

TRUCK REGULATION STUDY

**TOWN OF PALM BEACH,
TRUCK STUDY
PALM BEACH, FL**

**PREPARED FOR:
TOWN OF PALM BEACH**

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March 2020
Revised May 2020
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Prepared by:
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West Palm Beach, Florida



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INTRODUCTION

The Town of Palm Beach currently allows unrestricted movement of all legal vehicles on all streets within the Town. As such, larger vehicles have been observed to damage private property when they cannot adequately maneuver narrow streets and can cause congestion and unsafe conditions when they have to make multi-point turns at Town intersections.

The Town of has therefore requested an analysis of truck volumes and circulation patterns within the Town to assist in the determination if the restriction of certain large vehicles on certain streets should be enacted. In addition, if a restriction is enacted, the framework for implementation and enforcement of the restriction is included in this document. The goal of any restriction is to change the behaviors to force deliveries with smaller vehicles. Although any restriction will not completely eliminate property damage and congestion, the goal of implementing the restrictions is to substantially reduce the frequency of occurrences.

Traffic counts were collected along various roadways and at certain intersections within the Town to determine the location and circulation patterns of large vehicles. Truck movements for several types and lengths of trucks were then analyzed at several intersections representative of typical conditions throughout the Town to determine which, if any, trucks can maneuver local streets without encroaching on private property.

A review was performed to identify Florida municipalities that have implemented truck restrictions. Based on these analyses, a truck restriction plan was developed, identifying streets that should have truck restrictions.

IDENTIFICATION OF ISSUE

Town residents have raised concern to Town staff that certain trucks have caused property damage when navigating local streets, including damage to turf, vegetation and minor structures. Additionally, trucks have been observed to cause congestion when attempting to turn onto and from local streets; especially with large trucks, multiple-point turns have been observed to be required, often also creating property damage.

Enforcement of trucks causing the damage and congestion is challenging, because by the time the incident is reported and responded to, the truck has moved to a different location within the Town or has left the Town entirely. Furthermore, truck drivers may not be aware that they are driving into parts of Town that are difficult to navigate, and may find themselves trapped, requiring them to damage property to maneuver and leave the Town.

This study has been limited to Town-maintained roadways only. The Town does not have jurisdiction to control vehicular movement on State Roads, such as County Road and all three bridges to the Town. State roads are also typically designed and constructed to accommodate larger vehicles, and the known problem areas are in residential districts in the north end and midtown.

Nonetheless, it is important to consider the need for large trucks to occasionally circulate even on narrow neighborhood streets. Events such as residential construction or delivery of large items must be allowed as matter of course for the Town. Therefore, a system of permitting and monitoring are required.

CASE STUDY REVIEW

An exhaustive review of municipalities within Florida which have implemented truck restrictions was performed. Reviews of resolutions and ordinances in many municipalities was performed, including but not limited to:

- Sanibel
- Jupiter Island
- Miami Beach
- Fort Lauderdale
- Longboat Key
- Sarasota
- Fernandina Beach
- Delray Beach
- Boca Raton

In general, it was determined that many municipalities have developed plans and implemented enforcement of truck *parking and loading*, but very few have implemented restriction plans for the movement of trucks through neighborhoods and on specific streets. In some areas, truck routes have been developed to direct trucks around certain areas, but no actual restriction is established. Only three municipalities were determined to have truck regulation plans that weren't specifically limited to parking or loading. A summary of a these examples is included.

City of Tampa

The City of Tampa has established truck routes throughout the central part of the City. Truck routes were approved by Ordinance in 2011 and updated in 2016. The purpose of the truck route study was, similar to the intent of the Town, to balance the needs of commerce and truckers with the desire to be sensitive to certain land uses and neighborhoods.

Truck routes were established in the City. Any truck driver that is determined to be in violation of using designated truck routes (i.e. by using a local neighborhood street) is subject to a civil violation, similar to a parking ticket, if the driver cannot provide evidence of need for travelling off of designated truck routes.

Per Tampa's Code of Ordinances:

All regulated trucks within the city shall be operated only over and along the designated truck routes established in subsection (a) above.

Enforcement is also established in the Code:

...[T]he driver of a regulated truck may travel over and along a street not designated as a truck route only as necessary whereto perform its business its destination lies on or within in a manner that minimizes the distance traveled over and along the non-truck route street, or as necessary to perform its business, in a manner that minimizes the distance traveled over and along the non-truck route street.

An advantage of this type of restriction plan is that government resources are not burdened by pre-approving certain types of trucks, or types of trucks for certain events; a truck driver must simply convince an officer that they are required to circulate on local streets to perform their duties. A disadvantage of this system is that there is little incentive for trucking companies to change their routing or types of trucks to accommodate the nature of the street network, and little can be done to prevent damage to private property if officers allow large trucks to continue to operate. Once a truck enters a neighborhood with narrow streets, it may have to physically damage private property to turn and exit the neighborhood.

City of Jacksonville

The City of Jacksonville recently adopted a truck routing ordinance in 2019. Much like Tampa, the City adopted a map identifying truck routes, does not specifically prohibit trucks from any roadway, and establishes the ability to ticket truck drivers not using designated routes. Deliveries are still allowed on local streets.

City streets are designated as Blue (preferred truck route), Gray (non-regulated) and Red (restricted for trucks except deliveries). Jacksonville's Code regulates trucks on red routes:

The driver of a regulated truck may travel on a Restricted Road (Red) for the primary purpose of delivery and pickup. The driver of the regulated truck must return to the Preferred (Blue) or non-regulated (Gray) truck route network by the shortest possible distance after completion of the delivery and/or pickup.

If the driver is observed on the Red route by an officer, the following Code applies:

Any person driving or in charge or control of any regulated truck operating on a Restricted Road (Red) shall be prepared to present for the inspection to the Jacksonville Sheriff's Office ("JSO") officers, the truck's log book, weight slips, delivery slips, or other written records of the regulated truck's origin and destination to justify the operation on the Restricted Road (Red).

Like Tampa's truck routing system, the decision to enforce truck routing falls to police enforcement, and only once a truck has travelled on restricted road.

City staff indicated that they would not sign each individual street or neighborhood discouraging trucks but would assess the situations on individual bases based on resident complaints.

St. Augustine

The City of St. Augustine has a truck restriction plan in place in their downtown historic district. This plan expressly prohibits trucks on certain roadways. Unlike Tampa and Jacksonville, certain streets are expressly prohibited for use by trucks, without exception for local deliveries; all trucks can be cited. Any truck needing to travel the prohibited streets must get a permit to do so. The City's Code specifically states:

It shall be unlawful for any person to operate any motor vehicle having a greater length than twenty-four (24) feet or greater width than eight (8) feet or greater height than eight (8) feet upon any of the following designated narrow streets or portions thereof of the city without a permit from the chief of police as hereinafter provided; provided that this section shall not be applicable to any authorized public service vehicle, nor shall the same be applicable to any franchised sight-seeing motor vehicles.

St. Augustine's restriction was based on physical constraints of the City's narrow streets, with limited turning ability for larger vehicles, whereas most other truck restriction plans were developed to reduce cut-through trips, or trips within residential areas. Much like St. Augustine, the Town has narrow streets in the residential areas with limited ability for larger vehicles to turn. Based on observation, the trucking industry has adapted to the restriction, since no vehicles larger than a delivery van were observed in the area. Furthermore, this area serves a large tourist population, with many restaurants and retail shops; therefore, deliveries occur in this area on a consistent basis.

The City of St. Augustine allows the Chief of Police to issue permits as necessary to allow larger trucks in the restriction area:

The chief of police is hereby authorized to issue special permits, in writing, under the provisions of F.S. § 316.550 and shall charge therefor such fees as shall have been set by the city manager pursuant to the provisions of section 2-74 and as shall be consistent with the provisions of F.S. § 316.550.



Figure 1: Narrow Street with Truck Restriction in St. Augustine



Figure 2: Example of Truck Restriction Sign in St. Augustine



Figure 3: Truck Restriction Informational Sign

DATA AND ANALYSIS

Review of Existing Conditions

A field review was performed to confirm that large vehicles are creating physical damage to private property. Below are photos confirming the effects of the large vehicles unable to make turns within the roadway.

Jamaica Lane & North Ocean Boulevard

The intersection of Jamaica Lane & North Ocean Boulevard was observed to have damage to grassy areas adjacent to the intersection. This is consistent with large vehicles being unable to turn with the paved surface area.



Figure 4: Jamaica Lane & North Ocean Boulevard

Arabian Road & North Ocean Boulevard

The curb at the intersection of Arabian Road & North Ocean Boulevard was observed to be cracked and broken. This is indicative of heavy vehicles mounting the curb, most likely as a result of not being able to navigate the intersection. The drainage inlet at this location was also observed to be damaged. It should be noted that several intersections throughout town were observed to have cracked and broken curbing; it was not limited to this intersection.



Figure 5: Arabian Road & North Ocean Boulevard

Debra Lane & North Lake Way

Damage to the landscaped area outside of the paved area at the intersection of Debra Lane & North Lake Way was observed. Furthermore, damage to the turn on the west side of the T intersection was observed, indicating that large vehicles are not able to maneuver without exiting the paved intersection.



Figure 6: Debra Lane & North Lake Way



Figure 7: Debra Lane & North Lake Way

Truck Counts

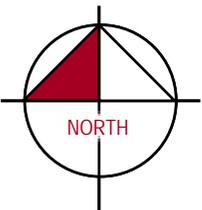
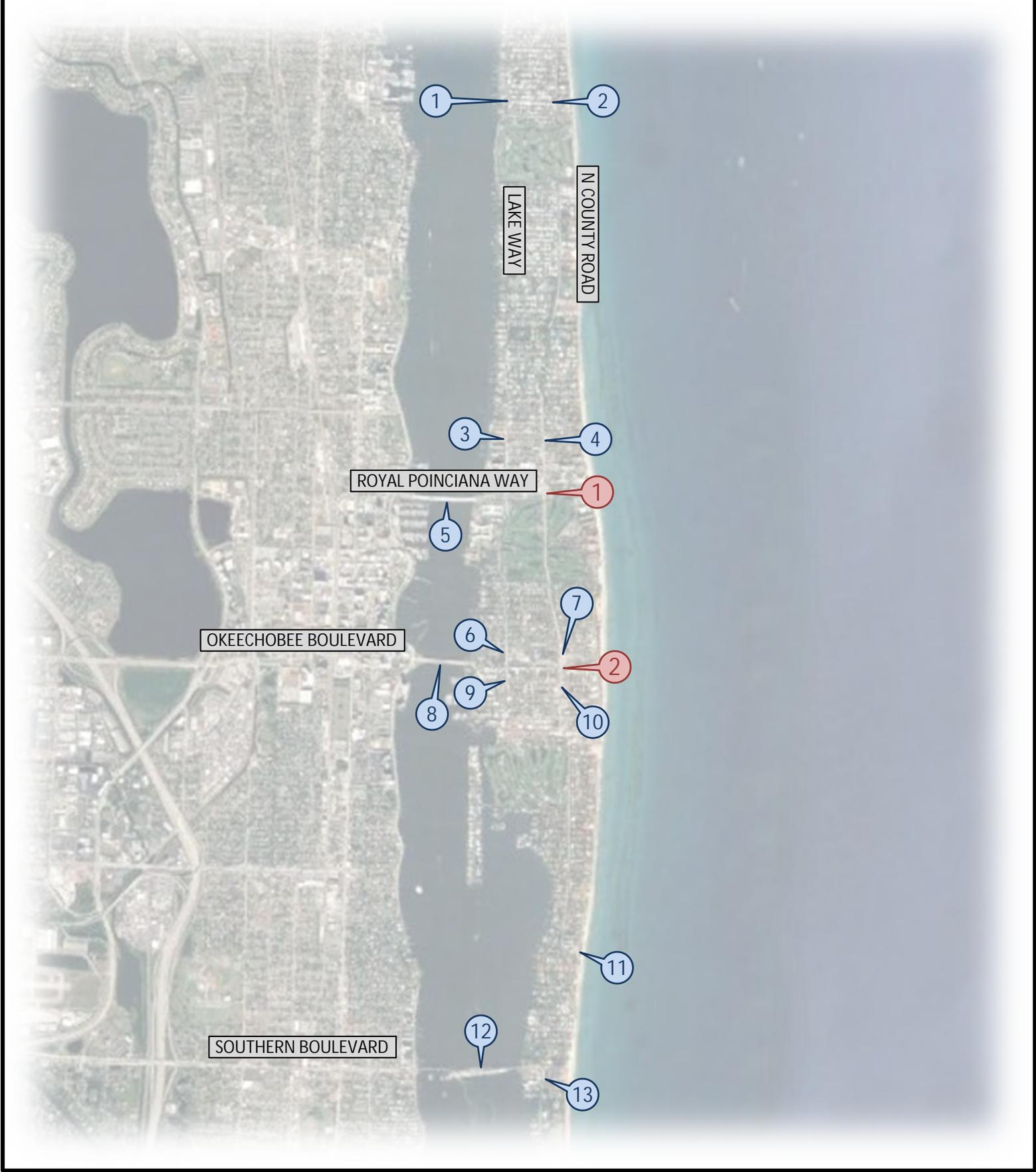
Vehicle classification counts were performed at several locations through the Town to provide an understanding of the number of trucks, types of trucks, and overall number of vehicles.

