



Chapter 2

CHALLENGES & OPPORTUNITIES

2035 Statistics*

Existing + Committed Projects

Population

2.3 million, 29% growth

Employment (jobs)

1 million, 37% growth

Vehicles

1.3 million, 22% growth

Vehicle Miles Traveled Daily

49 million, 41% growth

Daily Vehicle Delay

353,000 hours, 64% increase

Transit Mode Share

Decrease from 2.5% in 2008 to 1.6% for the peak period

*Above projections are based on a "do-nothing" scenario. The 2035 Cost Feasible Plan improves upon this.

2. Challenges and Opportunities

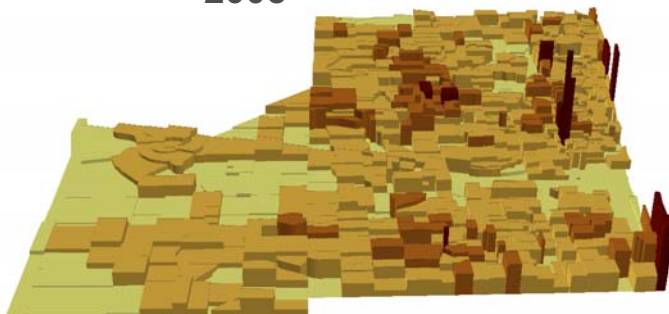
Transportation network deficiencies and forecast travel demand were developed with the Southeast Florida Regional Planning Model (version 6.5). Future travel patterns and demand are based on existing traffic data, future socio-economic data, land use, and demographics. The *Data Compilation and Review Technical Report* summarizes the existing conditions and plans adopted by state, regional, and local agencies affecting Broward County.

By 2035, we expect to see Broward County population grow from 1.7 to 2.3 million, adding 29% more residents. At the same time jobs will grow by 37% from 0.7 to 1.0 million. Though the current trend indicates a slight decrease in near-term population attributed to the economic recession and unstable housing market throughout the U.S., domestic migration and immigration will continue to bring more people to Broward County over the long-term.

In 2007, Broward County was the 16th most populous county in the country. Almost two-thirds of the county is located in the Everglades Conservation Area. The total land area excluding the Everglades, the developable area within the county, is approximately 413 square miles. The population density (within the developable area excluding the conservation area) is expected to grow from approximately 7 persons per acre (4,500 persons per square mile) to approximately 9 persons per acre (5,800 persons per square mile). Exhibit 8 demonstrates population densities for Broward County.

Exhibit 8—Population Density

2005



- Less Than or Equal to 3 Persons/Acre
- 4 to 13 Persons/Acre
- 14 to 24 Persons/Acre
- 25 or Greater Persons/Acre

2035

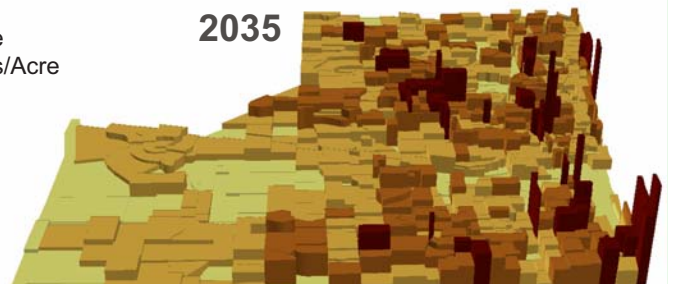
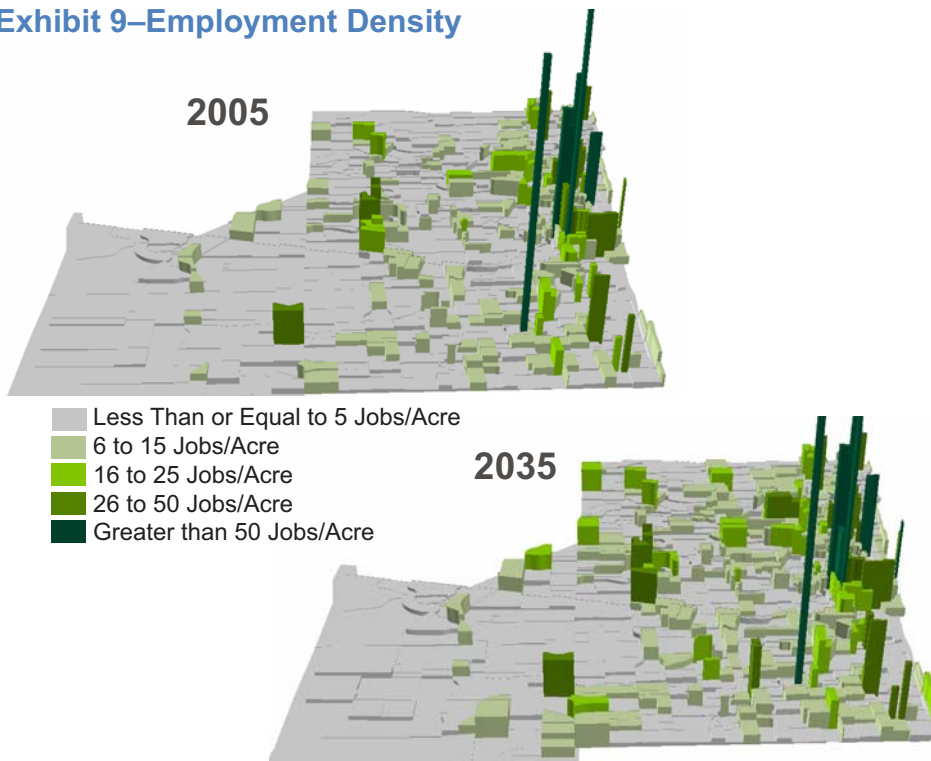


Exhibit 9—Employment Density



The number of hours spent sitting in Broward County traffic will increase by over 60% unless we take a different approach.

