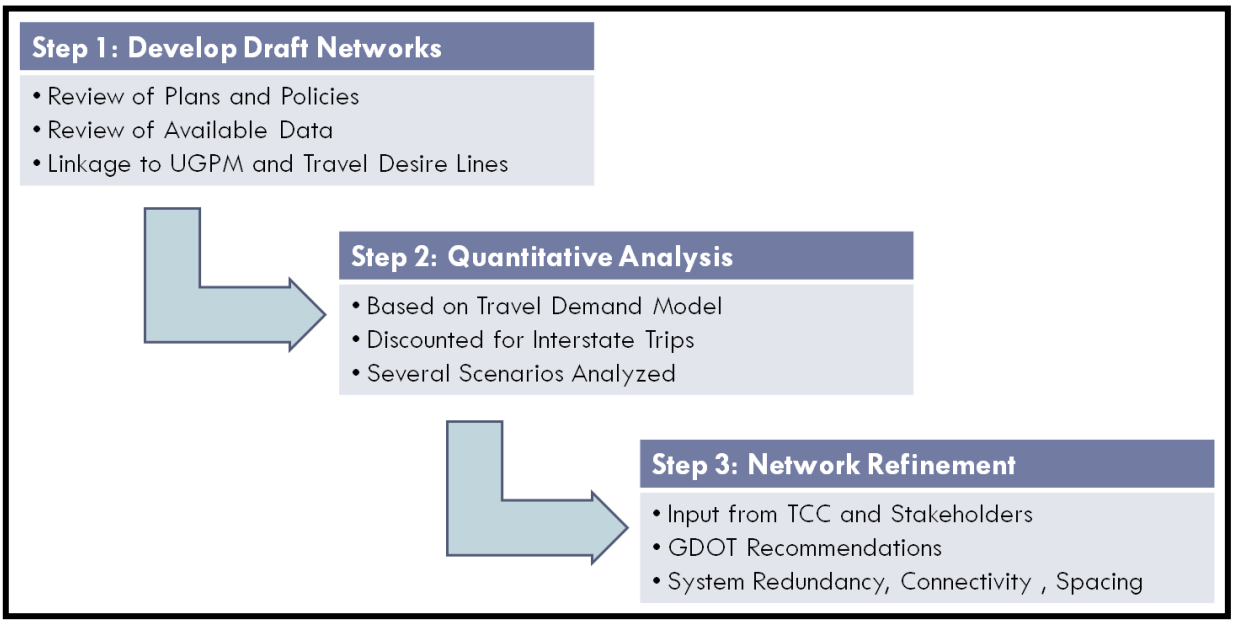
The process for identifying Metro Atlanta's RTN was completed through three major milestones:

- Development of draft sample thoroughfare networks based on regional plans and policies to facilitate discussion on the overall criteria for inclusion on the RTN;
- Conduct quantitative assessment of these networks through use of the regional travel demand model to identify their overall regional mobility characteristics; and

- Refine network based on input from local jurisdictions and stakeholders.

These milestones are illustrated below in **Figure 2**.

Figure 2: Metro Atlanta Regional Thoroughfare Network Identification Process



Using the results of the peer region review, input from ARC professionals, and feedback from the TCC members, the project team began formulating a set of detailed policy-based and performance-based criteria for identifying Metro Atlanta's RTN. A critical consideration, as stated previously, was the need to meaningfully integrate the region's priority multimodal transportation system, designated as the Regional Strategic Transportation System (RSTS) with Metro Atlanta's Unified Growth Policy Map (UGPM). This transportation-land use linkage forms a strong foundation for the overall structure of the RTN.

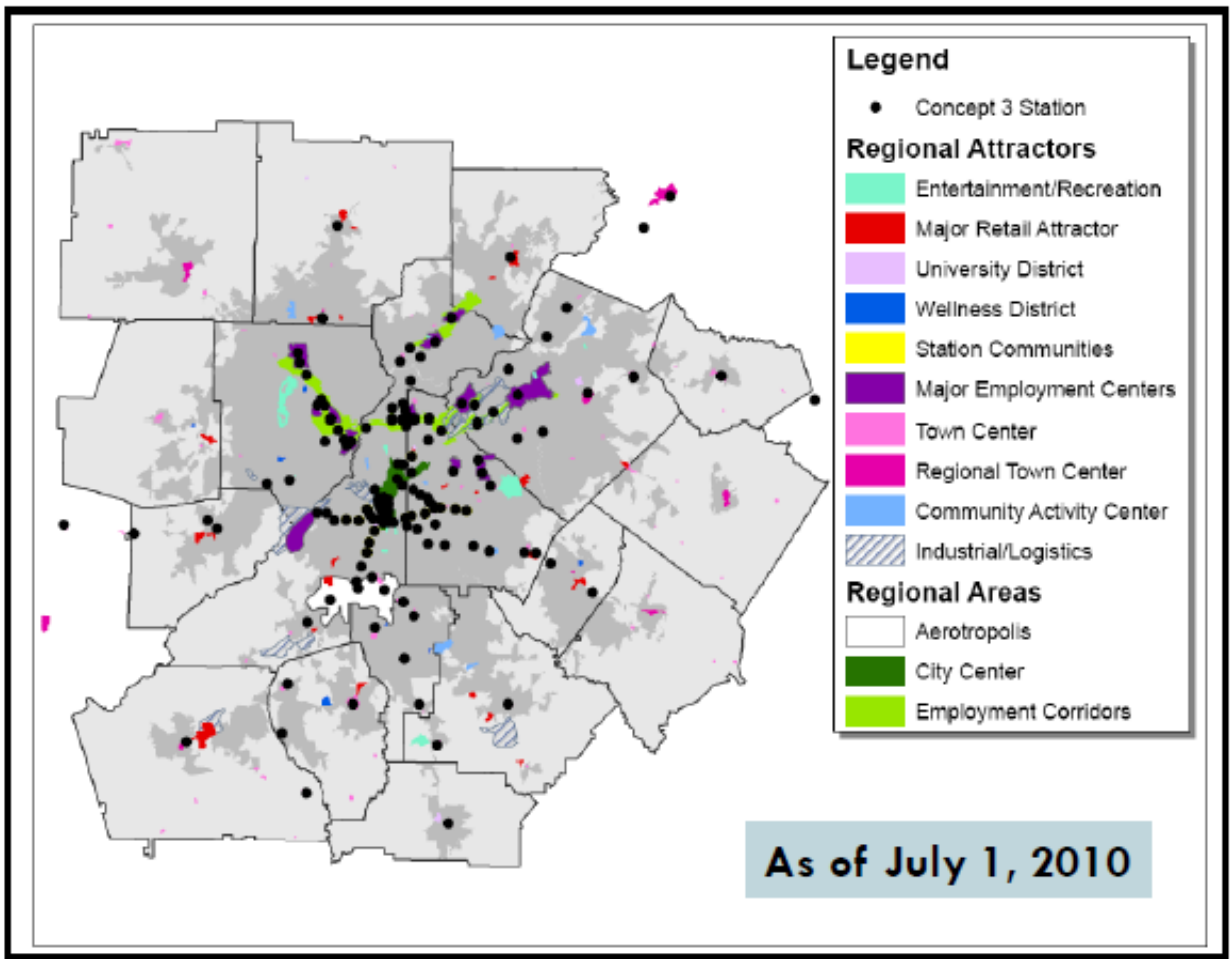
2.3 Policy-Based Network Identification Criteria

As described previously, the RTN is a subset or component of the Regional Strategic Transportation System (RSTS). The RSTS represents the region's most important multimodal transportation facilities comprising a system where mobility for people and goods must be protected and strategic investments should be prioritized. The RSTS was first identified and adopted by ARC in 2006 and must be reviewed and adopted with every ARC long-range transportation plan. The next RSTS review and approval is expected in 2011. It accommodates the region's most critical trip movements dispersed through these most important systems:

- Interstate Highways and Freeways
- National Highway System (NHS) Facilities and State Highways
- Intermodal Connectors
- Existing and Future Regional Transit Systems
- Principal Arterials
- Critical Minor Arterials
- Other Facilities
    - Cross-Regional Mobility
    - Adequate Spacing of Major Roadways
    - Connection to Regional Activity Centers

In addition, the network is tied to the Unified Growth Policy Map (UGPM), as shown in **Figure 3.** The UGMP is the policy document that describes the location, type, intensity, density, and characteristics of the regionally-significant future land use and development features based on adopted local government comprehensive plans present in Metro Atlanta.

Figure 3: Unified Growth Management Plan (July 2010)



2.4 Performance-Based Network Identification Criteria

A key aspect of the development of the RTN was consideration of how this element of the region's multimodal transportation system fits into the overall regional transportation planning context and processes. As mentioned previously, ARC's *Plan 2040* development process is underway. Several sessions were held in mid-to-late 2010 with ARC professionals and their PLAN 2040 consultant team to discuss how these two efforts should be integrated.

These discussions involved establishing a framework for identifying the RTN facilities and the potential use of two sets of criteria. One set involved "core criteria" focused on the main purposes of the regional thoroughfare network. The second set reflected "supporting criteria" or factors that were viewed as less critical to the network identification.

Core Criteria

- *Person Throughput* - All Modes, including Roadway and Transit (Concept 3)
- *Connectivity* - Form Intra-Regional Connectors (to UGPM Activity Centers, Freeways, Towns, and/or Intermodal Facilities)
- *Multimodal Linkages/Sustainability* - Links to Regional Transit, Bicycle, and Trail Systems
- *Accessibility* – Connects to Local Circulation Systems
- *Freight Mobility* - Accommodate Freight Movement to Intermodal Facilities
- *Statewide and Regional Significance* – Location on the Federal and State Highway System

Supporting Criteria

- *Security* - Facilitate Emergency Response and Evacuation
- *System Redundancy* - Provide Parallel Capacity to Interstates/Freeway

By definition, if a roadway does not serve a regional function, it will not be identified as a regional thoroughfare. Through discussions with the ARC and its *PLAN 2040* project team, TCC members, members of ARC's Transportation Operations and Management Committee, GDOT, and others, the criteria for identifying the RTN evolved. It was decided that a single set of network identification criteria would be formulated to establish the RTN. Given the overall RTP and UGPM policy guidance and the stated purpose of the regional thoroughfare system, several performance-based criteria to identify the RTN network were chosen, including:

- Connectivity to Major Employment Centers, Residential Areas, and Regional Activity Centers
- Ability to Accommodate Regional Trips
- Statewide Significance of the Facility
- Ability to Serve Freight Transport
- Transportation Facilities that Serve a Multimodal Purpose
- Focus on System Operations and Management
- Ideal Facility Spacing and System Redundancy to Support Interstate Highways
- Freeway-to-Freeway Connections
- Relationship to the Congestion Management Process Network
- Capability of Supporting Homeland Security and Evacuation
- Input from Local Jurisdictions and Planning Partners

2.5 Draft Regional Thoroughfare Networks

As the RTN identification process progressed, a general consensus among ARC and its stakeholders emerged concerning the major purposes and functions of the regional thoroughfare network as it applies to Metro Atlanta. These areas of agreement are:

- The RTN should serve the major arterial function of the regional transportation system;
- The RTN should be the focus of the region's Congestion Management Process (CMP) best practices and applications;
- The RTN should encourage better land use and development practices given the regional significance of these arteries and their priority as regional mobility corridors;
- The RTN should promote effective transportation management and operations, asset management, and system preservation.

At the outset of the SRTP, it was understood by ARC and its stakeholders that the size of the adopted RSTS was too large in relation to the available transportation resources to operate, monitor, and manage it. Thus, early on, one of the goals of the RTN identification effort was to reduce the overall size of the non-interstate and non-expressway component of the RSTS.

The performance-based network identification criteria influenced the development of two draft regional thoroughfare networks for review and comment by ARC, its committees, and other stakeholders. **Table 3** provides a comparison of the mileage of the adopted RSTS versus the two draft networks.

Table 3: Comparison of Regional Networks

2006 RSTS	Draft Regional Thoroughfare Network #1	Draft Regional Thoroughfare Network # 2
Approx. 3,049 miles	Approx. 2,496 miles	Approx. 2,002 miles
	18% Smaller than the RSTS (non-interstate and non-expressway component)	34% Smaller than the RSTS (non-interstate and non-expressway component)

The two draft networks varied in composition, but both resulted in a smaller and more manageable RTN than the current thoroughfare component of the RSTS. **Table 4** describes the specific rationale for the development of the two (2) draft networks, which are shown in **Figures 4** and **6**. **Figures 5** and **7** compare the two networks with the adopted UGPM. **Figure 8** compares the two networks to each other.

