Collier County
Transportation Operations
Development Review Department

PROCEDURES AND GUIDELINES FOR TRAFFIC IMPACT STUDIES

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CHAPTER 1

INTRODUCTION

Traffic Impact Study is a specialized study of the impact that a given type and size of new land use has on the nearby transportation system.

The main purposes for preparing Traffic Impact Studies are:

1. To ascertain the operational conditions on the adjacent roadway network when a proposed development is accommodated within the existing transportation infrastructure along with other proposed developments.

2. To identify transportation improvements required to maintain the existing operational conditions.

3. To determine whether access to the proposed development will hamper traffic operations and safety near the site.

4. To provide decision makers with a basis for assessing the transportation implications of approving proposed zoning changes and development applications.

5. To provide a basis for estimating the cost of proposed mitigating measures. Consequently, a traffic analysis can be used to determine the "fair share" of the improvement cost to be paid by the developer.

PURPOSE OF THIS GUIDE

This guide is intended to establish a standard methodology for conducting Traffic Impact Studies. This will result in a consistency with study requests, preparation and review. Such a standardized procedure will be beneficial to everyone involved in the development process. First and foremost, the guide will lead the applicant through a step-by-step procedure and enable him or her to present the study findings and recommendations in a systematic manner consistent with the reviewer's expectations. Second, it will enable reviewers to evaluate the study in a systematic manner. Finally, it will promote understanding and awareness of transportation-related issues among those involved in the development process.

The guide is not intended to make things more complicated and time-consuming; on the contrary, as the assumptions and procedures become accepted practice, the time involved in the process will decrease for both parties.

CHAPTER 2

APPLICANT AND REVIEWER QUALIFICATIONS

All Traffic Impact Studies are to be prepared by a Transportation Professional with training and experience in traffic engineering and transportation planning. It must be prepared by or under the supervision of a Professional Engineer registered in the State of Florida with experience in traffic engineering operations. The study should contain a statement of certification as follows:

"I certify that this TRAFFIC IMPACT STUDY has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering.
(signed)
John O. Smith, P.E.
Florida Registration #12345
Consulting Firm, Inc."

All Traffic Impact Studies shall be signed and sealed by a professional engineer as required by Chapter 471, F.S.

REVIEWER QUALIFICATIONS

The professional staff of Collier County Transportation Operations Development Review Department shall review all Traffic Impact Studies. For brevity, Collier County Transportation Operations Development Review Department will hereinafter be referred to as CCTDR.

REFERANCES

The Standard References to be used in conjunction with this guide are as follows:

1- Florida Department of Transportation, Manual on Uniform Traffic Studies.
2- Florida Department of Transportation, Site Impact Handbook.
3- Institute of Transportation Engineers, Traffic Engineering Handbook.
4- Institute of Transportation Engineers, Highway Capacity Manual.
5- Institute of Transportation Engineers, Trip Generation, Vol.1, 2,3.

ETHICS AND OBJECTIVITY

Although applicants and reviewers might have different objectives and perspectives, they should adhere to established engineering ethics and conduct all analyses and reviews objectively and professionally.

CHAPTER 3

STUDY PROCEDURE

The Traffic Impact Study, hereinafter is to be referred to as TIS, should be considered in conjunction with an application for approval of any of the following:

- zoning changes
- subdivision/platting (where no zone change is associated)
- site development plans (where no zone change is associated)
- comprehensive plan amendments requested by the developer

The proposed process of a Traffic Impact Study will consist of up to four steps, depending on the type of development under consideration. The different stages of a Traffic Impact Study procedure are discussed below.

Step 1. A Preliminary Notification will be required of all developments meeting certain "Preliminary Warrants." This is presented in Chapter 4 of this guide. If the development's predictor variables exceed the preliminary threshold values, the developer must provide CCTDR with the information that comprises a "Preliminary Notification" (see Chapter 4) and request that an "Initial Meeting" with CCTDR be scheduled (see item 2 below). If the development under consideration does not exceed the preliminary warrants, no further action is required and the TIS procedure stops here.

Step 2. At a mutually convenient time, representatives of the developer and CCTDR will hold the initial meeting. Based on additional information gathered since the preliminary notification, the two parties decide if a more detailed Traffic Impact Study is necessary. (See Chapters 5 and 6 for guidance.) From the findings of the preliminary study, it will be determined if warrants for a complete TIS are met (Chapter 6). If the warrants are met, then a detailed Traffic Impact Study (discussed in Chapters 8 through 15) will be required for the development. If the warrants are not satisfied, go to step 3 (below); otherwise go to step 4.

Step 3. This step involves determining whether the warrants of a traffic operations analysis are met. If the warrants are met, then a traffic operations analysis must be conducted (Chapter 7). If the warrants for a traffic operations analysis are not met, the study procedure stops here. Otherwise, go to step 4 (below).

Step 4. This step involves the staff review (Chapter 16) of the traffic operations analysis or the Traffic Impact Study. If the analysis or study is satisfactory, the process stops here. Otherwise, the revisions suggested must be incorporated and sent back for further review. This is the final step in the study process.

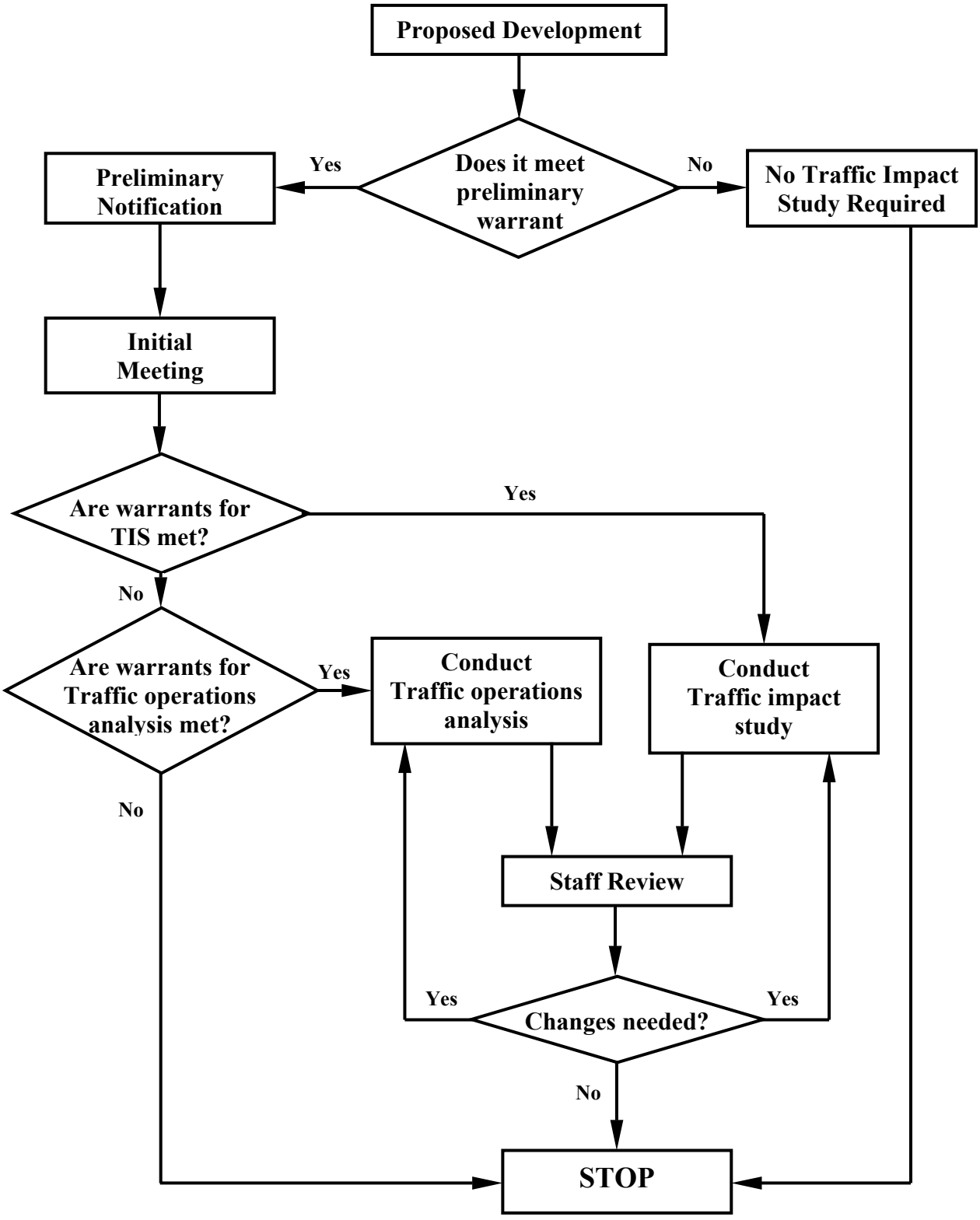


Figure 3.1. **Flowchart Showing the Traffic Impact Study Procedure**

CHAPTER 4

PRELIMINARY NOTIFICATION

A Preliminary Notification to CCTDR will be required for all developments that meet the preliminary threshold values for Traffic Impact Studies. The preliminary notification must include:

- The type of development.
- A complete site plan, with the site's access points and the nearest signalized intersection in each direction.[1]
- A market study (Trip Production/Attraction if applicable).[2]
- Trip generation values and the method(s) used to compute them.

The preliminary notification need not be a detailed analysis of the present and future conditions. No elaborate data collection effort or computer modeling is necessary for the notification. It is intended to provide an approximate description of existing and anticipated traffic conditions and is intended to provide a foundation on which to base discussion during the initial meeting.

PRELIMINARY WARRANT

A Preliminary Notification will be required of all developments that meet the "preliminary threshold values" or "warrants." The preliminary warrants are as follows:

Land Use Type	*ITE Code*	*Threshold Values*
Residential	210, 220, 222, 240, 252	99, 150, 280, 180, 600 DU
Retail	814, 820	25,000, 5000 SF
Office	710, 720, 770	19,000, 30,000, 24,000 SF
Industrial	130,150	51,000, 150,000 SF
Educational	520,522,530	400, 650, 600 Students
Lodging	310	153 Rooms
Medical	610	59,000 Square Feet

Special generators with high trip generation rates, such as Banks (both drive-in and walk-in), Fast Food Restaurants, and Service Stations with Convenience Stores, will require a Preliminary Notification regardless of size.