Solutions include:

- Transit
- Bike and Pedestrian facilities
- Reducing single-occupant vehicle trips
- Reducing the number of trips
- Reducing the length of travel
- Improving signal timing
- Carpooling/Vanpooling

In addition to population growth, increased density is forecast for employment. High employment concentration areas in the county include downtown Fort Lauderdale, Cypress Creek Business Center, Midtown Plantation, Sawgrass Mills Mall area, among others. The locations of these employment centers and their relative densities are mapped in Exhibit 9. The growth in employment density at major activity centers and in housing favors opportunities for transit.

Growth will have an effect on transportation. Traffic jams are a big part of our lives here in Broward County. Congestion during peak period costs time and money, and that cost is going up. Trips take longer and congestion affects us throughout the day, not just during rush hour. Each year, in the Miami-Fort Lauderdale metropolitan area, 145.6 million hours are spent sitting in traffic. This translates to an annual cost to the region of \$101.7 million in excess fuel consumed based on 2007 pricing which averaged from \$2.86 to \$3.10 per gallon, and \$3.0 billion in the value of travel time delay. Our area ranks fourth in the nation in terms of travel delay behind Los Angeles, New York, and Chicago. (*Urban Mobility Report 2009*, Texas Transportation Institute)

If we only build projects already programmed, more vehicles will travel on county roadways, a total of 1.3 million vehicles by 2035. Daily vehicle miles traveled will grow by 31% from 37 to 49 million miles. By 2035, people will spend over 60% more time in their cars each day as a result of doubling overall roadway congestion. By contrast, transit trips are expected to decrease from 2.5% to 1.6% of total work trips taken during peak hour, creating more congestion at a time when transit could be providing alternatives.

Flyers were distributed to advertise the public workshops.

Pedestrian safety in Florida compares poorly to the nation. Four Florida metropolitan areas, including the Miami-Fort Lauderdale area, comprise the top four most dangerous areas for pedestrians in the U.S. Not coincidentally, the most dangerous areas are in the southern or western United States which are characterized by lower density with high-speed arterials. Fiscal year 1998-2003 federal funds spent on bicycle/pedestrian projects in the Miami-Fort Lauderdale area was one fourth of the national average of 82 cents per capita per year. (*Mean Streets 2004*, Surface Transportation Policy Project)

Broward County destinations attract trips from many parts of the county as well as the neighboring counties of Miami-Dade and Palm Beach. Daily trips for all purposes (work and non-work) within Broward County are projected to increase by 28% in 2035 to 6.3 million. These daily trips represent 82% of the 7.6 million total trips originating in Broward County each day. Trips between neighboring counties are expected to increase by 33% to 1.7 million trips per day.

The major activity centers in Broward County are located throughout the county and create dispersed mobility needs. Major activity centers are characterized by high trip attraction density that favors transit. The highest trip attraction density is downtown Fort Lauderdale (58 trips/acre) followed by Plantation Midtown (43 trips/acre) and Cypress Creek (29 trips/acre). Other activity centers, such as State Road 7 at Sample Road, Sawgrass Mills Mall, South Florida Education Center, Fort Lauderdale Beach and downtown Hollywood attract 12 to 19 trips per acre. The Fort Lauderdale-Hollywood International Airport and Port Everglades show lower trip attraction densities (8 and 4 trips per acre, respectively).