Table 4: Rationale for Draft Alternative Regional Thoroughfare Networks

2006 RSTS	Draft Regional Thoroughfare Network #1	Draft Regional Thoroughfare Network # 2
Interstates and Freeways	• Does Not Include	• Does Not Include
NHS Facilities and State Highways, Including Intermodal Connectors	• All NHS Routes • All US Routes and State Routes	• All NHS Routes
Existing and Future Regional Transit Service	• Select Envision6 Projects (non-freeway and non-rail)	• Envision6 Transit Projects • Selected Concept 3 Elements: - Arterial Bus Rapid Transit - Regional Light Rail/Streetcar • Regional Suburban Bus
Principal Arterials, Critical Minor Arterials, and Other Facilities that Provide Continuous, Cross-Regional Mobility…and Connect Regional Activity Centers, Town Centers, and Freight Corridors…"	• Regional Truck Master Plan Routes (ASTRoMaP) • HPMS Major and Minor Arterials with Four or More Lanes	• Regional Truck Master Plan (ASTRoMaP) • All HPMS Major and Minor Arterials
3,049 Centerline Miles (Non-Interstate and Freeway)	• **Provides reasonable connections across 18 counties** • **Smaller in size than RSTS** • **Approved Transit Projects (RTP)** • **Easier to Manage**	• **Provides reasonable connections across 18 counties** • **Smaller in size than RSTS** • **More Transit (RTP + Concept 3)** • **Easier to Manage**

Figure 4: Draft Regional Thoroughfare Network # 1

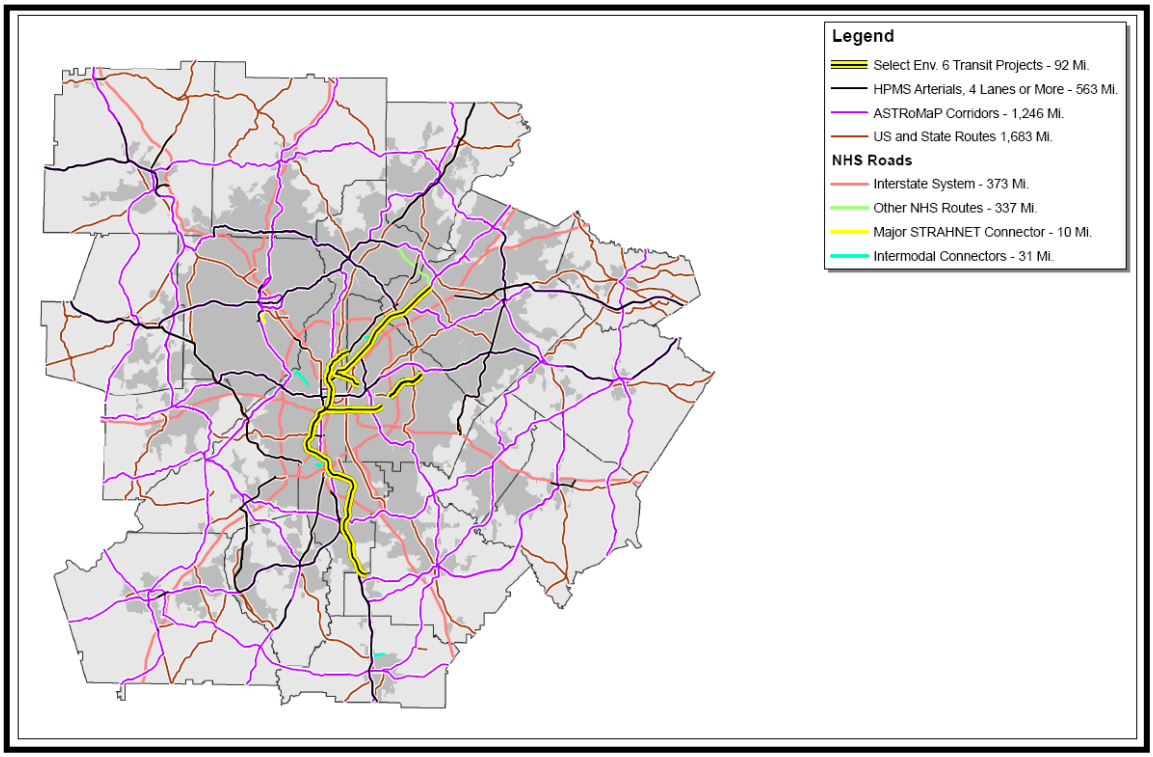


Figure 5: Draft Regional Thoroughfare Network # 1 with Adopted UGPM

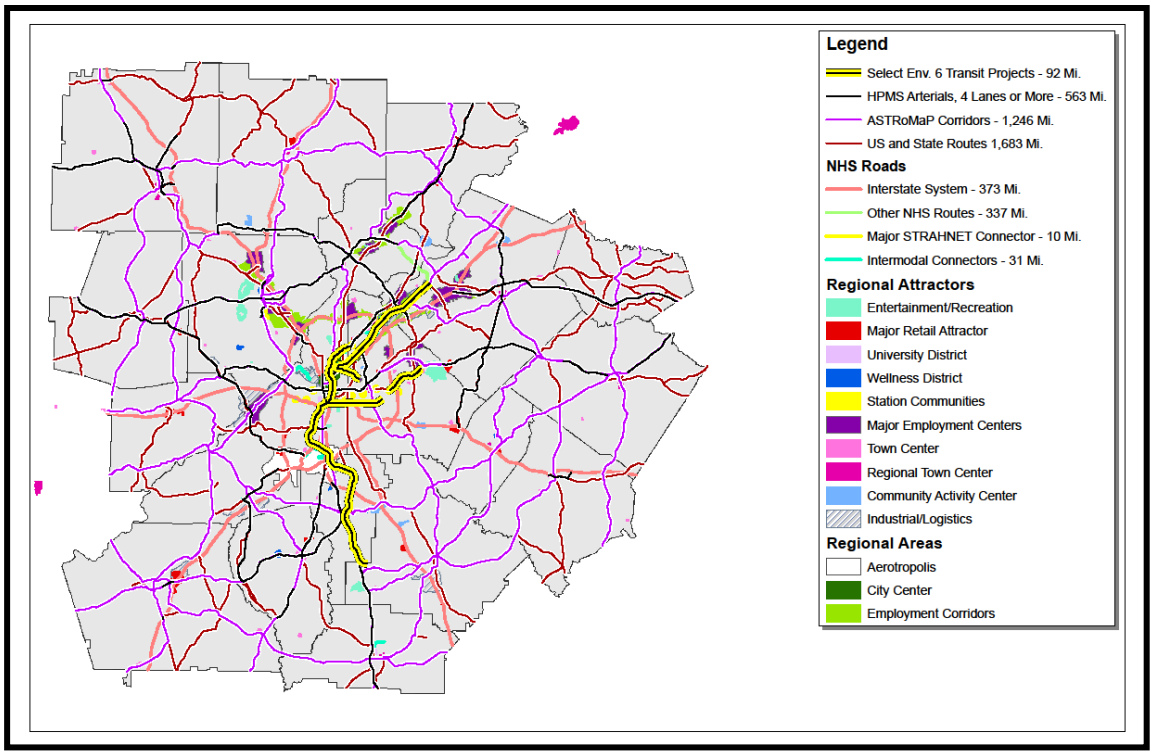


Figure 6: Draft Regional Thoroughfare Network # 2

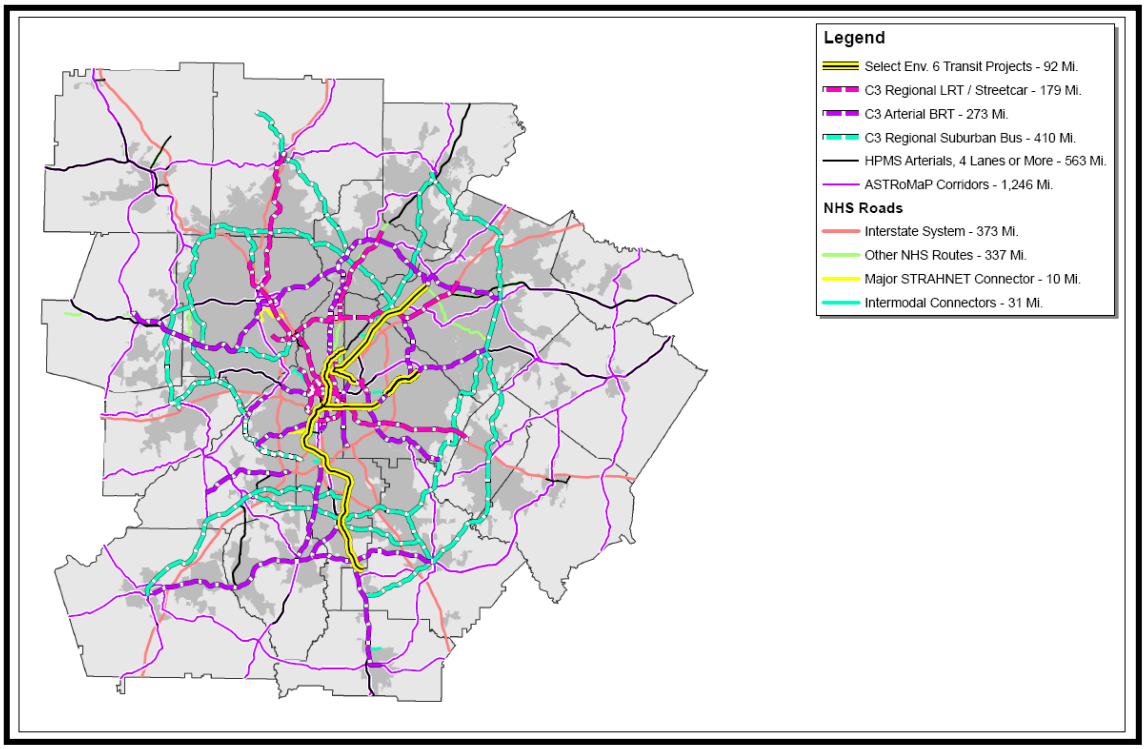


Figure 7: Draft Regional Thoroughfare Network # 2 with Adopted UGPM

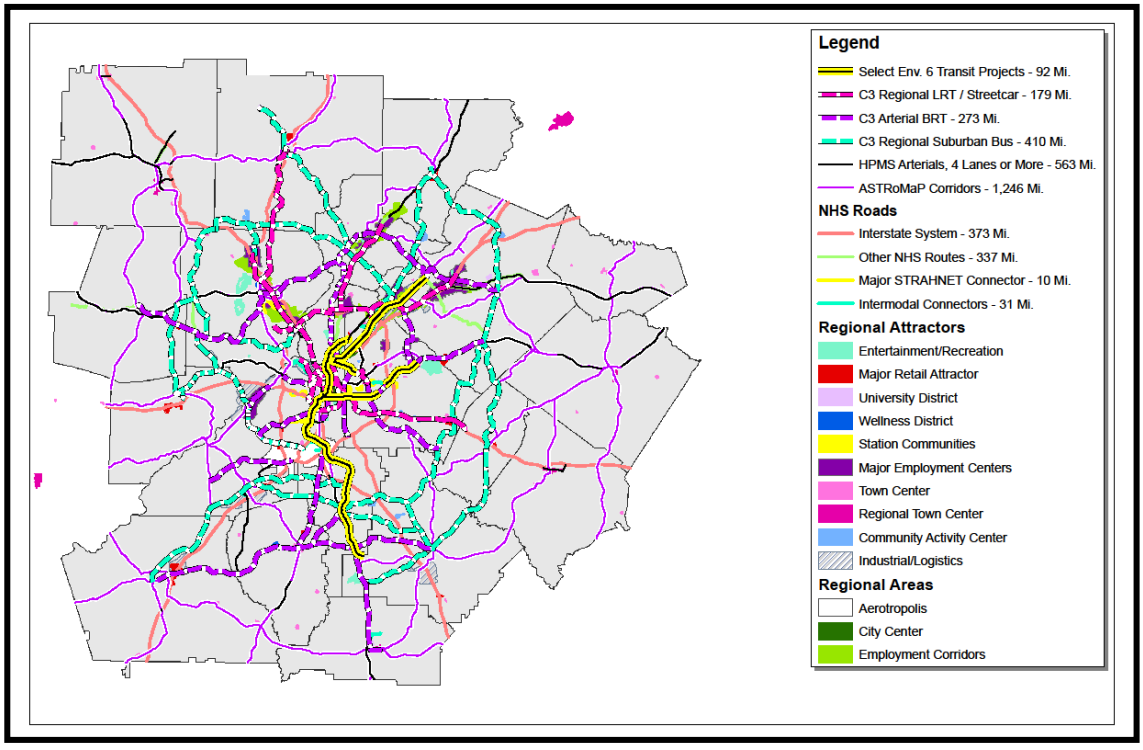
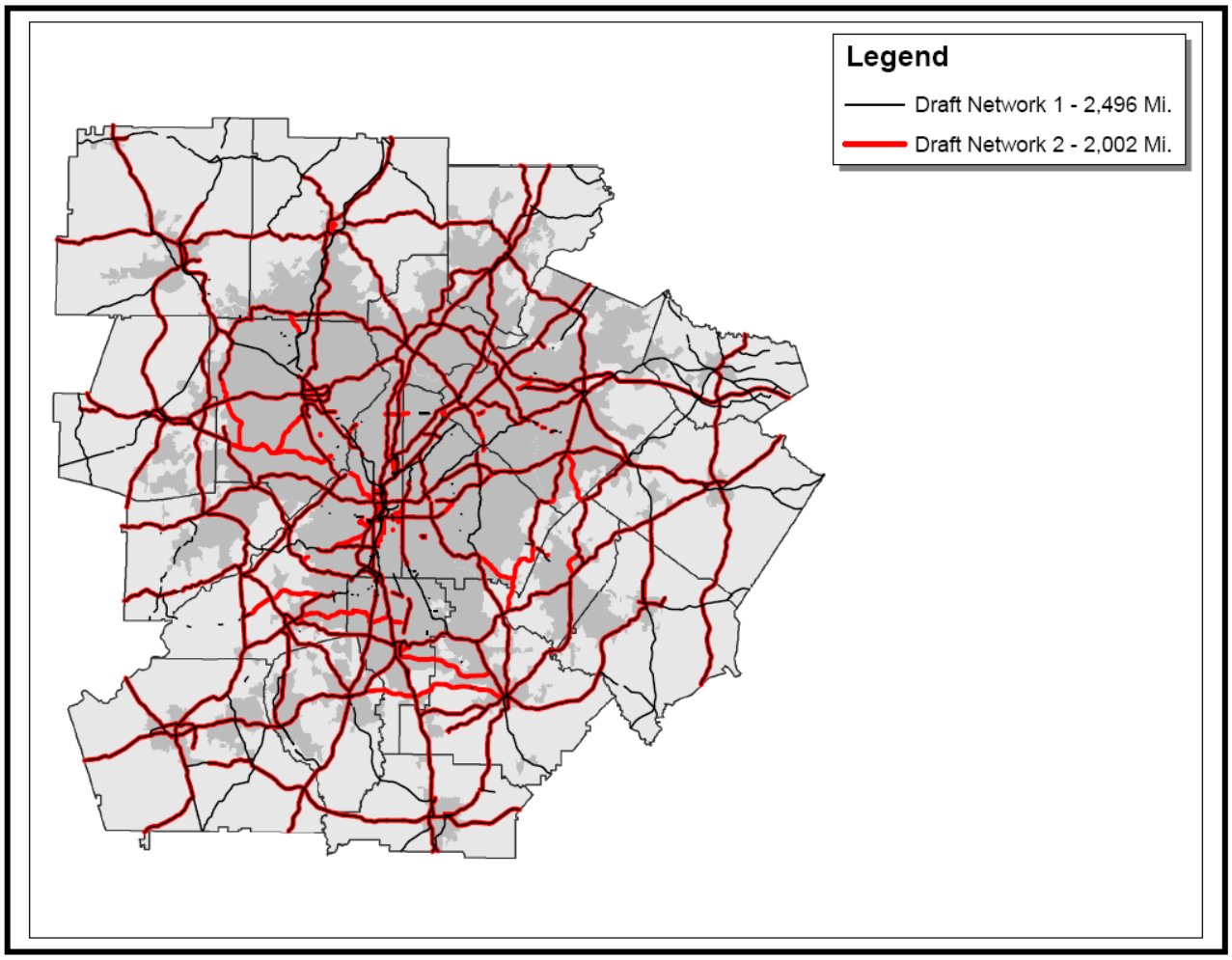


Figure 8: Comparison of Regional Thoroughfare Networks # 1 and # 2



2.6 Quantitative Analysis of Draft Networks

As part of the network identification process, the draft networks were subjected to regional modeling analysis to confirm the network segments were fulfilling a truly regional function. This was accomplished by two major aspects of trip-making in the region. The first was the analysis of 2040 travel desire lines relative to the two draft networks. The second aspect was the analysis of trip lengths on the individual facilities recommended for inclusion in the RTN. Various trip length thresholds were used to test the RTN segments (i.e. 10-, 20-, and 30-mile trip lengths). Segments where a significant number of trips made (10,000 trips or more) and where the average trip length was relatively long (20 miles or longer) were confirmed as suitable for the RTN. **Figure 9** shows the 2040 travel desire lines relative to Draft Regional Thoroughfare Network # 1 and the UGPM. **Figure 10** shows the 2040 travel desire lines relative to the second network and the UGPM.