For Planned Unit Developments (PUD) and for those development types discussed in the previous paragraph, the estimated trip generation rates must be determined using the latest edition of the ITE Trip Generation report. For developments that generate considerable truck traffic (i.e. Excavation Quarry, Land Fills), the truck trips should be converted to equivalent passenger vehicle trips.

[1] For Comprehensive Plan Amendment Studies, a conceptual site plan with boundaries and approximate location of access points will be sufficient.
[2] A market study applies to developments that have already performed trade area analysis. Examples include tourist destinations and entertainment centers.

CHAPTER 5

INITIAL MEETING
(Methodology Development)

If the values for a proposed development exceed the preliminary warrants, an initial meeting between the developer's representative and CCTDR personnel will be scheduled. Depending on the development and the type of information to be discussed at the meeting, the following CCTDR personnel may need to attend the initial meeting:

1. Director of Transportation Development Review.
2. Transportation Review Engineer.
3. Concurrency Management Staff.
4. Development Engineer.

For brevity, the developer's representative will hereinafter be referred to as the Traffic Impact Study "preparer" and the CCTDR staff responsible for reviewing the study will be referred to as the Traffic Impact Study "reviewer."

The discussions in the initial meeting between the preparer and the reviewer will be based on the information contained in the Preliminary Notification. The initial meeting will serve the following purposes:

1. To determine whether a detailed Traffic Impact Study or traffic operations analysis is required for the proposed development.
2. If further studies are required, the meeting will help the study preparer understand the reviewer's expectations.
3. To discuss critical issues such as (but not limited to) the extent of the study, the study area, the horizon years, time periods to be analyzed, data sources and availability.
4. To ensure that all relevant issues are adequately addressed in the Traffic Impact Study, and that no extraneous elements are included in the study.

If a Traffic Impact Study is warranted (see Chapter 6), some of the issues that will need to be addressed in the initial meeting are discussed below.

STUDY AREA

Any Traffic Impact Study must include at least all site access points and major intersections adjacent to the site. The first signalized intersection on each street serving the site must also be analyzed, if it is within 1/2 mile of the site. Beyond this area, the proposed development’s peak hour trip generation will determine the area of study extent (See Distribution, Page 15).

HORIZON YEARS

The horizon year of the TIS refers to the anticipated completion date of the proposed development assuming full build-out occupancy.

TIME PERIODS TO BE ANALYZED

The critical time period for any development will be directly associated with the peaking characteristics of both the development and the adjacent roadway system. Special consideration will be given to developments like shopping centers, which might peak after the adjacent street peak or on a Saturday. The following time periods should be considered during the initial meeting:

- AM and PM street peak (weekday)
- AM and PM site peak (weekday)
- Site peak (weekend)

DISCUSSION CHECKLIST

A discussion checklist has been provided in Appendix A to aid both parties in recording information and comments. However, the discussions should not be restricted to the issues addressed in the checklist. Larger developments in densely developed areas will need more in-depth discussion, while smaller sites may not need discussion on many of the issues in the checklist.

MEMORANDUM OF UNDERSTANDING

Immediately after the initial meeting, the study preparer will submit a memorandum of understanding confirming the following:

- Issues to be addressed in the study.
- Study procedure
- Assumptions
- Data sources
- Report content
- Other pertinent issues discussed in the initial meeting

STAFF CONCURRENCE

The reviewer will evaluate the contents of the memorandum. If all elements are agreed upon, staff concurrence will be communicated in writing to the study preparer within five (5) business days of receipt of the Memorandum of Understanding. If staff is not in concurrence with all elements of the MOU, this will be communicated in writing to the study preparer within five (5) business days.

CHAPTER 6

WARRANTS FOR A COMPLETE TIS

A formal Traffic Impact Study will be required for any development that meets any one of the warrants described below:

Warrant 1. Land Use Intensity

This warrant is satisfied when a development will generate traffic volumes in excess of 1,000 ADT (average daily trips) or 100 vehicles per hour / peak season, whichever is more restrictive. Collier County Land Development Code (Section, 3.2.8.4.16.4).

Warrant 2. Level-of-Service Warrant

This warrant is satisfied if the traffic generated by the proposed development causes the level-of-service (LOS) of the adjacent streets/intersections to drop to a LOS "D" or lower, or where nearby intersections presently operate at level-of-service "E" or worse. LOS determination should be in accordance with the procedures described in the Highway Capacity Manual, using data contained in Collier County Annual Update and Inventory Report (AUIR) or approved by the reviewer.

Warrant 3. Roadway Modifications

This warrant is satisfied when the proposed development is expected to significantly[3] impact a roadway segment identified for improvement in the Transportation 5 Year Work Program. This warrant is also satisfied when the proposed development includes modifications to the roadway system. Modifications include addition of lanes to accommodate site-generated traffic, addition of exclusive turning lanes, acceleration/deceleration lanes, median openings, installation of traffic signals and other traffic control devices, etc.

[3] Significant Impact is defined as the traffic impact on roadway segments directly accessed by the project where project traffic is equal to or greater than three percent of the adopted LOS standard service volume.

CHAPTER 7

TRAFFIC OPERATIONS ANALYSIS

A Traffic Operations Analysis is conducted whenever a proposed development may compromise existing design standards and therefore may cause safety and operational problems in the immediate vicinity of the site. A traffic operations analysis might include:

1. Study of proposed driveway locations, resulting sight distances, queuing provisions, etc.[4]
2. Safety analysis.[4]
3. Traffic signal warrants and progression analysis.[4]
4. Delay analysis.[4]
5. Gap studies.[4]

WARRANTS FOR TRAFFIC OPERATIONS ANALYSIS

A Traffic Operations Analysis will be required if one or more of the following conditions is satisfied:

1. A development generates sufficient turning movements into or out of the development to require an auxiliary lane, such as an acceleration/deceleration lane, roadway transition, or separate turn lane. (See Ordinance 2003-37 as it may be amended).

2. Requests for new or modified driveways within 660 feet of intersections or interchanges.

3. Requests or potential need for a new (or modified) traffic signal to control driveways or streets serving a proposed or existing development(s).

4. Existing sight distance limitation, or high crash location near the site.

5. Requests for new or revised median openings.

[4] See FDOT Manual on Uniform Traffic Studies, ITE Traffic Engineering Handbook, HCM and MUTCD.

CHAPTER 8

NON-SITE TRAFFIC ESTIMATE

For estimating the traffic impacts of a proposed development, it is essential to analyze the traffic conditions on the horizon year roadway network for two cases:

(a) With the proposed development.
(b) Without the proposed development.

The incremental impacts are attributed to the site-generated traffic. For this analysis, a "base condition" must be established. The base condition corresponds to the traffic that would exist in the study area in the horizon year without the proposed development. This traffic is commonly referred to as non-site traffic. Non-site traffic may be of two kinds

- Through traffic, which has neither an origin nor a destination in the study area

- Traffic that has either an origin or a destination or both in the study area. This traffic is generated by other developments in the study area

Non-site traffic will be estimated by one of five methods:

1. Manual Method.

2. Build-Up Method.

3. Growth Factor Using Related Demographic Characteristics.

4. Regression Analysis Techniques.

5. Collier County MPO Model.

For detailed explanation of the above methods, see FDOT Site Impact Handbook, Unit III.

CHAPTER 9

TRIP GENERATION

Trip generation involves estimating the number of trips that will be produced from or attracted to the proposed development. This is one of the most important steps in Traffic Impact Studies.

ACCEPTABLE DATA SOURCES

Several sources and methods of obtaining trip generation data are available and may be used:

1. ITE TRIP GENERATION, Current Edition -- This report allows estimates of trip generation based on three different options; in order of preference:

    1. Regression Equations.
    2. Graphic Plot.
    3. Average Trip Rate for specific land use.

The estimates obtained from this source must be used with good judgment as they are based on national data and would fail to take into account any special features that the local subject site might have. An existing trip generation credit is given to the property's prior use if in existence within five years of the TIS. Trip generation information should be presented in the TIS as a Table in the format shown in Appendix B.

2. OTHER NATIONAL DATABASES -- Two other possible sources for estimating trip generation are NCHRP 187 manual and The Development and Application of Trip Generation Rates. The former contains trip generation rates for a variety of land uses, mostly suburban. The latter is essentially an updated version of the former, with some statistical measures of variances of the data.

3. PRIOR STUDIES -- Data from prior studies made on a similar land use under similar conditions may also be used with permission from the reviewer.

4. DATA COLLECTION -- If existing data are not available or are not a good representation of specialized characteristics that the site under consideration might have, a data collection effort must be conducted at sites that exhibit similar characteristics as the study site. This option must be reviewed and approved by the reviewer prior to any field data collection effort.

MIXED-USE DEVELOPMENTS

In case of mixed-use developments (PUD's), certain deductions may be made to the trip generation rate derived by adding the trip generation rates of the individual land uses to accommodate the possibility of internal trips. Mixed-use developments are discussed in Chapter 13 of this guide.

PASS-BY TRIPS

The methodology for handling pass-by trips is discussed in detail in Chapter 12 of this guide.

CHAPTER 10

TRIP DISTRIBUTION

After the trip generation estimates have been made, it is necessary to distribute these trips to make an assessment of the impacts of the proposed development. The outcome of the trip distribution method will be origin-destination data for generated trips. Trip distribution using the gravity model is encouraged either manually or by computer. In either case, the preparer must document the procedure properly. Collier County Metropolitan Planning Organizations (MPO) has data by zones that can be used. Other distribution procedures, such as intervening or attenuating opportunities are acceptable, but the specific methodology should be discussed with and agreed to by the CCTDR staff prior to use in the TIS. Trip distribution by hand may be used for developments where the development will produce less than 500 peak hour trips. The procedure, whether manual or computerized, produces direction-of-approach information and reduction in site traffic at an increased distance from the site. Hence, the gravity model approach is useful when it is necessary to evaluate the traffic impacts of developments on intersections at a certain distance from the site. This method, however, should be used for large projects and is required for analysis of Developments of Regional Impact (DRI). For small distances from the site, the estimates are too rough.