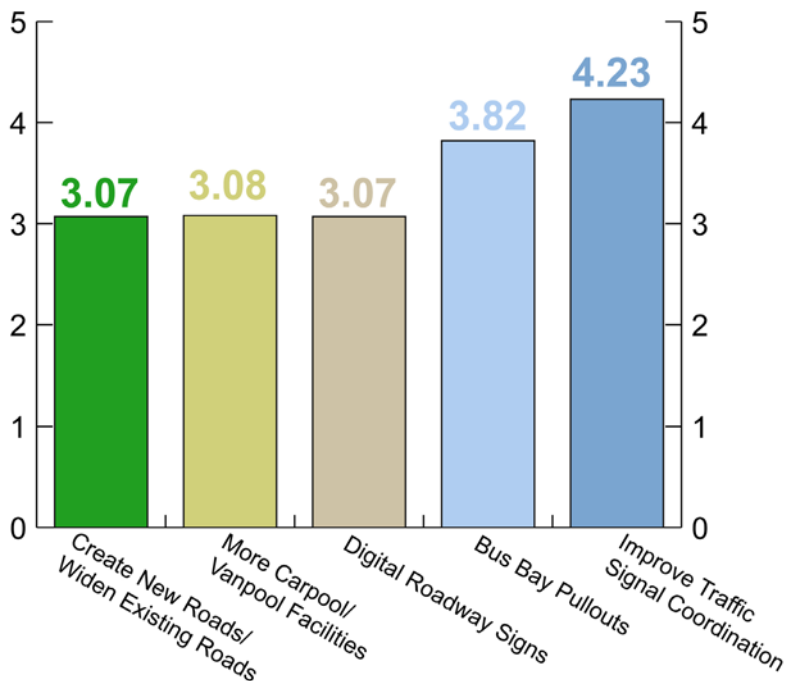
2.1 Public Survey & Outreach

Public transit proved overwhelmingly to be the favored mode with over 60% of respondents showing a preference for all transit modes. When asked about spending preferences for new facilities, respondents favored more investment for bicycle and pedestrian facilities and transit. Responses to select survey questions are shown in Exhibit 10.

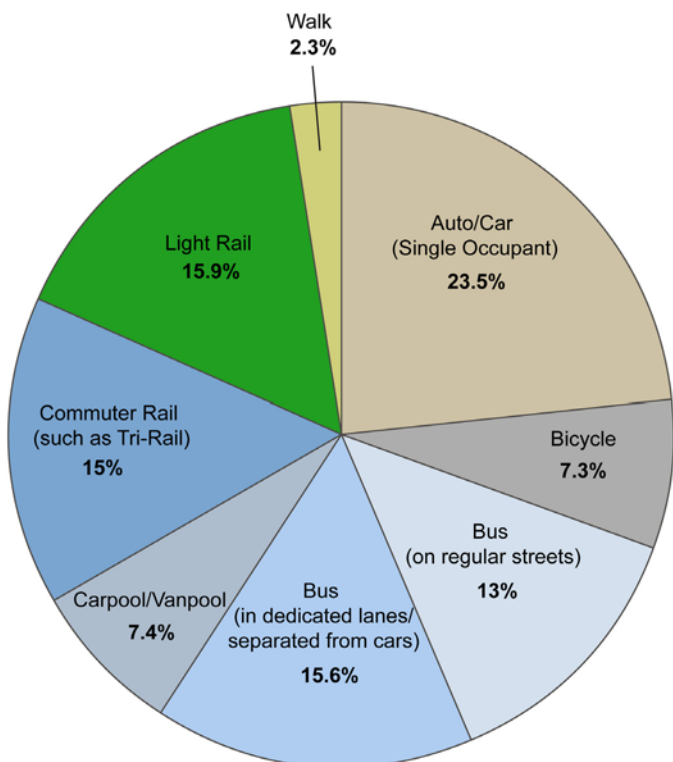
Written comments received from public workshop attendees and project blog posts further confirmed preferences toward alternative modes of transportation and specifically pedestrian walkways, bus shelters, and more rail options.

Exhibit 10—Results from Select Survey Questions

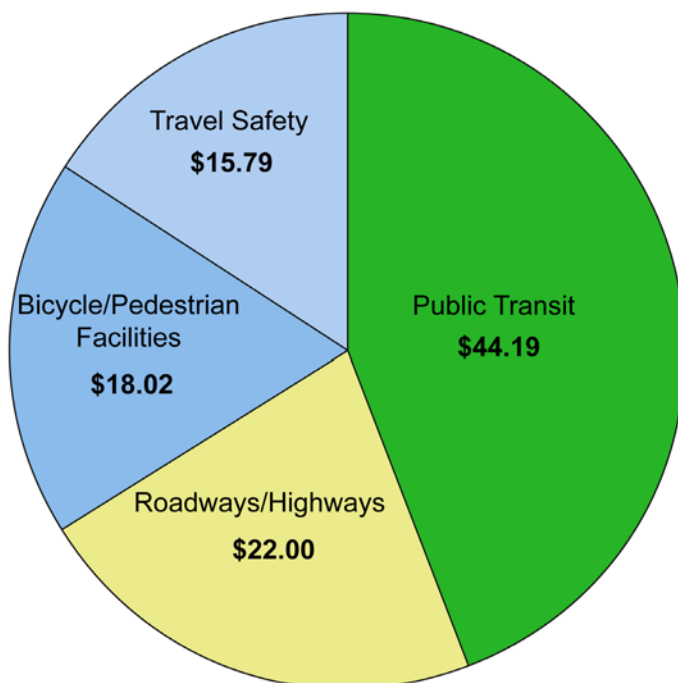
On a scale of 1 to 5 (5 indicating your highest preference), which investment do you think will improve traffic flow on roads in Broward County?



If the following options were available along your travel route, and if traffic congestion increased significantly, what method would you prefer to get to/from work/regular activities?



If you had \$100 to fund transportation improvements in Broward County, how would you use it? Allocate \$100 to the following categories.





2.2 Issue Based Needs

In reviewing the goals established for the LRTP, issues were identified which frame the problems facing Broward County. A thorough understanding of these issues is required to develop solutions to those problems.

