## **Bowman**

## Memorandum

To: Brevard County

Planning & Development Department

From: Daniela S. Jurado, PE | Bowman

Date: 6/10/2025

Re: Traffic Statement

Banyan Cove Development Houston Ln, Merrit Island, Florida

Bowman has been retained by DR Horton Inc to provide a Traffic Statement for the Banyan Cove, a 22-Single family Residential development with attached units proposed along Houston Lane in Merrit Island, Florida. Access to the residential units is provided via individual driveways. The Site Plan is presented in **Attachment M-1**.

Section 62-2802 of Brevard County's Code Land Development Code requires 5 feet separation between the single-family residential unit driveways and the property line. Brevard County has expressed concerns regarding the proposed driveway separation of the individual units and its influence in the sight visibility.

Similar concerns have been posed regarding the vehicles parked on the driveways backing into the public road.

This memorandum intends to analyze the safety implications of the reduction on the separation of the driveways and of vehicles backing into the public roadway.

A review of the surrounding area showed multifamily residential units with similar parking characteristics north of the development along Lincoln Ave and Roosevelt Ave. Although the residential units are consolidated in a single lot, the spaces are proposed in arrays of four (4) parking spaces, which in turn provide less visibility for vehicles backing into the public roadway.

Given this, we reviewed the most recent 5 years of available crashes data (January 2020 to December 2024) from the Signal Four database for the segments of Lincoln Ave and Roosevelt Ave to assess if the visibility of the driveways is expected to cause any safety concerns.

The review of the crash data shows two crashes in the 5-year period, the review showed low severity with only property damage crashes, additionally none of the crashes were related to vehicles entering or exiting driveways. The crash data is presented in **Attachment M-2**.

We also calculated the anticipated site trip generation of the residential units based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual* 11<sup>th</sup> Edition. The results indicate that each single-family Residential unit (attached) (LU 215) is expected to generate a on average 7 daily trips (4 inbound, 3 outbound), and 1 peak hour trip. ITE excerpts are presented in **Attachment M-3**.

The review of the area shows Houston Lane is a local County-maintained road, with a 15-mph posted speed limit and no direct connection to major roads, while Roosevelt Avenue and Lincoln Avenue are a



local County-maintained roads, with a 20-mph posted speed limits and no direct connection to major roads.

Based on the low trip generation of the proposed residential units, the low volumes anticipated at a local road, the significantly low speeds along Houston Lane, and the absence of crash history in comparable nearby developments, it is my professional opinion that the proposed driveway configuration is not expected to result in adverse safety impacts along Houston Lane.

Should you have any questions or comments regarding this methodology, please do not hesitate to call me at <a href="mailto:djurado@bowman.com">djurado@bowman.com</a>.

Sincerely,

Daniela S. Jurado, PE

Team Leader-Traffic Engineering | Bowman

#### **Attachments**

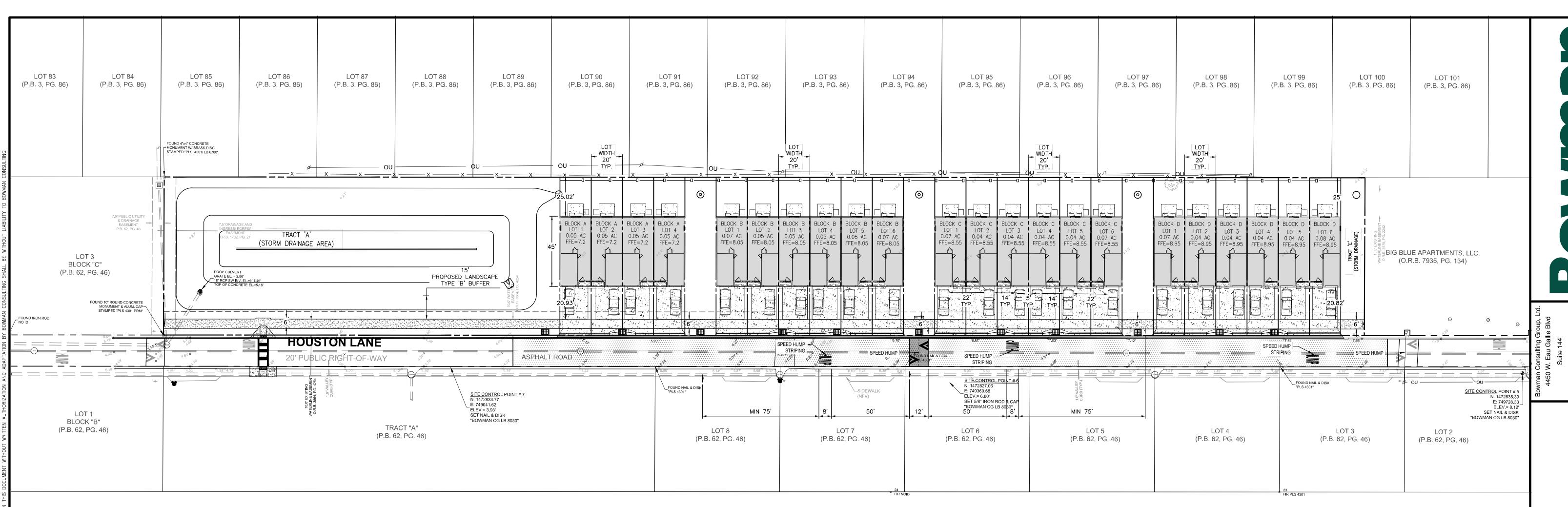
Attachment M-1. Site Plan

Attachment M-2. Crash Data

Attachment M-3. ITE Trip Generation Excerpts



### **ATTACHMENT M-1**



## SITE DATA

LOCAL JURISDICTION:

LAND USE CLASSIFICATION:

FUTURE LAND USE CLASSIFICATION:

PROPERTY PARCEL ID:

ZONING CLASSIFICATION:

OVERLAY DISTRICT:

FLOOD ZONE CLASSIFICATION:

WITHIN AN AREA ZONED "X"

FEMA PANEL NUMBER 12009C0340H DATED 1/29/2021

MINIMUM LOT AREA: –
WIDTH: –
DEPTH: –

DIRECTION	PROPERTY USE AND ZON	ING	FUTURE LAND USE		
EAST	HIGH DENSITY MULTI FAMILY RESIDENTIAL	RU-2-30	RESIDENTIAL (15 UNITS/AC.)	RES15	
SOUTH	SINGLE FAMILY RESIDENTIAL	RU-1-7	RESIDENTIAL (10 UNITS/AC.)	RES10	
WEST	SINGLE FAMILY RESIDENTIAL	RU-1-7	RESIDENTIAL (15 UNITS/AC.)	RES15	
NORTH	HIGH DENSITY MULTI FAMILY RESIDENTIAL	RU-2-30	RESIDENTIAL (15 UNITS/AC.)	RES15	

### PROPOSED PARKING DATA

APARTMENT COMPLEXES

CRITERIA FOR NUMBER OF STALLS: 1.75 SPACES/UNIT

TOTAL REQUIRED PARKING: 22 X 1.75 = 39 SPACES

PROVIDED PARKING SPACES:

STANDARD SPACES 9'x20' (22 UNITS X 2 SPACES) 4

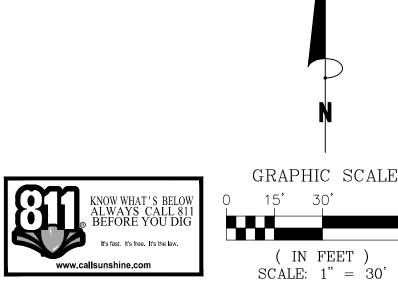
STANDARD SPACES 9'x20' (22 UNITS X 2 SPACES) 44 SPACES
PROVIDED PARKING SPACES 44 SPACES

## TRAFFIC NOTES

Land Use	Land Use	Intoncity	Haite	Time Period	A D. (1)	Deve	lopment T	rips <sup>(1)</sup>
	Code <sup>(1)</sup>	Intensity	Units	Time Period	Average Rate <sup>(1)</sup>	ln	Out	Total
Proposed:			D Il'	Weekday	7.20	79	79	158
Single-Family Attached	215	22	Dwelling 22 AM (2) 0.48 Units	0.48	3	8	11	
Housing				PM <sup>(2)</sup>	0.57	7	6	13

## PEARSON PRODUCT





DATE DESCRIPTION

EC EC KS
DESIGN DRAWN CHKD

SCALE 1" = 30'

JOB No. 011557-01-002

DATE 06/10/2025

011557-01-D-CP-002-05-C1.0-SITE.DW

LICENSE NO. 88744 06/10/2025

PLAN STATUS

32953

CAD file name: V:\011557 - DR Horton Inc\011557-01-002 (ENG) - Residential Townhomes - MI, FL\Engineering\Exhibits\Driveway Waivers\011557-01-D-CP-002-05-C1.0-SITE.dwg 6/10/2025



### **ATTACHMENT M-2**

## **EVENT ANALYSIS**



Disclaimer Data Dictionary

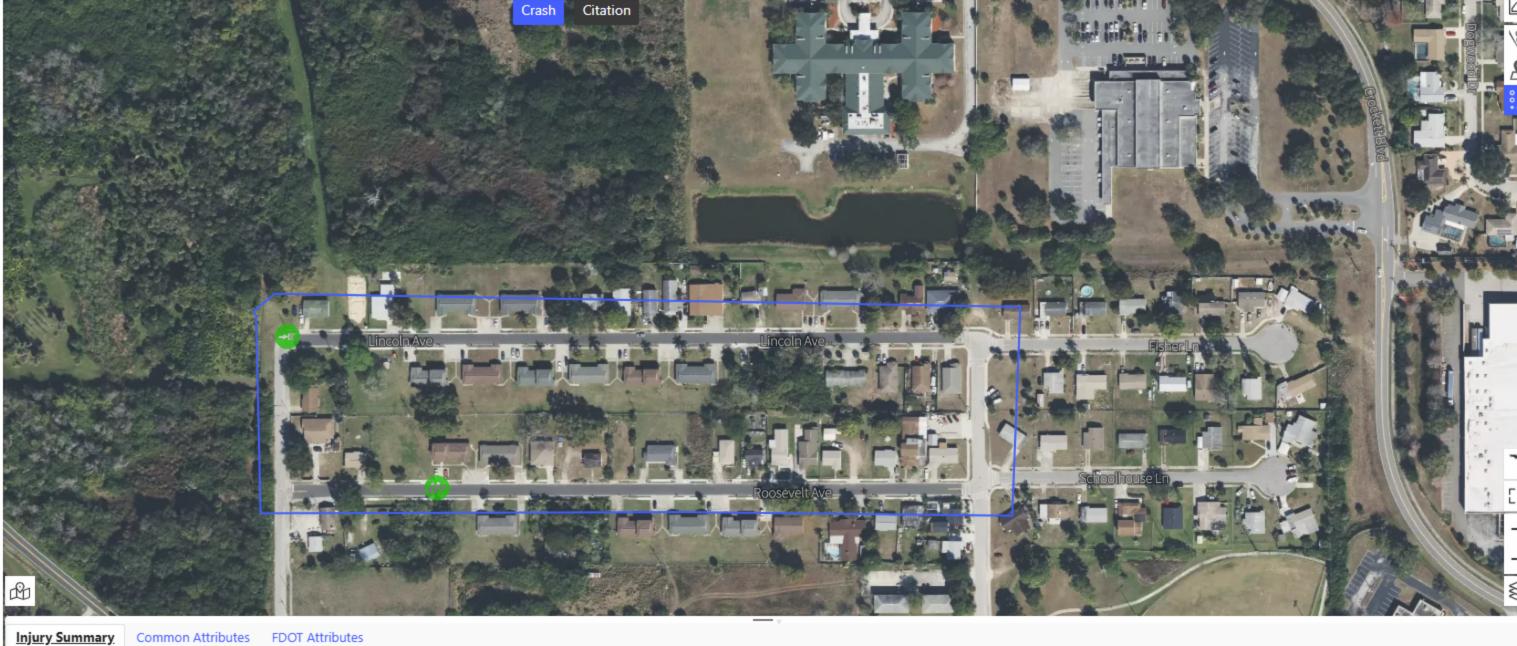
Crash data available from January 1, 2014 to March 28, 2025 Learn Why. Last data update completed May 29, 2025 at 3:44 AM.