Figure 8 illustrates the locations of data collection. The locations were chosen to provide an understanding of where the trucks circulate within the town, and the overall impact of truck traffic.

Data was collected on four consecutive weekdays and two weekend days in January 2020. This represents peak season in the Town and represents the peak amount of truck traffic. It should be noted that some truck traffic is consistent throughout the year (such as landscaping vehicles), but deliveries and service trucks increase in the peak season due to increased population.

The data was summarized for each of the 13 count locations, to determine what percentage of trucks are present on each of the study roads throughout the day. The counts were averaged over a 96-hour period to determine an average weekday daily volume, and the counts were averaged over a 48-hour period to determine an average weekend daily volume.

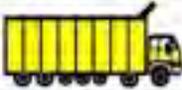
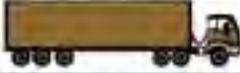
Truck data was summarized into three categories, single-unit (SU) trucks, SU articulated trucks (SU artic.), and any trucks larger than the SU articulated truck (Large). Figure 9 illustrates the types of trucks expected for each class. For this analysis SU trucks are comprised of classes 3-7, SU articulated trucks are class 8, and classes 9-13 comprise the Large truck class. The data is summarized for each location by truck type in the following pages. Percentages represent percent of total traffic for that time period.



LEGEND

-  MACHINE COUNT LOCATIONS
-  TMC LOCATIONS

FIGURE 8
PALM BEACH TRUCK PROHIBITION
 KH #044063244
 DATA COLLECTION LOCATIONS

Class 1 Motorcycles		Class 7 Four or more axle, single unit	
Class 2 Passenger cars		Class 8 Four or less axle, single trailer	
			
			
			
Class 3 Four tire, single unit		Class 9 5-Axle tractor semitrailer	
			
			
Class 4 Buses		Class 10 Six or more axle, single trailer	
			
			
Class 5 Two axle, six tire, single unit		Class 12 Six axle, multi-trailer	
			
			Class 13 Seven or more axle, multi-trailer
			
			
			

Source: Traffic Survey Specialists, Inc.



FIGURE 9
PALM BEACH TRUCK PROHIBITION
KH #044063244
VEHICLE CLASSIFICATION CHART

Location 1: Lake Way, north of Tradewinds Drive

Continuous tube counts were collected along Lake Way, just north of Tradewinds Drive on the north side of the Palm Beach Country Club. It was determined that weekday total truck volumes make up about 2.8% of total vehicle traffic. The average weekend total truck percentages are about half of that on weekends, at 1.5% of the total vehicle traffic. Table 1 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 1: Location 1 Truck Percentage Summary

Weekday					Weekend					
Time Period	SU			Large	Time Period	SU			Large	
	SU	Artic.	Large			SU	Artic.	Large		
AM	0:00-1:00	0.0%	0.0%	0.0%	AM	0:00-1:00	0.0%	0.0%	0.0%	
	1:00-2:00	0.0%	0.0%	0.0%		1:00-2:00	0.0%	0.0%	0.0%	
	2:00-3:00	0.0%	0.0%	0.0%		2:00-3:00	0.0%	0.0%	0.0%	
	3:00-4:00	0.0%	0.0%	0.0%		3:00-4:00	0.0%	0.0%	0.0%	
	4:00-5:00	0.0%	0.0%	0.0%		4:00-5:00	0.0%	0.0%	0.0%	
	5:00-6:00	0.0%	0.0%	0.0%		5:00-6:00	0.0%	0.0%	0.0%	
	6:00-7:00	1.1%	0.0%	0.0%		6:00-7:00	0.0%	0.0%	0.0%	
	7:00-8:00	1.1%	0.0%	0.0%		7:00-8:00	2.9%	0.0%	0.0%	
	8:00-9:00	3.8%	0.0%	0.0%		8:00-9:00	3.6%	0.0%	0.0%	
	9:00-10:00	4.1%	0.1%	0.0%		9:00-10:00	1.4%	0.0%	0.0%	
10:00-11:00	3.4%	0.1%	0.0%	10:00-11:00	1.2%	0.0%	0.0%			
11:00-12:00	3.7%	0.0%	0.0%	11:00-12:00	2.7%	0.0%	0.0%			
PM	12:00-1:00	3.3%	0.0%	0.0%	PM	12:00-1:00	2.3%	0.0%	0.0%	
	1:00-2:00	3.8%	0.0%	0.0%		1:00-2:00	1.8%	0.0%	0.0%	
	2:00-3:00	2.7%	0.1%	0.0%		2:00-3:00	1.8%	0.0%	0.0%	
	3:00-4:00	3.1%	0.1%	0.0%		3:00-4:00	0.8%	0.0%	0.0%	
	4:00-5:00	2.2%	0.1%	0.0%		4:00-5:00	0.9%	0.0%	0.0%	
	5:00-6:00	1.3%	0.0%	0.0%		5:00-6:00	0.9%	0.0%	0.0%	
	6:00-7:00	0.4%	0.0%	0.0%		6:00-7:00	0.9%	0.0%	0.0%	
	7:00-8:00	0.3%	0.0%	0.0%		7:00-8:00	2.9%	0.0%	0.0%	
	8:00-9:00	0.6%	0.0%	0.0%		8:00-9:00	0.0%	0.0%	0.0%	
	9:00-10:00	0.4%	0.0%	0.0%		9:00-10:00	0.0%	0.0%	0.0%	
10:00-11:00	1.3%	0.0%	0.0%	10:00-11:00	3.3%	0.0%	0.0%			
11:00-12:00	1.3%	0.0%	0.0%	11:00-12:00	0.0%	0.0%	0.0%			
Total 24-hour				2.7%	0.1%	0.0%	Total 24-hour			
							1.5%			
							0.0%			
							0.0%			

Location 2: Ocean Boulevard, north of Jamaica Lane

Continuous tube counts were collected along Ocean Boulevard, just north of Jamaica Lane on the north side of the Palm Beach Country Club. It was determined that weekday total truck volumes make up about 3.2% of total vehicle traffic. The average weekend total truck percentages are about half of that on weekends, at 1.6% of the total vehicle traffic. Table 2 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 2: Location 2 Truck Percentage Summary

Weekday					Weekend					
Time Period	SU			Time Period	SU					
	SU	Artic.	Large		SU	Artic.	Large			
AM	0:00-1:00	14.3%	0.0%	0.0%	AM	0:00-1:00	0.0%	0.0%	0.0%	
	1:00-2:00	0.0%	0.0%	0.0%		1:00-2:00	0.0%	0.0%	0.0%	
	2:00-3:00	5.6%	0.0%	0.0%		2:00-3:00	0.0%	0.0%	0.0%	
	3:00-4:00	0.0%	0.0%	0.0%		3:00-4:00	0.0%	0.0%	0.0%	
	4:00-5:00	0.0%	0.0%	0.0%		4:00-5:00	25.0%	0.0%	0.0%	
	5:00-6:00	1.5%	0.0%	0.0%		5:00-6:00	0.0%	0.0%	0.0%	
	6:00-7:00	1.8%	0.0%	0.0%		6:00-7:00	2.7%	0.0%	0.0%	
	7:00-8:00	2.0%	0.1%	0.2%		7:00-8:00	2.4%	0.0%	0.0%	
	8:00-9:00	4.2%	0.1%	0.1%		8:00-9:00	1.4%	0.0%	0.0%	
	9:00-10:00	4.4%	0.1%	0.1%		9:00-10:00	1.1%	0.5%	0.0%	
	10:00-11:00	3.9%	0.2%	0.1%		10:00-11:00	3.2%	0.4%	0.0%	
11:00-12:00	3.9%	0.1%	0.1%	11:00-12:00	2.2%	0.0%	0.0%			
PM	12:00-1:00	3.4%	0.1%	0.0%	PM	12:00-1:00	1.6%	0.0%	0.0%	
	1:00-2:00	3.7%	0.1%	0.1%		1:00-2:00	1.3%	0.0%	0.0%	
	2:00-3:00	3.5%	0.1%	0.1%		2:00-3:00	1.6%	0.0%	0.0%	
	3:00-4:00	3.9%	0.0%	0.0%		3:00-4:00	1.6%	0.0%	0.0%	
	4:00-5:00	2.4%	0.1%	0.0%		4:00-5:00	1.4%	0.0%	0.0%	
	5:00-6:00	1.2%	0.0%	0.0%		5:00-6:00	0.7%	0.0%	0.0%	
	6:00-7:00	0.7%	0.0%	0.0%		6:00-7:00	1.0%	0.0%	0.0%	
	7:00-8:00	0.4%	0.0%	0.0%		7:00-8:00	0.6%	0.0%	0.0%	
	8:00-9:00	0.5%	0.0%	0.0%		8:00-9:00	0.9%	0.0%	0.0%	
	9:00-10:00	0.3%	0.0%	0.0%		9:00-10:00	1.2%	0.0%	0.0%	
	10:00-11:00	0.4%	0.0%	0.0%		10:00-11:00	1.2%	0.0%	0.0%	
11:00-12:00	0.9%	0.0%	0.0%	11:00-12:00	2.4%	0.0%	0.0%			
Total 24-hour				3.1%	0.1%	0.0%	Total 24-hour			
							1.5%			
							0.1%			
							0.0%			