2.2.1 Roadways are Built Out

Geographically constrained by the Atlantic Ocean to the east, the Everglades to the west, urbanized Palm Beach County to the north and urbanized Miami-Dade County to the south, Broward County can only grow inwards. The regional roadway system, which has been under development for decades, is close to build-out, but travel demand continues to increase. Our ability to build our way out of traffic congestion by adding more traffic lanes is limited. Even if we could, the question would be where to put new roadways. A current challenge for Broward County is the lack of east-west highways. The primary connector for commuter travel, I-595, will not meet the needs of a growing population even with the reconstruction and expansion currently underway. Another high capacity east-west roadway, the Sawgrass Expressway, merges onto congested SW 10th Street west of I-95.

So, what's next for roadways? Can our east-west arterials be enlarged to accommodate more traffic? What would be the cost and impact to communities? How many congestion problems will we build ourselves out of? And, for how long will it last?

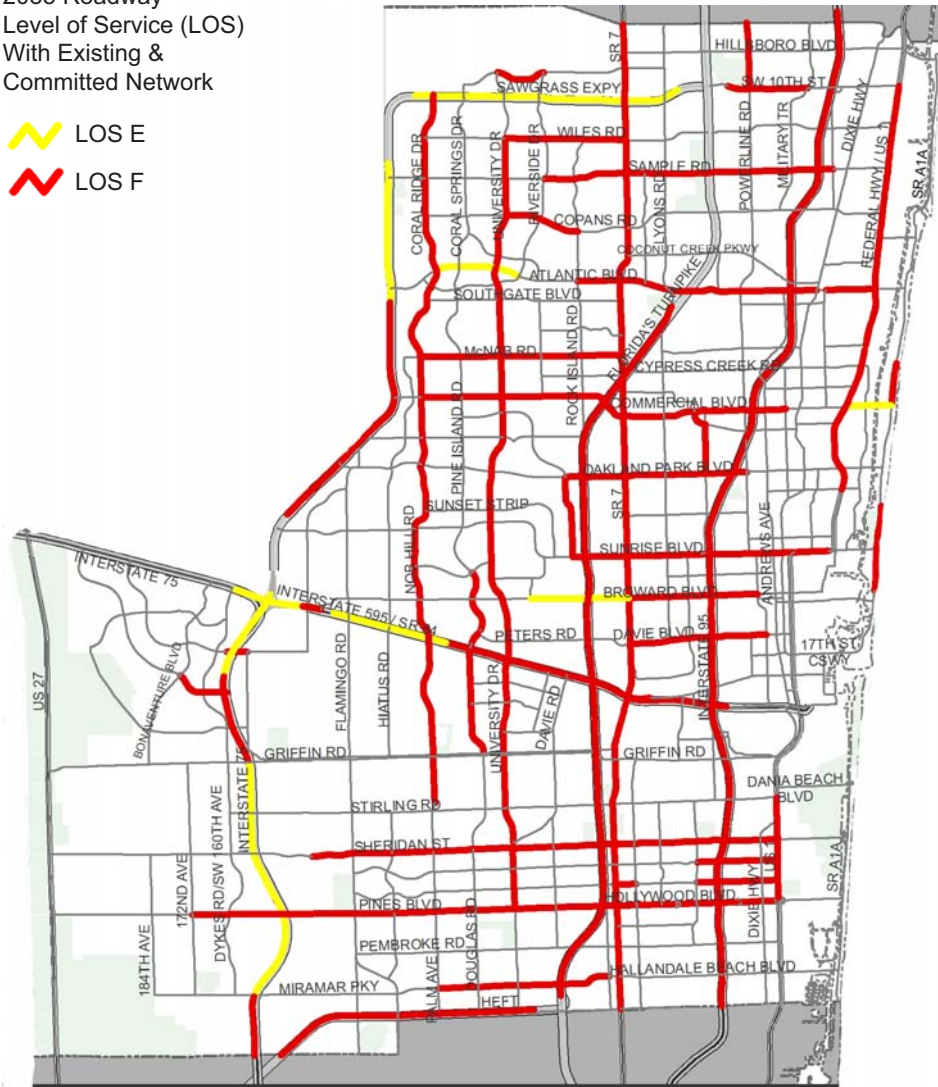
The following graphics illustrate congestion on our roadway system if we followed the same strategy we have in place. The Traffic Congestion map shown in Exhibit 11 represents volume over capacity in 2035 for the network that includes existing and previously committed projects. Level of service is graded on a scale of A to F. Exhibit 11 maps the most congested roadways in the county because the projected volume exceeds the number of lanes available to accommodate that traffic demand. As you can see, a majority of roadway links in Broward County are anticipated to fail by 2035 indicating that cars and buses in general-purpose traffic lanes will move at a much slower pace than they do today. The delay is not only an annoyance, but has significant impact on the economic output of the region.



Exhibit 11—Traffic Congestion

2035 Roadway
 Level of Service (LOS)
 With Existing &
 Committed Network

 LOS E
 LOS F



Roadway Level of Service is graded on a scale from A to F.

Level of Service E and F indicate delays will be experienced on those roadways.