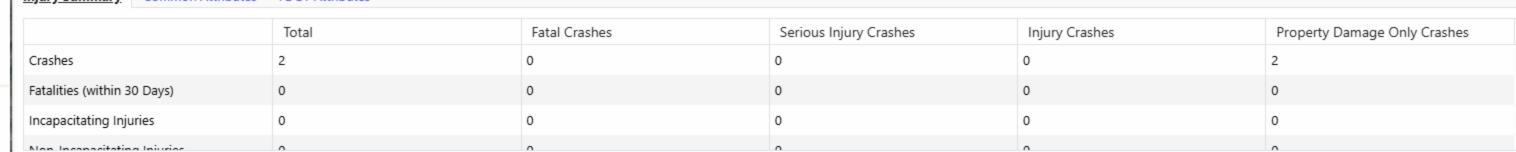
Search Crashes





Crashes in JJ From 1/1/2020 - 12/31/2024





#### FLORIDA TRAFFIC CRASH REPORT

LONG FORM X SHORT FORM UPDATE

## HIGHWAY SAFETY & MOTOR VEHICLES, TRAFFIC CRASH RECORDS NEIL KIRKMAN BUILDING, TALLAHASSEE, FL 32399-0537

(Electronic Version)

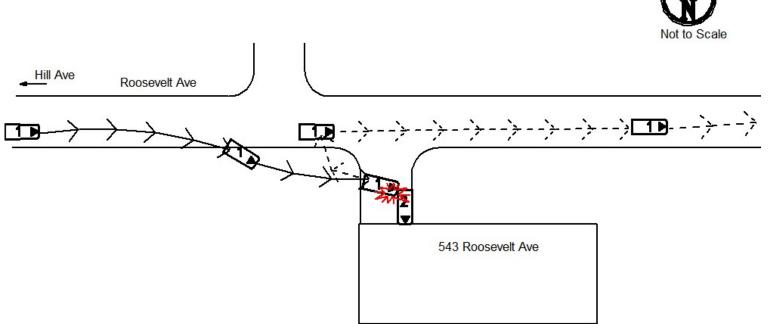
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First Harmful Ev	ent Type	l .	First Ha	ırmful Eve	ent 14	Fi	irst Harr	mful Ever			Wi	thin Interd		Fire				on to Junction
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Contributing Circ		s: Environ	ment		Co	ontributing Circu	mstance	es: Enviro	onmen	t		Contr	ibuting	Circum	stances	: Envi	ironment	
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HSMV 90010 S Page 1 of 3

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Name of	Vehicle C	wner (Cl	heck Box	f Business	s)	Curre	ent Ac	ddress (N	Numbei	and Street)				City and	d State			Zip Code
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Trailer Two:	License N	lumber	State	Reg	. Expire	s Permanent F	Reg.	VIN					Year		Make		Length	Axles
Vehicle Traveling	g: Direc	tion	On Stree	, Road, Hi	ghway	F	ROOS	EVELT	AVE					At Est.	Speed	Pos	ted Speed 25	Total Lanes
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4738 Vehicle onto the	D Number Rank Name Troop / Post Officer Agency Phone Number Date Created 1738 TPR J. DH. PROVENCHER D FLORIDA HIGHWAY PATROL 321-690-3900 Sep 10, 2021 174 / Seption 1 (V01) was eastbound on Roosevelt Ave east of Hill Ave. Vehicle 2 (V02) was parked in the driveway of 543 Roosevelt Ave facing south. V01 ran off the roadway onto the right shoulder and struck the rear passenger side of V02. Prior to my arrival, V01 had left the scene and V02 had not moved from the area of collision.																	
			•	wnen mo	re intori	mation is made a	availa	adie.										
	TING OF																	
ID/Badg 47	e # 738	Rank and	d Name		TPR .	J. DH. PROVENC	HER					Department FLORIDA	HIGH	NAY PA	ATROL		Type of Depa	artment <b>IP</b>