Location 3: Bradley Place, south of Seminole Avenue

Continuous tube counts were collected along Bradley Place, just south of Seminole Avenue on the west side of the island. It was determined that weekday total truck volumes make up about 2.3% of total vehicle traffic. There were a number of large trucks that were counted at this location and is due to the commercial land uses in the vicinity of the count site. The average weekend total truck percentages are more than half of that on weekends, at 1.5% of the total vehicle traffic. Table 3 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 3: Location 3 Truck Percentage Summary

Weekday					Weekend				
Time Period	SU			Time Period	SU				
	SU	Artic.	Large		SU	Artic.	Large		
AM	0:00-1:00	0.0%	0.0%	0.0%	AM	0:00-1:00	3.8%	0.0%	0.0%
	1:00-2:00	0.0%	0.0%	0.0%		1:00-2:00	0.0%	0.0%	0.0%
	2:00-3:00	0.0%	0.0%	0.0%		2:00-3:00	0.0%	0.0%	0.0%
	3:00-4:00	0.0%	0.0%	0.0%		3:00-4:00	0.0%	0.0%	0.0%
	4:00-5:00	2.2%	0.0%	0.0%		4:00-5:00	7.7%	0.0%	0.0%
	5:00-6:00	0.9%	0.0%	0.0%		5:00-6:00	4.0%	0.0%	0.0%
	6:00-7:00	0.7%	0.0%	0.0%		6:00-7:00	2.1%	0.0%	0.0%
	7:00-8:00	1.5%	0.1%	0.0%		7:00-8:00	1.5%	0.0%	0.0%
	8:00-9:00	2.8%	0.0%	0.1%		8:00-9:00	2.6%	0.0%	0.0%
	9:00-10:00	2.9%	0.1%	0.0%		9:00-10:00	1.8%	0.0%	0.0%
	10:00-11:00	2.6%	0.1%	0.0%		10:00-11:00	1.7%	0.0%	0.0%
11:00-12:00	2.5%	0.0%	0.0%	11:00-12:00	2.1%	0.0%	0.0%		
PM	12:00-1:00	2.5%	0.0%	0.0%	PM	12:00-1:00	1.7%	0.0%	0.0%
	1:00-2:00	2.4%	0.1%	0.0%		1:00-2:00	1.0%	0.0%	0.0%
	2:00-3:00	2.2%	0.0%	0.0%		2:00-3:00	1.2%	0.0%	0.0%
	3:00-4:00	2.5%	0.1%	0.1%		3:00-4:00	1.1%	0.0%	0.0%
	4:00-5:00	2.4%	0.1%	0.7%		4:00-5:00	1.1%	0.3%	0.0%
	5:00-6:00	1.1%	0.1%	0.1%		5:00-6:00	1.1%	0.0%	0.0%
	6:00-7:00	0.7%	0.0%	0.2%		6:00-7:00	0.9%	0.0%	0.0%
	7:00-8:00	0.8%	0.0%	0.1%		7:00-8:00	1.7%	0.0%	0.4%
	8:00-9:00	0.9%	0.2%	0.2%		8:00-9:00	1.8%	0.0%	0.0%
	9:00-10:00	1.0%	0.0%	0.2%		9:00-10:00	1.3%	0.0%	0.0%
	10:00-11:00	0.6%	0.0%	0.3%		10:00-11:00	2.5%	0.0%	0.0%
11:00-12:00	0.0%	0.0%	0.0%	11:00-12:00	2.6%	0.0%	0.0%		
Total 24-hour	2.1%	0.1%	0.1%	Total 24-hour	1.5%	0.0%	0.0%		

Location 4: County Road, south of Seminole Avenue

Continuous tube counts were collected along County Road, just south of Seminole Avenue located in the center of the island. It was determined that weekday total truck volumes make up about 3.5% of total vehicle traffic. The average weekend total truck percentages are more than half of that on weekends, at 1.9% of the total vehicle traffic. Table 4 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 4: Location 4 Truck Percentage Summary

Weekday					Weekend					
Time Period	SU			Time Period	SU					
	SU	Artic.	Large		SU	Artic.	Large			
AM	0:00-1:00	6.7%	0.0%	0.0%	AM	0:00-1:00	0.0%	0.0%	0.0%	
	1:00-2:00	0.0%	0.0%	0.0%		1:00-2:00	3.2%	0.0%	0.0%	
	2:00-3:00	0.0%	0.0%	0.0%		2:00-3:00	0.0%	0.0%	0.0%	
	3:00-4:00	0.0%	0.0%	0.0%		3:00-4:00	0.0%	0.0%	0.0%	
	4:00-5:00	0.0%	0.0%	0.0%		4:00-5:00	10.0%	0.0%	0.0%	
	5:00-6:00	1.0%	0.0%	0.0%		5:00-6:00	5.0%	0.0%	0.0%	
	6:00-7:00	2.1%	0.0%	0.0%		6:00-7:00	3.1%	0.0%	0.0%	
	7:00-8:00	3.3%	0.1%	0.1%		7:00-8:00	2.3%	0.5%	0.0%	
	8:00-9:00	4.8%	0.2%	0.1%		8:00-9:00	1.6%	0.0%	0.0%	
	9:00-10:00	4.7%	0.1%	0.1%		9:00-10:00	2.1%	0.2%	0.0%	
	10:00-11:00	4.2%	0.1%	0.1%		10:00-11:00	2.8%	0.0%	0.0%	
11:00-12:00	4.1%	0.1%	0.1%	11:00-12:00	2.9%	0.0%	0.0%			
PM	12:00-1:00	3.8%	0.1%	0.1%	PM	12:00-1:00	2.1%	0.2%	0.0%	
	1:00-2:00	3.7%	0.1%	0.1%		1:00-2:00	1.7%	0.0%	0.2%	
	2:00-3:00	3.6%	0.1%	0.1%		2:00-3:00	1.5%	0.2%	0.2%	
	3:00-4:00	3.6%	0.1%	0.1%		3:00-4:00	2.0%	0.0%	0.2%	
	4:00-5:00	2.7%	0.1%	0.2%		4:00-5:00	1.4%	0.0%	0.0%	
	5:00-6:00	1.6%	0.0%	0.0%		5:00-6:00	1.3%	0.0%	0.0%	
	6:00-7:00	0.8%	0.0%	0.0%		6:00-7:00	1.2%	0.0%	0.0%	
	7:00-8:00	0.6%	0.0%	0.0%		7:00-8:00	0.6%	0.0%	0.0%	
	8:00-9:00	0.4%	0.0%	0.0%		8:00-9:00	1.4%	0.0%	0.0%	
	9:00-10:00	0.4%	0.0%	0.0%		9:00-10:00	1.4%	0.0%	0.0%	
	10:00-11:00	0.3%	0.0%	0.0%		10:00-11:00	1.0%	0.0%	0.0%	
11:00-12:00	0.8%	0.0%	0.0%	11:00-12:00	1.1%	0.0%	0.0%			
Total 24-hour				3.3%	0.1%	0.1%	Total 24-hour			
							1.8%			
							0.1%			
							0.0%			

Location 5: Royal Poinciana Way, west of Coconut Row (North Bridge)

Continuous tube counts were collected on the northern bridge, Royal Poinciana Way. It was determined that weekday total truck volumes make up about 2.6% of total vehicle traffic. The average weekend total truck percentages are similar on weekends, at 2.1% of the total vehicle traffic. Table 5 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 5: Location 5 Truck Percentage Summary

Weekday					Weekend				
Time Period	SU			Time Period	SU				
	SU	Artic.	Large		SU	Artic.	Large		
AM	0:00-1:00	4.2%	0.0%	0.0%	AM	0:00-1:00	1.1%	0.0%	0.0%
	1:00-2:00	1.8%	0.0%	0.0%		1:00-2:00	1.3%	0.0%	0.0%
	2:00-3:00	3.4%	0.0%	0.0%		2:00-3:00	0.9%	0.0%	0.0%
	3:00-4:00	3.1%	0.0%	0.0%		3:00-4:00	1.9%	0.0%	0.0%
	4:00-5:00	4.0%	0.4%	0.4%		4:00-5:00	4.5%	0.0%	0.0%
	5:00-6:00	2.4%	0.2%	0.3%		5:00-6:00	5.2%	0.0%	0.0%
	6:00-7:00	3.2%	0.1%	0.1%		6:00-7:00	3.5%	0.0%	0.0%
	7:00-8:00	3.2%	0.1%	0.1%		7:00-8:00	2.0%	0.0%	0.0%
	8:00-9:00	3.4%	0.1%	0.1%		8:00-9:00	1.2%	0.0%	0.0%
	9:00-10:00	3.3%	0.1%	0.1%		9:00-10:00	1.8%	0.3%	0.0%
	10:00-11:00	3.1%	0.2%	0.1%		10:00-11:00	1.8%	0.2%	0.2%
11:00-12:00	2.9%	0.1%	0.1%	11:00-12:00	2.4%	0.1%	0.1%		
PM	12:00-1:00	2.9%	0.1%	0.1%	PM	12:00-1:00	2.0%	0.1%	0.1%
	1:00-2:00	2.8%	0.1%	0.2%		1:00-2:00	2.3%	0.2%	0.2%
	2:00-3:00	2.5%	0.2%	0.1%		2:00-3:00	1.7%	0.1%	0.1%
	3:00-4:00	2.7%	0.1%	0.1%		3:00-4:00	2.4%	0.1%	0.1%
	4:00-5:00	2.2%	0.1%	0.1%		4:00-5:00	2.1%	0.2%	0.1%
	5:00-6:00	1.5%	0.0%	0.0%		5:00-6:00	2.2%	0.3%	0.2%
	6:00-7:00	0.9%	0.0%	0.0%		6:00-7:00	1.4%	0.1%	0.0%
	7:00-8:00	0.8%	0.1%	0.0%		7:00-8:00	1.3%	0.0%	0.0%
	8:00-9:00	0.8%	0.0%	0.0%		8:00-9:00	1.3%	0.0%	0.0%
	9:00-10:00	0.9%	0.0%	0.0%		9:00-10:00	1.8%	0.0%	0.0%
	10:00-11:00	0.6%	0.0%	0.0%		10:00-11:00	1.7%	0.0%	0.0%
11:00-12:00	0.6%	0.0%	0.0%	11:00-12:00	1.5%	0.0%	0.0%		
Total 24-hour	2.4%	0.1%	0.1%	Total 24-hour	1.9%	0.1%	0.1%		

Location 6: Coconut Row, north of Seaview Avenue

Continuous tube counts were collected along Coconut Row, just north of Seaview Avenue. It was determined that weekday total truck volumes make up about 1.6% of total vehicle traffic. The average weekend total truck percentages are greater on weekends, at 1.8% of the total vehicle traffic. This was found to be one of only two locations where weekend truck percentages exceed that found on weekdays. Table 6 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 6: Location 6 Truck Percentage Summary