Figure 9: Draft Regional Thoroughfare Network # 1 + 2040 Travel Desire Lines + UGPM

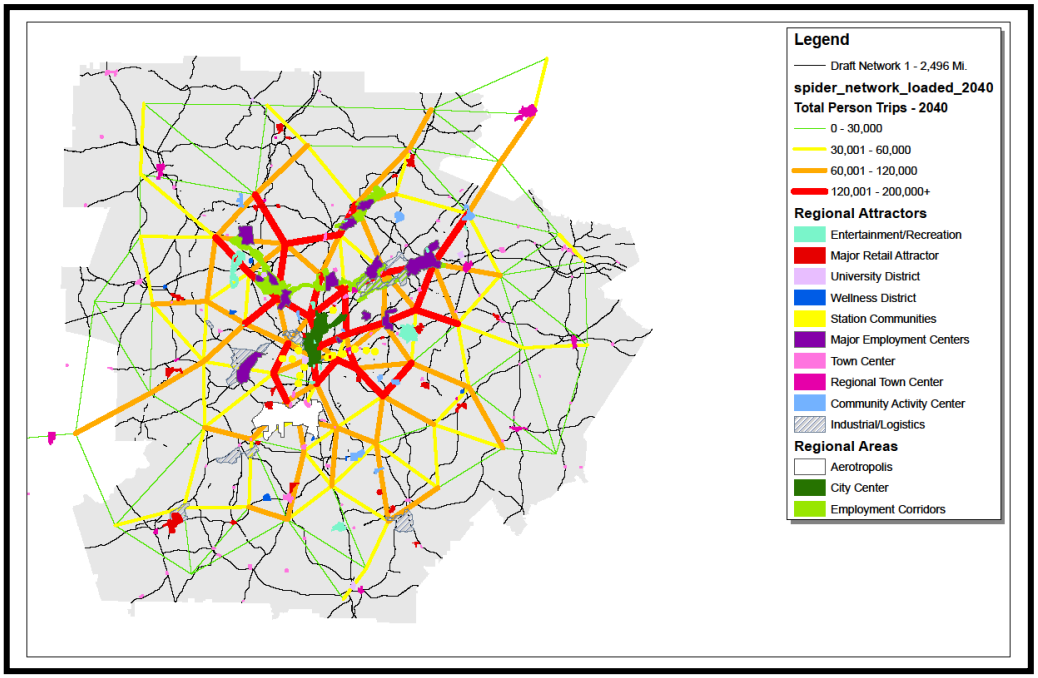
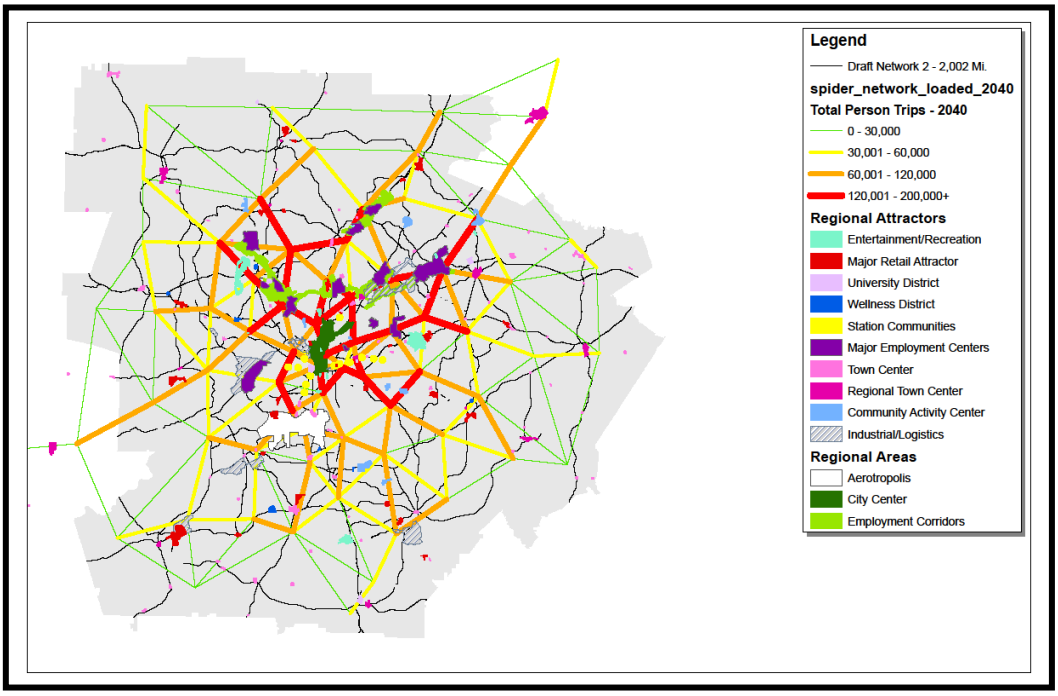


Figure 10: Draft Regional Thoroughfare Network # 2 + 2040 Travel Desire Lines + UGPM



The base framework for the network analysis is the ARC *Envision 6* Travel Demand Model in combination with the Plan 2040 socio-economic data. This network is the adopted transportation network for the Year 2030 RTP.

For the purpose of the RTN identification and classification, freeway facilities are prohibited in the traffic assignment. In order to develop a reasonable traffic assignment without freeway facilities, it would be preferable to eliminate trips from the vehicle trip tables that use the freeways. Since it would be impossible to specifically identify trips that use the freeway, an alternative method was used. The ratio of freeway vehicle miles traveled (VMT) to total regional network VMT was used as a reduction factor to all trips in the vehicle trip table. This creates a reduced trip table that closely resembles all regional trips not using freeway facilities.

To begin identifying potential RTN corridors, an average travel distance on each link of the network was calculated during the traffic assignment. This was done by splitting the total vehicle trip table into five-mile distance bins using a distance skim of the network as a cross reference. Each five-mile bin contains the number of trips that occur from origin to destination within that distance bin. For example, a 27-mile trip from Zone A to Zone B would be placed in the 25-30 mile distance matrix. The Cube software language limits the total number of assignable volume sets to 20, therefore all trips greater than 95 miles are placed in the final bin.

Once the distance matrices are developed, a traffic assignment can be run on the network to produce volume sets containing the number of trips within each distance bin. **Figure 11** shows a sample network link and the associated trips traveling in each five-mile range.

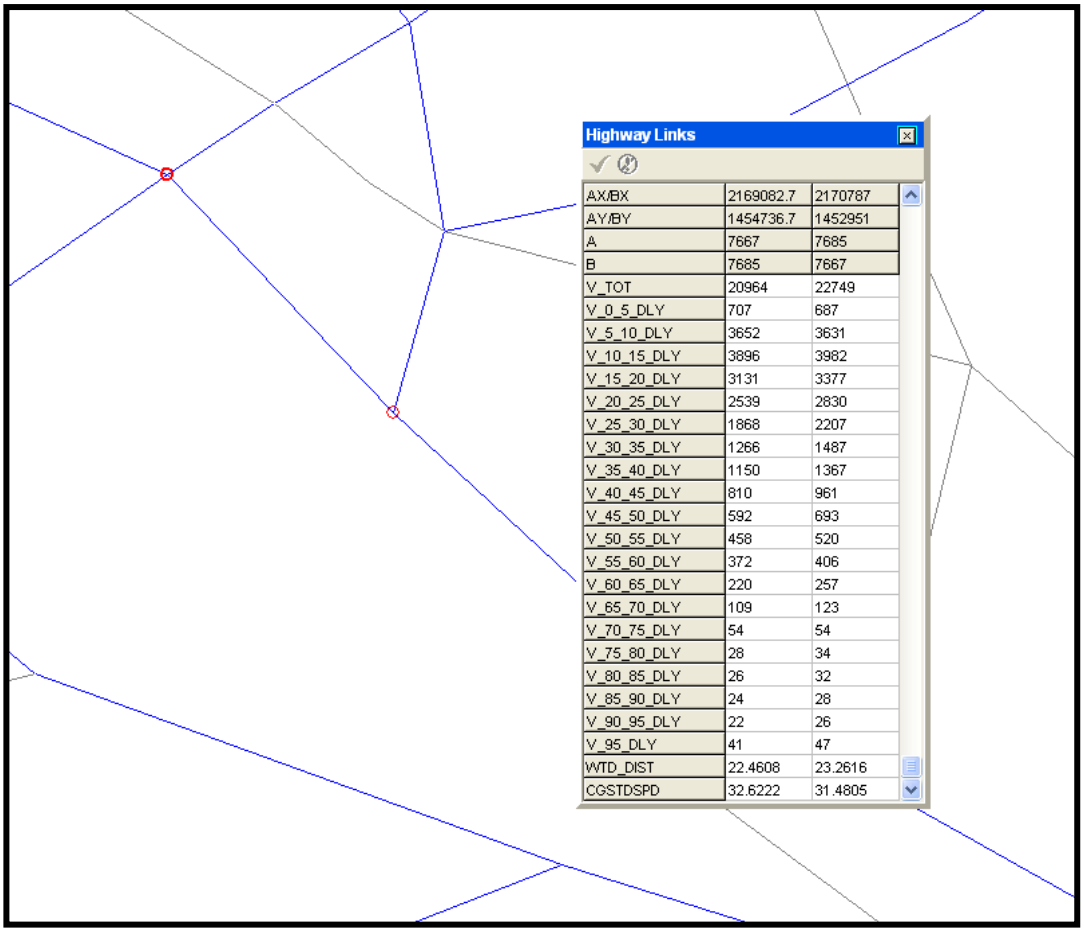
In the sample link shown in **Figure 11**, there are 707 daily vehicles traveling in one direction that have a total trip length of less than five miles. There are 3,652 daily vehicles traveling in one direction that have a total trip length of between five and less than ten miles.

During the trip assignment, a total weighted travel distance on each link can also be calculated. Using the median distance for each bin multiplied by the number of respective trips, a weighted average is computed. For the example above, the weighted average distance is 22.46 miles for link 7667-7685. This is calculated as follows:

Example weighted average distance calculation:

[(707 * 2.5) + (3652 * 7.5) + (3896 * 12.5) + (3131 * 17.5) + … + (41 * 97.5)] / 20964 = 22.46 miles

Figure 11: Five-Mile Distance Bin Assignment Results



With a completed traffic assignment, color-coded maps were created showing the distribution of weighted travel distances throughout the region. This was used as a way to visually identify significant travel routes that would be potential candidates for the designation on the RTN system.

Plots were made for average travel distances greater than 20, 25, and 30 miles. The results of these plots are shown below in **Figures 12 through 14**.

