FORM 901.3.A

PASCO COUNTY
ACCESS CONNECTION PERMIT APPLICATION

The following information is required from all applicants directly or indirectly accessing any collector or arterial road or as otherwise directed by the County Engineer:

Basic Information:

Step 1. Name of Project: _____

County Assigned Project No.: _____

Project Location (road name/vicinity): _____

_____

Speed Limit: _____

Step 2. Existing Property Use (size in square feet and/or the number of units, etc.):

_____

_____

Step 3. Proposed property use, including any interim traffic generating uses such as heavy vehicles in brackets [ ] (size in square feet and the number of units):

_____

_____

Step 4. Provide the location of all existing and proposed connections to the property. This will include a location map and site plan of any physical features (existing and/or proposed) that will have an impact on traffic circulation and sight distance on the County road system and may include an aerial photograph. Examples of such physical features are walls, fences, trees, gates, utility poles, etc.:

_____

_____

Step 5. Describe any unique traffic-safety issues with the access; i.e., sight-distance problems:

_____

_____

Step 6. Trip Generation Data and Total Daily Trip Generation: The *Institute of Transportation Engineers* (ITE) *Handbook*, latest edition, is acceptable as a source. Other sources may be required by and/or authorized of the County Engineer. Land excavation and mining (as defined in Appendix A) and removal of more than 30,000 cubic yards, even as an interim use, is presumed to be a separate and

distinct land use requiring separate trip generation estimates. Such land use is also presumed to generate more than ten (10) percent heavy vehicles. Heavy vehicles adversely affect traffic, because they occupy more roadway space and have poorer operating capabilities than passenger cars, particularly with regard to acceleration, deceleration, and the ability to maintain speed on upgrades. Accordingly, for trip generation purposes, if heavy vehicles are ten (10) percent or more of the trips generated by the proposed land use, the total estimated trips for heavy vehicles shall be multiplied by two (2) unless ITE heavy vehicle data or other County-approved heavy vehicle trip generation data for the land use support a different multiplier; however, in no event shall the multiplier be less than one (1). Provide trip generation from interim traffic generating uses in brackets [ ].

Source: _____

ITE code (if used): _____

Existing maximum daily trip generation: _____ (1)

Net increase in maximum daily trip generation: _____ (2)

Total maximum daily trip generation: _____ (Add 1 & 2)

Estimated daily trips from heavy vehicles* included in the total maximum:

_____ (a)

Heavy vehicle multiplier _____ (b)

Additional heavy vehicle trips (multiply a X b-1) _____ (c)

If (c) is ≥ ten (10) percent of total maximum daily trip generation, list additional heavy vehicle trips from (c) _____ (3).

Total maximum daily trip generation with heavy vehicles _____ (Add 1, 2, & 3)

If the total maximum daily trip generation from Step 6 above does not exceed the thresholds set forth in Exhibit 901.5.A, "Size of Development that Generates 100 Daily Driveway Trips," no further information is required. However, a substandard road fair-share payment pursuant to this Code, Section 901.4, as it may be amended from time-to-time, may still be required.

If the total maximum daily trip generation from Step 6 above exceeds the thresholds set forth in Exhibit 901.4.A, "Size of Development that Generates 100 Daily Driveway Trips," then Steps 7 and 8 are required to be completed. Step 7 is required prior to proceeding with "Turn Lane Warrants and Design Criteria," and Step 8 is required to address any substandard road issues.

In addition, a project shall be required to complete a TIS in accordance with this Code, Section 901.5, unless such project is exempt from TIS requirements pursuant to this Code, Section 1301. Notwithstanding the foregoing, the County Engineer may require more detailed access-management information or a more detailed access management study where the County Engineer determines (1) that the information

on the Access Connection Permit Application Form 901.3.A or in the TIS is inadequate to determine compliance with the access management regulations or (2) that the information or study is necessary to ensure the safety of the traveling public.