In addition to the congested links shown in Exhibit 11 above, a screenline analysis revealed a number of north-south (Exhibit 12) and east-west roadways (Exhibit 13) where volume exceeds available capacity. Current and future traffic flows are impeded at certain locations in the county which hinders east-west, north-south, and cross county travel flows. Projected delay at these access points affects many trips, especially work trips.

The east-west screenline locations are: Miami-Dade County Line, Pines/Hollywood Boulevard, Griffin Road, Oakland Park Boulevard, Atlantic Boulevard, and Palm Beach County Line. The north-south screenline locations are: University Drive, SR 7/US 441, I-95, and US 1/SR 5.



Screenline locations are points where available roadway capacity is compared to projected needs.

A screenline consists of heavily congested intersections that cross a particular roadway. For example, Oakland Park Boulevard is an east-west roadway. North-south traffic flow is measured at "screenline" intersections along this east-west roadway.

An analysis of screenlines was conducted along major arterials to determine where spot intersection improvements can be made to provide congestion management in a cost effective manner.

Exhibit 12-North-South Roadway Screenlines from Intersecting East-West Traffic Flow

- Legend**
- Screenline Intersections
 - ↗ Screenlines
 - ↘ Major Roads
 - ⬛ County Boundary

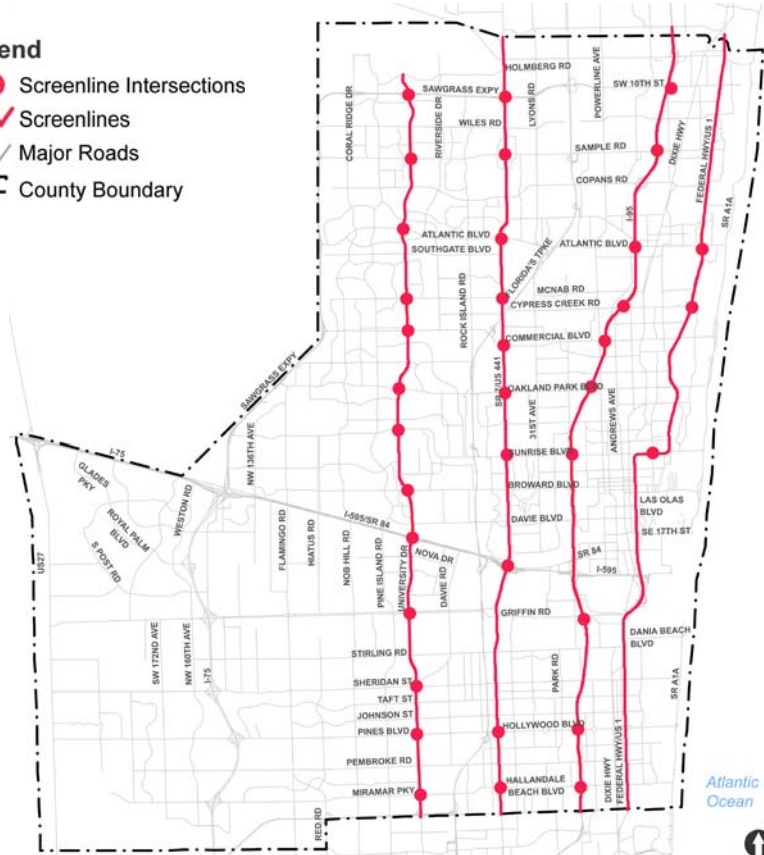
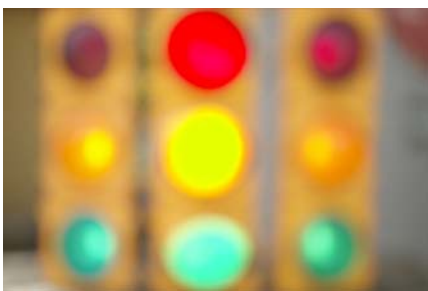
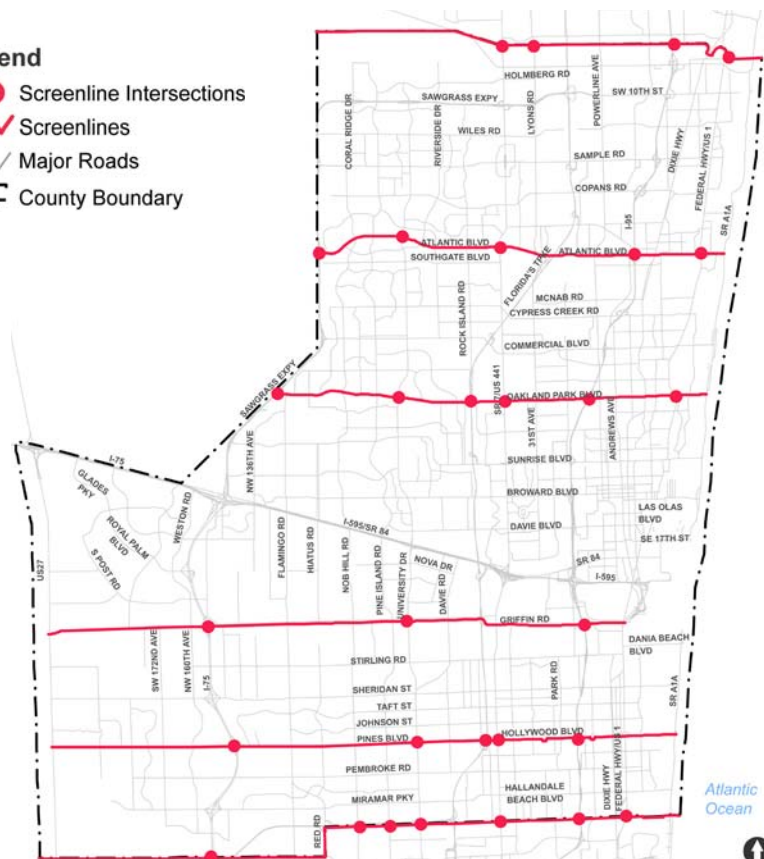


