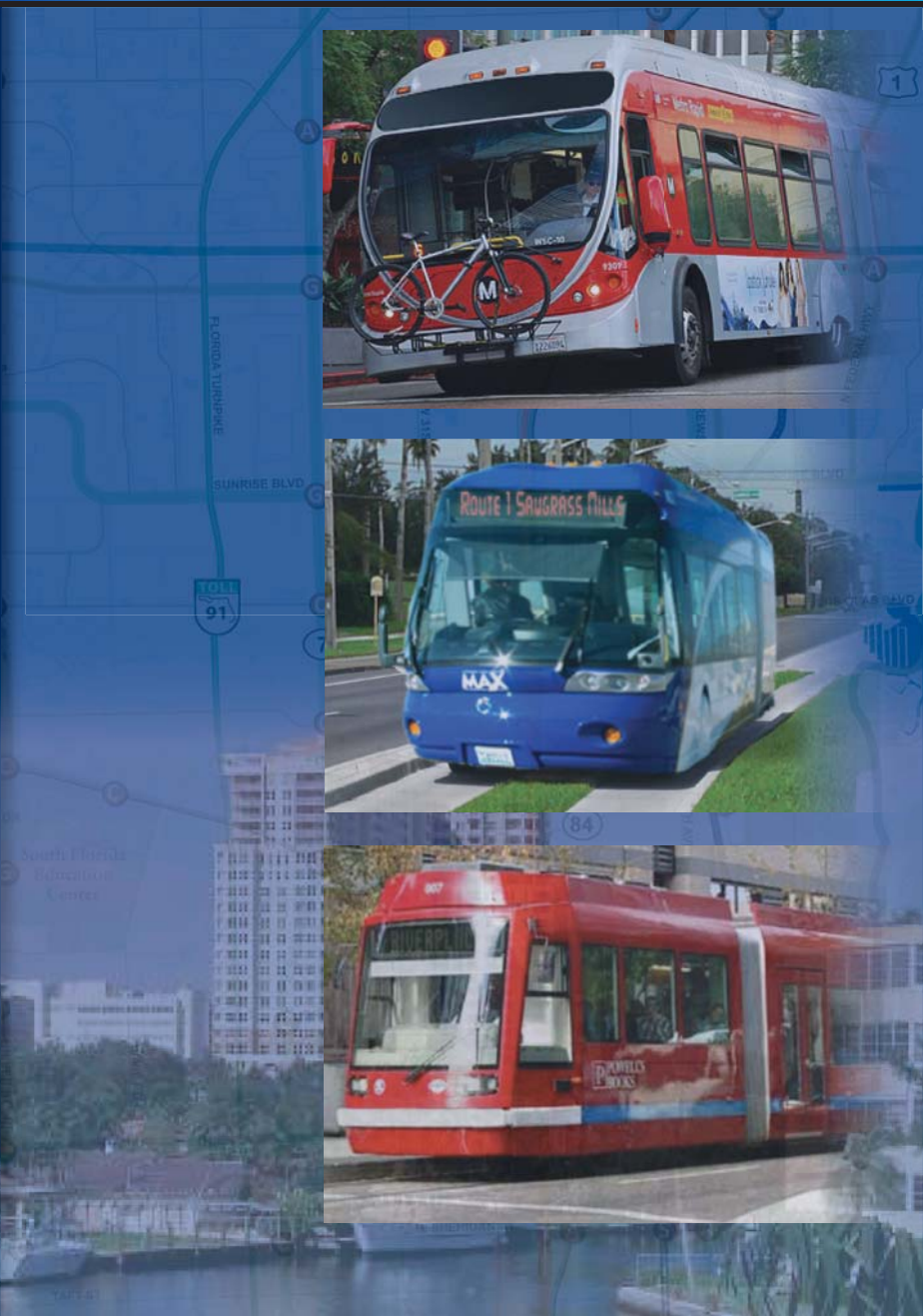


Central Broward East-West Transit

Project Information for the Broward MPO

January 2011
Updated November 2011



www.centralbrowardtransit.com

A Partnership of:
Broward County Transit,
Broward Metropolitan Planning Organization,
Florida Department of Transportation, and
South Florida Regional Transportation Authority



MPO Briefing Book Outline

I.	Project Overview*	Pg. 2
II.	Study Area	Pg. 3
III.	Explanation of NEPA*	Pg. 7
	Environmental Impact Statement Process	
IV.	Purpose & Need for the project	Pg. 11
V.	Coordination*	Pg. 13
	A. Agency Partners	
	B. Related Projects	
	a. The Wave	
	b. Broward Boulevard	
	c. Oakland Park Boulevard	
	d. South Florida East Coast Corridor Study	
	e. Tri-Rail	
	f. University Drive	
	C. Public Outreach	
VI.	Alternative Alignments*	Pg. 15
	A. New Approach	
	B. SR 7/Broward Boulevard Bus Alternative	
	C. Griffin Road Alternative	
	D. South Florida Education Center Options	
	E. SW 4TH Ave Option	
	F. NW 2ND ST Option	
VII.	Transit Technologies Under Consideration	Pg. 21
	A. Premium Bus	
	B. Bus Rapid Transit	
	C. Modern Streetcar	
VIII.	Next Steps*	Pg. 23

* Sections of the document that have been updated.
Updated information within the document will be noted in italics.

Section I:

Project Overview



Public Outreach
2010-current

The Study Team has been busy over the last year meeting with community organizations, stakeholder groups, and community leaders. Two alternatives endorsed by the MPO in 2010 are now being considered:

- SR7/Broward Blvd Alternative
- Griffin Road Alternative

Environmental Study
2008-2009

In April 2008, the MPO reconfirmed moving forward with the study. During this time, the environment study phase of the project began. Environmental goals are to enhance and preserve the physical and social environment and minimize potential impacts to sensitive resources.

LPA Refinement
2006-2007

The project team began working with the communities at the western end of the study area (NW 136th Avenue) and in the middle (adjacent to SR 7 and Broward Blvd) portions of the alignment to refine the LPA. As a result modification to the LPA was adopted.