Additional traffic data required for projects exceeding 100 driveway trips per day unless a TIS is required pursuant to this Code, Section 1301:

Step 7. Existing counts on the public roadway (www.pascocountyfl.net. Recent data, if available on this website, may be acceptable):

a. P.M. peak _____ NB _____ SB _____ EB _____ WB

A.M. peak _____ NB _____ SB _____ EB _____ WB

Total daily count: _____

Date and source of the count: _____

b. Using the ITE *Trip Generation Handbook* or trip rates as approved by the County, provide trip generation of the proposed site during a.m. and p.m. peak periods of the adjacent public road. Provide trip generation from interim traffic generating uses in brackets [ ].

P.M. peak hour trips: _____

A.M. peak hour trips: _____

If additional heavy vehicle trips from Step 6 are ≥ ten (10) percent of the total maximum

Daily Trip Generation: Provide additional a.m. and p.m. peak hour trips for heavy vehicles utilizing the same multiplier and formula from Step 6:

Additional heavy vehicle
p.m. peak hour trips: _____

Additional heavy vehicle
a.m. peak hour trips: _____

Total p.m. peak hour trips
with heavy vehicle trips: _____

Total a.m. peak hour trips
with heavy vehicle trips: _____

c. Provide a sketch illustrating the distribution of the project traffic during the a.m. and p.m. peak periods of the adjacent public road.

Proceed with Warrants and Turn Lane Design Criteria.

Step 8. Perform a Substandard Roadway Analysis in accordance with this Code, Section 901.4.

TURN LANE WARRANTS AND DESIGN CRITERIA

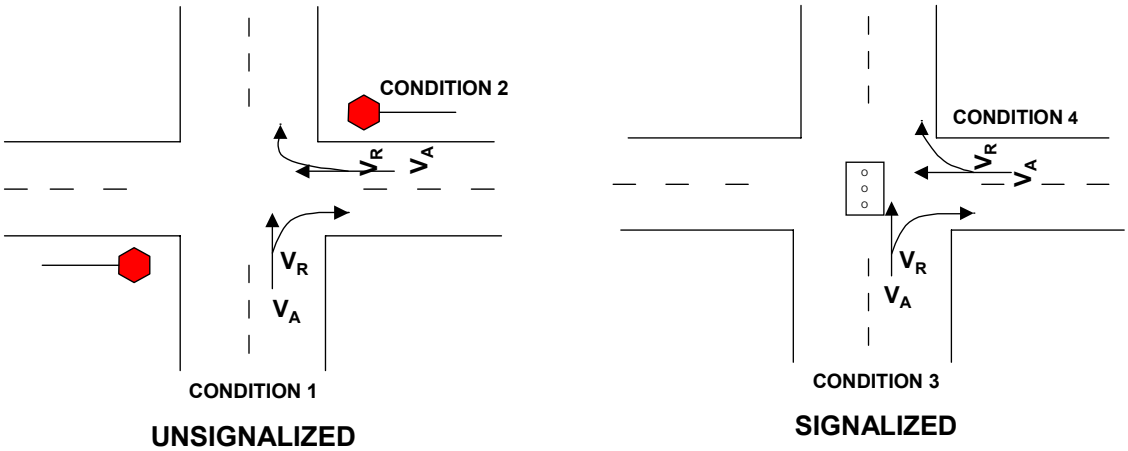
DEFINITIONS OF TERMS

Access Road	Driveways or roads connecting developments, such as shopping centers or office parks, to major roads and do not serve major road through traffic.
Vehicles Per Hour (VPH)	The design hourly volume during the peak fifteen (15) minutes of the highest peak hour expressed in terms of VPH (peak fifteen [15] minute volume times four [4]).
V_A—Approaching Volume (VPH)	Total volume approaching the intersection from the subject direction includes right and left turning and through vehicles.
V_O—Opposing Volume (VPH)	Total volume approaching the intersection from the opposite direction.
V_L—Left Turning Volume (VPH)	Volume of vehicles turning left at the subject intersection.
V_R—Right Turning Volume (VPH)	Volume of vehicles turning right at the subject intersection.
% of Left Turns in V_A	Volume of left turning vehicles divided by the approaching volume at the subject intersection.