		Weekday					Weekend		
		SU	Artic.	Large			SU	Artic.	Large
Time Period		SU	Artic.	Large	Time Period	SU	Artic.	Large	
AM	0:00-1:00	0.0%	0.0%	0.0%	AM	0:00-1:00	2.1%	0.0%	0.0%
	1:00-2:00	2.6%	0.0%	0.0%		1:00-2:00	0.0%	0.0%	0.0%
	2:00-3:00	5.6%	0.0%	0.0%		2:00-3:00	4.5%	0.0%	0.0%
	3:00-4:00	0.0%	0.0%	0.0%		3:00-4:00	7.1%	0.0%	0.0%
	4:00-5:00	1.4%	0.0%	1.4%		4:00-5:00	4.2%	0.0%	4.2%
	5:00-6:00	1.7%	0.0%	1.1%		5:00-6:00	2.3%	0.0%	0.0%
	6:00-7:00	1.6%	0.2%	0.0%		6:00-7:00	4.0%	0.0%	0.0%
	7:00-8:00	1.8%	0.1%	0.1%		7:00-8:00	2.1%	0.3%	0.0%
	8:00-9:00	2.6%	0.0%	0.0%		8:00-9:00	2.8%	0.0%	0.0%
	9:00-10:00	2.3%	0.0%	0.0%		9:00-10:00	2.3%	0.2%	0.2%
	10:00-11:00	2.2%	0.1%	0.0%		10:00-11:00	2.1%	0.0%	0.1%
11:00-12:00	1.8%	0.0%	0.0%	11:00-12:00	1.8%	0.0%	0.0%		
PM	12:00-1:00	1.5%	0.0%	0.0%	PM	12:00-1:00	1.5%	0.0%	0.0%
	1:00-2:00	1.7%	0.0%	0.1%		1:00-2:00	1.6%	0.0%	0.2%
	2:00-3:00	1.6%	0.1%	0.1%		2:00-3:00	1.1%	0.2%	0.0%
	3:00-4:00	1.9%	0.1%	0.1%		3:00-4:00	1.1%	0.0%	0.2%
	4:00-5:00	1.5%	0.1%	0.2%		4:00-5:00	1.3%	0.0%	0.2%
	5:00-6:00	0.8%	0.0%	0.1%		5:00-6:00	1.6%	0.0%	0.2%
	6:00-7:00	0.4%	0.0%	0.0%		6:00-7:00	1.6%	0.0%	0.2%
	7:00-8:00	0.4%	0.0%	0.0%		7:00-8:00	0.7%	0.0%	0.0%
	8:00-9:00	0.3%	0.0%	0.0%		8:00-9:00	0.9%	0.0%	0.0%
	9:00-10:00	0.2%	0.0%	0.0%		9:00-10:00	1.0%	0.0%	0.0%
	10:00-11:00	0.3%	0.0%	0.0%		10:00-11:00	0.5%	0.0%	0.0%
11:00-12:00	0.6%	0.0%	0.0%	11:00-12:00	2.2%	0.0%	0.0%		
Total 24-hour		1.5%	0.0%	0.1%	Total 24-hour		1.7%	0.0%	0.1%

Location 7: County Road, north of Seaview Avenue

Continuous tube counts were collected along County Road, just north of Seaview Avenue. It was determined that weekday total truck volumes make up about 2.8% of total vehicle traffic. The average weekend total truck percentages are about half of that on weekends, at 2.0% of the total vehicle traffic. Table 7 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 7: Location 7 Truck Percentage Summary

Weekday					Weekend					
Time Period	SU			Time Period	SU					
	SU	Artic.	Large		SU	Artic.	Large			
AM	0:00-1:00	2.1%	0.0%	0.0%	AM	0:00-1:00	0.6%	0.0%	0.0%	
	1:00-2:00	1.1%	0.0%	0.0%		1:00-2:00	1.0%	0.0%	0.0%	
	2:00-3:00	0.0%	0.0%	0.0%		2:00-3:00	3.2%	0.0%	0.0%	
	3:00-4:00	1.1%	0.0%	0.0%		3:00-4:00	0.0%	0.0%	0.0%	
	4:00-5:00	1.4%	0.0%	0.0%		4:00-5:00	2.4%	0.0%	0.0%	
	5:00-6:00	1.9%	0.0%	0.0%		5:00-6:00	4.2%	0.0%	0.0%	
	6:00-7:00	3.5%	0.0%	0.0%		6:00-7:00	3.2%	0.5%	0.0%	
	7:00-8:00	4.1%	0.1%	0.1%		7:00-8:00	3.7%	0.3%	0.3%	
	8:00-9:00	5.3%	0.2%	0.0%		8:00-9:00	4.5%	0.2%	0.2%	
	9:00-10:00	4.2%	0.1%	0.0%		9:00-10:00	2.9%	0.0%	0.0%	
	10:00-11:00	4.0%	0.2%	0.1%		10:00-11:00	3.0%	0.1%	0.1%	
11:00-12:00	3.3%	0.1%	0.1%	11:00-12:00	2.0%	0.1%	0.1%			
PM	12:00-1:00	2.9%	0.1%	0.0%	PM	12:00-1:00	1.5%	0.0%	0.0%	
	1:00-2:00	2.9%	0.1%	0.1%		1:00-2:00	1.3%	0.1%	0.1%	
	2:00-3:00	2.5%	0.1%	0.1%		2:00-3:00	1.7%	0.1%	0.0%	
	3:00-4:00	2.8%	0.1%	0.1%		3:00-4:00	1.7%	0.0%	0.2%	
	4:00-5:00	1.9%	0.1%	0.1%		4:00-5:00	1.7%	0.2%	0.1%	
	5:00-6:00	1.3%	0.0%	0.0%		5:00-6:00	0.8%	0.1%	0.1%	
	6:00-7:00	0.7%	0.0%	0.0%		6:00-7:00	1.0%	0.0%	0.0%	
	7:00-8:00	0.5%	0.0%	0.0%		7:00-8:00	0.8%	0.2%	0.0%	
	8:00-9:00	0.4%	0.1%	0.0%		8:00-9:00	0.9%	0.2%	0.0%	
	9:00-10:00	0.5%	0.0%	0.0%		9:00-10:00	1.4%	0.0%	0.0%	
	10:00-11:00	0.4%	0.0%	0.0%		10:00-11:00	0.9%	0.0%	0.0%	
11:00-12:00	0.6%	0.0%	0.0%	11:00-12:00	1.1%	0.0%	0.0%			
Total 24-hour				2.6%	0.1%	0.1%	Total 24-hour			
					1.8%	0.1%	0.1%			

Location 8: Royal Palm Way, west of Lake Drive (Middle Bridge)

Continuous tube counts were collected on the middle bridge, Royal Palm Way. It was determined that weekday total truck volumes make up about 1.7% of total vehicle traffic. The average weekend total truck percentages are greater on weekends, at 1.9% of the total vehicle traffic. This was found to be one of only two locations where weekend truck percentages exceed that found on weekdays. Table 8 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 8: Location 8 Truck Percentage Summary

		Weekday					Weekend		
		SU	Artic.	Large			SU	Artic.	Large
Time Period		SU	Artic.	Large	Time Period	SU	Artic.	Large	
AM	0:00-1:00	2.4%	0.0%	0.0%	AM	0:00-1:00	1.1%	0.3%	0.0%
	1:00-2:00	1.1%	0.0%	0.6%		1:00-2:00	0.6%	0.0%	0.6%
	2:00-3:00	2.5%	0.0%	0.0%		2:00-3:00	1.4%	0.0%	0.0%
	3:00-4:00	0.9%	0.0%	0.0%		3:00-4:00	1.8%	0.0%	1.8%
	4:00-5:00	1.3%	0.0%	0.3%		4:00-5:00	2.8%	0.0%	0.0%
	5:00-6:00	0.9%	0.3%	0.1%		5:00-6:00	1.8%	0.6%	0.0%
	6:00-7:00	1.6%	0.1%	0.1%		6:00-7:00	2.6%	0.3%	0.0%
	7:00-8:00	1.8%	0.1%	0.1%		7:00-8:00	2.2%	0.1%	0.2%
	8:00-9:00	2.5%	0.1%	0.2%		8:00-9:00	2.9%	0.1%	0.0%
	9:00-10:00	2.4%	0.1%	0.3%		9:00-10:00	2.3%	0.3%	0.2%
	10:00-11:00	2.3%	0.1%	0.2%		10:00-11:00	2.0%	0.2%	0.2%
11:00-12:00	1.9%	0.1%	0.1%	11:00-12:00	1.8%	0.3%	0.1%		
PM	12:00-1:00	1.7%	0.1%	0.1%	PM	12:00-1:00	1.7%	0.2%	0.1%
	1:00-2:00	1.9%	0.1%	0.1%		1:00-2:00	1.4%	0.2%	0.1%
	2:00-3:00	1.7%	0.1%	0.1%		2:00-3:00	1.4%	0.2%	0.1%
	3:00-4:00	1.5%	0.1%	0.0%		3:00-4:00	1.4%	0.1%	0.1%
	4:00-5:00	1.2%	0.1%	0.1%		4:00-5:00	1.3%	0.2%	0.1%
	5:00-6:00	1.0%	0.1%	0.2%		5:00-6:00	1.7%	0.3%	0.2%
	6:00-7:00	0.5%	0.1%	0.0%		6:00-7:00	1.0%	0.1%	0.1%
	7:00-8:00	0.4%	0.1%	0.1%		7:00-8:00	0.9%	0.2%	0.0%
	8:00-9:00	0.4%	0.0%	0.0%		8:00-9:00	1.0%	0.0%	0.1%
	9:00-10:00	0.3%	0.0%	0.0%		9:00-10:00	0.8%	0.2%	0.0%
	10:00-11:00	0.5%	0.0%	0.0%		10:00-11:00	0.6%	0.0%	0.0%
11:00-12:00	0.3%	0.0%	0.0%	11:00-12:00	1.4%	0.0%	0.0%		
Total 24-hour		1.5%	0.1%	0.1%	Total 24-hour		1.6%	0.2%	0.1%

Location 9: Coconut Row, south of Royal Palm Way

Continuous tube counts were collected along Coconut Row, just south of Royal Palm Way on the southern side of the island. It was determined that weekday total truck volumes make up about 2.6% of total vehicle traffic. The average weekend total truck percentages are greater than half of that on weekends, at 1.9% of the total vehicle traffic. Table 9 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 9: Location 9 Truck Percentage Summary