Alternatives Analysis
2002-2005

An Alternatives Analysis process, consistent with Federal requirements, was conducted over a four year period. A Locally Preferred Alternative (LPA) was selected.

I-95/I-595 Master Plan
2001

As a result of this study, multimodal improvements in the I-595 corridor were identified and the MPO requested FDOT begin an Alternatives Analysis (AA) for the transit component.

Section II:

Study Area



Key activity centers within the Central Broward corridor, are described in the following pages and highlighted on the corridor map (page 6):

Sawgrass Mills Mall and Bank Atlantic Center:

These are located in the northwest corner at W. Sunrise Boulevard and Flamingo Road. The Sawgrass Mills Mall is a major retail center and one of the largest malls in the world with 2.2 million square feet and over 350 name-brand stores and entertainment venues. It is adjacent to a high concentration of employment centers and medium to high density residential developments. Adjacent to the Sawgrass Mills Mall is the Bank Atlantic Center arena and performing arts center that offers over 20,000 seats and over 7,000 parking spaces. In addition the adjacent Sawgrass International Corporate Park is one of South Florida's largest office parks with over 600 acres of business and office sites available. Roads feeding this activity center are Sunrise Boulevard, Flamingo Road, I-595, and Sawgrass Expressway / SR 869. Projected population and employment figures for this area in 2035 are 12,700 residents and 21,390 jobs.



Plantation Mid-Town:

This is the largest commercial district in the City of Plantation both in size and concentration of office and retail uses. It is located immediately north of I-595 bound by Broward Boulevard, Pine Island Road and University Drive / SR 817 and is spread over 860 acres. The area contains approximately 2.5 million square feet of retail and 3 million square feet of office space. The businesses employ approximately 18,000 people and about 34,500 households live with a one-mile radius of Plantation Mid-Town. By 2035, employment in the area will rise to over 21,000. In 2002, the City adopted the Central Plantation Conceptual Plan and projects are in the works to change this predominantly commercial district into a live, work and play Town Center for Plantation and Central Broward.



South Florida Education Center (SFEC):

This is the consortium of educational institutions that includes Broward Community College, Nova Southeastern University, Florida Atlantic University Davie Campus, McFatter Technical Center, and University of Florida Fort Lauderdale Research and Education Center. In 2000, the number of students in all SFEC institutions was approximately 45,000 with growth expectations of almost 50% to about 65,000 by 2030. In addition, jobs in the SFEC are expected to grow from about 11,800 in 2005 to about 13,600 in 2035. The SFEC is located on Davie Road south of I-595. Feeder roads are I-595, University Drive, Griffin Road, and Davie Road. The SFEC campus is one of the biggest generators of traffic in Broward County, resulting in the formation of the SFEC Transportation Management Area (TMA) to help with the mobility and parking problems.



Downtown Fort Lauderdale:

This is the main central business district (CBD) for Broward County, and includes government services (with the County Government Center, City Hall, and the State and Federal Courthouses), educational centers, high density employment and residential buildings. The downtown area had about 41,500 jobs in 2005 and is expected to have about 46,680 in 2035. Downtown Fort Lauderdale has changed dramatically in the last seven years in both appearance and substance. Since 2000, more than a dozen residential high rises have been built. Population in the downtown area is expected to grow from 12,800 in 2005 to 21,380 in 2035. It used to be a center for only work and entertainment but now it has transformed into a vibrant multi-use activity center.



Section II:

Study Area

(continued)



Port Everglades:

The seaport's jurisdiction encompasses a total of 2,190 acres of which about 1,742 acres is upland and 448 acres of submerged land. It is a major employment center in Broward County and South Florida region. It also supports a thriving cruise industry. The roads serving this port include U.S. 1, I-595, SE 17th Street and SR 84.