TABLE 1

Right Turn Warrants

Unsignalized		
Condition 1	On major roads without stop control (approach).	See Graph Nos. 1A and 1B
Condition 2	Access roads or major through roads with stop control (approach).	V_R ≥150 **OR** There are 5 or more related accidents in 1 year.
Signalized		
Condition 3	On major roads (approach).	V_R ≥150 **AND** The total outside lane approach volume (VA) is at least 200 VPH (including right turn). **OR** There are 5 or more related accidents in 1 year.
Condition 4	On access roads approach.	V_R ≥150 **OR** There are 5 or more related accidents in 1 year.



NOTES:

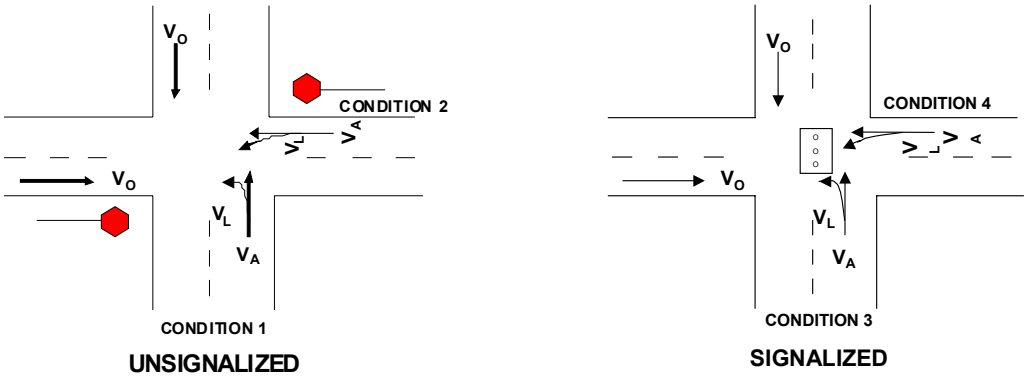
1. When public safety so requires due to site specific conditions, such as limited sight distance, high traveling speed, or the presence of a significant percentage of heavy vehicles, a turn lane may be required by the County Engineer even though the criteria in Graphs 1A and 1B are not met.

2. The provisions of the Right Turn Warrants may be modified by the County Engineer if it is determined that due to site specific constraints, the implementation will not be feasible or practical.

TABLE 2

Left Turn Warrants

Unsignalized		
Condition 1	On major roads without stop control (approach).	See Graph Nos. 2A through 2D
Condition 2	On access roads or through roads (approach).	V_L ≥100 **OR** There are 4 or more related accidents in 1 year.
Signalized		
Condition 3	On major roads (approach).	V_L ≥100 **OR** 20 percent or more of the total approach volume in the inside lane is left turn. **OR** There are 5 or more related accidents in 1 year.
Condition 4	On access roads or through roads approach.	V_L ≥100 **OR** There are 5 or more related accidents in 1 year.



NOTES:

1. An exclusive left turn lane at signalized intersections or on access roads and through roads with stop control are more often needed to reduce the total delay to the approaching vehicles; therefore, use of traffic engineering software, with the approval of the County Engineer, may be used.

2. When public safety so requires due to site specific conditions, such as limited sight distance, high traveling speed, or the presence of a significant percentage of heavy vehicles, a turn lane may be required by the County Engineer even though the criteria in Graphs 2A through 2D are not met.

3. The provisions of the left turn warrants may be modified by the County Engineer if it is determined that due to site specific constraints, the implementation will not be feasible or practical.

4. A dual left turn lane may be required by the County Engineer when the left turn volume exceeds 300 VPH.

5. At high speed (greater than forty-five [45] mph), unsignalized/signalized intersections, a separate left turn lane may be required by the County Engineer for safe operations. A high speed shall be the greater of the posted or operating speed where an operating speed study has been conducted.