Weekday					Weekend					
Time Period	SU			Large	Time Period	SU			Large	
	SU	Artic.	Large			SU	Artic.	Large		
AM	0:00-1:00	0.0%	0.0%	0.0%	AM	0:00-1:00	1.5%	0.0%	0.0%	
	1:00-2:00	0.0%	0.0%	0.0%		1:00-2:00	0.0%	0.0%	0.0%	
	2:00-3:00	0.0%	0.0%	0.0%		2:00-3:00	0.0%	0.0%	0.0%	
	3:00-4:00	0.0%	0.0%	0.0%		3:00-4:00	0.0%	0.0%	0.0%	
	4:00-5:00	5.3%	0.0%	0.0%		4:00-5:00	0.0%	0.0%	0.0%	
	5:00-6:00	2.1%	0.0%	0.0%		5:00-6:00	0.0%	0.0%	0.0%	
	6:00-7:00	1.7%	0.0%	0.0%		6:00-7:00	2.6%	0.0%	0.0%	
	7:00-8:00	3.0%	0.0%	0.0%		7:00-8:00	3.5%	0.0%	0.0%	
	8:00-9:00	4.5%	0.0%	0.0%		8:00-9:00	4.3%	0.0%	0.0%	
	9:00-10:00	4.8%	0.0%	0.0%		9:00-10:00	2.3%	0.0%	0.0%	
	10:00-11:00	4.1%	0.2%	0.1%		10:00-11:00	2.8%	0.0%	0.0%	
11:00-12:00	3.4%	0.2%	0.1%	11:00-12:00	3.0%	0.0%	0.0%			
PM	12:00-1:00	2.8%	0.1%	0.0%	PM	12:00-1:00	2.8%	0.0%	0.0%	
	1:00-2:00	2.3%	0.1%	0.1%		1:00-2:00	1.4%	0.0%	0.0%	
	2:00-3:00	2.7%	0.1%	0.2%		2:00-3:00	2.4%	0.0%	0.0%	
	3:00-4:00	3.2%	0.0%	0.0%		3:00-4:00	1.9%	0.0%	0.0%	
	4:00-5:00	2.3%	0.1%	0.1%		4:00-5:00	2.5%	0.4%	0.0%	
	5:00-6:00	1.9%	0.1%	0.1%		5:00-6:00	0.7%	0.0%	0.0%	
	6:00-7:00	1.1%	0.0%	0.0%		6:00-7:00	2.0%	0.0%	0.0%	
	7:00-8:00	0.6%	0.0%	0.0%		7:00-8:00	1.1%	0.0%	0.0%	
	8:00-9:00	0.4%	0.0%	0.0%		8:00-9:00	0.7%	0.0%	0.0%	
	9:00-10:00	0.5%	0.0%	0.0%		9:00-10:00	0.7%	0.0%	0.0%	
	10:00-11:00	0.6%	0.0%	0.0%		10:00-11:00	0.7%	0.0%	0.0%	
11:00-12:00	0.4%	0.0%	0.0%	11:00-12:00	1.0%	0.0%	0.0%			
Total 24-hour				2.5%	0.1%	0.0%	Total 24-hour			
							1.9%			
							0.0%			
							0.0%			

Location 10: County Road, south of Royal Palm Way

Continuous tube counts were collected along County Road, just south of Royal Palm Way on the southern side of the island. It was determined that weekday total truck volumes make up about 3.3% of total vehicle traffic. The average weekend total truck volumes are slightly less on weekends, at 2.8% of the total vehicle traffic. Table 10 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 10: Location 10 Truck Percentage Summary

Weekday					Weekend					
Time Period	SU			Time Period	SU					
	SU	Artic.	Large		SU	Artic.	Large			
AM	0:00-1:00	0.0%	0.0%	0.0%	AM	0:00-1:00	1.1%	0.0%	0.0%	
	1:00-2:00	0.0%	0.0%	0.0%		1:00-2:00	0.0%	0.0%	1.7%	
	2:00-3:00	0.0%	0.0%	0.0%		2:00-3:00	0.0%	0.0%	0.0%	
	3:00-4:00	2.1%	0.0%	0.0%		3:00-4:00	6.3%	0.0%	0.0%	
	4:00-5:00	5.4%	0.0%	0.0%		4:00-5:00	4.5%	0.0%	0.0%	
	5:00-6:00	2.7%	0.0%	0.0%		5:00-6:00	4.2%	0.0%	0.0%	
	6:00-7:00	3.6%	0.0%	0.0%		6:00-7:00	3.1%	0.0%	0.0%	
	7:00-8:00	4.7%	0.1%	0.0%		7:00-8:00	3.2%	0.0%	0.0%	
	8:00-9:00	5.1%	0.1%	0.1%		8:00-9:00	3.9%	0.4%	0.0%	
	9:00-10:00	4.9%	0.1%	0.2%		9:00-10:00	3.0%	0.0%	0.0%	
	10:00-11:00	5.1%	0.1%	0.2%		10:00-11:00	2.9%	0.2%	0.2%	
11:00-12:00	4.1%	0.2%	0.1%	11:00-12:00	3.7%	0.2%	0.2%			
PM	12:00-1:00	3.6%	0.1%	0.2%	PM	12:00-1:00	2.5%	0.1%	0.1%	
	1:00-2:00	3.3%	0.2%	0.2%		1:00-2:00	2.3%	0.1%	0.1%	
	2:00-3:00	3.2%	0.2%	0.2%		2:00-3:00	2.8%	0.1%	0.1%	
	3:00-4:00	3.5%	0.1%	0.2%		3:00-4:00	2.9%	0.3%	0.1%	
	4:00-5:00	2.9%	0.1%	0.1%		4:00-5:00	2.8%	0.1%	0.0%	
	5:00-6:00	1.9%	0.1%	0.1%		5:00-6:00	2.1%	0.3%	0.2%	
	6:00-7:00	1.2%	0.1%	0.1%		6:00-7:00	1.7%	0.0%	0.2%	
	7:00-8:00	0.8%	0.0%	0.0%		7:00-8:00	2.1%	0.0%	0.0%	
	8:00-9:00	0.9%	0.0%	0.0%		8:00-9:00	1.4%	0.0%	0.0%	
	9:00-10:00	1.0%	0.0%	0.0%		9:00-10:00	1.9%	0.0%	0.0%	
	10:00-11:00	1.0%	0.0%	0.0%		10:00-11:00	2.5%	0.0%	0.0%	
11:00-12:00	1.0%	0.0%	0.0%	11:00-12:00	2.7%	0.0%	0.0%			
Total 24-hour				3.1%	0.1%	0.1%	Total 24-hour			
							2.6%			
							0.1%			

Location 11: Ocean Boulevard, north of Via Bellaria

Continuous tube counts were collected along Ocean Boulevard, just north of Via Bellaria on the southern side of the island. It was determined that weekday total truck volumes make up about 2.3% of total vehicle traffic. The average weekend total truck volumes are slightly less on weekends, at 1.5% of the total vehicle traffic. There was not a discernable number of trucks larger than the single-unit truck. Table 11 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 11: Location 11 Truck Percentage Summary

		Weekday					Weekend		
		SU	Artic.	Large			SU	Artic.	Large
Time Period		SU	Artic.	Large	Time Period	SU	Artic.	Large	
AM	0:00-1:00	4.3%	0.0%	0.0%	AM	0:00-1:00	0.0%	0.0%	0.0%
	1:00-2:00	0.0%	0.0%	2.5%		1:00-2:00	0.0%	0.0%	0.0%
	2:00-3:00	0.0%	0.0%	0.0%		2:00-3:00	3.0%	0.0%	0.0%
	3:00-4:00	0.0%	0.0%	0.0%		3:00-4:00	0.0%	0.0%	0.0%
	4:00-5:00	2.4%	0.0%	0.0%		4:00-5:00	9.1%	0.0%	0.0%
	5:00-6:00	1.1%	0.0%	0.0%		5:00-6:00	2.3%	0.0%	0.0%
	6:00-7:00	1.5%	0.0%	0.0%		6:00-7:00	0.9%	0.0%	0.0%
	7:00-8:00	2.9%	0.0%	0.0%		7:00-8:00	2.1%	0.0%	0.0%
	8:00-9:00	3.6%	0.1%	0.0%		8:00-9:00	2.8%	0.0%	0.0%
	9:00-10:00	3.2%	0.1%	0.1%		9:00-10:00	1.8%	0.0%	0.0%
	10:00-11:00	3.2%	0.1%	0.1%		10:00-11:00	1.8%	0.0%	0.0%
11:00-12:00	2.9%	0.1%	0.1%	11:00-12:00	2.0%	0.0%	0.0%		
PM	12:00-1:00	2.6%	0.0%	0.1%	PM	12:00-1:00	1.4%	0.1%	0.1%
	1:00-2:00	2.6%	0.1%	0.0%		1:00-2:00	1.7%	0.1%	0.0%
	2:00-3:00	2.2%	0.1%	0.0%		2:00-3:00	1.7%	0.1%	0.1%
	3:00-4:00	3.0%	0.0%	0.0%		3:00-4:00	1.7%	0.1%	0.0%
	4:00-5:00	2.0%	0.0%	0.1%		4:00-5:00	1.4%	0.0%	0.1%
	5:00-6:00	1.0%	0.0%	0.0%		5:00-6:00	1.3%	0.0%	0.1%
	6:00-7:00	0.6%	0.0%	0.0%		6:00-7:00	0.8%	0.0%	0.0%
	7:00-8:00	0.4%	0.0%	0.0%		7:00-8:00	0.5%	0.0%	0.0%
	8:00-9:00	0.4%	0.0%	0.0%		8:00-9:00	0.6%	0.0%	0.0%
	9:00-10:00	0.5%	0.0%	0.0%		9:00-10:00	0.7%	0.0%	0.0%
	10:00-11:00	0.7%	0.0%	0.0%		10:00-11:00	0.8%	0.0%	0.0%
11:00-12:00	0.4%	0.0%	0.0%	11:00-12:00	0.8%	0.0%	0.0%		
Total 24-hour		2.3%	0.0%	0.0%	Total 24-hour		1.5%	0.0%	0.0%

Location 12: Southern Boulevard, west of Ocean Boulevard (Southern Bridge)

Continuous tube counts were collected along the southern bridge, Southern Boulevard. It was determined that weekday total truck percentages make up about 2.4% of total vehicle traffic. The average weekend total truck percentages are greater than half of that on weekdays, at 1.7% of the total vehicle traffic. Table 12 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 12: Location 12 Truck Percentage Summary

Weekday					Weekend					
Time Period	SU			Time Period	SU					
	SU	Artic.	Large		SU	Artic.	Large			
AM	0:00-1:00	3.6%	0.0%	0.0%	AM	0:00-1:00	1.2%	0.0%	0.0%	
	1:00-2:00	2.4%	0.0%	2.4%		1:00-2:00	0.0%	0.0%	0.0%	
	2:00-3:00	0.0%	0.0%	0.0%		2:00-3:00	0.0%	0.0%	0.0%	
	3:00-4:00	0.0%	0.0%	0.0%		3:00-4:00	0.0%	0.0%	0.0%	
	4:00-5:00	0.0%	0.0%	0.0%		4:00-5:00	5.3%	0.0%	0.0%	
	5:00-6:00	0.3%	0.0%	0.0%		5:00-6:00	1.4%	0.0%	0.0%	
	6:00-7:00	0.9%	0.0%	0.0%		6:00-7:00	1.7%	0.0%	0.0%	
	7:00-8:00	2.5%	0.1%	0.0%		7:00-8:00	2.2%	0.3%	0.0%	
	8:00-9:00	3.2%	0.1%	0.1%		8:00-9:00	2.1%	0.0%	0.0%	
	9:00-10:00	2.7%	0.1%	0.1%		9:00-10:00	2.0%	0.0%	0.0%	
	10:00-11:00	2.9%	0.1%	0.1%		10:00-11:00	2.4%	0.0%	0.0%	
11:00-12:00	2.9%	0.1%	0.1%	11:00-12:00	2.0%	0.1%	0.0%			
PM	12:00-1:00	2.6%	0.1%	0.1%	PM	12:00-1:00	1.5%	0.0%	0.0%	
	1:00-2:00	2.5%	0.1%	0.1%		1:00-2:00	2.1%	0.0%	0.1%	
	2:00-3:00	2.1%	0.1%	0.2%		2:00-3:00	1.3%	0.0%	0.1%	
	3:00-4:00	3.2%	0.1%	0.1%		3:00-4:00	1.8%	0.0%	0.0%	
	4:00-5:00	2.3%	0.1%	0.1%		4:00-5:00	2.0%	0.0%	0.0%	
	5:00-6:00	1.3%	0.0%	0.1%		5:00-6:00	1.3%	0.0%	0.0%	
	6:00-7:00	0.7%	0.0%	0.0%		6:00-7:00	1.2%	0.0%	0.0%	
	7:00-8:00	0.5%	0.0%	0.0%		7:00-8:00	0.7%	0.0%	0.0%	
	8:00-9:00	0.6%	0.0%	0.0%		8:00-9:00	1.2%	0.0%	0.0%	
	9:00-10:00	0.6%	0.0%	0.0%		9:00-10:00	0.9%	0.0%	0.0%	
	10:00-11:00	0.6%	0.0%	0.0%		10:00-11:00	1.4%	0.0%	0.0%	
11:00-12:00	0.8%	0.0%	0.0%	11:00-12:00	0.7%	0.0%	0.0%			
Total 24-hour				2.2%	0.1%	0.1%	Total 24-hour			
							1.7%			
							0.0%			
							0.0%			

Location 13: Ocean Boulevard, south of Regents Park Road

Continuous tube counts were collected along Ocean Boulevard, just south of Regents Park Road on the southern end of the island. It was determined that weekday total truck percentages make up about 1.4% of total vehicle traffic. The average weekend total truck percentages are about equal on weekends, at 1.3% of the total vehicle traffic. Table 13 summarizes the hourly truck volumes at this location as a percentage of total vehicle traffic.