The proposed project highest peak hour trip generation will determine the area the trip distribution is to be carried out, as follows:

- Trips distributed on links directly accessed by the project where the project traffic is equal to or exceeds 3% of the adopted peak hour LOS standard service volume.
- Trips one link adjacent to the links directly accessed by the project where the project traffic is equal to or greater than 3%.
- Trip on all subsequent connecting links where the project traffic is equal to or greater than 5% of the adopted peak hour service volume.

The analysis must be carried out one link beyond the point where the project traffic drops below 5% of the peak hour adopted LOS service standard to determine whether project traffic becomes significant again due to a reduction in service volume on any subsequent links to a point where project traffic drops below acceptable service volume. A segment is identified in the AUIR, but also relates to where a roadway break is made by intersecting arterials or collectors (by functionally classified facilities).

A table of the Roadway Segments, Corresponding Segment Numbers, Current Traffic Volumes, 3%, 5% of Existing and Committed Road Service Volume and Available Capacities is attached in Appendix A1. It will change monthly as project trips are added, existing traffic counts are updated and service volumes are revised. If you wish to obtain an up-to-date electronic file of this list you may email your request to transplanning@colliergov.net.

CHAPTER 11

TRAFFIC ASSIGNMENT

Traffic assignment involves assigning the distributed trips to specific paths in the road network. Hence, the product of traffic assignment will be the total project-generated traffic by direction and by turning movements on the horizon year roadway network in the study area. Assignment should be made after taking into account logical routing, available roadway capacities and projected and perceived minimum travel times. Multiple paths should be assigned between origins and destinations rather than assigning all of the traffic to the route with the shortest travel time. The assignment may be done manually or by computer.

Project traffic for both the peak and off-peak direction must be indicated. Project trips must be indicated on both a map of the study area and in a Table Format (See Appendix B).

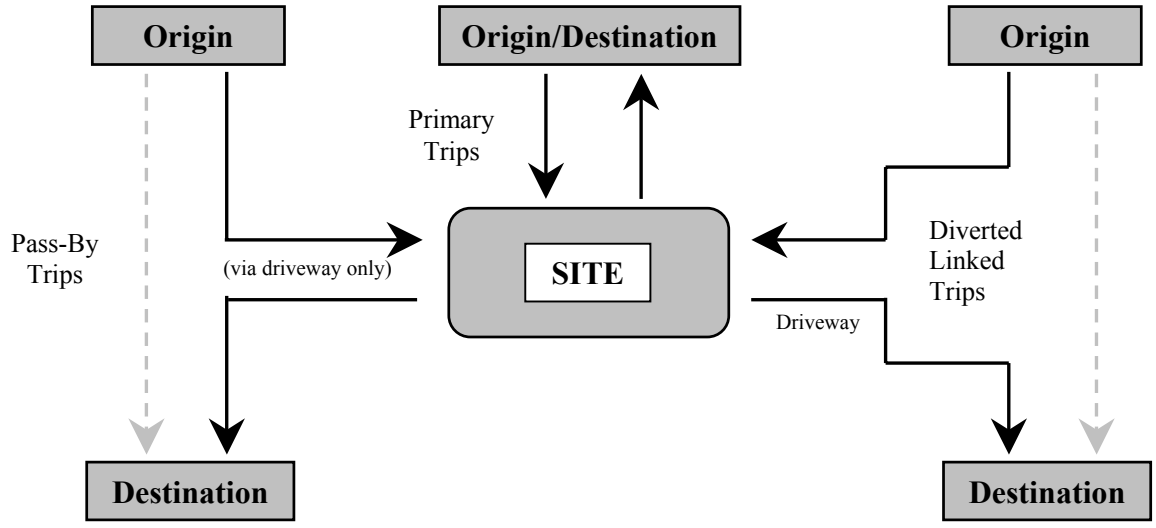
CHAPTER 12

Pass-by, Primary, and Diverted Linked Trips

Shopping centers and several other convenience-oriented land use types like banks, gas stations and fast food restaurants have trip characteristics different from other land use developments. A certain percentage of their trips are "captured" from the adjacent traffic stream. These trips already existed before the development. The type of trips generated by a site may be broken down into the following categories:

- Pass-By Trips:
  Pass-By trips are made as intermediate stops from an origin to a primary trip destination without a route diversion. Pass-By trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator.
- Non-Pass-By Trips:
  Non-Pass-By trips are simply all trips generated by a site that are not pass-by trips. This term is sometimes used when diverted linked trips are not tabulated separately from primary trips.
  - Primary Trips:
    Primary trips are trips made for the specific purpose of visiting the generator. The stop at the generator is the primary reason for the trip. The trip typically goes from origin to generator and then returns to the origin. For example, a home to shopping to home combination of trips is a primary trip set.
  - Diverted Linked Trips:
    Diverted linked trips are trips that are attracted from the traffic volume on roadways within the vicinity of the generator but that require a diversion from that roadway to another roadway to gain access to the site. These trips could travel on highways or freeways adjacent to a generator, but without access to the generator. Diverted linked trips add traffic to streets adjacent to a site, but may not add traffic to the area's major travel routes.

Figure 12.1 shows a schematic representing Pass-By, Primary and Diverted Linked Trips.



CHAPTER 13

MIXED-USE DEVELOPMENTS/INTERNAL TRIPS

Mixed-use developments refer to activity centers that have a number of different land uses (PUD). In such cases it is often inappropriate to simply add up the trip generation rates of the individual land uses to determine the trip generation rate of the entire development. This is because some individuals will visit two or more destinations without leaving the site. Therefore, to estimate the trip generation rates of such developments, the number of internal trips has to be estimated and subtracted according to the following formula:

$$\text{Trips}_{\text{mixed-use developments}} = \Sigma\,[\text{Trips}_{\text{individual land uses}}] - \text{internal trips}$$

In the absence of local or site-specific data, the percentages given in NCHRP Report 323 and the ITE Trip Generation Handbook may be used as a guideline for determining the percentage of internal trips.

CHAPTER 14

ANALYSIS

Several analyses are necessary to derive the study findings, recommendations and conclusions. The different analyses that might be required are:

- Capacity.
- Safety.
- Access Management.
- Traffic Control Needs.
- Signal Progression.
- On-site Circulation and Parking.
- Neighborhood Impacts.

For the horizon year, the analysis should be performed for the critical time period for conditions with and without the proposed development. The incremental impacts can be attributed to the subject site. The analysis should not be ended until one of three conclusions has been reached:

1. The proposed development can be accommodated in the horizon year transportation infrastructure with no additional improvements.

2. The proposed development can be accommodated in the horizon year transportation infrastructure consistent with Collier County policy and operating conditions subject to the recommended improvements/modifications.

3. The area will operate below the accepted level of service even without the development. No further significant deterioration will result if the proposed development is accommodated with the recommended changes.

CAPACITY ANALYSIS

Capacity analysis will be performed at all proposed site access points and all intersections -- both signalized and unsignalized in the study area. CCTDR Staff may also identify other critical and congested areas of the roadway network to be included in the analysis. Capacity analysis must be consistent with the methods described in the 2000 edition of the Highway Capacity Manual (HCM). The latest version of the Highway Capacity Software (rev 4.1c) should be used for capacity analysis. Other software such as CorSim, Synchro are acceptable.

Collier County has established two Transportation Concurrency Management Areas (TCMA) and a Transportation Concurrency Exception Area (TCEA) which are innovative tools provided to local governments in Rule 9J-5.0055(6), F.A.C. to use in the daunting task of serving the often competing demands for roadway facilities, orderly land use planning and development. For detailed information, please refer to Collier County Growth Management Plan, Transportation Element and LDC Section 3.15. See Appendix B1 for the TCMA and TCEA boundary maps.

SAFETY ANALYSIS

Safety analysis should include identification and recommendations about high accident locations, restricted sight distances, and pedestrian safety. The key elements are listed below:

- Accident Experience.
- Sight Distance.
- Pedestrians and Bicycles Accommodations.

ACCESS MANAGEMENT

- **SITE ACCESS POINTS**

To satisfactorily provide site access and maintain acceptable operational conditions on streets adjacent to the site, Collier County Access Control Policy and Standard Principles must be followed, (Resolution No. 01-247). In case of multiple driveways at a site, transportation-related needs for more than one driveway must be demonstrated. Both street peak and site peak should be taken into consideration while analyzing the site access points. All site access points should conform to Collier County Standards for Construction in Public Right-Of-Way, (Ordinance No. 93-64). Provisions must be made for vehicular storage so as not to backup out into the adjacent public street.

- **TRAFFIC CONTROL NEEDS**

Analysis should be carried out to determine whether traffic control warrants are met. Such warrants may be warrants for traffic signals, stop signs or yield signs. The warrant analysis must be performed according to the Manual of Uniform Traffic Control Devices (MUTCD).

- **MEDIAN OPENINGS**

If a median opening is requested, a detailed analysis must be performed to determine if a median opening would negatively affect the operating condition of the roadway. Consideration should be given to the following:

- Warrants for a left turn signal at the opening.
- Approach speed of the opposing vehicles.
- Gaps in opposing traffic.
- Storage space at the median opening.
- Queuing and delay to the vehicles.
- Distance from the nearest intersection.
- Spacing between median openings (Access Management Policy).

ON-SITE REVIEW

On-site review may not be necessary for a Traffic Impact Study. Determination of the need for an on-site review shall be discussed at the initial meeting and shall be at a mutually agreed-upon time and place between the preparer and CCTDR staff.

INTERNAL CIRCULATION

Internal circulation should provide access to all areas in a manner easily understandable to motorists. Internal roadways must be marked and signed in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).

NEIGHBORHOOD IMPACTS

Neighborhood transportation impacts are primarily caused by site-generated traffic using neighborhood streets as short cuts for ingress and egress. This can impair pedestrian safety, air quality, community cohesion and, consequently, property values. Most neighborhoods are sensitive to this issue and hence an analysis should be conducted to estimate the neighborhood impacts of the proposed development and mitigating measures suggested.