Exhibit 13-East-West Roadway Screenlines from Intersecting North-South Traffic Flow

- Legend**
- Screenline Intersections
 - ↗ Screenlines
 - ↘ Major Roads
 - ⬛ County Boundary



Innovative congestion mitigation solutions are needed to ensure the mobility and economic vitality of Broward County with a focus on these access points. Techniques should include an increase in vehicle capacities (transit and/or carpools), access management, congestion pricing, intelligent information systems, and traffic system improvements at bottleneck locations or in surrounding areas that contribute to the problem.

2.2.2 Expansion

There are several elements of expansion that need to be addressed. Broward County will continue to expand over the long run with 29% more people and 37% more jobs by 2035. This growth will affect transportation.

Dedicated transit lanes can provide travel for many more travelers than a roadway lane with single-occupant vehicles.

Can we fit more people into a more efficient system of transport as we grow? The answer is yes, and it has been proven all over the world. Transit, pedestrian, and bicycle activity provide viable strategies to overcome our transportation challenges.

Dedicated transit lanes can provide travel for many more travelers than a roadway lane with single-occupant vehicles. As we look at the physical ability to expand our roadways and associated parking spaces, we see that it is very limited. Most roadway expansions would require costly acquisition of land, and potentially impact neighborhoods and the environment that define Broward County’s high standard of living.

Growth also brings economic development, services, and jobs. However, to keep up with the pace of future growth, we have to plan. The plan is not only the responsibility of the government agencies to ensure the health and welfare of our population, but is an opportunity to improve the way we live.

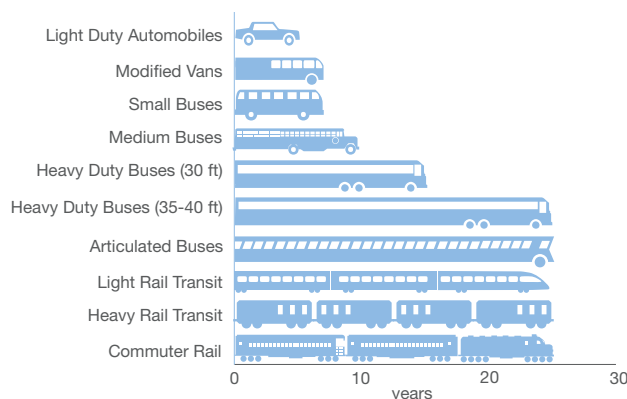
2.2.3 Emissions

The size of the regional transportation network affects its greenhouse gas emissions. Comparisons of regional transit networks across the nation are difficult to make, even when evaluated on a per passenger mile basis. The reason for this is what is called the “leverage” effect which refers to

indirect benefits of public transportation systems such as transportation efficient land use patterns.

These indirect benefits allow more travel, with fewer roadways, in less space. This means

Vehicle Life Spans



In 25 years, the average bus life span, more than five light duty automobiles, would be consumed by the typical driver—using more energy and producing more Greenhouse Gas Emissions than public transit riders.



that jobs are closer to people, people are closer to shopping, and more trips can be made by walking, biking or just a short car ride. In its report, *The Broader Connection between Public Transportation, Energy Conservation and Greenhouse Gas Reductions*, ICF International estimates that with the leverage effect, U.S. public transportation reduces carbon dioxide emissions by 37 million metric tons annually. In addition, public transportation reduces energy consumption by the equivalent of 4.2 billion gallons of gasoline annually.

For Broward County, vehicle miles traveled are projected to grow by 41% from 37 to 49 million miles by 2035 unless we undertake a new strategy.

2.2.4 Economic Vitality

In today's climate, there is an urgent need for government agencies to create jobs. This is especially true for South Florida, whose economy is hard hit from the housing market bust. Transportation policy has a strong, positive relationship with job creation. Every billion dollars of federal investment in the nation's transportation infrastructure creates or supports approximately 16,419 job months for public transportation projects, and 8,781 for highway infrastructure projects (U.S. Public Interest Research Group, December 2009). These jobs are generally construction-oriented employment including contractors, firms who supply the materials, and induced employment from supporting industries and services.

Transit system construction leads to an impressive level of short-term job creation, and once the systems are finished, a long-term source of high-quality jobs. Fully developed, reliable regional transit networks can enhance and grow real estate development with high economic returns by attracting more visitors and shoppers, public events, commercial businesses, and employers. Regional transit networks facilitate more efficient development patterns by supporting and encouraging transit oriented development (TOD). In transit accessible communities, people have more opportunities to walk or bike to their destinations. These efficiencies accrue to communities where residential, commercial or business is valued more highly by the public than similar communities not as well served by transit. Realtors nationwide now consider pedestrian access and walkability of surrounding areas to price both commercial and residential property.



