

**RSA Program**  
**in**  
**Collier County, Florida**

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Transportation Services Division

National Peer Exchange on Road Safety Audits

Charleston, South Carolina

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# Why is Collier County doing RSAs?

- 8,281 Reported Crashes in 2005 - Up 12% from 2004
- 17 Fatalities in 2005
- 121 Bike / Pedestrian Crashes: 4 Fatalities
- Countywide Traffic Increase 2004 to 2005: + 5.08 %

# Why is Collier County doing RSAs?

- 5-year Multi-million Dollar Capital Improvement Program
- Proactive approach to highway safety
- Supports Strategic Plan Goal of improving safety on our County highways
- Relatively inexpensive to complete
- To save lives!

# RSA Pilots – Collier County

- **FHWA Case Study - Immokalee Boulevard:**  
3 mi. 4 to 6 lane expansion
- **Collier Boulevard:** 7.1 mi. 4 to 6 lane expansion
- **Golden Gate Parkway / Collier Blvd**  
**Intersection:** Existing High Crash Location  
(3.5 crashes per million entering vehicles)

# Immokalee Road – FHWA Case Study

FEDERAL HIGHWAY ADMINISTRATION COLLIER COUNTY

WIDENING OF IMMOKALEE ROAD COLLIER COUNTY, FLORIDA

CONCEPTUAL STAGE ROAD SAFETY AUDIT  
CONTRACT DTFH61-03-D00105  
TASK ORDER BMI5G05B022

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December 2004



*access and left-in median break for the "Shoppes of Pebblebrooke" shopping mall*

# Collier Boulevard

## Collier Boulevard CR951 Road Safety Audit Report

1/16/2006

Project Title: Collier Blvd - US 41 to I-76  
Date: Jul 13, 2005  
Lead Auditor: Jaak Freeman

### GENERAL TOPICS

#### Landscaping

Location: Entrance at Forest Glenn Subdivision  
Description of Safety Issue: The hedge/vegetation in the SE quadrant restricts sight distance for exiting traffic from Forest Glenn Subdivision.

Recommendation: Trim or remove the vegetation along the guardrail.

Location: Shoulder at Station 640 - Entrance to Naples Lake Village Ctr. & Sta. 735 - Entrance to Naples Golf Maintenance Facility  
Description of Safety Issue: Vegetation prohibits the line of sight when looking at SB traffic.

Recommendation: Remove vegetation to reestablish sight line.

