Traffic Circulation Study
Lighthouse Park Neighborhood

Prepared for:

North Florida TPO

Prepared by:
PBSJ

August 2010
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Transportation Planning Organization

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Executive Summary

In January 2010, the North Florida Transportation Planning Organization (TPO) commissioned PBS&J and its subconsultants (All Traffic Data) to prepare a traffic circulation study for the Lighthouse Park Neighborhood, located in St. Augustine Beach, Florida. The purpose of the study was to identify problem areas relating to traffic flows and to recommend potential improvements that would increase safety while preserving mobility and accessibility throughout the neighborhood. The Lighthouse Park neighborhood consists primarily of the residential areas surrounding the St. Augustine Lighthouse east of SRA1A. While the neighborhood predominately consists of residential land uses, commercial uses also exist along the SRA1A corridor. In addition, the St. Augustine Yacht Club, St. Augustine Lighthouse, and R.B. Hunt Elementary School are all within the neighborhood and are significant traffic generators.

An existing conditions analysis was performed and relevant data was collected including: current traffic volumes, turning movement counts at major intersections along SRA1A, as well as general roadway characteristics. Intersection analyses were performed at two major intersections: Magnolia Drive at SRA1A and Old Quarry Road at SRA1A. This data was compiled to determine predominate traffic flows and movements throughout the neighborhood and to identify problem areas and potential mitigation strategies.

Recommended Improvements

The following are recommended roadway and corridor improvements. These modifications are summarized in the following table.
### Table E.5 - 1 Recommended Improvements

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<thead>
<tr>
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<tbody>
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I. Introduction

In January 2010, the North Florida Transportation Planning Organization (TPO) commissioned PBS&J and its subconsultants (All Traffic Data) to prepare a traffic circulation study for the Lighthouse Park Neighborhood, located in St. Augustine Beach, Florida. The purpose of the report was to identify problem areas relating to traffic flows and to recommend potential improvements that would increase safety while preserving mobility and accessibility throughout the neighborhood.

For the purposes of this study, the Lighthouse Park neighborhood boundaries were defined as SRA1A on the east, Ocean Way to the north, Flamingo Drive to the south and Salt Run to the east. The neighborhood primarily consists of residential land uses but also has a mix of commercial uses also along the SRA1A corridor as well as various governmental uses including: the St. Augustine Yacht Club, St. Augustine Lighthouse, and R.B. Hunt Elementary School. The project study area is illustrated in Figure 1-1.
II. Data Collection

Traffic Counts
Eighteen, 24-hour tube counts were collected throughout the corridor during typical weekdays. These counts were converted to average annual daily traffic (AADT) using an FDOT seasonal adjustment factor specific to St. Johns County.

Turning Movement Counts
AM and PM peak hour turning movement counts (TMCs) were collected for two intersections, both signalized and unsignalized. These counts were used in the intersection capacity analysis in order to determine the operational level of service (LOS) for the study intersections.

Tube counts and TMC locations are illustrated in Figure 2-1 and the raw traffic counts and TMCs are summarized in Appendices A and B.

Roadway Characteristics
Roadways throughout the neighborhood consist of mostly narrow, residential roads with low speed limits. SRA1A, adjacent to the neighborhood, is a four lane, minor urban arterial with a speed limit of 40 mph.

Other Data
In addition to traffic data, various other data was collected throughout the corridor in order to assist with the study. Some of this data included aerial photography as well as relevant GIS data (parcel boundaries, right-of-way boundaries, and utility easements).
III. Existing Conditions

Land Use

Land uses throughout the neighborhood consist primarily of residential. Commercial uses exist along directly adjacent to the SRA1A corridor. On the western end of the corridor various industrial land uses are present. Various governmental land uses exist within the neighborhood including: R.B. Hunt Elementary School, the St. Augustine Lighthouse, and the St. Augustine Yacht Club. Figure 3-1 illustrates the existing land uses for the study corridor and surrounding area.

Intersection Analysis

An operational capacity analysis was performed at the intersections of Magnolia Drive at SRA1A and Old Quarry Road at SRA1A for the morning and afternoon peak hours. Intersection capacity analyses were performed using Synchro software. Synchro applies the methodology from the Highway Capacity Manual to determine intersection delay and LOS based on a number of input variables including:

- Lane Configuration
- Turning Movement Counts
- Intersection Geometry
- Signal timings (signalized intersections)

The results of the Synchro analysis are summarized in Table 3-1. Figure 3-2 illustrates intersection level of service for all intersections analyzed on the corridor. Synchro software reports are summarized in Appendix B.