For example, investment of \$3.3 billion in Dallas area TODs produced \$78 million in annual receipts for area cities, counties, and school districts. New retail developments generated \$650 million in taxable sales per year near Dallas Area Rapid Transit (DART) LRT stations. These receipts in turn generate \$40.6 million for the state and \$6.5 million in general revenue for the local municipalities. Between 1997 and 2001, commercial properties located near DART LRT stations increased in value 24.7%, while properties not served by rail increased in value by only 11.5%. Values of residential properties

near stations rose 32.1% compared with a 19.5% increase for properties not served by transit. Office properties in Dallas TODs have a 53% higher value appreciation than similar office development not located in TODs. In 2000, 77% of area voters approved a bond measure to expand the system (*The Estimated Value of New Investment Adjacent to DART LRT Stations*, Bernard Weinstein and Terry Clower, Center for Economic Development and Research, University of North Texas, Denton, Texas, September 27, 2005).

This economic development does not have to compromise quality of life, as demonstrated by Virginia’s Rosslyn-Ballston Corridor in Arlington. Arlington’s Rosslyn-Ballston Corridor spurred development while protecting character of single family neighborhoods. The corridor had no downtown in early 1980s; it now has one of the nation’s five densest downtowns. Over 30 million square feet of new development has located around Arlington’s TODs.

On a personal (or individual) level, transportation costs are the second largest household expense after housing. Transit can reduce household transportation expenses and free up more income for other needs—which is important in today’s economic climate. For every dollar earned, the average household spends 14 cents on transportation. (Bureau of Labor Statistics *2008 Consumer Expenditures Survey*) By using public transportation instead of driving a car, a two-worker household can save \$6,251 on average each year. (*Public Transportation and Petroleum Savings in the U.S.: Reducing Dependence on Oil*, January 2007, ICF International) Household transportation costs rise in areas with sprawl and few transportation choices, leaving residents with less disposable income.

2.2.5 Aging Population

Florida has the largest elderly population (people over 60 years old) in the U.S. compared to its overall population. Florida’s elderly population has grown to over 23% of the state’s total population today. Elderly Americans want to maintain their independence for as long as they can and worry that they will be stranded and unable to get around when they are no longer able to drive.

Importantly, senior citizens recognize the role that public transportation plays in maintaining their quality of life. They believe that public transportation offers mobility and access to the things they need in everyday life, providing older Americans with the freedom they seek. Although many older Americans do not currently use public transportation in their community, they report a much higher likelihood of using it if it were more readily available and/or addressed the needs of seniors. In addressing future transportation needs for Broward, a fast growing elderly population is factored into the needs for additional transit as an option and the provision of systems that are easily understandable and accessible.



A local funding match (usually 50%) is needed to garner federal capital investment.

Innovative and collaborative strategies improve Broward County's competition in federal funding grants acquisition.

One strategy to address funding needs is to partner with the private business community to bring transit investments that create jobs.

2.2.6 Availability of Transit

Transit availability is very limited in Broward County today. Our transit providers do the best they can with the resources they have, but the transit share of all trips only represents approximately 2% of all trips on a daily basis. The 2035 LRTP strives to increase the mode share for transit riders. The experience of our major transit providers in the county (Broward County Transit and South Florida Regional Transportation Authority) has shown that the greatest improvement in ridership in recent years has resulted from increased frequencies when and where they have been able to fund it. Gas price fluctuations place another challenge for transit providers. When gas prices are high, people ride more, but the cost to operate more service increases. This often leads to reduced transit service due to shrinking operating funds at a time when people need transit options the most.

2.2.7 Insufficient Resources

Recent cutbacks in local transit services present real challenges. The questions to address are not only how can we restore transit services, but how can we attract more investment in transit from both the public and private sectors. The LRTP identifies strategies for new revenue sources. It is important to note that many federal funding sources are specifically tied to the type of transit provided. Federal New Starts funding is limited to forms of fixed guideway projects and will fund capital only. Local funding commitments (usually 50%) of the cost to build a new system and ongoing operating funds must be demonstrated to qualify for federal funds.

If the region identifies worthwhile projects that can compete well in the pursuit of federal funding, then we can bring more capital to the local funding mix. If we do not pursue new types of projects that open up new funding sources, then we may be limited in the types of improvements we can make.

One such strategy is partnering with the private business community to bring in transit investments that create jobs. Public-private partnerships can make a new development or redevelopment commercially viable over the long term with a focus on transit oriented development (TOD) and contribute to a higher quality of life and economic activity. Requests for federal discretionary funds for transportation projects are more competitive on the national scale when local communities are able to create innovative and collaborative funding strategies.

Pursuit of local, regional, and state funding is also a possibility, but requires public support and acceptance. The survey conducted for the LRTP is a first step in identifying attitudes towards transit investments. If we stick with "business as usual" strategies, we may not be able to tap into existing funding sources or garner the widespread support necessary for the creation of new sources.

