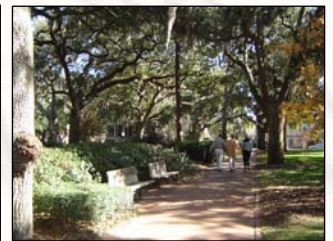
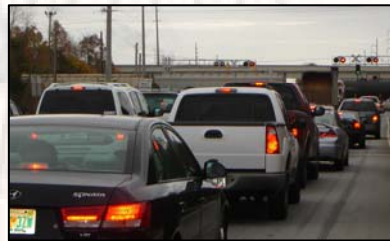
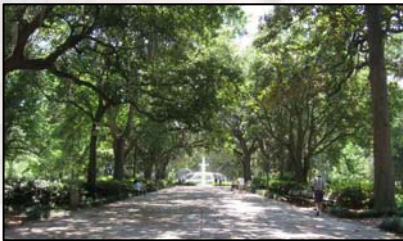




PRESIDENT STREET CONCEPT DEVELOPMENT

Final Report and Executive Summary



City of Savannah
and
Metropolitan Planning Commission

February 16, 2007



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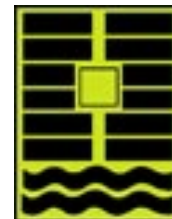


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This report was prepared for the Metropolitan Planning Commission. The study, completed in cooperation with the Savannah Development and Renewal Authority, was funded by the City of Savannah.

PRESIDENT STREET CONCEPT DEVELOPMENT
Final Report

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EXECUTIVE SUMMARY

I. Introduction

Over the last several decades, the growth in Chatham County and Savannah has, like many coastal areas, been tremendous and this growth is expected to continue over the next decade. Although a large amount of this growth occurred and continues to occur in the undeveloped, ex-urban areas, the infill and redevelopment pressures within the central city have also dramatically increased. This growth pressure has focused attention on the need to both preserve and enhance Savannah's unique character and sense of place enjoyed by residents and visitors.

The City of Savannah and the Chatham County-Savannah Metropolitan Planning Commission have recognized this need and have undertaken a planning approach that focuses on the provision of adequate transportation systems and mobility that are fully integrated with land use and urban design elements. This approach is particularly relevant in addressing transportation issues within and adjacent to the downtown historic district. Typically, transportation improvement projects, particularly those focused on congestion mitigation and capacity enhancement, include elements that are not compatible with the historic context and design of a downtown area, and with Savannah's unique design, this is especially true. The pedestrian and bicycle friendly transportation system in the historic district also requires that transportation solutions be multimodal in scope and connect to the existing facilities. The comprehensive approach utilized in this concept study includes design techniques combined with transportation solutions that address multimodal mobility needs within the context of the historic district.

Planned infill development projects along President Street and adjacent to the downtown district further highlighted the need for this integrated, comprehensive approach in addressing the existing traffic needs, as well as the expected traffic increases generated from the planned developments.

II. Background

Current Development Patterns

Over the last several decades, the growth in the area has been focused on the eastern islands, which are accessed by two facilities: Victory Drive (US 80) and President Street/President Street Extension. This growth has resulted in increased demand on these two transportation facilities that serve the islands. In addition, as Savannah has continued to become a premier tourist destination, the demand has further increased with the combined commuter and tourist needs. As the islands built out, the development shifted to other ex-urban areas in the western part of the county and also focused more as infill development within the historic district. Over the last two years, one of the primary focus areas for development is what has traditionally been an industrially oriented area

located adjacent to the eastern boundary of the historic district and served by President Street.

Typically, in the modern era, new developments have been discreet and insulated, disconnected from any adjacent and existing development. As the development becomes populated, congestion increases on the transportation network serving the existing and new development. The transportation system is improved through additional capacity in an attempt to lessen the congestion. More development is attracted to the area because of the enhanced transportation system, and the cycle begins again. Because of the critical location adjacent to the historic district and along one of the major east-west arterials, the comprehensive approach was utilized to break that cycle, addressing congestion and maintaining mobility within the context of the area.

Project Perspective

President Street and President Street Extension currently serve a dual function for the City of Savannah. The facilities provide direct access into the historic district from the east and function as a major traffic artery serving the east-west traffic flow. The facility, as mentioned earlier, is also one of two facilities serving the eastern islands and beach.



traffic accessing the industrial sites. This area also lacks the aesthetic qualities needed to provide a signature gateway entrance from the east into the City of Savannah.

There are several developments planned for the immediate future on adjacent vacant lands on both the north and south sides of the facility. The development on the north side, currently under construction, is a planned community with a mix of uses including single and multifamily residential, commercial and office.

The northern terminus of the Harry Truman Parkway, which is a major, access controlled north-south facility, is located on President Street. This area, although adjacent to the downtown historic district, is traditionally industrial in character and President Street carries a wide mix of traffic, including a large amount of truck



Coordination between city and MPC staff and the developers during the formulation



stages was critical due to its location adjacent to the historic district and the existing riverfront. The owners of this property were encouraged to, and did, follow the model of General Oglethorpe and laid out the street network and the public spaces prior to obtaining the zoning, which addressed functional elements such as the build-to lines, the density and the accepted uses. The determination of actual block and parcel uses was left to the developer.

The site plan for this development, which includes an extension of the downtown grid pattern and identified public spaces, is depicted in Figure 1.

Figure 1. Savannah River Landing



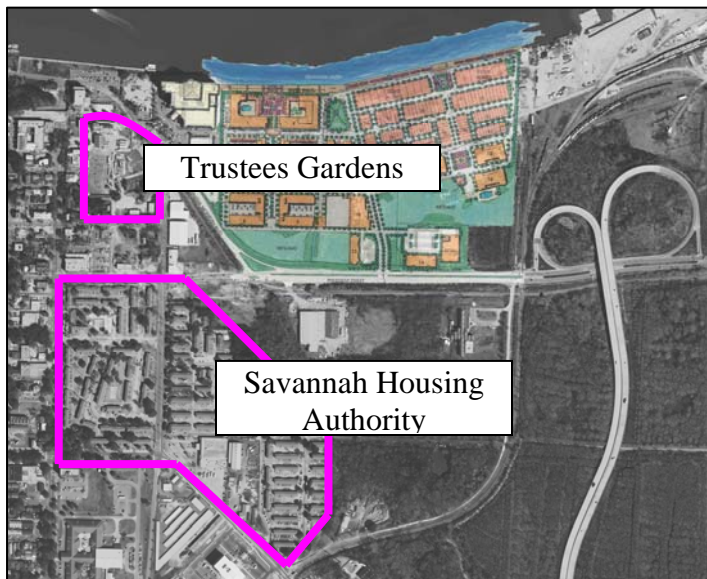
The area on the south side of President Street, across from the Savannah River Landing development, is also the site of a proposed development. This development was originally proposed as a suburban style retail shopping center. The strip shopping layout in the original site plan was seen by City leaders as incompatible with the historic district and the developers were encouraged to restructure their development plan to better fit within the context of the adjacent historic area. The approximate location of the development proposed for the south side of President Street is shown in Figure 2.

Figure 2. Development Area – South of President Street



In addition to the proposed developments adjacent to President Street, there are also several future redevelopment opportunities, which also had to be considered in the overall transportation analysis. These redevelopment opportunities include the Trustees Gardens site between Bay Street, General McIntosh Boulevard, and President Street, and the larger tract of land currently owned by the Savannah Housing Authority. The location of these potential redevelopment sites are shown in Figure 3.

Figure 3. Future Redevelopment Opportunities



There have been two previous efforts undertaken to evaluate the impacts of these planned developments along President Street on the existing transportation system. These studies utilized widely varied approaches in the analysis and culminated in development of very different recommendations. The first study focused solely on accommodating the existing and future traffic and the resulting recommendations focused on President Street configured as an eight-lane, high speed facility. The second study focused primarily on compatible urban design elements of the area adjacent to the historic district, resulting in recommendations designed to achieve an extension of the historic district and provide a gateway into the historic area, but did not fully address the transportation issues within the corridor.

The primary goal of this President Street Concept study is the development of an implementable recommendation providing an efficient and effective multimodal mobility solution, while incorporating the appropriate urban design and context sensitive elements to ensure compatibility with the adjacent historic district.

III. Approach and Methodology

The approach for this study centered on the integration of transportation and land use that fully address the transportation needs in the study area, including the provision of adequate capacity; viable modal alternatives; and the development of a connected, functional network. This approach, based on remaining true to the Oglethorpe model, included the integration of the transportation solutions with the urban and context sensitive design elements compatible with the historic district. In addition, the creation of an appropriate eastern gateway into the Landmark Historic District was also a focus of the study.

In order to effectively assess any recommendations, the broader study area was defined. The area included in the concept development study was bounded by East Broad Street on the west, Truman Parkway on the east, Wheaton Street on the south and the Savannah River to the north. However, the effects of proposed alternatives were evaluated throughout the historic district. Three major tasks were defined and undertaken to complete this study. These tasks included data collection and analysis; evaluation and assessment of existing conditions; and the development and analysis of alternatives and recommendations.

The data collection and analysis task included the collection and review of previous studies, physical facility information, facility constraints, traffic data, operational information, land use information and safety data.

Meetings were also held with City staff and their consultant, Christian Sotille with Sotille and Sotille, staff of the Metropolitan Planning Commission, and staff of the Savannah Downtown Redevelopment Authority to gain a full understanding of the history and background of the project and to review the results of previous charrettes for the study area. Additional charrettes were also held to gain input into the recommendations and

participants included city staff, MPC staff, and stakeholders. In addition, coordination with the River Street trolley project was ongoing throughout the project.

The first step in the evaluation and assessment of existing and future conditions was to map all of the existing data. These maps provided the information needed to identify any existing deficiencies in the operation of the facilities, as well as impacts on the existing land use and planned development. The existing conditions provided the baseline for developing the future conditions and the identification of future deficiencies and problem areas. These analyses provided the foundation for identifying alternatives to address the existing and future deficiencies.

The third task focused on the development and evaluation of alternatives and the final recommendation for the area. Having established the existing and future conditions, the next step was the development of alternative concepts. The development of the concepts was an innovative exercise because it was accomplished without any of the typical constraints, such as funding or political viability; the only constraint was the compatibility and connectivity with the historic district. The connectivity to the existing historic district was an extremely important constraint and to meet this requirement, the critical connections between the old and the new were identified.

The important connections and extensions of the existing grid network, already established for Savannah River Landing and included Broughton Street, were identified for the development on the south side of President Street. These connections, which included Oglethorpe Avenue and Perry Street, were identified for inclusion into the site plan of the proposed development. Although the opportunity to connect the full grid was recognized, Oglethorpe and Perry were identified as critical.

Three alternative concepts that addressed the goals of achieving a compatible, multimodal, context sensitive design, the provision of an eastern gateway into the downtown historic district and a provision for handling the short-term and long-term transportation needs were developed. The multimodal component of the concepts included safe, viable, and functional pedestrian and bicycle facilities connected with the historic district.

Each of the three concepts was evaluated based on traffic operations, access management and safety, multimodal access, urban design and aesthetic improvements, and connectivity.

Because of the scale of the proposed recommendations, a phased implementation plan for each alternative was also developed. This phasing approach identified specific projects for completion that would effectively address the existing and future conditions.

Upon development of the three concepts, the Chatham Urban Transportation Study model was adapted and model runs were made to determine which of the alternatives functioned most efficiently in handling the existing and future traffic.

These three alternative concepts addressed the goals of achieving a compatible, multimodal, context sensitive design, and the provision of an eastern gateway into the downtown historic district and the phased implementation of the projects handle both the short-term and long-term transportation needs. The multimodal component of the concepts included safe, viable, and functional pedestrian and bicycle facilities connected with the historic district. Table 1 depicts the three alternatives, their common components and the recommendations specific to each alternative.

Table 1. President Street Alternative Concepts

Alternative Concept	Common Elements	Specific Recommendation Element
Concept 1	<ul style="list-style-type: none"> ✓ 6-lane President Street with landscaped median ✓ Extension of Liberty Street in a landscaped, boulevard configuration with new interchange at Truman Parkway ✓ Pedestrian and Bicycle amenities on all facilities ✓ 11' inside and middle travel lane ✓ 12' outside travel lane paved with a different material, such as stamped asphalt. Travel lanes changes to on-street parking with the completion of Liberty Street Extension ✓ Landscaping with trees that will form a future canopy 	General McIntosh Boulevard converted to a one way facility with improved pedestrian and bicycle facilities
Concept 2		Extension of General McIntosh Boulevard in a landscaped, boulevard configuration with bicycle and pedestrian facilities from President Street to Wheaton Street
Concept 3		Establish a greenspace by closing General McIntosh Boulevard and employ a full grid pattern throughout the area, including pedestrian and bicycle facilities

IV. Recommendations

Preliminary Findings

Based on the overall evaluation of each of the concepts, it was determined that Concept 2.0 was the recommended alternative. The elements of this concept included:

- ✓ Six-lane President Street, with an appropriately landscaped median and sidewalks on both sides wide enough to safely accommodate both pedestrian and bicyclists
- ✓ 11' inside and middle travel lanes
- ✓ 12' curb lane paved with a different material, such as stamped asphalt
- ✓ Inclusion of landscaping designed to ultimately provide a significant tree canopy similar to the existing canopies in the historic district
- ✓ Extension of General McIntosh Boulevard, in a landscaped, canopied boulevard configuration with bicycle and pedestrian facilities, to Wheaton Street.
- ✓ Extension of Liberty Street in a boulevard configuration to Truman Parkway with a new interchange. Inclusion of landscaping and pedestrian and bicycle amenities. No recommended changes to the configuration of existing Liberty Street
- ✓ Cul-de-sac of existing Wheaton Street at existing Liberty Street

As a part of the recommended concept, the critical links for the extension of the grid pattern into the new developments were also identified. These identified links include the following:

- ✓ Extension of Broughton Street
- ✓ Extension of Oglethorpe Avenue
- ✓ Extension of Perry Street
- ✓ Alignment of the main entrances of the two developments on President Street (Commerce Boulevard). Recommendations for this signalized intersection included a plaza configuration, designed to provide the eastern gateway into the city.

Additional Considerations

Over the course of the study, several elements generated some alterations in the recommended concept. The first element focused on the potential concerns from citizens and area residents with an extension of Liberty Street. In addition, the potential to utilize Randolph Street as the major north-south boulevard was also examined and modifications of the recommended concept were developed and evaluated. The alternative concepts included the following:

✓ **Concept 2.0 (a)**

This modified concept included a Liberty Street Extension from General McIntosh Boulevard Extension to Truman Parkway. The Liberty Street link between General McIntosh and East Broad was omitted.

✓ **Concept 2.0 (b)**

This modified concept shifted the extension of Liberty Street south and tied into Wheaton Street southeast of the existing intersection of Liberty and Wheaton. The extension was proposed from Wheaton Street to Truman Parkway.

✓ **Concept 3.0 (a)**

This modified concept focused on the closing of General McIntosh Boulevard, with Randolph Street functioning as the major north-south facility; connections to the existing grid pattern and a phased connection of Liberty Street extension to Truman Parkway.

The alternative concepts to Concept 2.0 were also modeled to determine the efficiency of the operations. While the results show that the alternatives did not operate as efficiently as the original concept, they were in the acceptable range

Final Recommendations

The final recommendations resulted in a combination concept of the second and third alternatives. This final concept was also developed into a phased construction plan that provided for efficient mobility in the interim years before construction of the full recommendation. The recommendation included the following elements:

Phase 1:

- ✓ Reconstruction of existing President Street into a 6-lane boulevard facility with landscaped median and pedestrian and bicycle facilities adjacent to the roadway
- ✓ The inside and middle lane built at 11 feet and the outside curb lane built at 12 feet and paved with an alternative material such as stamped asphalt. This treatment differentiates the outside curb lane from the beginning of the project.

Phase 2:

- ✓ Upgrade of Randolph Street in a landscaped boulevard configuration.
- ✓ Extension of Liberty Street in a boulevard configuration, with landscaped median and pedestrian and bicycle amenities.

Phase 3:

- ✓ The outside curb lane on President Street reverts to on-street parking.

- ✓ General McIntosh Boulevard is closed, becoming connecting greenspace
- ✓ Explore the potential of a new interchange at Liberty Street extension with Truman Parkway

A graphical representation of the recommendation is shown in Figure 4, found on the following page. Figure 5 provides a rendering of an improved six lane President Street and Figure 6 depicts President Street at build-out after the transition to four lanes with on-street parking and on street bicycle lane. The cost estimates for the project are shown in the table below.

Facility	Cost
President Street	\$ 9,482,724.37
Construction	\$ 7,623,385.95
Construction Contingency	\$ 762,338.58
Engineering	\$ 838,600.00
Right of Way	\$ 258,400.00
Gen. McIntosh Extension	\$ 7,044,986.20
Construction	\$ 1,855,351.09
Construction Contingency	\$ 185,535.11
Engineering	\$ 204,100.00
Right of Way	\$ 4,800,000.00
Liberty Street Extension	\$ 48,252,577.12
Construction	\$ 20,626,606.47
Construction Contingency	\$ 2,062,660.65
Engineering	\$ 2,269,000.00
Right of Way	\$ 23,294,310.00
Oglethorpe Avenue Extension	\$ 4,853,674.11
Construction	\$ 1,151,561.76
Construction Contingency	\$ 230,312.35
Engineering	\$ 96,800.00
Right of Way	\$ 3,375,000.00
Perry Street Extension	\$ 3,269,520.10
Construction	\$ 960,266.75
Construction Contingency	\$ 192,053.35
Engineering	\$ 92,200.00
Right of Way	\$ 2,025,000.00
Broughton Street Extension	\$ 1,254,221.90
Construction	\$ 392,684.92
Construction Contingency	\$ 78,536.98
Engineering	\$ 33,000.00
Right of Way	\$ 750,000.00

Figure 4. Final Recommendation

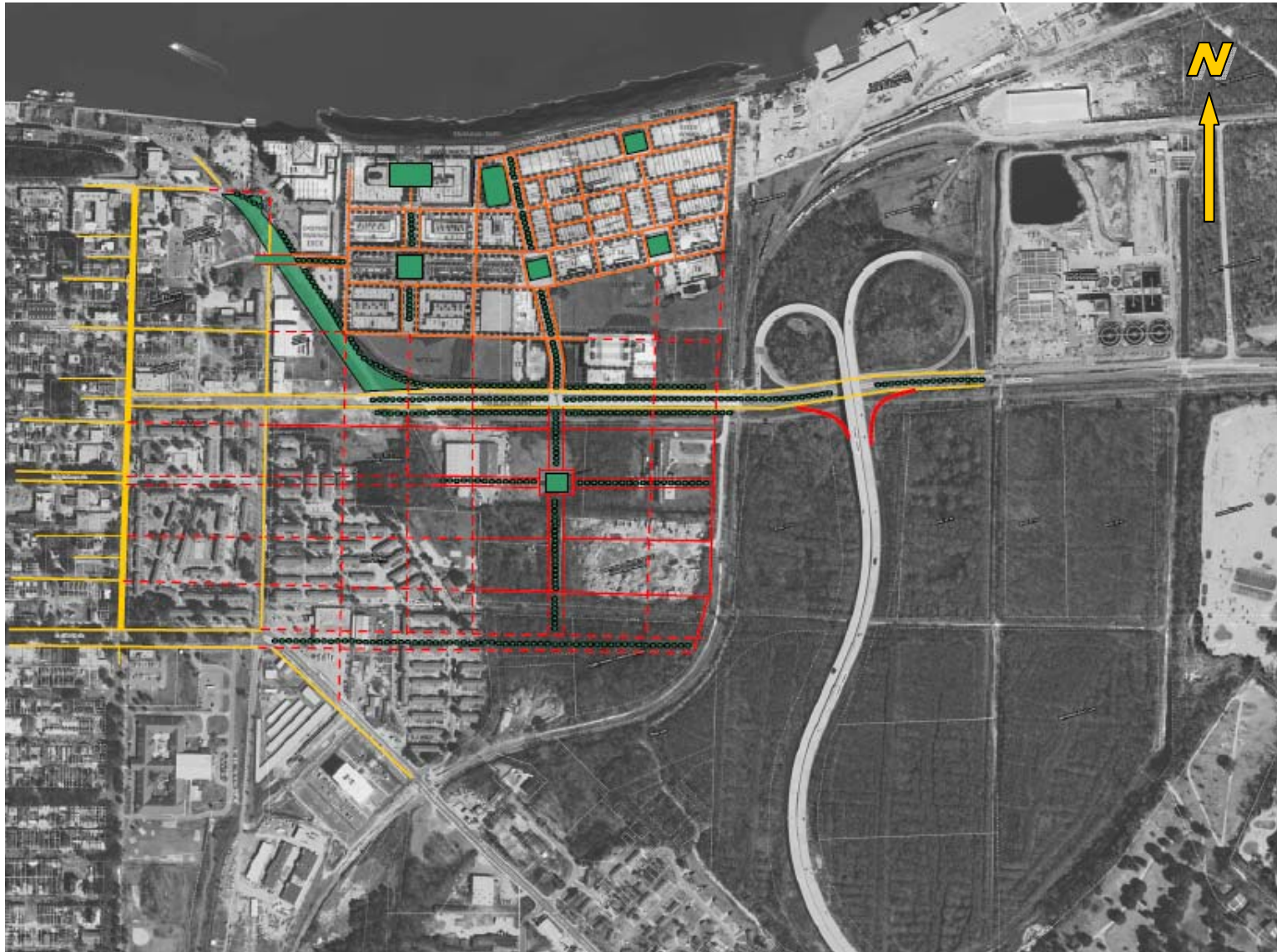


Figure 5. Six Lane President Street



Figure 6. Four Lane President Street



Final Report

I. Introduction

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II. Background

Historical Perspective

Savannah, one of the first planned cities in the country, was established in 1733 by General James Oglethorpe along the Savannah River. The design of the city included a series of central green spaces, or squares, and 12 associated blocks, known as wards. The transportation network was a hierarchical combination of smaller "collector" streets and boulevards.

The boulevards, which form the boundary of the wards, allowed for an uninterrupted traffic flow. The internal street network within the wards, made up of the "collector" streets, was interrupted by the green spaces, or squares, to create a more pedestrian oriented environment. This configuration, along with the associated transportation

network, created a series of pedestrian-scaled, connected neighborhoods with multiple squares.

View of Savannah, March 1734



As the city grew, the original layout of Oglethorpe's plan was repeated, and by the mid-1800s, Savannah had expanded to a total of 24 wards with squares.

Over the years, the city has faced a series of development and “modernization” efforts, particularly in the post-World War II era. During this period, when development patterns became automobile-oriented, several of the squares and historic buildings were demolished for more modern structures. In order to serve these new development patterns, the transportation network, particularly outside of the historic district, transitioned away from the traditional grid pattern serving dense land use and multimodal networks, to a network built for the purpose of serving low density development by quickly moving a large number of vehicles and limited multimodal opportunities.

At one point, serious discussions were held concerning opening the squares for more efficient vehicular flow. City leaders, recognizing the importance and unique qualities of the downtown area and its integrated transportation and land use approach, began efforts to preserve the history of the city and to maintain the original city plan.

Today the downtown area that encompasses the original wards has been designated as an historic landmark district, which is the largest historic district in the United States. In addition, a significant percentage of the city's population resides within the boundaries of the designated historic district. The original network of boulevards, collectors and

squares has been preserved and the historic district is recognized as one of the most well-planned cities in the country.

Current Development Patterns

Over the last several decades, the growth in the area has been focused on the eastern islands, which are accessed by two facilities: Victory Drive (US 80) and President Street/President Street Extension. This growth has resulted in increased demand on these two transportation facilities that serve the islands. In addition, as Savannah has continued to become a premier tourist destination, the demand has further increased with the combined commuter and tourist needs. As the islands built out, the development shifted to other ex-urban areas in the western part of the county and also focused more as infill development within the historic district. Over the last two years, one of the primary focus areas for development is what has traditionally been an industrially oriented area located adjacent to the eastern boundary of the historic district and served by President Street.

Typically, in the modern era, new developments have been discreet and insulated, disconnected from any adjacent and existing development. As the development becomes populated, congestion increases on the transportation network serving the existing and new development. The transportation system is improved through additional capacity in an attempt to lessen the congestion. More development is attracted to the area because of the enhanced transportation system, and the cycle begins again. Because of the critical location adjacent to the historic district and along one of the major east-west arterials, the comprehensive approach was utilized to break that cycle, addressing congestion and maintaining mobility within the context of the area.

Project Perspective

President Street and President Street Extension currently serve a dual function for the City of Savannah. The facilities provide direct access into the historic district from the east and function as a major traffic artery serving the east-west traffic flow. The facility,



as mentioned earlier, is also one of two facilities serving the eastern islands and beach.

The northern terminus of the Harry Truman Parkway, which is a major, access controlled north-south facility, is located on President Street. This area, although adjacent to the downtown historic district, is traditionally industrial in character and President Street carries a wide mix of traffic, including a large amount of truck

traffic accessing the industrial sites. This area also lacks the aesthetic qualities needed to provide a signature gateway entrance from the east into the City of Savannah.

There are several developments planned for the immediate future on adjacent vacant lands on both the north and south sides of the facility. The development on the north side, currently under construction, is a planned community with a mix of uses including single and multifamily residential, commercial and office.



Coordination between city and MPC staff and the developers during the formulation



stages was critical due to its location adjacent to the historic district and the existing riverfront. The owners of this property were encouraged to, and did, follow the model of General Oglethorpe and laid out the street network and the public spaces prior to obtaining the zoning, which addressed functional elements such as the build-to lines, the density and the accepted uses. The determination of actual block and parcel uses was left to the developer.

The site plan for this development, which includes an extension of the downtown grid pattern and identified public spaces, is depicted in Figure 1.

Figure 1. Savannah River Landing



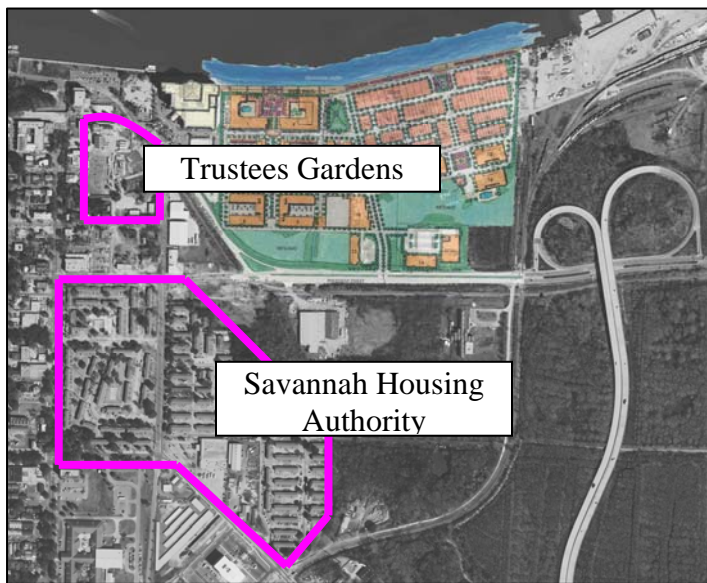
The area on the south side of President Street, across from the Savannah River Landing development, is also the site of a proposed development. This development was originally proposed as a suburban style retail shopping center. The strip shopping layout in the original site plan was seen by City leaders as incompatible with the historic district and the developers were encouraged to restructure their development plan to better fit within the context of the adjacent historic area. The approximate location of the development proposed for the south side of President Street is shown in Figure 2.