The results of the Synchro analysis reveal that the intersection of Magnolia Drive at SRA1A operates at LOS A during both the AM and PM peak hours.

Additionally, the intersection of Old Quarry Road at SRA1A currently operates at LOS E during both the AM and PM Peak Hours.
### Table 3 - 1 Intersection Analysis Summary

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Period</th>
<th>LOS</th>
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<tbody>
<tr>
<td>Magnolia Drive at SRA1A</td>
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<tr>
<td>AM Peak</td>
<td></td>
<td>A</td>
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<tr>
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<td>Old Quarry Road at SRA1A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM Peak</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

### Signal Warrant for Old Quarry Road/Red Cox Road at SRA1A

A signal warrant analysis was conducted for the intersection of SRA1A and Quarry Road. This intersection does not satisfy any of the warrants outlined in the Manual of Uniform Traffic Control Devices (MUTCD) necessary for the installation of a traffic signal. Based on the analysis, it is not recommended that a signal be installed at this intersection. The complete signal warrant analysis is contained in Appendix C.
DISCLAIMER:
(1) This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. The City of St. Augustine disclaims all responsibility for the accuracy or completeness of the data shown herein.
(2) Recently approved changes may not be reflected in the current dataset.
(3) Classifications depicted are for convenience only and should be confirmed by the governing department of the City of St. Augustine prior to legal use. For departmental contact information, please visit www.staugustinegovernment.com.

NOTE: Information from the St. Johns County Geographic Information System is provided for general reference purposes only and is not to be construed as a survey or legal document. Errors from non-coincidence of features from different sources may be present. The St. Johns County Geographic Information System makes every reasonable effort to ensure that the information provided herein is current and accurate. However, St. Johns County provides no warranties, expressed or implied, concerning the accuracy, completeness, reliability, or suitability of the data for any particular use or purpose. St. Johns County assumes no liability whatsoever associated with the use or misuse of such data.
Lighthouse Park Neighborhood
Traffic Circulation Study
Figure 3-2

Intersection Level of Service

<table>
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</table>
IV. Traffic Circulation Conditions

Based on the evaluation of traffic count data collected throughout the neighborhood, general traffic flow patterns were revealed (See Figure 4-1). One of the primary traffic generators is the RB Hunt Elementary School located between Red Cox Drive and Magnolia Drive. Many parents drop their children off in the drop off area in the front of the school. This area is accessed from SR A1A at the location of the current signal. To exit, most parents turn left on Anastasia Avenue (a one-way street) in order to get back to SR A1A. This accounts for the majority of westbound traffic on this road. However, it appears that some continue north on Magnolia Drive and exit to SR A1A using Busam Street. This pattern is also used by people visiting the nursery and day care centers. According to residents of the neighborhood, it is this movement that is creating conflicts due to vehicles speeding down Magnolia Drive.

Another high traffic area is on Red Cox Drive. Much of the traffic on this road can be attributed to the Lighthouse as well as the boat ramp. The City of St. Augustine has erected signage on SR A1A to direct visitors to the lighthouse via Red Cox Drive. Based on the amount of traffic on Red Cox Drive, the presence of this signage appears to be effective in eliminating the majority of traffic that would cut through the neighborhood in route to the lighthouse. In addition to traffic generated by the lighthouse and boat ramp, this road also serves as the bus entrance of the elementary school, however this amount of bus traffic is minimal.

Major traffic generators within the neighborhood are illustrated in Figure 4-2.
V. Coordination Meetings

As part of the study, meetings were held with various stakeholders and affected parties. These stakeholders included representatives from: R.B. Hunt Elementary School, the St. Augustine Lighthouse, members of the Lighthouse Park Neighborhood and the City of St. Augustine.

A project kick-off meeting was held at the St. Augustine Yacht Club to listen to concerns of the residents of the neighborhood and generally direct how the study would proceed. Many attendees at this meeting had concerns that were focused on pedestrian safety (specifically children) within the residential streets of the neighborhood. The streets throughout the neighborhood are narrow and most lack sidewalks. Many children walk down Magnolia Drive to attend school. As mentioned above, this road also serves as a route for parents dropping off children, which creates a potentially unsafe environment for children.

Another concern of neighborhood residents is in regards to the amount of commercial vehicles in the neighborhoods. Leonardi’s Nursery is currently located on several blocks within the neighborhood adjacent to SR A1A. Due to the nature of the business, many commercial vehicles frequent the area on a daily basis. Many of these vehicles block the streets while loading and unloading their cargo.

A second meeting was held in March 2010 with the Principal of R.B. Hunt Elementary School to discuss traffic circulation issues specific to the school. The Principal’s major concern was with the functionality of the traffic signal located directly in front of the school. He stated that the current configuration of the signal does not allow for a dedicated left turn signal for vehicles traveling southbound on SRA1A attempting to turn into the school.