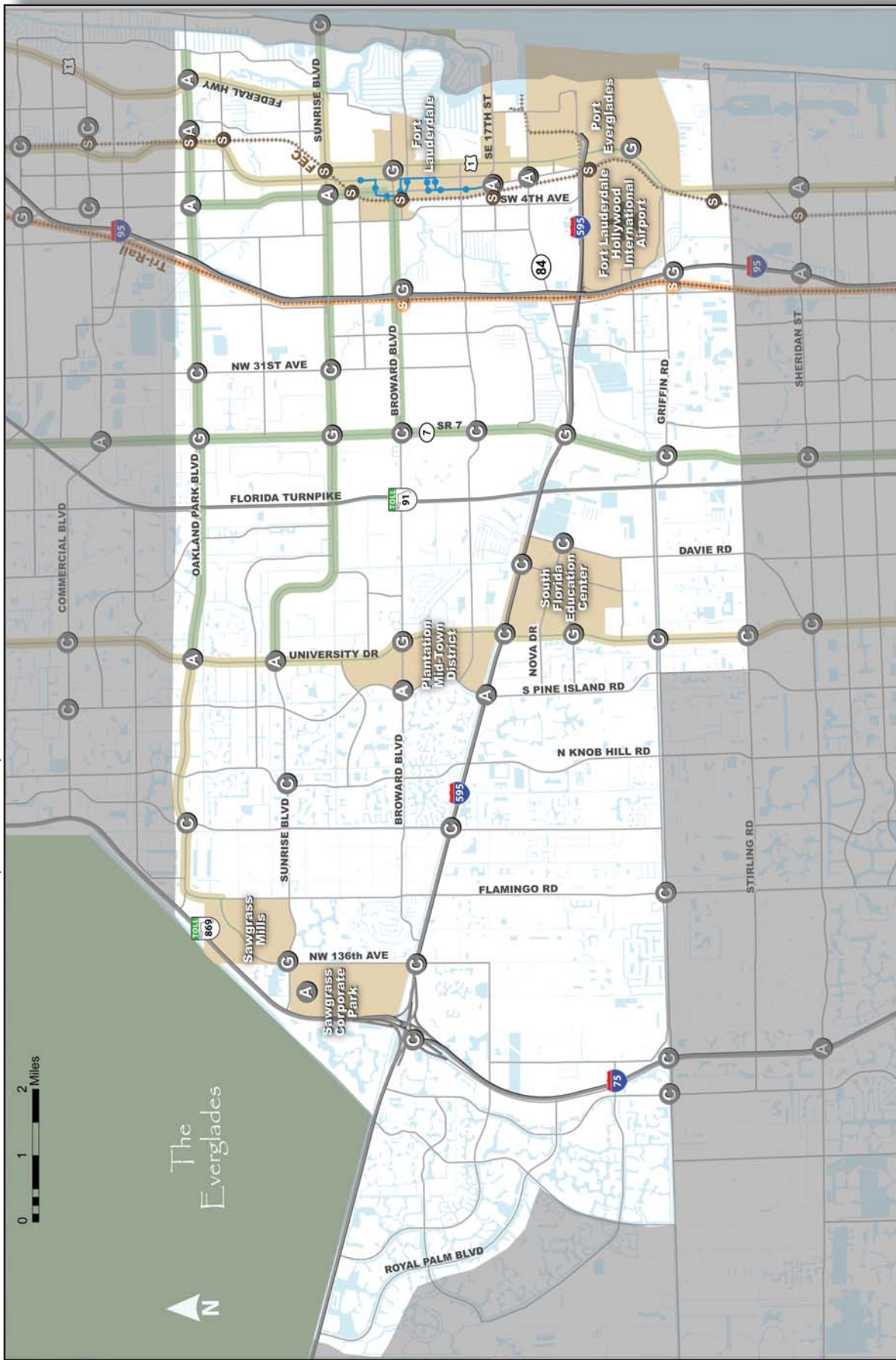


Fort Lauderdale-Hollywood International Airport (FLL):

The airport is located in the southeast corner at I-95 and I-595 Interchange. This is a major employment center and is anticipated to grow dramatically in the future. The total passenger throughput at FLL was 21.37 million in 2006 and is anticipated to grow by 3.2 percent annually to over 32 million in 2020 (according the 2006 Fort Lauderdale-Hollywood International Airport Master plan update).



Central Broward East-West Transit Analysis Study Area



Legend

- The Wave (Proposed Downtown Circulator)
- Proposed Stations for The Wave
- Tri-Rail with Proposed Station
- Toll Roads
- Interstates
- Major Roads
- Railroads
- FEC w/Proposed Stations
- Central Broward East-West Transit Study Area
- Activity Centers
- Water
- Conservation Lands
- Cost Feasible Premium Rapid Bus
- Cost Feasible Premium High Capacity
- Gateway Hub
- Anchor Hub
- Community Hub

Section III:

Explanation of NEPA



National Environmental Policy Act (NEPA), 1969

The primary law governing the Federal Transit Administration's (FTA) environmental protection review process is the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), as amended. The specific purposes of NEPA are:

- To declare a national policy that will encourage productive and enjoyable harmony between humans and their environment
- To promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate human health and welfare
- To enrich the understanding of the ecological systems and natural resources important to the nation
- To establish the Council on Environmental Quality (CEQ)

Many different federal laws, rules, and regulations govern environmental review of federally assisted mass transportation projects. NEPA establishes an umbrella process for coordinating compliance with each law through the preparation of an Environmental Impact Statement (EIS) for all major federal actions "significantly affecting the quality of the human environment". (An overview of the EIS process is provided on pages 10-11.) Other special purpose statutes and procedures may apply as well, depending on specific circumstances, e.g., protective measures for historic properties, wetlands, floodplains, etc. If related environmental review requirements apply, they are to be undertaken as part of the NEPA compliance process.

The application of NEPA to mass transportation projects is reinforced in the federal surface transportation statutes (23 U.S.C. Highways and 49 U.S.C. Transportation), that require the Secretary of Transportation to ensure NEPA mandates have been met before approving applications for federal financial assistance.

When a proposed project requires major federal action, such as a permit, grant, or the use of federal money, the federal agency that is involved is required to prepare an environmental document to evaluate the potential effects of the project. There are three levels of analysis depending on whether or not an undertaking could significantly affect the environment. These three levels include: categorical exclusion determination; preparation of an environmental assessment/finding of no significant impact (EA/FONSI); and preparation of an EIS.

- At the first level, a project may be categorically excluded from a detailed environmental analysis if it meets certain criteria which a federal agency has previously determined as having no significant environmental impact.
- At the second level of analysis, a federal agency prepares a written EA to determine whether or not a federal undertaking would significantly affect the environment. If the answer is no, the agency issues a finding of no significant impact (FONSI). The FONSI may address measures which an agency will take to reduce (mitigate) potentially significant impacts. If the EA determines that the environmental consequences of a proposed federal undertaking may be significant, an EIS is prepared.
- An EIS is a more detailed evaluation of the proposed action and alternatives. The public, other federal agencies and outside parties may provide input into the preparation of an EIS and then comment on the draft EIS when it is completed.

If a federal agency anticipates that an undertaking may significantly impact the environment, or if a project is environmentally controversial, a federal agency may choose to prepare an EIS without first preparing an EA. The lead agency must be a federal agency, and for transit projects it is usually the Federal Transit Administration (FTA). Nearly all new fixed-guideway projects, such as the Central Broward Transit project, require an EIS level of analysis.

Coordination with FTA in June 2011 indicates that a modern streetcar operating within existing right-of-way may require only an EA level of NEPA review. The FTA suggested that the current study continue with the selection of a preferred alternative (e.g. one alignment and one technology) so that an appropriate class of action can be determined.

Section III:
Explanation of NEPA (continued)

Environmental Impact Statement Process

The following summarizes the Environmental Impact Statement process.