#### FLORIDA TRAFFIC CRASH REPORT

LONG FORM X SHORT FORM

#### **HIGHWAY SAFETY & MOTOR VEHICLES,** TRAFFIC CRASH RECORDS NEIL KIRKMAN BUILDING, TALLAHASSEE, FL 32399-0537

(Electronic Version) Time of Crash Date of Crash Date of Report Invest. Agency Report Number HSMV Crash Report Number 12/Oct/2024 05:23 AM 12/Oct/2024 05:23 AM 12/Oct/2024 06:47 AM FHP24ON0514777 **CRASH IDENTIFIERS** County of Crash County Code Place or City of Crash Within City Limits Time Dispatched City Code Time Reported 12/Oct/2024 05:43 AM 12/Oct/2024 06:28 AM **BREVARD** MERRITT ISLAND 45 No Time on Scene Time Cleared Scene Reason (if Investigation NOT Completed) Notified By Completed 12/Oct/2024 12/Oct/2024 07:45 Ýes Law Enforcement 06:42 AM ROADWAY INFORMATION Crash Occured On Street, Road, Highway At Lattitude At Street Address# and Longitude **590 LINCOLN AVENUE** 28.386590000000002 -80.712689999999995 At Feet Or Miles Direction From Intersection With Street, Road, Highway Or From Milepost # North **HILL AVENUE** Road System Identifier Type Of Shoulder Type Of Intersection 4 County 1 Not at Intersection 3 Curb **CRASH INFORMATION (Check if Pictures Taken)** light Condition Weather Condition Roadway Surface Condition School Bus Related Manner Of Collision 4 Dark-Lighted 1 Clear 1 Dry 77 Other, Explain in Narrative First Harmful Event Type Within Interchange First Harmful Event First Harmful Event Location First Harmful Event Relation to Junction No 2 Off Roadway 2 Intersection Contributing Circumstances: Road Contributing Circumstances: Road Contributing Circumstances: Road 1 None Contributing Circumstances: Environment Contributing Circumstances: Environment Contributing Circumstances: Environment 1 None Type Of Work Zone Work Zone Related Crash In Work Zone Workers In Work Zone Law Enforcement In Work Zone 1 No VEHICLE (Check if Commercial) Motor Vehicle Type Vehicle Hit and Run Veh License Number State Reg. Expires Permanent Reg. 1 Vehicle in Transport 1 30/Jun/2025 1N4BL4DV4RN313586 2 Yes LLIF72 FL Vehicle Removed By Year Make Model Color Extent of Damage Est. Damage Towed Due To Damage NISS **ALTIMA** 4D GRY Disabling 15000 **DOUG'S TOWING** Rotation 2024 Insurance Company Insurance Policy Number Zip Code Name of Vehicle Owner (Check Box If Business) Current Address (Number and Street) City and State Χ LLC EAN HOLDINGS 14002 E 21ST ST STE 1500 **TÚLSA OK** 74134-1424 Axles Trailer License Number State Reg. Expires Permanent Reg. Year Make Length One: Trailer License Number State Make Reg. Expires Permanent Reg. Year Length Axles Two: Vehicle On Street, Road, Highway At Est. Speed Direction Posted Speed Total Lanes Traveling: North HALL AVENUE 45 25 2 CMV Configuration Area of Initial Impact Most Damaged Area Cargo Body Type 3 4 5 6 3 4 5 6 18. Undercarriage 18. Undercarriage Comm GVWR/GCWR Trailer Type (trailer one) Trailer Type (trailer two) 19. Overturn 19. Overturn 17 17 8 16 8 20. Windshield 20. Windshield Haz. Mat. Release Haz Mat. Placard Number Class 21. Trailer Motor Carrier Name US DOT Number Motor Carrier Address City and State Zip Code Phone Number Vehicle Defects (two) Comm/Non-Commercial Vehicle Body Type Vehicle Defects (one) Emergency Vehicle Use Speciual Function of MV 1 Passenger Car 1 No Special Function 1 None 1 No Roadway Grade Roadway Alignment Most Harmful Event Most Harmful Event Detail Vehicle Maneuver Action Trafficway 1 Straight Ahead 1 Two-Way, Not Divided 1 Level 24 Curb 1 Straight 3 Collision with Fixed Object Traffic Control Device For This Vehicle | First (1) Sequence of Events Second (2) Sequence of Events Third (3) Sequence of Events Fourth (4) Sequence of Events 38 Mailbox 1 No Controls 24 Curb 43 Ran Off Roadway, Left NON VEHICLE PROPERTY DAMAGE Owner's Name City & State Zip Code Address

ILENE RANDOLPH

**590 LINCOLN AVE** 

**MERRITT ISLAND FL** 

32953

**NARRATIVE** 

HSMV 90010 S Page 1 of 3 Date of Crash 12/Oct/2024 05:23 AM Date of Report 12/Oct/2024 05:23 AM Invest. Agency Report Number FHP240N0514777 HSMV Crash Report Number 26372592

ID Number Rank Name 3496 TPR R. M. WOLFF Troop / Post Officer Agency Phone Number Date Created D FLORIDA HIGHWAY PATROL 321-690-3900 Oct 12, 2024

Vehicle One (V01) was traveling north on Hill Avenue approaching a 90 degree right turn onto Lincoln Avenue. Driver One (D01) did not appear to slow V01 down when approaching the 90 degree turn. V01's left side tires struck the curb. V01 went over the curb, and on the side walk. V01's front end ran over the mailbox at 590 Lincoln Avenue where it came to final rest.