Figure 12: Weighted Travel Distance Greater Than 20 Miles

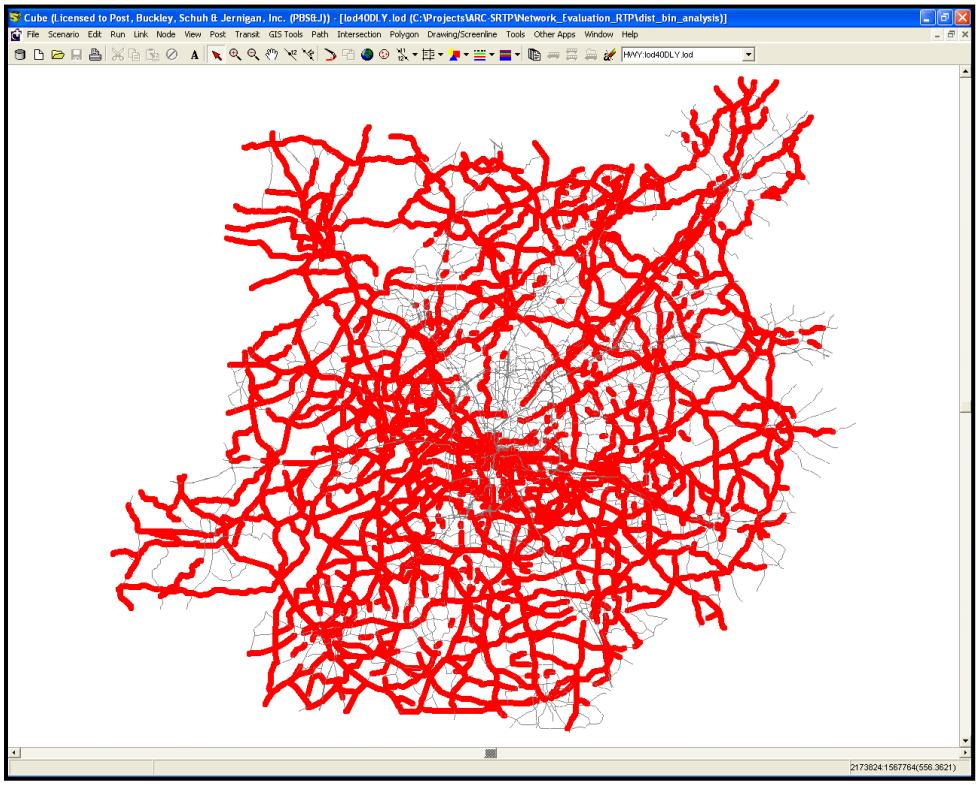


Figure 13: Weighted Travel Distance Greater Than 25 Miles

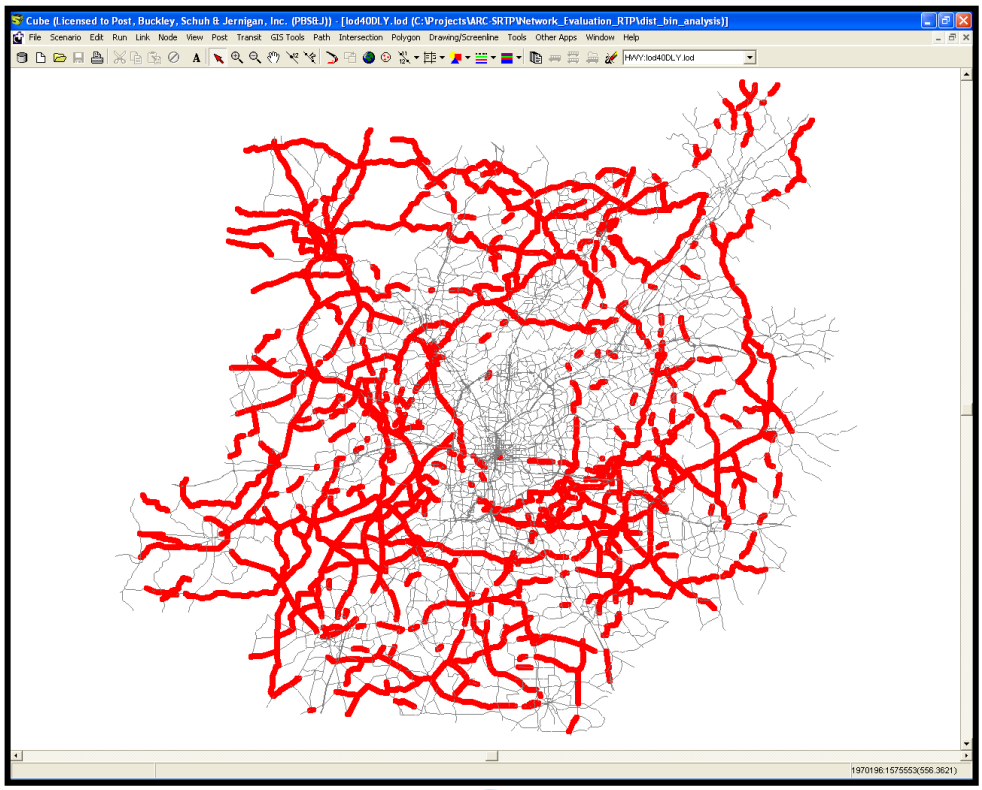
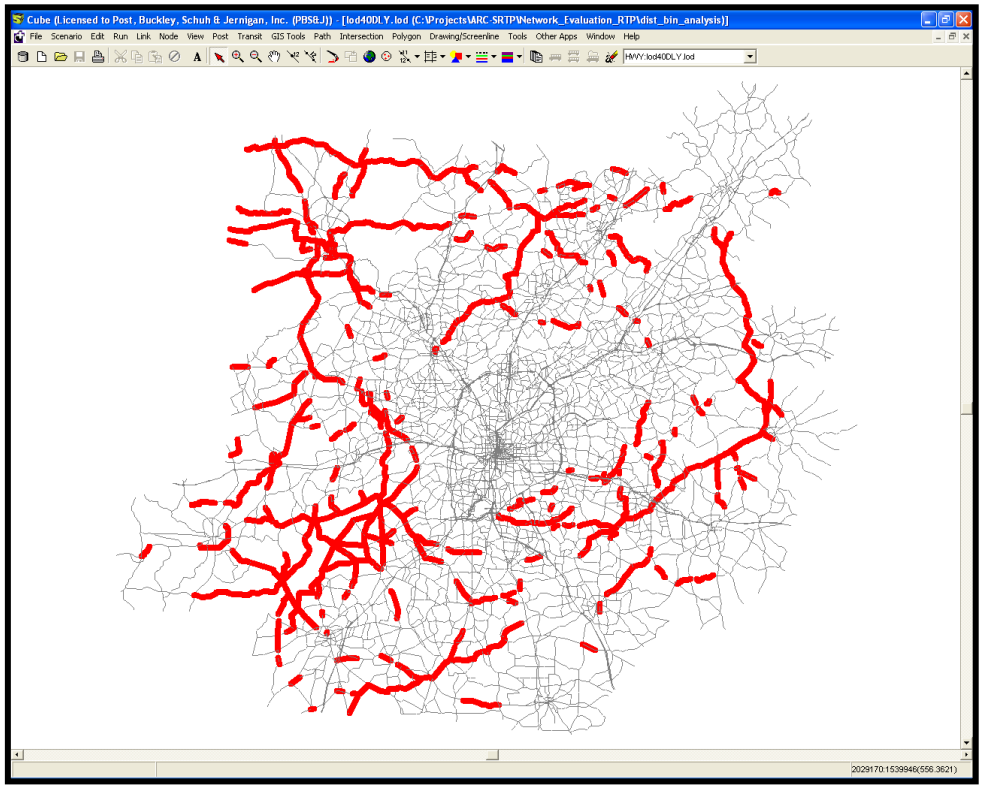
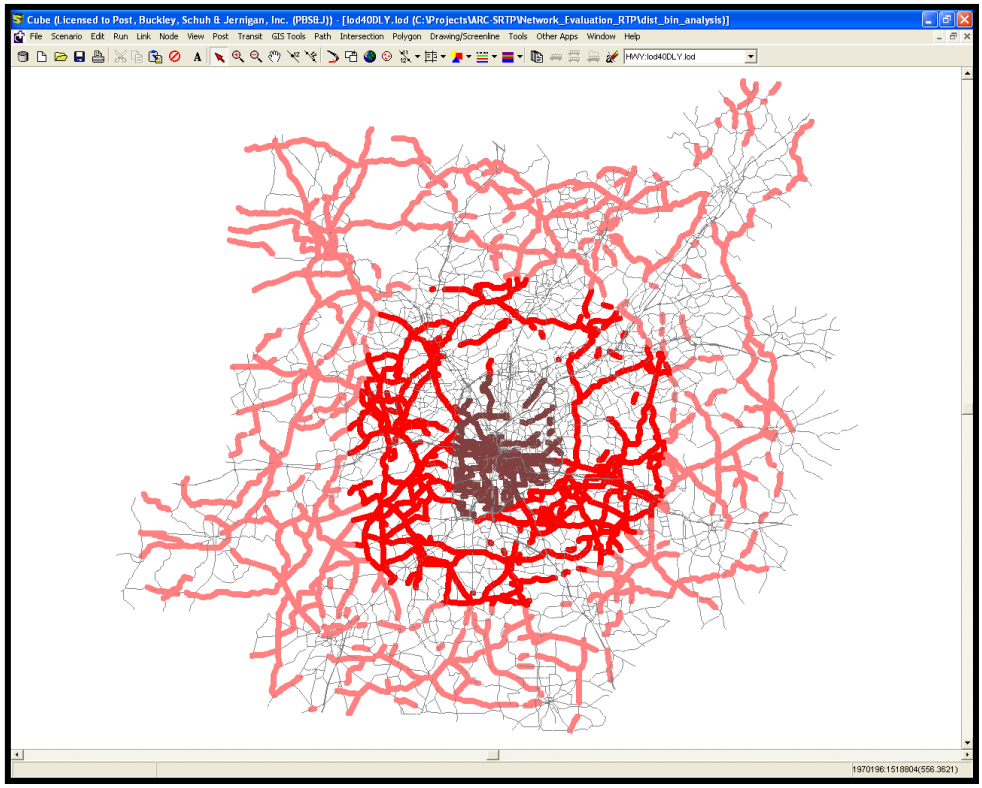


Figure 14: Weighted Travel Distance Greater Than 30 Miles



From examination of these plots above, it becomes apparent that the 20-mile plot contains too many links to use for identification of routes of significance and the 30-mile plot does not show enough links. It was decided that average travel distance of between 20 and 25 miles would provide a good indicator of routes of significance. The final plot was further refined to make use of three zones related to distance from Central Atlanta. Zone 1 consists of all links inside I-285 and was plotted with an average travel distance of 20 miles. Zone 2 consists of a radius approximately 15 miles outside I-285 and was plotted with an average travel distance of 23 miles. Zone 3 consists of all links on the outer edge of the region and was plotted with an average travel distance of 25 miles. **Figure 16** shows the resulting plot.

Figure 16: Weighted Travel Distance by Zone

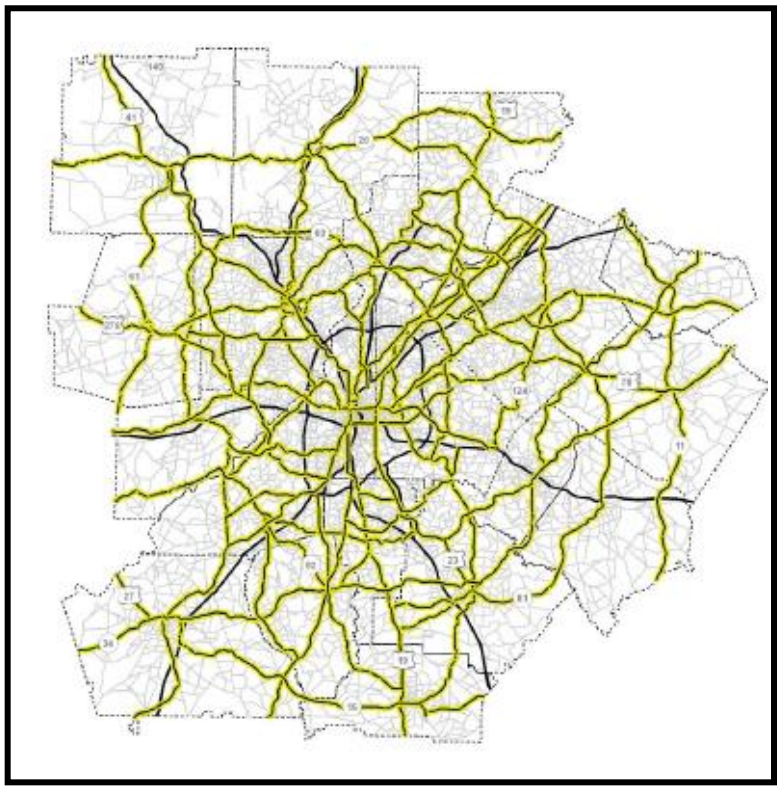


2.7 Initial Regional Thoroughfare Network

Based on the quantitative analysis using the Metro Atlanta 20-county travel demand model, an initial regional thoroughfare network was identified which addressed the issues and opportunities encountered during the RTN process, as well as guidance and feedback from ARC representatives and committee members. The initial Regional Thoroughfare Network is shown in **Figure 17**.

The initial RTN was presented to ARC representatives as well as TCC representatives, including local government members and other key stakeholders, such as GDOT, the Georgia Regional Transportation Authority (GRTA), the Georgia State Road and Tollway Authority (SRTA), and the Metropolitan Atlanta Rapid Transit Authority (MARTA). Additionally, presentations were given to government and business organizations involved in transportation policy initiatives, including the Greater Atlanta Chamber of Commerce, the Metro Atlanta Mayors Association, and other groups. Feedback from the attendees of the presentations was documented and used to refine the RTN.

Figure 17: Initial Regional Thoroughfare Network



2.8 Input from TCC Members and Other Community Stakeholders

In order to gather input on the recommended RTN from a local perspective, meetings were held with representatives from each of the member jurisdictions of the TCC and/or the Transportation and Air Quality Committee (TAQC). This includes members from each of the 18 counties (except Walton) of the ARC in addition to the City of Atlanta. In order to facilitate discussion, copies of the two draft networks were presented as potential networks based on a combination of policy considerations and performance-based criteria as described previously. In addition to these meetings, briefings were held with several civic, community, and business organizations:

- Regional Business Coalition (6/8/10)
- Bicycle and Pedestrian Task Force (7/21/10)
- Social Equity Advisory Committee (7/30/10)
- Transportation Management Association/Clean Air Campaign Alliance (8/5/10)
- Metro Atlanta Chamber of Commerce (9/2/10)
- Association of County Commissioners (11/4/10)
- Georgia Stand-Up (1/28/2011)

Throughout the course of the outreach activities, some general themes emerged about the RTN process.

- **The RTN needs to be limited in size.** In light of its overall purpose in the regional transportation system, there is general consensus that the RTN needs to be significantly smaller than the adopted RSTS. In this regard, the regional thoroughfares must only include facilities that serve the highest regional function.
- **System management should be a major focus of the RTN.** Given the limited amount of funding available for transportation capacity improvements in terms of both right-of-way and construction costs, there was general agreement that an emphasis on system management guidelines is recommended. This direction should be followed in order to alleviate the need for large capital investments.
- **Multimodal travel is extremely important.** As the population of Metro Atlanta continues to grow, special attention needs to be given to transit and the improvements within Concept 3 – Regional Transit Vision. This is not only to promote improved mobility and more dense development patterns in the urbanized areas of the region, but to also provide commute options and nodal development opportunities in suburban and exurban areas.
- **Serving freight is critical.** As the region continues to grow, so too, will the needs for transporting goods and services. In meeting the challenges of accommodating more travelers in the region, it is important to manage and plan the RTN to preserve freight operations. Freight mobility is also a critical factor in promoting economic development opportunities.
- **Geographical boundaries warrant consideration.** Roadways that traverse natural geographical features, particularly river crossings, are important because alternative corridors to serve the same trip are usually limited.
- **Access to regional transportation facilities should be prioritized.** Access to interstate highways and regional transportation facilities (e.g. Hartsfield-Jackson Atlanta International Airport (H-JAIA), MARTA stations, etc.) is important from a regional perspective.
- **The land use and development context that transportation facilities serve influences the RTN.** The function of a specific thoroughfare will be dependent on the urban form and land development patterns that it serves. Of the two draft networks, Draft Network 1 has been seen as much more favorable to the suburban and exurban counties. This is logical since it is more highway-oriented than Draft Network 2. This is a preliminary indication that:
    - Concept 3 has a larger influence on the future transportation network in the more urbanized core counties in which roadways are more constrained by existing development. Thus, roadway preservation and management is a critical need in these areas.

  - In suburban environments, less dense development types surrounding the roadway network dictate the need for a higher focus on addressing greater trip lengths with greater peak hour fluctuations. Notwithstanding that, several of the proposed Concept 3 regional transit improvements would address these trips. There is a greater need for operational and capacity improvements to the roadway network in some of these areas to access employment centers and/or Concept 3 transfer points.

