

Section 4
Future Roadway Condition
Assessment



Future Traffic Volume Forecast and Operation

One of the main purposes of the Local Road Master Plan is to ensure that the local roadways adequately address the future transportation needs of the Town. In order to evaluate the future traffic conditions, future traffic volumes were projected on the study roadways and intersections. The project reviewed historical growth of Davie's population and traffic volume on major roadways. The historical traffic volume growth varied through-out the Town. As such, the traffic forecasts were developed based on the 2006 *Roadway Capacity and Level-of-Service Analysis for 2005 and 2030* (Reference 11) prepared by the Broward County Metropolitan Planning Organization (BCMPO). This growth forecast is based on the Florida Standard Urban Transportation Model Structures (FSUTMS) model run in August 2006. It uses "socioeconomic data and incorporates proposed/planned road improvements to simulate future traffic demands". Some of the growth rate assumptions used in the BCMPO study were updated based on the 2008 AADTs. Table 11 provides the growth rates and the 2030 AADTs and corresponding LOS based on the service volumes provided in the FDOT Q/LOS handbook (Reference 12). Similarly, Figure 15 shows the data in graphical form.

As show in Table 11 and Figure 15, the following roadways are anticipated to operate at LOS E and F in 2030.

SW 136th Avenue, north of SW 14th Street and south of SW 6th Street is anticipated to operate at LOS E because the roadway has only one lane in each direction. SW 136th Avenue will continue to serve as one of the major roadways in the area. Hence, the roadway needs to be widened to four-lanes in the future to accommodate the demand. Alternatively, if SW 14th Street is extended to Flamingo Road and Hiatus Road, some of the demand on SW 136th Avenue may be diverted to these roadways. However, given the location of I-595 ramp on SW 136th Avenue, the need to widen the roadway to four lanes is anticipated to remain.

Hiatus Road, north of SW 14th Street is anticipated to operate at LOS F. This roadway is anticipated to experience high growth due to the increased demand from residential developments it serves. This two-lane portion of the roadway would need to be widened to four-lanes to accommodate the anticipated increase in traffic demand.

Nob Hill Road, from Griffin Road to around SW 36th Street is anticipated to operate at LOS F. The increase in traffic can be attributed to continued growth in residential/commuter traffic on the roadway. It is not recommended to widen the roadway to six lanes as it is anticipated to encourage more traffic on the roadway.

South Pine Island Road will continue to operate at LOS F if it is to remain as a four-lane roadway. It is a County facility and is planned to be widened to a six-lane roadway. The widening is anticipated to provide adequate capacity to accommodate 2030 traffic volume on the roadway.



Table 11 2030 AADT and LOS Results at Study Roadways

Roadway	From	To	2008 AADT	Growth Rate (Linear)	2030 AADT	Through Lanes	LOS
SW 154 th Avenue	SW 14th Street	SW 26th St	7,690	1.76%	11,200	2	D
	SW 26th St	SW 148th Ave	5,563	1.11%	6,900	2	C
SW 148 th Avenue	SR 84	SW 14 th Street	4,409	1.52%	5,900	2	C
SW 136 th Avenue	SR 84	SW 6 th Street	18,415	1.78%	25,600	4	D
	SW 6 th Street	SW 14th Street	11,028	1.56%	14,800	2	E
SW 130 th Avenue	SR 84	SW 14 th Street	4,890	2.48%	7,600	2	C
	SW 14 th Street	SW 36 th Court	5,826	2.48%	9,000	2	C
Hiatus Road	SR 84	SW 14th Street	12,173	2.48%	18,800	2	F
	SW 14th Street	Orange Drive	6,034	2.48%	9,300	2	D
Nob Hill Road	Griffin Road	SW 36 th Street	24,000	2.42%	38,900	4	F
S Pine Island Rd	SR 84	Nova Drive	34,000	0.53%	37,900	4	F
University Drive	SR 84	Nova Drive	67,000	0.53%	74,800	6	F
	Nova Drive	Griffin Road	50,000	0.53%	55,800	6	F
SW 76 th Avenue	Griffin Road	Stirling Road	413	1.76%	600	2	C
College Avenue	SR 84	SW 30th Street	14,358	0.53%	16,000	3	F
	SW 30th Street	SW 39 th Street	14,566	0.53%	16,300	2	F
Davie Road	SR 84	Nova Drive	43,500	1.36%	56,600	4	F
	Nova Drive	Griffin Road	32,700	1.76%	45,400	4	F
	Stirling Road	University Drive	20,900	1.11%	26,000	2	F
SW 58 th Avenue	Griffin Road	Stirling Road	3,054	1.76%	4,200	2	C
SW 14 th Street	I-75	SW 154th Avenue	18,207	1.76%	25,300	2	F
	SW 154th Avenue	SW 148th Avenue	12,160	1.76%	16,900	2	F
	SW 148th Avenue	SW 136th Avenue	10,404	1.76%	14,400	2	D
	SW 136th Avenue	SW 130th Avenue	4,370	1.11%	5,400	2	C
Nova Drive	S Pine Island Rd	University Drive	10,700	0.53%	11,900	2	D
	University Drive	Davie Road	21,700	0.53%	24,200	2	F
SW 26 th Street	SW 142 nd Avenue	SW 130 th Avenue	3,007	1.56%	4,000	2	C
SW 30 th Street	S Pine Island Rd	University Drive	8,741	0.53%	9,800	2	D
	University Drive	College Avenue	11,366	1.11%	14,100	2	D
SW 39 th Street	University Drive	College Avenue	6,242	1.11%	7,800	2	C
	College Avenue	Davie Road	10,508	1.11%	13,100	2	D
SW 36 th Court	SW 130 th Avenue	Flamingo Road	6,138	1.56%	8,200	2	C
Orange Drive	SW 142 nd Avenue	S Flamingo Road	8,566	1.76%	11,900	2	D
Orange Drive	Davie Road	SR 7	12,954	1.76%	18,000	2	F