KEY POINTS CHECKLIST

The following key points should be addressed in the analysis before preparing the final conclusions and recommendations:

1. Show all calculations. Show how all numbers/factors were obtained. This may be handwritten and placed in a separate appendix.

2. Show demographic information and calculations.

3. Show how the development's driveway's enter/exit percentages were obtained.

4. Draft plans to scale. Show measurements between all driveways (both existing and proposed), streets, etc.

5. Show and label all driveways, streets from and adjacent to the development on scale plans. Show adjacent signalized intersections with measurements to the site.

6. Show the development's connections to existing signalized intersections, existing County and State roads and any local streets.

7. Note all references used, including page numbers, equations, table/figure numbers, etc. Note reference information in the report at the point it is used.

8. Provide applicable pages/sentences from references used.

9. Use Highway Capacity Manual/Software (current edition/version) for capacity studies.

10. From the development and along existing County Arterial Roadways, assess the impact of the new traffic on operation of through streets. A computer-modeling program such as HCS or Synchro, which is pre-approved by CCTDR, must be used for Intersection Analysis. This should include entire adjacent signal systems, both with and without any proposed signal at the development.

11. Perform a gap analysis on a driveway where a signal is requested. Take into account adjacent signals. Gap analysis of other proposed drives onsite might be requested if deemed appropriate by CCTDR staff.

12. Compute trip generation for signal warrants using initial development. (Do not include future expansions.)

13. Compute trip generation for geometric changes (turn lane lengths, etc.) using ultimate build-out figures. Give dates for planned expansions. Show percent growth in volume used.

14. For the signal warrant analysis, justify the percentage of right-turns-on-red used.

15. Provide preliminary signal timings for the proposed provisional traffic signal. If the proposed signal would be included in an existing traffic signal system, then the revised timings for the complete system shall be provided.

16. If there are any major traffic generators nearby, collect data to demonstrate how they will affect the development.

17. Show exact locations where counts were obtained. Explain how and when counts were taken.

18. Provide justifications for all driveway accesses requested.

19. Provide copies of all raw data.

20. Label all forms completely. Assure that copies are clear and legible.

CHAPTER 15

CONCLUSIONS AND RECOMMENDATIONS

If the Traffic Impact Study reveals that the projected traffic volumes on the horizon year roadway network will operate in a safe and efficient manner at an acceptable level of service, then no project-related improvements are required. However, if deficiencies are indicated, mitigating measures will be required. These measures may include, but are not necessarily limited to:

1. Installation of traffic signals.
2. Installation of traffic control signs.
3. Addition of lanes.
4. Addition of deceleration lanes.
5. Restriction of turning movements.
6. Adjustment of cycle lengths.
7. Introduction of additional signal phases.

However, if reasonable mitigating measures cannot be implemented to assure that traffic will operate in an efficient way, a more detailed evaluation of project size, land use types, and development phasing may be required. If viable transportation improvements cannot be recommended, then steps must be taken to reduce the trip generation rate of the proposed development. Some possible approaches that may be adopted are:

- Increased transit usage.
- Car-pool/van-pool programs.
- Congestion pricing.
- Reduced parking or increased parking fees.
- Staggered work schedules.

Any Transportation Demand Management recommendations should take into account:

1. The timing of the short-range and long-range transportation system improvements that are already scheduled or anticipated.
2. Anticipated timing of adjacent developments.
3. Phasing of the subject development.
4. Right-of-way needs and availability.
5. County priorities for transportation improvement funding.
6. Cost-effectiveness of the proposed improvements.

Note: For the TCMA and TCEA, please refer to the Collier County Growth Management Plan and LDC Section 3.15 along with Transportation Concurrency Management Staff.

RECOMMENDED PLAN OF ACTION

Implementation of recommendations should be presented as a "plan of action." This action plan should recommend improvements; state why they are needed and when they are to be implemented.

CHAPTER 16

THE REPORT

The Traffic Impact Study report should document the purpose, procedures, data sources, assumptions, findings, conclusions and recommendations of the study. It should be concise and complete. The report should be organized in a logical sequence and methodically take the reader through the entire process of the Traffic Impact Study. It should be kept in mind that the report might be of interest to the elected officials and other non-technical people. Hence, clarity should be paramount. The report format presented below provides a uniform framework that will facilitate both the preparation and the review of the report. Any major departures from this standard format must be agreed upon at the initial meeting and mentioned in the subsequent Memorandum of Understanding (see Chapter 5).

REPORT FORMAT

Report Cover and Title Page

Table of Contents

List all the major sections; tables and figures may be identified by letter or by number, according to the study preparer's preference.

List of Exhibits

Some of the typical exhibits that could be included in a Traffic Impact Study are tabulated in Table 16.1. Because the exhibits actually needed will vary from study to study, list all the tables and figures included in the report by page number. Tables and figures may be identified by letter (as in Table 16.1) or by number, according to the study preparer's preference.

Executive Summary

Each Traffic Impact Study report should begin with an Executive Summary. It should be limited to a one-page or two-page document to facilitate examination by the CCTDR Staff. It should contain the salient features of the study and should summarize the study purpose, and its conclusions and recommendations. Reports of 10 pages or less do not require an Executive Summary.

Prototype Report Outline

A prototype report outline is given in Appendix A-2. It is intended to be a list of items for the preparer and reviewer to consider at the initial meeting. Many items may not apply to any particular proposed development, and need not be included in the report. It is also possible that items not listed in Appendix A-2 may be applicable to a particular site, as decided upon in the initial meeting.

Report Certification

Traffic Impact Studies shall be certified by the preparer (see Chapter 2). Such certification shall state that the study has been conducted according to the methods described in this Guide.
A report for any of the limited studies or traffic operational analyses should provide information in the first paragraph that the reviewer directed or agreed that only a limited study be conducted.

PUBLIC RECORD

Traffic Impact Study reports become public record upon submittal. Information provided in the study may be used for subsequent studies.

Table 16.1 Typical Exhibits in a Detailed Traffic Impact Study

ITEM	*TITLE*	*DESCRIPTION*
Figure A	Site Location	Area map showing site location and area of influence.
Figure B	Existing Transportation	Existing roadway system serving site. Should show system and all major & minor routes adjacent to the site.
Figure C	Existing and Pending Land Use	Map showing existing and pending land uses and developments in the study area.
Figure D	Current Traffic Volumes	Most recent traffic volumes on roads in the study area.
Figure E	Existing Peak Hour Turning Volumes	Current peak hour turning volumes at each location critical to the study.
Figure F	Anticipated Transportation	Area transportation system map showing programmed and applicable roadways; improvements, including transit, bikeways and pedestrian ways; improvements affecting site access or traffic flow through the study area.
Table A or Figure G	Directional Distribution	Map or table showing the proportion of site traffic approaching and departing the area on each roadway.
Table B	Estimated Site Traffic Generation	Analysis period site traffic generation by direction.
Figure H	Site Traffic	Map of horizon year roadway network showing peak hour turning volumes of site-generated traffic.
Table C	Trip Generation of Non-Site Development	Trips generated by off-site developments within the study area.
Figure I	Estimated Non-Site Traffic	Map showing peak hour turning volumes due to the developments in the study area and through traffic.
Figure J	Estimated Total Horizon Year Traffic	Peak hour turning movements in horizon year. (Sum of Figures H and I).
Figure K or Table D	Level of Service (LOS)	Level of service at critical locations under conditions and in horizon year with & without the proposed development.
Figure L or Table E	Recommended Improvements	Table or figure showing improvements by location and type. If phasing of improvements is to be stipulated, they have to be shown.

CHAPTER 17

STAFF REVIEW

The purpose of staff review is to ensure that the Traffic Impact Study has been properly prepared and that the recommendations made by the preparer are realistic and implemental. Staff reviews are not intended to deter new developments. They are to assure that traffic-related problems are anticipated and that effective mitigation measures are identified. Contact between the preparer and the reviewer during the preparation of the TIS is encouraged.

FORMAL REVIEW

This review is conducted after the preparer has submitted the report. The formal review process will produce a list of the following findings:

- Acceptable analyses and conclusions.
- Unacceptable analyses and conclusions.
- Acceptability of recommended site access provisions and roadway improvements.
- List of required improvements that might be considered to mitigate impacts of the proposed development.

Following the review, the reviewer(s) will send to the preparer a list of requested study revisions or a letter accepting the study.

REQUEST FOR REVISION

Any requests for study revisions will indicate the findings of the formal review and clearly specify the additional information required. This additional report should be in the form of an addendum to the original study. In certain cases, a revised report may be requested.

APPENDIX A

INITIAL MEETING CHECKLIST

Suggestion: Use this Appendix as a worksheet to ensure that no important elements are overlooked. Cross out the items that do not apply.