- **The RTN designation has land use implications.** A critical component of managing the RTN will be the development of regional thoroughfare management guidelines. These guidelines will include recommendations for policies associated with street design, access management, and development patterns along the RTN given the regional function and travel characteristics of a specific corridor. Therefore, there is need to have consensus on and land use policy support from local jurisdictions in order for these guidelines to be effective and supportive of ARC in its RTN management practices. In turn, these guidelines can also serve the jurisdictions by providing sound regional policy rationale for local development decisions. In order to provide consistent ARC policy direction to the local governments, the RTN must be developed and classified to support the ARC Unified Growth Policy Map.
- **Periodic review and updates to the RTN are needed.** Given the fact that development and travel patterns in the region change over time, there is a need for periodic review of the network – both from a network identification and classification perspective. This also allows for the appropriate roadway facilities that are currently programmed to be incorporated, as appropriate, as they are constructed. While their overall functionality cannot be determined, some improvements such as bypasses may need to be taken into account in the context of overall regional mobility. The management guidelines developed for the RTN can also serve to shape future growth and mobility in developing counties.

2.9 Comments from GDOT

As an important partner in operating and managing the RTN, GDOT plays a critical role in the operations and management of many of the RTN facilities by their nature as being part of the State Highway System. GDOT reviewed the local government jurisdiction input on November 1, 2010 and communicated its additional comments on the RTN process and results as follows:

- Emphasis for inclusion on the RTN should be given to roadway facilities that carry significant volumes of traffic for significant distances.
- The RTN will provide a much-needed tool for GDOT in determining priorities for roadway capacity and maintenance projects.

In order to capitalize on and be consistent with existing data collection and management practices, facilities on the GDOT Regional Traffic Signal Operations Program should be included on the RTN.

2.10 Final RTN Identification Criteria

Based on the identified need to promote mobility, and multimodal and freight travel at a regional scale on non-interstate and non-expressway facilities and the feedback received from GDOT, local government jurisdictions, and other key stakeholders, a core criteria was established for the identification of the RTN:

- **National Highway System (Non-Freeway Segments)** – The FHWA defines the National Highway System (NHS) as roadways important to the nation's economy, defense, and mobility.
- **Principal Arterials** – The highest functional classification that the Federal Highway Administration (FHWA) designates to non-freeway facilities is Principal Arterials. These facilities are designated as those that most promote mobility by carrying a large number of trips for greater distances.
- **Regional Mobility Corridors** – These facilities include corridors in Metro Atlanta that demonstrate regional mobility based on the qualitative analysis performed to identify the RTN (as described in Section 2.7). These facilities averaged over 10,000 trips per day (AADT) with an average trip length of 20 miles or more.
- **Regional Truck Routes** – These roadway segments have been designated as Regional Truck Routes on the Atlanta Strategic Truck Route Master Plan (ASTRoMaP). This system defines the road segments in the region that "support the efficient movement of truck traffic without disproportionately impacting existing communities, the environment, or the transportation network."
- **Concept 3 Premium Transit Roadway Alignments** – Roadway facilities that have been identified by the Regional Transit Commission within Concept 3 (Regional Transit Vision) for premium transit enhancements such as Bus Rapid Transit (BRT), Arterial Rapid Bus, etc. are included in the RTN.
- **GDOT Regional Traffic Signal Operations Program Corridors** – Cross-jurisdictional regional corridors identified by GDOT for performance monitoring activities and prioritization of operational and maintenance improvements are included in the RTN.

A graphic showing the coverages for these criteria is presented in **Figure 18**. A regional coverage comparison of the facilities meeting each of these core criteria was developed by the project team. Given the varying nature of each network, layering the networks to derive the RTN resulted in redundant segments or lack of connectivity in the network. Thus, a process to review and refine the final network was undertaken.

2.11 Additional Feedback from Stakeholders

Input was also received from local jurisdictions on specific corridors that should be included on the RTN and assessed against the major themes and priorities. In most cases, these facilities were included in the draft network because they met the core criteria presented in the previous subsection. Conversely, the roadways not recommended for inclusion were those that did not meet the core criteria, lacked regional travel characteristics, did not fulfill a regional function, or were not in existence (future proposed facilities).

A list of facilities recommended through this review process along with the local rationale for inclusion is provided in **Table 5**. Additional comments on several proposed RTN segments were also received from the City of Atlanta in late March 2011. As previously noted, the RTN will require on-going review and management to maintain a viable system approach to these critical regional facilities. Those roadways not included in the RTN at this time may be reconsidered in the future, if conditions change and their characteristics change to meet a regional function. Newly constructed facilities may also be considered for inclusion in the RTN, if meeting the specified regional functions.

2.12 Final RTN Network Refinement

As a last step in the RTN identification process, a final review of the network in terms of regional function and connectivity was conducted by the project team. Factors considered during this review were (1) creating system redundancy with parallel roadway facilities; (2) adequate spacing of RTN facilities; and (3) connectivity among RTN segments. The final RTN network is presented in **Figure 19.**

Figure 18: Regional Coverage of RTN Core Criteria Facilities

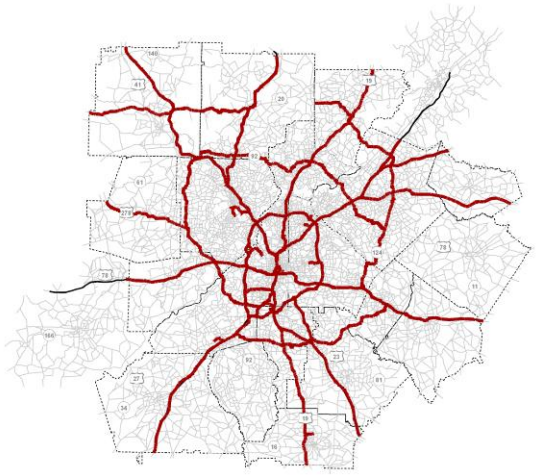
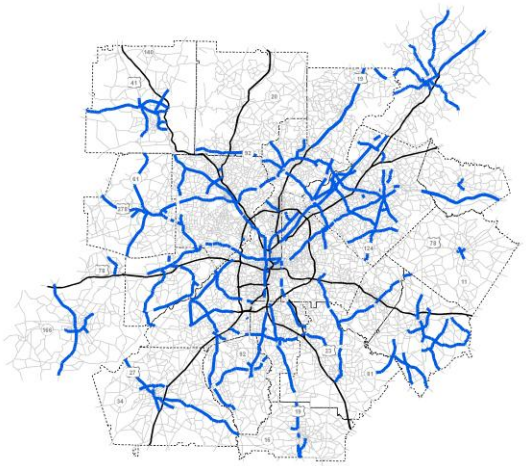
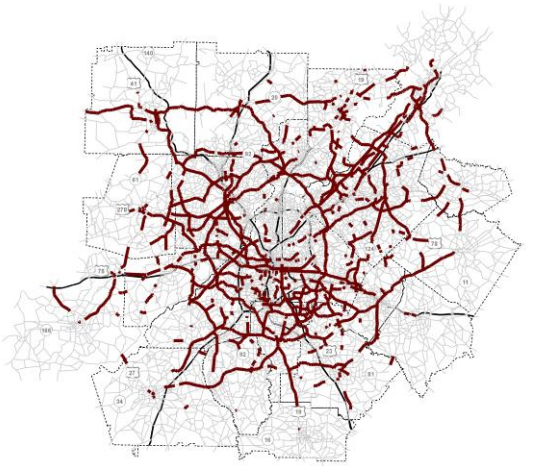
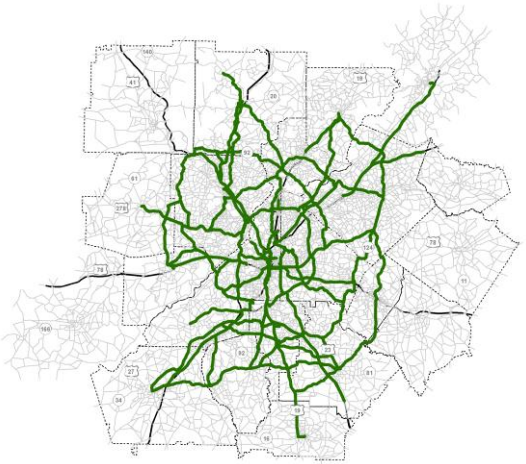
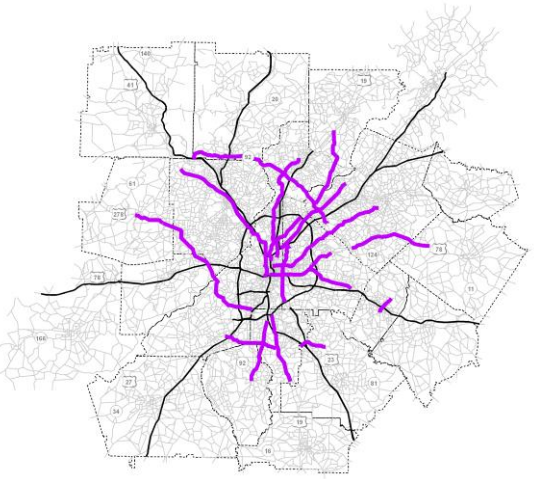
		
National Highway System	**Principal Arterials**	**Regional Mobility Roadway Segments**
		
Regional Truck Routes (ASTRoMaP)	**Concept 3 Premium Transit Roadway Alignments**	**GDOT Regional Traffic Signal Operations Program Corridors**

Table 5: Results of Stakeholder Review of Refined RTN

Jurisdiction	Recommended Facility	Local Rationale	Draft RTN	Rationale
Barrow	Carl Bethlehem Road	Parallel to SR 316	No	Lack of regional travel trends*
Barrow	North Winder Bypass	Bypass	No	To be considered upon construction
Barrow	SR 81	Winder to US 78	Yes	Regional Travel, Connectivity
Bartow	Red Top Mountain Road	Future Expansion, Interstate Access	No	To be considered upon construction
Bartow	SR 113	Future Expansion, Interstate Access	No	To be considered upon construction
Bartow	Old Alabama Road	Future Expansion, Interstate Access	No	To be considered upon construction
Bartow	Glade Road	Future Expansion, Interstate Access	No	To be considered upon construction
Cherokee	SR 5 from Sixes Road to SR 92	Parallel Facility to I-575	No	Lack of regional travel trends*
Cherokee	Old SR 5	Parallel Facility to I-575	Yes	ASTRoMaP, Parallel Relief
Cobb	Windy Hill Road	Interstate Access, Connectivity	Yes	Regional Travel, Connectivity
Cobb/Fulton	Johnson Ferry Road	River Crossing	Yes	Regional Travel, Connectivity
Coweta	Turkey Creek Road	Future Expansion, Interstate Access	No	To be considered upon construction
DeKalb	US 278	Parallel Facility	Yes	ASTRoMaP, Parallel Relief
DeKalb	Rockbridge Road	Commuter Route	No	High-volumes, high % of shorter trips
DeKalb	Briarcliff Road	Regional Travel, Connectivity	Yes	Connectivity, GDOT High Priority Corridor
DeKalb	Panola Road	Regional Travel, Connectivity	Yes	Regional Travel, Connectivity
DeKalb	Memorial Drive	Connectivity	Yes	Regional Travel, Connectivity
DeKalb	Bouldercrest Road	Regional Travel, Connectivity	No	Connector to Regional Facilities
Douglas	SR 166	Scenic Highway Corridor Designation	Yes	ASTRoMaP, Regional Travel
Douglas	SR 5	Major local thoroughfare in Douglas County	Yes	Region Travel
Douglas/ Coweta	SR 5 from US 78 to SR 16	Regional Travel, Connectivity	Yes	Regional Travel, Connectivity
Fayette	Collinsworth-Palmetto Road	Interstate Access	No	Connector to Regional Facilities

** - In comparison to other facilities throughout the region*

Table 5: Results of Stakeholder Review of RTN (continued)

Jurisdiction	Recommended Facility	Local Rationale	Draft RTN	Rationale
Fayette	East Fayetteville Bypass	Bypass	No	To be considered upon construction
Fayette	West Fayetteville Bypass	Bypass	No	To be considered upon construction
Fayette	SR 279/SR 314	H-JAIA Access	Yes	Connectivity, Local Input
Forsyth	Bethelview Road (SR 9/SR 20)	Regional Travel, Connectivity	No	Connector to Regional Facilities
Forsyth	Reagan Boulevard	Parallel Facility to GA 400	No	To be considered upon construction
Fulton	Abernathy Road	Regional Travel, Connectivity	No	Connector to Regional Facilities
Fulton/Gwinnett	McGinnis Ferry Road	GA 400 Access	Yes	Regional Travel
Fulton	Northridge Drive/ Dunwoody Place	GA 400 Access	No	Connector to Regional Facilities
Fulton	Johnson Ferry Road/ Abernathy Road (SR 120 to Ashford Dunwoody Road)	Connectivity	Yes (partially)	Regional Travel, Connectivity
Fulton	Dunwoody Place (Roswell Road to Northridge Drive)	Connectivity	No	None of the pre-identified core criteria met
Fulton	Hammond Drive (Roswell Road to Ashford Dunwoody Road)	Connectivity	Yes (partially)	Connectivity
Fulton	Glenridge Drive/Glenridge Connector (Roswell Road to Peachtree-Dunwoody Road)	Medical Facilities; Connectivity	Yes (partially)	Connectivity
Gwinnett	Sugarloaf Parkway Extension	Bypass	Yes	Regional Travel
Gwinnett	Satellite Boulevard	Parallel Facility	Yes	Regional Travel, Connectivity
Gwinnett	Five Forks Trickum Road	High-volume, very congested	No	Lack of regional travel trends*
Rockdale	SR 162/Salem Road	High volume, North-South travel patterns, proximity to Xpress Bus facilities, connectivity	No	None of the pre-identified core criteria