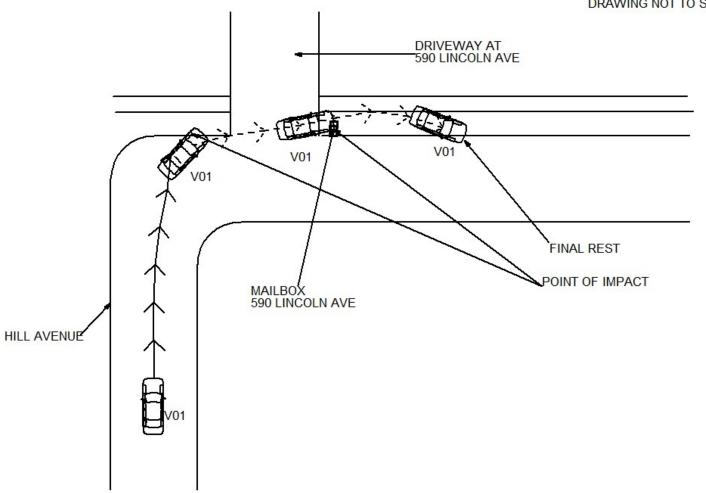
The driver and a passenger were last seen running from the scene.

#### REPORTING OFFICER

ID/Badge #	Rank and Name	Department	Type of Department
3496	TPR R. M. WOLFF	FHPD	FHP









### **ATTACHMENT M-3**

## Land Use: 215 Single-Family Attached Housing

### **Description**

Single-family attached housing includes any single-family housing unit that shares a wall with an adjoining dwelling unit, whether the walls are for living space, a vehicle garage, or storage space.

#### **Additional Data**

The database for this land use includes duplexes (defined as a single structure with two distinct dwelling units, typically joined side-by-side and each with at least one outside entrance) and townhouses/rowhouses (defined as a single structure with three or more distinct dwelling units, joined side-by-side in a row and each with an outside entrance).

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/tripand-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, Georgia, Illinois, Maryland, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Dakota, Utah, Virginia, and Wisconsin.

#### **Source Numbers**

168, 204, 211, 237, 305, 306, 319, 321, 357, 390, 418, 525, 571, 583, 638, 735, 868, 869, 870, 896, 912, 959, 1009, 1046, 1056, 1058, 1077



Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

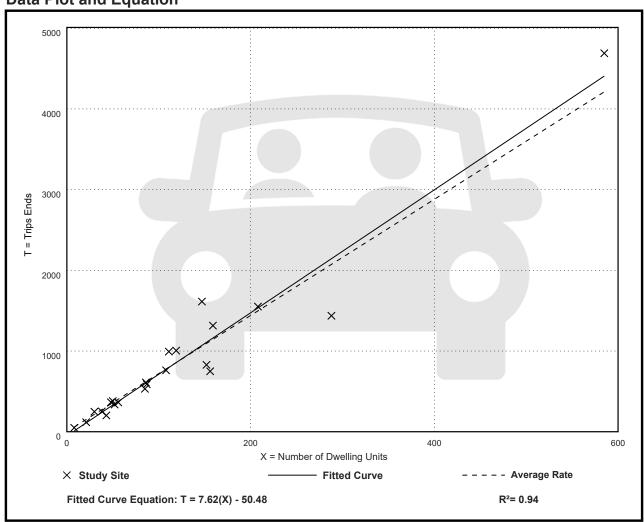
Setting/Location: General Urban/Suburban

Number of Studies: 22 Avg. Num. of Dwelling Units: 120

Directional Distribution: 50% entering, 50% exiting

### **Vehicle Trip Generation per Dwelling Unit**

Average Rate	Range of Rates	Standard Deviation
7.20	4.70 - 10.97	1.61





Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

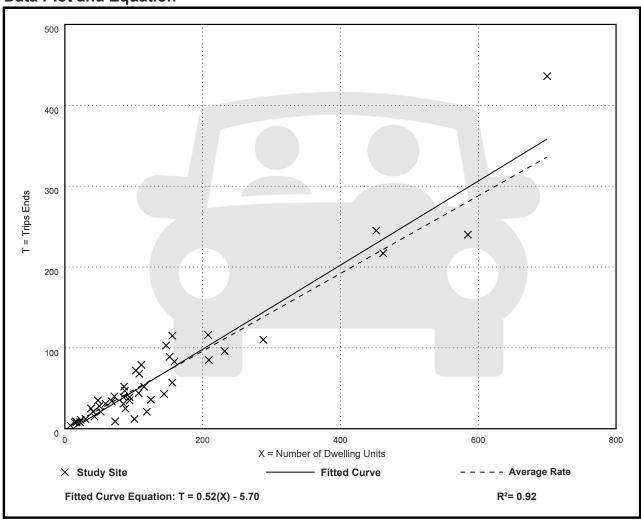
Setting/Location: General Urban/Suburban