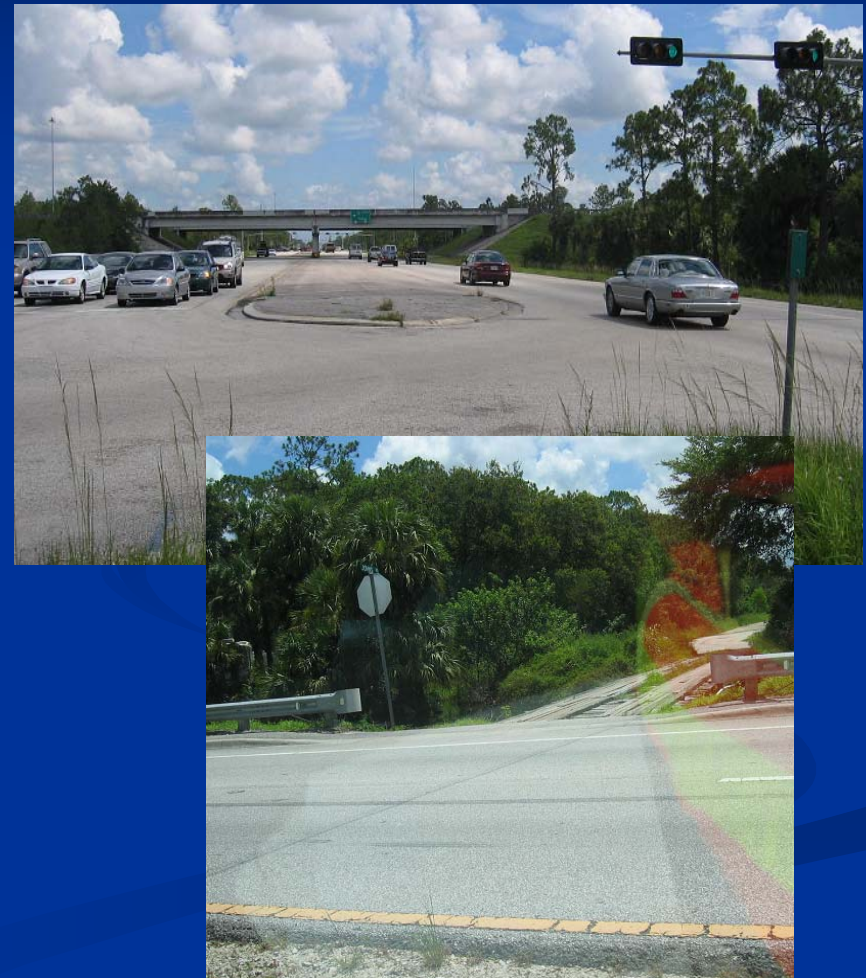
#### Utilities

Location: Shoulder at Station 640 - Entrance to Naples Lake Village Ctr. & Sta. 735 - Entrance to Naples Golf Maintenance Facility  
Description of Safety Issue: Poles along west side of roadway obstruct the line of sight. Also appears that utility poles may be within the clear recovery area along the deceleration lanes.

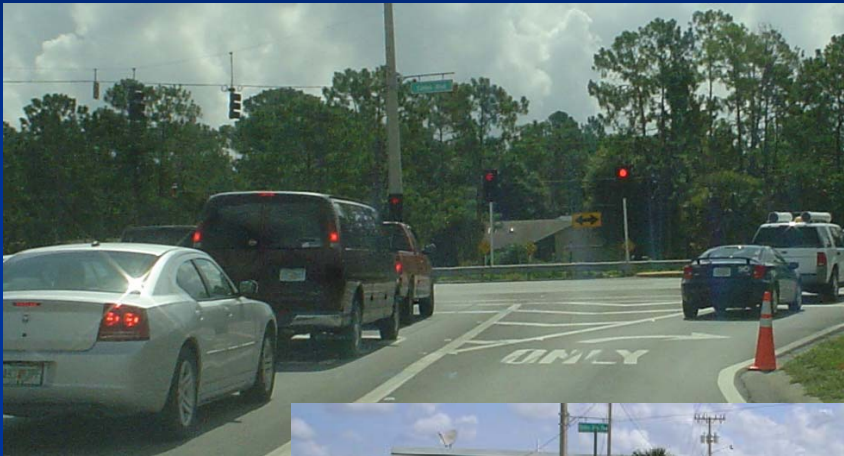
Recommendation: Investigate moving stop bar forward to improve sight distance. Investigate the location (not clear on plans) of utility poles to determine if within the 4 ft clear recovery zone from face of curb within the deceleration lanes. These are two locations that may be examples of other locations along the corridor that were not investigated due to time limitations.

#### Access to property and developments

Location: Entrances to John's Bridge, Kountry Kampin' Boulevard and Cracking Jacks Restaurant  
Description of Safety Issue: All locations are driveways off the NB lanes that have bridges over the canal. The driveway is visually obstructed by the guardrail that is along the face of curb. Further, there is no turning radius into the driveway thereby requiring turning vehicles to slow to a low speed. Also, the driveway at Kountry Kampin' Boulevard is approximately 250 ft south of Lily Cultural Drive signalized intersection. There is the potential that traffic wanting to go southbound or westbound would need to cross four lanes within 250 ft to make the u-turn movement.



# Collier Blvd / Golden Gateway Pkwy Intersection



## Collier Boulevard (CR 951) at Golden Gate Parkway Intersection Road Safety Audit Report

1/16/2006

Project Title: Collier Intersection RSA  
Date: Jul 12, 2005  
Auditors: Team A, Team B

### INTERSECTIONS

#### Location

Safety Concern: Team A

Location: Eastbound Golden Gate Approaching Collier  
Description of Safety Issue: Some object markers obscured by signal poles.

Suggestion: relocate

Safety Concern: Team A

Location: Eastbound Golden Gate Approaching Collier  
Description of Safety Issue: End of Golden Gate Parkway not well articulated. Possible need to enhance signing

Suggestion: Overhead signing may be appropriate.

Safety Concern: Team B

Location: Golden Gate Parkway EB Approach  
Description of Safety Issue: A single EB Left Turn lane serves both 41st St. SW and the alley to the east. For the 41st St. SW, this is a full access median opening. There are several confusing aspects of this left turn lane. First the opportunity for making two left turn movements out of a single left turn lane. It was observed that when two vehicles queued at 41st St. SW it blocked the ability for traffic desiring to go the alley.

Secondly, there is the perception for EB traffic to think that this is the creation of the left turn lane for Collier Boulevard. Additionally, left turning vehicles from 41st St SW could interpret the inside left turn lane to be the through lane in low visibility conditions creating a potential short merge. We also observed WB vehicles that made u-turn movements in front of Quality Inn Hotel that over-tracked the outside lane.