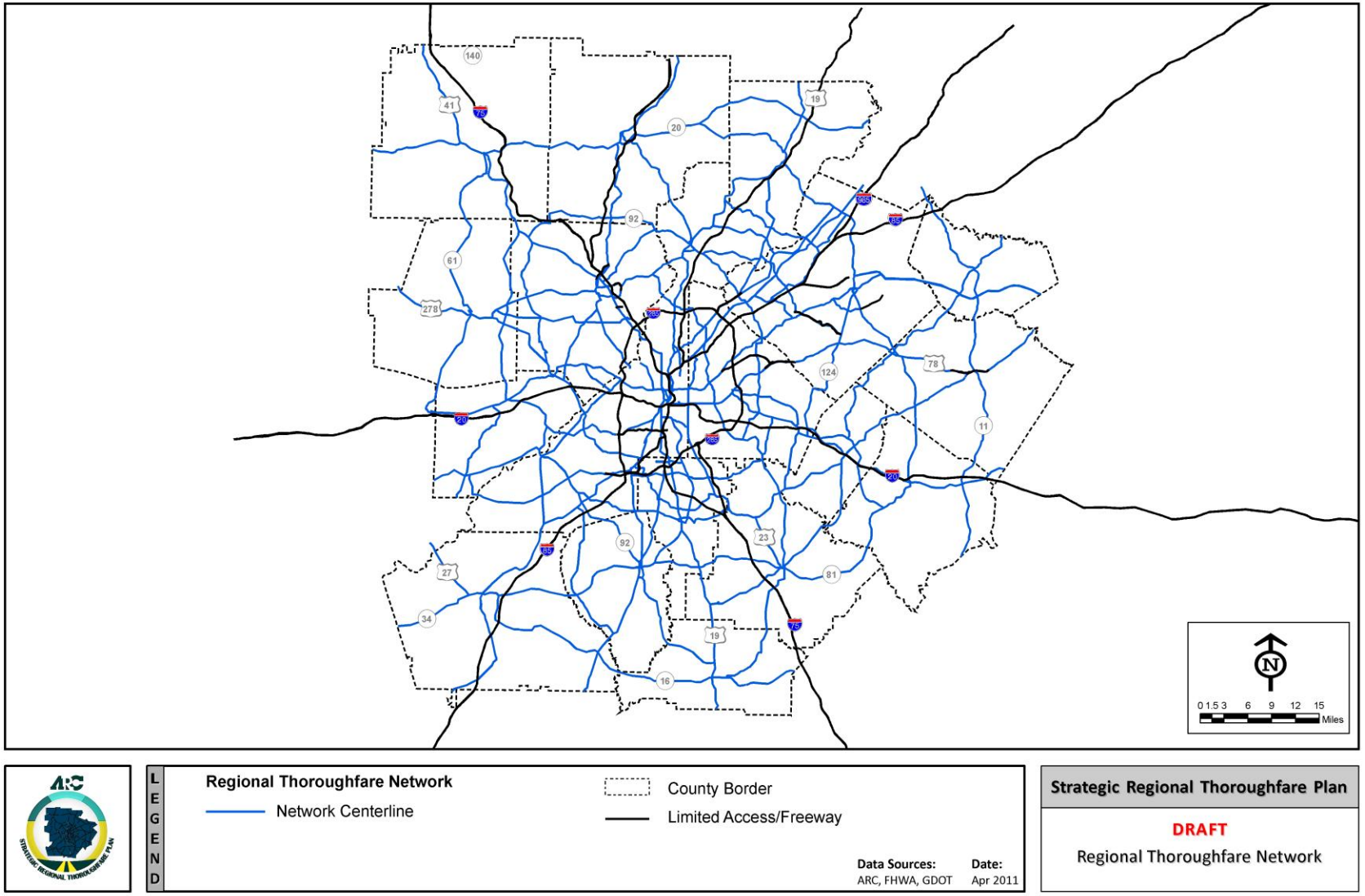
** - In comparison to other facilities throughout the region*

Table 5: Results of Stakeholder Review of RTN (continued)

Jurisdiction	Recommended Facility	Local Rationale	Draft RTN	Rationale
Rockdale	Sigman Road/Abbott Lake Road/Hayden Quarry Rd.	High volume, North-South travel patterns, proximity to Xpress Bus facilities	Yes	Bypass, Connectivity, Transit Access, Regional Travel, Principal Arterial
Rockdale	Mall Parkway/Iris Drive	High volume, North-South travel patterns, proximity to Xpress Bus facilities	No	Lack of regional travel trends*
Spalding	Rocky Creek Road	Future Expansion, Interstate Access	No	To be considered upon construction
Spalding	Jordan Hill Road	Future Expansion, Interstate Access	No	To be considered upon construction
City of Atlanta	Campbellton Road	City of Atlanta CTP Recommendations	Yes	Connectivity
City of Atlanta	Spring Street	City of Atlanta CTP Recommendations	Yes	Connectivity, Regional Travel, Principal Parallel Reliever

** - In comparison to other facilities throughout the region*

Figure 19: Final RTN Network



3.0 RELATIONSHIP TO THE CONGESTION MANAGEMENT PROCESS

Given its overall function to serve as a prioritized network for transportation system operation and management practices, the RTN will serve as the non-freeway network subject to the Metro Atlanta region's Congestion Management Process (CMP). In its previous CMP practices, the ARC has commissioned specific travel time and other data collection efforts to determine needed improvements on selected corridors. In the future, ARC can work in partnership with GDOT and local jurisdictions to help in obtaining data and monitoring the RTN system for congestion management purposes.

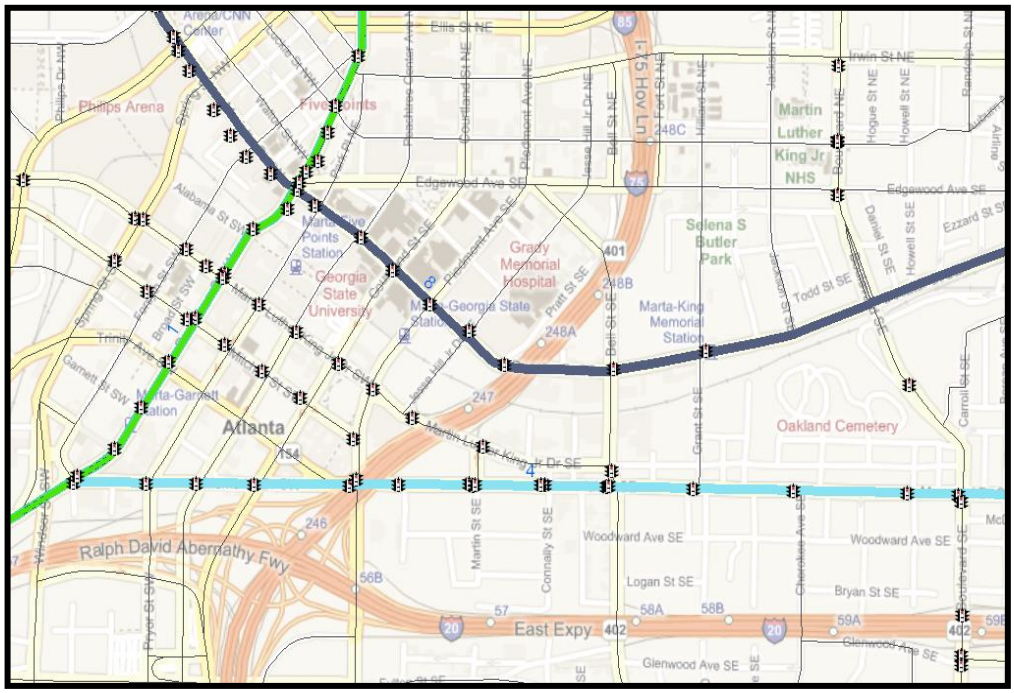
3.1 Data Collection

As a follow-up to the latest CMP efforts, a linear reference system (LRS) is being developed by ARC that offers a geo-referenced data set of roadway attributes, which could include the following:

- Number of Lanes
- Speed Limits
- Presence of Traffic Signals/Intersection Control
- Location of School Zones
- Presence of Divided/Undivided Roadways
- Other Existing Data Sources (e.g., Transit Automated Vehicle Locator (AVL) data)

A sample of output from the LRS showing intersection control points is illustrated in **Figure 20.**

Figure 20: Sample of Intersection Control Points from ARC's Linear Referencing System (LRS)



The purpose of the LRS is to provide the foundation for a data clearinghouse for use by the ARC, its member local government jurisdictions, and planning partners (GDOT, GRTA, et. al.) in its transportation system planning, operations, and management efforts.

To this end, the ARC has researched potential data subscriptions that could be integrated into the LRS. The data will allow the ARC and its partners to compare real time and historical travel time to identify congested locations and the level of congestion along corridors throughout the region. More specifically, the LRS could be used to identify bottlenecks, conduct temporal/seasonal analysis, and/or calculate unnecessary delays. This, in turn, helps focus overall CMP efforts and transportation investments.

It is recognized that even with the LRS, data will still be needed from local jurisdictions to identify operational deficiencies along specific segments or to update/validate the data within the LRS. The LRS will allow the uploading of link traffic counts, intersection turning movement counts, roadway attributes, and travel time data.

3.2 Performance Monitoring

Once complete, the LRS can be used to manage the RTN which will provide benefits to ARC and its planning partners as follows:

- Assist in the identification of most needed improvements for the region's Transportation Improvement Programs (TIPs) and Long-Range Transportation Plans (LRTPs);
- Identify potential areas/facilities needing additional analysis and provide baseline characteristics for multimodal corridor studies;
- Identify areas where data collection may be needed;
- Provide a consistent data source for studies conducted by different agencies throughout the region; and
- Evaluate the effectiveness of completed projects based on previous and current travel trends, once the LRS has been in place over time and historical data have been obtained.

In summary, all of these functions enabled by the LRS will aid in the planning, operations, performance monitoring, and management of the RTN over time and will contribute to more efficient CMP practices.

4.0 RTN NETWORK CLASSIFICATION FRAMEWORK

4.1 Thoroughfare Network Classification Framework

In order to develop a mechanism for more detailed analysis, performance monitoring, and management of the RTN network, a facility classification framework was developed. The purpose of the classification scheme is to enable the development of transportation and land use management strategies oriented to specific community and corridor contexts to be used to protect mobility and system efficiency along RTN facilities.

Based on the work accomplished in the RTN network identification process, coordination with ARC's PLAN 2040 activities, and the feedback from GDOT, local jurisdictions, and other key stakeholders, a four-part framework was developed to classify individual segments of the RTN. The four elements comprising this framework also influenced the development of a set of RTN performance measures that are compatible with those used for ARC's PLAN 2040 development.

Building from the overall purpose and goals of the RTN and the identification of the network, the following four (4) dimensions were seen as critical to classifying the RTN segments:

- **Mobility for People and Goods** – this dimension reflects the overall regional significance of the facility as evidenced by its importance to freight movement as well as its service for commute trips. The idea of "trip mix intensity" or extent to which the facility is playing a major role in a combination of regional person travel and freight movements is reflected in this part of the framework.
- **Land Use Connectivity** – this dimension reflects the critical importance of the RTN connecting major regional activity centers, including core cities, town centers, transit-oriented developments, regional industrial/logistics centers, and other regionally-significant locations.
- **Network Connectivity** – this dimension focuses on the role the RTN segments play in serving as freeway-to-freeway connectors, connectors to other limited access roadways, or connectors to other State-owned facilities to provide regional mobility.
- **Multimodal Functionality** – this element reflects the extent to which a roadway facility is serving travel modes other than single-occupant vehicles, including various modes of transit, such as regional bus services and bus rapid transit lines (BRT), regional bicycle and pedestrian facilities, etc.

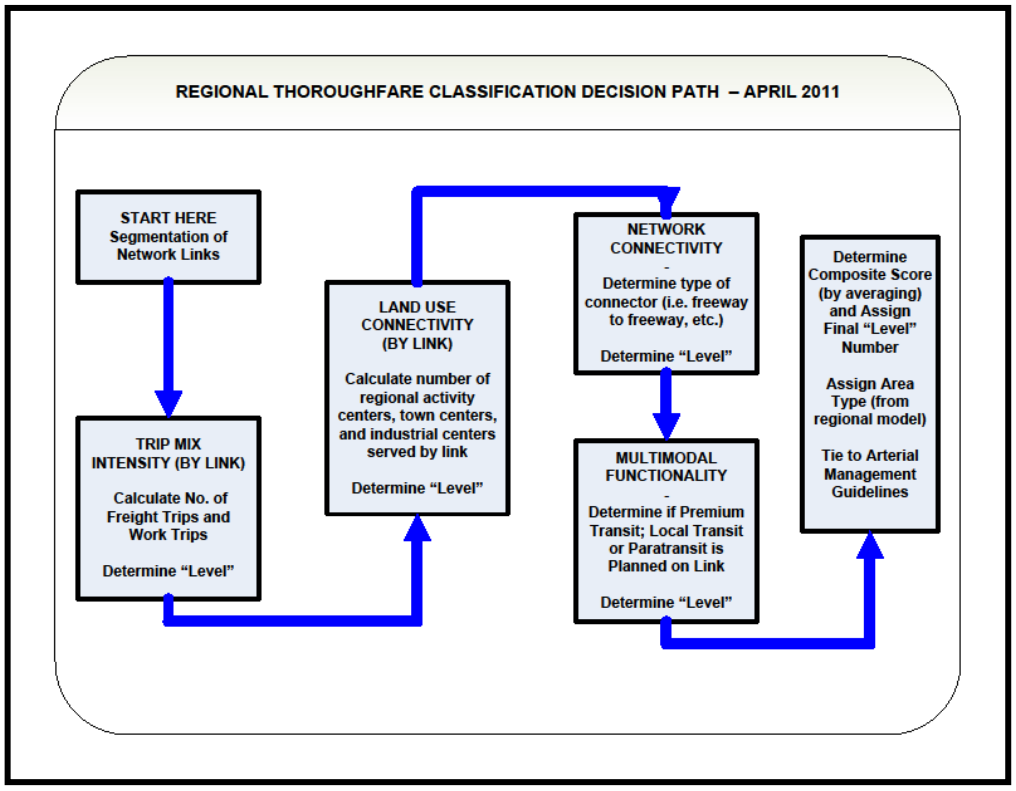
Developing an easy-to-use framework was a primary goal in the creation of the RTN classification system. Thus, a three-level framework utilizing the four dimensions of the regional thoroughfare system was devised as shown in **Table 6.** The three levels in the matrix indicate the need to stratify among the RTN segments at a "high", "medium",

and "low" range among the four major classification criteria. **Figure 21** illustrates the Regional Thoroughfare Classification Decision Path.

Table 6: RTN Classification Framework

	Mobility of People and Freight	Land Use Connectivity	Network Connectivity	Multimodal Functionality
Criteria Definition	Percent of Work Trips and Freight Trips	Number of Regional Attractors, Regional Areas, Town Centers, and/or Industrial/ Logistics Areas within ¼ mile (per UGPM)	Type/Extent of Connection	Type of Transit Served on Segment (other modes served as planned)
Level I	"High"	" Primary"	Freeway-to-Freeway or Interstate Connector Route	"High" – Premium Transit Service on Segment
Level II	"Moderate"	"Intermediate"	Freeway-to-Activity Center/ Town Center Connector	" Moderate" – Local Transit Service on Segment
Level III	"Low"	"Basic"	Freeway-to-Other Limited Access or U.S. Route Connector or Other System Connector	"Basic" – Paratransit or No Transit on Segment

Figure 21: Regional Thoroughfare Classification Decision Path



4.2 Relationship to PLAN 2040 and Performance-Based Planning

As part of the RTN identification and classification activities, the project team focused on the development of an appropriate set of multimodal transportation performance measures that would enable ARC and its planning partners to monitor the progress of the RTN in performing its regional functions and determining the needs for corrective actions and/or additional investments.