Nine Basic Steps for an Environmental Impact Statement	
Step 1	Scoping A public process to define the purpose and need for the project and identify environmental issues that should be addressed.
Step 2	Data Collection The gathering of transportation, environmental, land use and other data necessary for evaluating the impacts of the proposed project on the natural and man-made environment.
Step 3	Analysis of Alternatives Impacts of a reasonable range of alternative actions, including the no build option, are identified and compared.
Step 4	Preparation of Draft Environmental Impact Statement (DEIS) A printed report for public review and comment is prepared documenting the need for the project, describing alternative courses of action, analyzing likely impacts of each alternative, and describing any steps to be taken to avoid impacts or minimize harm to the environment.
Step 5	Public and Agency Review The general public and government agencies are provided a minimum of 45 days to review the DEIS document and provide comments prior to the formal public hearing.
Step 6	Public Hearing on DEIS A public hearing is held to present the information in the document and allow for formal comments. The public has 30 more days after the public hearing to review the document and provide comments.
Step 7	Prepare Final Environmental Impact Statement (FEIS) All of the comments received during the review period for the DEIS are addressed in the FEIS.
Step 8	Publication of FEIS The public has 30 days to review document. Comments received must be included in the administrative record.
Step 9	Record of Decision The Record of Decision issued by FTA is the final step in the environmental process, and determines which alternative has been chosen.

Social Effects



- Land use and socio-economics
- Neighborhood, community services and community cohesion impacts
- Property acquisition and displacement
- Visual and aesthetic conditions
- Cultural resources
- Parkland and recreation areas
- Safety and security
- Environmental justice

Environmental Effects



- Geologic resources
- Water resources (floodplains, coastal zones, navigable waterways, wetlands, and water quality)
- Biota and habitat
- Rare, threatened, and endangered species
- Farmlands
- Air quality
- Noise
- Vibration
- Hazardous and regulated materials
- Energy
- Utilities distribution systems

Economic Effects



- Economic conditions
- Station area development
- Development effects

Transportation Effects



- Effects on transit
- Effects on roadways
- Effects on other transportation facilities and services

The following impact categories will be evaluated during the DEIS for the Central Broward Transit project.

Section IV:

Purpose and need for the project

Interstate 595 (I-595) currently serves the majority of the east-west travel demand in the corridor, carrying more than 185,000 vehicles daily. I-595 opened to traffic in 1989 as the only limited access east-west freeway in Broward County, connecting the rapidly developing residential suburbs in the western portion of the county with the downtown/port/airport area and I-95 which is the transportation spine for southeast Florida. Within five years, the facility experienced capacity constraints due to rapid local and regional growth. This growth has continued over the past 13 years as development has progressed in the west and redevelopment substantially increased densities in the older coastal communities to the east. Southwest Florida's vast growth has contributed to travel demand in the corridor which feeds directly in to I-75. The result is a heavily congested corridor suffering from deteriorating reliability and safety.

Growth in Broward County and the region is anticipated to continue unabated for the next 25 years, with a 50 percent increase projected. The western suburbs continue to be desirable to families looking for larger homes and good schools, while the employment heart remains in the eastern portion, linked to downtown Fort Lauderdale, the airport and seaport. Travel demand on I-595 is expected to exceed 300,000 vehicles per day by 2030. The master plan for the corridor includes the addition of tolled reversible express lanes which will consume the remaining right-of-way, yet will still not meet the anticipated traffic demand. Also, the roads in the Fort Lauderdale area cannot be expanded to accommodate projected growth without extensive property acquisitions.

A consistent understanding has developed among stakeholders over the past decade that the only way to accommodate travel demand associated with continued growth in Central Broward County and its economy is by providing high-speed, high-capacity, reliable transit services. Given the nature of this corridor, it is essential that such services be supported by a comprehensive program of park-and-ride facilities, feeder buses and pedestrian connections.

The need for the proposed project is based on the following conditions:

- **Rapid population and employment growth** - Broward County is the nation's 5th most populous county. By 2030 the addition of a half million new people is projected. Employment is expected to increase by 45 percent in this timeframe.
- **County's Largest Activity Centers** – Broward County's largest trip generators are located in the project study area, including Downtown Ft. Lauderdale, the South Florida Education Center (SFEC), Sawgrass Mills, and the Fort Lauderdale-Hollywood International Airport (FLL).
- **Increased development densities and change in development patterns** – The population density of the Central Broward corridor is projected to experience 25 percent more growth than the county on average. While growth is anticipated throughout the corridor, it is projected to be concentrated in the activity centers in the study area furthering the need to accommodate east-west travel.
- **Increased travel demand and congestion** – Roadways in the study corridor are at capacity. Peak hour average travel speeds in the study area are anticipated to deteriorate by as much as 75% by 2030. County-wide, vehicle hours of delay are expected to increase by a factor of eight.
- **Limited capacity on existing east-west roadways** - I-595 is the only east-west limited access highway in Central Broward County. The other east-west roadways in the corridor are arterial streets with a maximum of six lanes, with limited opportunities to add more lanes due to the built-out nature of abutting residential and commercial development.
- **Limited transit service options** – Right-of-way constraints in the corridor restrict current transit services to buses operating in mixed traffic, and therefore subject to the congestion delays experienced by automobile traffic.
- **Air quality** - The implementation of a premium transit system as described in the 2030 Long Range Transportation Plan would contribute to the reduction in vehicle miles traveled (VMT) and vehicle emissions, consistent with the Motor Vehicle Emissions Budgets (MVEB).



Section V:

Coordination



A. Agency Partners

The Florida Department of Transportation (FDOT), the study's sponsor, is committed to working with its transportation partners in Broward County during the completion of this study. Partnering efforts with Broward County Transit, the South Florida Regional Transportation Authority, and the Broward MPO continue, with each of these agencies serving on the Technical Advisory Group (TAG) for the project. The Downtown Development Authority, DDA, of Fort Lauderdale, is also a participant on the TAG and is another key partner as they are implementing The Wave. As the project moves forward, plans for continuing partnership include the formation of an Executive Committee, consisting of the leaders of each of the County's four transportation agencies, and a continuation of the TAG. The goal is to develop a Memorandum of Understanding (MOU) that defines each agency's role in this study as it moves forward.

B. Related Projects

There are several existing or planned transit services that are related to this project and are briefly described below.