TABLE 3

Right Turn Lane Length
(Deceleration and Storage)

Unsignalized		
Condition 1	On major roads without stop control and on major through roads with stop control (approach).	Deceleration Length: FDOT Index 301 Storage Length: 25 feet desirable unless there are site-specific conditions that require a longer storage length.
Condition 2	On access roads (approach).	Deceleration Length: Taper only Storage Length = $V_R/2$
Signalized		
Condition 3	On major roads (approach).	Deceleration Length: FDOT Index 301 Storage Length = $V_R/2$
Condition 4	On access roads (approach).	Deceleration Length: FDOT Index 301 Storage Length = $V_R/2$

NOTES:

1. In many instances, the storage length of a right turn lane at signalized intersections or access/major roads with stop control is dictated by the required storage length for left and/or through movements. Refer to the left turn section for determining the storage length for a left turn.

2. If the right turn flow is limited due to heavy volume of conflicting movements, then the storage length shall be based on the left turn storage length formula.

3. The provision of storage lengths and deceleration lengths may be modified or waived by the County Engineer if it is determined that, due to site specific constraints, the implementation will not be feasible or practical.

4. Traffic engineering software, with the approval of the County Engineer, may be used to determine the storage length for right turns.

TABLE 4

Left Turn Lane Lengths
(Deceleration and Storage)

Unsignalized		
Condition 1	On major roads (approach).	Deceleration Length: FDOT Index 301 Storage Length = 25 X V_L/30
Condition 2	On access roads (approach).	Deceleration Length: Taper only Storage Length = 25 X V_L/30
Signalized		
Condition 3	On major roads (approach).	Deceleration Length: FDOT Index 301 Storage Length = 2 X 25 X V_L/N
Condition 4	On access roads (approach).	Deceleration Length: FDOT Index 301 Storage Length = 2 X 25 X V_L/N

NOTES:

1. N = The number of traffic signal cycles per hour. Use thirty (30) as a default (assumes 120-second cycle length).

2. If the formula yields a storage length of less than fifty (50) feet for unsignalized intersections, then a minimum storage of fifty (50) feet shall be provided.

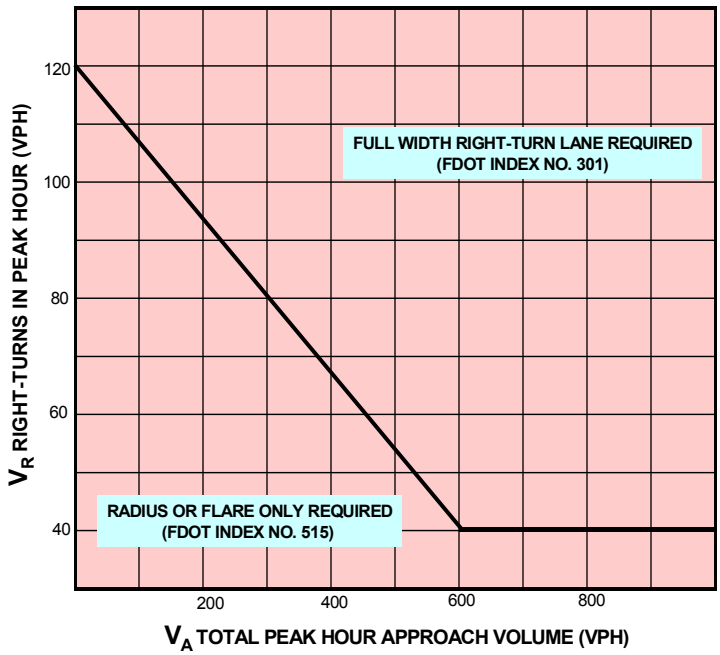
3. If the formula yields a storage length of less than 100 feet for signalized intersections, then a minimum storage of 100 feet shall be provided.

4. The provision of storage and deceleration lengths may be modified or waived by the County Engineer if it is determined that due to site specific constraints, the implementation will not be feasible or practical.

5. In some instances at signalized intersections or on access/major roads with stop control, the storage length of the left turn is dictated by the through or right movements. Unless otherwise approved by the County Engineer, the storage length for all movements shall be calculated and the highest length shall be used. For through storage length, the same formula as the left turn can be used. Refer to right turn section for determining the storage length for right turns.