This section describes the performance measures that relate to each of the four (4) RTN classification criteria categories, including (1) Mobility of People and Freight; (2) Land Use Connectivity; (3) Network Connectivity; and (4) Multimodal Functionality. It should be noted that in using these performance measures, tradeoffs are required among these criteria. In establishing these measures for the RTN, no attempt was made to "maximize" one criterion at the expense of the others. Also, different tradeoffs are appropriate for different thoroughfare types. The RTN performance criteria are shown in **Table 7**.

ARC's Plan 2040 process is underway. In coordinating the RTN development with the long-range planning effort, it was determined that the RTN performance measures (described in Section 4.3) come reasonably close to the plan-level PLAN 2040 performance measures under consideration. However, the PLAN 2040 project-level performance measures are defined against more generic regional network development objectives and are not particularly focused on thoroughfares.

Table 7: RTN Performance Measures and Data Needs

RTN Criteria Category	Type of Measure	Performance Measures	Data Needs
Mobility of People and Freight	Mostly traditional traffic engineering-type performance measures	• Traffic volumes and characteristics of travel service on the thoroughfare • Quality of service on the facility • Reliability (a particular aspect of service quality)	• ***Volumes:*** total volume; truck volume; vehicle miles traveled (VMT); vehicle hours traveled (VHT); speed; and transit ridership • ***Vehicle-hours of delay***; transit service frequency and speed. Crashes - historical crash counts and measures of crash-related delays; model-based measures of VHT and delay impacts of capacity reductions
Land Use Connectivity	Nature and performance of connections to "lower" level facility types	• Inventory type, quantity, and characteristics data about connections • Level of service provided by connections • Nature and performance of service to nearby demand-generating activities and uses • Characteristics of the service via curb cuts, connections to local streets, etc. • Quality of service to particular land use types identified in the UGPM (i.e. regional activity centers, town centers, • Industrial/logistics hubs, etc.) • For specific land use types, average speed on facility vs. average speed on access links	• ***Quantities and characteristics about connections***: location and type of connections: intersection, traffic controls, movement capacities • ***Level of service provided by connections:*** operational LOS-type data characterizing the functioning of the movements to/from the lower-type facilities • Nature and performance of service to nearby demand-generating activities and uses • ***Characteristics of the service:*** via curb-cuts, connections to local streets • Quality of service to particular land use types identified by the UGPM • Regional, town centers; industrial, freight and logistics hubs; etc. • For specific land uses of these types, average speed on facility vs. average speed on access links
RTN Criteria Category	**Type of Measure**	**Performance Measures**	**Data Needs**
Network Connectivity	Nature and performance of connections to "higher" facility types	• Inventory type, quantity, and characteristics information about connections • Level of service provided by the connections	• ***Inventory type quantity and characteristics information about connections:*** location and type of connections: interchange, intersection, traffic controls, movement capacities • ***Level of service provided by the connections:*** operational LOS-type data characterizing the functioning of the movements to/from the higher-type facilities
Multimodal Functionality	Nature and performance of various travel modes within the thoroughfare	• Absence/presence/quality of premium, regular, and paratransit services • Absence/presence/quality of ITS infrastructure and services • Absence/presence/quality of bicycle/ pedestrian/trail facilities • Absence/presence/quality of freight service (measured as truck traffic volumes or truck percent of traffic)	• Absence/presence/quality of premium, regular, paratransit services • Absence/presence/quality of ITS infrastructure and services • Absence/presence/quality of bicycle/ pedestrian/trail facilities • Absence /presence /quality of freight service (most likely measured as truck traffic volume or truck % of traffic)

4.3 Integration with Other State-Level Planning Efforts

Throughout the RTN development process, consideration of how planning for the region's thoroughfare system would fit in the overall contexts of regional planning for Metro Atlanta and the state as a whole was given. More specifically, the project team reviewed the State of Georgia's Investing in Tomorrow's Transportation Today (IT3) performance metrics to help inform the development of the RTN performance measures. In general, the IT3 metrics are more global in nature and reflect a higher-level (statewide) perspective on system performance as opposed to facility-level metrics. However, the overall RTN development process has areas of commonality with the IT3 recommendations, including its focus on serving freight movements, land use and transportation connectivity, development of multimodal systems, particularly in Metro Atlanta, and incorporation of trip reliability measures as part of performance-based transportation planning.

Another major transportation initiative underway involves the consideration of a new sales tax referendum on the ballot in 2012. The Transportation Investment Act of 2010 (TIA2010) provides for the creation of 12 regional districts in Georgia which can elect to participate in the allocation of this new revenue source under guidelines established in state law. GDOT, ARC, and other MPOs, and key stakeholders in Georgia are participating in the discussions leading up to the general referendum in August 2012. The final TIA2010 project criteria for Metro Atlanta are for the most part compatible with the RTN network identification, classification, and performance measures.

4.4 Segment Classification Protocol

In order to determine the RTN classification for each roadway segment, a protocol was developed using the four thoroughfare classification criteria and the three-level hierarchy structure. This segmentation is also consistent with the linear referencing system (LRS) described for the entire region in Section 3.0. The sequence of activities included:

- Establishment of the LRS for the Metro Atlanta region, including regional thoroughfares.
- Identify "routes" made up of multiple RTN segments depicting regional thoroughfares.
- Divide the RTN into segments of appropriately five miles in length to facilitate the classification or segments based on logical termini.
- Using the four (4) RTN classification categories, assign classifications for each segment for all four criteria.
- Summarize four RTN classifications for each segment into a "composite" classification.
- Map the composite classifications and refine for reasonableness and system continuity.

More detail on the four (4) RTN classification criteria and their definitions are given below.

4.5 Mobility of People and Freight

The primary purpose of the Regional Thoroughfare System is to provide a connected transportation network, serving multiple travel modes that facilitate person and freight travel movements. As the next important mobility system to interstate highways and expressways, regional thoroughfares serve to connect key locations in Metro Atlanta for important economic functions. In this classification category, each thoroughfare segment will be categorized on the extent to which it serves freight traffic and work trips. The percentage of truck traffic and the percent of work trips will be calculated for each segment. Segments within the 75th percentile and above will receive the classification of "High" as Urban Connectors. Segments within the 26th to 74th percentile will be classified as "Moderate" as Suburban Connectors. Segments at the 25th percentile or lower will be classified as "Low" and Rural Connectors. **Table 8** shows the three levels of classification for this criterion.

Table 8: RTN Classification Criteria – Mobility of People and Freight

Level	Mobility of People and Freight (from 20-County Regional Travel Demand Model)
Level I	"High" Percent of Work and Freight Trips
Level II	"Moderate" Percent of Work and Freight Trips
Level III	"Low" Percent of Work and Freight Trips

4.6 Land Use Connectivity

This classification criterion relates to the extent to which the RTN segment serves to connect one or more regionally-significant locations as defined in the UGPM. Specific types of locations most relevant to thoroughfares were identified, including Regional Attractors, Regional Areas, Town Centers, and/or Industrial/Logistics Areas. RTN segments within one-fourth (1/4) mile of these types of places are evaluated based on the number of these locations served.

Segments connecting regional locations within the 75th percentile and above will receive the classification of "Primary". Segments connecting regional locations within the 26th to 74th percentile will be classified as "Intermediate". Segments at the 25th percentile or lower will be classified as "Basic". **Table 9** shows the three levels of classification for this criterion.

Table 9: RTN Classification Criteria – Land Use Connectivity

Level	Land Use Connectivity (Link to UGPM)
Level I	"Primary" Link – serves five (5) or more Regional Attractors, Regional Areas, Town Centers and/or Industrial/ Logistics Areas (within ¼ mile)
Level II	"Intermediate" Link –serves three (3) or four (4) Regional Attractors, Regional Areas, Town Centers, and/or Industrial/Logistics Areas (within ¼ mile)
Level III	"Basic" Link – serves up to two (2) Regional Attractors, Regional Areas, Town Centers, and/or Industrial/Logistics Areas (within ¼ mile)

4.7 Network Connectivity

This classification criterion relates to the type, extent, and characteristics of the connection provided by the RTN segment. Given the overall role of the RTN, freeway-to-freeway connections are viewed as most important, then connections to other limited access facilities or activity centers and town centers, then connections to U.S. roadways or other routes. Accordingly, the RTN segments are classified in this manner across three levels as shown in **Table 10.**

Table 10: RTN Classification Criteria – Network Connectivity

Level	Network Connectivity
Level I	Freeway-to- Freeway or Interstate Connector Route
Level II	Freeway-to – Activity Center/Town Center Connector
Level III	Freeway-to-Other Limited Access or U.S. Route Connector or other system connector

4.8 Multimodal Functionality

This criterion describes the number, extent, and characteristics of the various travel modes accommodated within an RTN segment. Segments with multiple modal functions serving a wide array of auto, truck, ITS, non-motorized modes, and premium transit are assigned a "High" classification. Segments serving a range of travel modes, including local transit, are given a "Moderate" classification. Segments serving a narrow range of travel modes with paratransit or no transit are classified as "Basic". **Table 11** illustrates the range of classifications for this criterion.

Table 11: RTN Classification Criteria – Multimodal Functionality

Level	Multimodal Functionality (Range of Modes and Scales)
Level I	"High" Multimodal Function (Serves multiple travel modes, including premium transit (including bus and/or fixed guideway)
Level II	"Moderate" Multimodal Function (Serves multiple travel modes, including local transit)
Level III	"Basic" Multimodal Function (Serves multiple travel modes, including paratransit or no transit)

4.9 Regional Trip Length Considerations

As a means of testing the reasonableness of the RTN classification process, the Metro Atlanta region's 20-county travel demand model was run to quantify key statistics relevant to the RTN, including frequency of trip lengths for all vehicles and for work trips. Frequencies were tested for urban, suburban, and exurban facilities. **Figure 22** shows the trip length frequencies all vehicles on urban facilities. **Figure 23** illustrates the same information for truck trips on urban facilities. **Figure 24** shows this data for work trips on urban roadways. **Figure 25** shows the trip length frequencies for suburban facilities. **Figure 26** shows the trip length frequencies for rural facilities. The lengths and frequency of the trips depicted in these figures confirm the overall regional functionality of the network.

Figure 22: Frequency of Trip Lengths – Total Vehicles – Urban Facilities

Bin	Frequency	Cumulative %
5	3	0.08%
10	24	0.74%
15	349	10.26%
20	1380	47.94%
25	1283	82.96%
30	489	96.31%
35	112	99.37%
40	15	99.78%
45	6	99.95%
50	2	100.00%
More	0	100.00%

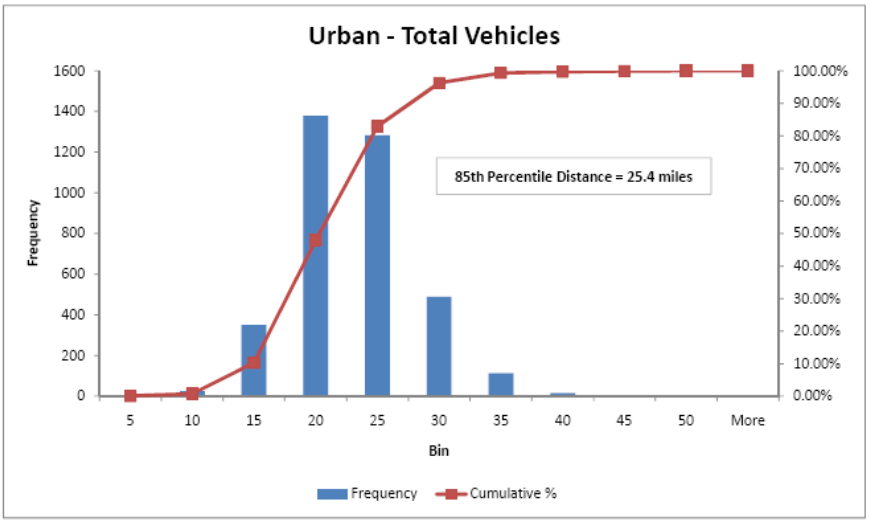


Figure 23: Frequency of Trip Lengths – Truck Trips – Urban Facilities

Bin	Frequency	Cumulative %
5	51	1.40%
10	30	2.23%
15	229	8.53%
20	412	19.86%
25	890	44.35%
30	988	71.53%
35	686	90.40%
40	229	96.70%
45	98	99.39%
50	18	99.89%
More	4	100.00%

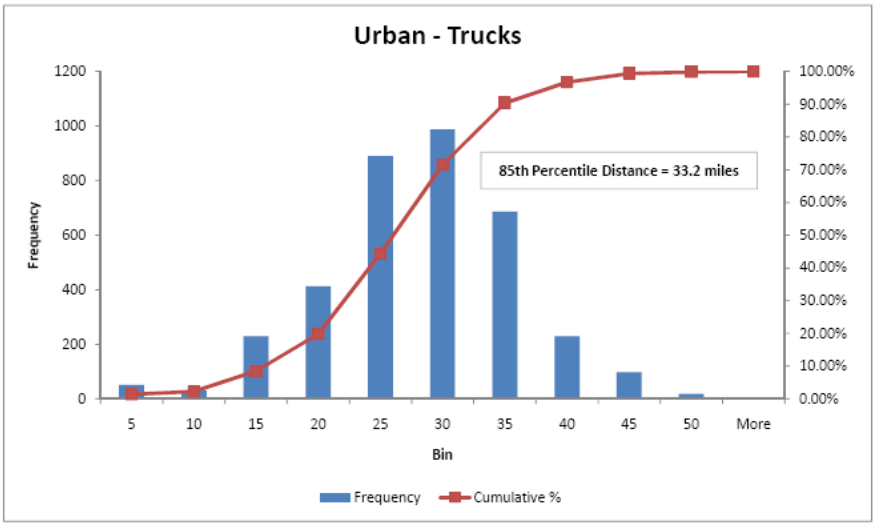


Figure 24: Frequency of Trip Lengths – Work Trips – Urban Facilities

Bin	Frequency	Cumulative %
5	15	0.41%
10	24	1.07%
15	304	9.44%
20	1059	38.57%
25	1531	80.69%
30	497	94.36%
35	174	99.15%
40	31	100.00%
45	0	100.00%
50	0	100.00%
More	0	100.00%