Figure 2. Development Area – South of President Street



In addition to the proposed developments adjacent to President Street, there are also several future redevelopment opportunities, which also had to be considered in the overall transportation analysis. These redevelopment opportunities include the Trustees Gardens site between Bay Street, General McIntosh Boulevard, and President Street, and the larger tract of land currently owned by the Savannah Housing Authority. The location of these potential redevelopment sites are shown in Figure 3.

Figure 3. Future Redevelopment Opportunities



There have been two previous efforts undertaken to evaluate the impacts of these planned developments along President Street on the existing transportation system. These studies utilized widely varied approaches in the analysis and culminated in development of very different recommendations. The first study focused solely on accommodating the existing and future traffic and the resulting recommendations focused on President Street configured as an eight-lane, high speed facility. The second study focused primarily on compatible urban design elements of the area adjacent to the historic district, resulting in recommendations designed to achieve an extension of the historic district and provide a gateway into the historic area, but did not fully address the transportation issues within the corridor.

The primary goal of this President Street Concept study is the development of an implementable recommendation providing an efficient and effective multimodal mobility solution, while incorporating the appropriate urban design and context sensitive elements to ensure compatibility with the adjacent historic district.

III. Approach and Methodology

The approach for this study centered on the integration of transportation and land use that fully address the transportation needs in the study area, including the provision of adequate capacity; viable modal alternatives; and the development of a connected, functional network. This approach, based on remaining true to the Oglethorpe model, included the integration of the transportation solutions with the urban and context sensitive design elements compatible with the historic district. In addition, the creation of an appropriate eastern gateway into the Landmark Historic District was also a focus of the study.

In order to effectively assess any recommendations, the broader study area was defined. The area included in the concept development study was bounded by East Broad Street on the west, Truman Parkway on the east, Wheaton Street on the south and the Savannah River to the north. However, the effects of proposed alternatives were evaluated throughout the historic district. Three major tasks were defined and undertaken to complete this study. These tasks are detailed below.

Task 1. Data Collection and Analysis

The first task in this effort was to identify and collect the data needed to build the final recommendations and strategies. These data were used to develop the existing conditions within the study area and to forecast the future conditions.

Because of the previous studies and their focus on the study area surrounding President Street, a large amount of data had been recently collected and these existing data were utilized. These data included:

- ✓ Physical facility information
- ✓ Existing multimodal facilities
- ✓ Facility constraints
- ✓ Traffic
- ✓ Truck traffic
- ✓ Operational information
- ✓ Safety/crash information
- ✓ Land use information.

In addition, previous studies and historical information were also collected and reviewed. These studies and information sources included the following:

- ✓ *President Street Traffic Study, A&R Engineering, 2004*
- ✓ *President Street Traffic Generation Update, A&R, 2006*
- ✓ *East Riverfront Civic Master Plan, 2006*
- ✓ *East Riverfront Street Types, Civic Master Plan, 2006*
- ✓ *Master Plan for Savannah River Landing, 2006*
- ✓ *East Boundary Design Charrette, September 2005*
- ✓ *MUX-PUD Zoning Designation*
- ✓ *Excerpts from Reconnaissance Survey Eastern Wharf Lots & Cotton Warehouse Tract, Lamar Ward, 1996, Brockington & Assoc., Inc.—History and Archival Research*
- ✓ *Sanborn Maps*

Meetings were also held with City staff and their consultant, Christian Sotille with Sotille and Sotille, staff of the Metropolitan Planning Commission, and staff of the Savannah

Downtown Redevelopment Authority to gain a full understanding of the history and background of the project and to review the results of previous charrettes for the study area. Additional charrettes were also held to gain input into the recommendations and participants included city staff, MPC staff, and stakeholders. In addition, coordination with the River Street trolley project was ongoing throughout the project.

Task 2. Evaluation and Assessment of Existing and Future Conditions

The first step in this task was the inventory and mapping of the collected data for reference and the determination of existing conditions on the facilities within the area. These maps included physical attributes; operational data; safety data; and land use. These maps, which were used in the overall analysis of the existing conditions, are found in the Map Section of the Appendix.

A major focus of this analysis was the identification of any existing deficiencies in the operation of the facilities, as well as impacts on the existing land use and planned development. The existing conditions provided the baseline for developing the future conditions and the identification of future deficiencies and problem areas.

In addition, a review of previous studies and plans related to the President Street study area was undertaken. In August 2004, A&R Engineering, Inc. completed a traffic study (A&R study) of the President Street corridor, which evaluated the impacts of proposed developments on both sides of the corridor. A thorough review of the A&R study's trip generation and internal trip capture calculations was completed. For comparison purposes, the Savannah River Landing and North Point developments were grouped as one mixed-use project to remain consistent with the methodology used in the A&R study.

The Traffic Impact Planning Software (TIPS) was utilized to calculate the estimated trip generation and internal capture for the proposed President Street developments. The TIPS software was developed from three sources: The Site Impact Handbook developed in 1997 by the Florida Department of Transportation, Trip Generation 7th Edition published by the Institute of Transportation Engineers, and the Trip Generation Handbook (2001) also published by the Institute of Transportation Engineers. A review of the Trip Generation Assumptions along with a summary of Trip Generation and Internal Trip Capture Analysis is in the Appendix.

The results of the analysis showed the overall estimated total daily trips using the 2006 development assumptions as approximately 2 percent lower than that of the A&R study. For the PM peak, total trips generated using the 2006 assumptions were approximately 8 percent lower than the A&R study. Internal trip capture rates for the PM peak hour for both sets of assumptions were nearly identical (17-18 percent); however, internal capture for total daily trips calculated using the 2006 assumptions was significantly higher (15 percent) versus that presented in the A&R study (8 percent). A detailed description of this review effort and analysis is found in the Appendix.

Task 3: Development and Evaluation of Alternative Designs and Configurations

Development of Alternatives

Having established the existing and future conditions, the next step was the development of alternative concepts. The development of the concepts was an innovative exercise because it was accomplished without any of the typical constraints, such as funding or political viability; the only constraint was the compatibility and connectivity with the historic district. The connectivity to the existing historic district was an extremely important constraint and to meet this requirement, the critical connections between the old and the new were identified.

The important connections and extensions of the existing grid network, already established for Savannah River Landing and included Broughton Street, were identified for the development on the south side of President Street. These connections, which included Oglethorpe Avenue and Perry Street, were identified for inclusion into the site plan of the proposed development. Although the opportunity to connect the full grid was recognized, Oglethorpe and Perry were identified as critical.

Three alternative concepts that addressed the goals of achieving a compatible, multimodal, context sensitive design, the provision of an eastern gateway into the downtown historic district and a provision for handling the short-term and long-term transportation needs were developed. The multimodal component of the concepts included safe, viable, and functional pedestrian and bicycle facilities connected with the historic district.

Each of the three concepts was evaluated based traffic operations, access management and safety, multimodal access, urban design and aesthetic improvements, and connectivity.

Because of the scale of the proposed recommendations, a phased implementation plan for each alternative was also developed. This phasing approach identified specific projects for completion that would effectively address the existing and future conditions.

Upon development of the three concepts, the Chatham Urban Transportation Study model was adapted and model runs were made to determine which of the alternatives functioned most efficiently in handling the existing and future traffic.

Concept 1.0

The first concept included the following elements:

- ✓ Six lane President Street, with an appropriately landscaped median and sidewalks on both sides wide enough to safely accommodate both pedestrian and bicyclists
- ✓ 11' inside and middle travel lanes
- ✓ 12' curb lane paved with a different material, such as stamped asphalt

- ✓ Inclusion of landscaping designed to ultimately provide a significant tree canopy similar to the existing canopies in the historic district
- ✓ Extension of Liberty Street in a boulevard configuration to Truman Parkway with a new interchange. Inclusion of landscaping and pedestrian and bicycle amenities. No recommended changes to the configuration of existing Liberty Street
- ✓ General McIntosh Boulevard converted to a one way western direction facility upon completion of the Liberty Street extension. Improvements on General McIntosh Boulevard include landscaping and improved bicycle and pedestrian amenities.
- ✓ Relocation of the intersection of Wheaton and Liberty Streets and a cul-de-sac of existing Wheaton Street

The phased implementation plan developed as part of the recommendation includes:

Step 1. Improved Six lane President Street with appropriate landscaping and aesthetic improvements to create an eastern gateway. Outside lane paved with alternative material, such as stamped asphalt to differentiate it from the other lanes from the beginning of the project. Also includes pedestrian and bicycle facilities adjacent to President Street.

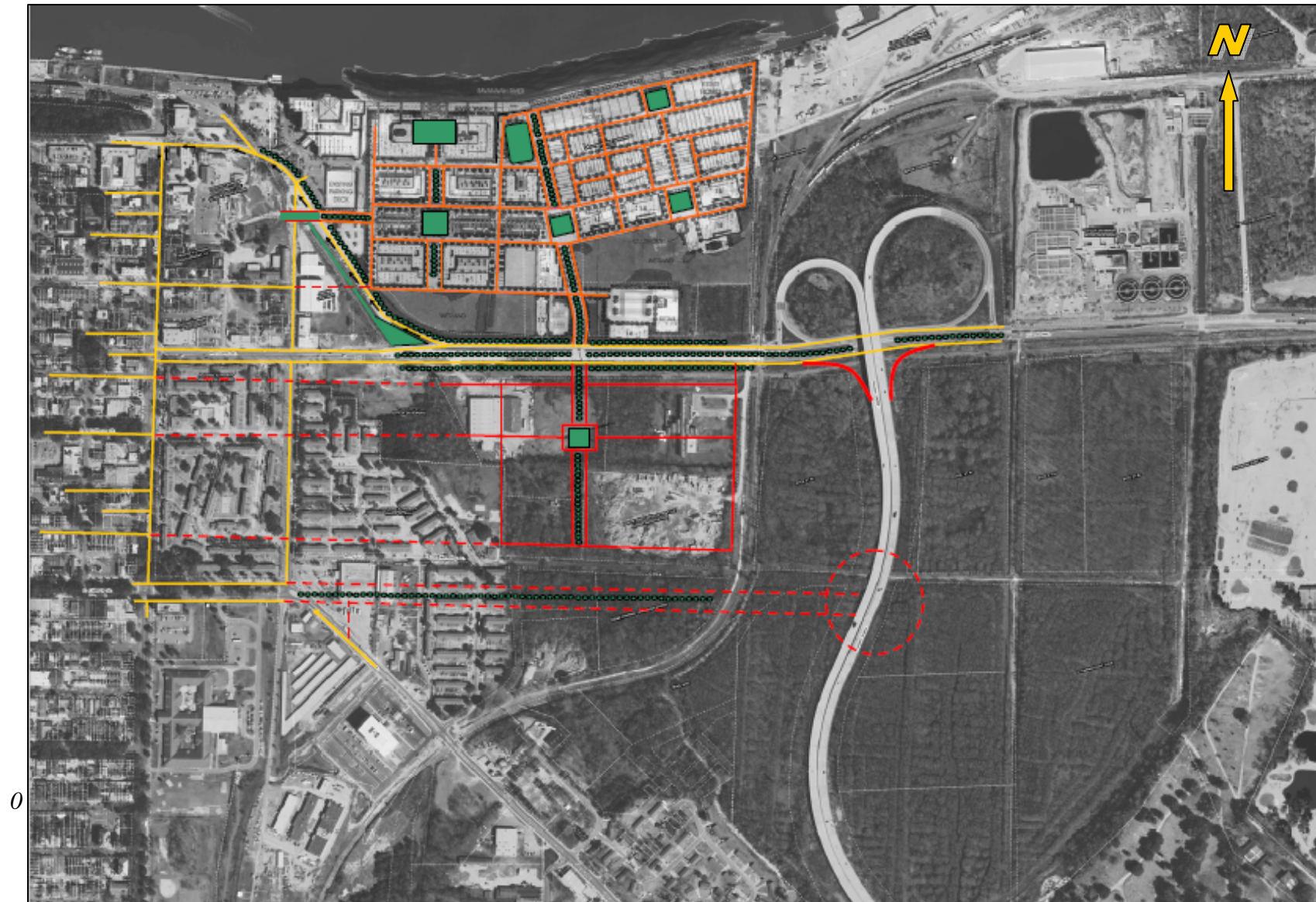
Step 2. Extension of Liberty Street, in a canopied, boulevard configuration with bicycle and pedestrian amenities to Truman Parkway, with a new interchange at Truman Parkway. No recommended change to the configuration of existing Liberty Street.

Step 3. General McIntosh Boulevard converted to a one-way facility in a western direction with landscaping and improved pedestrian and bicycle amenities.

Step 4. Transition of President Street from a six lane facility to a four lane facility with on-street parking and an on-street bicycle lane.

Concept 1.0 is shown in Figure 4, found on the following page.

Figure 4. Concept 1.



Concept 2.0

The second concept included the following elements, some of which were the same as found in Concept 1.0. The similar elements included:

- ✓ Six lane President Street, with an appropriately landscaped median and sidewalks on both sides wide enough to safely accommodate both pedestrian and bicyclists
- ✓ 11' inside and middle travel lanes
- ✓ 12' curb lane paved with a different material, such as stamped asphalt
- ✓ Inclusion of landscaping designed to ultimately provide a significant tree canopy similar to the existing canopies in the historic district
- ✓ Extension of Liberty Street in a boulevard configuration to Truman Parkway with a new interchange. Inclusion of landscaping and pedestrian and bicycle amenities. No recommended changes to the configuration of existing Liberty Street
- ✓ Cul-de-sac of existing Wheaton Street at existing Liberty Street

The new element specific to Concept 2.0 included:

- ✓ Extension of General McIntosh Boulevard, in a landscaped, canopied boulevard configuration with bicycle and pedestrian facilities, to Wheaton Street.

A phased implementation plan was developed as part of the recommendation and included:

Step 1. Improved six lane President Street with appropriate landscaping and aesthetic improvements to create an eastern gateway. Outside lane paved with alternative material, such as stamped asphalt to differentiate it from the other lanes from the beginning of the project. Also includes pedestrian and bicycle facilities adjacent to President Street.

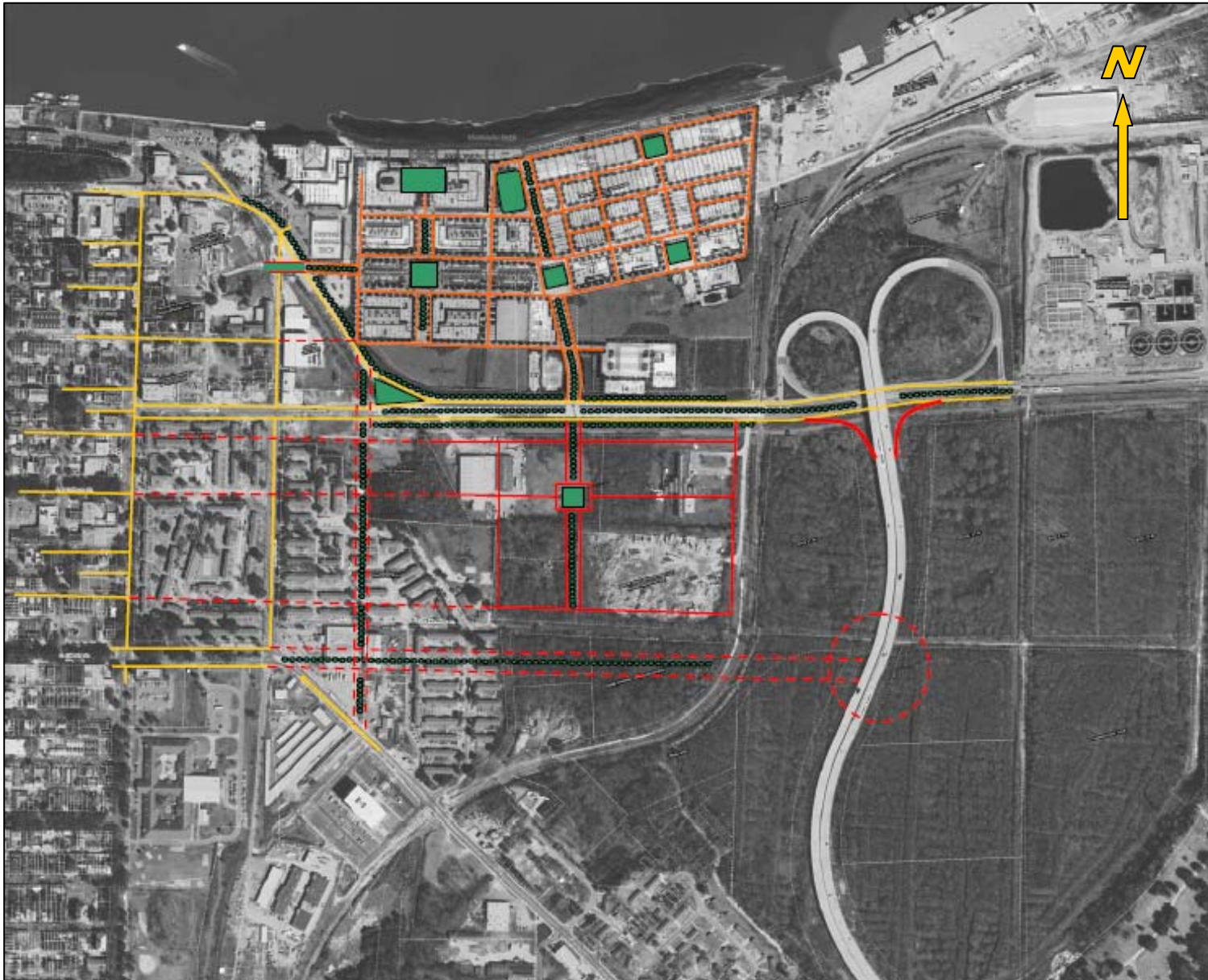
Step 2. Extension of General McIntosh Boulevard, in a landscaped, canopied boulevard configuration, including bicycle and pedestrian facilities, to Wheaton Street

Step 3. Extension of Liberty Street, in a canopied, boulevard configuration with bicycle and pedestrian amenities to Truman Parkway with a new interchange at Truman Parkway. No recommended change to the configuration of existing Liberty Street.

Step 4. Transition of President Street from a six lane facility to a four lane facility with on-street parking and on-street bicycle lane.

Concept 2.0 is shown in Figure 5, found on the following page.

Figure 5. Concept 2.0



Concept 3.0

The third concept included the following elements, some of which were the same as found in the previous two concepts. The similar elements include:

- ✓ Six lane President Street, with an appropriately landscaped median and sidewalks on both sides wide enough to safely accommodate both pedestrian and bicyclists
- ✓ 11' inside and middle travel lanes
- ✓ 12' curb lane paved with a different material, such as stamped asphalt
- ✓ Inclusion of landscaping designed to ultimately provide a significant tree canopy similar to the existing canopies in the historic district
- ✓ Extension of Liberty Street in a boulevard configuration to Truman Parkway with a new interchange. Inclusion of landscaping and pedestrian and bicycle amenities. No recommended changes to the configuration of existing Liberty Street
- ✓ Cul-de-sac of existing Wheaton Street at existing Liberty Street

The new elements exclusive to Concept 3.0 included:

- ✓ Closing General McIntosh Boulevard, which is then converted to greenspace and the establishment of a full grid pattern.

A phased implementation plan was developed as part of the recommendation and included:

Step 1. Improved six lane President Street with appropriate landscaping and aesthetic improvements to create an eastern gateway. Outside lane paved with alternative material, such as stamped asphalt to differentiate it from the other lanes from the beginning of the project. Also includes pedestrian and bicycle facilities adjacent to President Street.

Step 2. Extension of Liberty Street, in a canopied, boulevard configuration with bicycle and pedestrian amenities to Truman Parkway with a new interchange at Truman Parkway. No recommended change to the configuration of existing Liberty Street.

Step 3. Transition of President Street from a six lane facility to a four lane facility with on-street parking and an on-street bicycle lane.

Step 4. Closure and conversion of General McIntosh Boulevard into greenspace

A graphical representation of this Concept 3.0 is shown in Figure 6, found on the following page. Figure 7 provides a rendering of an improved six lane President Street and Figure 8 depicts President Street at build-out after the transition to four lanes with on-street parking and on street bicycle lane.

Figure 6. Concept 3.0

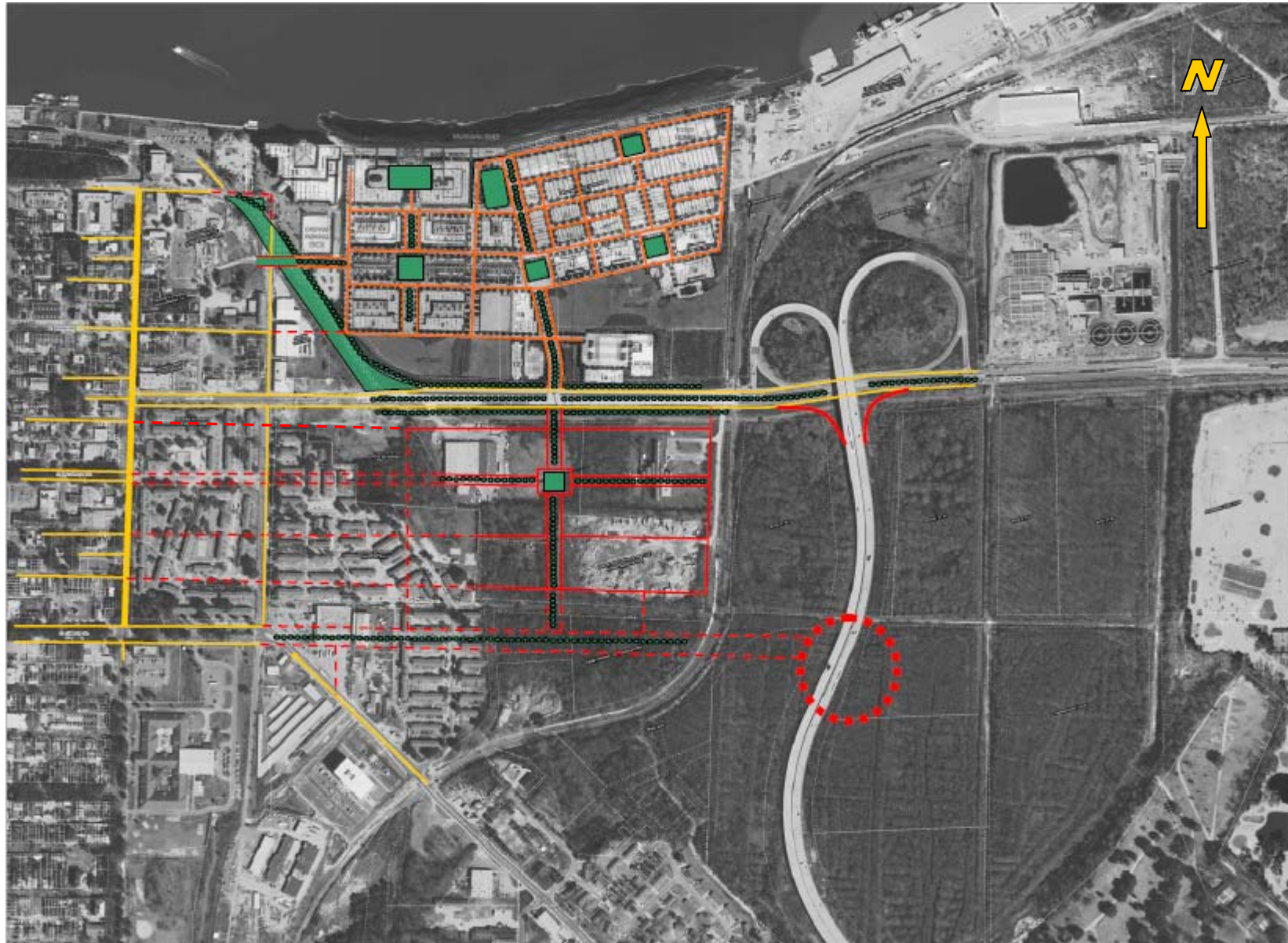


Figure 7. Six lane President Street



Figure 8. Four lane President Street



These three alternative concepts addressed the goals of achieving a compatible, multimodal, context sensitive design, and the provision of an eastern gateway into the downtown historic district and the phased implementation of the projects handle both the short-term and long-term transportation needs. The multimodal component of the concepts included safe, viable, and functional pedestrian and bicycle facilities connected with the historic district. Table 1 depicts the three alternatives, their common components and the recommendations specific to each alternative.

Table 1. President Street Alternative Concepts

Alternative Concept	Common Elements	Specific Recommendation Element
Concept 1	<ul style="list-style-type: none"> ✓ Six lane President Street with landscaped median ✓ Extension of Liberty Street in a landscaped, boulevard configuration with new interchange at Truman Parkway ✓ Pedestrian and Bicycle amenities on all facilities ✓ 11' inside and middle travel lane ✓ 12' outside travel lane paved with a different material, such as stamped asphalt. Travel lanes changes to on-street parking with the completion of Liberty Street Extension ✓ Landscaping with trees that will form a future canopy 	General McIntosh Boulevard converted to a one way facility with improved pedestrian and bicycle facilities
Concept 2		Extension of General McIntosh Boulevard in a landscaped, boulevard configuration with bicycle and pedestrian facilities from President Street to Wheaton Street
Concept 3		Establish a greenspace by closing General McIntosh Boulevard and employ a full grid pattern throughout the area, including pedestrian and bicycle facilities

Evaluation of Alternatives

Each of the three transportation concepts was evaluated, focusing on the analysis of traffic operations, access management and safety. The Chatham Urban Transportation Study model was adapted to the smaller study area and then run to determine the most efficient concept, focusing on which was run to determine the most efficient concept. Just as important, a more non-traditional analysis evaluating the multimodal access, aesthetic improvements, and compatibility with the surrounding area was also utilized.

In addition to the analysis of the transportation function, each alternative was also evaluated with regard to impacts and requirements on the proposed developments adjacent to President Street. The developers and landowners in the area were involved in from the beginning of the process and structured their internal networks and external connections to meet the context sensitive design solution.

The Chatham Urban Transportation Study urban travel demand model was utilized to evaluate the operational efficiency of each of the concepts. The structure in the model was refined to reflect the more defined network specific to the study area and the socio-economic inputs were reviewed to ensure consistency with the future developments.

The refined model was validated and a 2030 no-build scenario was run, as well as each 2030 concept with a six lane President Street. This model run provided information on the operational efficiency of President Street for the short term. An additional model run for each 2030 concept was completed with a four lane President Street to determine the operational efficiency at the build-out of each concept.