Date: _____ Time: _____

Location: _____

People Attending:
Name, Organization, and Telephone Numbers

1)_____
2)_____
3)_____
4)_____
5)_____

Study Preparer:
Preparer's Name and Title: _____
Organization: _____
Address & Telephone Number: _____

Reviewer(s):
Reviewer's Name & Title: _____
Collier County Transportation Planning Department

Reviewer's Name & Title: _____
Organization & Telephone Number: _____

Applicant:
Applicant's Name: _____
Address: _____
Telephone Number: _____

Proposed Development:
Name: _____
Location: _____
Land Use Type: _____
ITE Code #: _____
Proposed number of development units: _____
Other: _____
Description:
_____
_____

Zoning
Existing: _____
Comprehensive plan recommendation: _____
Requested: _____
Findings of the Preliminary Study:
_____
_____

Study Type:

Complete ☐ Traffic operations ☐

None ☐

Study Area:
Boundaries: _____
_____

Additional intersections to be analyzed: _____
_____
Horizon Year(s): _____
Analysis Time Period(s): _____

Future Off-Site Developments: _____
_____

Source of Trip Generation Rates: _____

Reductions in Trip Generation Rates:
None: _____
Pass-by trips: _____
Internal trips (PUD): _____
Transit use: _____
Other: _____

Horizon Year Roadway Network Improvements:
_____
_____

Methodology & Assumptions:
Non-site traffic estimates: _____
Site-trip generation: _____
Trip distribution method: _____
Traffic assignment method: _____
Traffic growth rate: _____

Special Features: (from preliminary study or prior experience)
Accident locations: _____
Sight distance: _____
Queuing: _____
Access location & configuration: _____
Traffic control: _____
Signal system location & progression needs: _____
On-site parking needs: _____
Data Sources: _____
Base maps: _____
Prior study reports: _____
Access policy and jurisdiction: _____
Review process: _____
Requirements: _____
Miscellaneous:

_____

==========

SIGNATURES

_____
Study Preparer

_____
Reviewers

_____
Applicant

APPENDIX A-1

ANNUAL UPDATE INVENTORY REPORT (AUIR)

COLLIER COUNTY 2002 ANNUAL UPDATE INVENTORY REPORT (AUIR) - Collier County Transportation Database

ID#	CIE#	Proj #	Road #	Link	From/To	Exist Road			Min Std	10 Month Existing Road Service Volume	2002 Counted Daily Volume	2002 V/Std Ratio	L O S	Year Expected Deficient	Notes		Fiscal Year 2003-2007 Capital Projects (Proposed) FY03	FY04	FY05	FY06	FY07	Total 02-07
1		99910	CR31	Airport Rd.	Immokalee Rd. to Vanderbilt Beach Rd. Ext.	4D			D	45,100	32,400	0.72	C									
2	55	62031	CR31	Airport Rd.	Vanderbilt Bch.Rd.Ext. to Pine Ridge	6D			E	53,000	42,400	0.80	D				23 FCO					23
3	39	60121	CR31	Airport Rd.	Pine Ridge Rd. to Golden Gate Parkway	6D			E	63,300	45,400	0.72	C									
4		99906	CR31	Airport Rd.	Golden Gate Parkway to Radio Rd.	6D			E	62,000	51,500	0.83	D									
5	3	66031	CR31	Airport Rd.	Radio Rd. to Davis Blvd.	6D			E	67,400	41,500	0.62	C									
6	3	66031	CR31	Airport Rd.	Davis Blvd. to US41	6D			E	47,300	33,400	0.71	D									
7			CR953	Bald Eagle Dr.	SR 951 to CR 92	4D			D	36,900	11,700	0.32	B									
9		99911		Bayshore (Kelly) Rd.	US41 to Thomasson Dr.	4D			D	36,900	15,700	0.43	B									
					See ID 141 -Multi proj. environ.																	
10	31	60021	CR 865	Bonita Beach Rd.	West of Vanderbilt Dr.	4D			D	36,900	24,700	0.67	B									
11	35	69021		Carson Road	Lake Trafford Rd. to Immokolee Dr.	2U			D	18,700	5,300	0.28	A									
12	33	60101		County Barn Rd.	Davis Blvd. to CR 864	2U			D	18,500	16,300	0.88	C	**2005**			1,342 R/M	11,300 C/I				12,642
13		99912	CR29	County Road 29	US41 to Chokoloskee Island	2U			D	15,800	3,114	0.20	A									
14			SR84	Davis Blvd.	US41 to Airport Rd.	6D			E	40,200	33,900	0.84	D		State							
15	48		SR84	Davis Blvd.	Airport Rd. to Lakewood Blvd	4D			D	33,000	28,800	0.87	D	**2004**	State							
16	49		SR84	Davis Blvd.	Lakewood Blvd. to County Barn Rd.	4D			D	33,000	28,800	0.87	D	**2004**	State							
17	83	66021	SR84	Davis Blvd.	County Barn Rd. to Santa Barbara Blvd.	4D			D	33,000	30,900	0.94	D	**2004**	State							
18	83		SR84	Davis Blvd.	Santa Barbara Blvd. to Radio Road	2U			D	16,900	14,400	0.85	D	**2005**	State							
19	72		SR84	Davis Blvd.	Radio Rd to CR951	2U			D	16,900	21,800	1.29	F	**Existing**	State	**Potential ASI**						
20	62	63041	CR876	Golden Gate Blvd.	CR951 to Wilson Blvd.	4D			D	33,600	17,700	0.53	B				210 FCO					210
21		99913	CR886	Golden Gate Pkwy	US41 to Goodlette-Frank Rd.	6D			E	25,300	22,200	0.88	E					250 AM		250 S		500
22	5	69031	CR886	Golden Gate Pkwy	Goodlette-Frank Rd. to Airport Rd.	6D			E	55,500	44,100	0.79	C									
23	74	99914	CR886	Golden Gate Pkwy	Airport Rd. to I-75	4D			E	22,400	29,600	1.32	F	**Existing**			10,324 R/C	17,500 C/I				27,824
24	74	99915	CR886	Golden Gate Pkwy	I-75 to Santa Barbara Blvd.	4D			E	22,400	29,600	1.32	F	**Existing**			10,325 R/C	17,500 C/I				27,825
25		99916	CR886	Golden Gate Pkwy	Santa Barbara Blvd. to CR951	4D			D	29,900	29,900	1.00	D	**Existing**		**Policy Constrained**						
26	19	68041	CR851	Goodlette-Frank Rd.	Immokalee Rd. to Vanderbilt Bch. Rd.	2U			D	18,800	14,900	0.79	C							1,200 D		1,200
27	65	60134	CR851	Goodlette-Frank Rd.	Vanderbilt Bch. Rd. to Pine Ridge Rd.	2D			D	19,400	21,500	1.11	F	**Existing**			15,620 C/I					15,620
28	88	60131	CR851	Goodlette-Frank Rd.	Pine Ridge Rd. to Solana Rd.	4D			E	29,600	31,700	1.07	F	**Existing**			600 D	7,350 E/C/I				7,950
29	88	60131	CR851	Goodlette-Frank Rd.	Solana Rd. to Golden Gate Pkwy.	4D			E	29,600	31,700	1.07	F	**Existing**			600 D	7,350 E/C/I				7,950
30		99917	CR851	Goodlette-Frank Rd.	Golden Gate Parkway to US41	6D			E	46,500	35,900	0.77	E									
31	87	99918		Green Blvd.	Santa Barbara Blvd. to CR 951	2U			D	27,100	12,100	0.45	B					600 D	970 R	2,930 R	3,800 C	8,300
	90			Green Blvd. Extension	Livingston Rd. to Santa Barbara Blvd.													400 S		3,500 D		3,900
32		66011		Gulfshore Dr.	111th Ave N. to Vanderbilt Beach Rd.	2U			D	18,400	5,100	0.28	B									
33	37	65061	CR951	Collier Blvd. (CR 951)	Immokalee Rd. to Golden Gate Blvd.	2U			D	18,100	16,300	0.90	B	**2004**			1,500 D/R	9,378 R	13,500 C*			24,378
34	85	65062	CR951	Collier Blvd. (CR 951)	Golden Gate Blvd. to Pine Ridge Rd.	4D			D	37,400	27,700	0.74	B	**2007**				1,100 D	1,500 R	5,700 R	8,500 C	16,800
35	76	65062	CR951	Collier Blvd. (CR 951)	Pine Ridge Rd.to I-75	4D			D	41,100	19,900	0.48	B									
36	61	63031	CR951	Collier Blvd. (CR 951)	I-75 (North side) to Davis Blvd.	4D			D	26,400	44,300	1.68	F	**Existing**		**Potential ASI**		250 S	1,900 D			2,150
37	86	66062	CR951	Collier Blvd. (CR 951)	Davis Blvd. to Rattlesnake Hammock Rd.	4D			D	36,200	29,000	0.80	B	**2006**			2,300	2,437	7,312	18,600		30,649