Number of Studies: 46 Avg. Num. of Dwelling Units: 135

Directional Distribution: 31% entering, 69% exiting

### **Vehicle Trip Generation per Dwelling Unit**

Average Rate	Range of Rates	Standard Deviation
0.48	0.12 - 0.74	0.14





Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

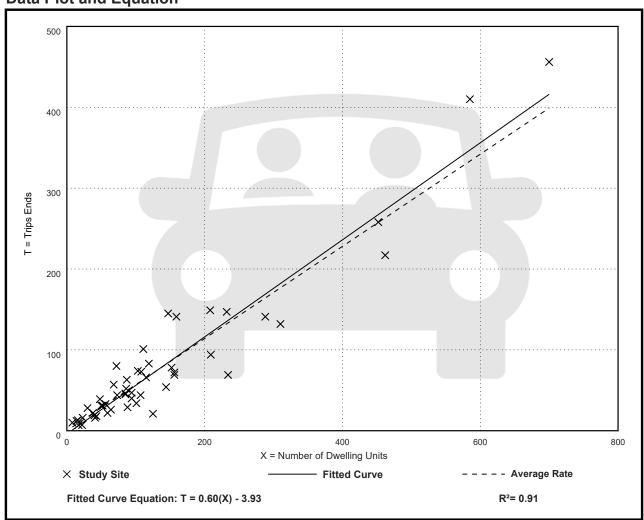
Setting/Location: General Urban/Suburban

Number of Studies: 51 Avg. Num. of Dwelling Units: 136

Directional Distribution: 57% entering, 43% exiting

### Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.17 - 1.25	0.18





Vehicle Trip Ends vs: Dwelling Units On a: Weekday, **AM Peak Hour of Generator** 

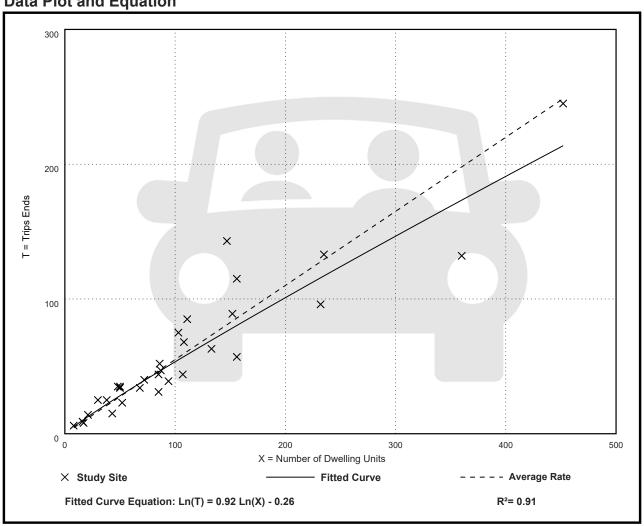
Setting/Location: General Urban/Suburban

Number of Studies: 31 Avg. Num. of Dwelling Units: 110

Directional Distribution: 25% entering, 75% exiting

### **Vehicle Trip Generation per Dwelling Unit**

Average Rate	Range of Rates	Standard Deviation
0.55	0.35 - 0.97	0.16





Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
PM Peak Hour of Generator

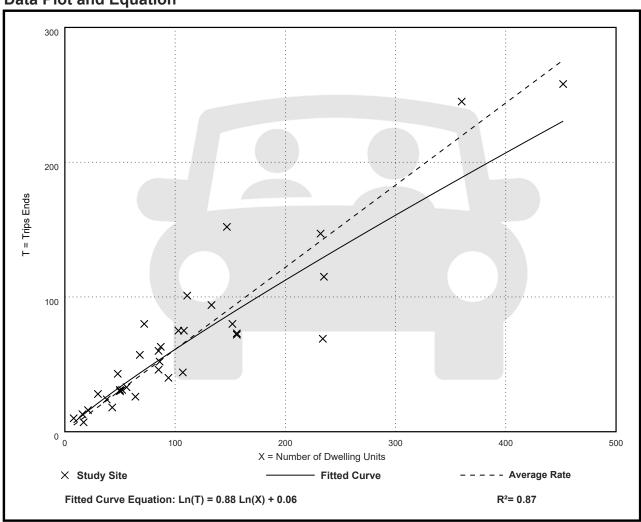
Setting/Location: General Urban/Suburban

Number of Studies: 34 Avg. Num. of Dwelling Units: 110

Directional Distribution: 62% entering, 38% exiting

### **Vehicle Trip Generation per Dwelling Unit**

Average Rate	Range of Rates	Standard Deviation
0.61	0.29 - 1.25	0.18





Vehicle Trip Ends vs: Dwelling Units On a: Saturday

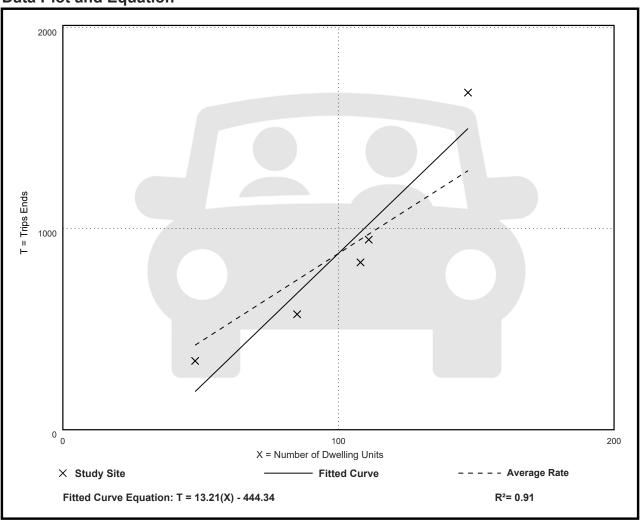
Setting/Location: General Urban/Suburban