Figure 15 2030 AADT and Level-of-Service



University Drive currently operates close to its service volume and is anticipated to operate at LOS F in 2030. The roadway is currently a six-lane facility and serves as the major thoroughfare through the Town. However, the roadway should not be widened to accommodate more traffic because it will continue to divide the community. Instead, it is recommended that alternative connections, transit service and transportation demand management (TDM) measures be adopted to reduce the traffic demand on this roadway.

As a two-lane roadway, **College Avenue** is anticipated to operate at LOS F during 2030 traffic conditions. It is the main north-south roadway serving the SFEC, and therefore has the potential to serve as the center for the educational institutions. The RAC Master Plan calls for a four-lane roadway with bike lanes and wide sidewalks. It also recommends a transit line, the Davie RAC Circulator, that provides a direct connection between the light rail station and the heart of the SFEC on College Avenue. In addition, the 2008-2012 Capital Improvement Program (CIP) lists a Light Rail plan on this roadway. Likewise, the Broward County Long Range Transportation Plan indicates a plan to shorten the headways on Bus Routes 9 and 12 running along College Avenue.

Davie Road will operate at LOS F in 2030 as a four-lane roadway. Broward County anticipates widening the roadway to six lanes from Nova Drive to SR 84. South of Nova Drive, the roadway is anticipated to remain a four-lane facility, as shown in the RAC and the DownTown Master Plan. The roadway will have on-street parking near Orange Drive and a grid-network with the extension of SW 67th Avenue, and construction of SW 65th Avenue and SW 44th Street. The section of Davie Road from Stirling Road to University Drive will also require widening to four lanes in the future.

SW 14th Street is the main east-west roadway in the northwest part of the Town and is estimated to operate at LOS F from I-75 to SW 148th Avenue because of the high traffic demand on the roadway in 2030. The location of the roadway and its access to residential neighborhoods, commercial developments, and I-595 make it an ideal collector roadway. Because there are no other feasible alternatives to service the future traffic demand, the only reasonable mitigation to meet the Town's LOS D standard is to widen the roadway to a four-lane major collector.

Nova Drive, from Davie Road to University Drive, will remain congested at LOS F in year 2030. The roadway can be widened to a four-lane roadway with a centered left-turn lane from Davie Road to College Avenue to accommodate the demand. In addition the circulation on the roadway can be eased if additional access can be provided to the Broward Community College campus between Nova Drive and the BCC Main Entrance on Davie Road. From College Avenue to University Drive, Nova Drive would see its traffic improved if viable transit alternatives, transportation demand management, and additional connections to major roadways in the area can be provided.

Orange Drive from Davie Road to SR 7 provides access to Florida's Turnpike and is anticipated to operate at LOS F in 2030. In order to provide the mobility needed to support the commercial developments in the area, the roadway should be widened to a four-lane roadway from SR 7 to Florida's Turnpike. From Florida's Turnpike to Davie Road, the roadway may remain as a three-lane roadway so that a viable grid-network can be established in the area as contemplated by the DownTown Master Plan.



2030 Intersection LOS and Description

The growth rate calculated for the study roadways was used in the study intersections calculation. In order to conduct a conservative analysis, the highest growth rate for any of the approaches was used to adjust the 2008 peak hour turning movement volumes to arrive at 2030 peak hour volumes. The operation of intersections was analyzed based on the methodology outlined in the 2000 Highway Capacity Manual for the signalized and unsignalized intersections. For the roundabout, the methodology outlined in the 2000 FHWA document, "Roundabout: An Informational Guide" was used. Figure 16 and 17 shows the 2030 turning movement volume estimates and level-of-service results.