ID#	CIE#	Proj #	Road #	Link	From/To	Exist Road			Min Std	Existing Road Service Volume	2002 Counted Daily Volume	2002 V/Std Ratio	L O S	Year Expected Deficient	Notes	Fiscal Year 2003-2007 Capital Projects (Proposed) FY03	FY04	FY05	FY06	FY07	Total 02-07
																D/M	R	R	E/C/I		
38	86	66061	CR951	Collier Blvd. (CR 951)	Rattlesnake Hammock Rd. to US41	4D			D	35,000	28,500	0.81	B	**2007**		2,300	2,438	7,311	18,600		30,649
																D/M	R	R	E/C/I		
39	12	64041	SR951	State Road 951	US41 to Manatee Rd.	4D			D	38,000	36,100	0.95	B	**2005**							
40	12	64041	SR951	State Road 951	Manatee Rd. to New York Dr.	4D			D	38,000	28,200	0.74	B								
41	51	64041	SR951	State Road 951	New York Dr. to N. Marco Island Bridge	4D			D	38,000	28,200	0.74	B								
			SR951	State Road 951	Marco Island Bridge	2U			D	18,600	28,200	1.52	F	**Existing**							
42	73		SR951	State Road 951	Marco Island Bridge to CR 953	4D			D	36,900	21,900	0.59	C								
43			SR951	State Road 951	CR 953 to CR 92	4D			D	36,900	26,800	0.73	C								
44	64	99901	CR846	111th Av.N.	Gulfshore Dr. to Vanderbilt Dr.	2U			D	15,400	6,400	0.42	C								
45	1	60031	CR846	111th Av.N.	Vanderbilt Dr. to US 41	2U			D	15,400	8,700	0.56	C								
46	6	66042	CR846	Immokalee Rd.	US 41 to Airport Rd.	4D			D	28,500	39,300	1.38	F	**Existing**		6,344	10,000				16,344
																D/R	C/I				
47	6	66043	CR846	Immokalee Rd.	Airport Rd. to I-75	4D			D	38,500	38,200	0.99	D	**2003**		6,345	10,000				16,345
																D/R	C/I				
48	8	69101	CR846	Immokalee Rd.	I-75 to CR 951	4D			D	32,100	31,700	0.99	D	**2003**		51			500		551
																FCO			D		
49	71	60018	CR846	Immokalee Rd.	CR 951 to Wilson Blvd	2U			D	18,200	19,000	1.04	F	**Existing**		13,563					13,563
																C/I					
50	71	99920	CR846	Immokalee Rd.	Wilson Blvd. to Oil Well Road	2U			D	15,600	17,900	1.15	F	**Existing**		13,562					13,562
																C/I					
51	73	60165	CR846	Immokalee Rd.	Oil Well Road to Sr 29	2U			D	13,600	9,200	0.68	C			1,800		3,500			5,300
																S*		D*			
57	66	99903		Lake Trafford Rd.	West of SR29	2U			D	18,400	11,400	0.62	B								
58		99922		Logan Blvd.	Vanderbilt Beach Rd. to Pine Ridge Rd.	2U			D	23,300	11,800	0.51	B								
59	22	68051		Logan Blvd.	Pine Ridge Rd. to Green Blvd.	4D			D	29,400	31,000	1.05	E	**Existing**							
	79	60166		Logan Blvd.	Pine Ridge Rd. to Immokalee Rd.	2D										2,250		6,000			8,250
																D/R**		C**			
60	21	65041	CR881	Livingston Road (MSTU)	Imperial St. to Immokalee Rd.	0			D	-						7,538					7,538
																C/I					
61	57	62061	CR881	Livingston Road-IV	Immokalee Rd. to Vanderbilt Bch. Rd.	0			D	-						10,997					10,997
																C/I					
62	58	62071	CR881	Livingston Road-III	Vanderbilt Bch. Rd. to Pine Ridge Rd.	0			D	-						10,997					10,997
																C/I					
63	52	60071	CR881	Livingston Road-II	Pine Ridge Rd. to Golden Gate Pky	0			D	-						2,526					2,526
																C/I					
64	53	60061	CR881	Livingston Road-I	Golden Gate Parkway to Radio Rd.	6D			D	71,700	13,400	0.19	C								
	77	60167		Livingston Road Extension		TBD										600	9,000				9,600
																D	D/R/M				
65	89	60036		E/W Livingston Road	Old 41 to N/S Livingston Rd.				D	-						2,500					2,500
																R					
66	67	99904		N. 1st Street	Main St. to New Market Rd.	2U			D	15,300	7,600	0.50	C								
67				New Market Road	Broward St. to SR 29	2U			D	15,300	9,100	0.59	C								
68	59	62021		North 11th	In Immokalee - Robert's PUD	2U			D												
69	36			Camp Keais	CR 858 to Immokalee Rd	2U			D	15,300	2,600	0.17	C								
71	68	99905	CR887	Old US41	US41 to Lee County Line	2U			D	18,400	14,600	0.79	C								
72		99924	CR896	Pine Ridge Rd.	West of US 41	4D			D	36,500	18,100	0.50	D								
73	14	69042	CR896	Pine Ridge Rd.	US41 to Goodlette-Frank Rd.	6D			E	46,700	36,800	0.79	E								
74	14	69042	CR896	Pine Ridge Rd.	Goodlette-Frank Rd. to Shirley St.	6D			E	53,300	49,100	0.92	D								
75	14	69042	CR896	Pine Ridge Rd.	Shirley St. to Airport Rd.	6D			E	36,500	42,500	1.16	F	**Existing**							
76	41	60111	CR896	Pine Ridge Rd.	Airport Rd. to I-75	6D			E	57,000	48,700	0.85	D			250					250
																FCO					
77	41	99907	CR896	Pine Ridge Rd.	I-75 to Logan	6D			E	38,500	32,800	0.85	D								
78	15	65032	CR856	Radio Rd.	Airport Rd. to Livingston	4D			D	32,100	21,200	0.66	D								
79	15	65033	CR856	Radio Rd.	Livingston to Santa Barbara Blvd.	4D			D	26,600	26,500	1.00	D	**2003**			275				275

ID#	CIE#	Proj #	Road #	Link	From/To	Exist Road			Min Std	Existing Road Service Volume	2002 Counted Daily Volume	2002 V/Std Ratio	LOS	Year Expected Deficient	Notes	Fiscal Year 2003-2007 Capital Projects (Proposed) FY03	FY04	FY05	FY06	FY07	Total 02-07
																	AM				
80	16	65031	CR856	Radio Rd.	Santa Barbara Blvd. to SR 84	2U			D	17,700	9,600	0.54	B			30 FCO					30
81	17	65021	CR846	Rattlesnake Hmck Rd.	US41 to Charlemagne Blvd.	4D			D	32,300	16,100	0.50	C								
82	17	65021	CR846	Rattlesnake Hmck Rd.	Charlemagne Blvd. to County Barn Rd.	4D			D	32,300	13,600	0.42	C								
83	17	65021	CR846	Rattlesnake Hmck Rd.	County Barn Rd. to Polly Ave.	4D			D	32,300	15,200	0.47	C								
84	77	65022	CR846	Rattlesnake Hmck Rd.	Polly Ave. to CR951	2U			D	16,500	15,200	0.92	B	**2004**		6,800 D/M/C/I					6,800
85	56	99908		Santa Barbara Blvd.	Green Blvd. to Golden Gate Parkway	4D			D	27,600	26,700	0.97	D	**2003**							
86	56	62081		Santa Barbara Blvd.	Golden Gate Parkway to Radio Rd.	4D			D	30,700	28,500	0.93	D	**2004**		10,794 D/R		30,125 C/I			40,919
87	56	99909		Santa Barbara Blvd.	Radio Rd. to SR 84	4D			D	29,900	20,900	0.70	D								
88	32	60091		Santa Barbara Extension	SR 84 to Rattlesnake Hammock	4D			D								2,500 D	5,000 R	10,000 R	11,400 C	28,900
89			CR92	San Marco Blvd.	Collier to Bald Eagle Drive	2U			D	18,400	11,700	0.64	C								
90			CR92	San Marco Blvd.	Bald Eagle Dr to Barfield	2U			D	18,400	8,000	0.43	C								
91			SR29	State Road 29	US41 to CR837	2U			C	9,300	1,700	0.18	A		State						
92			SR29	State Road 29	CR 837 to I-75	2U			C	9,300	950	0.10	A		State						
93			SR29	State Road 29	I-75 to CR 858	2U			C	9,300	1,650	0.18	A		State						
94			SR29	State Road 29	CR 858 to SR 29A (New Market)	2U			C	21,800	9,600	0.44	C		State						
95			SR29	State Road 29	CR 29A South to N. 15th St	4D			C	29,900	13,000	0.43	C		State						
96			SR29	State Road 29	N. 15th St. to SR 29A North	2U			C	13,600	9,900	0.73	C		State						
97			SR29	State Road 29	CR 29A North to SR 82	2U			C	13,600	11,200	0.82	C		State						
98			SR29	State Road 29	SR 82 to Hendry County Line	2U			C	9,300	5,900	0.63	C		State						
99			SR29	State Road 82	SR 29 to Lee County Line	2U			C	9,300	8,800	0.95	C		State						
100			US41	Tamiami Trail East	"Four Corners" to Goodlette Rd.	6D			E	43,500	29,100	0.67	D		State						
101			US41	Tamiami Trail East	Goodlette Rd. to Davis Blvd.	8D			E	66,300	46,100	0.70	D		State						
102	43		US41	Tamiami Trail East	Davis Blvd. to Airport Rd.	6D			E	51,600	33,400	0.65	D		State						
103	47		US41	Tamiami Trail East	Airport Rd. to Rattlesnake Hmck. Rd.	6D			E	41,100	39,100	0.95	C		State						
104	46		US41	Tamiami Trail East	Rattlesnake Hmck. Rd. to Triangle	6D			E	56,100	28,200	0.50	A		State						
105			US41	Tamiami Trail East	Triangle to Isle of Capri	6D			E	56,100	28,200	0.50	A		State						
106			US41	Tamiami Trail East	Isle of Capri to Greenway	2U			C	18,100	13,700	0.76	C		State						
107			US41	Tamiami Trail East	Greenway to SR 29	2U			C	9,300	4,600	0.49	B		State						
108			US41	Tamiami Trail East	SR 29 to Dade County Line	2U			C	9,300	4,000	0.43	B		State						
109	71		US41	Tamiami Trail North	Lee Co. to Wiggins Pass Rd.	6D			E	59,600	37,900	0.64	B		State						
110	50		US41	Tamiami Trail North	Wiggins Pass Rd. to Immokalee Rd.	6D			E	62,100	51,700	0.83	C		State						
111	45		US41	Tamiami Trail North	Immokalee Rd.to Vanderbilt Bch. Rd.	6D			E	46,400	46,300	1.00	E	**2003**	State						
112	45		US41	Tamiami Trail North	Vanderbilt Bch. Rd. to Gulf Park Dr.	6D			E	53,500	45,300	0.85	C		State						
113			US41	Tamiami Trail North	Gulf Park Dr. to Pine Ridge Rd.	6D			E	53,500	48,900	0.91	C	**2006**	State						
114			US41	Tamiami Trail North	Pine Ridge Rd. to Solana Rd.	6D			E	56,300	56,200	1.00	E	**2003**	State						
115			US41	Tamiami Trail North	Solana Rd. to Creech Rd.	6D			E	56,300	56,200	1.00	E	**2003**	State						
116			US41	Tamiami Trail North	Creech Rd. to Golden Gate Parkway	6D			E	56,300	56,200	1.00	E	**2003**	State						
117			US41	Tamiami Trail North	Golden Gate Parkway to Central	6D			E	56,200	36,900	0.66	D		State						
118			US41	Tamiami Trail North	Central to Goodlette	6D			E	39,700	32,000	0.81	D		State						