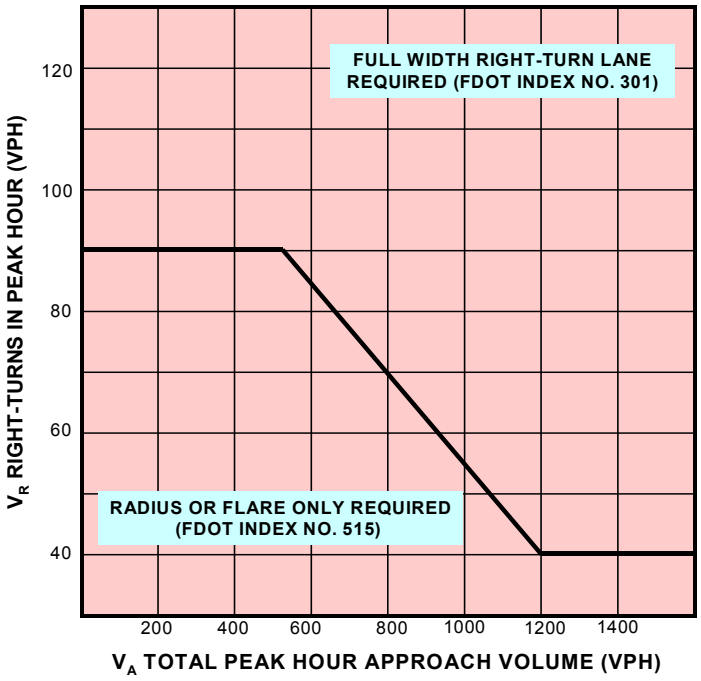
6. Traffic engineering software, with the approval of the County Engineer, may be used to determine the storage length for right turns.

GRAPH 1A. RIGHT-TURN LANE WARRANTS – TWO-LANE FACILITIES



NOTE: For posted speeds at or under forty-five (45) mph, peak hour right turns greater than forty (40) VPH, and total peak hour approach less than 300 VPH, adjust right turn volumes. Adjust peak hour right turns = peak hour right turns—twenty (20).

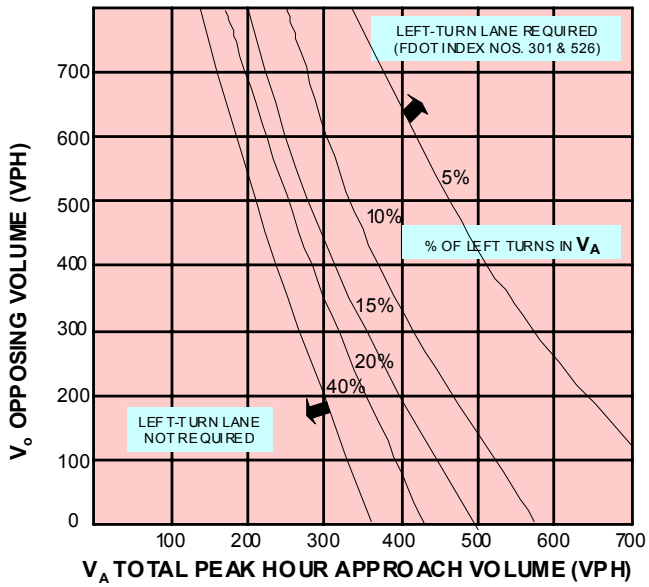
GRAPH 1B. RIGHT-TURN LANE WARRANTS
FOUR- OR SIX-LANE FACILITIES



NOTE: For application on high speed highways.