Number of Studies: 5 Avg. Num. of Dwelling Units: 100

Directional Distribution: 50% entering, 50% exiting

### **Vehicle Trip Generation per Dwelling Unit**

Average Rate	Range of Rates	Standard Deviation
8.76	6.75 - 11.40	2.02





Vehicle Trip Ends vs: Dwelling Units

On a: Saturday, Peak Hour of Generator

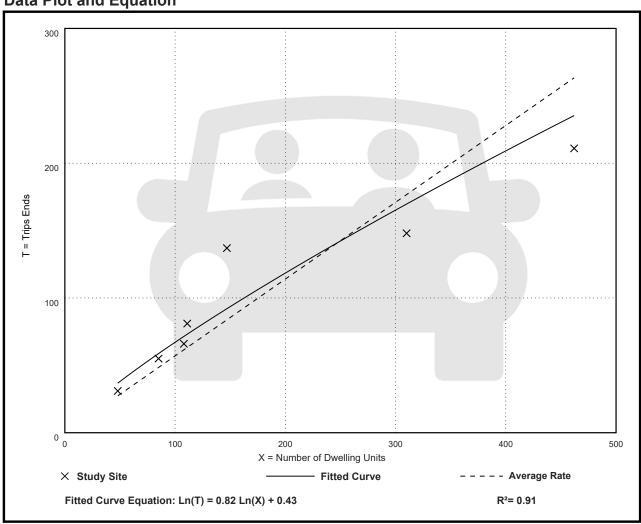
Setting/Location: General Urban/Suburban

Number of Studies: 7 Avg. Num. of Dwelling Units: 182

Directional Distribution: 48% entering, 52% exiting

### **Vehicle Trip Generation per Dwelling Unit**

Average Rate	Range of Rates	Standard Deviation
0.57	0.46 - 0.93	0.17





Vehicle Trip Ends vs: Dwelling Units On a: Sunday

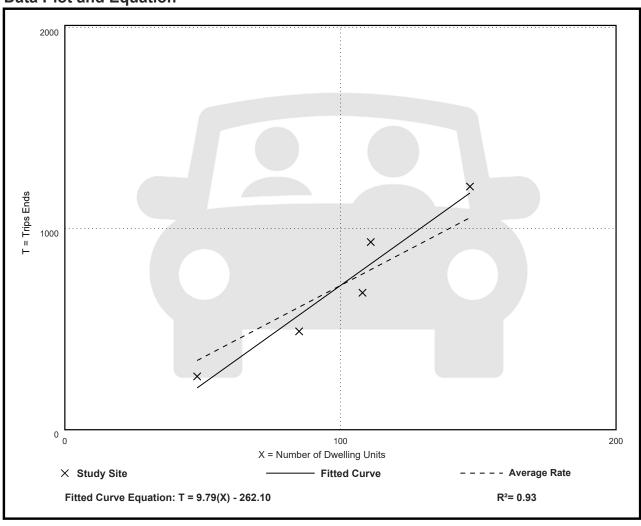
Setting/Location: General Urban/Suburban

Number of Studies: 5 Avg. Num. of Dwelling Units: 100

Directional Distribution: 50% entering, 50% exiting

### **Vehicle Trip Generation per Dwelling Unit**

Average Rate	Range of Rates	Standard Deviation
7.17	5.52 - 8.41	1.34





Vehicle Trip Ends vs: Dwelling Units

On a: Sunday, Peak Hour of Generator

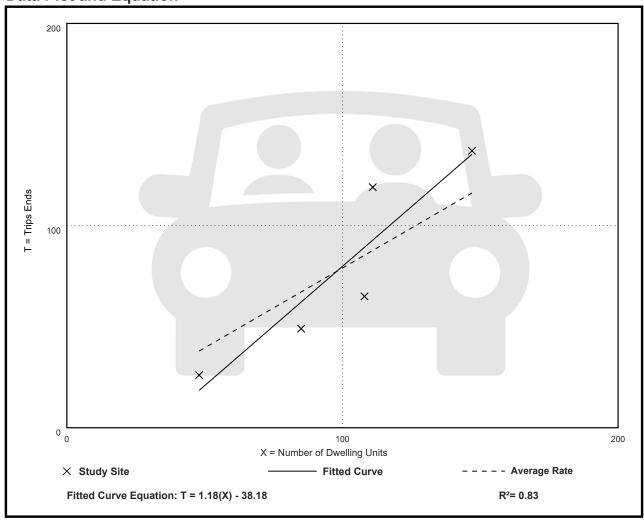
Setting/Location: General Urban/Suburban

Number of Studies: 5
Avg. Num. of Dwelling Units: 100

Directional Distribution: Not Available

### **Vehicle Trip Generation per Dwelling Unit**

Average Rate	Range of Rates	Standard Deviation
0.79	0.54 - 1.07	0.24





Vehicle Trip Ends vs: Residents On a: Weekday

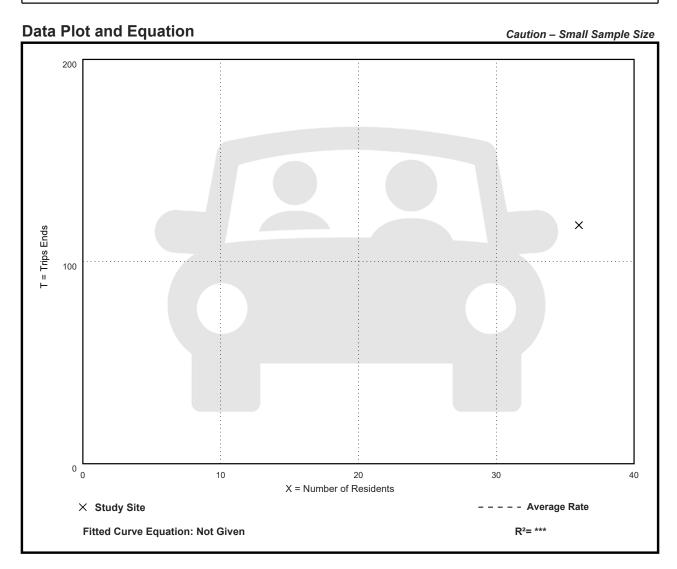
Setting/Location: General Urban/Suburban