Table 13: Location 13 Truck Percentage Summary

Weekday					Weekend					
Time Period	SU			Large	Time Period	SU			Large	
	SU	Artic.	Large			SU	Artic.	Large		
AM	0:00-1:00	0.0%	0.0%	0.0%	AM	0:00-1:00	0.0%	0.0%	0.0%	
	1:00-2:00	3.6%	0.0%	0.0%		1:00-2:00	0.0%	0.0%	0.0%	
	2:00-3:00	0.0%	0.0%	0.0%		2:00-3:00	0.0%	0.0%	0.0%	
	3:00-4:00	0.0%	0.0%	0.0%		3:00-4:00	0.0%	0.0%	0.0%	
	4:00-5:00	0.0%	0.0%	0.0%		4:00-5:00	0.0%	0.0%	0.0%	
	5:00-6:00	0.9%	0.0%	0.0%		5:00-6:00	0.0%	0.0%	0.0%	
	6:00-7:00	1.5%	0.0%	0.0%		6:00-7:00	2.7%	0.0%	0.0%	
	7:00-8:00	1.9%	0.0%	0.1%		7:00-8:00	2.6%	0.0%	0.0%	
	8:00-9:00	2.2%	0.1%	0.0%		8:00-9:00	1.8%	0.4%	0.0%	
	9:00-10:00	2.0%	0.0%	0.0%		9:00-10:00	1.4%	0.0%	0.0%	
	10:00-11:00	2.3%	0.0%	0.0%		10:00-11:00	2.1%	0.0%	0.0%	
11:00-12:00	1.7%	0.1%	0.0%	11:00-12:00	1.4%	0.0%	0.0%			
PM	12:00-1:00	1.6%	0.0%	0.0%	PM	12:00-1:00	1.5%	0.0%	0.1%	
	1:00-2:00	1.7%	0.0%	0.0%		1:00-2:00	1.3%	0.0%	0.3%	
	2:00-3:00	1.7%	0.0%	0.0%		2:00-3:00	1.1%	0.0%	0.0%	
	3:00-4:00	1.8%	0.0%	0.0%		3:00-4:00	1.3%	0.1%	0.0%	
	4:00-5:00	1.1%	0.0%	0.0%		4:00-5:00	1.2%	0.0%	0.0%	
	5:00-6:00	0.7%	0.0%	0.0%		5:00-6:00	0.9%	0.0%	0.2%	
	6:00-7:00	0.5%	0.0%	0.0%		6:00-7:00	0.7%	0.0%	0.0%	
	7:00-8:00	0.4%	0.0%	0.0%		7:00-8:00	0.6%	0.0%	0.0%	
	8:00-9:00	0.5%	0.1%	0.0%		8:00-9:00	0.7%	0.0%	0.0%	
	9:00-10:00	0.5%	0.0%	0.0%		9:00-10:00	0.4%	0.0%	0.0%	
	10:00-11:00	0.3%	0.0%	0.0%		10:00-11:00	0.5%	0.0%	0.5%	
11:00-12:00	0.0%	0.0%	0.0%	11:00-12:00	0.0%	0.0%	0.0%			
Total 24-hour				1.4%	0.0%	0.0%	Total 24-hour			
							1.2%			
							0.0%			
							0.1%			

Analysis of Truck Counts

The locations of the traffic counts were selected to determine if trucks are circulating within residential areas. The counts performed indicate that large vehicles are circulating throughout the Town, including within residential areas. The majority of the observed trucks were single unit trucks, which are non-articulated trucks, such as moving vans, furniture delivery trucks, and general delivery trucks. These trucks were observed throughout the Town, accounting for 2.1 to 3.3 percent of the traffic in the north end, 1.5 to 3.1 percent in the central part of town, including the business district, and 1.4 percent in the south part of Town on weekdays. The percentage of truck traffic on the roadway is illustrated in Figure 10. It is interesting to note that the percentage of trucks in the central part of town is not significantly different than in residential areas and is actually lower as a percentage of overall trips compared to the north end. This is notable because business districts typically see more truck deliveries than residential areas.

The locations of the observations in the north end were specifically chosen to capture truck traffic within the residential area (i.e., Publix delivery trucks are not included in these counts). The only significant commercial activities in this area are the Sailfish Club and the Palm Beach Country Club; therefore, delivery trucks should be minimal as a percentage of overall traffic. Nonetheless, the number of trucks ranged from 2.1 percent to 3.3 percent in this area, which is not significantly different than at other locations within the Town. Articulated trucks and large semi-trucks account for a small percentage of overall traffic in the north end; however, there is evidence of these trucks circulating based on the counts.

Truck counts were performed at several intersections throughout the Town to further analyze truck circulation. Turning movement counts provide the data necessary to determine circulation patterns, such as potential origins and destinations. The turning movement counts are illustrated in Figure 11. Based on review of the turning movements, the following patterns were observed.

At the intersection of County Road & Royal Poinciana Way, the majority of trucks were observed to be in the northbound through movement. This indicates that trucks are serving the north end and are originating at a location south of the north bridge. Another large movement is the eastbound left and southbound right movement. This indicates that trucks entering the Town at the north bridge are accessing the north end at this intersection.

Truck Type	Weekday		Weekend	
Single Unit	254	2.7%	23	1.5%
SU Articulated	5	0.1%	0	0.0%
Large	0	0.0%	0	0.0%

Truck Type	Weekday		Weekend	
Single Unit	707	3.1%	54	1.5%
SU Articulated	18	0.1%	2	0.1%
Large	10	0.0%	0	0.0%

Truck Type	Weekday		Weekend	
Single Unit	591	2.1%	72	1.5%
SU Articulated	18	0.1%	1	0.0%
Large	30	0.1%	1	0.0%

Truck Type	Weekday		Weekend	
Single Unit	1,382	3.3%	128	1.8%
SU Articulated	35	0.1%	4	0.1%
Large	32	0.1%	3	0.0%

Truck Type	Weekday		Weekend	
Single Unit	2,086	2.4%	278	1.9%
SU Articulated	90	0.1%	15	0.1%
Large	66	0.1%	10	0.1%

ROYAL POINCIANA WAY

Truck Type	Weekday		Weekend	
Single Unit	1,365	2.6%	224	1.8%
SU Articulated	50	0.1%	12	0.1%
Large	32	0.1%	9	0.1%

Truck Type	Weekday		Weekend	
Single Unit	524	1.5%	131	1.7%
SU Articulated	16	0.0%	3	0.0%
Large	22	0.1%	8	0.1%

OKEECHOBEE BOULEVARD

Truck Type	Weekday		Weekend	
Single Unit	1,563	1.5%	353	1.6%
SU Articulated	98	0.1%	41	0.2%
Large	105	0.1%	23	0.1%

Truck Type	Weekday		Weekend	
Single Unit	1,432	3.1%	228	2.6%
SU Articulated	42	0.1%	11	0.1%
Large	58	0.1%	9	0.1%

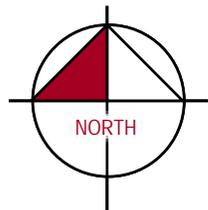
Truck Type	Weekday		Weekend	
Single Unit	403	2.5%	66	1.9%
SU Articulated	9	0.1%	1	0.0%
Large	7	0.0%	0	0.0%

Truck Type	Weekday		Weekend	
Single Unit	968	2.2%	151	1.7%
SU Articulated	29	0.1%	2	0.0%
Large	36	0.1%	2	0.0%

SOUTHERN BOULEVARD

Truck Type	Weekday		Weekend	
Single Unit	1,093	2.3%	155	1.5%
SU Articulated	23	0.0%	4	0.0%
Large	19	0.0%	4	0.0%

Truck Type	Weekday		Weekend	
Single Unit	497	1.4%	99	1.2%
SU Articulated	13	0.0%	2	0.0%
Large	8	0.0%	5	0.1%