The Wave -

The Wave is a 2.7 mile streetcar system that will serve as a local circulator in Downtown Fort Lauderdale. The Downtown Development Authority of Fort Lauderdale is leading this project, which will provide service between Sistrunk/6th Street to the north to SE 17th Street to the south. This project may connect with the proposed improvements from the Central Broward Transit Study at the Broward Central Bus Terminal and the proposed station at SE 17th Street, near Broward General Hospital.

Broward Boulevard -

There has been a long identified need for transit improvements on Broward Boulevard. Originally, it was envisioned that the Central Broward Transit Study would provide these solutions. However, as part of this study the need for near-term improvements was recognized. As a result, FDOT initiated the Broward Boulevard Transit Study to assess transit options for Broward Boulevard between Pine Island Road to the west and US-1 to the east, for near term implementation. The transit operations and traffic conditions will be examined and improvements for transit service, pedestrian/bicycle flows and traffic operations will be identified, thus improving corridor mobility.

Oakland Park Boulevard –

As a result of the efforts on the Central Broward Transit Study, the need for improved transit on Oakland Park Boulevard was identified. To address these needs, FDOT initiated the Oakland Park Boulevard Transit Study that will recommend near-term and long-term transit related enhancements within the corridor. Current planning activities are intended to streamline an Alternatives Analysis study anticipated in early 2012 and include: data collection, project workshop, coordination and a micro simulation analysis.

South Florida East Coast Corridor Study –

Extending 85 miles from downtown Miami to Jupiter, this regional study is analyzing the feasibility of providing passenger service along the existing freight rail corridor. Phases 1 and 2 of the study focused on regional and environmental issues along the entire corridor and recommended the use of regional rail for the corridor. Improvements resulting from the Central Broward Transit Study would provide a connection to this proposed FEC service for travelers originating in or destined for the middle portion of Broward County.

Tri-Rail –

This existing commuter rail service currently provides service along a 71 mile corridor from the Miami Airport to West Palm Beach. One of the goals of the Central Broward Transit Study is to provide a connection to this existing service. Potential connections points are the Broward Boulevard and Griffin Road stations.

University Drive –

The University Drive Alternatives Analysis was funded by the FTA for \$1.5 million. The study comprises a 27-mile stretch of University Drive between Sample Road and Hallandale Beach Boulevard. This section of road has a mix of land uses but is primarily commercial, and includes a number of employment centers. Providing additional transportation choices would not only improve access to these employment centers but would also greatly enhance the economic viability of the cities in proximity to or that border University Drive. Potential connections to the Central Broward Transit alternatives could occur at Nova Drive and Griffin Road.

C. Public Outreach

Between June 2009 and June 2010, over 35 outreach meetings, including three working group sessions, were held. *In 2011, several other neighborhood group meetings were conducted. Additionally, two public workshops were held to update the community on the progress of the Transit Study and allow for public input and feedback.* As the project moves forward, these efforts will continue with a greater focus on interactive working sessions with the communities through which the alternatives pass. The project team will continue to update the website, produce newsletters and other mailings, as well as be available to meet with homeowner's associations, business groups and other organizations to discuss the study. The study team continues outreach and public participation efforts as it prepares to host additional community workshops in Spring 2012.

Section VI:

Alternative Alignments

At the October 2010 MPO Board meeting, the 2006 Locally Preferred Alternative for the Central Broward East-West Transit Study was rescinded. In its place, the Board adopted a new approach that consists of several alternatives designed to better serve the different travel markets within the Central Broward study area. The new approach also addresses community concerns by providing additional alternatives to the use of SR 7 and Broward Boulevard. This section of the booklet describes the proposed alternatives to be considered in the environmental analysis as a result of this new approach.

In addition to the alignments depicted here, the new approach includes enhanced coordination among the transportation agencies, Broward County Transit, the MPO, the South Florida Regional Transportation Authority and the Florida Department of Transportation. An Executive Committee has formed that is comprised of the senior leadership from each of these agencies. This Committee agreed to develop a Memorandum of Understanding that promotes a continued partnership throughout the life of this study.