The following summarizes the model scenarios:

- ✓ **2030 No-Build:** Included six-lane widening of President Street with no other deviations from the existing base year roadway network
- ✓ **2030 Concept 1.0:** Included conversion of General McIntosh Boulevard to a one-way facility from President Street to Bay Street
- ✓ **2030 Concept 2.0:** Included an extension of General McIntosh Boulevard from President Street to Wheaton Street
- ✓ **2030 Concept 3.0:** Included the closure of General McIntosh Boulevard from President Street to Bay Street and conversion of the facility to greenspace

A 2001 existing conditions base year run was also reviewed and analyzed for comparison with the four model scenarios listed above. The 2001 base year run was derived without modification from the Georgia Department of Transportation Chatham County Interstate Study travel demand model.

The following provides a summary of the model results and the advantages and disadvantages associated with each of the three concept alternatives for President Street.

✓ **2030 No-Build (comparison to other 2030 alternatives)**

○ *Advantages*

- Least disruption to existing roadway network with minimal new roadway improvements
- Most cost effective scenario due to minimal proposed roadway widenings and new location construction

○ *Disadvantages*

- Highest future traffic volumes on President Street (41,000 vehicles per day, or vpd) with Level of Service (LOS) E conditions
- No additional east-west alternatives or enhanced grid network within study area and all future traffic growth accommodated on President Street
- Reduced opportunities for pedestrian enhancements due to high traffic volumes along President Street

✓ **2030 Concept 1.0**

○ *Advantages*

- Moderate traffic volume reduction on President Street (future volume of 36,300 vpd) with moderate east-west traffic diversion onto the East Liberty Street extension (15,300 vpd).

○ *Disadvantages*

- President Street between Randolph Street and East Broad Street at LOS F condition
- Traffic on East Broad Street moderately increased over No-Build
- Required geometric improvements on other adjacent roadways to accommodate truck movements with conversion of General McIntosh Boulevard to one way westerly traffic flow

✓ **2030 Concept 2.0**

○ *Advantages*

- Low-to-moderate traffic volume reduction on President Street (38,000 vpd) with moderate east-west traffic diversion onto the East Liberty Street extension (15,200 vpd).
- Intensive grid network within study area providing a number of trip routing options
- Least impact on existing north-south roadways within historic area, such as East Broad Street.

○ *Disadvantages*

- Smallest decrease in traffic volumes along President Street of the three (3) alternatives.
- Highest presumed cost of all three (3) alternatives due to amount of new (or improved) roadways proposed.

✓ **2030 Concept 3.0**

- *Advantages*
 - High traffic volume reduction on President Street (32,000 vpd) with substantial east-west traffic diversion onto the East Liberty Street extension (17,600 vpd).
 - Substantial improvements to grid network within study area for both east-west and north-south directions
- *Disadvantages*
 - Highest increased daily traffic on East Broad Street over other alternatives
 - Greatest impact on east-west roadways within historic district, such as East Broughton Street.

Overall, the travel demand model results indicated that Concepts 2.0 and 3.0 performed the most efficiently of the four 2030 scenarios tested (including the No-build). Concept 3.0 provided the highest traffic diversion from President Street onto the new extension of East Liberty Street, but also had the greatest negative impacts on existing roadways within the historic district. The model results depicting the projected traffic volumes and Level of Service for each concept are found in the Appendix.

In addition to the modeling effort, each of the concepts was evaluated based on the ability to handle truck movements, the ability to extend the existing grid pattern east of downtown, and the ability to provide connections to the proposed developments.

IV. Preliminary Findings

Based on the overall evaluation of each of the concepts, it was determined that Concept 2.0 was the recommended alternative. The elements of this concept included:

- ✓ Six lane President Street, with an appropriately landscaped median and sidewalks on both sides wide enough to safely accommodate both pedestrian and bicyclists
- ✓ 11' inside and middle travel lanes
- ✓ 12' curb lane paved with a different material, such as stamped asphalt
- ✓ Inclusion of landscaping designed to ultimately provide a significant tree canopy similar to the existing canopies in the historic district
- ✓ Extension of General McIntosh Boulevard, in a landscaped, canopied boulevard configuration with bicycle and pedestrian facilities, to Wheaton Street.
- ✓ Extension of Liberty Street in a boulevard configuration to Truman Parkway with a new interchange. Inclusion of landscaping and pedestrian and bicycle amenities. No recommended changes to the configuration of existing Liberty Street
- ✓ Cul-de-sac of existing Wheaton Street at existing Liberty Street

As a part of the recommended concept, the critical links for the extension of the grid pattern into the new developments were also identified. These identified links include the following:

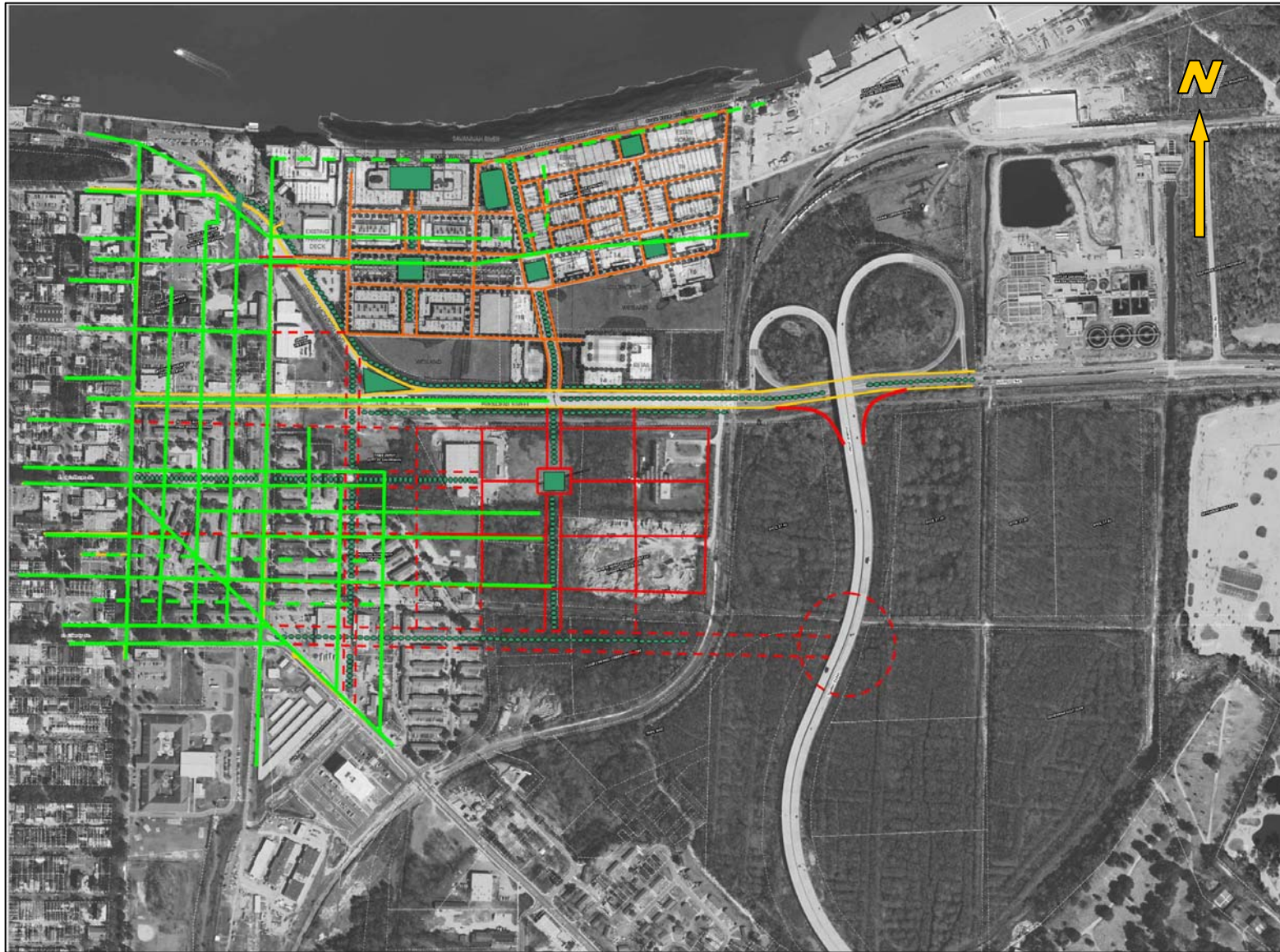
- ✓ Extension of Broughton Street
- ✓ Extension of Oglethorpe Avenue
- ✓ Extension of Perry Street
- ✓ Alignment of the main entrances of the two developments on President Street (Commerce Boulevard). Recommendations for this signalized intersection included a plaza configuration, designed to provide the eastern gateway into the city.

In addition, the original grid pattern in the area was identified from the Sanborn Maps. This original network was compared to the recommended concept to determine its compatibility with the historic network structure. This original grid pattern is shown in Figure 9. Figure 10 depicts the original grid pattern combined with the recommended concept, including the full grid pattern potential as an internal network for the development on the south side of President Street.

Figure 9. Historic Grid Pattern



Figure 10. Historic Grid Pattern and Concept 2.0



Engineering concept drawings for the recommended alternative were also developed to ensure that the proposed facilities and improvements would fit in the study area. This concept drawing is depicted in Figure 11.

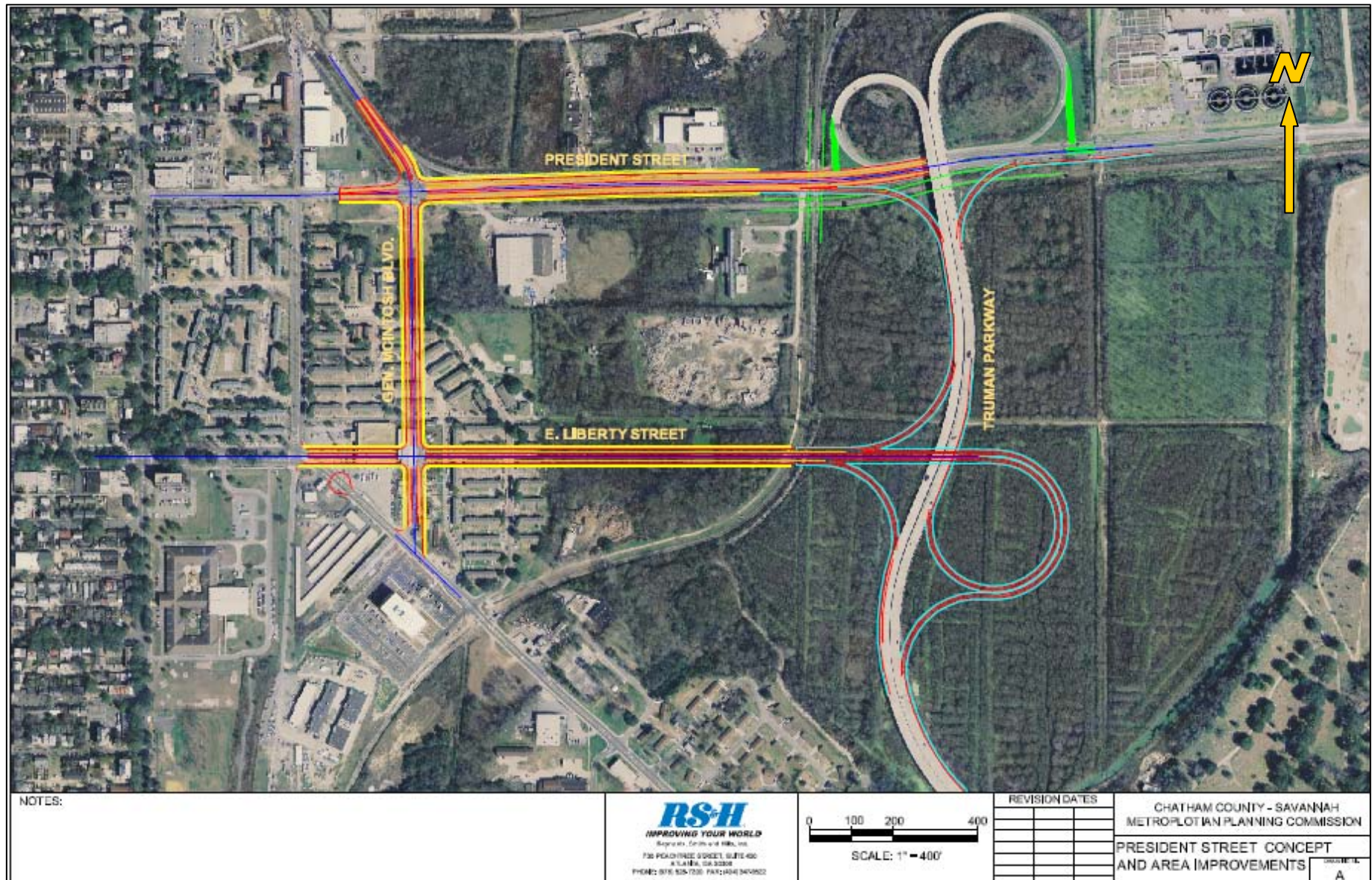
In addition, cost estimates were also developed for each of the facilities included in the recommended alternative, with a total cost of \$ 74,157,703. Table 2 contains the summary of these cost estimates by facility. The detailed cost estimates for each of the facilities are found in the Appendix.

Table 2. Cost Estimates

Facility	Cost
President Street	\$ 9,482,724.37
Construction	\$ 7,623,385.95
Construction Contingency	\$ 762,338.58
Engineering	\$ 838,600.00
Right of Way	\$ 258,400.00
Gen. McIntosh Extension	\$ 7,044,986.20
Construction	\$ 1,855,351.09
Construction Contingency	\$ 185,535.11
Engineering	\$ 204,100.00
Right of Way	\$ 4,800,000.00
Liberty Street Extension	\$ 48,252,577.12
Construction	\$ 20,626,606.47
Construction Contingency	\$ 2,062,660.65
Engineering	\$ 2,269,000.00
Right of Way	\$ 23,294,310.00
Oglethorpe Avenue Extension	\$ 4,853,674.11
Construction	\$ 1,151,561.76
Construction Contingency	\$ 230,312.35
Engineering	\$ 96,800.00
Right of Way	\$ 3,375,000.00
Perry Street Extension	\$ 3,269,520.10
Construction	\$ 960,266.75
Construction Contingency	\$ 192,053.35
Engineering	\$ 92,200.00
Right of Way	\$ 2,025,000.00
Broughton Street Extension	\$ 1,254,221.90
Construction	\$ 392,684.92
Construction Contingency	\$ 78,536.98
Engineering	\$ 33,000.00
Right of Way	\$ 750,000.00

Notes: Construction Contingencies costs calculated between 10% – 25%
Engineering costs calculated between 5% - 25%
Right of Way costs calculated between \$30 - \$50 per square foot

Figure 11. Concept Engineering



Additional Considerations

Over the course of the study, several elements generated some alterations in the recommended concept. The first element focused on the potential concerns from citizens and area residents with an extension of Liberty Street. In addition, the potential to utilize Randolph Street as the major north-south boulevard was also examined and modifications of the recommended concept were developed and evaluated. The alternative concepts included the following:

✓ **Concept 2.0 (a)**

This modified concept included a Liberty Street Extension from General McIntosh Boulevard Extension to Truman Parkway. The Liberty Street link between General McIntosh and East Broad was omitted.

✓ **Concept 2.0 (b)**

This modified concept shifted the extension of Liberty Street south and tied into Wheaton Street southeast of the existing intersection of Liberty and Wheaton. The extension was proposed from Wheaton Street to Truman Parkway.

✓ **Concept 3.0 (a)**

This modified concept focused on the closing of General McIntosh Boulevard, with Randolph Street functioning as the major north-south facility; connections to the existing grid pattern and a phased connection of Liberty Street extension to Truman Parkway.

The alternative concepts to Concept 2.0 were also modeled to determine the efficiency of the operations. While the results show that the alternatives did not operate as efficiently as the original concept, they were in the acceptable range. The alternative concepts are shown in Figures 12, 13. The additional detailed model results are also contained in the Appendix.

Figure 12. Concept 2.0 (a)



Figure 13. Concept 2.0 (b)

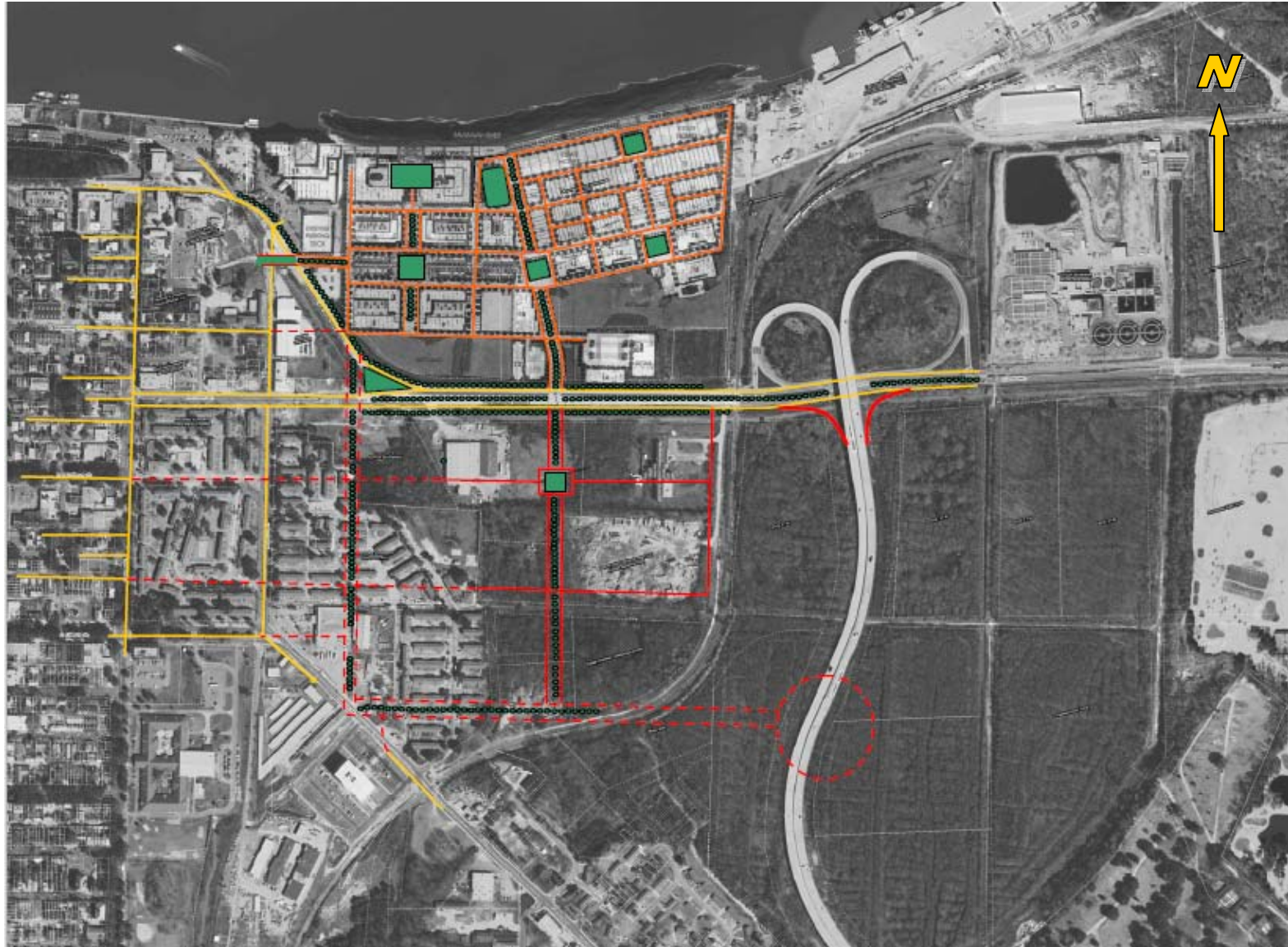
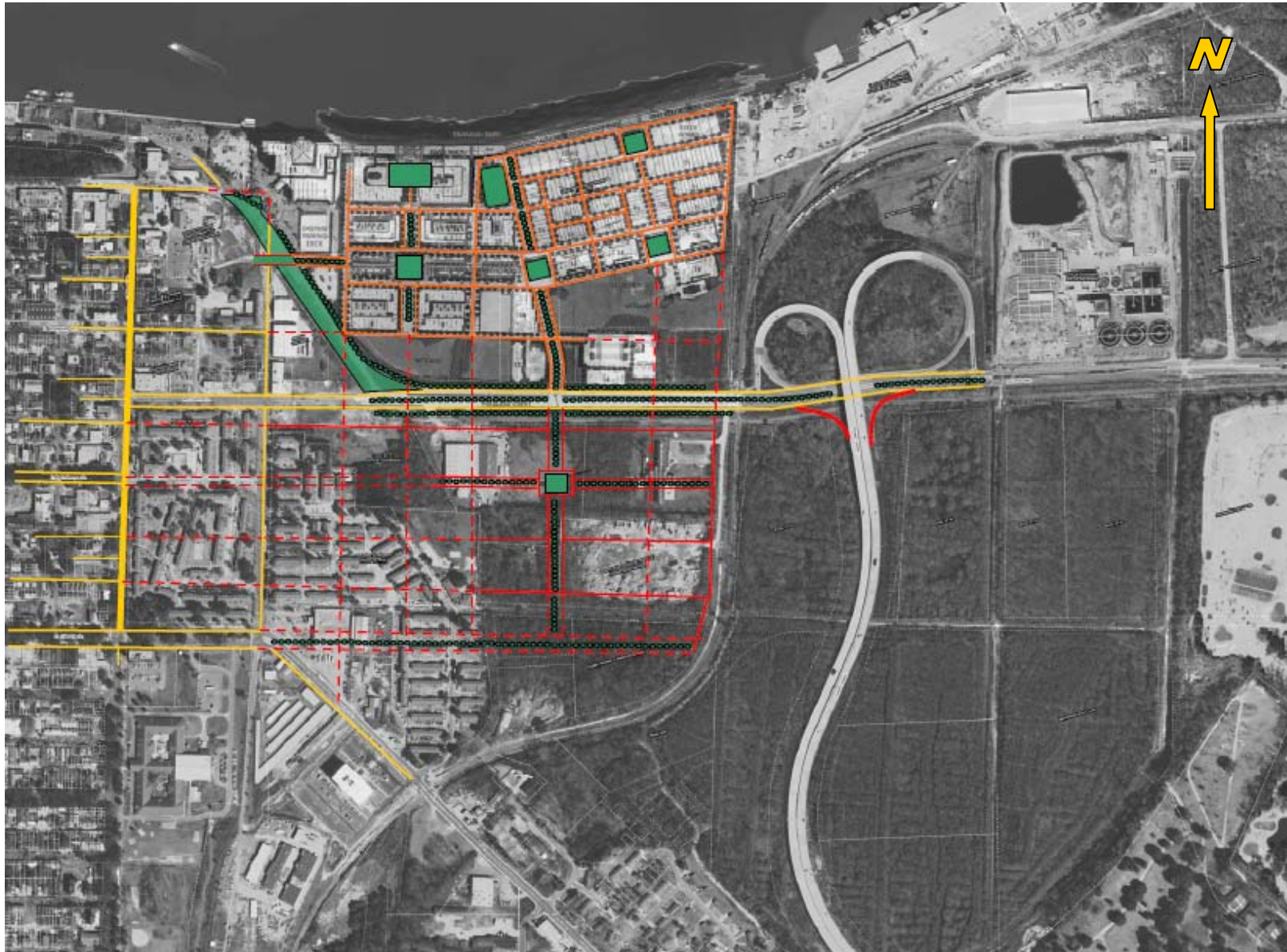


Figure 14. Concept 3.0 (a)



V. Recommendations

The final recommendations resulted in a combination concept of the second and third alternatives. This final concept was also developed into a phased construction plan that provided for efficient mobility in the interim years before construction of the full recommendation. The recommendation included the following elements:

Phase 1:

- ✓ Reconstruction of existing President Street into a six lane boulevard facility with landscaped median and pedestrian and bicycle facilities adjacent to the roadway
- ✓ The inside and middle lane built at 11 feet and the outside curb lane built at 12 feet and paved with an alternative material such as stamped asphalt. This treatment differentiates the outside curb lane from the beginning of the project.

Phase 2:

- ✓ Upgrade of Randolph Street in a landscaped boulevard configuration.
- ✓ Extension of Liberty Street in a boulevard configuration, with landscaped median and pedestrian and bicycle amenities.
- ✓ General McIntosh Boulevard is closed, becoming connecting greenspace

Phase 3:

- ✓ The construction of a new interchange with Liberty Street at Truman Parkway
- ✓ The outside curb lane on President Street reverts to on-street parking.

VI. Coordination

The coordination effort in this study was a crucial component. The stakeholders included:

- ✓ Metropolitan Planning Commission
- ✓ City of Savannah
- ✓ Savannah Downtown Redevelopment Authority
- ✓ Amblin (Developer of Savannah River Landing – north side of President Street)
- ✓ North Point (Developer of property on south side of President Street)
- ✓ Morris Communications (Owner and developer of Trustees Gardens site)
- ✓ Savannah Housing Authority

A preliminary project meeting was held to discuss the project among staff. Participants included the City engineering staff, staff from the Savannah Downtown Redevelopment Authority, and the staff of the Metropolitan Planning Commission. This meeting outlined the project and provided background and details on the associated issues and previous efforts.

A kick-off stakeholders meeting that included City staff and Christian Sotille, staff from the Metropolitan Planning Commission and the Savannah Downtown Redevelopment Authority, and representatives from the developers in the area was held after the project team meeting. The study process and schedule was outlined and additional background information and issues were obtained.

Coordination meetings were held throughout the process with City staff, Christian Sotille, and staff from the Metropolitan Planning Commission and the Savannah Downtown Redevelopment Authority to provide project updates, gain input into the study components, and to obtain direction in the analysis and development of recommendations. Meetings were also held with each developer or their consultant to present the recommendations and to gain their input and comments. In addition, two more charrettes were held with all of the stakeholders after the recommendations were developed to fully discuss any issues and challenges. These charrettes also provided the opportunity for coordination of all efforts in the study area.

This intensive coordination effort was an ongoing element of the study throughout the entire process and valuable input was provided by the stakeholders in the development of the recommendations.

VI. Lessons Learned

This project emphasized the benefits of context sensitive design planning. The benefits of utilizing context sensitive design solutions in the Eastern Boundary Area and on President Street are invaluable. The tourism industry in Savannah has a tremendous

impact on the economy of the city as well as the surrounding areas, with over 1.3 million visitors to the area annually. The preservation and enhancement of the historic district is the catalyst for this economic engine and the context sensitive design solutions are a critical element.

The development along President Street provides a unique opportunity to coordinate and integrate new development with the historic district. A seamless connection between the two areas is possible using context sensitive design techniques and allows the expansion of the historic, downtown district.

These context sensitive design solutions also have great benefit from a transportation perspective. The traditional analysis using the transportation model indicates that both Concept 2 and 3 will provide an adequate level of service for current users of President Street and the area transportation network, but will also maintain mobility for users in the future. This transportation efficiency provides a synergy between the developers, property owners, existing residents of the city, commuters from the islands, tourists, and business owners. All benefit from the connectivity between the areas and the multimodal opportunities that will exist within and between the historic district and the Eastern Boundary Area.