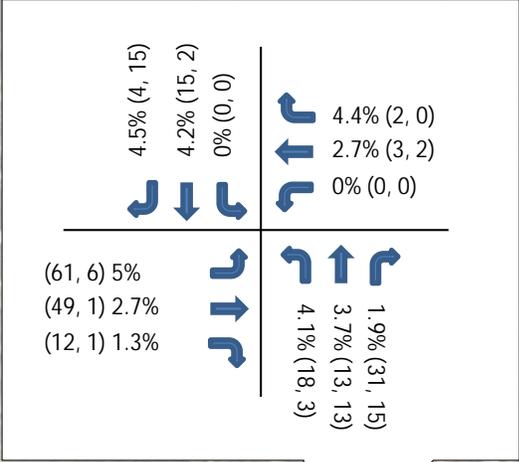
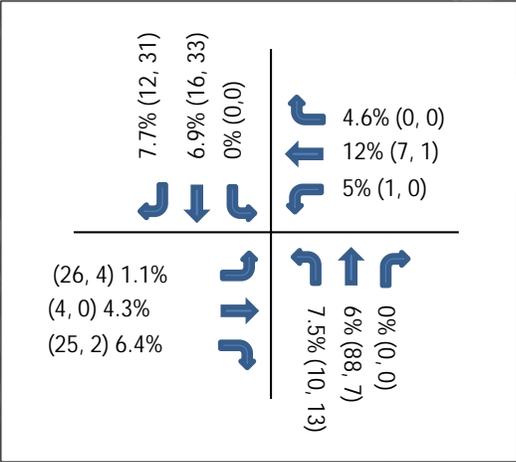
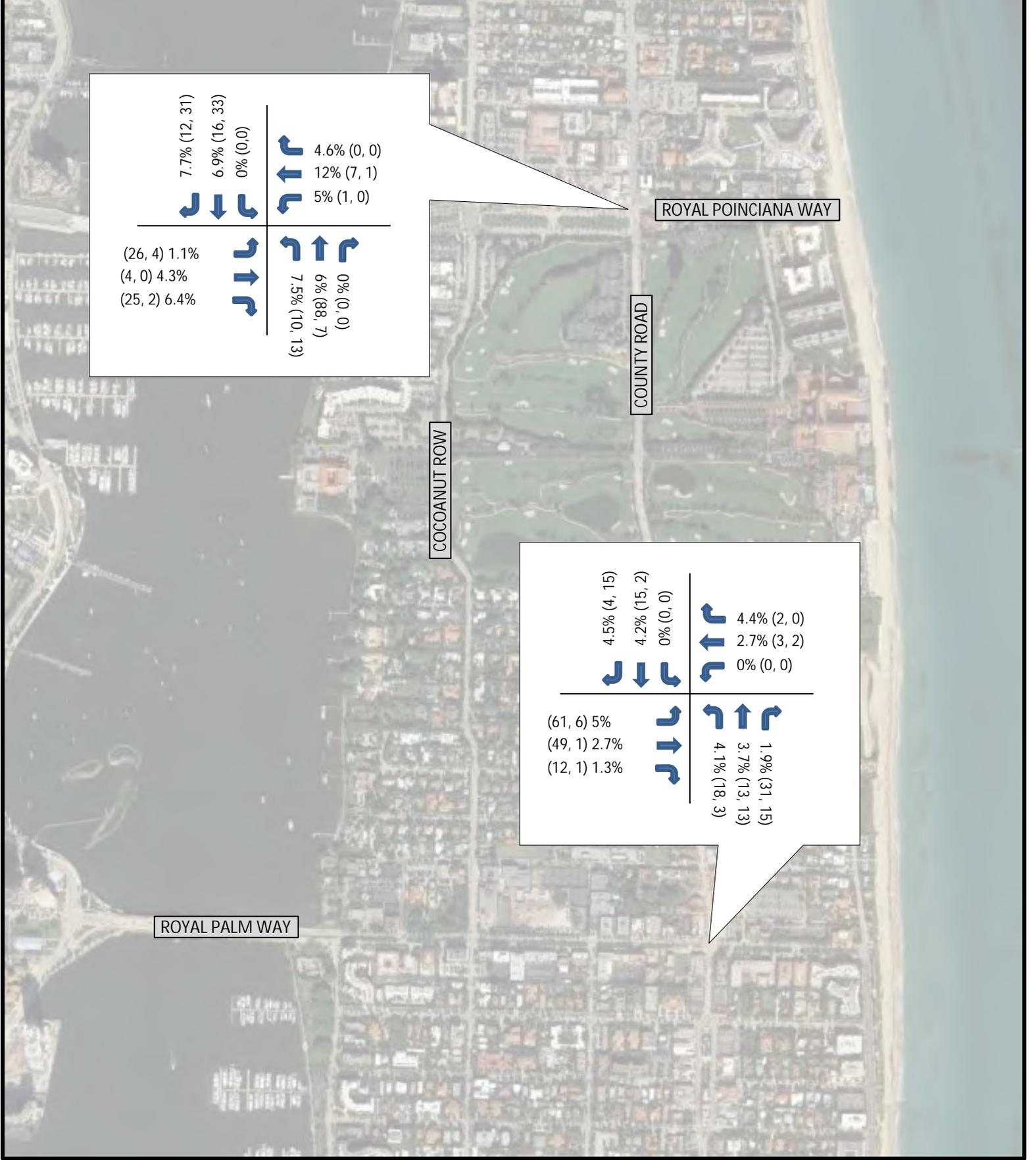


LEGEND



MACHINE COUNT LOCATIONS

FIGURE 10
PALM BEACH TRUCK PROHIBITION
KH #044063244
PERCENT TRUCK VOLUMES



LEGEND

% TRUCKS
 (XX/XX) (AM VOLUME/PM VOLUME)

FIGURE 11
PALM BEACH TRUCK PROHIBITION
 KH #044063244
AVERAGE PEAK HOUR TRUCK PERCENTAGES

Although some commercial activity is present north of Royal Poinciana Way, the number of trucks for these movements is not consistent with the small amount of commercial activity. Therefore, it is reasonable to conclude, based on these turning movements and on the link data described above, that that trucks in the north end are arriving from locations south of Royal Poinciana Way as well as via the north bridge.

Truck circulation patterns at the intersection of Royal Palm Way & South County Road were less conclusive. The movement with the highest truck volume is the eastbound left-turn movement. A substantial amount of truck traffic is destined for locations east of this intersection as well. Based on this data, no clear patterns were determined with respect to truck impacts on residential streets.

Turning Movement Analysis

An analysis of truck turns was performed at twenty-four intersections throughout the Town. These intersections were chosen to represent typical truck routes, based on observations and conversations with Town staff and residents. The focus of the intersection selection was to capture truck turns from the main arterials (such as County Road and North Lake Way) with narrower residential streets. Based on observation, these are the locations where trucks have damaged property. Figure 13, Figure 14, and Figure 15 illustrate the locations of the turning analyses.

Three truck types were analyzed for each of the turning movements at the twenty-four intersections. The trucks analyzed are summarized as follows:

- Single Unit Box Truck
 - 30 feet in length, 8 feet wide, with a 42-foot curb to curb turning radius
 - Similar to food delivery trucks, moving vans, mail delivery trucks
- Intermediate Semi-Trailer
 - 45.5 feet in length, 8 feet wide, with a 40-foot curb to curb turning radius
 - Similar to large delivery trucks and furniture delivery vehicles
- Interstate Semi-Trailer
 - 73.5 feet in length, 8.5 feet wide, with a 45-foot curb to curb turning radius
 - Similar to long distance freight vehicles

The intersections analyzed are further defined based on their roadway characteristics and locations below:

Mediterranean

Mediterranean Road is a narrow two-lane undivided residential road. It is the furthest north roadway analyzed in this study and intersects with Lake Way to the west and Ocean Boulevard to the east. Both of these intersections were analyzed.

La Puerta

La Puerta Way is a two-lane undivided residential road. It intersects with Lake Way to the west and Ocean Boulevard to the east. Both of these intersections were analyzed.

Orange Grove

Orange Grove Road is a two-lane undivided residential road. It intersects with Lake Way to the west and Ocean Boulevard to the east. Both of these intersections were analyzed.

List

List Road is a narrow two-lane undivided residential road. It intersects with Lake Way to the west and Ocean Boulevard to the east. Both of these intersections were analyzed. It is located just south of Orange Grove Road.

Windsor

Windsor Court is a two-lane undivided residential road. It intersects with Cherry Lane to the south and County Road to the east. Both of these intersections were analyzed.

Cherry

Cherry Lane is a narrow two-lane undivided residential road. It intersects with Lake Way to the west and County Road to the east. Both of these intersections were analyzed.

Atlantic

Atlantic Avenue is a two-lane undivided road. It intersects with Lake Way to the west and County Road to the east. Both of these intersections were analyzed. Further east Atlantic Avenue intersects with Ocean Boulevard.

Everglade

Everglade Avenue is a two-lane undivided eastbound one-way road. It intersects with Lake Way to the west and County Road to the east. Both of these intersections were analyzed. Further east Everglade Avenue intersects with Ocean Boulevard.

Seabreeze

Seabreeze Avenue is a two-lane undivided residential road. It intersects with Lake Way to the west and County Road to the east. Further east Seabreeze Avenue intersects with Ocean Boulevard. All three intersections were analyzed.

El Brillo

El Brillo Way is a two-lane undivided residential road. It intersects with County Road to the west and Ocean Boulevard to the east. Both of these intersections were analyzed.

Jungle

Jungle Road is a two-lane undivided residential road. It intersects with County Road to the west and Ocean Boulevard to the east. Both of these intersections were analyzed

Clarendon

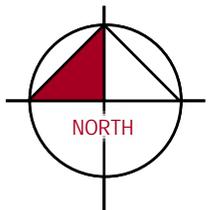
Clarendon Avenue is a two-lane undivided residential road. It intersects with Vita Serena to the west and Ocean Boulevard to the east. The intersection of Clarendon Avenue and Ocean Boulevard was analyzed.

Individual plots for each movement are attached in Appendix C.



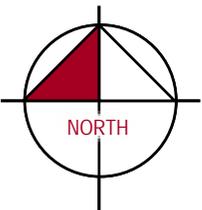
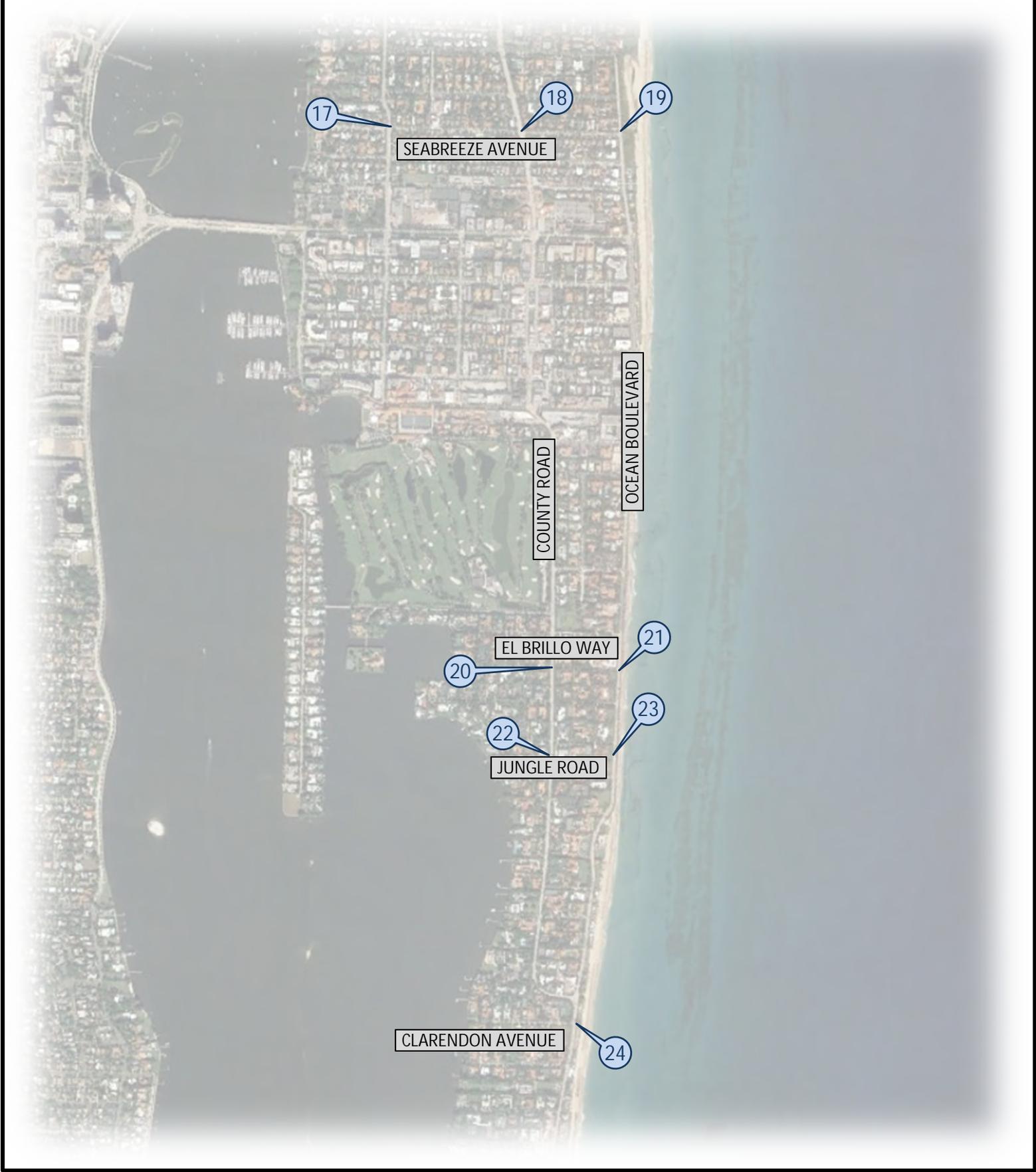
LEGEND
 # AUTOTURN LOCATIONS