As shown in the figures, the following intersections are anticipated to operate at LOS E or LOS F during the weekday peak hours.

The **SW 14th Street/SW 154th Avenue** intersection is anticipated to operate at LOS E during 2030 and over capacity during the weekday a.m. peak hour. The northbound and westbound approaches are the main critical approaches at the intersection. The northbound approach requires a right-turn lane to increase the capacity of the approach. In addition, in conjunction with improvement on SW 14th Street, the eastbound and westbound through movements require two through lanes, thus providing adequate capacity to meet the City's LOS D standard.

The **SW 14th Street/SW 148th Avenue** intersection is anticipated to operate at LOS E during weekday p.m. peak hour and at LOS E during the weekday a.m. peak hour in 2030. The southbound left turning vehicles at the intersection will have difficulties finding gaps to make their turns because of high conflicting volumes from the westbound and eastbound approaches. This results in a high control delay for this approach. A potential mitigation option is to construct a modern roundabout which will also act as a traffic calming device.

The **Flamingo Road/SW 26th Street** intersection is forecasted for 2030 to function with a LOS F for both peak hours and to operate above capacity. Both westbound and southbound left turn movements encounter very high conflicting volumes on Flamingo Road creating high delay for these movements. A MUTCD Signal Warrant analysis was conducted at the intersection and found to meet Warrant 1 (Eight-Hour Vehicular Volume), Warrant 2 (Four-Hour Vehicular Volume) and Warrant 3 (Peak Hour). Appendix "D" shows the signal warrant worksheet. Hence, a traffic signal is recommended at the intersection.

The eastbound left-through critical movement at the **Hiatus Road/SW 26th Street** intersection is anticipated to operate at a LOS F during both peak hours in 2030. The westbound and eastbound approaches are not aligned geometrically and are offset by approximately 70 feet. In order to reduce delay without penalizing the through north- and southbound movements, the best solution would be to implement a modern roundabout. This option not only improves operations but also improves the safety of the intersection by calming traffic.

The intersection of **University Drive/Nova Drive** is forecasted to operate at LOS F and over capacity during the weekday p.m. peak and LOS E during the a.m. peak period in 2030. The critical movements are: the dual southbound and the northbound left-turn movements and the westbound right turn from Nova Drive. A potential geometric improvement is the addition of a second eastbound left turn lane and an overlap phase for the westbound right turn.



The intersection of **University Drive/SW 30th Street** is anticipated to operate at LOS E and over capacity in the p.m. peak and LOS F in the a.m. peak period. The northbound through, southbound left turn and westbound right turn are the critical movements at the intersection. In order to mitigate operation, the eastbound, westbound left-turn lanes and eastbound through lanes could be widened to two lanes.

The intersection of **Davie Road/Stirling Road** is anticipated to operate at LOS F during both weekday peak hours in the year 2030. The westbound left-turn, eastbound through, northbound right-turn and southbound left-turn are the critical movements at the intersection. As corner properties of the intersection develop, right turn lanes on the north-, west- and eastbound approaches should be developed to increase the capacity of the intersection.

The intersection of **State Road 7/Oakes Road** is anticipated to operate at LOS D but over capacity during weekday p.m. peak hour, while the eastbound right-turn movement operates at LOS F in 2030. Adding a right turn lane at this location would improve the operation of this intersection. The connection of Oakes Road between the Turnpike and Davie Road would reduce the traffic on the current route used to reach the Turnpike, through Davie Road and Griffin Road.

The intersection of **State Road 7/Orange Drive** is anticipated to operate at LOS F and over capacity during weekday p.m. peak in future conditions. The presence of the canal south of Orange Drive limits the improvements on State Road 7. There is potential to provide three eastbound left-turn lanes and one eastbound right-turn lane at the intersection to improve operations. However, an alternative connection to State Road 7, north of Orange Drive, like the Oakes Road connection to Davie Road, may reduce the demand on Orange Drive. The location of the Oakes Road extension will be critical in determining the extent of reducing traffic on Orange Drive.

Stirling Road Interchange at Florida's Turnpike

The construction of an interchange at Stirling Road on Florida's Turnpike is included in the Broward LRTP Cost Feasible project list. The presence of this interchange will likely reduce traffic demand at the intersections of Davie Road/Griffin Road, and Davie Road/Orange Drive. The interchange will help relieve traffic on Griffin Road and Orange Drive near the Florida's Turnpike. It could reduce cut-through traffic from Stirling Road to Griffin Road using SW 58th Avenue or other north-south Town roadways.



Figure 16 2030 Traffic Conditions, Weekday AM Peak Hour



Figure 17 2030 Traffic Conditions, Weekday PM Peak Hour