Required Paradigm Shift

In order for the context sensitive design techniques and solutions to be successfully implemented, a paradigm shift within the transportation engineering and planning profession must occur. The traditional approach to congestion and declining mobility on an arterial is to increase capacity on the facility. While this may work in the short term, the increased capacity is soon diminished with the onset of new development that has located in the area because of the good mobility.

Transportation planning cannot occur in a vacuum. Every transportation project affects some other aspect of the community, whether there are ramifications for transportation delivery, land use, development, environment, economy, or historical and cultural features. What may be an improvement at one location can have detrimental effects at another. It is imperative that a successful transportation project be approached from a global perspective and all effects generated from any transportation project be considered.

This integration of transportation and land use is the crux of the context sensitive design solutions. Transportation solutions must be structured to fit the specific area and there must be recognition that there is no “one size fits all”. While model results may show an 8-lane facility is needed to handle the existing or expected traffic, an 8-lane facility may not be appropriate. The Eastern Boundary Area is a primary example of taking the traditional solution and employing the context sensitive design techniques. An 8-lane facility leading directly into the historic district would have been totally out of context. However, two four lane boulevards with pedestrian and bicycling amenities, tree canopies, and slightly narrower lanes to slow traffic is appropriate for the area.

The traditional tools of the transportation trade are viable; however, they must be used within the context of the transportation problem. The traditional analysis techniques and tools can help provide the answer, but the transportation professional must use their judgment to take the traditional solution and meld it into a viable one for the specific area.

APPENDIX

- I. Maps and Data - Existing Conditions**
- II. Trip Generation Assumptions and Internal Trip Capture Analysis**
- III. Model Results**
- IV. Detailed Cost Estimates**
- V. Alternative Model Results**

APPENDIX

I. Maps and Data

Bus Routes and Stops



Legend

- ▲ CAT Bus Stops
- Streets
- CAT Bus Routes
- Chatham County

Land Use

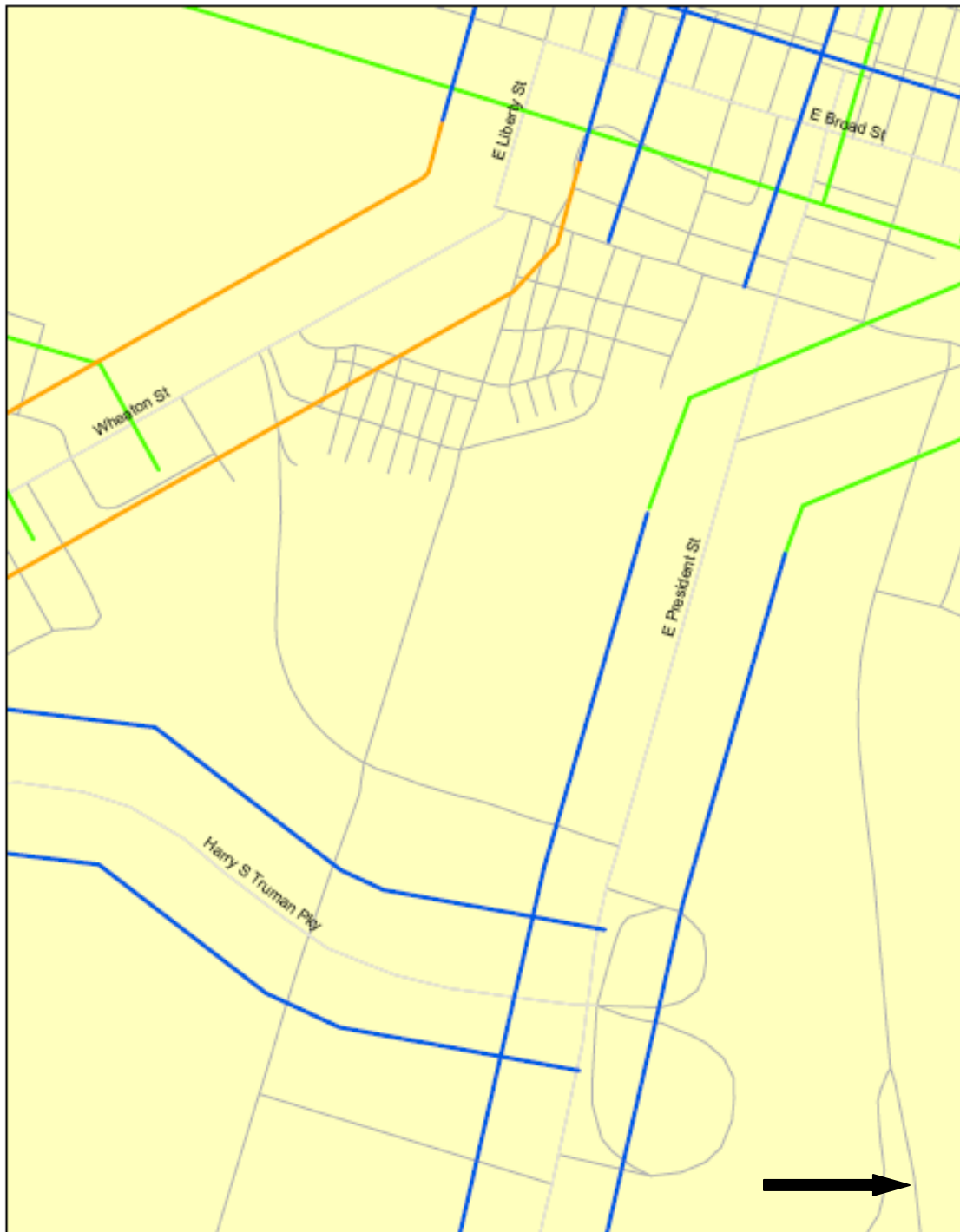


Legend

Land Use



Medians



Legend

- Undivided Median
- Divided Median
- Two Way Left Turn Lane Median
- Streets
- Chatham County

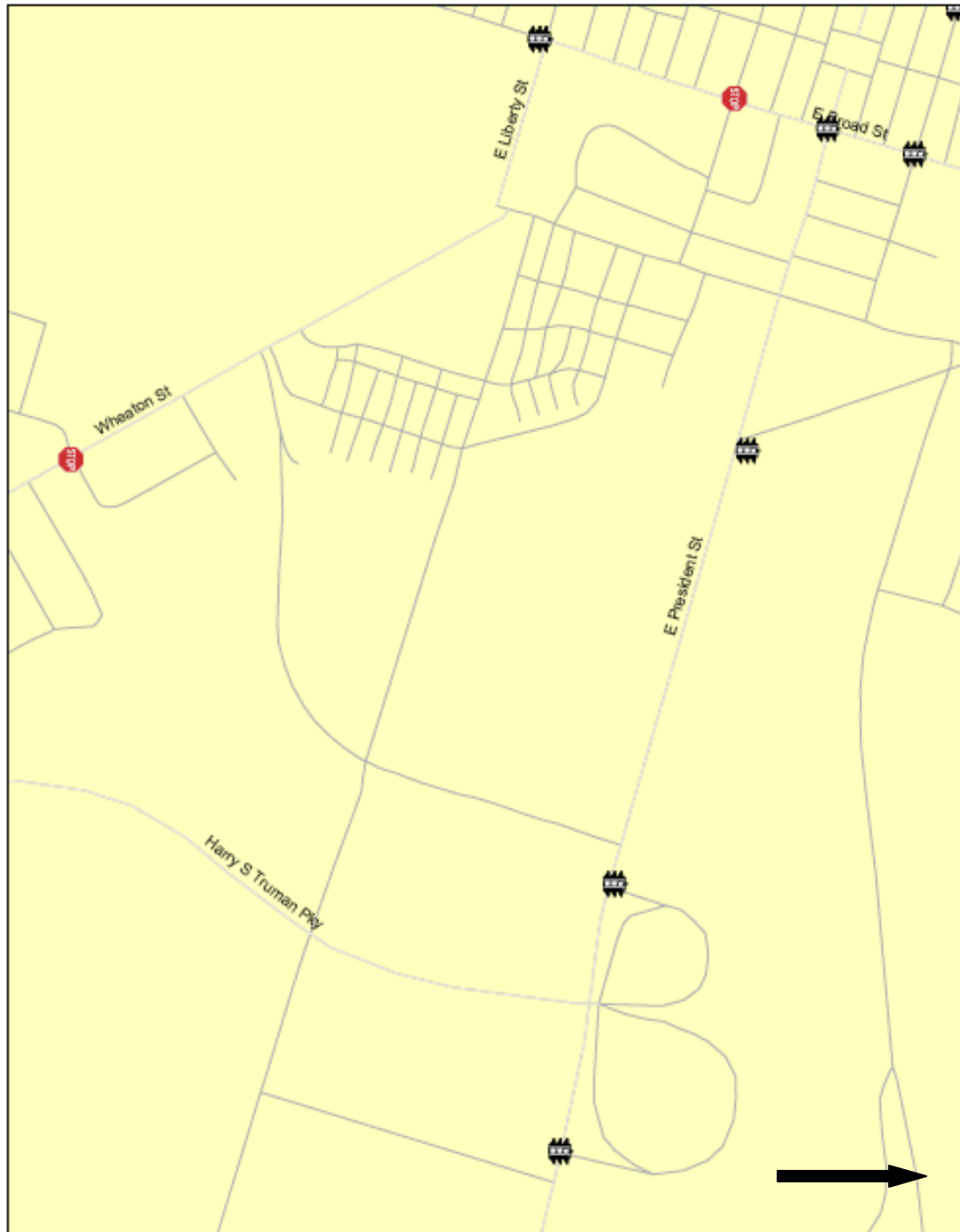
Railroad Lines and Crossings







Legend

- | | |
|------------------|---------------------|
| — Streets | —+— Railroad Line |
| ■ Savannah River | ⊗ Railroad Crossing |
| ■ Chatham County | |

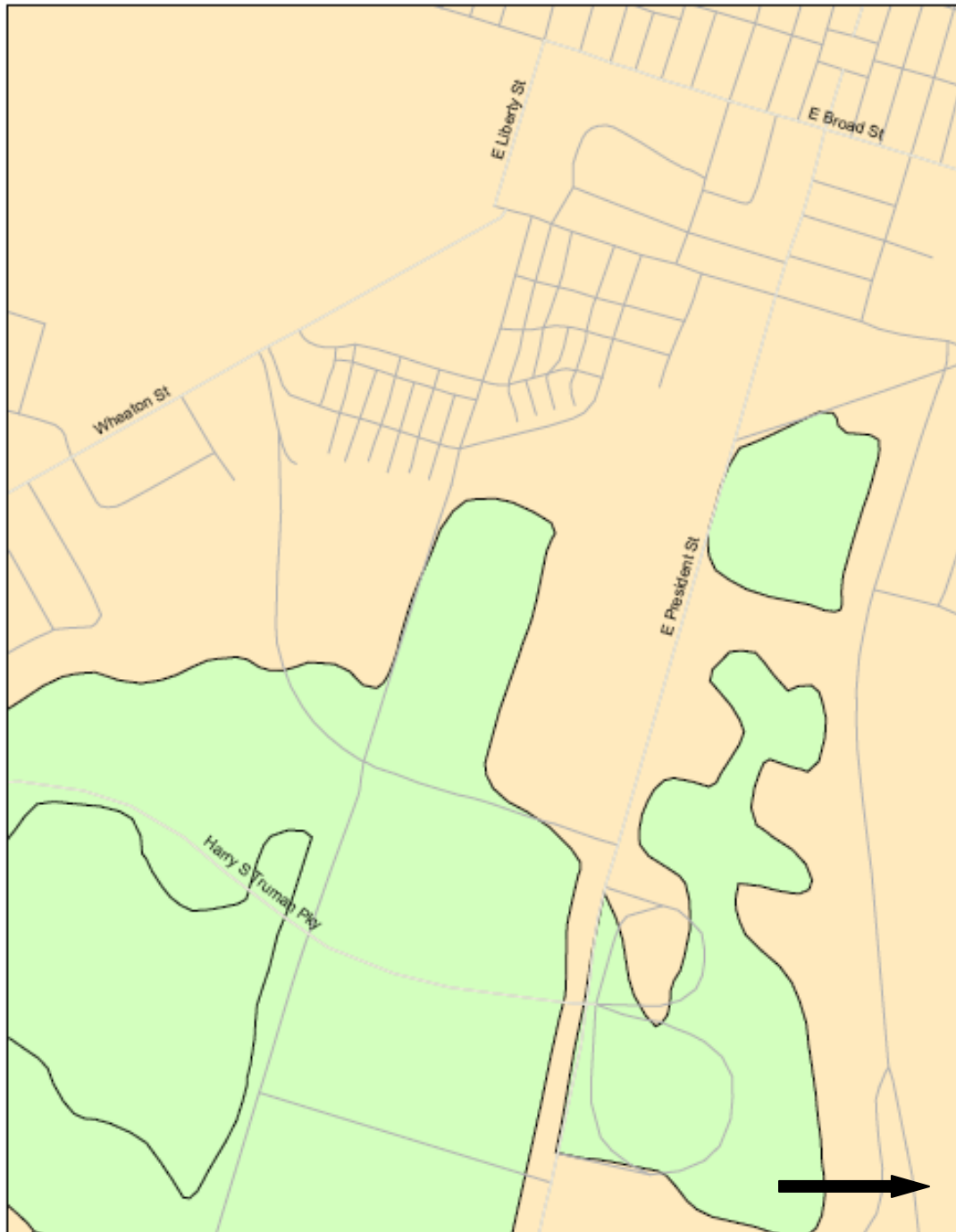
Traffic Control Devices





Legend

- | | | | |
|---|--------------|---|----------------|
|  | Signals |  | Streets |
|  | Two Way Stop |  | Chatham County |

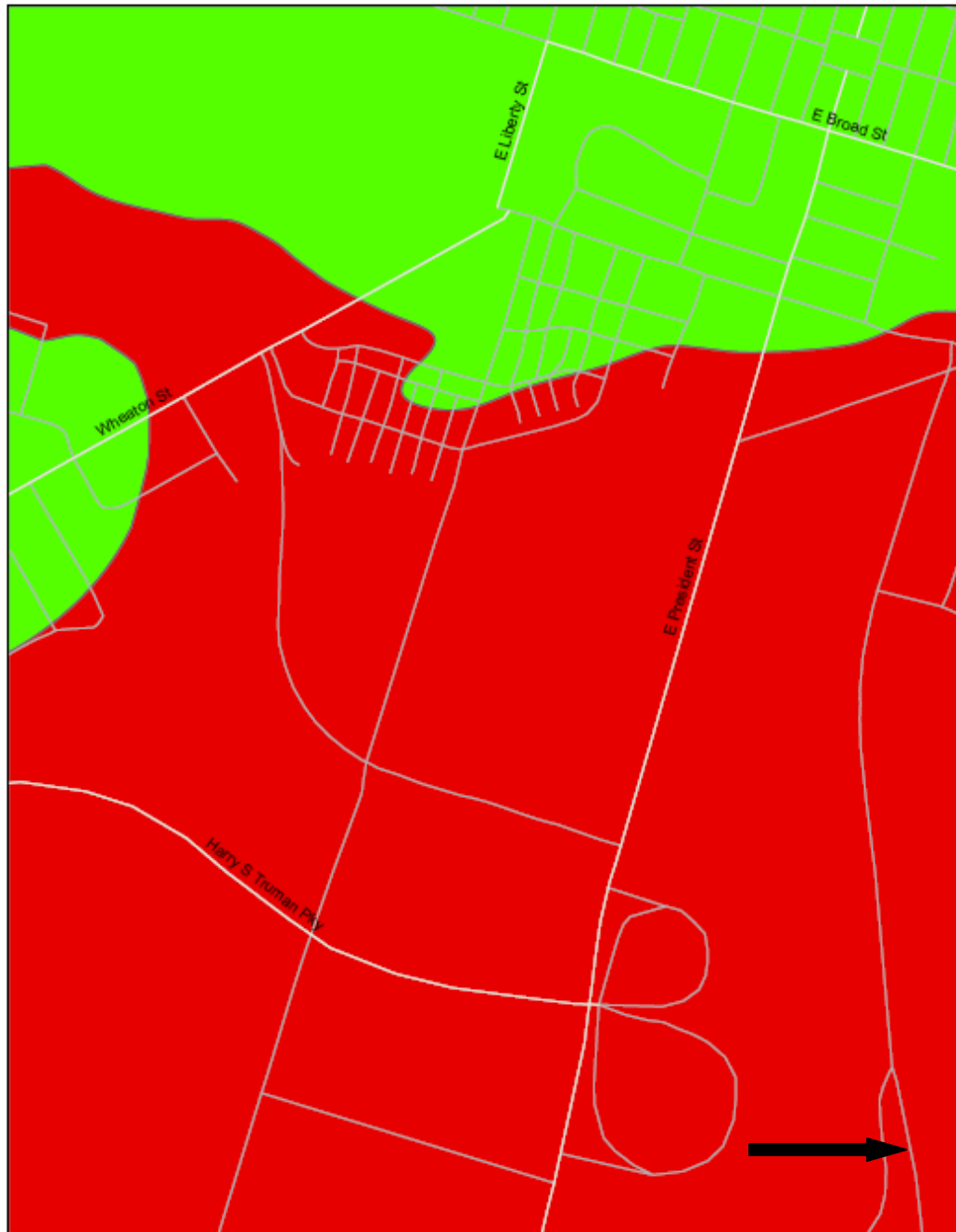
Wetlands



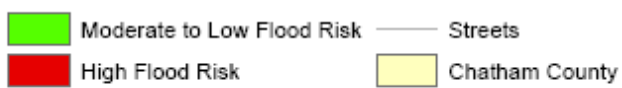
Legend

- | | |
|--|--|
|  Palustrine Wetland |  Streets |
|  Upland |  Chatham County |

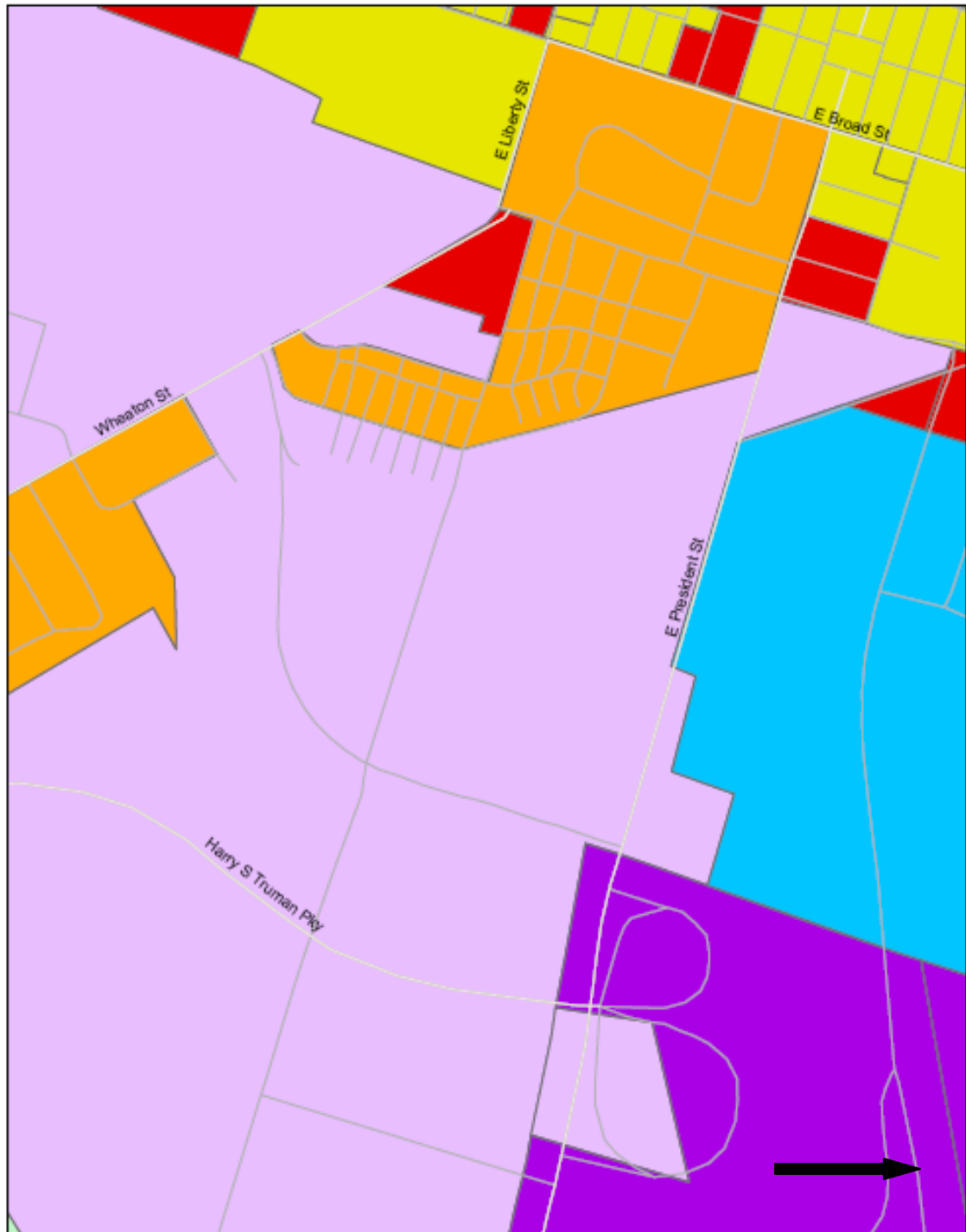
Flood Risk



Legend



Zoning




Legend

Commercial and Business	Residential Medium Density	Streets
Conservation and Recreation	Multifamily	Chatham County
Light Industrial	Mixed Use	
Heavy Industrial		

Bicycle Lanes



Legend

- | | |
|--|--|
|  BIKE PATH |  Streets |
|  BIKE SHOULDER / LANE |  Savannah River |
|  SHARED LANE |  Chatham County |

Speed Limits (Shown in Miles per Hour)							
Street	Northbound Speed	Southbound Speed	Route Section	Street	Eastbound Speed	Westbound Speed	Route Section
East Broad	30	30	Liberty to Bay		25	25	East Broad to McIntosh
Randolph	25	25	Liberty to McIntosh	President	40	35	McIntosh to Truman Parkway
					50	50	East of Truman Parkway
				McIntosh	35	35	President to Bay
				Bay	30	30	West of East Broad

Intersection Accidents 1/1/03 - 12/31/05	
Intersection	Number of Accidents
East Bay @ East Broad	24
East President @ East Broad	35
Barr St @ East President	14
East President @ Randolph St	17
General McIntosh @ Harbour St.	7
General McIntosh @ Randolph St.	6
East President @ Truman Parkway	58
East Bay @ General McIntosh	1
East State St. @ East Broad	3
General McIntosh @ River St.	2
East St. Julian St. @ East Broad	4
East Bryan St. @ East Broad	4
East Broughton @ East Broad	25

APPENDIX

II. Trip Generation Assumptions and Internal Trip Capture Analysis

The detailed master plan and development information for the Savannah River Landing project was the primary new information utilized for this assessment. The development assumptions for the North Point project, located on the south side of President Street were assumed to be the same as in the A&R study. Similarly, the A&R assumptions for the Barr Street parking deck were also assumed for this assessment with the absence of new information about this planned facility. Table 1 summarizes the differences in proposed development for the Savannah River Landing project used by A&R and that assumed in the TIPS analysis.

Table 1. Proposed Development Changes for Savannah River Landing

Land Use	A&R Study – August 2004	October 2006
<u>Retail:</u> <ul style="list-style-type: none">Shopping CenterGeneral Office	120,000 sf 145,000 sf	188,500 sf 150,000 sf
<u>Residential:</u> <ul style="list-style-type: none">Residential ApartmentsSingle-family ResidentialTown-home ResidentialHotel	1,172 units None None 125 units	None 17 units (based upon site plan) 844 units 350 units

The major differences between the 2004 and 2006 assumption sets included:

- ✓ Increased planned retail development
- ✓ Decreased residential development with change of predominant land use type from apartments to town-home residential
- ✓ Increased hotel units

Internal Trip Capture Assumptions

The two proposed developments along President Street (Savannah River Landing and North Point developments) were combined to allow a direct comparison with the results of the A&R study. The maximum internal trip capture rate by individual land use was assumed based upon past experience and studies. The following presents the assumed maximum internal trip capture rates by land use category.

✓ Single-family Detached Residential	30%
✓ High-turnover (Sit Down) Residential	30%
✓ Gasoline/Service Station	20%
✓ Pharmacy/Drugstore w/Drive-thru Window	30%
✓ Hotel	10%
✓ General Office Building	20%
✓ Residential Condominium/Town-house	30%
✓ Supermarket	30%
✓ Shopping Center	30%

Summary of Findings

Utilizing the above trip generation and internal trip capture assumptions, the TIPS software was run to develop updated trip generation and internal trip capture information. Table 2 presents the results of this analysis.

Table 2. Summary of Trip Generation and Internal Trip Capture Analysis

I. August 2004 Assumptions - A&R Engineering, Inc. - Project "Buildout"

Land Use	Size	Units	PM Peak Hour			Expected Daily Trips
			Enter	Exit	Total	
Sum of Retail and Residential:			1,384	1,406	2,790	29,568
Mixed-Use Reduction (actual):			(234)	(234)	(468)	(2,319)
Mixed-Use Reduction (%):			-17%	-17%	-17%	-8%
Barr Street Parking Deck	600	spaces	20	130	150	n/a
Total Net Trips:			1,170	1,302	2,472	27,249

II. October 2006 Assumptions \ RS&H Analysis - Project "Buildout"

Sum of Retail and Residential:			1,269	1,310	2,579	28,920
Mixed-Use Reduction (actual):			(229)	(229)	(458)	(4,482)
Mixed-Use Reduction (%):			-18%	-17%	-18%	-15%
Barr Street Parking Deck	600	spaces	20	130	150	n/a
Total Net Trips:			1,060	1,211	2,271	24,438

The results of the analysis showed the overall estimated total daily trips using the 2006 development assumptions as approximately 2 percent lower than that of the A&R study. For the PM peak, total trips generated using the 2006 assumptions were approximately 8 percent lower than the A&R study. Internal trip capture rates for the PM peak hour for both sets of assumptions were nearly identical (17-18 percent); however, internal capture for total daily trips calculated using the 2006 assumptions was significantly higher (15 percent) versus that presented in the A&R study (8 percent).