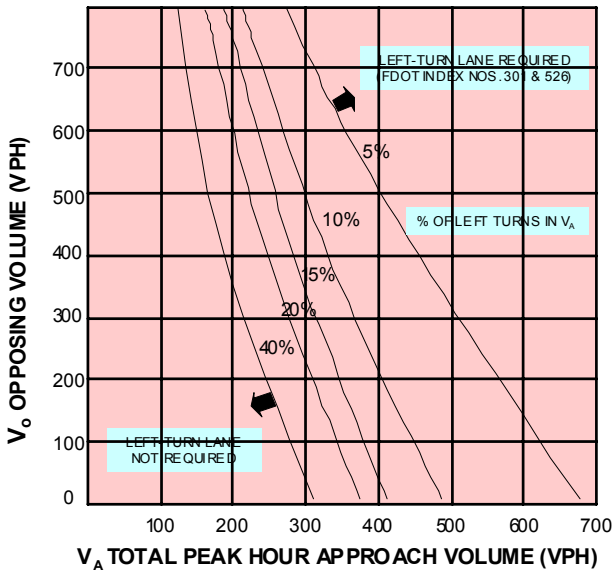
Graphs 1A & 1B Source: National Cooperative Highway Research Program, Report No. 279.

GRAPH 2A. LEFT-TURN LANE WARRANTS – TWO-LANE FACILITIES (≤ 40 MPH)



NOTE: Left-turn lane not required when intersection of V_A and V_O is below the curve corresponding to the % of left turns in V_A.

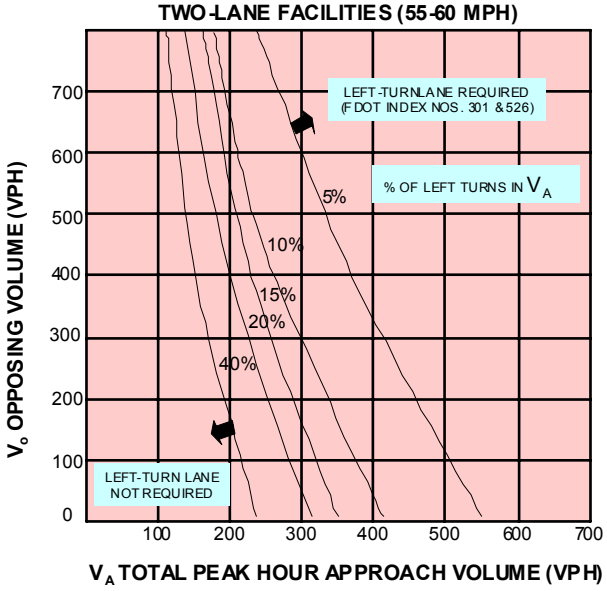
GRAPH 2B. LEFT-TURN LANE WARRANTS – TWO-LANE FACILITIES (45-50 MPH)



NOTE: Left-turn lane not required when intersection of V_A and V_O is below the curve corresponding to the % of left turns in V_A.

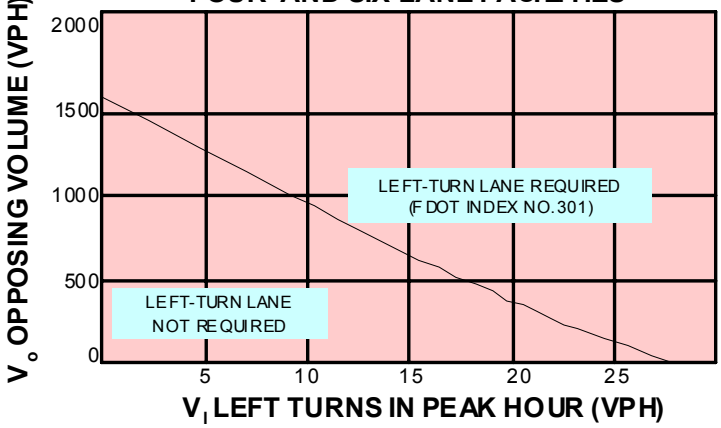
Graphs 2A & 2B Source: National Cooperative Highway Research Program, Report No. 279.

GRAPH 2C. LEFT-TURN LANE WARRANTS – TWO-LANE FACILITIES (55-60 MPH)



NOTE: Left-turn lane not required when intersection of V_A and V_O is below the curve corresponding to the % of left turns in V_A.