ID#	CIE#	Proj #	Road #	Link	From/To	Exist Road			Min Std	Existing Road Service Volume	2002 Counted Daily Volume	2002 V/Std Ratio	L O S	Year Expected Deficient	Notes		Fiscal Year 2003-2007 Capital Projects (Proposed) FY03	FY04	FY05	FY06	FY07	Total 02-07
119				Thomasson Dr.	Bayshore Dr. to US 41 E.	2U			D	15,300		0.00										
120	42	65071	CR862	Vanderbilt Beach Rd.	Gulfshre Dr. to US41-CONSTRAINED	2U			E	19,200	22,900	1.19	F	**Existing**		**ASI**						
121	23	67021	CR862	Vanderbilt Beach Rd.	US41 to Airport Rd.	4D			D	29,500	24,400	0.83	C									
122	63	63051	CR862	Vanderbilt Beach Rd.	Airport Rd. to Logan Blvd.	2U			D	22,400	25,200	1.13	F	**Existing**			24,939 D/R/C/I					24,939
123	24	99927	CR862	Vanderbilt Beach Rd.	Logan Blvd. to CR951	2U			D	12,000	10,900	0.91		**2004**								
	78	60168		Vanderbilt Beach Rd.	CR951 to Wilson Road												300 S		3,000 D		12,500 R	15,800
124	25	69061	CR901	Vanderbilt Drive	Bonita Beach Rd. to Wiggins Pass Rd.	2U			D	18,400	13,500	0.73	C								1,400 D	1,400
125		69061	CR901	Vanderbilt Drive	Wiggins Pass Rd. to 111th Ave.	2U			D	18,400	13,200	0.72	C									
126	26	69021		Westclock Rd.	Carson Rd. to SR 29	2U			D	17,700	3,400	0.19	A									
127		99928	CR888	Wiggins Pass Rd.	Vanderbilt Drive to US41	2U			D	18,400	8,100	0.44	B									
				Wilson Blvd.	Immokalee Rd. to Golden Gate Blvd.															250 S		250
				Golden Gates Estates	E/W Corridor Study												400 S			250		650
		69068		13th Street	13th Street Improvement												2,059 C/I					2,059
			SR84	Davis Blvd.	Davis Blvd. Intersection												500 C					500
			SR84	Davis Blvd. - Corr. Study	Airport Rd. to Santa Barbara Blvd.													150 S		700 D		850
				Golden Gate Blvd.	Everglades to Wilson Blvd.														250 S		1,500 D	1,750
			CR 896	Pine Ridge Rd.	Logan to CR 951	4D			D	26,800	16,600	0.62	C					600 D			5,000 C	5,600
				Collier Blvd.	Immokalee Rd. Lee Co/Line (Crrdr Study)												250 S					250
131				Bridge Repairs/Improvements													73	50	50	50	50	273
132	69			Major Intersection Improvements													891	1,000	1,000	1,000	1,000	4,891
133				Intersection Safety/Capacity Improvements													1,292	750	750	750	750	4,292
134	28			New Traffic Signals													1,063	750	750	750	750	4,063
135				Shoulder Safety Program													75	50	50	50	50	275
136				Pathways/Sidewalks/Bike Lanes													50	50	50	50	50	250
140	27			Major Roadway Resurfacing													1,617	1,000	1,000	1,000	1,000	5,617
144				Collector/Minor Arterial Roads													8,928	6,600	6,600	6,600	6,600	35,328
145	34			Advanced ROW													1,570	1,000	1,000	1,000	1,000	5,570
146				Impact Fee Credits Threshold													2,000	2,000	2,000	2,000	2,000	10,000
148				Proposed Debt Service														9,567	15,348	25,773	29,257	79,944
				10% Contingency/Reserve													12,772	8,300	7,500	6,200	4,900	39,672
																	200,870	**141,495**	**116,466**	**107,703**	**91,507**	**658,040**

Road Expenditures Activities Key
S= Study
D= Design
R= Right-of-Way
C= Construction
I= Inspection
**** To be funded by Developer**

Funding is in 1,000's

APPENDIX A-2

SAMPLE REPORT OUTLINE

Suggestion: Use this Appendix as a worksheet to ensure that no important elements are overlooked. Cross out items that do not apply.

Report Outline

A. Development name and location
B. Application number
C. Applicant name
D. Preparer name and organization
E. Report date

Title Sheet

A. Development name and location
B. Application number
C. Applicant's name, address and telephone number
D. Preparer's name, title, organization, address and telephone number
E. Date of original report
F. Report revision date

Table of Contents

List of Figures and Tables

I. Introduction and Summary

A. Purpose of report and study objectives
B. Executive summary
    1. Site location and study area
    2. Development description
    3. Principal findings
    4. Conclusions and recommendations

II. Proposed Development

A. Subject site
    1. Land use and intensity
    2. Location
    3. Site plan
    4. Zoning
    5. Phasing and timing
B. Off-site developments

III. Area Conditions

A. Study area limits
B. Study area land use
    1. Existing land use
    2. Existing zoning
    3. Anticipated future developments
C. Site accessibility
    1. Area roadway system
        a. Existing
        b. Proposed
    2. Traffic volumes
    3. Transit service
    4. Transportation system management programs

IV. Projected Traffic

A. Site traffic (each horizon year)
    1. Trip generation
    2. Trip distribution
    3. Traffic assignment
B. Non-site traffic (each horizon year)
    1. Method of projection
    2. Trip generation
    3. Trip distribution
    4. Traffic assignment
C. Total traffic (each horizon year)

V. Analysis

A. Site access
B. Capacity and level of service
C. Traffic safety
D. Traffic control
E. Site circulation and parking

VI. Improvement Analysis

A. Improvements to accommodate non-site traffic
    1. Physical
    2. Operational
B. Additional improvements to accommodate site traffic
    1. Physical
    2. Operational
    3. Travel demand reduction
C. Alternative improvements
D. Status of improvements already funded, programmed, or planned
E. Evaluation

VII. Findings

A. Site accessibility
B. Traffic impacts
C. Additional improvement
D. Compliance with traffic-related local codes

VIII. Recommendations

A. Site access/circulation plan
B. Roadway improvements
    1. On-site
    2. Off-site
C. Transportation system management actions
D. Other