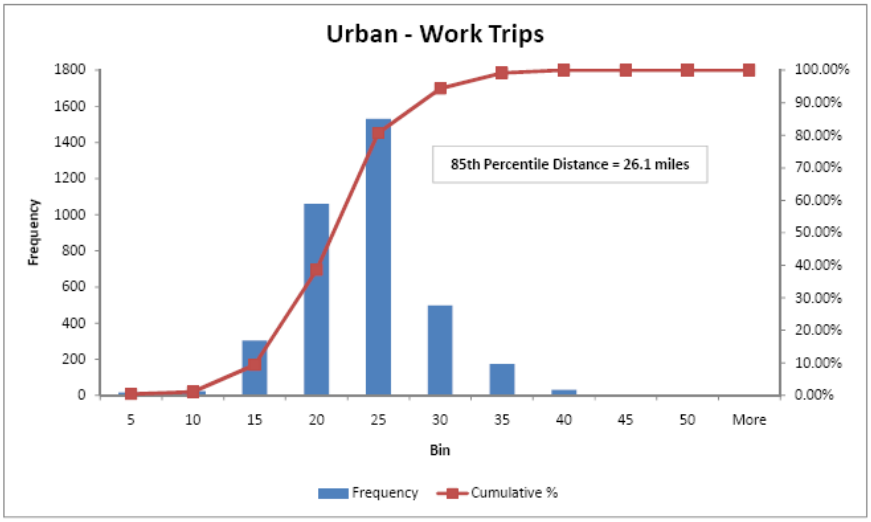
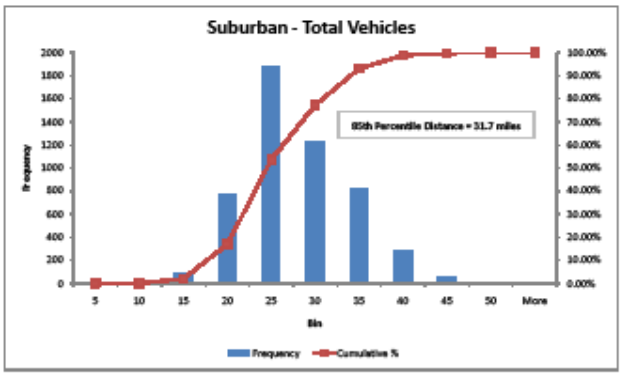
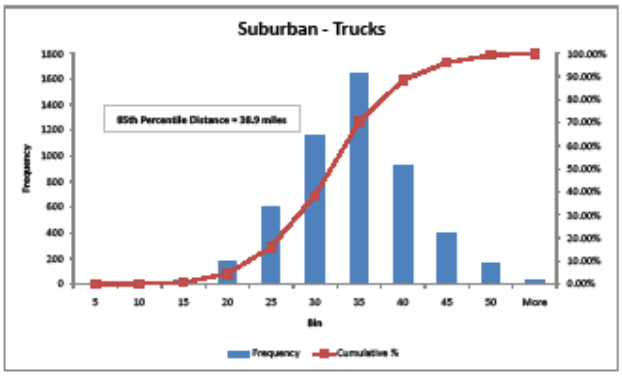


**Figure 25: Frequency of Trip Lengths –
All Vehicles, Truck Trips, and Work Trips on Suburban Facilities**

Bin	Frequency	Cumulative %
5	0	0.00%
10	4	0.08%
15	97	1.96%
20	779	17.04%
25	1883	53.49%
30	1227	77.25%
35	821	93.15%
40	290	98.76%
45	52	99.77%
50	12	100.00%
More	0	100.00%



Bin	Frequency	Cumulative %
5	0	0.00%
10	10	0.19%
15	38	0.93%
20	186	4.53%
25	602	16.20%
30	1155	38.58%
35	1642	70.39%
40	930	88.41%
45	400	96.16%
50	162	99.30%
More	36	100.00%



Bin	Frequency	Cumulative %
5	0	0.00%
10	35	0.68%
15	177	4.11%
20	764	18.90%
25	1947	56.61%
30	1659	88.75%
35	472	97.89%
40	101	99.85%
45	8	100.00%
50	0	100.00%
More	0	100.00%

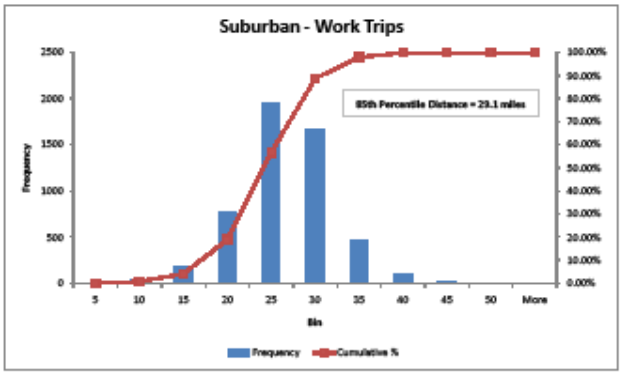
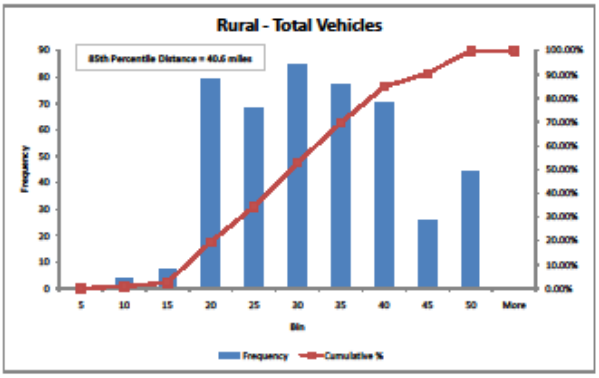
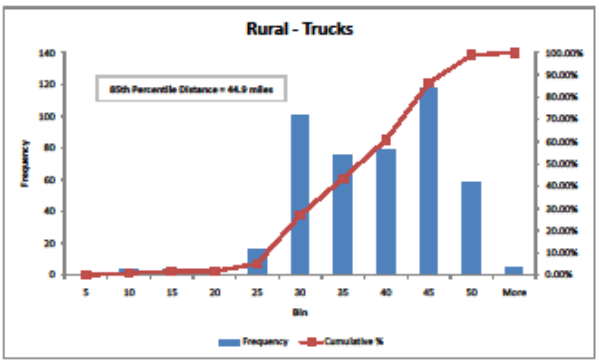


Figure 26: Frequency of Trip Lengths
All Vehicles, Truck Trips, and Work Trips – Rural Facilities

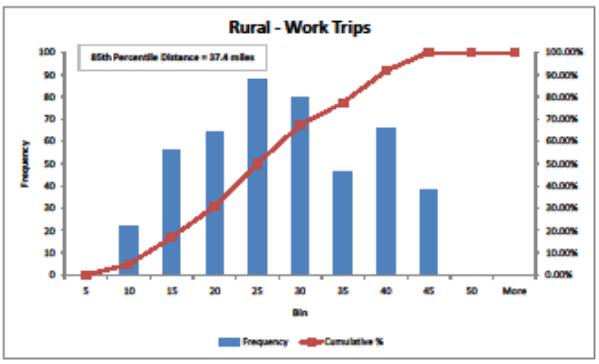
Bin	Frequency	Cumulative %
5	0	0.00%
10	4	0.87%
15	7	2.39%
20	79	19.57%
25	68	34.35%
30	85	52.83%
35	77	69.57%
40	70	84.78%
45	26	90.43%
50	44	100.00%
More	0	100.00%



Bin	Frequency	Cumulative %
5	0	0.00%
10	4	0.87%
15	4	1.74%
20	0	1.74%
25	16	5.22%
30	100	26.96%
35	76	43.48%
40	79	60.65%
45	118	86.30%
50	58	98.91%
More	5	100.00%



Bin	Frequency	Cumulative %
5	0	0.00%
10	22	4.78%
15	56	16.96%
20	64	30.87%
25	88	50.00%
30	80	67.39%
35	46	77.39%
40	66	91.74%
45	38	100.00%
50	0	100.00%
More	0	100.00%

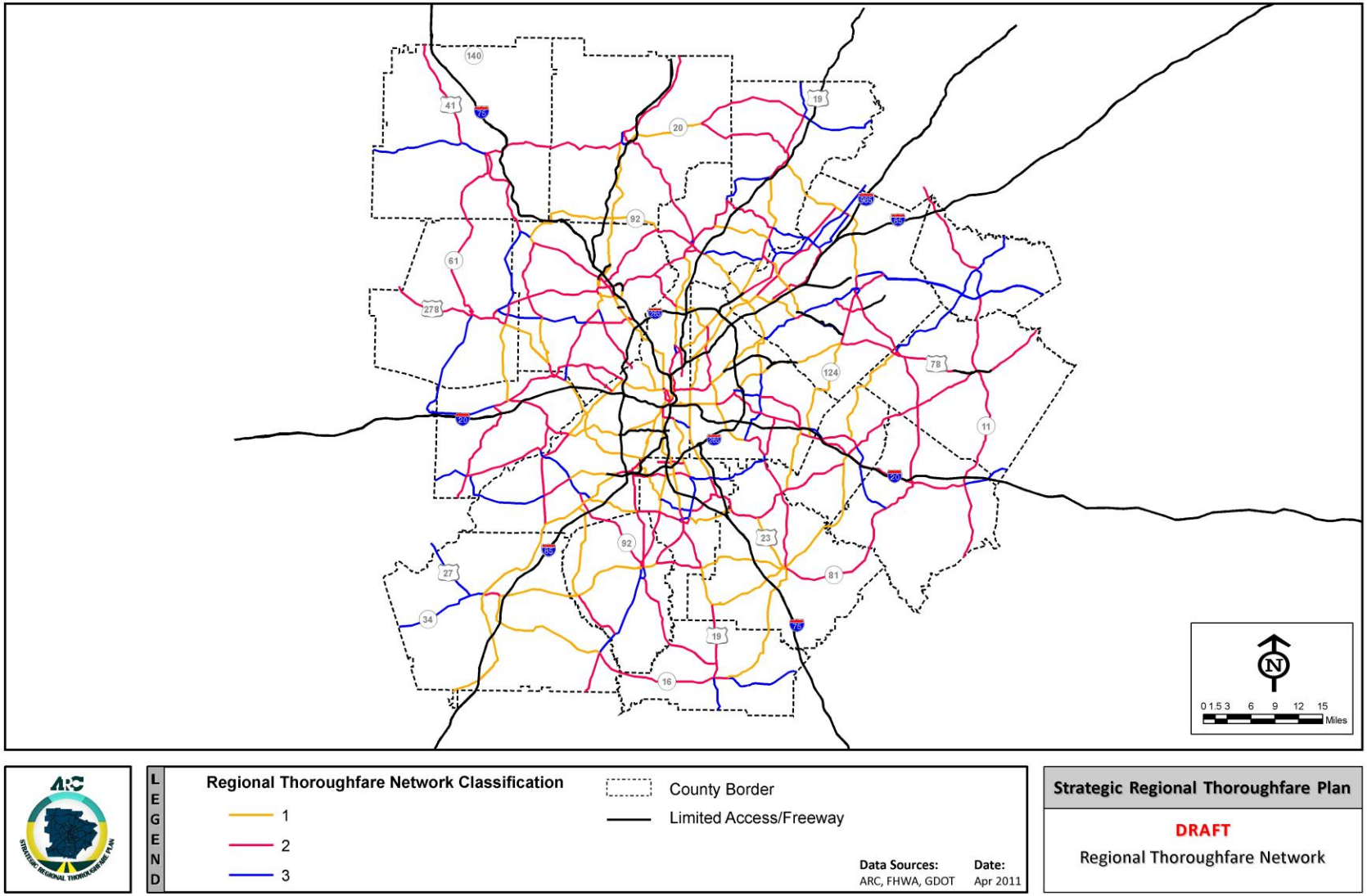


4.10 Composite Measure and Segment Classification

To arrive at an overall RTN classification for each facility segment, the individual criteria rankings for the four core classification criteria (mobility for people and goods; land use connectivity; network connectivity, and multimodal functionality) were "summed" and averaged to develop a composite classification.

The composite segment classification reflects a tiered framework with Tier 1 RTN facilities being considered the highest priority and Tiers 2 and 3 representing mid-level and lower-level priorities. **Figure 27** shows the classified RTN network.

Figure 27: Regional Thoroughfare Network and its Classification



5.0 CONTINUOUS NETWORK MANAGEMENT

Over time, the RTN network will require periodic review, refinement, and adjustment as new thoroughfare facilities come on line and current ones lose their regional function. More specifically, additions to the network should only include segments having the following characteristics:

- National Highway System (NHS) Non-Freeway Road
- Principal Arterial Functional Classification
- Regional Mobility Corridor Designation with at least 10,000 Annual Average Daily Trips (AADT) and an average trip length of at least 20 miles
- Designation on the Concept 3 Premium Transit Roadway Alignment
- Designation on the GDOT Regional Traffic Signal Operations Program Corridors
- Designation on the Regional Truck Route Map (ASTRoMaP)
- Service as a connecting route to one or more Regional Attractors or Regional Areas designated on the Unified Growth Policy Map (UGPM)

Similarly, RTN roadway segments that lose these defining characteristics should be removed from the network, except where system continuity is negatively impacted.

It is recommended that ARC and its planning partners conduct a systematic review of the RTN at least every two years along with adjustments in the collection of data needed to monitor and manage the RTN system. Further, ARC should keep historic records of the structure of the RTN and any additions and deletions to assure that the size of the system stays within the region's financial capability to support it.

6.0 NEXT STEPS

With the identification of the RTN and the classification of each of its segments, the following activities will take place to complete the SRTP effort:

- Development of Performance Measures and Network Evaluation – Based on the factors used within the classification scheme, performance measures will be developed to evaluate the RTN for needs and/or deficiencies.
- Development of Arterial Management Guidelines – Based on the classification and network characteristics, a set of management guidelines to provide guidance on factors such as access management, land use and development strategies, and other measures to benefit the operation of regional thoroughfares will be developed.
- Case Study Evaluation – Case studies will be conducted along five corridors within the RTN to examine the application of potential strategies to be incorporated into the management guidelines given the characteristics of a particular thoroughfare. The results of these case studies will be used to refine the arterial management guidelines developed as part of this effort.

As the work progresses in the SRTP development, additional public outreach activities, especially involving GDOT, local jurisdictions, and key community stakeholders will continue.

Appendix A: Classification Results of RTN Segments