#### Suggestion:

Short Term: There are currently two lane assignment signs (R3-8A). The one in the median can create the perception that the left turn lane for the alley is to CR 951. It is suggested that the median sign be removed. East of the 41st St. SW, add a special diagrammatic sign that shows left turns to 41st St. SW and the alley. For the WB left turn lane into the Quality Inn, cut the nose of the lane back to better facilitate the u-turn movements.

Long Term: Close the median opening to the alley and remove the pavement that creates the left turn lane. The 41st St. SW median opening would provide a bullet nose design for the left turn movement.



# RSAs – Capital Improvement Projects

- Oil Well Road
- Santa Barbara Boulevard Extension
- Stormwater Management Projects
  - Lake Trafford Road
  - Cypress Way East



# Oil Well Road

## Oil Well Road Road Safety Audit Report

**Project Title:** Oil Well Road RSA  
**Audit Date:** Oct 30, 2006 to Nov 2, 2006  
**Auditors:** Rob Phelan, Gene Calvert, Gary Putaneanu, Silvia Monzo, Charles Benson, Bob Reglater, Karl Passetti and Jack Freeman

### GENERAL TOPICS

#### Drainage

*Location:* West of Despla Blvd.

**Description of Safety Issue:** This location is in Segment 3 and is currently scheduled for the final phase of construction starting late 2008 or early 2010. The roadway was overtopped during the summer of 2006 causing rutting of the existing lanes. Some ruts were measured to be 4 inches or greater. This area has extensive pavement and base failure and the ruts allow the opportunity for the collection of water during rainfall events. The primary safety issues are the poor riding surface and potential to lose control of the vehicle and secondly in rain/fall events the potential for hydroplaning. The roadway is currently signed but bagged saying "Caution Road Under Water" with flasher.



**Exposure:** Medium, **Probability:** Medium, **Consequence:** Medium, **Safety Risk:** Medium

**Recommendation:** Advance this section in the work program to be constructed with the initial set of projects. If this is not possible conduct a milling and resurfacing project to repair the roadway surface. This will also require some base failure repair. Under the current construction schedule this section would have about 4 to 5 years of use before

#### Landscaping

*Location:* Entire Corridor

**Description of Safety Issue:** No Landscape plans were p

#### Utilities

*Location:* Entire Corridor



# Santa Barbara Blvd. Extension



Collier County – Transportation Services Division

**Road Safety Audit Report  
Santa Barbara Boulevard Extension  
From Rattlesnake Hammock Road to Davis Boulevard**

**Project Title:** Santa Barbara Boulevard Extension: Rattlesnake Hammock Road to Davis Boulevard, Collier County, Florida

**Date:** Road Safety Audit (RSA) conducted January 16-17, 2007

**RSA Team & Participants:**

- Dale Bathon – Collier County Transportation Services
- Gary Putansuu – Collier County Transportation Services
- Steve Y-J – Collier County Transportation Services
- Brian Malone - Synectics Transportation Consultants (Audit Lead)
- John Temple - TBE Group
- Design Engineer**
- Ted Tryka – Agno', Barbar & Brundage Inc.
- Owner Representative**
- Mike Green – Collier County

**Background:**

The RSA was conducted in conjunction with the proposed extension of Santa Barbara Boulevard from Rattlesnake Hammock Road and Davis Boulevard. The site is located in Collier County, Florida. The scope of the audit included review of the 90% completion design plans for the proposed road and included examination of the connection of the new facility to the existing road network, specifically the intersections of Santa Barbara Boulevard at Davis Boulevard and at Rattlesnake Hammock Road. At the south end, the new road will be constructed approximately in line with the existing intersection of Rattlesnake Hammock Road and St Andrews Road / Polly Ave.

This location was selected for an RSA because of the significance of the project within the context of the Collier County transportation network. This facility will become a component of the County's arterial roadway network and be a key north/south transportation link. The magnitude of the project, estimated at more than \$35 million, also provided motivation for the RSA in the design stage.