III. Model Results

- ✓ 2001 LOS
- ✓ 2001 AADT

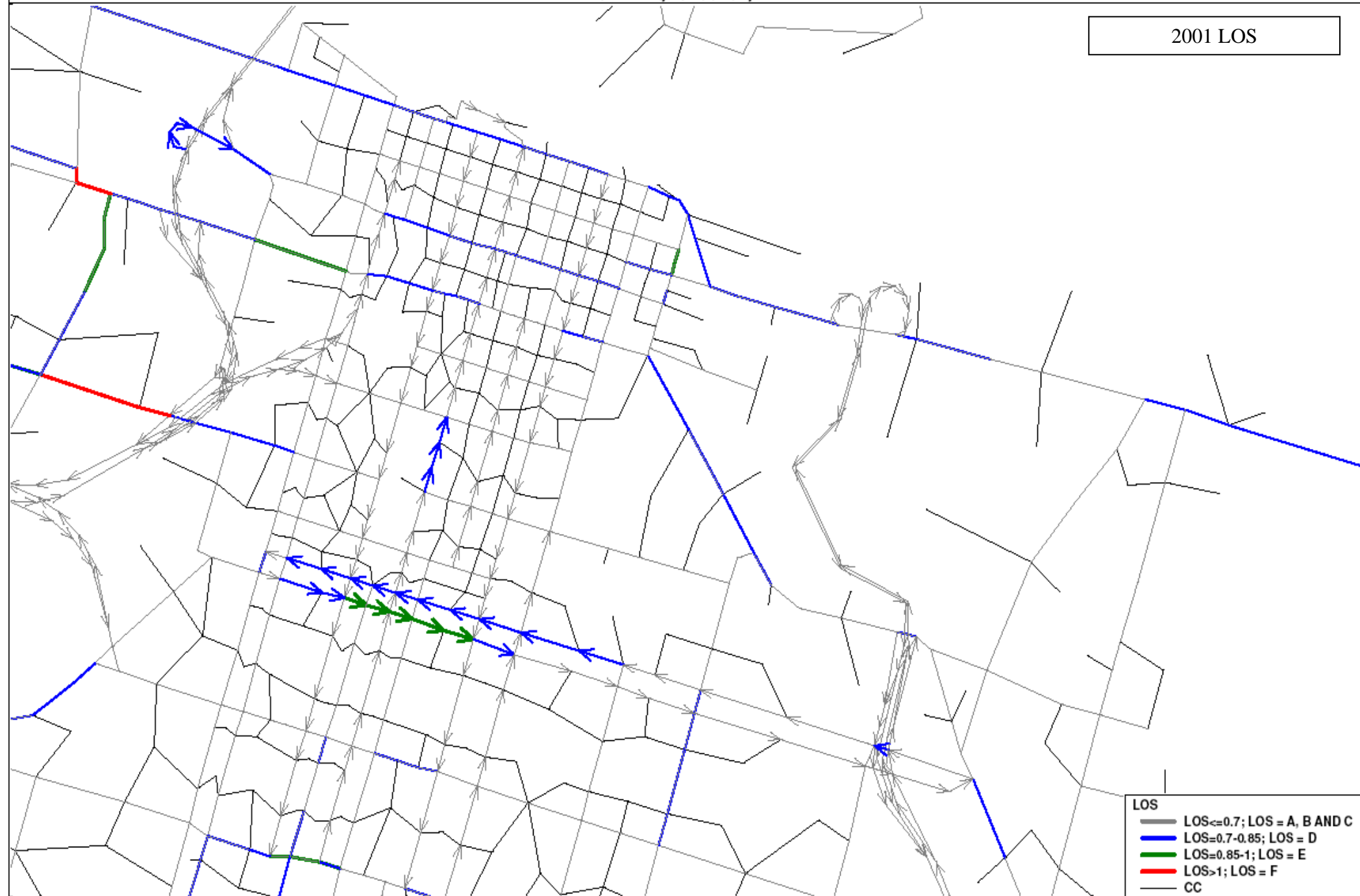
Concepts 1; 2; and 3:

- ✓ 2030 AADT
 - four lane President Street
 - Six lane President Street
- ✓ 2030 LOS
 - four lane President Street
 - Six lane President Street

2030 No Build:

- ✓ 2030 AADT
- ✓ 2030 LOS

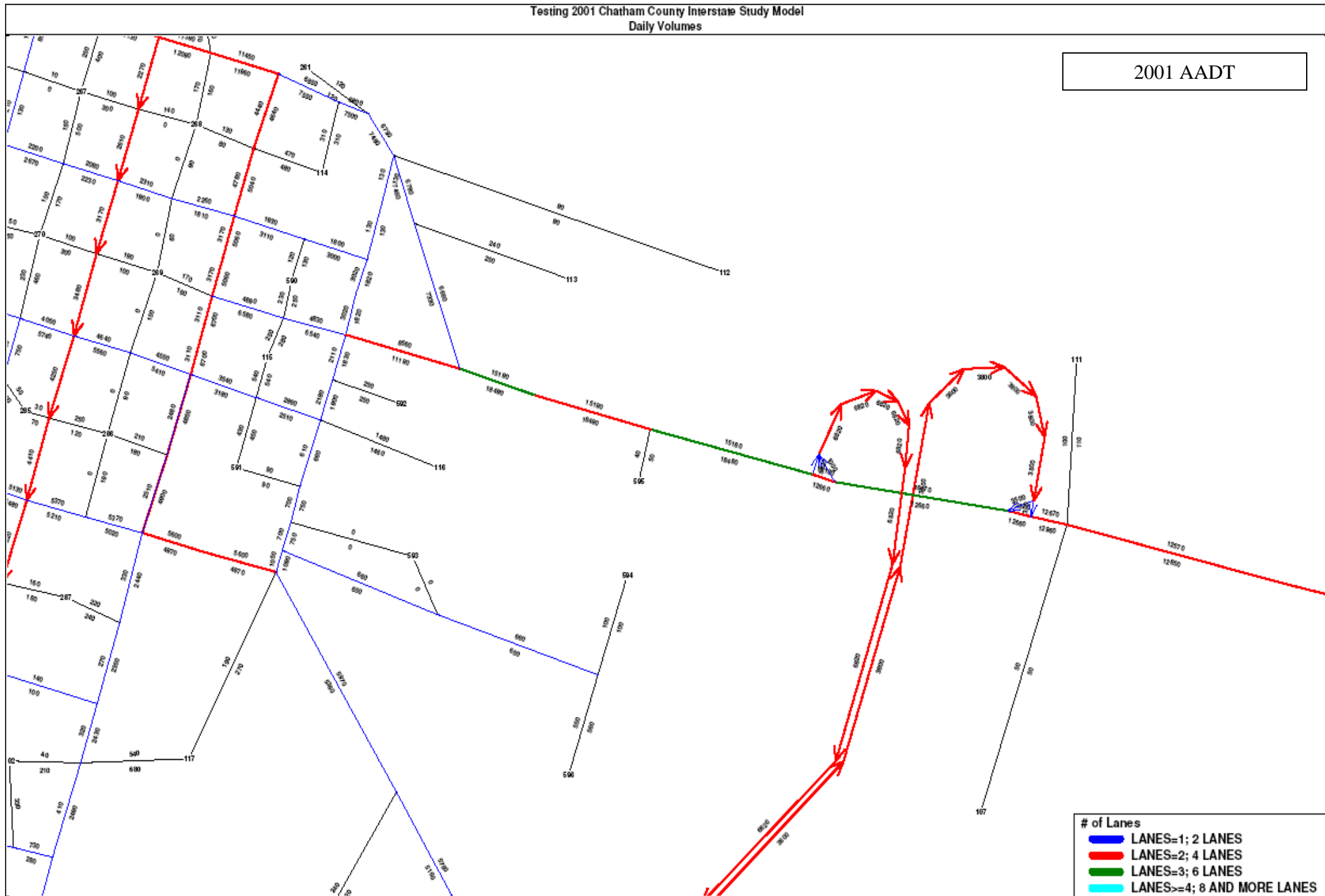
2001 LOS



LOS
 — LOS ≤ 0.7 ; LOS = A, B AND C
 — LOS = 0.7-0.85; LOS = D
 — LOS = 0.85-1; LOS = E
 — LOS > 1 ; LOS = F
 — CC

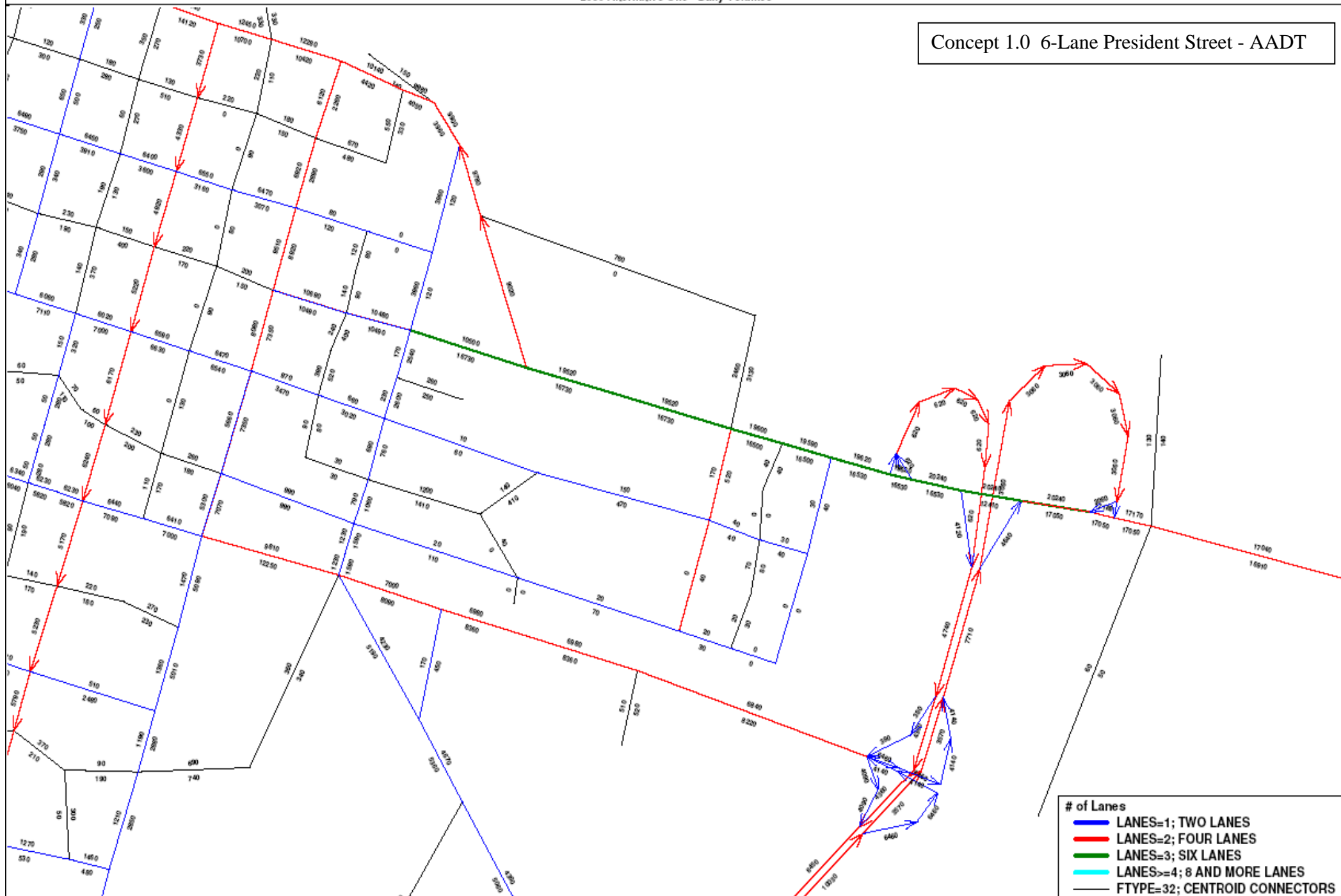
Testing 2001 Chatham County Interstate Study Model
Daily Volumes

2001 AADT



of Lanes
 Lanes=1; 2 LANES
 Lanes=2; 4 LANES
 Lanes=3; 6 LANES
 Lanes>=4; 8 AND MORE LANES

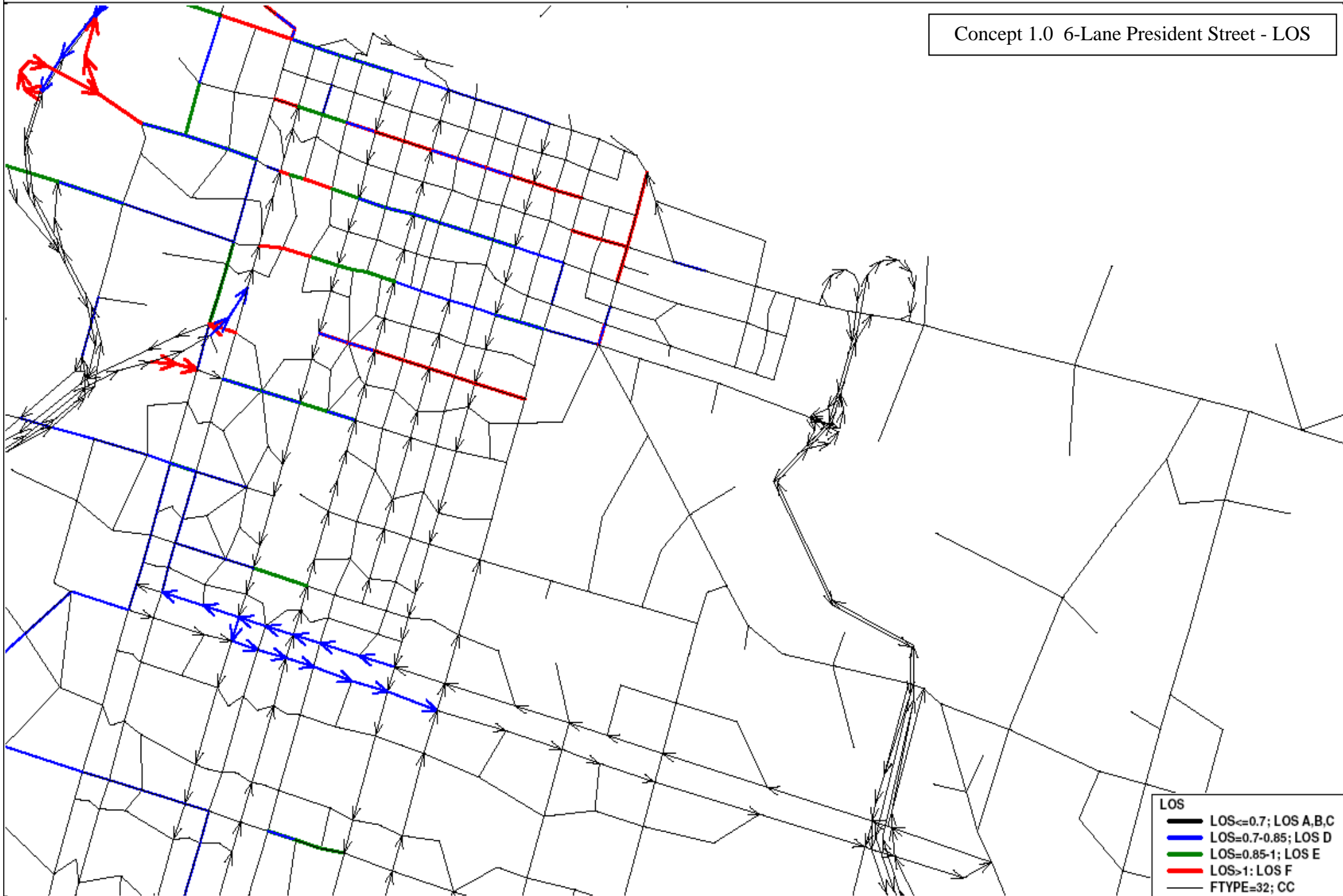
Concept 1.0 6-Lane President Street - AADT



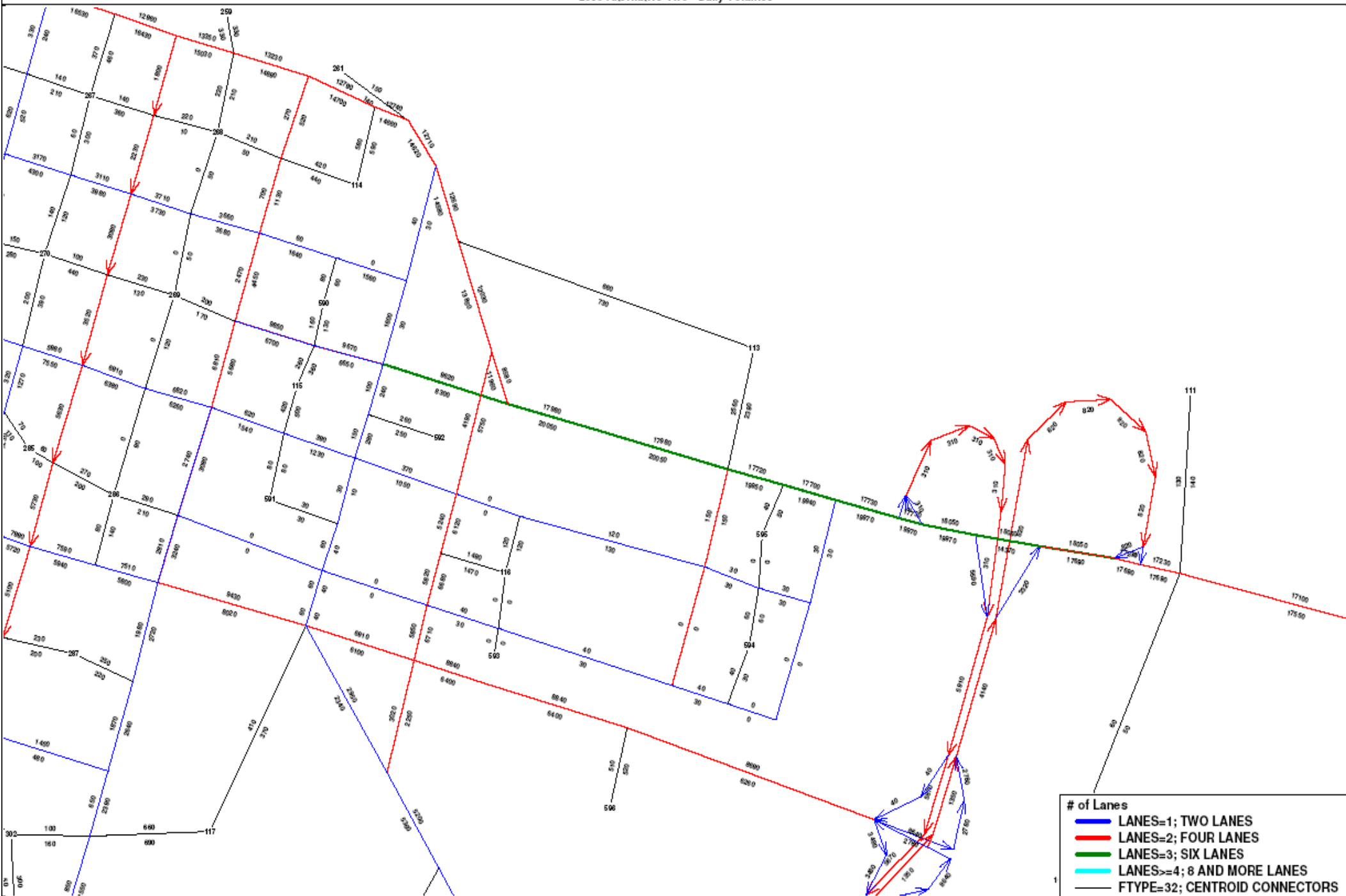
of Lanes

- LANES=1; TWO LANES
- LANES=2; FOUR LANES
- LANES=3; SIX LANES
- LANES>=4; 8 AND MORE LANES
- FTYPE=32; CENTROID CONNECTORS

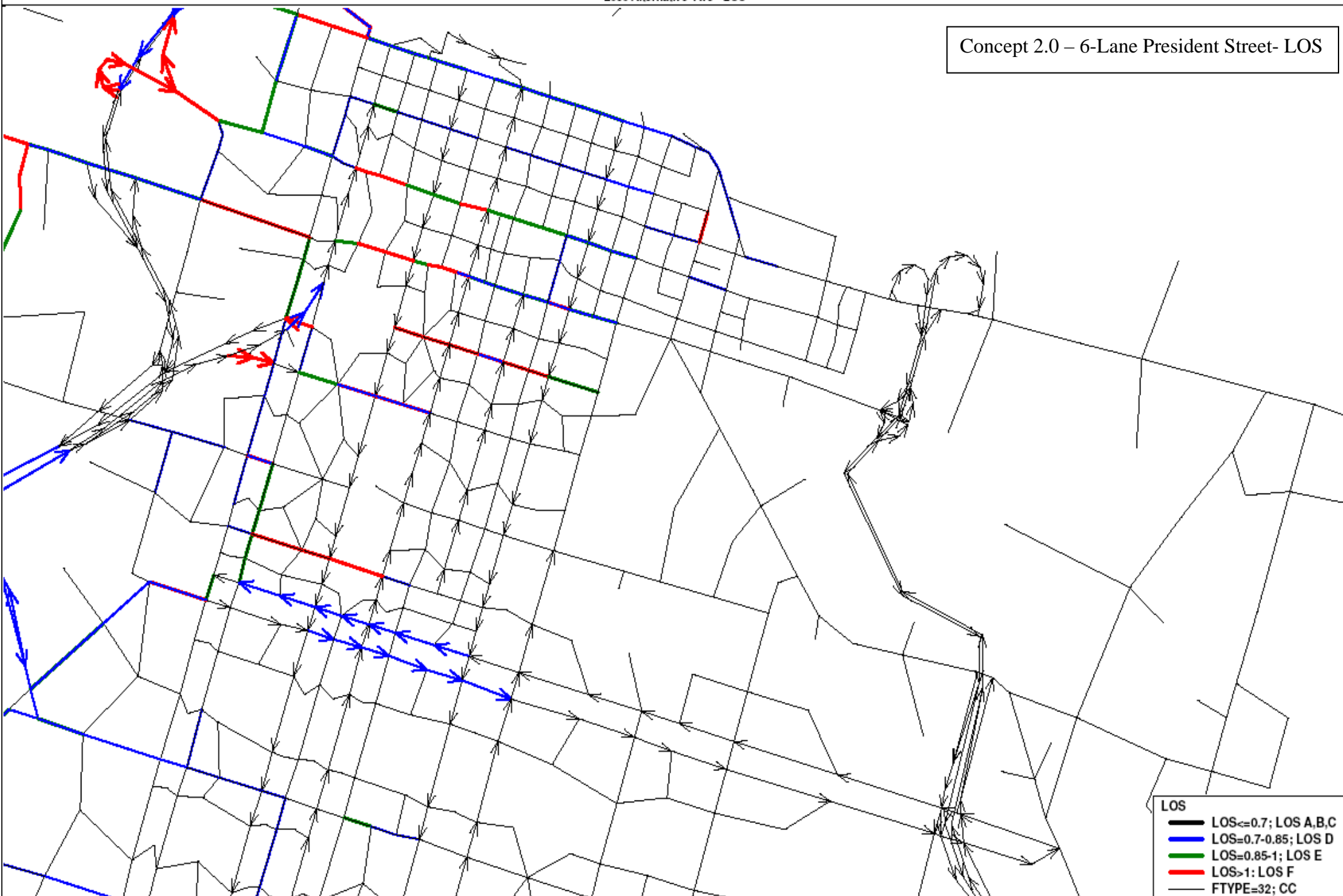
Concept 1.0 6-Lane President Street - LOS