FIGURE 12
PALM BEACH TRUCK PROHIBITION
 KH #044063244
 AUTOTURN ANALYSIS LOCATIONS - 1



LEGEND
 # AUTOTURN LOCATIONS

FIGURE 13
 PALM BEACH TRUCK PROHIBITION
 KH #044063244
 AUTOTURN ANALYSIS LOCATIONS - 2



LEGEND

AUTOTURN LOCATIONS

FIGURE 14
PALM BEACH TRUCK PROHIBITION
 KH #044063244
 AUTOTURN ANALYSIS LOCATIONS - 3

RECOMMENDATIONS

Based on our review of truck volumes, the ability of trucks to maneuver local streets, observed damage to private property, and a review of Florida municipalities with similar street networks, it is recommended to restrict trucks on certain Town streets. This recommendation is intended to mitigate damage to private property, eliminate congestion due to the inability of certain trucks to maneuver certain streets, and provide a mechanism for permit and enforcement of truck traffic in certain areas of Town. The data collected confirms that trucks are circulating within residential areas of Town, as noted by high numbers of trucks north of Royal Poinciana Way in comparison with expected volumes for a residential area. Truck volume percentages in the residential areas of the north end are higher than in the commercial parts of Town. Review of the specific turning movement counts indicates that many of the trucks in the north end are arriving via the north bridge.

Florida Statute provides guidance on establishing restriction of trucks on local roads. Per FS 316.008:

(1) The provisions of this chapter shall not be deemed to prevent local authorities, with respect to streets and highways under their jurisdiction and within the reasonable exercise of the police power, from:

(n) Prohibiting or regulating the use of heavily traveled streets by any class or kind of traffic found to be incompatible with the normal and safe movement of traffic.

Description of the Recommended Restriction

Figure 16 illustrates the recommended physical boundaries of the truck restriction. It is recommended to implement broad area-wide restrictions rather than street-by-street restrictions; if only certain streets in a part of Town are restricted, trucks would use the non-restricted streets in larger numbers. In residential areas such as the north end, certain residents would see an increase in trucks on their street if their street was the non-restricted street. Area-wide restrictions also require less signage and are easier to understand by truckers. Without an area-wide restriction, individual streets would have to be signed restricting trucks, leading to sign clutter. It should be noted that the following roads will have NO Town-imposed restrictions:

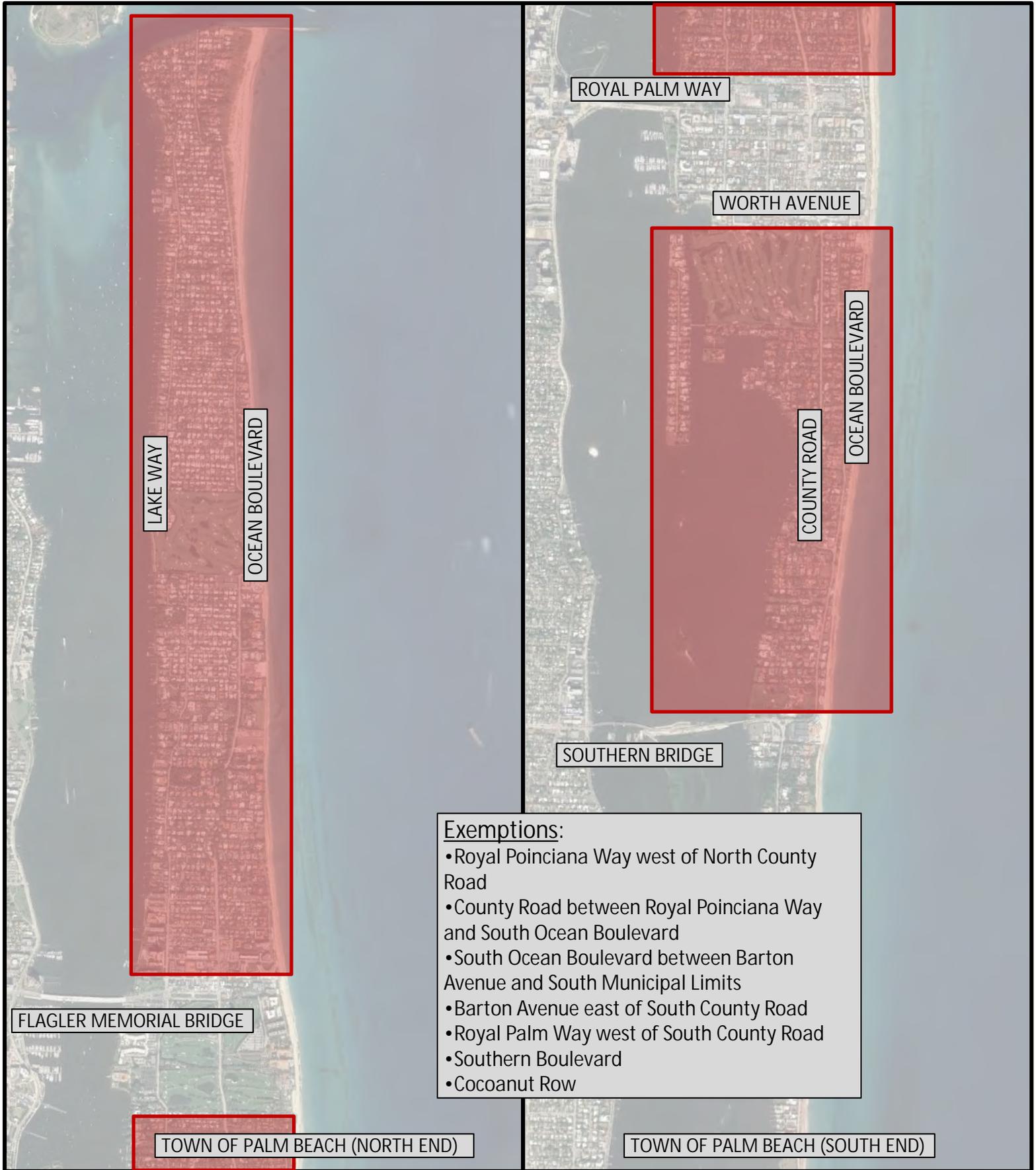
- Royal Poinciana Way west of North County Road
- County Road between Royal Poinciana Way and South Ocean Boulevard

- South Ocean Boulevard between Barton Avenue and South Municipal Limits
- Barton Avenue east of South County Road
- Royal Palm Way west of South County Road
- Southern Boulevard
- Coconut Row

The exclusion of these roads from truck restrictions allows trucks entering the Town to be able to circulate onto and off of the island without the need for U-turns or dangerous turning maneuvers.

It should be noted that areas between Worth Avenue and Royal Poinciana were generally excluded from truck restrictions (with the exception of the residential streets between Seaview Avenue and Pendleton Avenue). This is due to the nature of the land uses in this area, with the majority of the Town's commercial operations occur in this area. Fewer single-family residential units are located in this part of town. Furthermore, the streets are generally wider in this area, accommodating larger trucks.

Based on the turning movement analysis, restrictions should be placed on larger trucks. Delivery trucks, such as those operated by postal and package delivery services, have been shown to be able to maneuver residential streets without encroaching on private property. Larger box trucks (two-axle) are also generally able to maneuver most residential streets. Truck-trailer combinations, however, of any size, have been shown to not be able to maneuver the residential streets, and should be restricted. Also, trucks longer than 30 feet should be restricted. It should be noted that although combination vehicles can make some movements (especially left-turns) on some streets, they are not generally able to make right-turns without impacting private property. Therefore, a restriction should be placed on all combination vehicles.



LEGEND

 PROHIBITION BOUNDARY

FIGURE 15
PALM BEACH TRUCK PROHIBITION
 KH #044063244
TRUCK RESTRICTION BOUNDARIES

Permitting of Exceptions

In certain cases, there may be a need for restricted vehicles to utilize the restricted streets. An example of this would be the need for a construction crane to access a private residence on a residential street. Another example could be a small combination truck that is needed to access a commercial property to deliver items that are too large for smaller delivery trucks. The Town should establish a permitting process to allow for special circumstances. As part of the process, the applicant should provide:

- Explanation/Narrative of the request
- Explanation of why smaller trucks cannot be used. The applicant must demonstrate that smaller, more frequent trucks cannot be used due to the nature of the delivery or equipment, or that more frequent trips will negatively impact the neighborhood.
- A routing plan that demonstrates that the truck movements will not impact private property.
- A plan for restoration of private property in case of damage.

The Town could then issue a permit listing types and numbers of vehicles allowed, allowable times and days of operations, and expiration (if any). The applicant will be required to pay for staff burden costs, any citations for operating outside of the conditions of the permit and restoration of private property.

Codification

Based on a review of other municipalities in Florida, the truck restrictions should be placed in the Town's Code of Ordinances by means of Resolution. The Code should include the following elements:

- Definition of the restriction, including types of trucks (defined by length) that are restricted.
- A map of the restricted area.
- Any exclusions to the restriction; possible exclusions to the restriction include emergency vehicles and municipal services vehicles.
- Mechanism for citation
- Permitting process for exceptions

The Code update will be subject to the Town's process for amending the Code of Ordinances.

Education

The Town should develop an educational campaign to educate stakeholders, including residents, business, and trucking companies, of proposed restrictions. The goal should be to reach the widest range of potential drivers. It should be noted that the input from stakeholders is imperative to determining if restrictions should be enacted, and what scope the ultimate restrictions should encompass.

The Town should publicly notice proposed restrictions in visible locations to drivers throughout Town prior to implementation. Although it is recognized that not every truck driver entering the Town will know in advance of new restrictions, every effort should be made to educate the highest number of drivers as possible. Nonetheless, a grace period between adoption of a Code and initial citations should be considered.

CONCLUSION

The Town of Palm Beach currently allows unrestricted movement of all legal vehicles on all streets within the Town. However, larger vehicles have been observed to damage private property when they cannot adequately maneuver narrow streets and can cause congestion and unsafe conditions when they have to make multi-point turns at Town intersections. To mitigate the damage to private property, and to minimize congestion due to the maneuvering of larger vehicles, the Town is considering a restriction on certain streets of larger vehicles. The goal of any restriction is to change the behaviors to force deliveries with smaller vehicles. Although any restriction will not completely eliminate property damage and congestion, the goal of implementing the restrictions is to substantially reduce the frequency of occurrences.

This study analyzed truck volumes, circulation patterns, and their ability to maneuver intersections without impacting private property. Furthermore, a review of other municipalities throughout Florida which have implemented truck routing Ordinances was performed. Based on this analysis, it is recommended to restrict movement of larger trucks on certain streets, as defined throughout this study. Codification, education, and enforcement are also discussed. To allow for unique circumstances where large trucks must enter the recommended restricted area, a permit process should be implemented to identify the types of trucks, routing, and process for assessing damages to private property should it occur.