2.2.8 Dispersion of High Capacity Transit Lines

Within Broward County, there are many proposed new higher capacity transit lines under consideration including the Florida East Coast Corridor, the Central Broward East-West Transit, Downtown Fort Lauderdale Circulator Streetcar (The Wave), and multiple bus rapid transit (BRT) projects. A challenge for these projects is the lack of a central station where they could meet. To effectively link all of these services over the long term, the 2035 LRTP effort has identified the need for a frequent circulator that would connect existing Tri-Rail service with possible future light rail, commuter rail, streetcar, BRT, and local bus in the central core of Broward County. Shuttle services and re-oriented local feeder bus services are needed to ensure efficient connectivity with high capacity corridors.

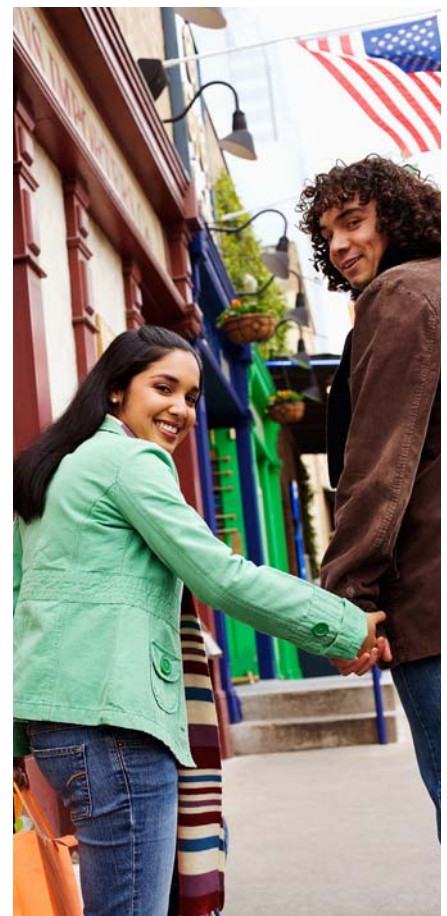
2.2.9 Urbanization

For many decades, the expansion of suburban development has consumed rural and agricultural lands across Florida. From 1964 to 2002, the amount of Florida land used for agricultural purposes declined from more than 15 million acres to more than 9 million acres while the amount of land developed for urban uses has grown from 1.1 million acres to over 5 million acres (U.S. Department of Agriculture).

In Broward County, urbanization has been very pronounced. New activity centers are emerging as density increases in areas including Midtown Plantation, South Florida Education Center in Davie, Sawgrass Mills, Cypress Creek, and Hollywood. Benefits from urbanization can be achieved for transportation when planned in conjunction with transit, pedestrian, and bicycle improvements.

Transit oriented developments (TODs) have caught on in South Florida. They are now widely viewed as a commercially viable type of development due to the higher intensity of land uses, fewer parking requirements, and the desire of businesses and people to live in vital communities. The result has been the creation of TODs and transit oriented corridors (TOCs) in Broward County. However, many communities are struggling with the ability to bring the “T” to TODs or TOCs.

The 2035 LRTP can help guide transportation investments toward communities that are willing to ensure the success of the transit system and encourage use of alternative modes through these focused redevelopment tools.



2.2.10 Sustainable Transportation and Community

The new direction of the Broward 2035 LRTP provides for a balanced transportation system by including increased investments in transit and non-motorized transportation. This approach includes projects and strategies that would reduce the carbon footprint and would encourage the development and expansion of transportation options. Even without reducing car ownership, the reduction in driving would enhance the sustainability of transportation in the county. A more sustainable transportation system means not only greater choices of transportation expenditures, but a higher quality of life in the longer term.

Sustainable Transportation Design Concept

The Broward MPO has worked continuously over the last several years in cooperation with partner agencies to encourage sustainable transportation design for the implementation of transit-friendly, pedestrian-friendly development in neighborhoods and transportation corridors. The following provides several highlights and resulting products.

- *Broward County County-Wide Community Design Guidebook* - the first regional design guidebook created expressly to implement sustainable design principles and practices in all our planning and programming.
- *Subtropical Sustainable: A Context Sensitive Design Approach to Redevelopment in Broward County* - a product of the initial Transit/Housing Oriented Redevelopment (THOR) Corridor Studies that outlines an alternative planning model for the development of transit corridors.
- *Alternative Roadway Design Guidelines (Ordinance 209-52, adopted by BOCC August 11, 2009)* - regulated optional roadway design standards for context sensitive design along transit corridors and other traffic ways under county jurisdiction.
- *Urban Design Element, Broward County Comprehensive Plan* - outlines design principles to direct future growth to high capacity transportation corridors and protect existing neighborhoods.

Sustainability, within the context of transportation planning, means encouraging shorter trips by transportation modes that require less energy and generate less harmful environmental impacts. Moreover, a sustainable transportation system should foster commerce, reduce energy consumption and carbon emissions, increase safety, provide equal access to destinations for all groups of society, and enhance the quality of life.

Brookings Institution Metropolitan Policy Program, *Making Transportation Sustainable: Insights from Germany*, April 16, 2009.