IX. Conclusion

A. Traffic impact of proposed development
B. Adequacy of proposed plan including recommended improvements

APPENDIX B

TABLE DESIGN FORMATS

Table 1
TOTAL PM PEAK HOUR PROJECT TRIP GENERATION

LAND USE	ITE LAND USE CODE	DU (RES) OR/ SQ. FT. (NON-RES) (or other units)	FORMULA/ RATE	PEAK HOUR TRIPS

Table 2
ENTER/EXIT BREAKDOWN OF TRIPS DURING P.M. PEAK HOUR

LAND USE	TOTAL TRIPS	PERCENTAGE ENTER/EXIT	P.M. TRIPS ENTER/EXIT

Table 3
TOTAL P.M. PEAK HOUR EXTERNAL PROJECT TRIPS

LAND USE	TOTAL TRIPS (FROM TABLE 2)	INTERNAL CAPTURE %	P.M. PEAK HOUR EXTERNAL TRIPS

Table 4
TOTAL P.M. PEAK HOUR EXTERNAL NON-PASS BY PROJECT TRIPS

LAND USE	TOTAL EXTERNAL TRIPS (FROM TABLE 3)	PASS-BY %	P.M. PK HR EXTERNAL NON-PASS-BY TRIPS

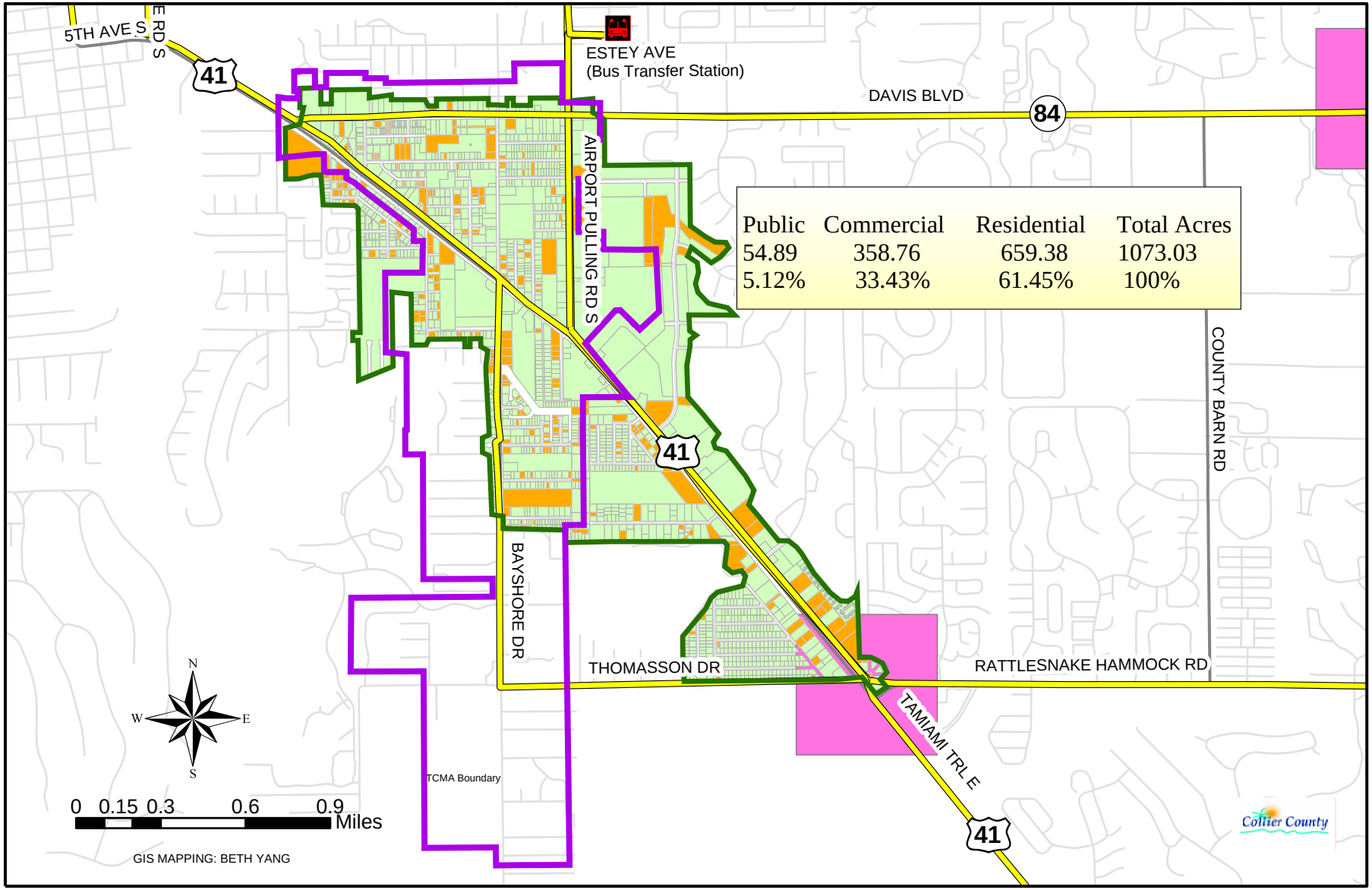
Table 5
IMPACTED SEGMENTS

SEGMENT NUMBER	ROADWAY NAME	FROM/TO (SEGMENT)	DIRECTION	P M PEAK HOUR PROJECT TRIPS	SERVICE VOLUME	% SERVICE VOLUME

APPENDIX B1

TRANSPORTATION CONCURRENCY MANAGEMENT AND EXCEPTION AREAS

Boundary Maps

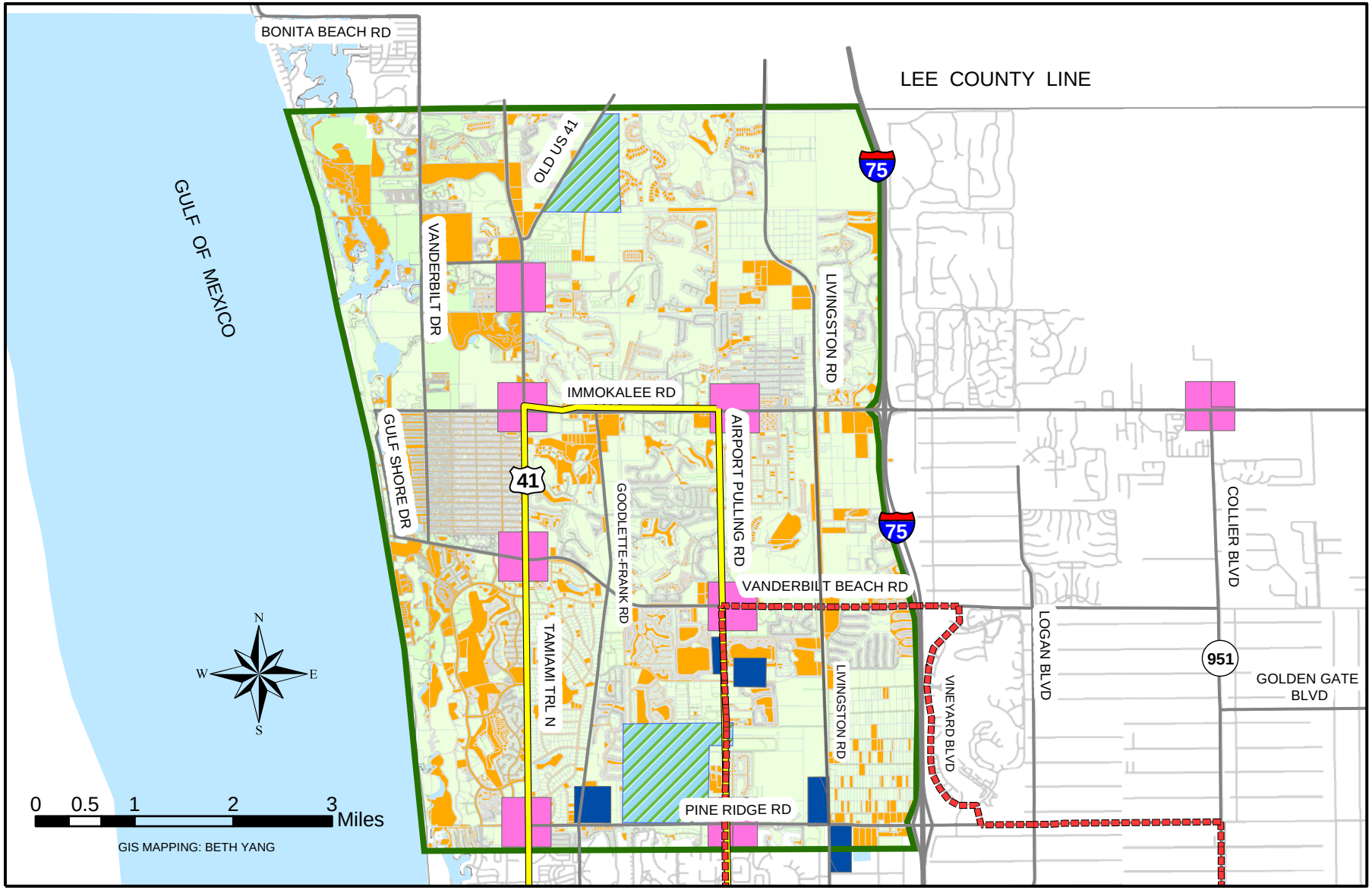


Public	Commercial	Residential	Total Acres
54.89	358.76	659.38	1073.03
5.12%	33.43%	61.45%	100%

Vacant Parcels
TCEA Boundary
Bayshore/Gateway Triangle Redevelopment Overlay
Mixed Use Activity Center Subdistrict
Existing Transit Routes
Roads

TR - 4
South U.S 41 Transportation Concurrency Exception Area (TCEA)

All Parcels: Count = 1660 (100%); Sum of acres = 1073.03 (100%)
Vacant: Count = 278 (16.7%); Sum of acres = 51.92 (4.8%)
Non-Vacant: Count = 1382 (83.3%); Sum of acres = 1021.11 (95.2%)

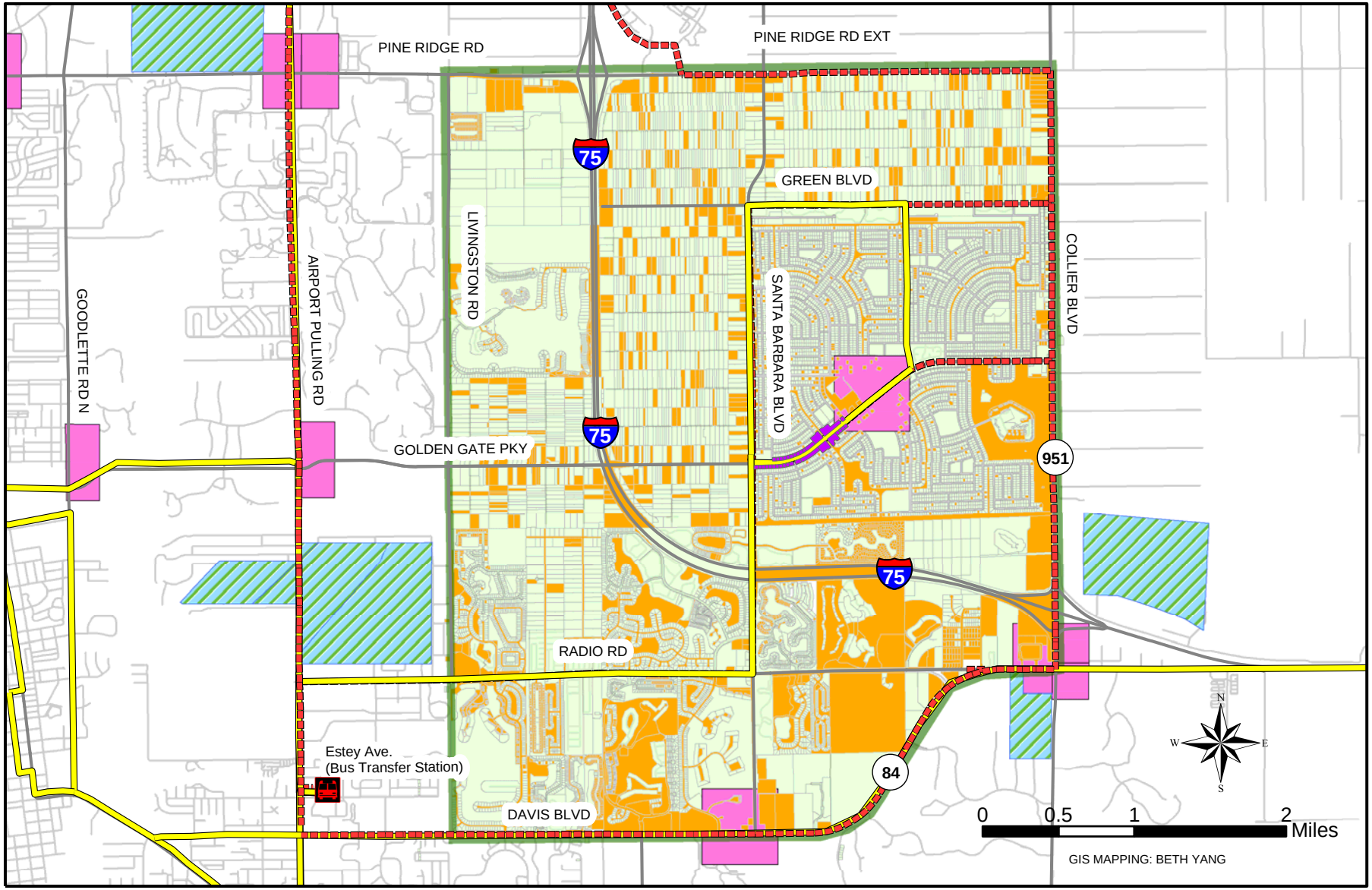


Mixed Use Activity Center Subdistrict
Industrial District
Commercial / Mixed / Infill District
TCMA Boundary
Vacant Parcels
Existing Transit Routes
Expanded Transit Routes
Roads

TR - 5
Northwest Transportation Concurrency Management Area (TCMA)

Transportation Services Division
Transportation Planning Department

Collier County



Golden Gate PKWY Professional Office Commercial District
Industrial District
Mixed Use Activity Center Subdistrict
TCMA Boundary
Vacant Parcels
Existing Transit Routes
Expanded Transit Routes
Roads

TR - 6
East Central Transportation Concurrency Management Area (TCMA)

Transportation Services Division
Transportation Planning Department

Collier County