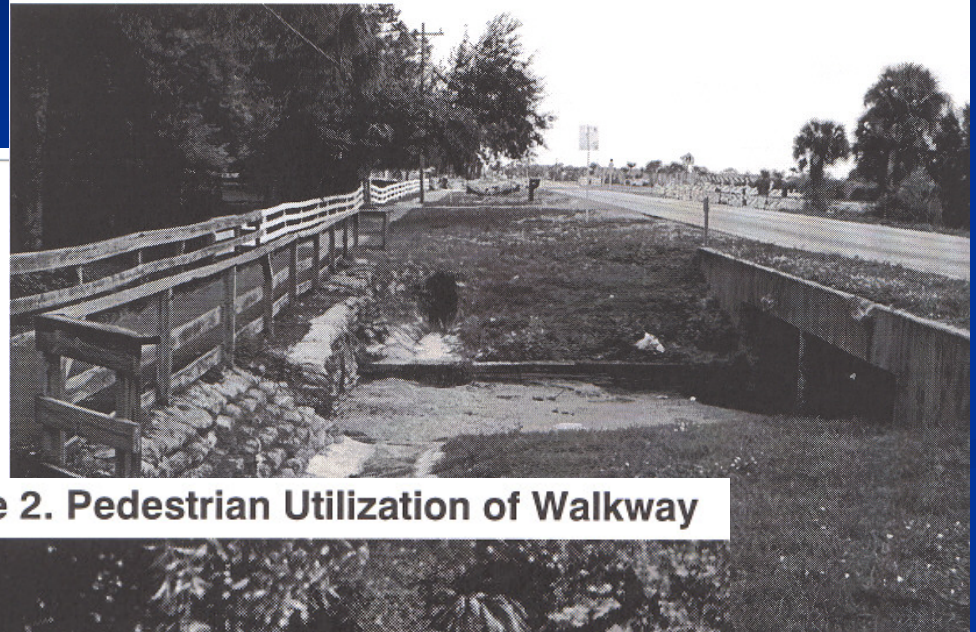
In advance of the RSA a review of collision history at the intersections where the facility will meet the existing road network was conducted. An assessment of crash records at the intersection of Santa Barbara and Davis identified a significant trend involving southbound rear-end collisions. Currently Santa Barbara ends at Davis, and the intersection has a Tee configuration. It was highlighted in the RSA that there have been recent modifications to the existing intersection with the provision of dual southbound right turn movements. The change was completed within the past six months and impacts on collisions have not been determined.

Situated in southwest Florida, the project corridor is located in Collier County, on the east fringe of the urbanized area adjacent to the City of Naples. The site is approximately 6 miles west of the Pinyune Strand State Forest. The northern end of the project site is approximately 3 miles south of Interstate 75. The existing intersections at Santa Barbara end at Rattlesnake Hammock, where the new road will connect to the existing roadway network, are both signalized.



# Fish Branch Creek

Figure 1. Fish Branch Creek Crossing with Pedestrian Walkway



Fish Branch Creek Crossing  
Lake Trafford Road

Collier County, Florida

Figure 2. Pedestrian Utilization of Walkway



Contract #06-3905

# Cypress Way East & Ibis Way

Figure 1. Culvert at Intersection of Cypress Way East and Ibis Way

Cypress Way East and Ibis Way  
Drainage Improvements

Collier County, Florida

Contract #06-3905



# Planned RSAs

- Adoption by the Board of Collier County Commissioners of an RSA Policy to include:
  - RSA's for 30% and 90% Plans Reviews
  - RSA's for a predetermined number of existing facilities

# Will an RSA drive up costs?

- The audit team provides suggestions only.
- The county and/or design engineer remains responsible for design decisions.

# Will an RSA drive up costs?

Audit findings:

- Can focus on low-cost safety improvements,
- Can be pre-screened with the county and designer,
- Must be consistent with the design stage.

# Collier County's Approach

- Focus on Capital Improvement projects
  - Conceptual Planning stage
  - Preliminary Design stage
- Requirement of Site Development Permits for new development
- Selective high hazard locations / roadways
- In-house expertise for audit team
- Utilize consultants for lead auditor roll



# Annual RSA Contract

- County Professional Services Annual Contract
- Project Objective – Lead a team of professional transportation specialists and others in the audit process
- Staff to serve as audit team members
- Negotiated contract for specific RSA project

# Annual RSA Contract

- Audit Analysis – Safety of roadway according to objectives determined in start up meeting
- Audit Team Skill Set:
  - RSA Specialist
  - Traffic Operations Engineer
  - Geometric Design Engineer
  - Law Enforcement
- Audit Team Composition – Consultant to serve as audit team leader

# Consultant Selection

## Selection Committee Grading Criteria

20 % - Project Approach & Understanding

25% - Qualifications & Experience

30% - Previous Performance

15% - Responsiveness

10% - Firm's Ability to Complete

# RSA Program Goals

- Reduce the Number and Severity of Crashes by:
  - Incorporating geometric design elements that enhance roadway safety,
  - Providing better guidance to the motorist,
  - Improving consistency of our roadways,
  - Consideration of all roadway users (motorist, trucks, transit, bicycle, & pedestrian).
- Thereby Save Lives and Reduce Injuries!

# Keys to Success

- Adapt to fit local needs
- Institutionalize the process
- Focus on what is doable,
- Train audit team members,
- Utilize multi-discipline approach
- Life cycle savings far outweigh initial costs

# Contact Information

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