Number of Studies: 1 Avg. Num. of Residents: 36

Directional Distribution: 50% entering, 50% exiting

### **Vehicle Trip Generation per Resident**

Average Rate	Range of Rates	Standard Deviation
3.28	3.28 - 3.28	***





Vehicle Trip Ends vs: Residents
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

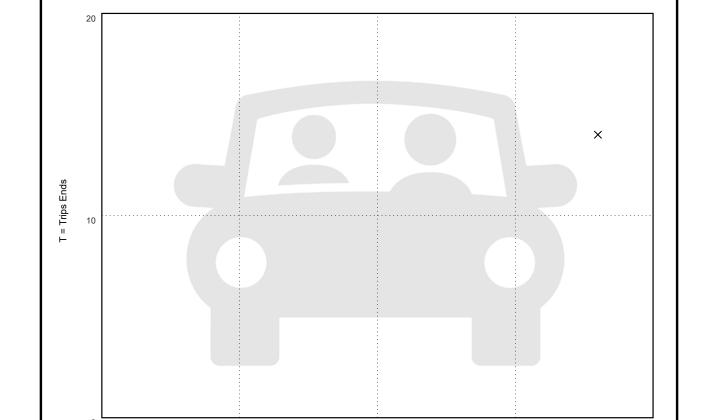
Number of Studies: 1 Avg. Num. of Residents: 36

Directional Distribution: Not Available

### **Vehicle Trip Generation per Resident**

**Data Plot and Equation** 

Average Rate	Range of Rates	Standard Deviation
0.39	0.39 - 0.39	***



X = Number of Residents



- Average Rate

R2= \*\*\*

Caution - Small Sample Size

**Fitted Curve Equation: Not Given** 

× Study Site

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Vehicle Trip Ends vs: Residents On a: Weekday, **PM Peak Hour of Generator** 

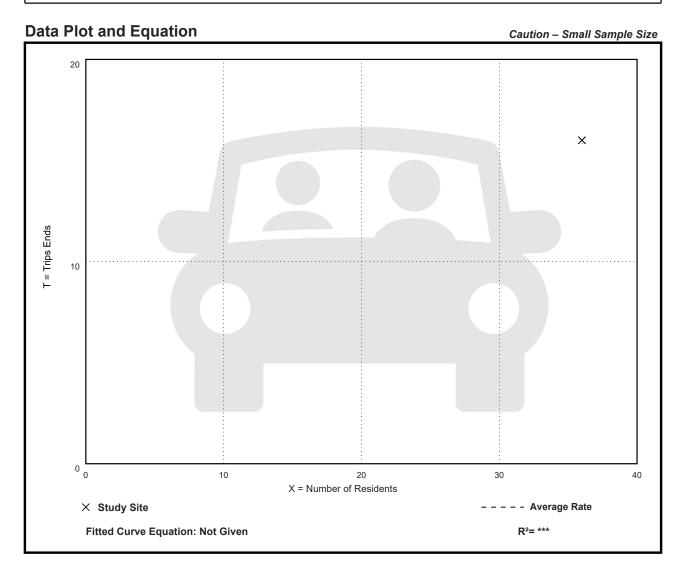
Setting/Location: General Urban/Suburban

Number of Studies: 1 Avg. Num. of Residents: 36

Directional Distribution: Not Available

### **Vehicle Trip Generation per Resident**

Average Rate	Range of Rates	Standard Deviation
0.44	0.44 - 0.44	***





Walk+Bike+Transit Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

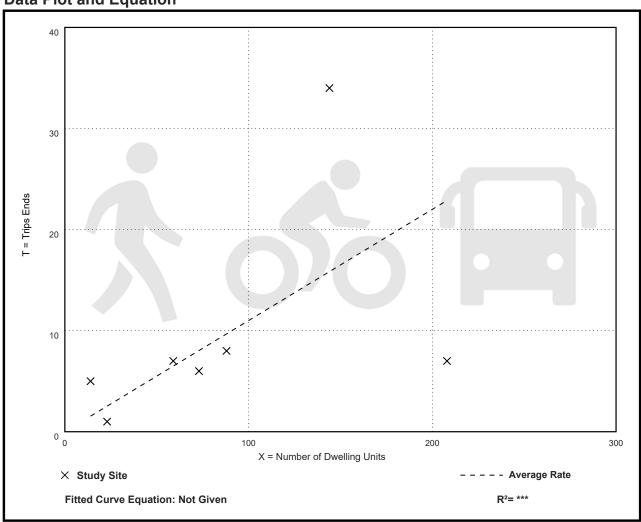
Setting/Location: General Urban/Suburban

Number of Studies: 7 Avg. Num. of Dwelling Units: 87

Directional Distribution: 75% entering, 25% exiting

### Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.11	0.03 - 0.36	0.09





Walk+Bike+Transit Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 7 Avg. Num. of Dwelling Units: 87

Directional Distribution: 38% entering, 62% exiting

### Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.18	0.08 - 0.31	0.11