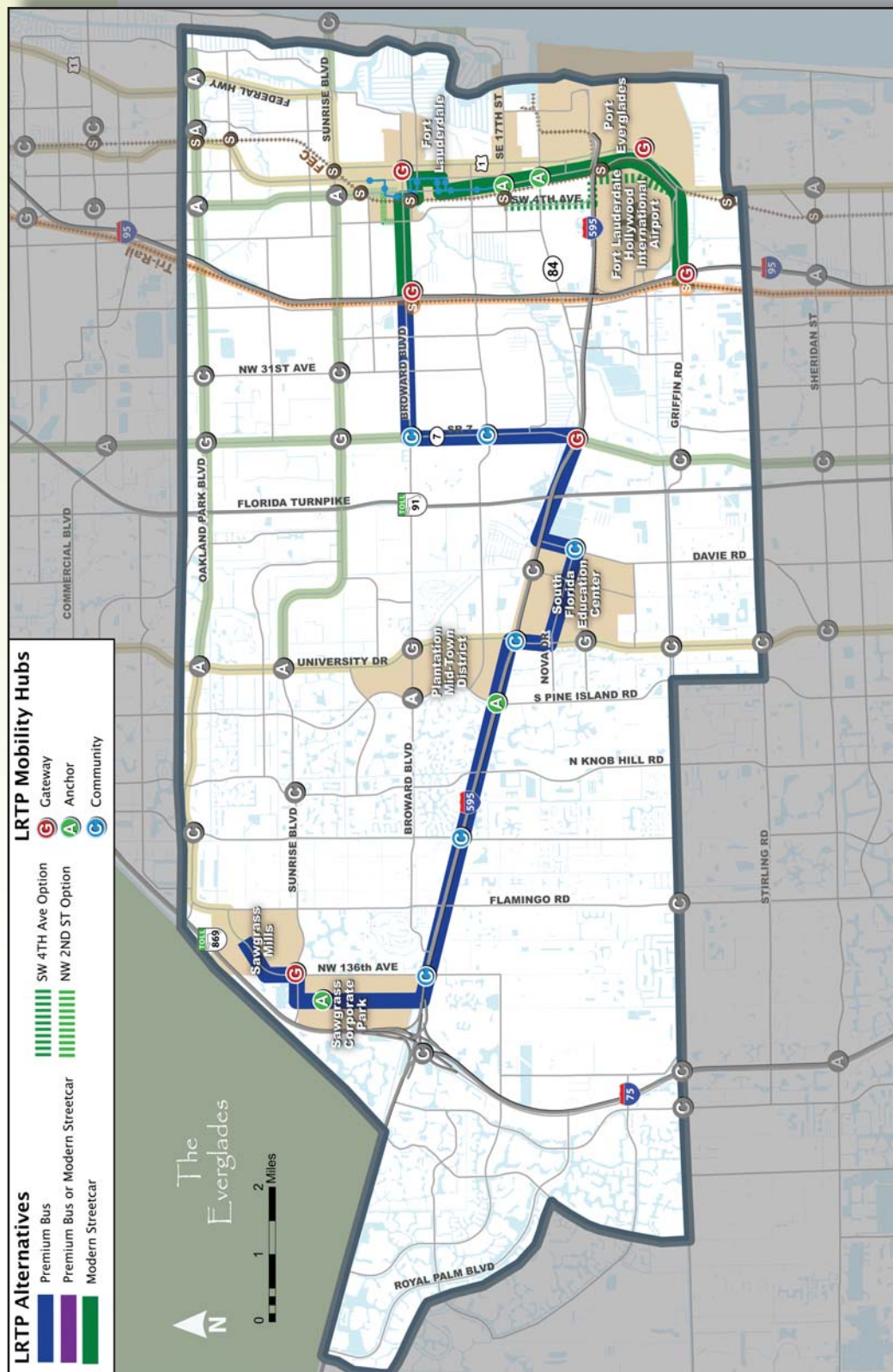
As a result of coordination with the partners, the initial I-595/I-95 option is no longer a build alternative for the project. The study team is conducting high level screening of the alternatives in order to meet the FTA's request to select one option moving forward into the NEPA phase of the project. Although an EIS may not be performed, the same environmental standards will apply during this phase, although in a less detailed format.

During the February 2011 MPO meeting and through the summer, the public and other stakeholders had the opportunity to re-engage in the study as details of the alternatives were refined and the environmental phase began. The public outreach efforts were conducted in order to continue the community's involvement in the project and inform key stakeholders about the proposed alternatives. Once the environmental analysis is conducted, the impacts and benefits of each alternative will be more clearly defined.

The maps on the following pages reflect the refinements made to the alternatives made to the February 2011 MPO meeting.