GRAPH 2D. LEFT-TURN LANE WARRANTS – FOUR- AND SIX-LANE FACILITIES



NOTE: When V_O < 400 VPH, a left-turn lane is not normally warranted unless the advancing volume (V_A) in the same direction as left-turning traffic exceeds 400 VPH. (V_A > 400 VPH).

Graphs 2C & 2D Source: National Cooperative Highway Research Program, Report No. 279.

SAMPLE PROBLEM NO. 1

Steps 1-6

1. Ninety-four (94) unit apartment complex. West side of Rowan Road, north of Nebraska Avenue (Main Street). Four (4) lane urban. Speed limit forty-five (45) mph.

2. Existing use—vacant.

3. Proposed use—apartments.

4. Site plan, etc., not included in sample.

5. Proposed access on Rowan Road, west side, at existing median opening, approximately 365 feet north of Indiana Avenue. No existing turn lane facilities north or southbound. No other access to this site is proposed.

6. Source: ITE, 6th Edition
   ITE Code: 220
   Existing Maximum Trip Generation: 0
   Net Increase in Maximum Trip Generation: 698
   From ITE: No. of Trips = (5.994 X 94 units) + 134.114 = 698
   Total Maximum Daily Trip Generation: 698

If the total maximum daily trip generation is greater than 100 and no TIS is required pursuant to this Code, Section 1301, proceed with Step 7.

Step 7

7. From the Pasco County Traffic Operations Division, Traffic Count File for Rowan Road (C.R. 77) (Section 820.1):

P.M. Peak	455 NB	385 SB	N/A EB	N/A WB

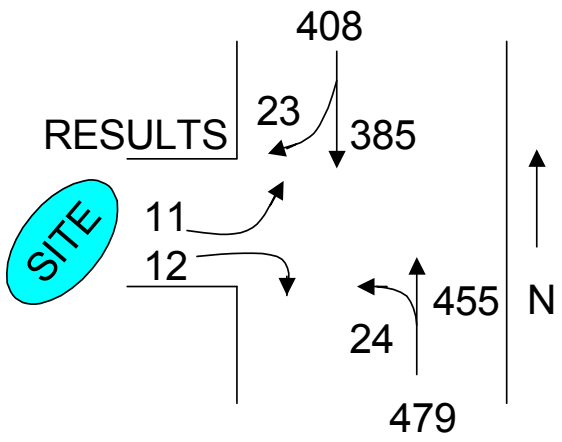
A.M. Peak Not Available

Total Daily Count: 23,624 (ADT) 10/4/01

From ITE Manual, P.M. Peak Hour Trips = (0.541 X 94 units) + 18.744 = 70 trips

A.M. Peak Hour Trips: N/A

From ITE, 67 percent (47) entering and 33 percent (23) exiting. Say 50/50 directional distribution.



Proceed to Warrants and Turn Lane Design Criteria.

Right Turn Warrants

From Table 1, Condition 1, see Graph 1B to check warrants for the southbound, right turn lane on Rowan Road.

$V_R = 23$, $V_A = 385 + 23 = 408$

From Graph 1B, a full width, right turn lane is not warranted.

Left Turn Warrants

From Table 2, Condition 1, see Graph 2D to check warrants for the northbound, left turn lane on Rowan Road.

$V_L = 24$, $V_A = 455 + 24 = 479$, $V_O = 385 + 23 = 408$

From Graph 2D, the intersection of V_O and V_L is to the right of the curve; therefore, a left turn lane is required.

Left Turn Lane Lengths

From Table 4, Condition 1, the required deceleration length is determined by FDOT Index No. 301. A total deceleration distance (L) of 185 feet is required for the forty-five (45) mph urban condition and includes the fifty (50) foot taper length.

The required storage length (queue) is calculated as follows:

Storage Length = 25 X V_L/30 = 25 X 24/30 = 20 feet

Per Note 1, the required minimum storage length is fifty (50) feet. This is in addition to the 185-foot deceleration, for a total deceleration and storage length of 235 feet.