2030 Alternative Two - Daily Volumes



Concept 2.0 – 6-Lane President Street- LOS





Concept 3.0 – 6-Lane President Street - LOS



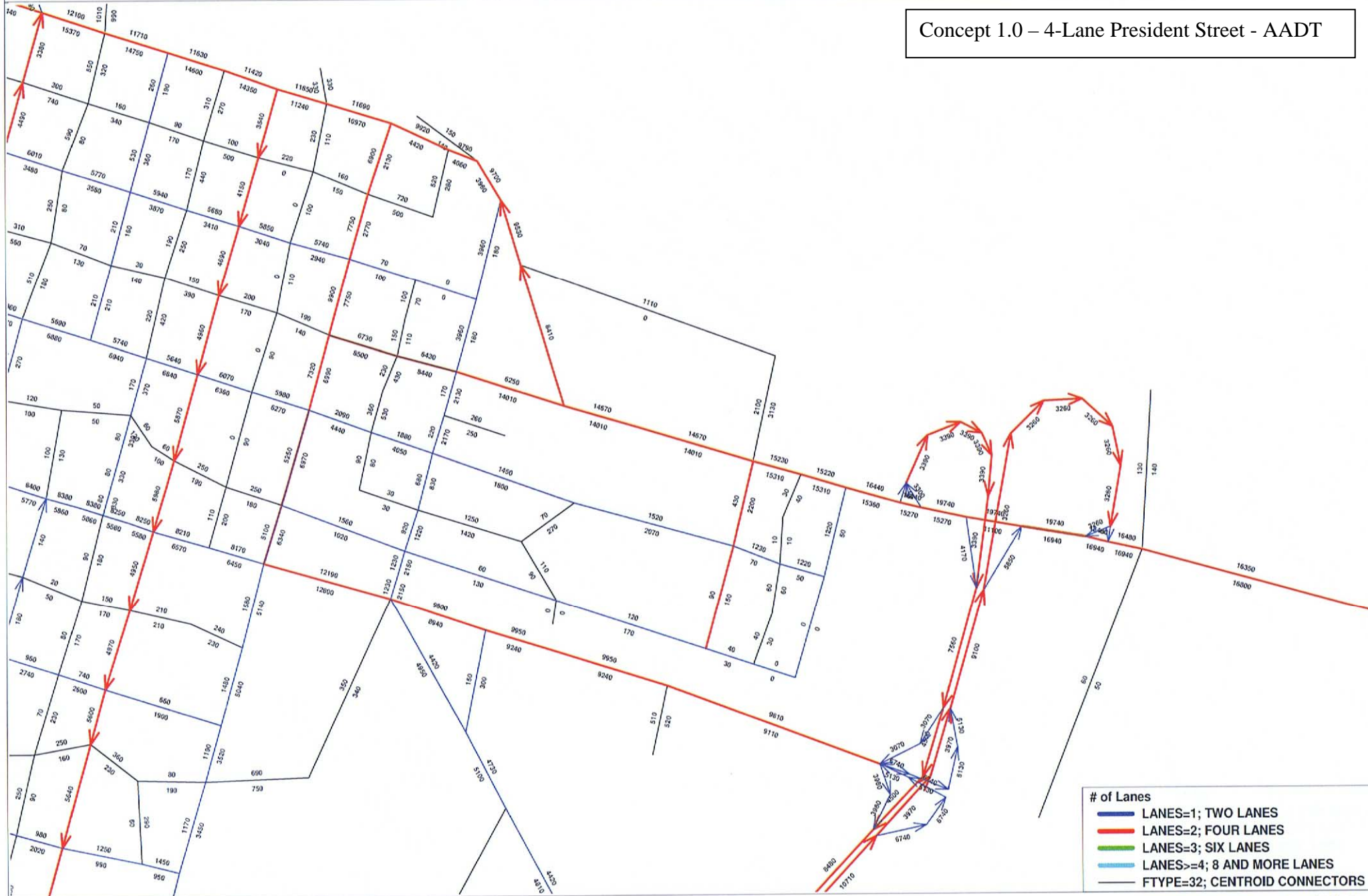
LOS

- LOS ≤ 0.7 ; LOS A, B, C
- LOS $= 0.7 - 0.85$; LOS D
- LOS $= 0.85 - 1$; LOS E
- LOS > 1 ; LOS F

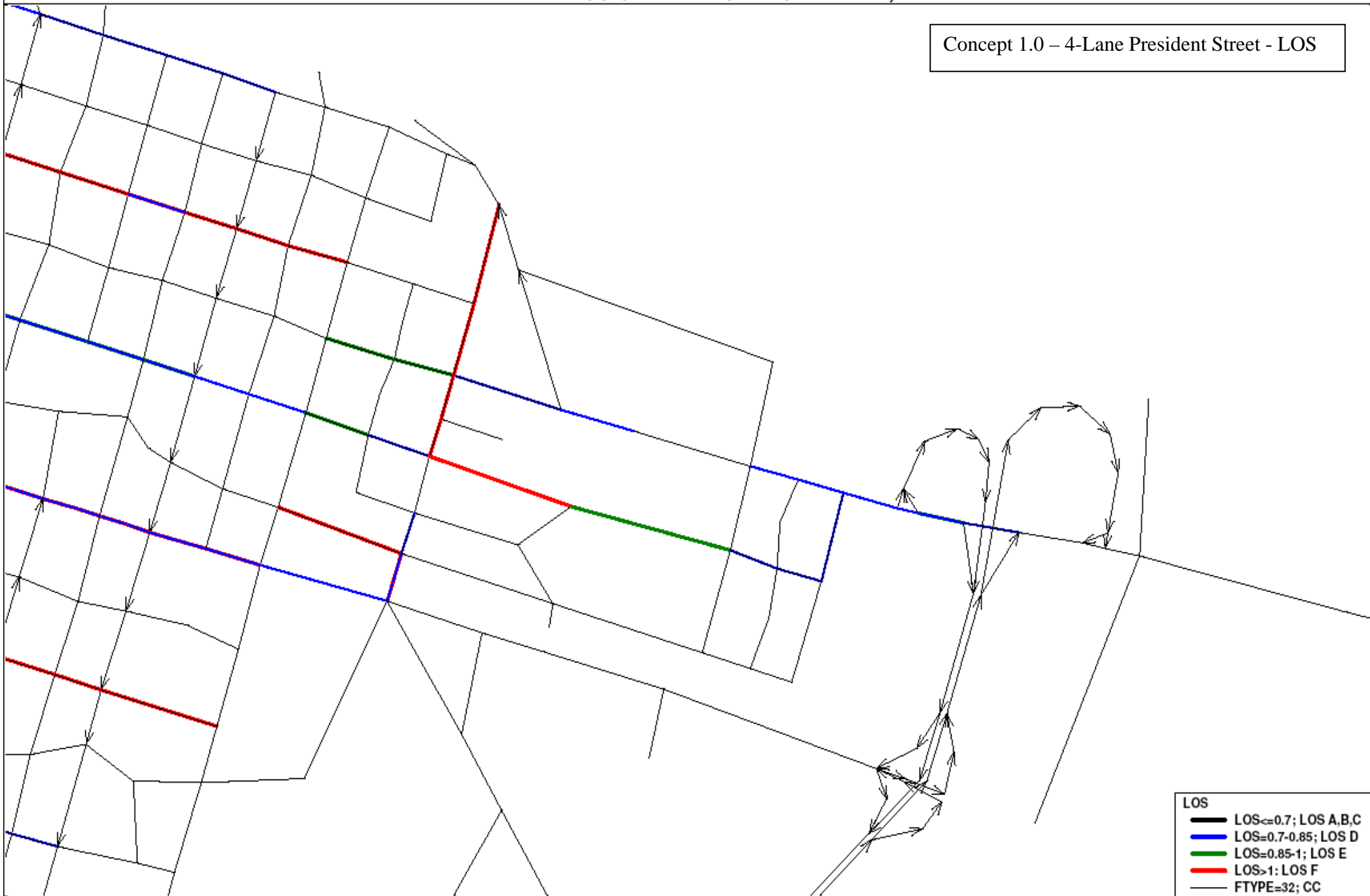
FTYPE=32; CC

2030 Alternative One - Daily Volumes
4 Lanes on President Street from General McIntosh Blvd. to H.S. Truman Pkwy.

Concept 1.0 – 4-Lane President Street - AADT



Concept 1.0 – 4-Lane President Street - LOS

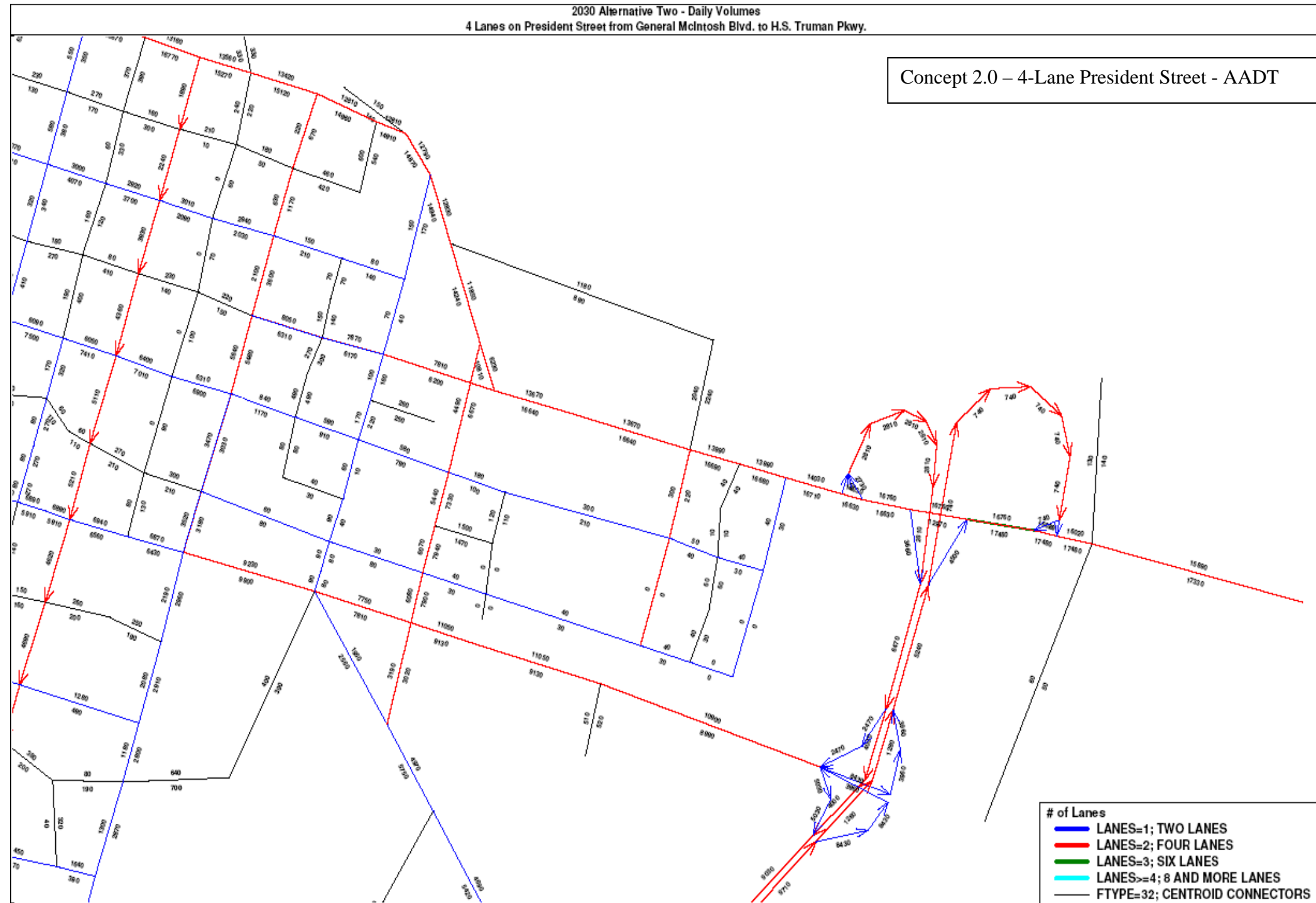


LOS

- $LOS \leq 0.7$; LOS A, B, C
- $LOS = 0.7-0.85$; LOS D
- $LOS = 0.85-1$; LOS E
- $LOS > 1$; LOS F
- FTYPE=32; CC

2030 Alternative Two - Daily Volumes
4 Lanes on President Street from General McIntosh Blvd. to H.S. Truman Pkwy.

Concept 2.0 – 4-Lane President Street - AADT

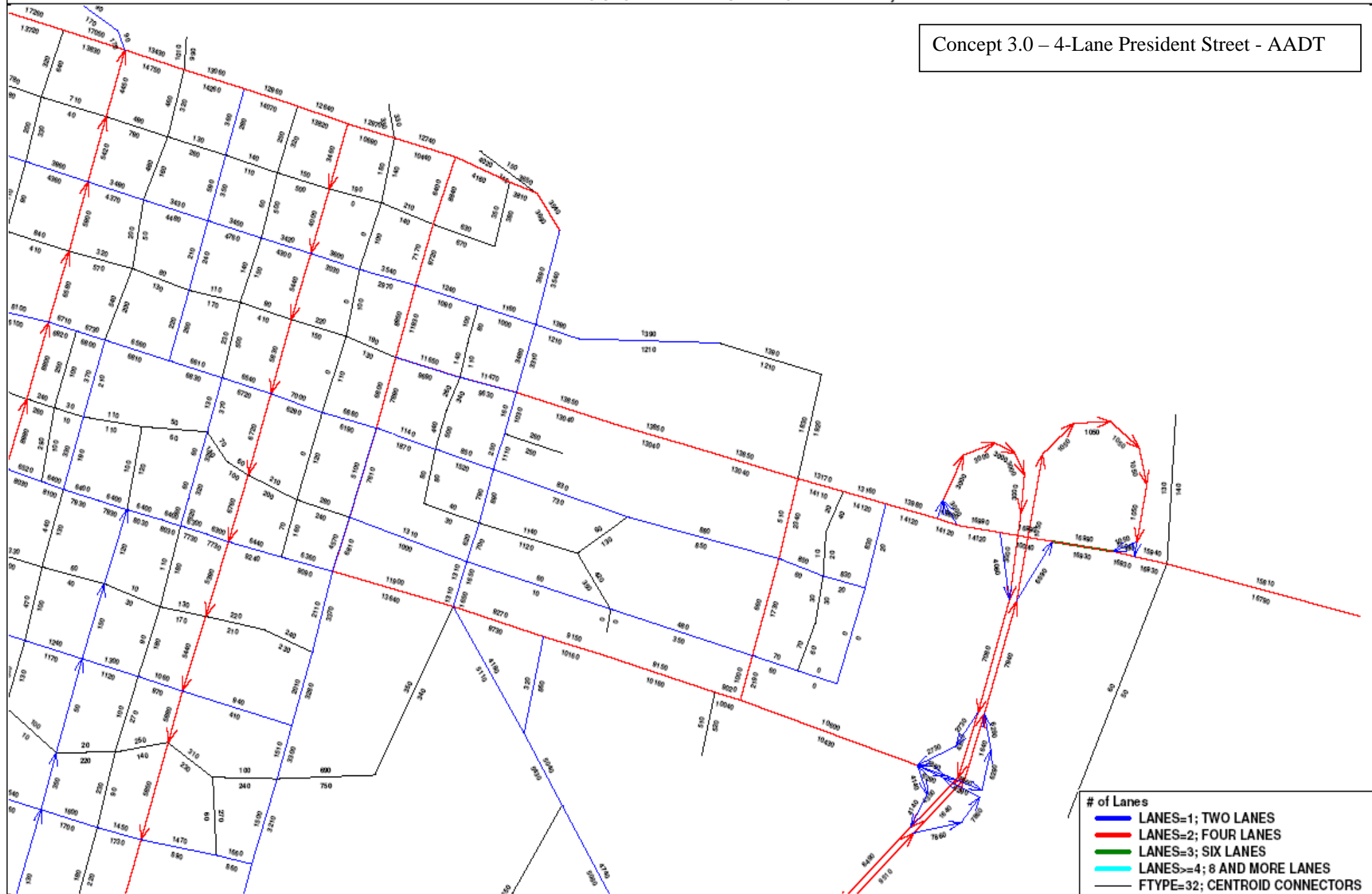


Concept 2.0 – 4-Lane President Street - LOS

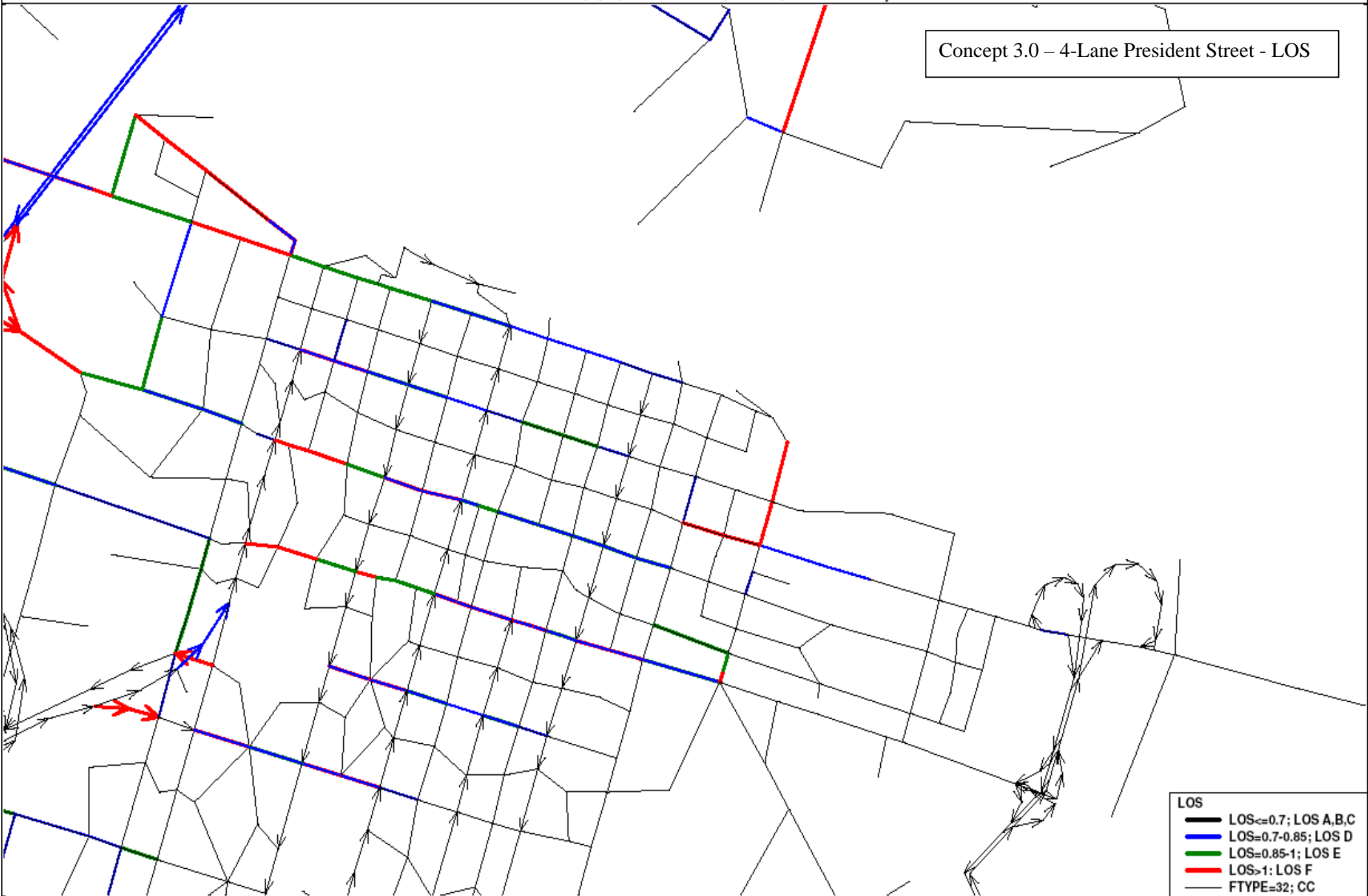


2030 Alternative Three - Daily Volumes
4 Lanes on President Street from General McIntosh Blvd. to H.S. Truman Pkwy.

Concept 3.0 – 4-Lane President Street - AADT

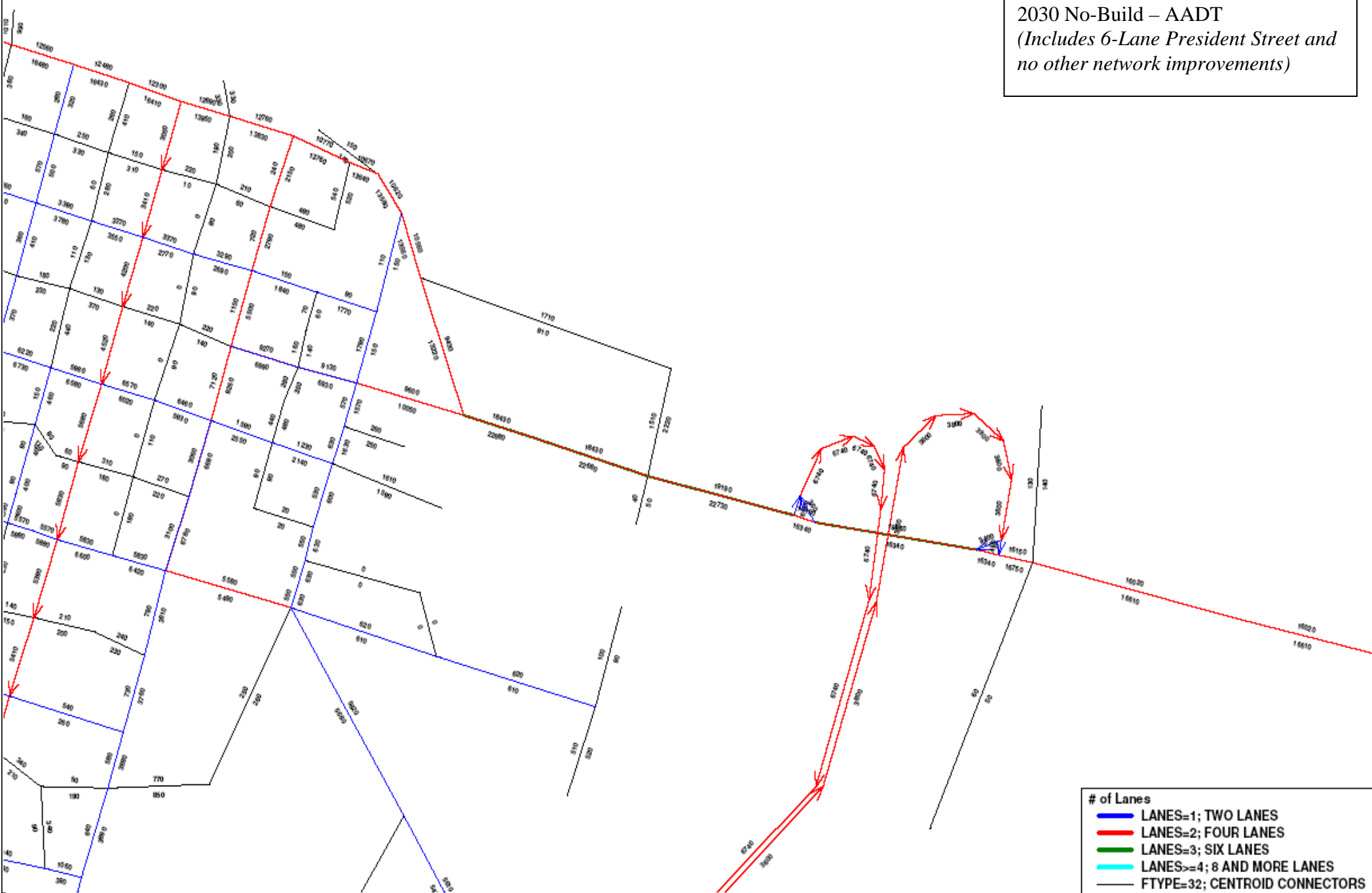


Concept 3.0 – 4-Lane President Street - LOS



LOS	
—	LOS ≤ 0.7 ; LOS A,B,C
—	LOS = 0.7-0.85; LOS D
—	LOS = 0.85-1; LOS E
—	LOS > 1; LOS F
—	FTYPE=32; CC

2030 No-Build – AADT
(Includes 6-Lane President Street and
no other network improvements)



2030 No-Build – LOS
(Includes 6-Lane President Street and
no other network improvements)



APPENDIX

IV. Detailed Cost Estimates

This section includes the detailed cost estimates for the following facilities:

- ✓ President Street
- ✓ Gen. McIntosh Extension
- ✓ Liberty Street Extension
- ✓ Oglethorpe Avenue Extension
- ✓ Perry Street Extension
- ✓ Broughton Street Extension

**PRESIDENT STREET AREA IMPROVEMENTS
COST ESTIMATE SUMMARY**

PRESIDENT STREET - SUMMARY OF COSTS

Construction Subtotal	\$ 7,623,385.79
Construction Contingency	\$ 762,338.58
Engineering by Consultant	\$ 838,600.00
Right-of-Way Costs	\$ 258,400.00
GRAND TOTAL	\$ 9,482,724.37

GENERAL MCINTOSH BOULEVARD - SUMMARY OF COSTS

Construction Subtotal	\$ 1,855,351.09
Construction Contingency	\$ 185,535.11
Engineering by Consultant	\$ 204,100.00
Right-of-Way Costs	\$ 4,800,000.00
GRAND TOTAL	\$ 7,044,986.20

E. LIBERTY STREET - SUMMARY OF COSTS

Construction Subtotal	\$ 20,626,606.47
Construction Contingency	\$ 2,062,660.65
Engineering by Consultant	\$ 2,269,000.00
Right-of-Way Costs	\$ 23,294,310.00
GRAND TOTAL	\$ 48,252,577.12

E. OGLETHORPE STREET - SUMMARY OF COSTS

Construction Subtotal	\$ 1,151,561.76
Construction Contingency	\$ 230,312.35
Engineering by Consultant	\$ 96,800.00
Right-of-Way Costs	\$ 3,375,000.00
GRAND TOTAL	\$ 4,853,674.11

E. PERRY STREET - SUMMARY OF COSTS

Construction Subtotal	\$ 960,266.75
Construction Contingency	\$ 192,053.35
Engineering by Consultant	\$ 92,200.00
Right-of-Way Costs	\$ 2,025,000.00
GRAND TOTAL	\$ 3,269,520.10

E. BROUGHTON STREET - SUMMARY OF COSTS

Construction Subtotal	\$ 392,684.92
Construction Contingency	\$ 78,536.98
Engineering by Consultant	\$ 33,000.00

President Street - Reconstruction from General McIntosh Boulevard to Truman Parkway

	LF	Mile	Description
Notes:	2855	0.54	6-LN (TWO 11' LANES, ONE 12' FUTURE PARKING LANE) (34' WIDTH)
	488	0.09	1-LN ON RAMP TO TURMAN PKWY (12' APPROACH LANE, 16' RAMP LANE, 12' MERGE LANE) (USE 16' FOR CALCS)
	550	0.10	1-LN ON RAMP TO TURMAN PKWY (12' APPROACH LANE, 16' RAMP LANE, 12' MERGE LANE) (USE 16' FOR CALCS)

SEC 0XX - Miscellaneous

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
005-0004	2	AC	12,000.00	Wetland Mitigation - Bank Credit Purchase	24,000.00
					24,000.00

SEC 1XX - Mobilization, Traffic & Erosion Control

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
150-1000	1	LS	250,000.00	TRAFFIC CONTROL -	250,000.00
151-1000	1	LS	80,000.00	MOBILIZATION -	80,000.00
153-1300	1	EA	63,196.25	FIELD ENGINEERS OFFICE TP 3	63,196.25
163-0232	5	AC	523.03	TEMPORARY GRASSING	2,615.15
163-0240	120	TN	191.61	MULCH	22,993.20
163-0300	2	EA	1,826.91	CONSTRUCTION EXIT	3,653.82
163-0521	10	EA	219.24	CONSTRUCT AND REMOVE TEMPORARY DITCH CHECKS	2,192.40
165-0010	15600	LF	1.00	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	15,600.00
165-0040	10	EA	71.82	MAINTENANCE OF EROSION CONTROL CHECKDAMS/DITCH CHECKS	718.20
165-0101	2	EA	486.99	MAINTENANCE OF CONSTRUCTION EXIT	973.98
170-1000	100	LF	18.83	FLOATING SILT RETENTION BARRIER	1,883.00
171-0010	15600	LF	1.83	TEMPORARY SILT FENCE, TYPE A	28,548.00
					472,374.00

SEC 2XX - Clearing, Grading, Railroad

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
201-1500	1	LS	275,000.00	CLEARING & GRUBBING -	275,000.00
206-0002	187444	CY	7.90	BORROW EXCAV, INCL MATL	1,480,807.60
210-0200	1	LM	6,585.56	GRADING PER MILE	6,585.56
232-0001	1	LS	500,000.00	RAILROAD CONSTRUCTION	500,000.00
					2,262,393.16

SEC 3XX - Roadway Base

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
310-5100	25492	SY	16.00	GR AGGR BASE CRS, 10 INCH, INCL MATL	407,872.00
					407,872.00

SEC 4XX - Roadway Pavement & Concrete

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
400-3101	1184	TN	85.00	ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL, GILSONITE MODIFIER & H LIMI	100,640.00
400-3605	1344	TN	85.00	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	114,240.00
400-3605	359	TN	74.45	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	26,727.55
413-1000	179	GL	1.32	BITUM TACK COAT	236.28
432-0202	1067	SY	32.20	MILL ASPH CONC PVMT, 1/2 IN DEPTH	34,357.40
433-1000	480	SY	132.95	REINF CONC APPROACH SLAB	63,816.00
433-1300	142	SY	200.86	REINF CONC APPROACH SLAB, INCL BARRIER	28,522.12
441-0016	933	SY	40.19	DRIVEWAY CONCRETE, 6 IN TK	37,497.27
441-0104	5076	SY	37.80	CONC SIDEWALK, 4 IN	191,872.80
441-6012	5710	LF	38.59	CONC CURB & GUTTER, 6 IN X 24 IN, TP 2	220,348.90
441-6022	5710	LF	18.52	CONC CURB & GUTTER, 6 IN X 30 IN, TP 2	105,749.20
449-1000	4	EA	8,930.56	BRIDGE DECK JOINT SEAL, BRIDGE NO. BENT NO.	35,722.24
					959,729.76

SEC 5XX - Bridge & Drainage

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
500-3800	1230	CY	884.14	SUPERSTR CONCRETE, CL AA, BR NO -	1,087,492.20
507-9003	1038	LF	145.81	PSC BEAMS, AASHTO TYPE III, BR NO -	151,350.78
511-1000	10000	LB	0.96	BAR REINF STEEL	9,600.00
520-0573	10	EA	160.54	H-PILE POINTS, HP 14 X 73	1,605.40