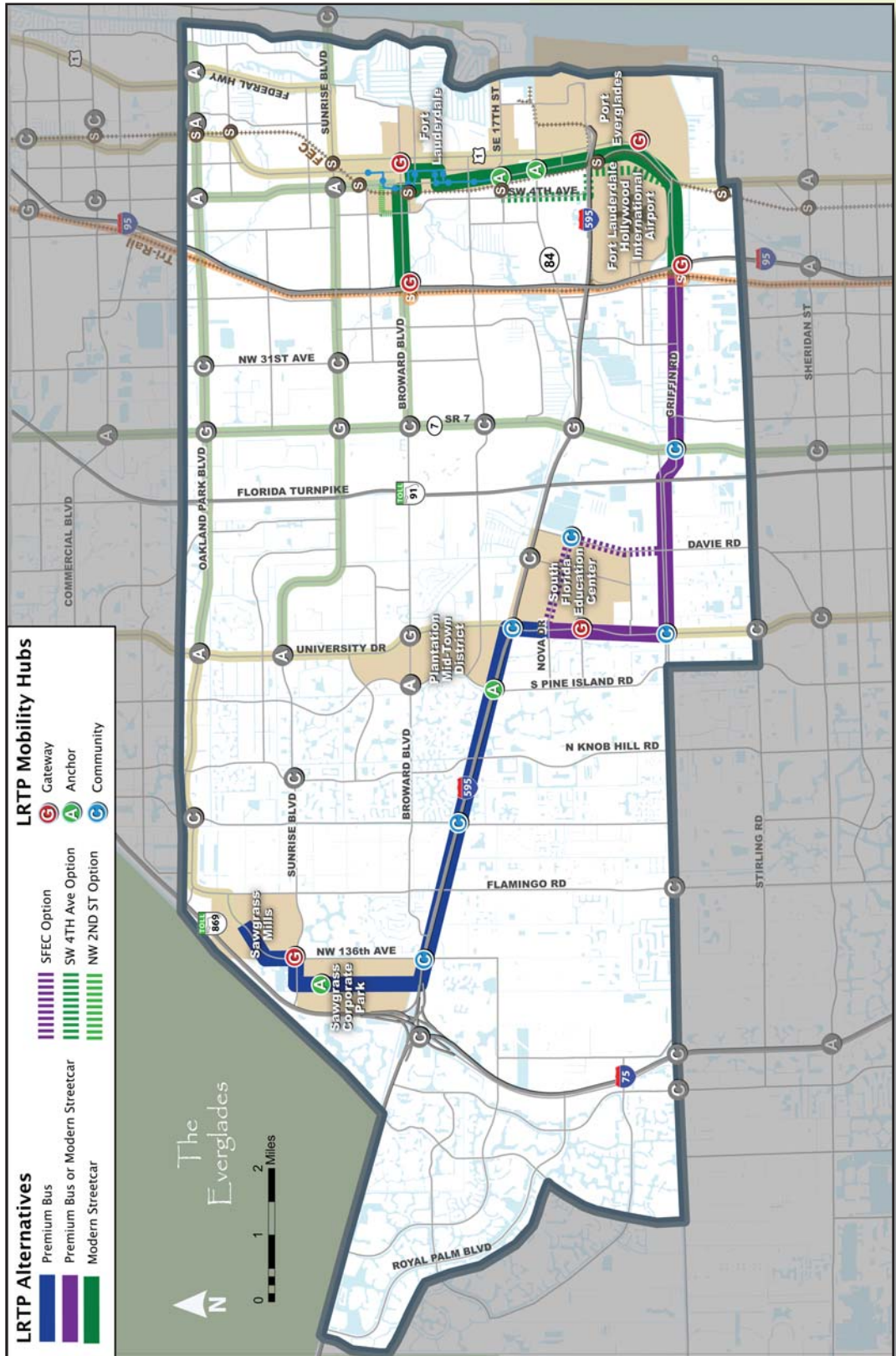
B. SR 7/Broward Boulevard Alternative

This alternative proposes improved bus service from the Sawgrass Mills Mall/Bank Atlantic Center area east to the Fort Lauderdale Tri-Rail Station on Broward Boulevard, using roads in the Sawgrass Corporate Park, the I-595 corridor, SR 7, and Broward Boulevard. Between the Fort Lauderdale Tri-Rail Station, Downtown Fort Lauderdale, the Fort Lauderdale/Hollywood International Airport, and the Fort Lauderdale/Hollywood International Airport Tri-Rail Station, the proposed service would be provided by rail vehicle, such as modern streetcar.



C. Griffin Road Alternative

This new alternative provides a different route into the Airport and Downtown, using Griffin Road instead of SR 7 and Broward Boulevard. This alternative proposes improved bus service from the Sawgrass Mills Mall/Bank Atlantic Center area to the South Florida Education Center. At this point, the study will analyze the use of two different vehicles, bus and rail, to provide the continuing service to the Fort Lauderdale/Hollywood International Airport Tri-Rail Station. The continuing service to the Airport, Downtown Fort Lauderdale, and up to the Fort Lauderdale Tri-Rail Station is proposed to be via rail, such as modern streetcar.



Project Information for the Broward MPO November 2011

Section VI: Alternative Alignments (continued)

D. South Florida Education Center Options

The following maps show options being considered in the South Florida Education Center.

- Premium Bus
- Premium Bus or Modern Streetcar
- Proposed Station Locations

SR 7/Broward Blvd Alternative
Two Way - University/Nova/Davie



Griffin Rd Alternative
Two Way - University/Griffin



Griffin Rd Alternative
Two Way - Nova/Davie/Griffin



Griffin Rd Alternative
One Way Loop



The following maps show options being considered near the Fort Lauderdale - Hollywood International Airport and downtown Fort Lauderdale. These options apply both the SR 7/Broward Blvd and Griffin Rd alternatives.

E. SW 4TH AVE Options - Modern Streetcar Only

SW 4TH AVE

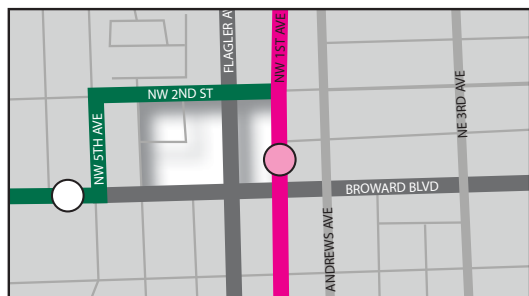


US-1

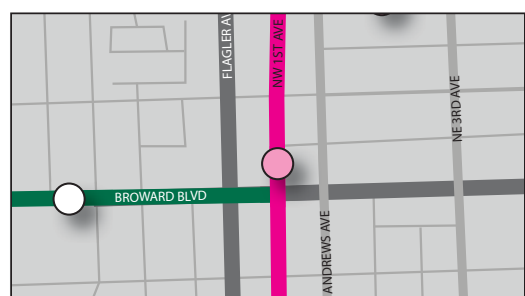


F. NW 2ND ST Options - Modern Streetcar Only

NW 2ND ST - Connects to the WAVE Streetcar



Broward Blvd - Connects to the WAVE Streetcar



Section VII:

Transit Technologies under Consideration

The transit technologies described in this section are being evaluated as part of the EIS. The information provided is general and should not be construed as specific information for these technologies in this study.

a. Premium Bus

This type of bus service includes improvements such as signal priority, real-time passenger information and faster travel speeds over regular bus service. A “bus only” lane is not required.



Capital Costs	\$235,000 to \$355,000 per vehicle
Operating Costs	\$65.35 per revenue hour \$0.91 per passenger mile
Service Distance	Varies
Station Spacing	¼ to ½ mile
Service Frequency	≤15 minutes (peak) ≤ 60 minutes (off-peak)
Capacity	35 to 40 seated (plus standees)
Power Source	Gasoline, diesel, methanol, CNG, LNG and hybrid electric and battery
Speed (Avg/Max)	12 to 15 mph / 60 mph
Right-of-Way	Operates in streets with mixed traffic
Vehicle Life	12 to 15 years
Accessibility	Low floor models available
Maneuverability	Turning radius: 28 to 40 feet Maximum grade: 15%
Integration	Easy due to street level boarding and ability to operate in mixed traffic
Flexibility	Very easy to change routes and boarding points in response to varying demand

b. Bus Rapid Transit

This is a bus service that operates like light rail. It has an exclusive lane for some portion of its route, allowing it faster travel speeds than standard bus service or rapid bus service. Other improvements include signal priority, real-time passenger information and pre-board ticketing for passengers. The vehicles used for BRT can be standard transit buses or sleeker vehicles that more closely resemble light rail.