In April 2010, a meeting with local elected officials and the City of St. Augustine took place to discuss the draft results and recommendations of the study. In early June, a public meeting was held and the draft results and recommendations were presented. Residents were given the opportunity to ask questions and submit comments. These comments and concerns were then incorporated into the final recommendations.
VI. Recommendations

The following are recommended traffic modifications. These modifications are summarized in Table 5-1.

**Table 5 - 1 Recommended Traffic Modifications**

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<th>1. Install new signage at the Fire Station directing visitors to the Lighthouse and boat ramp</th>
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Improved Signage for the St. Augustine Lighthouse and Surrounding Areas

As part of this study, all signage for the St. Augustine Lighthouse was inventoried using GPS technology. From an analysis of current traffic counts, it appears that the current signage is effective at directing visitors to the lighthouse using Red Cox Drive instead of using the residential streets in the northern part of the neighborhood. It is recommended that two modifications be made to the current signage. First, a new sign should be erected further north on SRA1A near the miniature golf course. This is the area where the lighthouse is first seen by vehicles traveling southbound on SRA1A. Second, the sign currently located at the entrance to the elementary school should be moved further south so that visitors to the lighthouse are not confused as to where to turn left. These changes are illustrated in Figure 5 - 1. Additionally, all foliage around signs should be trimmed regularly to ensure that the signs are not obscured. It is also recommended that the current lighthouse directional signage be enlarged so that it is easier for motorists to read. A new marquee sign should also be installed in the lot adjacent to the lighthouse directing visitors down Red Cox Drive to the lighthouse and boat ramp.
Add additional "No Thur Traffic" and "Low Clearance" Signage throughout neighborhood.
Creation of a Safe Routes to School program with RB Hunt Elementary School

It is recommended that a study be conducted to examine potential pedestrian enhancements in the neighborhood. This study should be coordinated with the National Center for Safe Routes to School, which provides schools participating in the Safe Routes to School program with knowledge and technical information to implement safe and successful strategies for enabling children to safely walk and bike to school. (http://www.saferoutesinfo.org/)

Traffic signal modification at SR A1A and entrance to R.B. Hunt Elementary School

The signal located at SRA1A and the entrance to R.B. Hunt Elementary School currently is only used to allow pedestrians to cross SRA1A in front of the school. As presently configured, there is no dedicated left turn signal to allow vehicles traveling southbound on SRA1A to turn left into the school (See Figure 5-2). While the predominate traffic movement at this location are vehicles traveling northbound on SRA1A and making a right turn into the school, there is also a significant number of vehicles attempting a left turn into the site as well. Without a dedicated left turn signal this movement is very difficult during peak hours and further adds to congestion in this area. It is recommended that a fully actuated traffic signal be installed at this location. This light would only be used during school hours, or as needed for special events.
Traffic Signal Modification

Figure 5-2

Lighthouse Park Neighborhood Traffic Circulation Study

Current Signal Configuration

Fully Actuated Traffic Signal

RB Hunt Elementary School

Traffic Signal Modification
Parking modifications along SR A1A
Currently, there is on-street parking located on SRA1A directly in front of Leonardi’s Nursery. When vehicles are parked in these spots, a significant site distance problem is created for vehicles making a left hand turn from Anastasia Avenue onto SRA1A (See Figure 5-3). It is recommended that some of these on-street parking spots be removed to help to eliminate this problem.
Potential Parking Modifications

Lighthouse Park Neighborhood
Traffic Circulation Study
Figure 5-3

Current Sightline (Looking NB on SR A1A)

Potential On-street Parking Removal

Leonardi's Nursery
**Installation of traffic calming devices on Magnolia Drive**

One of the major concerns of the neighborhood is the perceived speeding problem on Magnolia Drive. This roadway currently carries a significant amount of pedestrian traffic since it is the primary route that children use to get to the school. While no speed study was performed as part of this study, a solution to decrease the potential of speeding on Magnolia Drive, speed tables or humps could be installed. These speed humps could be located around the location of the Lighthouse Academy Daycare (See Figure 5 - 4).
Traffic Calming Device Locations

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Traffic Circulation Study

Figure 5-4
No parking zone on Magnolia Drive south of Dancy Street

It is recommended that a “no parking zone” be implemented on Magnolia Drive directly south of Dancy Street. Currently, some parents use this area to park and drop off their children. This creates a potentially unsafe walking environment due to the presence of the parked cars as well as other cars traveling north on Magnolia Drive. (See Figure 5-5).