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	<u>Total Cost</u>
627-1000	5190	SF	45.17	MSE WALL FACE, 0 - 10 FT HT, WALL NO -	234,432.30
634-1200	4	EA	110.43	RIGHT OF WAY MARKERS	441.72
636-1014	43	SF	13.04	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 1	560.72
636-2010	108	LF	7.19	GALV STEEL POSTS, TP 1	776.52
647-0200	1	LS	112,000.00	TRAFFIC DETECTION LOOP SYSTEM, NO-	112,000.00
647-1000	2	LS	48,243.30	TRAFFIC SIGNAL INSTALLATION NO -	96,486.60
647-2120	20	EA	366.69	PULL BOX, PB-2	7,333.80
647-3000	8	EA	3,019.29	INTERNALLY ILLUMINATED STREET SIGN	24,154.32
653-0100	4	EA	346.81	THERMOPLASTIC PVMT MARKING, RR/HWY CROSSING SYMBOL	1,387.24
653-0110	21	EA	61.13	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	1,283.73
653-1501	6748	LF	0.63	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	4,251.24
653-1502	6748	LF	0.30	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	2,024.40
653-1504	2100	LF	1.05	THERMOPLASTIC SOLID TRAF STRIPE, 12 IN, WHITE	2,205.00
653-1704	272	LF	3.86	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	1,049.92
653-1811	240	LF	2.50	THERMOPLASTIC SOLID TRAF STRIPE, 18 IN, YELLOW	600.00
653-3501	1947	GLF	0.47	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	915.09
654-1001	195	EA	3.62	RAISED PVMT MARKERS TP 1	705.90
668-1100	30	EA	2,285.08	CATCH BASIN, GP 1	68,552.40
668-4300	4	EA	2,250.59	STORM SEWER MANHOLE, TP 1	9,002.36
681-1150	30	EA	4,288.00	LIGHTING STD, ALUM, 14 FT MH, POST TOP	128,640.00
681-6250	30	EA	1,122.00	LUMINAIRE, TP 2, 250 W, HP SODIUM, SPECIAL DESIGN	33,660.00
					1,058,355.25

SEC 7XX - Grassing & Landscaping

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
700-0015	5	EA	3,000.00	MOWING AND TRIMMING CYCLE	15,000.00
700-6910	5	AC	893.29	PERMANENT GRASSING	4,466.45
700-8000	5	TN	347.20	FERTILIZER MIXED GRADE	1,736.00
702-0908	200	EA	1,380.75	QUERCUS SHUMARDII -	276,150.00
					297,352.45

SUMMARY OF COSTS

Construction Subtotal		\$ 7,623,385.79
Construction Contingency	10% (Range 10 to 25% based on complexity & level of concept)	\$ 762,338.58
Engineering by Consultant	10% (Range 5 to 25% based on complexity & level of design)	\$ 838,600.00
Right-of-Way Costs	5,168 SF @ \$50/SF	\$ 258,400.00
GRAND TOTAL		\$ 9,482,724.37

General McIntosh Boulevard - Extension from Wheaton Street to President Street

Notes: LF 2258 Mile 0.43 Description 4-LN (TWO 12' LANES) (24' WIDTH EACH DIRECTION)

SEC 0XX - Miscellaneous

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	<u>Total Cost</u>
005-0004	0	AC	12,000.00	Wetland Mitigation - Bank Credit Purchase	0.00
					0.00

SEC 1XX - Mobilization, Traffic & Erosion Control

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
150-1000	1	LS	50,000.00	TRAFFIC CONTROL -	50,000.00
151-1000	1	LS	50,000.00	MOBILIZATION -	50,000.00
153-1300	1	EA	63,196.25	FIELD ENGINEERS OFFICE TP 3	63,196.25
163-0232	2.7	AC	523.03	TEMPORARY GRASSING	1,412.18
163-0240	50	TN	191.61	MULCH	9,580.50
163-0300	1	EA	1,826.91	CONSTRUCTION EXIT	1,826.91
163-0521	0	EA	219.24	CONSTRUCT AND REMOVE TEMPORARY DITCH CHECKS	0.00
165-0010	9000	LF	1.00	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	9,000.00
165-0040	0	EA	71.82	MAINTENANCE OF EROSION CONTROL CHECKDAMS/DITCH CHECKS	0.00
165-0101	1	EA	486.99	MAINTENANCE OF CONSTRUCTION EXIT	486.99
170-1000	0	LF	18.83	FLOATING SILT RETENTION BARRIER	0.00
171-0010	9000	LF	1.83	TEMPORARY SILT FENCE, TYPE A	16,470.00
					201,972.83

SEC 2XX - Clearing, Grading, Railroad

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
201-1500	1	LS	100,000.00	CLEARING & GRUBBING -	100,000.00
206-0002	8363	CY	7.90	BORROW EXCAV, INCL MATL	66,067.70
210-0200	0.5	LM	6,585.56	GRADING PER MILE	3,292.78
232-0001	0	LS	500,000.00	RAILROAD CONSTRUCTION	0.00
					169,360.48

SEC 3XX - Roadway Base

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
310-5100	12043	SY	16.00	GR AGGR BASE CRS, 10 INCH, INCL MATL	192,688.00
					192,688.00

SEC 4XX - Roadway Pavement & Concrete

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
400-3101	649	TN	85.00	ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL, GILSONITE MODIFIER & H LIMI	55,165.00
400-3605	145	TN	85.00	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	12,325.00
400-3605	542	TN	74.45	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	40,351.90
413-1000	72	GL	1.32	BITUM TACK COAT	95.04
432-0202	1067	SY	32.20	MILL ASPH CONC PVMT, 1/2 IN DEPTH	34,357.40
433-1000	0	SY	132.95	REINF CONC APPROACH SLAB	0.00
433-1300	0	SY	200.86	REINF CONC APPROACH SLAB, INCL BARRIER	0.00
441-0016	267	SY	40.19	DRIVEWAY CONCRETE, 6 IN TK	10,730.73
441-0104	4014	SY	37.80	CONC SIDEWALK, 4 IN	151,729.20
441-6012	4516	LF	38.59	CONC CURB & GUTTER, 6 IN X 24 IN, TP 2	174,272.44
441-6022	4516	LF	18.52	CONC CURB & GUTTER, 6 IN X 30 IN, TP 2	83,636.32
449-1000	0	EA	8,930.56	BRIDGE DECK JOINT SEAL, BRIDGE NO. BENT NO.	0.00
					562,663.03

SEC 5XX - Bridge & Drainage

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
500-3800	0	CY	884.14	SUPERSTR CONCRETE, CL AA, BR NO -	0.00
507-9003	0	LF	145.81	PSC BEAMS, AASHTO TYPE III, BR NO -	0.00
511-1000	0	LB	0.96	BAR REINF STEEL	0.00
520-0573	0	EA	160.54	H-PILE POINTS, HP 14 X 73	0.00

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	<u>Total Cost</u>
627-1000	0	SF	45.17	MSE WALL FACE, 0 - 10 FT HT, WALL NO -	0.00
634-1200	2	EA	110.43	RIGHT OF WAY MARKERS	220.86
636-1014	34	SF	13.04	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 1	443.36
636-2010	85	LF	7.19	GALV STEEL POSTS, TP 1	611.15
647-0200	1	LS	112,000.00	TRAFFIC DETECTION LOOP SYSTEM, NO-	112,000.00
647-1000	1	LS	48,243.30	TRAFFIC SIGNAL INSTALLATION NO -	48,243.30
647-2120	4	EA	366.69	PULL BOX, PB-2	1,466.76
647-3000	4	EA	3,019.29	INTERNALLY ILLUMINATED STREET SIGN	12,077.16
653-0100	4	EA	346.81	THERMOPLASTIC PVMT MARKING, RR/HWY CROSSING SYMBOL	1,387.24
653-0110	18	EA	61.13	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	1,100.34
653-1501	4516	LF	0.63	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	2,845.08
653-1502	4516	LF	0.30	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	1,354.80
653-1504	1050	LF	1.05	THERMOPLASTIC SOLID TRAF STRIPE, 12 IN, WHITE	1,102.50
653-1704	192	LF	3.86	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	741.12
653-1811	240	LF	2.50	THERMOPLASTIC SOLID TRAF STRIPE, 18 IN, YELLOW	600.00
653-3501	2258	GLF	0.47	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	1,061.26
654-1001	226	EA	3.62	RAISED PVMT MARKERS TP 1	818.12
668-1100	23	EA	2,285.08	CATCH BASIN, GP 1	52,556.84
668-4300	4	EA	2,250.59	STORM SEWER MANHOLE, TP 1	9,002.36
681-1150	15	EA	4,288.00	LIGHTING STD, ALUM, 14 FT MH, POST TOP	64,320.00
681-6250	15	EA	1,122.00	LUMINAIRE, TP 2, 250 W, HP SODIUM, SPECIAL DESIGN	16,830.00
					328,782.25

SEC 7XX - Grassing & Landscaping

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
700-0015	2	EA	3,000.00	MOWING AND TRIMMING CYCLE	6,000.00
700-6910	2.7	AC	893.29	PERMANENT GRASSING	2,411.88
700-8000	2	TN	347.20	FERTILIZER MIXED GRADE	694.40
702-0908	150	EA	1,380.75	QUERCUS SHUMARDII -	207,112.50
					216,218.78

SUMMARY OF COSTS

Construction Subtotal		\$ 1,855,351.09
Construction Contingency	10% (Range 10 to 25% based on complexity & level of concept)	\$ 185,535.11
Engineering by Consultant	10% (Range 5 to 25% based on complexity & level of design)	\$ 204,100.00
Right-of-Way Costs	160,000 SF @ \$30/SF	\$ 4,800,000.00
GRAND TOTAL		\$ 7,044,986.20

Liberty Street - Extension from Randolph Street to Truman Parkway

	LF	Mile	Description
Notes:	3090	0.59	4-LN (TWO 12' LANES) (24' WIDTH EACH DIRECTION)
	-	-	50' RADIUS CUL-DE-SAC TO TERMINATE WHEATON JUST SOUTH OF LIBERTY STREET

SEC 0XX - Miscellaneous

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	<u>Total Cost</u>
005-0004	6	AC	12,000.00	Wetland Mitigation - Bank Credit Purchase	72,000.00
					72,000.00

SEC 1XX - Mobilization, Traffic & Erosion Control

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
150-1000	1	LS	50,000.00	TRAFFIC CONTROL -	50,000.00
151-1000	1	LS	50,000.00	MOBILIZATION -	50,000.00
153-1300	1	EA	63,196.25	FIELD ENGINEERS OFFICE TP 3	63,196.25
163-0232	2.2	AC	523.03	TEMPORARY GRASSING	1,150.67
163-0240	40	TN	191.61	MULCH	7,664.40
163-0300	1	EA	1,826.91	CONSTRUCTION EXIT	1,826.91
163-0521	5	EA	219.24	CONSTRUCT AND REMOVE TEMPORARY DITCH CHECKS	1,096.20
165-0010	26400	LF	1.00	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	26,400.00
165-0040	5	EA	71.82	MAINTENANCE OF EROSION CONTROL CHECKDAMS/DITCH CHECKS	359.10
165-0101	1	EA	486.99	MAINTENANCE OF CONSTRUCTION EXIT	486.99
170-1000	0	LF	18.83	FLOATING SILT RETENTION BARRIER	0.00
171-0010	26400	LF	1.83	TEMPORARY SILT FENCE, TYPE A	48,312.00
					250,492.52

SEC 2XX - Clearing, Grading, Railroad

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
201-1500	1	LS	150,000.00	CLEARING & GRUBBING -	150,000.00
206-0002	37767	CY	7.90	BORROW EXCAV, INCL MATL	298,359.30
210-0200	0.6	LM	6,585.56	GRADING PER MILE	3,951.34
232-0001	0	LS	500,000.00	RAILROAD CONSTRUCTION	0.00
					452,310.64

SEC 3XX - Roadway Base

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
310-5100	16480	SY	16.00	GR AGGR BASE CRS, 10 INCH, INCL MATL	263,680.00
					263,680.00

SEC 4XX - Roadway Pavement & Concrete

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
400-3101	638	TN	85.00	ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL, GILSONITE MODIFIER & H LIME	54,230.00
400-3605	198	TN	85.00	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	16,830.00
400-3605	742	TN	74.45	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	55,241.90
413-1000	179	GL	1.32	BITUM TACK COAT	236.28
432-0202	1067	SY	32.20	MILL ASPH CONC PVMT, 1/2 IN DEPTH	34,357.40
433-1000	480	SY	132.95	REINF CONC APPROACH SLAB	63,816.00
433-1300	142	SY	200.86	REINF CONC APPROACH SLAB, INCL BARRIER	28,522.12
441-0016	933	SY	40.19	DRIVEWAY CONCRETE, 6 IN TK	37,497.27
441-0104	5076	SY	37.80	CONC SIDEWALK, 4 IN	191,872.80
441-6012	5710	LF	38.59	CONC CURB & GUTTER, 6 IN X 24 IN, TP 2	220,348.90
441-6022	5710	LF	18.52	CONC CURB & GUTTER, 6 IN X 30 IN, TP 2	105,749.20
449-1000	8	EA	8,930.56	BRIDGE DECK JOINT SEAL, BRIDGE NO. BENT NO.	71,444.48
					880,146.35

SEC 5XX - Bridge & Drainage

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
500-3800	12874	CY	884.14	SUPERSTR CONCRETE, CL AA, BR NO -	11,382,418.36
507-9003	13180	LF	145.81	PSC BEAMS, AASHTO TYPE III, BR NO -	1,921,775.80
511-1000	30000	LB	0.96	BAR REINF STEEL	28,800.00
520-0573	240	EA	160.54	H-PILE POINTS, HP 14 X 73	38,529.60
543-1100	2	EA	200,000.00	CONSTR OF BRIDGE - COMPLETE - TO BOTTOM OF CAP	400,000.00

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	<u>Total Cost</u>
636-1014	28	SF	13.04	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 1	365.12
636-2010	70	LF	7.19	GALV STEEL POSTS, TP 1	503.30
647-0200	1	LS	112,000.00	TRAFFIC DETECTION LOOP SYSTEM, NO-	112,000.00
647-1000	2	LS	48,243.30	TRAFFIC SIGNAL INSTALLATION NO -	96,486.60
647-2120	20	EA	366.69	PULL BOX, PB-2	7,333.80
647-3000	8	EA	3,019.29	INTERNALLY ILLUMINATED STREET SIGN	24,154.32
653-0100	4	EA	346.81	THERMOPLASTIC PVMT MARKING, RR/HWY CROSSING SYMBOL	1,387.24
653-0110	12	EA	61.13	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	733.56
653-1501	9680	LF	0.63	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	6,098.40
653-1502	9680	LF	0.30	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	2,904.00
653-1504	1050	LF	1.05	THERMOPLASTIC SOLID TRAF STRIPE, 12 IN, WHITE	1,102.50
653-1704	192	LF	3.86	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	741.12
653-1811	0	LF	2.50	THERMOPLASTIC SOLID TRAF STRIPE, 18 IN, YELLOW	0.00
653-3501	4840	GLF	0.47	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	2,274.80
654-1001	484	EA	3.62	RAISED PVMT MARKERS TP 1	1,752.08
668-1100	20	EA	2,285.08	CATCH BASIN, GP 1	45,701.60
668-4300	2	EA	2,250.59	STORM SEWER MANHOLE, TP 1	4,501.18
681-1150	12	EA	4,288.00	LIGHTING STD, ALUM, 14 FT MH, POST TOP	51,456.00
681-6250	12	EA	1,122.00	LUMINAIRE, TP 2, 250 W, HP SODIUM, SPECIAL DESIGN	13,464.00
					582,764.29

SEC 7XX - Grassing & Landscaping

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
700-0015	2	EA	3,000.00	MOWING AND TRIMMING CYCLE	6,000.00
700-6910	2.2	AC	893.29	PERMANENT GRASSING	1,965.24
700-8000	2	TN	347.20	FERTILIZER MIXED GRADE	694.40
702-0908	200	EA	1,380.75	QUERCUS SHUMARDII -	276,150.00
					284,809.64

SUMMARY OF COSTS

Construction Subtotal		\$ 20,626,606.47
Construction Contingency	10% (Range 10 to 25% based on complexity & level of concept)	\$ 2,062,660.65
Engineering by Consultant	10% (Range 5 to 25% based on complexity & level of design)	\$ 2,269,000.00
Right-of-Way Costs	776,477 SF @ \$30/SF	\$ 23,294,310.00
GRAND TOTAL		\$ 48,252,577.12

E. Oglethorpe Street - Extension from E. Broad St. to Gen. McIntosh Blvd.

	<u>LF</u>	<u>Mile</u>	<u>Description</u>
Notes:	1262	0.24	4-LN (TWO 12' LANES) (24' WIDTH EACH DIRECTION)

SEC 0XX - Miscellaneous

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	<u>Total Cost</u>
005-0004	0	AC	12,000.00	Wetland Mitigation - Bank Credit Purchase	0.00
					0.00

SEC 1XX - Mobilization, Traffic & Erosion Control

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
150-1000	1	LS	20,000.00	TRAFFIC CONTROL -	20,000.00
151-1000	1	LS	25,000.00	MOBILIZATION -	25,000.00
153-1300	1	EA	63,196.25	FIELD ENGINEERS OFFICE TP 3	63,196.25
163-0232	1.5	AC	523.03	TEMPORARY GRASSING	784.55
163-0240	30	TN	191.61	MULCH	5,748.30
163-0300	1	EA	1,826.91	CONSTRUCTION EXIT	1,826.91
163-0521	0	EA	219.24	CONSTRUCT AND REMOVE TEMPORARY DITCH CHECKS	0.00
165-0010	5000	LF	1.00	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	5,000.00
165-0040	0	EA	71.82	MAINTENANCE OF EROSION CONTROL CHECKDAMS/DITCH CHECKS	0.00
165-0101	1	EA	486.99	MAINTENANCE OF CONSTRUCTION EXIT	486.99
170-1000	0	LF	18.83	FLOATING SILT RETENTION BARRIER	0.00
171-0010	5000	LF	1.83	TEMPORARY SILT FENCE, TYPE A	9,150.00
					131,193.00

SEC 2XX - Clearing, Grading, Railroad

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
201-1500	1	LS	50,000.00	CLEARING & GRUBBING -	50,000.00
206-0002	4674	CY	7.90	BORROW EXCAV, INCL MATL	36,924.60
210-0200	0.25	LM	6,585.56	GRADING PER MILE	1,646.39
232-0001	0	LS	500,000.00	RAILROAD CONSTRUCTION	0.00
					88,570.99

SEC 3XX - Roadway Base

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
310-5100	6731	SY	16.00	GR AGGR BASE CRS, 10 INCH, INCL MATL	107,696.00
					107,696.00

SEC 4XX - Roadway Pavement & Concrete

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
400-3101	490	TN	85.00	ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL, GILSONITE MODIFIER & H LIMI	41,650.00
400-3605	81	TN	85.00	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	6,885.00
400-3605	303	TN	74.45	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	22,558.35
413-1000	40	GL	1.32	BITUM TACK COAT	52.80
432-0202	1067	SY	32.20	MILL ASPH CONC PVMT, 1/2 IN DEPTH	34,357.40
433-1000	0	SY	132.95	REINF CONC APPROACH SLAB	0.00
433-1300	0	SY	200.86	REINF CONC APPROACH SLAB, INCL BARRIER	0.00
441-0016	130	SY	40.19	DRIVEWAY CONCRETE, 6 IN TK	5,224.70
441-0104	2244	SY	37.80	CONC SIDEWALK, 4 IN	84,823.20
441-6012	2524	LF	38.59	CONC CURB & GUTTER, 6 IN X 24 IN, TP 2	97,401.16
441-6022	2524	LF	18.52	CONC CURB & GUTTER, 6 IN X 30 IN, TP 2	46,744.48
449-1000	0	EA	8,930.56	BRIDGE DECK JOINT SEAL, BRIDGE NO. BENT NO.	0.00
					339,697.09

SEC 5XX - Bridge & Drainage

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
500-3800	0	CY	884.14	SUPERSTR CONCRETE, CL AA, BR NO -	0.00
507-9003	0	LF	145.81	PSC BEAMS, AASHTO TYPE III, BR NO -	0.00
511-1000	0	LB	0.96	BAR REINF STEEL	0.00
520-0573	0	EA	160.54	H-PILE POINTS, HP 14 X 73	0.00

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	<u>Total Cost</u>
627-1000	0	SF	45.17	MSE WALL FACE, 0 - 10 FT HT, WALL NO -	0.00
634-1200	2	EA	110.43	RIGHT OF WAY MARKERS	220.86
636-1014	19	SF	13.04	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 1	247.76
636-2010	48	LF	7.19	GALV STEEL POSTS, TP 1	345.12
647-0200	1	LS	60,000.00	TRAFFIC DETECTION LOOP SYSTEM, NO-	60,000.00
647-1000	2	LS	48,243.30	TRAFFIC SIGNAL INSTALLATION NO -	96,486.60
647-2120	6	EA	366.69	PULL BOX, PB-2	2,200.14
647-3000	8	EA	3,019.29	INTERNALLY ILLUMINATED STREET SIGN	24,154.32
653-0100	0	EA	346.81	THERMOPLASTIC PVMT MARKING, RR/HWY CROSSING SYMBOL	0.00
653-0110	15	EA	61.13	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	916.95
653-1501	2524	LF	0.63	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	1,590.12
653-1502	1050	LF	0.30	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	315.00
653-1504	240	LF	1.05	THERMOPLASTIC SOLID TRAF STRIPE, 12 IN, WHITE	252.00
653-1704	192	LF	3.86	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	741.12
653-1811	240	LF	2.50	THERMOPLASTIC SOLID TRAF STRIPE, 18 IN, YELLOW	600.00
653-3501	1262	GLF	0.47	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	593.14
654-1001	126	EA	3.62	RAISED PVMT MARKERS TP 1	456.12
668-1100	13	EA	2,285.08	CATCH BASIN, GP 1	29,706.04
668-4300	2	EA	2,250.59	STORM SEWER MANHOLE, TP 1	4,501.18
681-1150	8	EA	4,288.00	LIGHTING STD, ALUM, 14 FT MH, POST TOP	34,304.00
681-6250	8	EA	1,122.00	LUMINAIRE, TP 2, 250 W, HP SODIUM, SPECIAL DESIGN	8,976.00
					266,606.47

SEC 7XX - Grassing & Landscaping

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
700-0015	1	EA	3,000.00	MOWING AND TRIMMING CYCLE	3,000.00
700-6910	1.5	AC	893.29	PERMANENT GRASSING	1,339.94
700-8000	1	TN	347.20	FERTILIZER MIXED GRADE	347.20
702-0908	80	EA	1,380.75	QUERCUS SHUMARDII -	110,460.00
					115,147.14

SUMMARY OF COSTS

Construction Subtotal		\$ 1,151,561.76
Construction Contingency	20% (Range 10 to 25% based on complexity & level of concept)	\$ 230,312.35
Engineering by Consultant	7% (Range 5 to 25% based on complexity & level of design)	\$ 96,800.00
Right-of-Way Costs	112,500 SF @ \$30/SF	\$ 3,375,000.00
GRAND TOTAL		\$ 4,853,674.11

E. Perry Street - Extension from E. Broad St. to Gen. McIntosh Blvd.

	LF	Mile	Description
Notes:	1262	0.24	2-LN (TWO 12' LANES) (24' WIDTH TOTAL)

SEC 0XX - Miscellaneous

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
005-0004	0	AC	12,000.00	Wetland Mitigation - Bank Credit Purchase	0.00
					0.00

SEC 1XX - Mobilization, Traffic & Erosion Control

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
150-1000	1	LS	20,000.00	TRAFFIC CONTROL -	20,000.00
151-1000	1	LS	25,000.00	MOBILIZATION -	25,000.00
153-1300	1	EA	63,196.25	FIELD ENGINEERS OFFICE TP 3	63,196.25
163-0232	0.6	AC	523.03	TEMPORARY GRASSING	313.82
163-0240	12	TN	191.61	MULCH	2,299.32
163-0300	1	EA	1,826.91	CONSTRUCTION EXIT	1,826.91
163-0521	0	EA	219.24	CONSTRUCT AND REMOVE TEMPORARY DITCH CHECKS	0.00
165-0010	5000	LF	1.00	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	5,000.00
165-0040	0	EA	71.82	MAINTENANCE OF EROSION CONTROL CHECKDAMS/DITCH CHECKS	0.00
165-0101	1	EA	486.99	MAINTENANCE OF CONSTRUCTION EXIT	486.99
170-1000	0	LF	18.83	FLOATING SILT RETENTION BARRIER	0.00
171-0010	5000	LF	1.83	TEMPORARY SILT FENCE, TYPE A	9,150.00
					127,273.29

SEC 2XX - Clearing, Grading, Railroad

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
201-1500	1	LS	35,000.00	CLEARING & GRUBBING -	35,000.00
206-0002	2804	CY	7.90	BORROW EXCAV, INCL MATL	22,151.60
210-0200	0.24	LM	6,585.56	GRADING PER MILE	1,580.53
232-0001	0	LS	500,000.00	RAILROAD CONSTRUCTION	0.00
					58,732.13

SEC 3XX - Roadway Base

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
310-5100	3365	SY	16.00	GR AGGR BASE CRS, 10 INCH, INCL MATL	53,840.00
					53,840.00

SEC 4XX - Roadway Pavement & Concrete

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
400-3101	389	TN	85.00	ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL, GILSONITE MODIFIER & H LIMI	33,065.00
400-3605	40	TN	85.00	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	3,400.00
400-3605	151	TN	74.45	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	11,241.95
413-1000	20	GL	1.32	BITUM TACK COAT	26.40
432-0202	1067	SY	32.20	MILL ASPH CONC PVMT, 1/2 IN DEPTH	34,357.40
433-1000	0	SY	132.95	REINF CONC APPROACH SLAB	0.00
433-1300	0	SY	200.86	REINF CONC APPROACH SLAB, INCL BARRIER	0.00
441-0016	267	SY	40.19	DRIVEWAY CONCRETE, 6 IN TK	10,730.73
441-0104	2244	SY	37.80	CONC SIDEWALK, 4 IN	84,823.20
441-6012	2524	LF	38.59	CONC CURB & GUTTER, 6 IN X 24 IN, TP 2	97,401.16
441-6022	0	LF	18.52	CONC CURB & GUTTER, 6 IN X 30 IN, TP 2	0.00
449-1000	0	EA	8,930.56	BRIDGE DECK JOINT SEAL, BRIDGE NO. BENT NO.	0.00
					275,045.84

SEC 5XX - Bridge & Drainage

Item Number	Quantity	Units	Unit Price	Item Description	Total Cost
500-3800	0	CY	884.14	SUPERSTR CONCRETE, CL AA, BR NO -	0.00
507-9003	0	LF	145.81	PSC BEAMS, AASHTO TYPE III, BR NO -	0.00
511-1000	0	LB	0.96	BAR REINF STEEL	0.00
520-0573	0	EA	160.54	H-PILE POINTS, HP 14 X 73	0.00