Capital Costs	\$35 to \$42 million per mile
Operating Costs	TBD
Service Distance	5 to 20 miles
Station Spacing	½ to 2 miles
Service Frequency	≤15 minutes (peak) ≤ 60 minutes (off-peak)
Capacity	35 to 40 seated (plus standees)
Power Source	Gasoline, diesel, methanol, CNG, LNG, hybrid electric, and battery
Speed (Avg/Max)	17 to 30 mph / 60 mph
Right-of-Way	Operates in exclusive lane or in streets with mixed traffic
Vehicle Life	12 to 15 years
Accessibility	Low floor models available or boarding occurs from platform
Maneuverability	Turning radius: 28 to 40 feet Maximum grade: 15%
Integration	Easy due to street level boarding and ability to operate in mixed traffic
Flexibility	Can be more difficult to change route and boarding points if exclusive guideway is constructed

c. Modern Streetcar

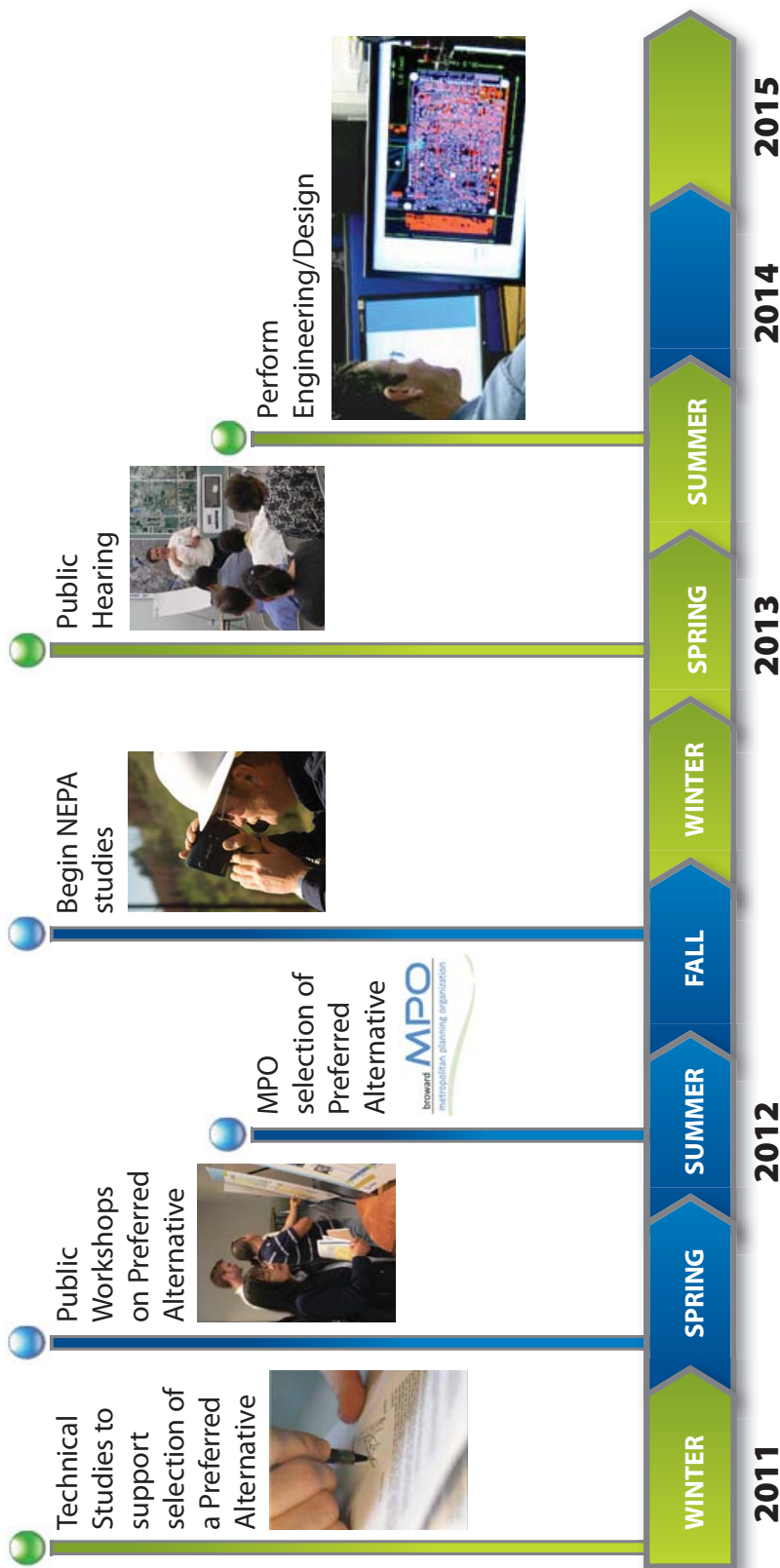
These vehicles are able to operate in city streets with other vehicular traffic. Historically, they operated as single unit vehicles, but the modern versions can be linked cars or articulated. As the modern streetcar gains popularity, more and more manufacturers are emerging. Like their historic counterparts, modern streetcars are propelled by electricity supplied by overhead lines. Efforts are currently underway to develop self-propelled streetcars that would no longer require the use of the overhead wires.



Capital Costs	\$25 to \$30 million per mile (modern)
Operating Costs	\$175 per revenue hour
Service Distance	5 miles or less
Station Spacing	¼ to ½ mile
Service Frequency	10 to 15 minutes (peak) 30 to 60 minutes (off-peak)
Capacity	16 to 60 seated (plus standees)
Power Source	Electric (overhead wires)
Speed (Avg/Max)	12 to 15 mph / 60 mph
Right-of-Way	Can operate in streets or exclusive right-of-way
Vehicle Life	Over 30 years
Accessibility	Low floor models available (modern)
Maneuverability	Turning radius: 34 to 50 feet Maximum grade: 4% to 8%
Integration	Relatively easy due to street level boarding
Flexibility	Relatively difficult to change routes in response to varying demand but boarding points are flexible

Section VIII:

Next Steps



This timeline shows the next steps for completing the current phase of this study which will complete the environmental process and allow the project to enter the engineering phases. To ultimately implement any proposed transit improvements resulting from this study several additional steps will need to be addressed including but not limited to:

- Creation of a funding plan that provides for both the capital (construction) costs and the on-going annual operations and maintenance of the transit operation;
- Identification of an operating entity which will be responsible for operating the service;
- Completion of the engineering design; and
- Construction and start up.

The length of time required to complete these additional items will vary depending upon the level of transit investment required and the type of Federal funding desired.