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	<u>Total Cost</u>
627-1000	0	SF	45.17	MSE WALL FACE, 0 - 10 FT HT, WALL NO -	0.00
634-1200	2	EA	110.43	RIGHT OF WAY MARKERS	220.86
636-1014	19	SF	13.04	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 1	247.76
636-2010	48	LF	7.19	GALV STEEL POSTS, TP 1	345.12
647-0200	1	LS	112,000.00	TRAFFIC DETECTION LOOP SYSTEM, NO-	112,000.00
647-1000	1	LS	48,243.30	TRAFFIC SIGNAL INSTALLATION NO -	48,243.30
647-2120	6	EA	366.69	PULL BOX, PB-2	2,200.14
647-3000	8	EA	3,019.29	INTERNALLY ILLUMINATED STREET SIGN	24,154.32
653-0100	4	EA	346.81	THERMOPLASTIC PVMT MARKING, RR/HWY CROSSING SYMBOL	1,387.24
653-0110	15	EA	61.13	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	916.95
653-1501	0	LF	0.63	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	0.00
653-1502	2524	LF	0.30	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	757.20
653-1504	1050	LF	1.05	THERMOPLASTIC SOLID TRAF STRIPE, 12 IN, WHITE	1,102.50
653-1704	192	LF	3.86	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	741.12
653-1811	0	LF	2.50	THERMOPLASTIC SOLID TRAF STRIPE, 18 IN, YELLOW	0.00
653-3501	0	GLF	0.47	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	0.00
654-1001	0	EA	3.62	RAISED PVMT MARKERS TP 1	0.00
668-1100	13	EA	2,285.08	CATCH BASIN, GP 1	29,706.04
668-4300	2	EA	2,250.59	STORM SEWER MANHOLE, TP 1	4,501.18
681-1150	8	EA	4,288.00	LIGHTING STD, ALUM, 14 FT MH, POST TOP	34,304.00
681-6250	8	EA	1,122.00	LUMINAIRE, TP 2, 250 W, HP SODIUM, SPECIAL DESIGN	8,976.00
					269,803.73

SEC 7XX - Grassing & Landscaping

<u>Item Number</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Item Description</u>	
700-0015	1	EA	3,000.00	MOWING AND TRIMMING CYCLE	3,000.00
700-6910	0.6	AC	893.29	PERMANENT GRASSING	535.97
700-8000	1	TN	347.20	FERTILIZER MIXED GRADE	347.20
702-0908	50	EA	1,380.75	QUERCUS SHUMARDII -	69,037.50
					72,920.67

SUMMARY OF COSTS

Construction Subtotal		\$ 960,266.75
Construction Contingency	20% (Range 10 to 25% based on complexity & level of concept)	\$ 192,053.35
Engineering by Consultant	8% (Range 5 to 25% based on complexity & level of design)	\$ 92,200.00
Right-of-Way Costs	67,500 SF @ \$30/SF	\$ 2,025,000.00
GRAND TOTAL		\$ 3,269,520.10

APPENDIX

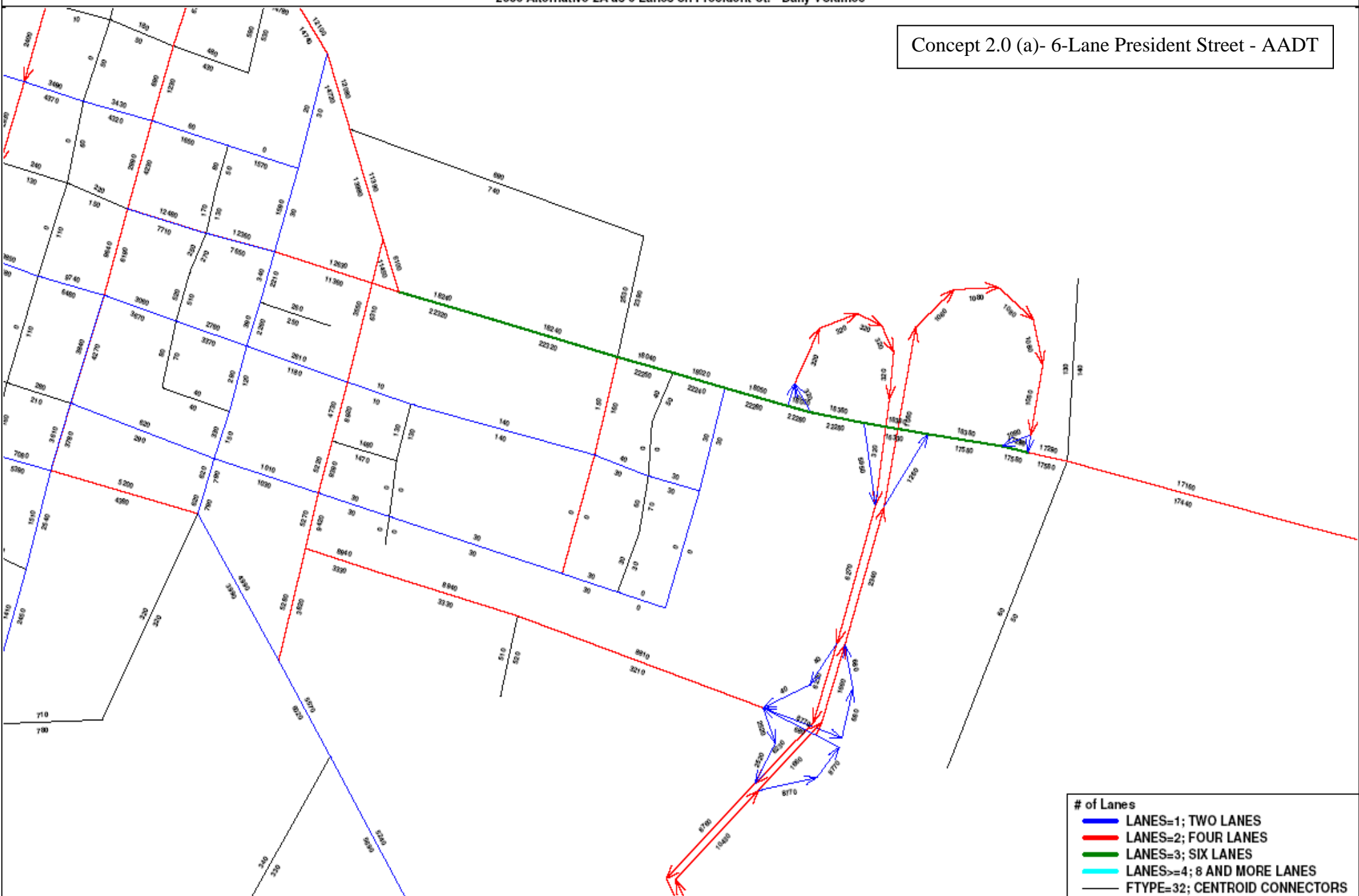
V. Alternative Model Results

This section contains the model results for the following:

Concepts 2(a) and 2(b):

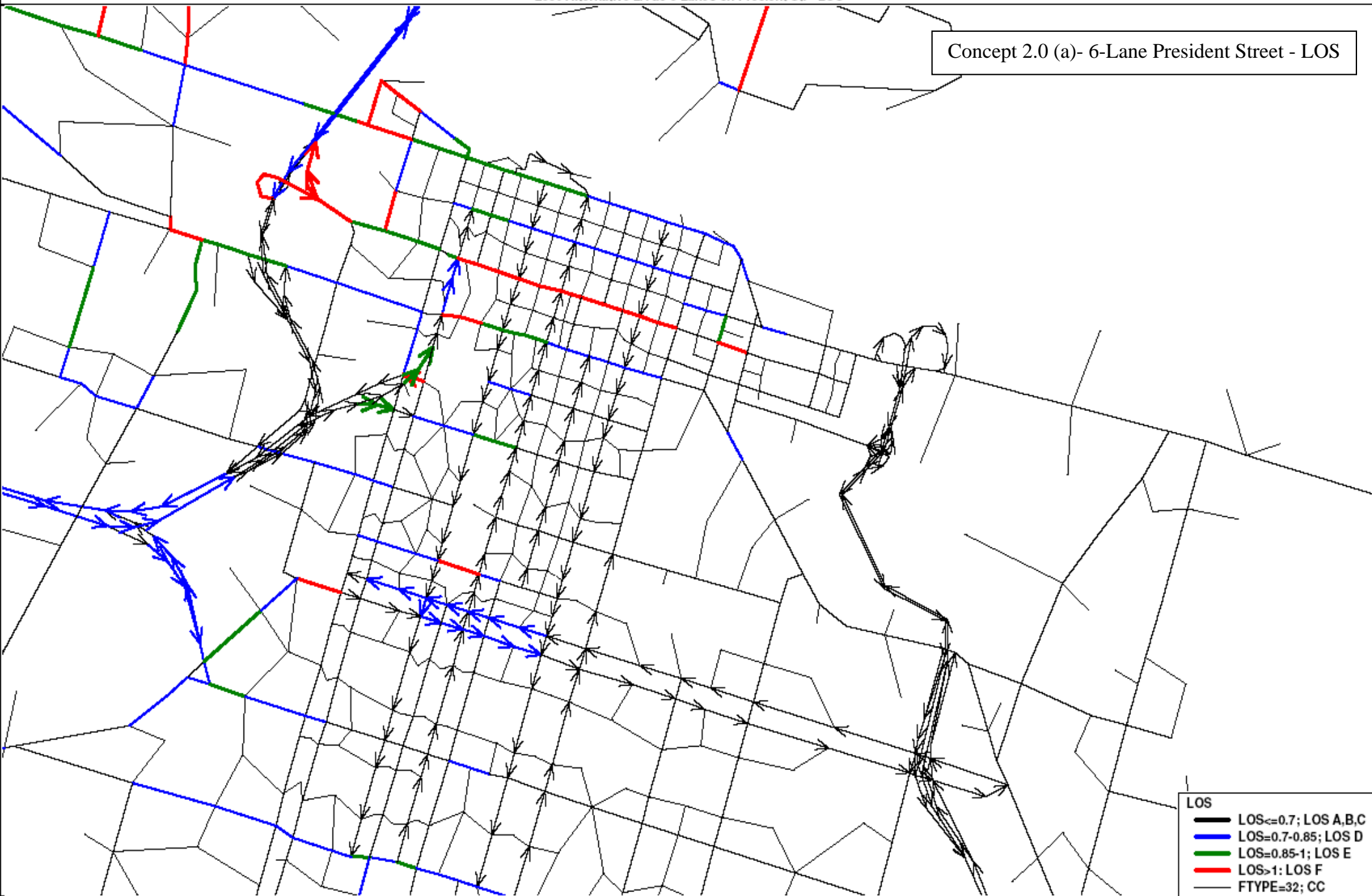
- ✓ 2030 AADT
 - four lane President Street
 - Six lane President Street
- ✓ 2030 LOS
 - four lane President Street
 - Six lane President Street

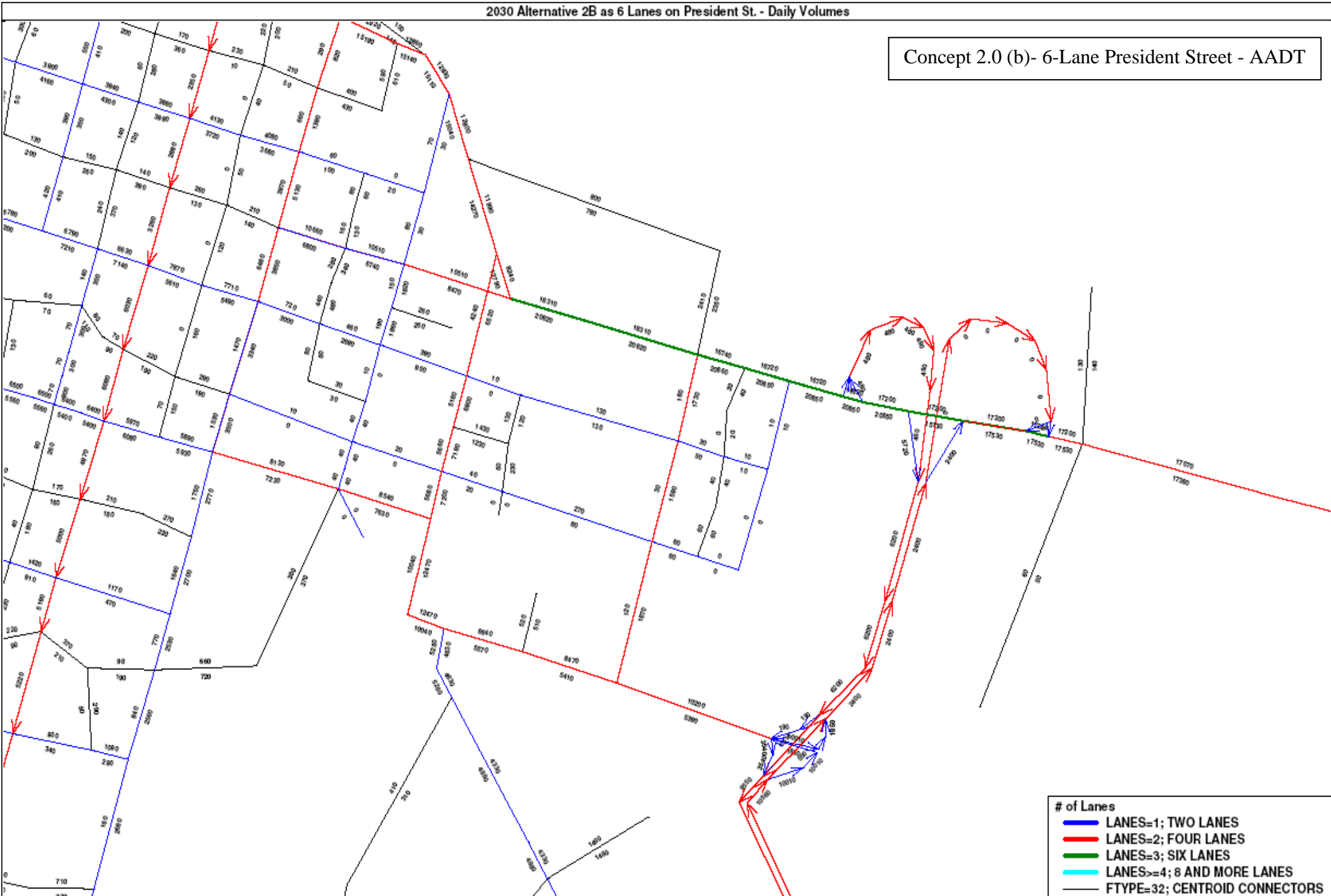
Concept 2.0 (a)- 6-Lane President Street - AADT



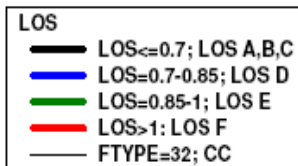
- # of Lanes
- LANES=1; TWO LANES
 - LANES=2; FOUR LANES
 - LANES=3; SIX LANES
 - LANES>=4; 8 AND MORE LANES
 - FTYPE=32; CENTROID CONNECTORS

Concept 2.0 (a)- 6-Lane President Street - LOS

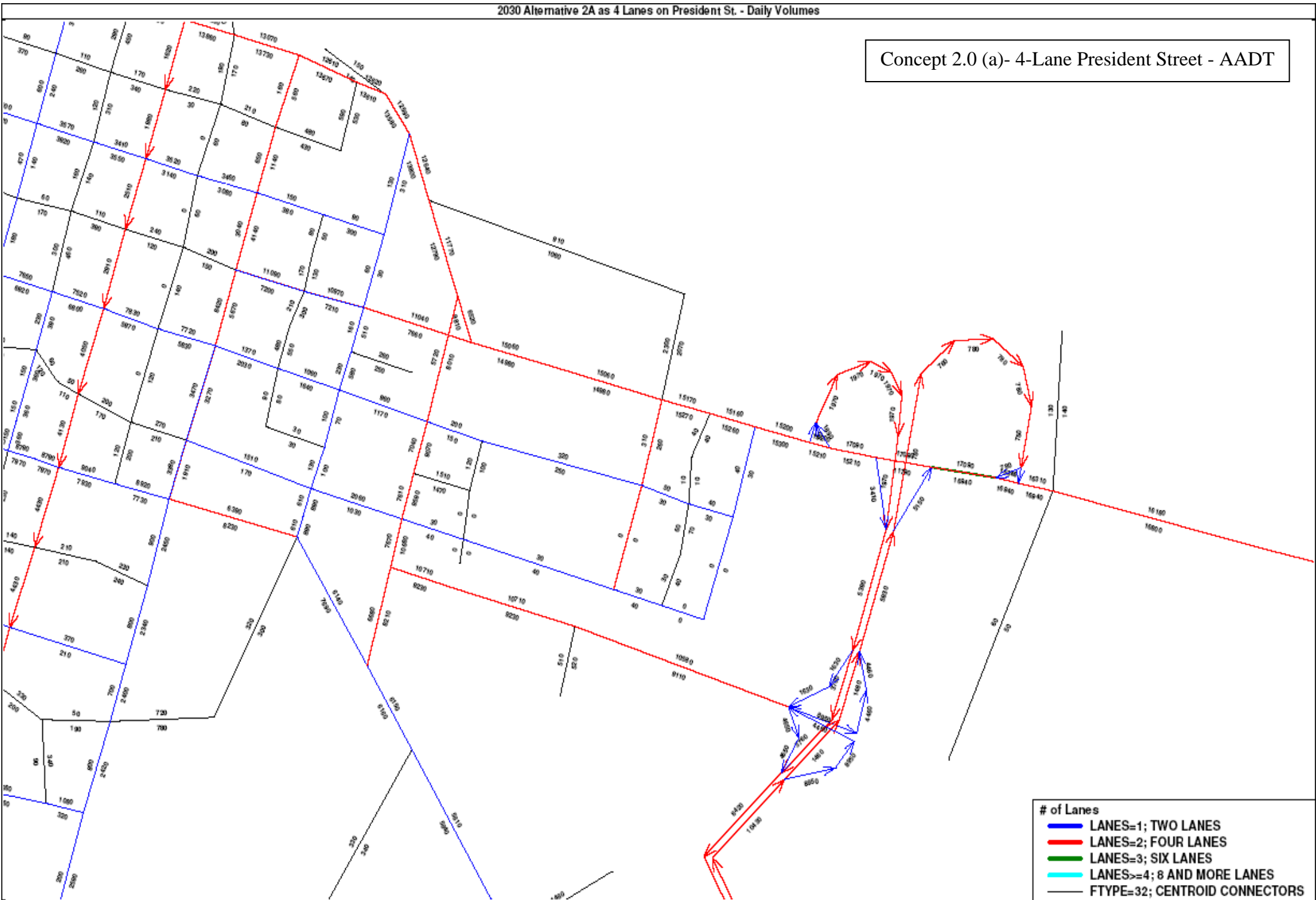




Concept 2.0 (b)- 6-Lane President Street - LOS



Concept 2.0 (a)- 4-Lane President Street - AADT

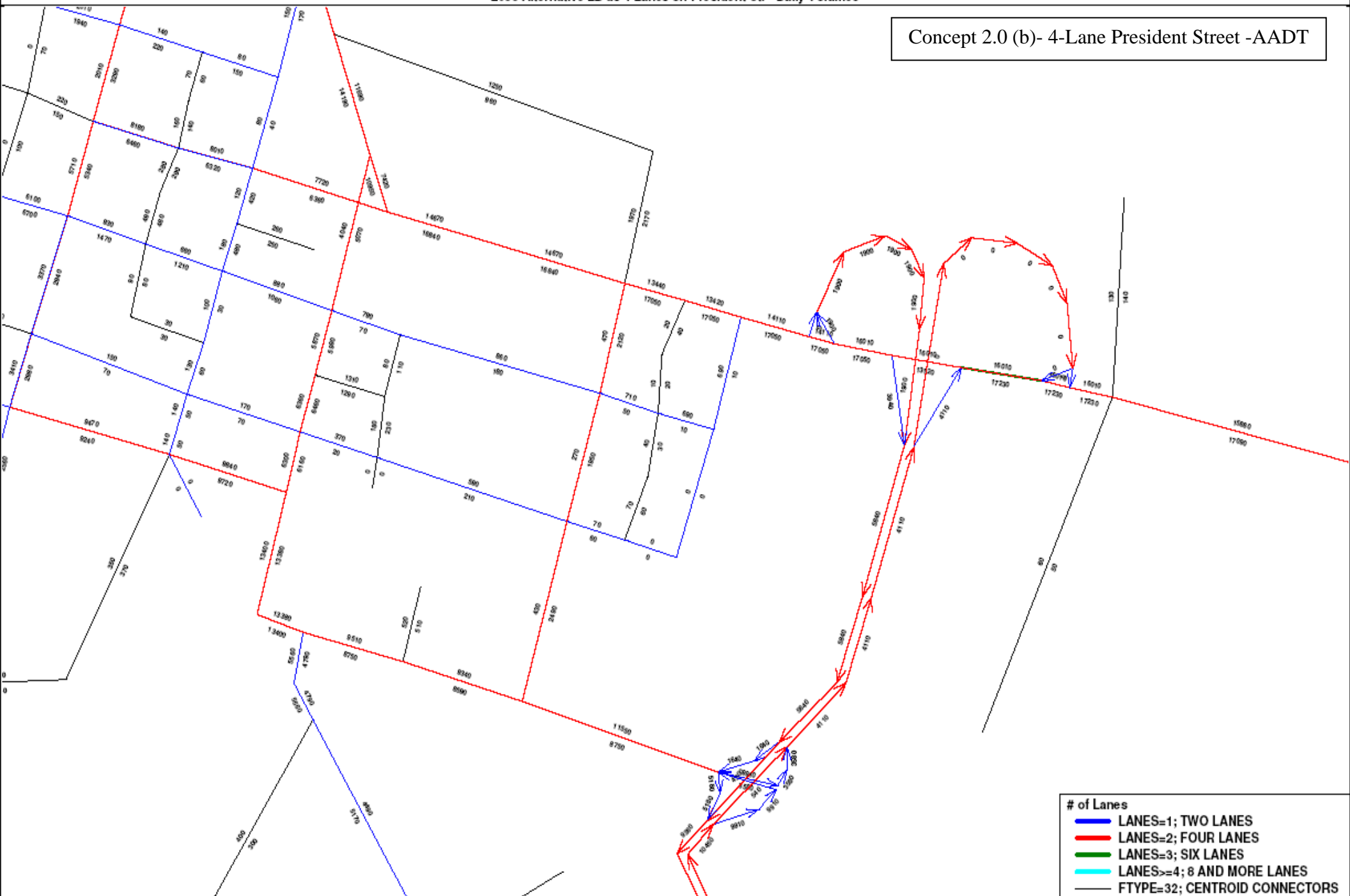


Concept 2.0 (a)- 4-Lane President Street -LOS



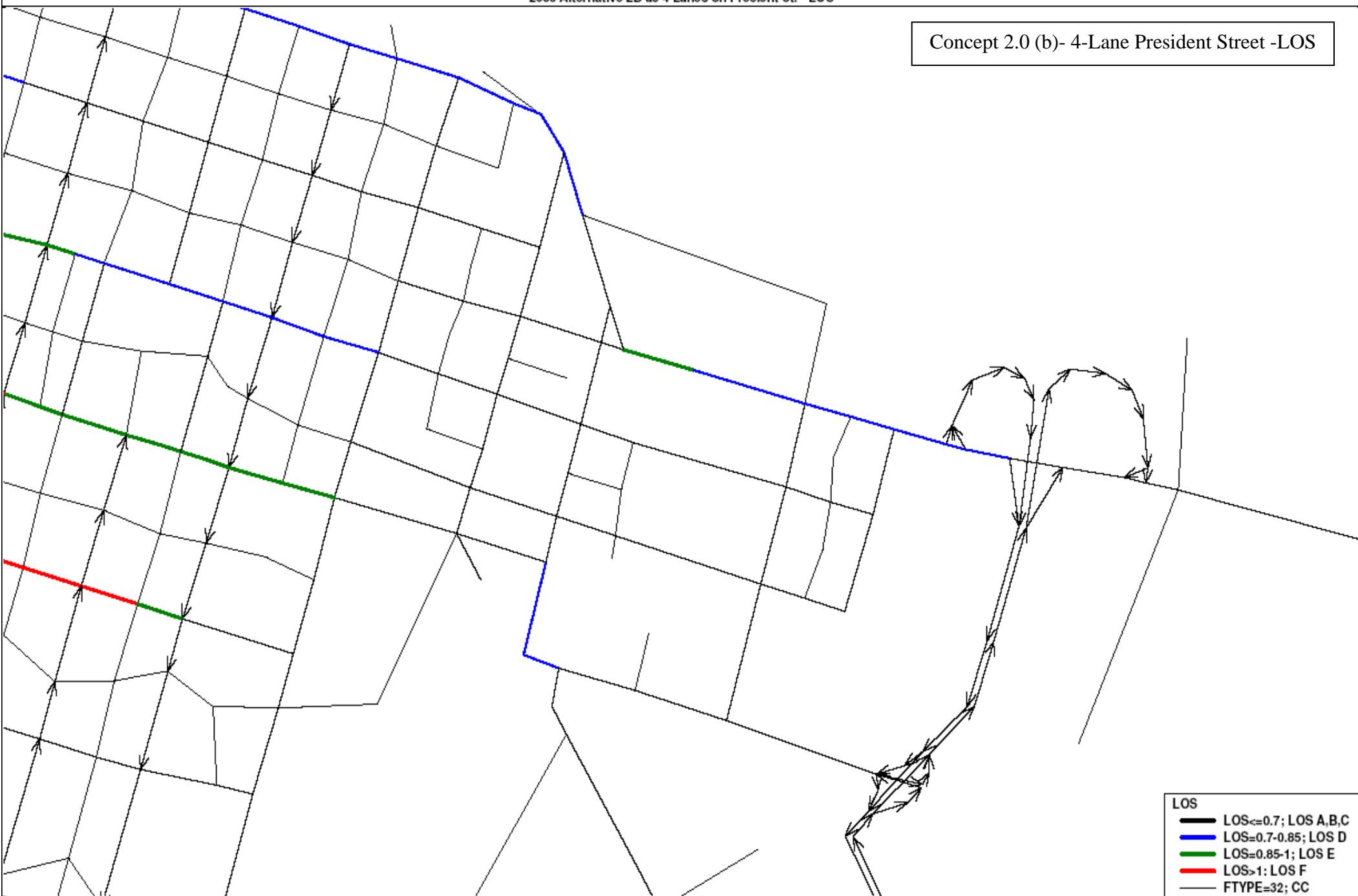
LOS	
—	LOS _≤ 0.7; LOS A,B,C
—	LOS=0.7-0.85; LOS D
—	LOS=0.85-1; LOS E
—	LOS>1; LOS F
—	FTYPE=32; CC

Concept 2.0 (b)- 4-Lane President Street -AADT



- # of Lanes
- LANES=1; TWO LANES
 - LANES=2; FOUR LANES
 - LANES=3; SIX LANES
 - LANES>=4; 8 AND MORE LANES
 - FTYPE=32; CENTROID CONNECTORS

Concept 2.0 (b)- 4-Lane President Street -LOS



LOS	
—	LOS ≤ 0.7; LOS A,B,C
—	LOS = 0.7-0.85; LOS D
—	LOS = 0.85-1; LOS E
—	LOS > 1; LOS F
—	FTYPE=32; CC